

## **Update Search**

Evidence tables updating the systematic reviews on  
cardio-metabolic health, colorectal health & oral health

## Introduction

The Carbohydrates and Health report by the Scientific Advisory Committee on Nutrition (SACN) is informed by three systematic reviews on cardio-metabolic, oral and colo-rectal health. In addition, an update search for these reviews was conducted to ensure the evidence did not become out of date. The search was performed using the search terms provided in the individual systematic reviews. Literature published between January 2010 (cardio-metabolic health), December 2010 (colo-rectal health review), February 2011 (oral health review) and June 2012 were included. The same inclusion and exclusion criteria detailed in the individual systematic reviews were used to identify relevant articles. The purpose of the update search was to highlight key pieces of additional research but it was not intended to be a systematic review.

Not all outcomes in the reviews were included in the later search and instead specific outcomes were prioritised according to health importance. They are as follows: cardiovascular disease, coronary events, stroke, total cholesterol, LDL-cholesterol, HDL-cholesterol, triacylglycerol, non-HDL, type 2 Diabetes Mellitus, glycaemia, impaired glucose tolerance, Hb1Ac, insulinaemia, insulin resistance, C-reactive protein, vascular function, dental caries, periodontal disease, intestinal transit time, faecal weight, faecal bacteria, faecal pH and short chain fatty acid content, constipation and colo-rectal cancer.

The characteristics and results of the studies identified in this update search are detailed in the tables of this document. The tables adhere to same format as used in the respective systematic reviews.

## Acronyms

CHD coronary heart disease

CRPC-reactive protein

CVD cardiovascular disease

FFQ food frequency questionnaire

FMD flow mediated dilation

GI glycaemic index

GL glycaemic load

RCT randomised controlled trial

T2DM type 2 Diabetes Mellitus

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# 1. Cardio-metabolic health update search - cardiovascular disease

**Table 1 - Characteristics of cohort studies on cardiovascular disease**

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Initial cohort size	Dietary assessment method	Outcome assessment method	Length of follow- up (years)	Losses to follow-up (%)
<b>Atherosclerosis Risk in Communities (ARIC) Study</b>	(Hardy <i>et al.</i> , 2010)	Middle-aged adults  Mean age: 54 (45-64)  % Male: 43  Country: USA  Ethnicity: Multi-Ethnic	Community cohort	15792	Diet was assessed using a 66-item FFQ (validated). The FFQ referred to diet over the previous year	Self reports, hospital surveillance and death certificates. Validated by medical records & family members	17	Not reported
<b>Diet, Cancer and Health</b>	(Jakobsen <i>et al.</i> , 2010)	Middle-aged adults  Median age: 56 (51-63)  % Male: 47  Country: Denmark  Ethnicity: Not reported	Sample from general population	57,053	Diet was assessed using a 192-item semi quantitative FFQ (validated against (2x 7d weighed diet records)	Danish registries and medical records	12	Not reported
<b>EPIC</b>	(Chuang <i>et al.</i> , 2012)	Adults free from cancer at baseline  Mean age 50.8 ± 2.4  % Male: 29  Country: 10 countries across Europe  Ethnicity: Not reported	Recruited from 23 centres in 10 countries	518,408	Diet was assessed using: semi-quantitative FFQ Demark, Maples, Norway, Umeå, UK  Modified diet history method combining a quantitative FFQ and 7d food record in Malmö  Quantitative questionnaires in all other centres.	Death indexes, record linkages with cancer registries, and boards of health  Active follow up by mail or telephone with participants, municipal registries, regional health departments, physicians and hospitals used in Germany, Greece and France.	12.7	12.7%

continued: Table 1 - Characteristics of cohort studies on cardiovascular disease

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Initial cohort size	Dietary assessment method	Outcome assessment method	Length of follow- up (years)	Losses to follow-up (%)
<b>EPICOR</b>	(Sieri <i>et al.</i> , 2010)	Men and women from 5 centres  Age: men 35-64, 35-74 women  % Male: 32  Country: Italy  Ethnicity: Not reported	Recruited from Italian EPIC cohort	47, 749	Semi quantitative FFQ (validated)	Mortality and hospital discharge databases, medical records, death certificates	7.9	0.41% (calculated from analytical cohort)

continued: Table 1 - Characteristics of cohort studies on cardiovascular disease

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Initial cohort size	Dietary assessment method	Outcome assessment method	Length of follow- up (years)	Losses to follow-up (%)
EPIC-MORGEN	(Burger <i>et al.</i> , 2011)	Men and women from general population  Age: 20-65  % Male: 45.2  Country: Holland  Ethnicity: not reported	Random sample of Dutch population from  Amsterdam, Doetinchem and Maastricht	22, 654	Diet was assessed using a 79 item FFQ (validated against 12 24-h recalls)	Register of hospital discharge diagnoses for morbidity and municipal administration registries for deaths.	Max 15	
	(de Koning <i>et al.</i> , 2012)	Male health professionals free of CHD at baseline  Mean age: 40-75  %Male:100  Country: USA  Ethnicity: Primarily white	Occupational cohort	51529	Diet was assessed using a FFQ (validated against two 7 day records for cola)	National death index or confirmed self reports for incident events via medical records, autopsy reports and death certificates	22	16.8
	(Bernstein <i>et al.</i> , 2012)	Male health professionals free of CHD at baseline  Mean age: 40-75  % Male: 100  Country: US  Ethnicity: primarily white	Occupational cohort	51, 529	Diet was assessed from a validated 131-item FFQ which was administered every 4 years.	Self reports and medical records for incident events. Relative reports or the National death index confirmed by medical records for deaths	22	15.8

continued: Table 1 - Characteristics of cohort studies on cardiovascular disease

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Initial cohort size	Dietary assessment method	Outcome assessment method	Length of follow- up (years)	Losses to follow-up (%)
<b>Japan Collaborative Cohort Study</b>	(Nagura <i>et al.</i> , 2009)	Sample from the general population  Mean age: 40-79  %Male: 41.9  Country: Japan  Ethnicity: Japanese	Community cohort	110792	Diet was assessed using a validated 33-item FFQ was used to assess diet over the past year.	Death certificates	14.1	4.1
	(Eshak <i>et al.</i> , 2010)	Sample from the general population  Mean age: 40-79  %Male: 41.9  Country: Japan  Ethnicity: Japanese	Community cohort	110792	Diet was assessed using a validated 33-item FFQ was used to assess diet over the past year.	Death certificates	14.1	4.2
<b>Japan Public Health Centre based study</b>	(Kokubo <i>et al.</i> , 2011)	Men and women from general population  Age: 40-69  % Male: 46.9  Country: Japan  Ethnicity: Japanese	Recruited through public Health centres	100938	Diet was assessed using a validated 138-item FFQ	Medical records and death certificates	10.4	
<b>Jiangsu Nutrition Study (JIN) Not CVD</b>	(Shi <i>et al.</i> , 2012)	Men and women from the general population  Mean age 47 ± 14.5  % Male: 45.9  Country: China  Ethnicity: Chinese	Recruited from Chinese Nutrition and Health Survey	2849	Diet over the previous year was assessed using a validated 33-item FFQ		5	59%

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continued: Table 1 - Characteristics of cohort studies on cardiovascular disease

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Initial cohort size	Dietary assessment method	Outcome assessment method	Length of follow- up (years)	Losses to follow-up (%)
<b>Pool of four Danish Cohorts</b>	(Grau <i>et al.</i> , 2011)	Men and women from general population  Age: 30-70  % Male: 49.9  Country: Denmark  Ethnicity: Not reported	Recruited from four cohorts of individuals born in 1914, 1936, MONICA 1 and MONICA 3	3959	7 day diet records (1914 cohort, 1936 cohort, MONICA 1 in 1982 and MONICA 3) or diet history interviews (MONICA 1 in 1987 and 1993)	National register of Cause of Death and National Register of patients	6-25	
<b>Malmö Diet and cancer</b>	(Wallstrom <i>et al.</i> , 2012)	Men and women from the general population  Mean age: 58.9 ± 7 men, 57.2 ± 7.9  % Male: 39.4  Country: Sweden  Ethnicity: Not reported	Subjects identified through Swedish national population registries	28,098	Diet was assessed using a diet history method consisting of (i) 7-day menu book, (ii) 168- item semi quantitative FFQ and (iii) 1 hour interview	National Patient Register and National Cause of Death Register	13.6 ± 2.1 for women  13.2 ± 2.5 for men	0.7%

continued: Table 1 - Characteristics of cohort studies on cardiovascular disease

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Initial cohort size	Dietary assessment method	Outcome assessment method	Length of follow- up (years)	Losses to follow-up (%)
<b>National institute of Health- AARP Diet and Health Study</b>	(Park <i>et al.</i> , 2011)	Men and women from the general population  Age: 51-70  % Male: 56.4 (calculated from analytic cohort)  Country: US  Ethnicity: Primarily white	Recruited across 6 US states and 2 metropolitan areas	567, 169	Diet was assessed using validated 124-item FFQ to estimate intakes over the previous 12 months	Social Security Administration Death Master file and National Death Index Plus and self- reports	9	Not reported
	(Bernstein <i>et al.</i> , 2012)	Health professionals free of CHD at baseline  Age: 30-55  %Male: 0  Country: USA  Ethnicity: Primarily white	Occupational cohort	121,700	Validated 61 and 116- item FFQs were used seven times to assess diet.	Confirmed self reports for incidence and relatives/ postal service/ National death index for deaths. Deaths also verified by autopsy, hospital records and death certificates	28	3%
	(Levitan <i>et al.</i> , 2010a)	Women from general population  % Male: 0  Country: Sweden  Ethnicity: Not reported	Population cohort	36, 234	Diet was assessed using a validated FFQ to estimate intakes over the past year.	Swedish inpatient and cause of death registers	9	Not reported
	(Levitan <i>et al.</i> , 2010b)	Women from general population  % Male: 0  Country: Sweden  Ethnicity: Not reported	Population cohort	36,019	Diet was assessed using a validated 96-item FFQ to estimate intakes over the past year.	Swedish inpatient and cause of death registers	9	Not reported

continued: Table 1 - Characteristics of cohort studies on cardiovascular disease

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Initial cohort size	Dietary assessment method	Outcome assessment method	Length of follow- up (years)	Losses to follow-up (%)
<b>Takayama study</b>	(Oba <i>et al.</i> , 2010)	Men and women from general population  % Male: 45.7  Country: Japan  Ethnicity: Japanese	Population cohort	31,552	Diet was assessed using validated semi quantitative 169-item FFQ	Death certificates- cause of death verified from data from the office of National Vital Statistics.	7	Not reported
<b>The Women's Lifestyle and Health Cohort Study</b>	(Lagiou <i>et al.</i> , 2007)	Swedish women residing in the Uppsala Health Care Region  Mean age: 30-49  %Male: 0  Country: Sweden  Ethnicity: previously reported as white	Population- based cohort	49,261	Diet was assessed once with a validated 80-item FFQ for intakes over the past 6 months.	National register data	15.7	Not reported
<b>Västerbotten Intervention Programme</b>	(Nilsson <i>et al.</i> , 2012)	Men and women residing in the county of Västerbotten  Age: 40-60  % Male: 48.6%  Country: Swedish  Ethnicity: Not reported	Population- based cohort	86,714	Diet was assessed either by validated 84-item FFQ or 65- item FFQ	National cause of death registry	10 (median)/19 maximum	Not reported

**Table 2 - Carbohydrate intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Nilsson et al., 2012)  Västerbotten Intervention Program (VIP)	Sweden	30-60	(500)/ 37639	10	FFQ (84/65)	Carbohydrate (% energy)	Fatal	CVD mortality/regi stries	Men	Continuous	Ascend ing deciles	0.99 (0.94- 1.05)		0.8 07		Age, BMI, sedentary lifestyle, education, current smoking, energy intake, alcohol, saturated fat
(Nilsson et al., 2012)  Västerbotten Intervention Program (VIP)			(181)/ 39680						Wome n			0.95 (0.87- 1.04)		0.2 61		As above
(Wallström et al., 2012)  Malmo Diet and cancer	Sweden  No CHD, No DM	49-70  %M 39.4	(687) /12535	13.6 y (0.7)	Diet history	Carbohydrate, total (% energy)	Fatal + Non- fatal Events	Ischemic CVD/ registries	Wome n	Q5 vs. Q1	% energy	1.18 (0.91- 1.54)		0.48		Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjust dietary fibre
(Wallström et al., 2012)  Malmo Diet and cancer			(1089)/ 8139	13.2 (0.7)					Men			1.09 (0.88- 1.35)		0.63		As above

**Table 3 - Carbohydrate intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011) EPIC-MORGEN	Holland, no history of CVD or T2DM	20-65 (43) %Male: 45.2	(581)/ 8855	15	FFQ (79)	Carbohydrate (g/day)	Fatal + Non- fatal Events	CHD/registrie s	Men	Continuous	Per SD increas e (30.1)	1.20 (1.02- 1.43)	221.9 (30.1)			Age, smoking, pack years, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total and HDL cholesterol
		20-65 (42.1)	(300)/ 10753						Wome n			1.00 (0.79- 1.28)	226.2 (29.9)			As above and oral contraceptive use

continued: Table 3 - Carbohydrate intake and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Sieri et al., 2010) EPICOR	Italy No CVD, No diabetes treatment	35-64 %M: 32	(305)/ 47,749	7.9 (0.41)	FFQ	Carbohydrates (g/d)	Fatal + Non- fatal Events	CHD/databas es, medical records, death certificates	Men	Q4 vs. Q1	g/d	0.91 (0.64- 1.30)		0.91		Stratified by centre and adjusted for non-alcohol energy intake, hypertension, smoking, education, categories of alcohol intake, BMI, fibre, physical activity, age
						Carbohydrates from high GI food			Men			0.97 (0.70- 1.36)		0.94		As above
						Carbohydrates from low GI food			Men			0.91 (0.65- 1.25)		0.69		As above
			158/ 47,749			Carbohydrates (g/d)			Wome n	Q4 vs. Q1		2.00 (1.16- 3.43)		0.02		As above
						Carbohydrates from high GI food			Wome n			1.68 (1.02- 2.75)		0.04		As above
						Carbohydrates from low GI food			Wome n			0.99 (0.62- 1.57)		0.87		As above

**Table 4 - Carbohydrate intake and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)  EPIC MORGEN	Holland, no history of CVD or T2DM	20-65 (43)  %Male: 45.2	(120)/ 8855	15	FFQ (79)	Carbohydrate (g/day)	Fatal + Non- fatal Events	Stroke/ registries	Men	Continuous	Per SD increas e (30.1)	1.02 (0.70- 1.47)	221.9 (30.1)			Age, smoking, pack years, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total and HDL cholesterol
(Burger et al., 2011)  EPIC MORGEN			(109)/ 10753						Wome n			0.90 (0.60- 1.34)	226.2 (29.9)			As above and oral contraceptive use
(Oba et al., 2010)  Takayama study	Japan	% M 45.7	(120)/ 12561	7	FFQ (169)	Carbohydrate (g)	Fatal	Stroke death/death certificates, registry	Men	Q4 vs. Q1	g	1.17 (0.52- 2.62)		0.87		Age, BMI, smoking, physical activity, reported history of hypertension, education, energy intake, alcohol, fibre, salt and total fat.
(Oba et al., 2010)  Takayama study			(127)/ 15301						Wome n			0.88 (0.39- 2.01)		0.85		Age, BMI, smoking, physical activity, reported history of hypertension, education, energy intake, alcohol, fibre, salt and total fat.
(Oba et al., 2010)  Takayama study			(48/ 12561					Haemorrhagi c stroke death/death certificates, registry	Men			0.84 (0.42- 1.71)		0.46	Age	

continued: Table 4 - Carbohydrate intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Oba et al., 2010) Takayama study			(46)/ 15301						Wome n			1.96 (0.82- 4.70)		0.11	Age	
(Oba et al., 2010) Takayama study			60/125 61					Ischemic stroke death/ death certificates, registry	Men			0.91 (0.45- 1.85)		0.97	Age	
(Oba et al., 2010) Takayama study			66/153 01						Wome n			0.86 (0.44- 1.65)		0.85	Age	
(Oba et al., 2010) Takayama study			73/ 6970					Stroke death	Men BMI <23 kg/m <sup>2</sup>			1.14 (0.60- 2.17)		0.90	Age	
(Oba et al., 2010) Takayama study			25/ 4886						Men BMI ≥ 23kg/ m <sup>2</sup>			0.96 (0.38- 2.41)		0.90	Age	
(Oba et al., 2010) Takayama study			81/ 9747					Stroke death	Wome n BMI <23 kg/m <sup>2</sup>			0.88 (0.48- 1.62)		0.93	Age	
(Oba et al., 2010) Takayama study			29/ 4698					Stroke death	Wome n BMI ≥ 23kg/ m <sup>2</sup>			1.27 (0.49- 3.28)		0.64	Age	

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continued: Table 4 - Carbohydrate intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Wallström et al., 2012)  Malmo Diet and cancer	Sweden  No CHD, No DM	49-70  (58.9)  %M 39.4	(401)/ 8135	13.2 (0.7)	Diet history	Carbohydrate (% energy)	Fatal + Non- fatal Events	Ischemic stroke/ registries	Men	Q5 vs. Q1	% energy	0.90 (0.63- 1.28)			0.76	Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjusted dietary fibre
(Wallström et al., 2012)  Malmo Diet and cancer			(354)/ 12535	13.6					Wome n			1.21 (0.84- 1.75)			0.73	Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjusted dietary fibre

**Table 5 - Mono- and disaccharide intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Wallström et al., 2012)  Malmo Diet and cancer	Sweden  No CHD, No DM	49-70  (58.9)  %M 39.4	(1089)/ 8139	13.2 (0.7)	Diet history	Monosaccharai des (% energy)	Fatal + Non- fatal	Ischemic CVD /registries	Men	Q5 vs. Q1	% energy	0.91 (0.73- 1.14)		0.31		Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjust dietary fibre
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (57.2)	(687)/ 12535	13.6 (0.7)					Wome n			1.10 (0.84- 1.43)		0.67	As above	
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (58.9)  %M 39.4	(1089)/ 8139	13.2		Disaccharides (% energy)			Men			1.04 (0.85- 1.27)		0.66	As above	
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (57.2)	(687)/ 12535	13.6		Disaccharides (% energy)			Wome n			0.94 (0.74- 1.19)		0.57	As above	

**Table 6 - Sugar intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)  EPIC-MORGEN	Holland, no history of CVD or T2DM	20-65 (43)  %Male: 45.2	(581)/ 8855	15	FFQ (79)	Sugar (g/day)	Fatal + Non- fatal Events	CHD/registries	Men	Continuous	Per SD increase (29.5)	1.15 (0.97- 1.36)	105.7 (29.1)			Age, smoking, pack years, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total, HDL cholesterol and starch
(Burger et al., 2011)  EPIC-MORGEN		20-65 (42.1)	(300)/ 10753						Women			1.05 (0.82- 1.35)	111.7 (29.6)			As above and oral contraceptive use
(Sieri et al., 2010)  EPICOR	Italy  No CVD, No diabetes treatment	35-64  %M: 32	(305)/ 47,749	7.9 (0.41)	FFQ	Sugars (g/d)	Fatal + Non- fatal Events	CHD/databases, medical records, death certificates	Men	Q4 vs. Q1	g/d	0.97 (0.69- 1.38)		0.75		Stratified by centre and adjusted for non-alcohol energy intake, hypertension, smoking, education, categories of alcohol intake, BMI, fibre, physical activity, age
(Sieri et al., 2010)  EPICOR			158/ 47,749						Women			1.10 (0.69- 1.76)		0.83	As above	

**Table 7 - Mono- and disaccharide intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Wallström et al., 2012)  Malmo Diet and cancer	Sweden  No CHD, No DM	49-70  (58.9)  %M 39.4	(688)/ 8139	13.2 (0.7)	Diet history	monosaccharid e's (% energy)	Fatal + Non- fatal	Coronary events /registries	Men	Q5 vs. Q1	% energy	0.92 (0.70- 1.22)			0.55	Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjust dietary fibre
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (57.2)	(333)/ 12535	13.6 (0.7)					Wome n			1.01 (0.69- 1.47)			0.58	As above
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (58.9)  %M 39.4	(688)/ 8139	13.2 (0.7)		Disaccharides (% energy)			Men			1.12 (0.87- 1.44)			0.58	As above
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (57.2)	(333)/ 12535	13.6 (0.7)					Wome n			1.00 (0.70- 1.41)			0.88	As above

**Table 8 - Sugar intake and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)  EPIC MORGEN	Holland, no history of CVD or T2DM	20-65 (43)  %Male: 45.2	(120)/ 8855	15	FFQ (79)	Sugar (g/day)	Fatal + Non- fatal Events	Stroke/ registries	Men	Continuous	Per SD increas e (29.5)	1.01 (0.70- 1.46)	105.7 (29.1)			Age, smoking, pack years, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total, HDL cholesterol and starch
(Burger et al., 2011)  EPIC MORGEN			(109)/ 10753						Wome n			0.95 (0.63- 1.42)	111.7 (29.6)			As above and oral contraceptive use

**Table 9 - Mono- and disaccharide intake and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Wallström et al., 2012)  Malmo Diet and cancer	Sweden  No CHD, No DM	49-70  (58.9)  %M 39.4	(401)/ 8135	13.2 (0.7)	Diet history	monosaccharid e's (% energy)	Fatal + Non- fatal	Ischemic stroke /registries	Men	Q5 vs. Q1	% energy	0.90 (0.63- 1.28)		0.38		Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjust dietary fibre
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (57.2)	(687)/ 12535	13.6 (0.7)					Wome n			1.20 (0.82- 1.74)		0.25	As above	
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (58.9)  %M 39.4	(1089)/ 8135	13.2 (0.7)		Disaccharides (% energy)			Men			0.91 (0.65- 1.26)		0.97	As above	
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (57.2)	(687)/ 12535	13.6 (0.7)					Wome n			0.89 (0.64- 1.24)		0.34	As above	

**Table 10 - Starch intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Wallström et al., 2012)  Malmo Diet and cancer	Sweden  No CHD, No DM	49-70  (58.9)  %M 39.4	(1089)/ 8139	13.2 (0.7)	Diet history	Starch (% energy)	Fatal + Non- fatal	Ischemic CVD /registries	Men	Q5 vs. Q1	% energy	1.10 (0.88- 1.37)		0.50		Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjust dietary fibre
(Wallström et al., 2012)  Malmo Diet and cancer		49-70  (57.2)	(687)/ 12535						Wome n			0.88 (0.68- 1.15)		0.34	As above	

**Table 11 - Starch intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)  EPIC-MORGEN	Holland, no history of CVD or T2DM	20-65 (43)  %Male: 45.2	(581)/ 8855	15	FFQ (79)	Starch (g/day)	Fatal + Non- fatal Events	CHD/registries	Men	Continuous	Per SD increase (22.9)	1.22 (1.04- 1.42)	115.4 (22.7)			Age, smoking, pack years, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total, HDL cholesterol, sugar
(Burger et al., 2011)  EPIC-MORGEN		20-65 (42.1)	(300)/ 10753						Women			0.92 (0.74- 1.14)	114.4 (23.1)			As above and oral contraceptive use
(Sieri et al., 2010)  EPICOR	Italy  No CVD, No diabetes treatment	35-64  %M: 32	(305)/ 47,749	7.9 (0.41)	FFQ	Starch (g/d)	Fatal + Non- fatal Events	CHD/databases, medical records, death certificates	Men	Q4 vs. Q1	g/d	0.92 (0.66- 1.28)		0.74		Stratified by centre and adjusted for non-alcohol energy intake, hypertension, smoking, education, categories of alcohol intake, BMI, fibre, physical activity, age
(Sieri et al., 2010)  EPICOR			158/ 47,749						Women			1.40 (0.83- 2.35)		0.83		As above

continued: Table 11 - Starch intake and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Wallström et al., 2012)	Sweden	49-70	(688)/ 8139	13.2 (0.7)	Diet history	Starch (% energy)	Fatal + Non- fatal Events	Coronary events/ registries	Men	Q5 vs. Q1	% energy	1.10 (0.84- 1.45)		0.25		Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjusted dietary fibre
Malmö Diet and cancer	No CHD, No DM	%M 39.4	(333)/ 12535						Wome n			1.10 (0.76- 1.61)		0.88	As above	

**Table 12 - Starch intake and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)  EPIC MORGEN	Holland, no history of CVD or T2DM	20-65 (43)  %Male: 45.2	(120)/ 8855	15	FFQ (79)	Starch (g/day)	Fatal + Non- fatal Events	Stroke/ registries	Men	Continuous	Per SD increas e (22.9)	1.07 (0.76- 1.51)	115.4 (22.7)			Age, smoking, packyears, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total, HDL cholesterol, sugar
(Burger et al., 2011)  EPIC MORGEN			(109)/ 10753						Wome n			0.87 (0.61- 1.24)	114.4 (23.1)			As above and oral contraceptive use
(Wallström et al., 2012)  Malmo Diet and cancer	Sweden  No CHD, No DM	49-70 (58.9)  %M 39.4	(401)/ 8135	13.2 (0.7)	Diet history	Starch (% energy)	Fatal + Non- fatal Events	Ischemic stroke/ registries	Men	Q5 vs. Q1	% energy	1.08 (0.76- 1.56)		0.70		Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjusted dietary fibre
(Wallström et al., 2012)  Malmo Diet and cancer			(354)/ 12535						Wome n			0.71 (0.48- 1.04)		0.14		As above

**Table 13 - Dietary fibre intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Chuang et al., 2012)  EPIC	10 European countries  No cancer, angina, heart attack, stroke, diabetes	25-70 (50.8)  % Male: 29	(2489)/ 452717	12.7	FFQ/ FFQ + 7d food record	Dietary fibre (AOAC)	Fatal	Circulatory disease death/Death indexes, registries, medical records, self- report, health departments	Men	≥ 28.5 vs. <16.4	g/d	0.83 (0.71- 0.98)			0.032	Excluded first 2 years follow up, stratified by age, sex and centre. Adjusted education, smoking, alcohol, BMI, physical activity, energy intake
(Chuang et al., 2012)  EPIC					24 h recall regress ed on dietary questio nnaire intakes				Men	Continuous	Per 10g increas e calibrat ed	0.84 (0.74- 0.94)				As above
(Chuang et al., 2012)  EPIC			(2115)/ 452717						Wome n			0.67 (0.55- 0.82)			<0.001	As above and further adjusted for HRT
(Chuang et al., 2012)  EPIC					24 h recall regress ed on dietary questio nnaire intakes				Wome n	Continuous	Per 10g increas e calibrat ed	0.79 (0.67- 0.94)				As above

continued: Table 13 - Dietary fibre intake and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79	(1063)/ 23119	14.3, (4.2)	FFQ (33)	Total dietary fibre (Prosky)	CVD mortality /Fatal	Death certificates	Men	Q5 vs. Q1	g/d	0.83 (0.63- 1.09)			0.054	Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate and vitamin E
(Eshak <i>et al.</i> , 2010)			(1017)/ 35610						Wome n			0.82 (0.57- 0.97)			0.044	As above
(Eshak <i>et al.</i> , 2010)			(2080)/ 58730						Men and Wome n			0.82 (0.60- 0.99)			0.02	As above
(Eshak <i>et al.</i> , 2010)			(675)/ 58730				Other CVD mortality /Fatal		Men & women			0.94 (0.73- 1.21)			0.69	As above
(Eshak <i>et al.</i> , 2010)			(333)/ 23119						Men			1.06 (0.74- 1.51)			0.212	As above

continued: Table 13 - Dietary fibre intake and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)			(342)/ 35610						Wome n			0.82 (0.57- 0.97)			0.044	As above
Japan Collaborative Cohort Study																
(Kokubo <i>et al.</i> , 2011)	Japan Japanese, No CHD, stroke or cancer	40-69, % Male: 46.9	(3237)/ 86387	10.4	FFQ (138)	Total dietary fibre (Prosky)	CVD/Fa tal + non- fatal	Medical records/ death certificates	Men & women	Q5 vs. Q1	g/d	0.77 (0.65- 0.92)			0.02	Age, sex, smoking, alcohol, BMI, history diabetes, medications for hypertension and hypercholesterolemia, exercise, intake of fruits, vegetables, fish, sodium, isoflavone, and energy, public health centre
Japan Public Health Centre based study																
(Kokubo <i>et al.</i> , 2011)			(1984)/ 40046						Men			0.94 (0.74- 1.20)			0.649	As above
Japan Public Health Centre																
(Kokubo <i>et al.</i> , 2011)			(1253)/ 46341						Wome n			0.65 (0.48- 0.87)			0.002	As above
Japan Public Health Centre based study																
Kokubo <i>et al.</i> , 2011)			(712)						Men- non smoker s			0.59 (0.38- 0.90)			0.045	Age, sex, smoking, BMI, history diabetes and hypertension, hypercholesterolemic drug use, exercise, intake of fruits, vegetables, fish, sodium, isoflavone, and energy, public health centre
Japan Public Health Centre based study																

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continued: Table 13 - Dietary fibre intake and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Kokubo et al., 2011)			(1424)						Men- smoker s			1.05 (0.79- 1.40)		0.862		As above
Japan Public Health Centre based study																
Kokubo et al., 2011)			(1152)						Wome n- non smoker s			0.61 (0.45- 0.83)		0.001		As above
Japan Public Health Centre based study																
Kokubo et al., 2011)			(218)						Wome n- smoker s			0.58 (0.24- 1.39)		0.158		As above
Japan Public Health Centre based study																
(Park et al., 2011) NIH-AARP Diet and Health Study	US Primarily white, No cancer, heart disease, diabetes, end stage renal disease	51-70 %Male: 56.4	(5428)/ 219123	9	FFQ (124)	Dietary fibre (AOAC)	Fatal	CVD mortality/ Social security records, death index & self-reports	Men	Q5 vs. Q1	g/d	0.76 (0.68- 0.85)		<0.001		Age, race/ethnicity, education, marital status, health status, BMI, physical activity, smoking status, time since quitting, smoking dose, alcohol, intakes of red meat, total fruits and vegetables, and total energy
(Park et al., 2011) NIH-AARP Diet and Health Study			(2417)/ 168999						Wome n			0.66 (0.55- 0.79)		< 0.001		As above and HRT

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continued: Table 13 - Dietary fibre intake and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Park et al., 2011)									Men		Per 10g increas e	0.88 (0.86- 0.91)				As above
(Wallström et al., 2012)	Sweden	49-70 (58.9)	(1089)/ 8139	13.2 (0.7)	Diet history	Fibre (g/1000 kcal)	Fatal + Non- fatal	Ischemic CVD /registries	Men	Q5 vs. Q1	(g/100 0 kcal)	0.85 (0.70- 1.04)		0.30		Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjust dietary fibre
(Wallström et al., 2012)		49-70 (57.2)	(687)/ 12535						Wome n			0.76 (0.59- 0.97)		0.022		As above

**Table 14 - Dietary fibre intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79  %Male: 41.9	(422)/ 58730	14.3, (4.2)	FFQ (33)	Total dietary fibre (Prosky)	CHD mortality /Fatal	Death certificates	Men and Wome n	Q5 vs. Q1	g/d	0.79 (0.61- 0.98)			0.01	Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate and vitamin E
(Eshak <i>et al.</i> , 2010)			(231)/ 23119						Men			0.81 (0.61- 1.09)			0.022	As above
(Eshak <i>et al.</i> , 2010)			(191)/ 35610						Wome n			0.80 (0.57- 0.97)			0.014	As above
(Kokubo <i>et al.</i> , 2011)	Japan Japanese, No CHD, stroke or cancer	40-69, % Male: 46.9	(485)/4 0046	10.4	FFQ (138)	Total dietary fibre (Prosky)	Fatal + non- fatal	CHD/Medical records/ death certificates	Men	Q5 vs. Q1	g/d	0.76 (0.47- 1.25)			0.327	Age, sex, smoking, alcohol, BMI, history diabetes, medications for hypertension and hypercholesterolemia, exercise, intake of fruits, vegetables, fish, sodium, isoflavone, and energy, public health centre

continued: Table 14 - Dietary fibre intake and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Kokubo et al., 2011)			(199)/4 6341						Wome n			0.68 (0.32- 1.42)			0.149	As above
(Wallström et al., 2012)	Sweden	49-70 (58.9)	(688)/ 8139	13.2 (0.7)	Diet history	Fibre (g/1000 kcal)	Fatal + Non- fatal Events	Coronary events/ registries	Men	Q5 vs. Q1	(g/100 0 kcal)	0.97 (0.75- 1.25)			0.85	Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjusted dietary fibre
Malmö Diet and cancer	No CHD, No DM	%M 39.4	(333)/ 12535						Wome n			0.78 (0.55- 1.11)			0.067	As above

**Table 15 - Dietary fibre / fibre density and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79  %Male: 41.9	(883)/ 58730	14.3, (4.2)	FFQ (33)	Total dietary fibre (Prosky)	Stroke mortality /Fatal	Death certificates	Men & women	Q5 vs. Q1	g/d	0.86 (0.69- 1.06)			0.15	Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate and vitamin E
(Eshak <i>et al.</i> , 2010)			(499) /23119						Men			1.09 (0.75- 1.58)			0.555	As above
(Eshak <i>et al.</i> , 2010)			(484)/ 35610						Wome n			1.05 (0.73- 1.51)			0.775	As above
(Kokubo <i>et al.</i> , 2011)	Japan Japanese, No CHD, stroke or cancer	40-69, % Male: 46.9	(1499)/ 40046	10.4	FFQ (138)	Total dietary fibre (Prosky)	Fatal + non- fatal	All Strokes/Medi cal records/ death certificates	Men	Q5 vs. Q1	g/d	1.00 (0.76- 1.32)			0.976	Age, sex, smoking, alcohol, BMI, history diabetes, medications for hypertension and hypercholesterolemia, exercise, intake of fruits, vegetables, fish, sodium, isoflavone, and energy, public health centre

continued: Table 15 - Dietary fibre / fibre density and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Kokubo et al., 2011)			(1054)/ 46341						Wome n			0.64 (0.46- 0.88)		0.005		As above
Japan Public Health Centre based study								Cerebral infarction	Men			0.94 (0.66- 1.34)		0.540		As above
Kokubo et al., 2011)			(910) /40046						Wome n			0.73 (0.55- 0.97)		0.029		As above
Japan Public Health Centre based study			(518)/ 46341					Intracerebral haemorrhage	Men			1.08 (0.66- 1.78)		0.588		As above
Kokubo et al., 2011)			(456)/ 40046						Wome n			0.53 (0.28- 0.97)		0.100		As above
Japan Public Health Centre based study			(310) /46341													

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continued: Table 15 - Dietary fibre / fibre density and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Kokubo et al., 2011)			(133)/ 40046					Subarachnoid haemorrhage	Men			1.02 (0.45- 2.54)			0.672	As above
Japan Public Health Centre based study																
Kokubo et al., 2011)			(226)/ 46341						Women			0.72 (0.37- 1.43)			0.419	As above
Japan Public Health Centre based study																
(Wallström et al., 2012)	Sweden	49-70	(401)/ 8135	13.2 (0.7)	Diet history	Fibre (g/1000 kcal)	Fatal + Non- fatal Events	Ischemic stroke/ registries	Men	Q5 vs. Q1	(g/100 0 kcal)	0.69 (0.49- 0.96)			0.050	Age, method version, total energy intake (continuous), season BMI, smoking category, education, alcohol category, systolic blood pressure, antihypertensive treatment, antihyperlipidemic treatment, leisure time physical activity (quartiles), quintiles energy adjusted dietary fibre
Malmo Diet and cancer	No CHD, No DM	%M 39.4														
(Wallström et al., 2012)			(354)/ 12535						Women			0.73 (0.52- 1.04)			0.18	As above
Malmo Diet and cancer																

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**Table 16 - Soluble and insoluble fibre intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79  %Male: 41.9	(2080)/ 58730	14.3, (4.2)	FFQ (33)	Soluble dietary fibre (Prosky)	Total CVD mortality /Fatal	Death certificates	Men & women	Q5 vs. Q1	g/d	0.80 (0.60- 0.99)			0.02	Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate and vitamin E
(Eshak <i>et al.</i> , 2010)			(1063)/ 23119						Men			0.81 (0.63- 1.04)			0.042	As above
(Eshak <i>et al.</i> , 2010)			(1017)/ 35610						Wome n			0.83 (0.53- 1.02)			0.043	As above
(Eshak <i>et al.</i> , 2010)			(2080)/ 58730				Other CVD mortality /Fatal		Men & women			0.94 (0.75- 1.19)			0.69	As above
(Eshak <i>et al.</i> , 2010)			(333)/ 23119						Men			1.08 (0.75- 1.64)			0.573	As above

continued: Table 16 - Soluble and insoluble fibre intake and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)			(342)/ 35610						Wome n			0.96 (0.61- 1.50)			0.613	As above
Japan Collaborative Cohort Study																
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79 %Male: 41.9	(2080)/ 58730	14.3, (4.2)	FFQ (33)	Insoluble dietary fibre (Prosky)	Total CVD mortality /Fatal	Death certificates	Men & women	Q5 vs. Q1	g/d	0.77 (0.61- 0.96)			0.01	Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate and vitamin E
Japan Collaborative Cohort Study																
(Eshak <i>et al.</i> , 2010)			(1063)/ 23119						Men			0.82 (0.65- 0.98)			0.042	As above
Japan Collaborative Cohort Study																
(Eshak <i>et al.</i> , 2010)			(1017)/ 35610						Wome n			0.69 (0.53- 0.91)			0.017	As above
Japan Collaborative Cohort Study																
(Eshak <i>et al.</i> , 2010)			(675)/ 58730				Other CVD mortality /Fatal		Men & women			0.93 (0.72- 1.22)			0.71	As above
Japan Collaborative Cohort Study																

continued: Table 16 - Soluble and insoluble fibre intake and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)			(333)/ 23119						Men			1.15 (0.78- 1.62)			0.798	As above
Japan Collaborative Cohort Study																
(Eshak <i>et al.</i> , 2010)			(342)/ 35610						Wome n			0.83 (0.51- 1.33)			0.698	As above
Japan Collaborative Cohort Study																
(Kokubo <i>et al.</i> , 2011)	Japan Japanese, No CHD, stroke or cancer	40-69, % Male: 46.9	(1253)/ 40046	10.4	FFQ (138)	Soluble fibre (Prosky)	CVD/Fa tal + non- fatal	Medical records/ death certificates	Wome n	Q5 vs. Q1	g/d	0.74 (0.56- 0.97)			0.012	Age, sex, smoking, alcohol, BMI, history diabetes, medications for hypertension and hypercholesterolemia, exercise, intake of fruits, vegetables, fish, sodium, isoflavone, and energy, public health centre
Japan Public Health Centre based study																
Kokubo <i>et al.</i> , 2011)						Insoluble fibre (Prosky)			Wome n			0.64 (0.47- 0.85)			<0.001	As above
Japan Public Health Centre based study																

**Table 17 - Soluble and insoluble fibre intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79	(422)/ 58730	14.3, (4.2)	FFQ (33)	Soluble dietary fibre (Prosky)	CHD mortality /Fatal	Death certificates	Men and Wome n	Q5 vs. Q1	g/d	0.69 (0.44- 0.94)		0.01		Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate and vitamin E
(Eshak <i>et al.</i> , 2010)			(231)/ 23119						Men			0.71 (0.41- 0.97)		0.043	As above	
(Eshak <i>et al.</i> , 2010)			(191)/ 35610						Wome n			0.72 (0.43- 0.99)		0.035	As above	
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79	(422) /58730	14.3, (4.2)	FFQ (33)	Insoluble dietary fibre (Prosky)	CHD mortality /Fatal	Death certificates	Men & women	Q5 vs. Q1	g/d	0.46 (0.30- 0.85)		<0.001	As above	
(Eshak <i>et al.</i> , 2010)			(231)/ 23119						Men			0.48 (0.27- 0.84)		<0.001	As above	

continued: Table 17 - Soluble and insoluble fibre intake and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)			(191)/ 35610						Wome n			0.72 (0.43- 0.99)			0.035	As above
Japan Collaborative Cohort Study																
(Kokubo <i>et al.</i> , 2011)	Japan Japanese, No CHD, stroke or cancer	40-69, % Male: 46.9	(199)/ 46341	10.4	FFQ (138)	Soluble fibre (Prosky)	CVD/Fa tal + non- fatal	Medical records/ death certificates	Wome n	Q5 vs. Q1	g/d	0.60 (0.29- 1.21)			0.252	Age, sex, smoking, alcohol, BMI, history diabetes, medications for hypertension and hypercholesterolemia, exercise, intake of fruits, vegetables, fish, sodium, isoflavone, and energy, public health centre
Japan Public Health Centre based study																
Kokubo <i>et al.</i> , 2011)						Insoluble fibre (Prosky)			Wome n			0.78(0.48 -1.27)			0.396	As above
Japan Public Health Centre based study																

**Table 18 - Soluble and insoluble fibre intake and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79  %Male: 41.9	(983)/ 58730	14.3, (4.2)	FFQ (33)	Soluble dietary fibre (Prosky)	Total stroke mortality /Fatal	Death certificates	Men & women	Q5 vs. Q1	g/d	0.93 (0.66- 1.09)			0.13	Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate and vitamin E
(Eshak <i>et al.</i> , 2010)			(499) /23119						Men			0.90 (0.61- 1.31)			0.790	As above
(Eshak <i>et al.</i> , 2010)			(484)/ 35610						Wome n			1.02 (0.73- 1.42)			0.643	As above
(Eshak <i>et al.</i> , 2010)			(983)/ 58730			Insoluble dietary fibre (Prosky)			Men & women			0.84 (0.68- 1.09)			0.21	As above
(Eshak <i>et al.</i> , 2010)									Men			0.96 (0.64- 1.45)			0.715	

continued: Table 18 - Soluble and insoluble fibre intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)									Wome n			0.90 (0.63- 1.28)			0.128	
Japan Collaborative Cohort Study																
(Kokubo <i>et al.</i> , 2011)	Japan Japanese, No CHD, stroke or cancer	40-69, % Male: 46.9	(1054)/ 46341	10.4	FFQ (138)	Soluble fibre (Prosky)	Fatal + non- fatal	All Strokes/Medi cal records/ death certificates	Wome n	Q5 vs. Q1	g/d	0.78 (0.58- 1.06)			0.031	Age, sex, smoking, alcohol, BMI, history diabetes, medications for hypertension and hypercholesterolemia, exercise, intake of fruits, vegetables, fish, sodium, isoflavone, and energy, public health centre
Japan Public Health Centre based study																
(Kokubo <i>et al.</i> , 2011)			(518)/ 46341					Cerebral infarction				0.73 (0.47- 1.14)			0.051	
Japan Public Health Centre based study																
Kokubo <i>et al.</i> , 2011)			(310) /46341					Intracerebral haemorrhage				0.71 (0.40- 1.26)			0.183	As above
Japan Public Health Centre based study																
Kokubo <i>et al.</i> , 2011)			(1054)/ 46341			Insoluble fibre (Prosky)		All Strokes	Wome n			0.62 (0.45- 0.85)			0.001	
Japan Public Health Centre based study																

continued: Table 18 - Soluble and insoluble fibre intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Kokubo et al., 2011)			(518)/ 46341					Cerebral infarction				0.62 (0.40- 0.98)		0.006		
Japan Public Health Centre based study																
Kokubo et al., 2011)			(310) /46341					Intracerebral haemorrhage				0.55 (0.30- 1.00)				As above
Japan Public Health Centre based study																

**Table 19 - Cereal fibre intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Chuang et al., 2012)  EPIC	10 European countries  No cancer, angina, heart attack, stroke, diabetes	25-70 (50.8)  % Male: 29	(2489)/ 452717	12.7	FFQ/ FFQ + 7d food record	Fibre from cereals (AOAC)	Fatal	Circulatory disease death/Death indexes, registries, medical records, self- report, health departments	Men	Continuous	Per 5g/d increas e	0.95 (0.91- 1.00)				Excluded first 2 years follow up, stratified by age, sex and centre. Adjusted education, smoking, alcohol, BMI, physical activity, energy intake, other sources of fibre.
(Chuang et al., 2012)  EPIC			(2115)/ 452717						Wome n			0.93 (0.87- 1.00)				As above and further adjusted for HRT

**Table 20 - Cereal fibre intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79	(422)/ 58730	14.3, (4.2)	FFQ (33)	Cereal fibre (Prosky)	CHD mortality /Fatal	Death certificates	Men and Wome n	Q5 vs. Q1	g/d	0.74 (0.56- 0.97)			0.05	Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate, vitamin E, fruit and vegetable fibre.
(Eshak <i>et al.</i> , 2010)			(231)/ 23119						Men			0.89 (0.65- 1.01)			0.060	As above
(Eshak <i>et al.</i> , 2010)			(191)/ 35610						Wome n			0.76 (0.59- 0.97)			0.044	As above

**Table 21 - Fruit fibre intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Chuang et al., 2012)  EPIC	10 European countries  No cancer, angina, heart attack, stroke, diabetes	25-70 (50.8)  % Male: 29	(2489)/ 452717	12.7	FFQ/ FFQ + 7d food record	Fibre from cereals (AOAC)	Fatal	Circulatory disease death/Death indexes, registries, medical records, self- report, health departments	Men	Continuous	Per 5g/d increas e	0.96 (0.91- 1.06)				Excluded first 2 years follow up, stratified by age, sex and centre. Adjusted education, smoking, alcohol, BMI, physical activity, energy intake, other sources of fibre.
(Chuang et al., 2012)  EPIC			(2115)/ 452717						Wome n			0.95 (0.88- 1.03)				As above and further adjusted for HRT
(Park et al., 2011)  NIH-AARP Diet and Health Study	US Primarily white, No cancer, heart disease, diabetes, end stage renal disease	51-70 %Male: 56.4	(5428)/ 219123	9	FFQ (124)	Fibre from fruits (AOAC)	Fatal	CVD mortality/ Social security records, death index & self-reports	Men	Q5 vs. Q1	g/d	1.03 (0.93- 1.13)				Age, race/ethnicity, education, marital status, health status, BMI, physical activity, smoking status, time since quitting, smoking dose, alcohol, intakes of red meat, total fruits and vegetables, total energy and fibre from vegetables, grains and beans
(Park et al., 2011)  NIH-AARP Diet and Health Study			(2417)/ 168999						Wome n			1.06 (0.93- 1.22)				As above and HRT

**Table 22 - Fruit fibre intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79  %Male: 41.9	(422)/ 58730	14.3, (4.2)	FFQ (33)	Fruit fibre (Prosky)	CHD mortality /Fatal	Death certificates	Men and Wome n	Q5 vs. Q1	g/d	0.57 (0.45- 0.80)			0.008	Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate, vitamin E, cereal and vegetable fibre.
(Eshak <i>et al.</i> , 2010)			(231)/ 23119						Men			0.55 (0.32- 0.96)			0.032	As above
(Eshak <i>et al.</i> , 2010)			(191)/ 35610						Wome n			0.42 (0.33- 0.81)			0.014	As above

**Table 23 - Vegetable fibre intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Chuang et al., 2012)  EPIC	10 European countries  No cancer, angina, heart attack, stroke, diabetes	25-70 (50.8)  % Male: 29	(2489)/ 452717	12.7	FFQ/ FFQ + 7d food record	Fibre from cereals (AOAC)	Fatal	Circulatory disease death/Death indexes, registries, medical records, self- report, health departments	Men	Continuous	Per 5g/d increas e	0.86 (0.78- 0.95)				Excluded first 2 years follow up, stratified by age, sex and centre. Adjusted education, smoking, alcohol, BMI, physical activity, energy intake, other sources of fibre.
(Chuang et al., 2012)  EPIC			(2115)/ 452717						Wome n			0.92 (0.84- 1.01)				As above and further adjusted for HRT
(Park et al., 2011)  NIH-AARP Diet and Health Study	US Primarily white, No cancer, heart disease, diabetes, end stage renal disease	51-70 %Male: 56.4	(5428)/ 219123	9	FFQ (124)	Fibre from vegetables (AOAC)	Fatal	CVD mortality/ Social security records, death index & self-reports	Men	Q5 vs. Q1	g/d	0.96 (0.88- 1.05)				Age, race/ethnicity, education, marital status, health status, BMI, physical activity, smoking status, time since quitting, smoking dose, alcohol, intakes of red meat, total fruits and vegetables, total energy and fibre from fruit, grains and beans
(Park et al., 2011)  NIH-AARP Diet and Health Study			(2417)/ 168999						Wome n			0.96 (0.84- 1.10)				As above and HRT

**Table 24 - Vegetable fibre intake and coronary event: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Eshak <i>et al.</i> , 2010)	Japan Japanese, No cancer, stroke or CHD	40-79  %Male: 41.9	(422)/ 58730	14.3, (4.2)	FFQ (33)	Fruit fibre (Prosky)	CHD mortality /Fatal	Death certificates	Men and Wome n	Q5 vs. Q1	g/d	0.92 (0.74- 1.13)			0.61	Age, BMI, history hypertension, diabetes history, alcohol, smoking, education, exercise, walking, mental stress, sleep, fish, SFA, (n-3) fatty acids, sodium, folate, vitamin E, fruit and cereal fibre.
(Eshak <i>et al.</i> , 2010)			(231)/ 23119						Men			0.90 (0.54- 1.51)			0.666	As above
(Eshak <i>et al.</i> , 2010)			(191)/ 35610						Wome n			0.97 (0.58- 1.62)			0.917	As above

**Table 25 - Bean fibre intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Park et al., 2011) NIH-AARP Diet and Health Study	US Primarily white, No cancer, heart disease, diabetes, end stage renal disease	51-70 %Male: 56.4	(5428)/ 219123	9	FFQ (124)	Fibre from beans (AOAC)	Fatal	CVD mortality/ Social security records, death index & self-reports	Men	Q5 vs. Q1	g/d	0.93(0.85 -1.01)				Age, race/ethnicity, education, marital status, health status, BMI, physical activity, smoking status, time since quitting, smoking dose, alcohol, intakes of red meat, total fruits and vegetables, total energy and fibre from fruits, vegetables and grains
(Park et al., 2011) NIH-AARP Diet and Health Study			(2417)/ 168999						Wome n			0.83 (0.74- 0.95)		<0.05	As above and HRT	

**Table 26 - Grain fibre intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Park et al., 2011) NIH-AARP Diet and Health Study	US Primarily white, No cancer, heart disease, diabetes, end stage renal disease	51-70 %Male: 56.4	(5428)/ 219123	9	FFQ (124)	Fibre from grains (AOAC)	Fatal	CVD mortality/ Social security records, death index & self-reports	Men	Q5 vs. Q1	g/d	0.77(0.71 -0.85)			<0.05	Age, race/ethnicity, education, marital status, health status, BMI, physical activity, smoking status, time since quitting, smoking dose, alcohol, intakes of red meat, total fruits and vegetables, total energy and fibre from fruits, vegetables and beans
(Park et al., 2011) NIH-AARP Diet and Health Study			(2417)/ 168999						Wome n			0.72 (0.63- 0.82)			<0.05	As above and HRT

**Table 27 - Nutrient-based dietary patterns and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Lagiou <i>et al.</i> , 2012)  The Women's Lifestyle and Health Cohort Study	Sweden No CVD	30-49 %Male: 0	(1270)/ 43396	15.7	FFQ (80)	Low carbohydrate diet score (Low carbohydrate - high protein additive score (low score=high CHO). Range = 1-10)	Fatal + non- fatal	All CVD/registrie s, medical records		Continuous	Per decrea sing tenth (1 unit)	1.04 (1.00- 1.08)				Height, BMI, smoking, physical activity, education, hypertension, energy intake, unsaturated lipid intake, saturated lipid intake and alcohol intake
(Lagiou <i>et al.</i> , 2012)  The Women's Lifestyle and Health Cohort Study						Low carbohydrate- high protein score (low score=high CHO/low protein). Range = 2-20)					Per 2 units	1.05 (1.02- 1.08)				As above
(Nilsson <i>et al.</i> , 2012)  Västerbotten Intervention Program (VIP)	Sweden	30-60	(500)/ 37639	10	FFQ (84/65)	Low carbohydrate- high protein score (low score=high CHO/low protein). Range = 2-20)	Fatal	CVD mortality/regi stries	Men	Continuous		1.00 (0.97- 1.02)		0.7 77		Age, BMI, sedentary lifestyle, education, current smoking, energy intake, alcohol, saturated fat
(Nilsson <i>et al.</i> , 2012)  Västerbotten Intervention Program (VIP)			(181)/ 39690						Wome n			1.00 (0.96- 1.04)		0.9 66		As above

continued: Table 27 - Nutrient-based dietary patterns and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Nilsson et al., 2012)			210/ 37639						Men- low metab olic risk			1.03 (0.99- 1.07)		0.1 05		As above
Västerbotten Intervention Program (VIP)																
(Nilsson et al., 2012)			(79)/ 39690						Wome n- low metab olic risk			0.98 (0.93- 1.04)		0.5 66		As above
Västerbotten Intervention Program (VIP)																
(Nilsson et al., 2012)			(290)/ 37639						Men- high metab olic risk			0.97 (0.94- 1.00)		0.0 48		As above
Västerbotten Intervention Program (VIP)																
(Nilsson et al., 2012)			(102)/ 39690						Wome n- high metab olic risk			1.01 (0.96- 1.06)		0.6 81		As above
Västerbotten Intervention Program (VIP)																
(Nilsson et al., 2012)			(139)/ 37639						Men- 50 years old			0.99 (0.95- 1.04)		0.7 20		BMI, sedentary lifestyle, education, current smoking, energy intake, alcohol, saturated fat
Västerbotten Intervention Program (VIP)																

continued: Table 27 - Nutrient-based dietary patterns and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Nilsson et al., 2012)			(44)/ 39690						Wome n- 50 years old			1.02 (0.95- 1.10)		0.5 70		As above
Västerbotten Intervention Program (VIP)																
(Nilsson et al., 2012)			(317)/ 37639						Men- 60 years old			0.99 (0.96- 1.02)		0.5 06		As above
Västerbotten Intervention Program (VIP)																
(Nilsson et al., 2012)			(111)/ 39690						Wome n- 60 years old			1.02 (0.97- 1.07)		0.4 79		As above
Västerbotten Intervention Program (VIP)																
(Nilsson et al., 2012)			(277)/ 37639						Men- SFA < median			0.98 (0.95- 1.01)		0.1 31		As above
Västerbotten Intervention Program (VIP)																
(Nilsson et al., 2012)			(94)/ 39690						Wome n- SFA <media n			1.03 (0.98- 1.08)		0.3 07		As above
Västerbotten Intervention Program (VIP)																

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continued: Table 27 - Nutrient-based dietary patterns and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Nilsson et al., 2012)			(223)/ 37639						Men – SFA ≥ median			1.02 (0.99- 1.06)		0.2 05		As above
Västerbotten Intervention Program (VIP)																
Nilsson et al., 2012)			(87)/ 39690						Wome n- SFA ≥ median			1.01 (0.96- 1.07)		0.6 40		As above
Västerbotten Intervention Program (VIP)																

**Table 28 - Nutrient-based dietary patterns and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Jakobsen et al., 2010)  Diet, Cancer and Health	No MI, cardiac arrest, DM	50-64 %Male: 47	(1943)/ 53644	12	FFQ (192)	Higher carbohydrate, lower saturated fat	Fatal + non- fatal	MI/Registries, medical records	All partici pants	Continuous	Per 5% increm ent energy intake from CHO	1.04 (0.92- 1.17)				Sex, glycaemic carbohydrates, proteins, MUFA, PUFA, energy intake, alcohol (0 and >0 g/d), alcohol consumption (g/d), BMI, education, smoking status, current smoking levels, physical activity, history of hypertension.
(Jakobsen et al., 2010)  Diet, Cancer and Health			(1406)/ 25149						Men			1.05 (0.92- 1.21)				As above minus sex
(Jakobsen et al., 2010)  Diet, Cancer and Health			(537)/ 28495						Wome n			1.02 (0.82- 1.28)				As above minus sex
(Jakobsen et al., 2010)  Diet, Cancer and Health	Denmark  No MI, cardiac arrest, DM	51-63	22144	12	FFQ (192)	Higher Carbohydrates with <b>low GI</b> , lower saturated fat	Fatal + Non- fatal Events	MI/ cardiac arrest registries, medical records	All partici pants	Continuous	Per 5% increm ent energy intake from CHO	0.88 (0.72- 1.07)				Sex, glycaemic carbohydrates, proteins, MUFA, PUFA, energy intake, indicator variable alcohol (0 and >0 g/d), alcohol consumption (g/d), BMI, education, smoking status, current smoking levels, physical activity, history of hypertension.

continued: Table 28 - Nutrient-based dietary patterns and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Jakobsen et al., 2010)			17000			Higher Carbohydrates with <b>medium</b> <b>GI</b> , lower saturated fat						0.98 (0.80- 1.21)				As above
Diet, Cancer and Health																
(Jakobsen et al., 2010)			14400			Higher Carbohydrates with <b>high GI</b> , lower saturated fat						1.33 (1.08- 1.64)				As above
Diet, Cancer and Health																
(Jakobsen et al., 2010)			8941			Higher Carbohydrates with <b>low GI</b> , lower saturated fat			Men			0.83 (0.65- 1.04)				Glycaemic carbohydrates, proteins, MUFA, PUFA, energy intake, indicator variable alcohol (0 and >0 g/d), alcohol consumption (g/d), BMI, education, smoking status, current smoking levels, physical activity, history of hypertension.
Diet, Cancer and Health																
(Jakobsen et al., 2010)			8127			Higher Carbohydrates with <b>medium</b> <b>GI</b> , lower saturated fat						1.08 (0.84- 1.38)				As above
Diet, Cancer and Health																
(Jakobsen et al., 2010)			8081			Higher Carbohydrates with <b>high GI</b> , lower saturated fat						1.34 (1.04- 1.71)				As above
Diet, Cancer and Health																

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continued: Table 28 - Nutrient-based dietary patterns and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Jakobsen et al., 2010)			9594			Higher Carbohydrates with <b>low GI</b> , lower saturated fat			Wome n			1.17 (0.80- 1.71)				As above
Diet, Cancer and Health																
(Jakobsen et al., 2010)			10202			Higher Carbohydrates with <b>medium GI</b> , lower saturated fat						0.80 (0.54- 1.18)				As above
Diet, Cancer and Health																
(Jakobsen et al., 2010)			8699			Higher Carbohydrates with <b>high GI</b> , lower saturated fat						1.10 (0.75- 1.63)				As above
Diet, Cancer and Health																
(Lagiou <i>et al.</i> , 2007)	Sweden No CVD	30-49 %Male: 0	(701)/ 43396	15.7	FFQ (80)	Low carbohydrate diet score (Low carbohydrate - high protein additive score (low score=high CHO). Range = 1-10)	Fatal + non- fatal	Ischaemic heart disease/regist ries, medical records		Continuous	Per decrea sing tenth (1 unit)	1.04 (0.99- 1.09)				Height, BMI, smoking, physical activity, education, hypertension, energy intake, unsaturated lipid intake, saturated lipid intake and alcohol intake
The Women's Lifestyle and Health Cohort Study																
(Lagiou <i>et al.</i> , 2007)						Low carbohydrate- high protein score (low score=high CHO/low protein). Range = 2-20)					Per 2 units	1.04 (1.00- 1.08)				As above
The Women's Lifestyle and Health Cohort Study																

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continued: Table 28 - Nutrient-based dietary patterns and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Lagiou <i>et al.</i> , 2007)  The Women's Lifestyle and Health Cohort Study	Sweden No CVD	30-49 %Male: 0	(82)/ 43396	15.7	FFQ (80)	Low carbohydrate diet score (Low carbohydrate - high protein additive score (low score=high CHO). Range = 1-10)	Fatal + non- fatal	Peripheral arterial disease/regist- ries, medical records		Continuous	Per decrea- sing tenth (1 unit)	1.04 (0.90- 1.21)				Height, BMI, smoking, physical activity, education, hypertension, energy intake, unsaturated lipid intake, saturated lipid intake and alcohol intake
(Lagiou <i>et al.</i> , 2007)  The Women's Lifestyle and Health Cohort Study						Low carbohydrate- high protein score (low score=high CHO/low protein). Range = 2-20)					Per 2 units	1.04 (0.93- 1.17)				As above

**Table 29 - Nutrient-based dietary patterns and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Lagiou <i>et al.</i> , 2007)  The Women's Lifestyle and Health Cohort Study	Sweden No CVD	30-49 %Male: 0	(294)/ 43396	15.7	FFQ (80)	Low carbohydrate diet score (Low carbohydrate - high protein additive score (low score=high CHO). Range = 1-10)	Fatal + non- fatal	Ischaemic stroke/registr ies, medical records		Continuous	Per decrea sing tenths (1 unit)	1.05 (0.98- 1.14)				Height, BMI, smoking, physical activity, education, hypertension, energy intake, unsaturated lipid intake, saturated lipid intake and alcohol intake
(Lagiou <i>et al.</i> , 2007)  The Women's Lifestyle and Health Cohort Study						Low carbohydrate- high protein score (low score=high CHO/low protein). Range = 2-20)					Per 2 units	1.07 (1.00- 1.13)				As above
(Lagiou <i>et al.</i> , 2007)  The Women's Lifestyle and Health Cohort Study	Sweden No CVD	30-49 %Male: 0	(70)/ 43396	15.7	FFQ (80)	Low carbohydrate diet score (Low carbohydrate - high protein additive score (low score=high CHO). Range = 1-10)	Fatal + non- fatal	Hemorrhagic stroke/registr ies, medical records		Continuous	Per decrea sing tenths (1 unit)	1.00 (0.86- 1.17)				As above
(Lagiou <i>et al.</i> , 2007)  The Women's Lifestyle and Health Cohort Study						Low carbohydrate- high protein score (low score=high CHO/low protein). Range = 2-20)					Per 2 units	1.05 (0.93- 1.18)				As above

continued: Table 29 - Nutrient-based dietary patterns and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Lagiou <i>et al.</i> , 2007)  The Women's Lifestyle and Health Cohort Study	Sweden No CVD	30-49 %Male: 0	(121)/ 43396	15.7	FFQ (80)	Low carbohydrate diet score (Low carbohydrate - high protein additive score (low score=high CHO). Range = 1-10)	Fatal + non- fatal	Subarachnoid haemorrhage /registries, medical records		Continuous	Per decrea sing tenth (1 unit)	1.07 (0.95- 1.21)				As above
(Lagiou <i>et al.</i> , 2007)  The Women's Lifestyle and Health Cohort Study						Low carbohydrate- high protein score (low score=high CHO/low protein). Range = 2-20)					Per 2 units	1.07 (0.97- 1.17)				As above

**Table 30 - Rice intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Ehsak et al., 2011)  Japan Collaborative Cohort Study	Japan, Japanese, no cancer, stroke, CHD	40-79	(1927)/ 35064	14.1 (4.1)	FFQ (40)	Rice	Fatal	Total CVD/death certificates	Men	Q5 vs. Q1	g/d	0.82 (0.70- 0.97)		0.006		Hypertension, history of diabetes, BMI, alcohol consumption, smoking status, hours of exercise, hours of walking, education, perceived mental stress, sleep duration, intakes of dish, meat, vegetable. Fruit, dairy products and soy, total energy intake, sodium intake and Key's dietary score
(Ehsak et al., 2011)  Japan Collaborative Cohort Study			(1587)/ 48688						Wome n			1.07 (0.88- 1.34)		0.66		As above
(Ehsak et al., 2011)  Japan Collaborative Cohort Study			(768)						Men- BMI ≤21.4			1.07 (0.88- 1.34)		0.66		As above
(Ehsak et al., 2011)  Japan Collaborative Cohort Study			(582)						Wome n- BMI ≤21.6			1.07 (0.75- 1.53)		0.80		As above

continued: Table 30 - Rice intake and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Ehsak et al., 2011)			(615)						Men- BMI 21.5- 23.5			0.93 (0.71- 1.23 (0.71)		0.40		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(542)						Wome n- BMI 21.7- 23.8			1.19 (0.85- 1.66)		0.67		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(535)						Men- BMI >23.5			0.64 (0.47- 0.88)		0.005		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(463)						Wome n- BMI > 23.8			1.00 (0.67- 1.49)		0.95		As above
Japan Collaborative Cohort Study																

**Table 31 - Rice intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Ehsak et al., 2011)  Japan Collaborative Cohort Study	Japan, Japanese, no cancer, stroke, CHD	40-79	(790)/ 35064	14.1 (4.1)	FFQ (40)	Rice	Fatal	CHD/death certificates	Men	Q5 vs. Q1	g/d	0.70 (0.49- 0.99)		0.02		Hypertension, history of diabetes, BMI, alcohol consumption, smoking status, hours of exercise, hours of walking, education, perceived mental stress, sleep duration, intakes of dish, meat, vegetable. Fruit, dairy products and soy, total energy intake, sodium intake and Key's dietary score
(Ehsak et al., 2011)  Japan Collaborative Cohort Study			(278)/ 48688						Wome n			1.08 (0.66- 1.77)		0.98		As above
(Ehsak et al., 2011)  Japan Collaborative Cohort Study			(161)						Men- BMI ≤21.4			0.74 (0.41- 1.34)		0.41		As above
(Ehsak et al., 2011)  Japan Collaborative Cohort Study			(90)						Wome n- BMI ≤21.6			1.12 (0.42- 2.95)		0.98		As above

continued: Table 31 - Rice intake and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Ehsak et al., 2011)			(125)						Men- BMI 21.5- 23.5			0.80 (0.43- 1.49)		0.27		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(98)						Wome n- BMI 21.7- 23.8			1.25 (0.56- 2.80)		0.58		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(143)						Men- BMI >23.5			0.59 (0.32- 1.11)		0.05		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(90)						Wome n- BMI > 23.8			0.96 (0.38- 2.40)		0.59		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)	Japan, Japanese, no cancer, stroke, CHD	40-79	(295)/ 35064	14.1 (4.1)	FFQ (40)	Rice	Fatal	Heart failure/death certificates	Men	Q5 vs. Q1		0.70 (0.46- 1.05)		0.05		As above
Japan Collaborative Cohort Study																

continued: Table 31 - Rice intake and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Ehsak et al., 2011)			(265)/ 48688						Wome n			1.15 (0.70- 1.90)		0.61		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(138)						Men- BMI ≤21.4			0.81 (0.44- 1.51)		0.34		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(95)						Wome n- BMI ≤21.6			1.48 (0.61- 3.59)		0.49		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(102)						Men- BMI 21.5- 23.5			0.92 (0.46- 1.87 )		0.74		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(89)						Wome n- BMI 21.7- 23.8			1.09 (0.48- 2.45)		0.99		As above
Japan Collaborative Cohort Study																

continued: Table 31 - Rice intake and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Ehsak et al., 2011)			(96)						Men- BMI >23.5			0.35 (0.13- 0.96)		0.03		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(81)						Wome n- BMI > 23.8			0.94 (0.35- 2.54)		0.87		As above
Japan Collaborative Cohort Study																

**Table 32 - Rice intake and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Ehsak et al., 2011)  Japan Collaborative Cohort Study	Japan, Japanese, no cancer, stroke, CHD	40-79	(874)/ 35064	14.1 (4.1)	FFQ (40)	Rice	Fatal	Stroke/death certificates	Men	Q5 vs. Q1	g/d	1.02 (0.82- 1.31)			0.88	Hypertension, history of diabetes, BMI, alcohol consumption, smoking status, hours of exercise, hours of walking, education, perceived mental stress, sleep duration, intakes of dish, meat, vegetable. Fruit, dairy products and soy, total energy intake, sodium intake and Key's dietary score
(Ehsak et al., 2011)  Japan Collaborative Cohort Study			(766)/ 48688						Women			0.99 (0.75- 1.31)			0.93	As above
(Ehsak et al., 2011)  Japan Collaborative Cohort Study			(371)						Men- BMI ≤21.4			1.25 (0.86- 1.80)			0.59	As above
(Ehsak et al., 2011)  Japan Collaborative Cohort Study			(294)						Women- BMI ≤21.6			0.98 (0.60- 1.62)			0.96	As above

continued: Table 32 - Rice intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Ehsak et al., 2011)			(280)						Men- BMI 21.5- 23.5			0.96 (0.63- 1.47)		0.60		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(258)						Women- BMI 21.7- 23.8			1.15 (0.71- 1.87)		0.87		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(223)						Men- BMI >23.5			0.90 (0.57- 1.44)		0.88		As above
Japan Collaborative Cohort Study																
(Ehsak et al., 2011)			(214)						Women- BMI > 23.8			0.92 (0.51- 1.68)		0.81		As above
Japan Collaborative Cohort Study																
(Oba et al., 2010)	Japan	% M 45.7	(120)/ 12561	7	FFQ (169)	Rice (g)	Fatal	Stroke death/death certificates, registry	Men	Q4 vs. Q1	g/d	0.84 (0.43- 1.62)		0.28		Age, BMI, smoking, physical activity, reported history of hypertension, education, energy intake, alcohol, fibre, salt and total fat.
Takayama study																
(Oba et al., 2010)			(127)/ 15301						Women			1.37 (0.64- 2.94)		0.62		As above.
Takayama study																

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continued: Table 32 - Rice intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Oba et al., 2010) Takayama study			(48/ 12561					Hemorrhagic stroke death/death certificates, registry	Men			0.71 (0.34- 1.49)		0.15		Age
(Oba et al., 2010) Takayama study			(46)/ 15301						Women		g/d	2.36 (0.92- 6.03)		0.02		As above
(Oba et al., 2010) Takayama study			(60)/ 12561					Ischemic stroke death/ death certificates, registry	Men			1.21 (0.61- 2.37)		0.97		As above
(Oba et al., 2010) Takayama study			(66)/ 15301						Women			1.67 (0.69- 4.07)		0.39		As above
(Oba et al., 2010) Takayama study			73/ 6970					Stroke death	Men BMI <23 kg/m <sup>2</sup>			0.87 (0.45- 1.67)		0.44		As above
(Oba et al., 2010) Takayama study			25/ 4886						Men BMI ≥ 23kg/m <sup>2</sup>			1.10 (0.40- 3.05)		0.93		As above
(Oba et al., 2010) Takayama study			81/ 9747					Stroke death	Women BMI <23 kg/m <sup>2</sup>			2.10 (0.89- 4.94)		0.22		As above
(Oba et al., 2010) Takayama study			29/ 4698						Women BMI ≥ 23kg/m <sup>2</sup>			0.98 (0.36- 2.73)		0.77		As above

**Table 33 - Sweetened beverage intake and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
De Koning et al., 2012  HPFS	US, primarily white	40-75  %Male 100	(3683)/ 42883	22	FFQ	Sugar sweetened beverages (colas, lemonades, fruit punches and other fruit drinks)	Fatal + non- fatal	CHD/medical records, national death index, family members		Q4 vs. Q1	servings	1.18 (1.06- 1.31)	2.5/week /0.36 per day (0.61)		<0.01	Age, smoking, physical activities, alcohol intake, multivitamin use, family history of CHD, pre- enrolment weight change, adherence to low calorie diet in 1992, previous diagnosis type 2, high triglycerides, high cholesterol, high blood pressure.
De Koning et al., 2012  HPFS										Continuous	Servings per day	1.19 (1.11- 1.28)	0.36 per day (0.61)	<0. 01		Age, smoking, physical activities, alcohol intake, multivitamin use, family history of CHD, pre- enrolment weight change, adherence to low calorie diet in 1992,
De Koning et al., 2012  HPFS						Colas						1.19 (1.09- 1.31)	0.21/day (0.46)	<0. 01		As above
De Koning et al., 2012  HPFS						Carbonated non-colas						1.25 (1.04- 1.51)	0.07/day (0.20)	0.0 2		As above
						Fruit punches, lemonades, other non- carbonated fruit drinks						1.25 (1.08- 1.46)	0.08 (0.27)	<0. 01		As above

**Table 34 - Sweetened beverage intake and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Bernstein et al., 2012	US, primarily white, no cancer, diabetes, angina, MI or other CVD	40-75- men	(4354)/ 127456	~20	FFQ (131/ 61)	Sugar sweetened soda	Fatal + non- fatal	Stroke/ medical records, self- reports, National Death Index, postal system-next of kin	Pooled	Once per day or more vs. none	Servings	1.16 (1.00- 1.34)		0.02		Stratified age, calendar time. Adjusted red meat, poultry, fish, nuts, whole and low fat dairy products, fruit, vegetables, , cereal fibre, alcohol, trans fat, cigarette smoking, parental history MI, multivitamin use, aspirin, vitamin E supplements, menopausal status, physical exercise, BMI energy intake
HPFS and NHS		30-55- women								Continuous						
Bernstein et al., 2012		40-75	(1416)/ 43371	(4)	FFQ (131)			Men	Once per day or more vs. none	Servings	1.08 (0.82- 1.41)		0.43		Same as above, except for menopausal status	
HPFS									Continuous	1 serving /d	1.08 (0.89- 1.32)				Same as above, except for menopausal status	

continued: Table 34 - Sweetened beverage intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Bernstein et al., 2012  NHS		30-55	(2938)/ 84085	(3)	FFQ (61)				Wome n	Once per day or more vs. none	Serving s	1.19 (1.00- 1.42)		0.02		Stratified age, calendar time. Adjusted red meat, poultry, fish, nuts, whole and low fat dairy products, fruit, vegetables, , cereal fibre, alcohol, trans fat, cigarette smoking, parental history MI, multivitamin use, aspirin, vitamin E supplements, menopausal status, physical exercise, BMI energy intake
Bernstein et al., 2012  NHS										Continuous	1 serving /d	1.14 (1.02- 1.27)				Same as above
Bernstein et al., 2012  HPFS and NHS	US, primarily white, no cancer, diabetes, angina, MI or other CVD	40-75- men  30-55- women	(2356)/ 127456	~20	FFQ (131/ 61)	Sugar sweetened soda	Fatal + non- fatal	Ischaemic stroke/ medical records, self- reports, National Death Index, postal system-next of kin	Pooled	Once per day or more vs. none	Serving s	1.19 (0.97- 1.46)		0.07		Stratified age, calendar time. Adjusted red meat, poultry, fish, nuts, whole and low fat dairy products, fruit, vegetables, , cereal fibre, alcohol, trans fat, cigarette smoking, parental history MI, multivitamin use, aspirin, vitamin E supplements, menopausal status, physical exercise, BMI energy intake
Bernstein et al., 2012  HPFS and NHS										Continuous	1 serving /d	1.13 (0.99- 1.30)				Same as above

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continued: Table 34 - Sweetened beverage intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Bernstein et al., 2012  HPFS		40-75	(843)/4 3371	(4%)	FFQ (131)				Men	Once per day or more vs. none	Serving s	1.02 (0.72- 1.45)		0.98		Same as above, except for menopausal status
Bernstein et al., 2012  HPFS										Continuous	1 serving /d	1.00 (0.77- 1.30)				Same as above, except for menopausal status
Bernstein et al., 2012  NHS		30-55	(1513) /84085	(3%)	FFQ (61)				Wome n	Once per day or more vs. none	Serving s	1.28 (0.99- 1.65)		0.04		Stratified age, calendar time. Adjusted red meat, poultry, fish, nuts, whole and low fat dairy products, fruit, vegetables, , cereal fibre, alcohol, trans fat, cigarette smoking, parental history MI, multivitamin use, aspirin, vitamin E supplements, menopausal status, physical exercise, BMI energy intake
Bernstein et al., 2012  NHS										Continuous	1 serving /d	1.19 (1.01- 1.39)				Same as above

continued: Table 34 - Sweetened beverage intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Bernstein et al., 2012  HPFS and NHS	US, primarily white, no cancer, diabetes, angina, MI or other CVD	40-75- men  30-55- women	(736)/ 127456	~20	FFQ (131/ 61)	Sugar sweetened soda	Fatal + non- fatal	Hemorrhagic stroke/ medical records, self- reports, National Death Index, postal system-next of kin	Pooled	Once per day or more vs. none	Serving s	0.85 (0.59- 1.22)		0.71		Stratified age, calendar time. Adjusted red meat, poultry, fish, nuts, whole and low fat dairy products, fruit, vegetables, , cereal fibre, alcohol, trans fat, cigarette smoking, parental history MI, multivitamin use, aspirin, vitamin E supplements, menopausal status, physical exercise, BMI energy intake
Bernstein et al., 2012  HPFS and NHS										Continuous	1 serving /d	0.96 (0.76- 1.21)				Same as above
Bernstein et al., 2012  HPFS		40-75	(217)/ 43371	(4%)	FFQ (131)				Men	Once per day or more vs. none	Serving s	0.82 (0.38- 1.77)		0.72		Same as above, except for menopausal status
Bernstein et al., 2012  HPFS										Continuous	1 serving /d	1.10 (0.66- 1.81)				Same as above, except for menopausal status

continued: Table 34 - Sweetened beverage intake and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Bernstein et al., 2012  NHS		30-55	(519) /84085	(3%)	FFQ (61)				Wome n	Once per day or more vs. none	Serving s	0.85 (0.56- 1.29)			0.54	Stratified age, calendar time. Adjusted red meat, poultry, fish, nuts, whole and low fat dairy products, fruit, vegetables, , cereal fibre, alcohol, trans fat, cigarette smoking, parental history MI, multivitamin use, aspirin, vitamin E supplements, menopausal status, physical exercise, BMI energy intake
Bernstein et al., 2012  NHS										Continuous	1 serving /d	0.92 (0.71- 1.20)				Same as above

**Table 35 - Wholegrain intake and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Nilsson et al., 2012)  Västerbotten Intervention Program (VIP)	Sweden	30-60	(500)/ 37639	10	FFQ (84/65)	Wholegrain (% energy)	Fatal	CVD mortality/regi- stries	Men	Continuous	Ascending deciles	0.99 (0.96- 1.03)		0.6 92		Age, BMI, sedentary lifestyle, education, current smoking, energy intake, alcohol, saturated fat
(Nilsson et al., 2012)  Västerbotten Intervention Program (VIP)			(181)/ 39690						Wome n			1.03 (0.97- 1.10)		0.3 13		As above

**Table 36 - Glycaemic index and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Grau et al., 2011)  Pool of four Danish Cohorts	Denmark, no CVD, CHD, cancer (except skin cancer), diabetes, antihyper- tensives	30-70  % Male: 49.9	1684	6-25	7d diet records , diet history intervi- ews	GI (residual)	Non- fatal	CVD morbidity/reg- istries	Men	10 <sup>th</sup> centile		1.38 (1.13- 1.68)				Age, total energy intake, BMI, energy adjusted carbohydrate intake, energy-adjusted fat intake, energy-adjusted protein intake, energy adjusted fibre intake, cohort, level of education, level of physical activity, smoking status
(Grau et al., 2011)  Pool of four Danish Cohorts			1684						Men	90 <sup>th</sup> centile		0.90 (0.76- 1.07)				As above
(Grau et al., 2011)  Pool of four Danish Cohorts			(321)/ 1811						Wome- n	10 <sup>th</sup> percentile		1.07 (0.85- 1.34)				As above
(Grau et al., 2011)  Pool of four Danish Cohorts			(321)/ 1811						Wome- n	90 <sup>th</sup> percentile		1.21 (0.98- 1.49)				As above
(Grau et al., 2011)  Pool of four Danish Cohorts			1684				Fatal	CVD mortality	Men	10 <sup>th</sup> percentile		1.45 (1.05- 1.99)				As above
(Grau et al., 2011)  Pool of four			1684						Men	90 <sup>th</sup> percentile		0.81 (0.62- 1.06)				As above

continued: Table 36 - Glycaemic index and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Danish Cohorts																
(Grau et al., 2011)			(108)/ 1811				Fatal	CVD mortality	Wome n	10 <sup>th</sup> percentile		0.50 (0.27- 0.91)				As above
Pool of four Danish Cohorts																
(Grau et al., 2011)			(108)/ 1811						Wome n	90 <sup>th</sup> percentile		1.04 (0.70- 1.55)				As above
Pool of four Danish Cohorts																

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**Table 37 - Glycaemic index and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)  EPIC-MORGEN	Holland, no history of CVD or T2DM	20-65 (43)  %Male: 45.2	(581)/ 8855	15	FFQ (79)	GI	Fatal + Non- fatal Events	CHD/registrie s	Men	Continuous	Per SD increas e (3.9)	1.02 (0.92- 1.13)				Age, smoking, packyears, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total and HDL cholesterol , energy adjusted carbohydrate and protein intake
(Burger et al., 2011)  EPIC-MORGEN		20-65 (42.1)	(300)/ 10753						Wome n			1.07 (0.92- 1.24)				As above and oral contraceptive use
(Burger et al., 2011)  EPIC-MORGEN									Younge r men (media n <43.1 yrs)			1.27 (0.98- 1.64)				
(Burger et al., 2011)  EPIC-MORGEN									Older men (media n ≥43.1 yrs)			0.98 (0.88- 1.10)				
(Burger et al., 2011)  EPIC-MORGEN									Younge r women (media n <43.1 yrs)			0.89 (0.61- 1.30)				

continued: Table 37 - Glycaemic index and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)									Older women (media n ≥43.1 yrs)			1.12 (0.95- 1.31)				
EPIC-MORGEN																
(Grau et al., 2011)	Denmark, no CVD, CHD, cancer (except skin cancer), diabetes, antihyper tensives	30-70  % Male: 49.9	1684	6-25	7d diet records , diet history intervi ews	GI (residual)	Non- fatal	CHD morbidity/reg istries	Men	10 <sup>th</sup> percentile		1.32 (0.95- 1.84)				Age, total energy intake, BMI, energy adjusted carbohydrate intake, energy-adjusted fat intake, energy-adjusted protein intake, energy adjusted fibre intake, cohort, level of education, level of physical activity, smoking status
Pool of four Danish Cohorts																
(Grau et al., 2011)			1684							90 <sup>th</sup> percentile		0.71 (0.55- 0.94)				As above
Pool of four Danish Cohorts																
(Grau et al., 2011)			(114)/ 1889				Non- fatal	CHD morbidity/reg istries	Wome n	10 <sup>th</sup> percentile		0.74 (0.49- 1.10)				As above
Pool of four Danish Cohorts																
(Grau et al., 2011)			(114)/ 1889							90 <sup>th</sup> percentile		1.45 (1.00- 2.10)				As above
Pool of four Danish Cohorts																

continued: Table 37 - Glycaemic index and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Hardy et al., 2010) ARIC	US African American and white  No CHD or stroke	45-64 (54)  %Male 43	(1303)/ 9685	17	FFQ (66)	GI (energy adjusted)	Fatal + Non- fatal Events	CHD/ Self reports, hospital surveillance and death certificates.	White	Continuous	Per 5 units	1.00 (0.94- 1.06)	52.4 (4.4)			Age, sex, BMI, SBP, total cholesterol, HDL, antihypertensive medication, smoking, sports activity index, Keys dietary score, fasting blood glucose and total calories on energy adjusted GL
(Hardy et al., 2010) ARIC			(380)/ 3366						African Americ an			1.16 (1.01- 1.33)		<0. 05		As above
(Hardy et al., 2010) ARIC			(1055)/ 8922						White- withou t diabet es		Per 5 units	1.01 (0.94- 1.09)				As above
(Hardy et al., 2010) ARIC			(257)/ 2751						African Americ an- withou t diabet es		Per 5 units	1.16 (0.98- 1.37)				As above

continued: Table 37 - Glycaemic index and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Levitan et al., 2010a)  Swedish Mammography cohort	Sweden, no heart failure, MI or diabetes	48-83 %Male: 0	(1138)/ 36234	>9	FFQ	GI (energy adjusted)	Fatal + non- fatal	MI/registries		Q4 vs. Q1	Per 5 units	1.12 (0.92- 1.35)			0.24	Age, education, BMI, physical activity, cigarette smoking, living alone, postmenopausal hormone use, aspirin, total energy intake, alcohol, fibre, saturated fat, polyunsaturated fat, protein, carbohydrate, family history of MI before 60 yrs, self-reported history of hypertension, self-reported history of high cholesterol
(Levitan et al., 2010a)  Swedish Mammography cohort									Normal weight		Per 5 units	1.03 (0.79- 1.34)			0.68	As above
(Levitan et al., 2010a)  Swedish Mammography cohort									Overw eight			1.20 (0.91- 1.58)			0.22	As above
(Levitan et al., 2010a)  Swedish Mammography cohort									Active women			1.29 (0.86- 1.95)			0.22	

continued: Table 37 - Glycaemic index and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Levitan et al., 2010a)									Inactiv e women			1.06 (0.85- 1.31)			0.61	
Swedish Mammography cohort																
(Levitan et al., 2010a)									Low fibre intake (<18.4 g/d)			1.05 (0.74- 1.49)			0.73	
Swedish Mammography cohort																
(Levitan et al., 2010a)									Higher fibre intake (≥ 18.4g/ d)			1.14 (0.91- 1.42)			0.28	
Swedish Mammography cohort																
(Levitan et al., 2010 b)	Sweden, no cancer, heart failure, MI or diabetes	48-83 %Male: 0	(639)/ 36019	9	FFQ (96)	GI (energy adjusted)	Fatal + non- fatal	Heart failure/ registries		Q4 vs. Q1		1.12 (0.87- 1.45)			0.31	Age, education, BMI, physical activity, cigarette smoking, living alone, postmenopausal hormone use, aspirin, sodium, total energy intake, alcohol, fibre, saturated fat, polyunsaturated fat, protein, carbohydrate, family history of MI before 60 yrs, self-reported history of hypertension, self-reported history of high cholesterol
Swedish Mammography cohort																

continued: Table 37 - Glycaemic index and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Levitan et al., 2010 b)									Normal weight			1.11 (0.75- 1.63)			0.38	
Swedish Mammography cohort																
(Levitan et al., 2010 b)									Overw eight			1.10 (0.77- 1.58)			0.65	
Swedish Mammography cohort																
(Levitan et al., 2010 b)									Low fibre intake			0.89 (0.55- 1.43)			0.69	
Swedish Mammography cohort																
(Levitan et al., 2010 b)									High fibre intake			1.30 (0.95- 1.78)			0.08	
Swedish Mammography cohort																
(Levitan et al., 2010 b)									First half of follow- up			1.33 (0.88- 2.02)			0.09	
Swedish Mammography cohort																

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continued: Table 37 - Glycaemic index and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Levitan et al., 2010 b)									Second half of follow- up			1.00 (0.72- 1.40)			0.96	
Swedish Mammography cohort																
(Sieri et al., 2010)	Italy	35-64	(305)/ 47,749	7.9 (0.41)	FFQ	GI	Fatal + Non- fatal Events	CHD/databas es, medical records, death certificates	Men	Q4 vs. Q1		0.96 (0.70- 1.33)			0.82	Stratified by centre and adjusted for non-alcohol energy intake, hypertension, smoking, education, categories of alcohol intake, BMI, fibre, physical activity, saturated fat, age
EPICOR	No CVD, No diabetes treatmen t	%M: 32														
(Sieri et al., 2010)			158/ 47,749						Wome n			1.42 (0.90- 2.25)			0.46	As above
EPICOR																

**Table 38 - Glycaemic index and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)  EPIC MORGEN	Holland, no history of CVD or T2DM	20-65 (43)  %Male: 45.2	(120)/ 8855	15	FFQ (79)	GI	Fatal + Non- fatal Events	Stroke/ registries	Men	Continuous	Per SD increas e (3.9)	1.27 (1.02- 1.58)				Age, smoking, packyears, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total, HDL cholesterol, carbohydrate and protein
(Burger et al., 2011)  EPIC MORGEN			(68)/ 8855					Ischaemic stroke	Men			1.34 (1.01- 1.80)				As above
(Burger et al., 2011)  EPIC MORGEN			(109)/ 10753						Wome n			0.95 (0.75- 1.22)				As above and oral contraceptive use
(Oba et al., 2010)  Takayama study	Japan	% M 45.7	(120)/ 12561	7	FFQ (169)	GI	Fatal	Stroke death/death certificates, registry	Men	Q4 vs. Q1	g	0.78 (0.41- 1.47)		0.50		Age, BMI, smoking, physical activity, reported history of hypertension, education, energy intake, alcohol, fibre, salt and total fat.
(Oba et al., 2010)  Takayama study			(127)/ 15301						Wome n			2.09 (1.01- 4.31)		0.10		As above.
(Oba et al., 2010)  Takayama study			(48/ 12561					Hemorrhagic stroke death/death certificates, registry	Men			0.90 (0.42- 1.94)		0.94		Age

continued: Table 38 - Glycaemic index and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Oba et al., 2010) Takayama study			(46)/ 15301						Wome n			2.10 (0.82- 5.39)		0.08		As above
(Oba et al., 2010) Takayama study			(60)/ 12561					Ischemic stroke death/ death certificates, registry	Men			0.91 (0.43- 1.92)		0.96		As above
(Oba et al., 2010) Takayama study			(66)/ 15301						Wome n			2.45 (1.01- 5.92)		0.03		As above
(Oba et al., 2010) Takayama study			73/ 6970					Stroke death	Men BMI <23 kg/m <sup>2</sup>			0.93 (0.49- 1.80)		0.99		As above
(Oba et al., 2010) Takayama study			25/ 4886						Men BMI ≥ 23kg/ m <sup>2</sup>			0.82 (0.27- 2.50)		0.57		As above
(Oba et al., 2010) Takayama study			81/ 9747					Stroke death	Wome n BMI <23 kg/m <sup>2</sup>			3.86 (1.51- 9.90)		0.01		As above
(Oba et al., 2010) Takayama study			29/ 4698						Wome n BMI ≥ 23kg/ m <sup>2</sup>			0.94 (0.32- 2.76)		0.94		As above

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**Table 39 - Glycaemic load and total CVD: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Grau et al., 2011)  Pool of four Danish Cohorts	Denmark, no CVD, CHD, cancer (except skin cancer), diabetes, antihyper- tensives	30-70  % Male: 49.9	1819	6-25	7d diet records , diet history intervi- ews	GL (residual)	Non- fatal	CVD morbidity/reg- istries	Men	10 <sup>th</sup> centile		1.02 (0.87- 1.20)				Age, total energy intake, BMI, cohort, level of education, level of physical activity, smoking status
(Grau et al., 2011)  Pool of four Danish Cohorts										90 <sup>th</sup> centile		1.05 (0.87- 1.25)				As above
(Grau et al., 2011)  Pool of four Danish Cohorts			(321)/ 1811				Non- fatal	CVD morbidity/reg- istries	Wome n	10 <sup>th</sup> centile		1.07 (0.85- 1.34)				As above
(Grau et al., 2011)  Pool of four Danish Cohorts			(321)/ 1811						Wome n	90 <sup>th</sup> centile		1.21 (0.98- 1.49)				As above
(Grau et al., 2011)  Pool of four Danish Cohorts			1819			GL (residual)	Fatal	CVD mortality	Men	10 <sup>th</sup> centile		0.99 (0.76- 1.28)				As above
(Grau et al., 2011)  Pool of four			1819						Men	90 <sup>th</sup> centile		1.04 (0.76- 1.42)				As above

continued: Table 39 - Glycaemic load and total CVD: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Danish Cohorts																
(Grau et al., 2011)			(108)/ 1811			GL (residual)	Fatal	CVD mortality	Wome n	10 <sup>th</sup> centile		0.50 (0.27- 0.91)				As above
Pool of four Danish Cohorts																
(Grau et al., 2011)			(108)/ 1811						Wome n	90 <sup>th</sup> centile		1.04 (0.70- 1.55)				As above
Pool of four Danish Cohorts																

**Table 40 - Glycaemic load and coronary events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)  EPIC-MORGEN	Holland, no history of CVD or T2DM	20-65 (43)  %Male: 45.2	(581)/ 8855	15	FFQ (79)	GL	Fatal + Non- fatal Events	CHD/registries	Men	Continuous	Per SD increase (20.5)	1.14 (0.99- 1.32)				Age, smoking, packyears, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total and HDL cholesterol
(Burger et al., 2011)  EPIC-MORGEN		20-65 (42.1)	(300)/ 10753						Women			1.05 (0.86- 1.28)				As above and oral contraceptive use
(Burger et al., 2011)  EPIC-MORGEN									Younger men (media n <43.1 yrs)			1.45 (1.01- 2.06)				
(Burger et al., 2011)  EPIC-MORGEN									Older men (media n ≥43.1 yrs)			1.14 (0.98- 1.33)				
(Burger et al., 2011)  EPIC-MORGEN									Younger women (media n <43.1 yrs)			0.80 (0.47- 1.38)				

continued: Table 40 - Glycaemic load and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)									Older women (media n ≥43.1 yrs)			1.13 (0.91- 1.40)				
EPIC-MORGEN																
(Grau et al., 2011)	Denmark, no CVD, CHD, cancer (except skin cancer), diabetes, antihyper tensives	30-70  % Male: 49.9	1885	6-25	7d diet records , diet history intervi ews	GL (residual)	Non- fatal	CHD morbidity/reg istries	Men	10 <sup>th</sup> percentile		0.58 (0.36- 0.92)				Age, total energy intake, BMI, cohort, level of education, level of physical activity, smoking status
Pool of four Danish Cohorts																
(Grau et al., 2011)			1885						Men	90 <sup>th</sup> percentile		1.07 (0.82- 1.39)				As above
Pool of four Danish Cohorts																
(Grau et al., 2011)			(114)/ 1889				Non- fatal	CHD morbidity/reg istries	Wome n	10 <sup>th</sup> percentile		0.74 (0.49- 1.10)				As above
Pool of four Danish Cohorts																
(Grau et al., 2011)			(114)/ 1889						Wome n	90 <sup>th</sup> percentile		1.45 (1.00- 2.10)				
Pool of four Danish Cohorts																

continued: Table 40 - Glycaemic load and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Hardy et al., 2010) ARIC	US African American and white  No CHD or stroke	45-64 (54) %Male 43	(1303)/ 9685	17	FFQ (66)	GL (energy adjusted)	Fatal + Non- fatal Events	CHD/ Self reports, hospital surveillance and death certificates.	White	Continuous	Per 30 units	1.11 (1.01- 1.21)	103.6 (23.3)	<0. 05		Age, sex, BMI, SBP, total cholesterol, HDL, antihypertensive medication, smoking, sports activity index, Keys dietary score, fasting blood glucose and total calories on energy adjusted GI and GL
(Hardy et al., 2010) ARIC			(380)/ 3366						African Americ an			1.04 (0.87- 1.23)				As above
(Hardy et al., 2010) ARIC			(1055)/ 8922						White- withou t diabet es			1.14 (1.02- 1.26)		<0. 05		As above
(Hardy et al., 2010) ARIC			(257)/ 2751						African Americ an- withou t diabet es		Per 30 units	0.99 (0.81- 1.22)				As above
(Grau et al., 2011) Pool of four Danish Cohorts	Denmark	30-70 % Male: 49.9		6-25	7d diet records , diet history intervi ews	GI		/registries								

continued: Table 40 - Glycaemic load and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Levitan et al., 2010a)  Swedish Mammography cohort	Sweden, no heart failure, MI or diabetes	48-83 %Male: 0	(1138)/ 36234	>9	FFQ	GL (energy adjusted)	Fatal + non- fatal	MI/registries		Q4 vs. Q1		1.22 (0.90- 1.65)			0.23	Age, education, BMI, physical activity, cigarette smoking, living alone, postmenopausal hormone use, aspirin, total energy intake, alcohol, fibre, saturated fat, polyunsaturated fat, protein, carbohydrate, family history of MI before 60 yrs, self-reported history of hypertension, self-reported history of high cholesterol
(Levitan et al., 2010a)  Swedish Mammography cohort									Normal weight			1.07 (0.70- 1.62)			0.67	As above
(Levitan et al., 2010a)  Swedish Mammography cohort									Overw eight			1.45 (0.93- 2.25)			0.16	As above
(Levitan et al., 2010a)  Swedish Mammography cohort									Active women			1.42 (0.72- 2.79)			0.38	

continued: Table 40 - Glycaemic load and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Levitan et al., 2010a)									Inactiv e women			1.14 (0.82- 1.60)			0.46	
Swedish Mammography cohort																
(Levitan et al., 2010a)									Low fibre intake (<18.4 g/d)			0.85 (0.49- 1.48)			0.63	
Swedish Mammography cohort																
(Levitan et al., 2010a)									Higher fibre intake (≥ 18.4g/ d)			1.41 (0.98- 2.05)			0.09	
Swedish Mammography cohort																
(Levitan et al., 2010 b)	Sweden, no cancer, heart failure, MI or diabetes	48-83 %Male: 0	(639)/ 36019	9	FFQ (96)	GL (energy adjusted)	Fatal + non- fatal	Heart failure/ registries		Q4 vs. Q1		1.30 (0.87- 1.93)			0.16	Age, education, BMI, physical activity, cigarette smoking, living alone, postmenopausal hormone use, aspirin, sodium, total energy intake, alcohol, fibre, saturated fat, polyunsaturated fat, protein, carbohydrate, family history of MI before 60 yrs, self-reported history of hypertension, self-reported history of high cholesterol
Swedish Mammography cohort																

continued: Table 40 - Glycaemic load and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Levitan et al., 2010 b)									Normal weight			1.11 (0.62-2.0)			0.68	
Swedish Mammography cohort																
(Levitan et al., 2010 b)									Overw eight			1.47 (0.84- 2.58)			0.68	
Swedish Mammography cohort																
(Levitan et al., 2010 b)									Low fibre intake			1.16 (0.55- 2.44)			0.45	
Swedish Mammography cohort																
(Levitan et al., 2010 b)									High fibre intake			1.35 (0.83- 2.19)			0.20	
Swedish Mammography cohort																
(Levitan et al., 2010 b)									First half of follow- up			1.78 (0.94- 3.35)			0.053	
Swedish Mammography cohort																

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continued: Table 40 - Glycaemic load and coronary events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Levitan et al., 2010 b)									Second half of follow- up			1.06 (0.63- 1.77)			0.81	
Swedish Mammography cohort																
(Sieri et al., 2010)	Italy	35-64	(305)/ 47,749	7.9 (0.41)	FFQ	GL	Fatal + Non- fatal Events	CHD/databas es, medical records, death certificates	Men	Q4 vs. Q1		1.14 (0.75- 1.75)			0.59	Stratified by centre and adjusted for non-alcohol energy intake, hypertension, smoking, education, categories of alcohol intake, BMI, fibre, physical activity, saturated fat, age
EPICOR	No CVD, No diabetes treatmen t	%M: 32														
(Sieri et al., 2010)			158/ 47,749						Wome n			2.24 (1.26- 3.98)			0.005	As above
EPICOR																

**Table 41 - Glycaemic load and stroke events: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Burger et al., 2011)  EPIC MORGEN	Holland, no history of CVD or T2DM	20-65 (43)  %Male: 45.2	(120)/ 8855	15	FFQ (79)	GL	Fatal + Non- fatal Events	Stroke/ registries	Men	Continuous	Per SD increas e (20.5)	1.23 (0.90- 1.69)				Age, smoking, packyears, education, BMI, physical activity, hypertension, total energy, energy adjusted nutrients: alcohol, vitamin C, fibre, saturated and monounsaturated fat, plasma total, HDL cholesterol, carbohydrate and protein
(Burger et al., 2011)  EPIC MORGEN			(109)/ 10753						Wome n			0.90 (0.65- 1.26)				As above and oral contraceptive use
(Oba et al., 2010)  Takayama study	Japan	% M 45.7	(120)/ 12561	7	FFQ (169)	GL (energy adjusted)	Fatal	Stroke death/death certificates, registry	Men	Q4 vs. Q1	g	1.00 (0.47- 2.15)		0.66		Age, BMI, smoking, physical activity, reported history of hypertension, education, energy intake, alcohol, fibre, salt and total fat.
(Oba et al., 2010)  Takayama study			(127)/ 15301						Wome n			1.17 (0.51- 2.68)		0.60		As above.
(Oba et al., 2010)  Takayama study			(48/ 12561					Hemorrhagic stroke death/death certificates, registry	Men			0.86 (0.43- 1.73)		0.47		Age
(Oba et al., 2010)  Takayama study			(46)/ 15301						Wome n			2.30 (0.90- 5.88)		0.05		As above

continued: Table 41 - Glycaemic load and stroke events: cohort results

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
(Oba et al., 2010) Takayama study			(60)/ 12561					Ischemic stroke death/ death certificates, registry	Men			0.92 (0.47- 1.83)		0.77		As above
(Oba et al., 2010) Takayama study			(66)/ 15301						Wome n			1.59 (0.70- 3.65)		0.27		As above
(Oba et al., 2010) Takayama study			(73)/ 6970					Stroke death	Men BMI <23 kg/m <sup>2</sup>			0.90 (0.48- 1.69)		0.71		As above
(Oba et al., 2010) Takayama study			(25)/ 4886						Men BMI ≥ 23kg/ m <sup>2</sup>			0.85 (0.33- 2.20)		0.56		As above
(Oba et al., 2010) Takayama study			(81)/ 9747					Stroke death	Wome n BMI <23 kg/m <sup>2</sup>			1.92 (0.90- 4.13)		0.15		As above
(Oba et al., 2010) Takayama study			(29)/ 4698						Wome n BMI ≥ 23kg/ m <sup>2</sup>			1.16 (0.40- 3.35)		0.64		As above

## 2. Cardio-metabolic health update search - incident hypertension and blood pressure

**Table 42 - Characteristics of cohort studies on incident hypertension and blood pressure**

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Dietary assessment method	Length of follow-up (years)	Criteria for defining hypertension	Initial cohort size	Losses to follow-up (%)
<b>Amsterdam Growth and Health Longitudinal Study</b>	(Veldhuis <i>et al.</i> , 2010)	First and second year school children from two secondary schools  Mean age: 13.1  %Male: 47.2  Country: Holland	School based cohort	Diet history measured usual intake over the previous month	24	Supine blood pressure measured with an automated device and seated blood pressure measured with sphygmomanometer	600	38.6
<b>Jiangsu Nutrition Society (JIN)</b>	(Shi <i>et al.</i> , 2012)	Adults from rural and urban areas of the Jiangsu province  Mean age: 20+  % Male: 45.9  Country: China  Ethnicity: Chinese	Community cohort	Diet assessed using a 33 item FFQ and was reported to be validated. The FFQ referred to intakes in the preceding year.	5	Seated blood pressure measurements taken by research staff. Hypertension defined as $\geq 130/85$ mmHg	2849	40.9%
<b>The CARDIA study</b>	(Duffey <i>et al.</i> , 2010)	Young Black and White adults  Mean age: 25(18-30)  %Male: 46.5  Country: USA  Ethnicity: Multi-ethnic	Community cohort	Diet assessed through semi quantitative interviewer administered FFQ. The FFQ referred to diet over the previous month and was reported to be validated.	20	Seated blood pressure measurements. Hypertension defined as $\geq 130/85$ mmHg or use of antihypertensive medicine	5115	Not reported

**Table 43 - Rice intake and incident hypertension: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ Total	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub-group Detail	Contrast (mean)	Exposu re Units	RR (CI)	p	p trend	Adjustments
Shi <i>et al.</i> , 2012	China, Chinese	Age: 20+ %M 45.9	206/1167	5 (40.9)	FFQ (33)	Rice	Incident hypertension  Measured by researchers		≥401vs.0-200	g/day	0.58 (0.36-0.93)		0.009	Age, sex, baseline SBP, smoking, drinking, active commuting, leisure time physical activity, education, occupation and energy intake
Shi <i>et al.</i> , 2012						% rice in staple food				Per 10% increas e	0.90 (0.85-0.95)	<0.001		Same as above

**Table 44 - Sweetened beverage and fruit juice intake and incident hypertension: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ Total	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub-group Detail	Contrast (mean)	Exposu re Units	RR (CI)	p	p trend	Adjustments
(Duffey et al., 2010) The CARDIA study	US	18-30 (25) %Male: 46.5	(609)/2639	20	FFQ	Sugar sweetened beverages	Incident hypertension /clinic BP		Q4 vs. Q1	NR	1.06 (1.01-1.12)		0.023	Race, sex, CARDIA exam centre, baseline age, weight, smoking, energy from food, total physical activity, energy from low fat milk, whole fat milk and fruit juice, energy from alcohol
(Duffey et al., 2010) The CARDIA study						Fruit Juice					0.89 (0.82-0.97)		0.007	Race, sex, CARDIA exam centre, baseline age, weight, smoking, energy from food, total physical activity, energy from low fat milk, whole fat milk and SSBs, energy from alcohol

**Table 45 - Dietary fibre intake and blood pressure in children: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases) / Total	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Exposure Units	Mean Outcome (SD)	Beta coefficient (SE)/(CI)	p	p trend	Adjustments
(Veldhuis <i>et al.</i> , 2010)  Amsterda m Growth and Health Longitudin al study	Holland, no selection criteria	(13.1)  %M: 47.2	368	24 years (38.6)	Diet history	Dietary fibre (method not reported)	Blood pressure/ measured			g/1000 kcal		0.05 (-0.37- 0.47)	0.80		Sex, physical activity, smoking, alcohol

**Table 46 - Characteristics of RCTs on blood pressure**

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Aldrich <i>et al.</i> , 2011)	Healthy, 40-60yrs, BMI 27-32 kg/m <sup>2</sup> , no recent weight changes, fasting blood glucose <126mg/dL and desire to lose weight	Country: US  % Male: 16.6  Age: CD 51.3, MP 49.6, WP 49.2  BMI: CD 29.9, MP 30.3, WP 49.2	Parallel	5 months (8 weeks provided with foods, 12 weeks ad libitum)	Free living diet plan (WP group additional supplement)	18	1. Control diet (CD)  2. Mixed protein (MP)  3. Whey protein ( <i>not extracted</i> )	1. Higher percentage energy from carbohydrates  2. High protein diet  3. Protein derived from Designer Whey®	1.%E: CHO 55, protein 15, fat 30 Energy 1599.9  2.%E: CHO 40, protein 30, fat 30 Energy 1605.8 kcal/d	Not reported	National Centre for Research Resources, National Institutes for Health, USDA National Needs Graduate fellowship, National Institute of Food and Agriculture and Next proteins
(Belski <i>et al.</i> , 2011)	Overweight and obese (BMI 27-35 kg/m <sup>2</sup> , healthy, 20-71 yrs. No CVD or peripheral vascular disease, diabetes, hypertension, use of antihypertensive drugs, TC >6.2 mmol/l or triglycerides >2.0mmol/l, lipid lowering medications.	Country: Australia  %Male: 51.9  Age: 46.7 control, 46.5 Lupin  BMI: 31.4 Control, 31.3 lupin	Parallel	12 months (4 months weight loss, 8 months weight maintenance- <i>ad libitum</i> diet)	Foods provided, free living diet plan	131	1. Control  2. Lupin	1. Consumed products- bread, biscuits and pasta with wheat, primarily wholewheat, flour.  2. Consumed foods enriched with lupin flour in place of other foods- bread, biscuits and pasta	1. g/d CHO 218, P 95, F66  Fibre 25 g/d, Energy 8.3 MJ  2. g/d CHO 191, P 110, F 69  Fibre 39 g/d, Energy 8.2 Mj	Yes	Western Australian Government, Department of Industry and Resources



continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Brownlee <i>et al.</i> , 2010)  WHOLE-heart study	18-65 yrs, Excluded: BMI<25, habitual consumption wholegrain >30g/d, CVD, DM, treated hyperlipidaemia, smoking >20 cigarettes/d, recent wt change ≥3kg,	Country: UK  % Male 47  Age: 46 (median)  BMI: 30	Parallel	16 week	Wholegrain foods provided for substitution	316	1. Intervention  2. Intervention  3. Control	1. 60g per day for 16 wk (equivalent to wholegrain content of 3 slices of bread)  2. 60g wholegrain for 8 weeks, then 120g wholegrain for final 8 weeks.  3. Maintain habitual diet	Substitution of refined products for wholegrain products. Foods provided; (wholewheat bread, wholegrain cereals, porridge oats, brown basmati rice, wholewheat pasta, oat bars and wholegrains crisps.)	Yes	Food Standards Agency
(Charlton <i>et al.</i> , 2012)	25-75yrs, (not menopausal women), serum cholesterol ≥5, <7.5mmol/l, BMI 20-<32, weight stable, breakfast cereal consumer,  Not DM, CHD, renal failure, lipid lowering medication, familial hypercholesterolemia, fasting glucose >5.6mmol/, cholesterol >7.5mmol/l, dietary supplements, pregnant	Country: Australia  % Male: 44.3  Age: 51  BMI: 27.3	Parallel	6 weeks	1 cereal packet & 1 cereal bar on at least 5 days/week.	95	1. Oats high (OH)  2. Oats low (OL)  3. Control	1. oat porridge and oat based cereal bars providing 3.2g beta glucan/day  2. ready to eat oat flakes and puffed rice and wheat bars providing 1.5g beta glucan.day  3. minimal B-glucan, cornflakes, puffed rice and wheat bars	Not reported	Yes – compliance reported	Cereal Partners Worldwide Ltd

continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Foster <i>et al.</i> , 2010)	18-65 years, BMI 30-40 kg/m <sup>2</sup> and body weight <136kg  No T2D, lipid lowering or obesity medication, hypertensives.	Country: US  % Male: 32.2  Age: 45.5  BMI: 36.1	Parallel	24 months	Dietary advice	307	1. Low carbohydrate diet  2. Low fat diet	1. Atkins style diet.  2. Limited energy intake approx. 1200-1500 kcal/d for women and 1500-1800 kcal/d for men.	1. Limit CHO intake to 20g/d for first 12 weeks using low GI vegetables, after 12 weeks increased CHO intake 5g/d per week. Unrestricted amount of fat protein  2. Target %E: C 55, F 30, P 15	No	National Institutes of Health
(Gogebakan <i>et al.</i> , 2011)	Families with a least 1 parent BMI ≥27 and aged <65, and with at least 1 child between 5-18yrs	Pan-European  % male: 35.2  Age: 42	Parallel	26 weeks	Following an 8 week low calorie diet participants randomised to free living diet plans, 2 centres were “shop centres” where participants collected free food from shops, and 6 “instruction centres” with dietetic instructions only (detailed in Larsen <i>et al.</i> , 2010)	773	1. Low protein, low GI  2. Low protein, high GI  3. High protein, low GI  4. High protein, high GI  5. Control	Target nutritional characteristics  1. C 57-62%, P 10-15%, F 23-28%  2. C 57-62%, P 10-15%, F 23-28%  3. C 45-50%. P 23-28%, F 23-28%  4. C 45-50%. P 23-28%, F 23-28%  5. C 55-63%, P 12-15%, F 25-30%	Intake at 26 weeks:  1. C 51.2%, P 18%, F 29.7%  2. C 50.7%, P 16.3%, F 31.1%  3. C 45.1%, P 21.7%, F 31.2%  4. C 45.7%, P 22.4%, F 30.4%  5. C 46.5%, P 18.3%, F 33.1%	Yes	European Union Food Quality and Safety Priority of the 6 <sup>th</sup> Framework Program
DiOGenes study	No adult BMI > 45, liver, cardiovascular or kidney disease, DM, eating disorders, systemic infections, cancer within last 10 years, wt change >3kg in last 3 mo, meds that may interact with outcomes.	BMI: 30.3									

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continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Gulseth <i>et al.</i> , 2010)  LIPGENE	Caucasian, 35-70 yrs, BMI 20-40 kg/m <sup>2</sup> , and got metabolic syndrome as defined by modified criteria of NCEP adult treatment panel III criteria. No diabetes, inflammatory diseases, use of statins, fatty acid supplements and recent weight change ≥3Kg	Country: Pan European  % Male 45.7  Age: men- 53.4 women- 55.9  BMI: men- 32.1 women- 32.8	Parallel	12 weeks	Substitution (food exchange model)	486	1. High SFA diet (HSFA)  2. High MUFA diet (HMUFA)  3. Low fat, high complex carbohydrate diet (LFHCC)  4. Low fat, high complex carbohydrate diet (LFHCC) + n-3 PUFA supplement-not extracted	See Tierney <i>et al.</i> , 2011	See Tierney <i>et al.</i> , 2011	No-reported in Tierney <i>et al.</i> , 2011	European Union Sixth Framework Program  Integrated project, Norwegian Foundation for Health and Rehabilitation, South Eastern Norway Regional Health Authority and Johan Throne Holst Foundation for Nutrition Research.
(Haufe <i>et al.</i> , 2011)  B-SMART	Overweight and obese subjects not using any medications	Country: Germany  % Male: 20.5%  Age: mean not reported (35-55)  BMI: mean not reported	Parallel	6 month	Free living diet plan, attended weekly nutrition sessions and individual nutrition counselling every 2 months	170	1. reduced carbohydrate  2. reduced fat	Dietary targets:  1. hypocaloric (energy intake reduced by 30%), target ≤90g/d CHO, 0.8g/kg/d protein, ≥30% fat.  2. hypocaloric (energy intake reduced by 30%), target ≤20% energy from fat, 0.8g/kg/d protein, remaining energy from CHO.	Actual diet presented graphically.	Yes	Federal Ministry of Education and Research, Commission of the European communities. German Obesity Network of Competence

continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Hermsdorff <i>et al.</i> , 2011)	Obese, wt stable, No DM, HTN, liver renal or haematological disease, no chronic meds, no surgical or drug related obesity treatments, alc or drug abuse. Excluded non legume consumers, weight change ~3kg preceding months.	Country: Spain % Male: 56% Age: 36 BMI: 32.5	Parallel	8 weeks	Free living diet plan. 7 day menu sheet provided by dietitian	30	1. legume free diet (C-diet) 2. legume based diet (L-diet)	1. no legumes 2. 4 servings per week non-soy legumes (lentils, chickpeas, peas, beans)	Both diets 30% hypo caloric and designed to provide a similar macronutrient distribution (53%CHO, 17%protein, 30%fat)	yes	Línea Especial about Nutrition, Obesity and Health (University of Navarra), Health Department of the Government Navarra, Capes Foundation- Ministry of Education Brazil
(Howard <i>et al.</i> , 2010)  WHI Dietary Modification Trial	Age 50-79y Fat intake >32% of total energy, Post-menopausal	USA 0% Male Age: 62 BMI: mean not reported	Parallel Group	6 years	Free living diet plan	48835 (2730 with blood samples)	1. Low fat 2. Control	1. Advice: reduce fat intake to 20%, increase fruit, vegetables and wholegrains 2. Received information relating to health and healthy diets	1. %E: C 53.9 P 17.7 F 29.3 Energy 1424 kcal/d Fibre g/d:16.7 2. %E: C 46.3 P 17.0 F 37 Energy 1526 kcal/d Fibre g/d:14.1	Yes	National Heart, Lung, and Blood Institute

continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Jebb <i>et al.</i> , 2010) RISCK study	Men and women 30-70yrs who score ≥ 4 points according to metabolic criteria. No ischaemic heart disease, >30% 10y risk of CVD, diabetes, cancer, pancreatitis, cholestatic liver disease, renal disease, lipid lowering drugs, GI disorder, pregnant, weight change > 3kg in 2mo pre study, intake EPA/ DHA >1g/d, > 20 cigarettes/d.	Country: UK % Male: 41.9 Age: Men 52, Women 51 BMI: Men 28.3, women 28.6	Parallel	24 weeks (4 week run-in)	Substitution (food exchange model for fats and carbohydrates)	720	1. High SFA and high GI (HS/HGI) 2. High MUFA and High GI (HM/HGI) 3. High MUFA and low GI (HM/LGI) 4. Low fat and High GI (LF/HGI) 5. Low fat and low GI (LF/LGI)	1. Reference diet – target intake of total fat 38% energy, 12% MUFA, 45% CHO. HM diets target -total fat 38% energy, but reduce SFA to 10% energy and MUFA provide 20% energy, 45% CHO. LF diets target- 28% energy total fat, SFA 10% energy, MUFA 12% energy, 55% CHO. Target difference between HGI and LGI group ~11 and ~13 GI points	1. %E: C 42, F 37.5 protein 82 g/d Energy 8.37 MJ 2. %E: C 44.9, F 35.6. Protein 78.6 g/d Energy 8.05 MJ 3. %E: C 44.6, F 35.7. Protein 84.2g/d Energy 8.28 MJ 4. %E: C 51.1, F 27.5. Protein 80.5 g/d Energy 7.76 MJ 5. %E: C 51.5, F 26.1. Protein 78 g/d Energy 7.28 MJ	Yes	Food Standards Agency
(Klemsdal <i>et al.</i> , 2010)	30-65yrs, BMI 28-40 for men and BMI 28-35 for women, at least 1 symptom of the metabolic syndrome (NECP definition).  No CVD, no DM requiring medication, no lipid lowering or weight management meds in previous 12 wks, no eating disorders.	Country: Norway %Male 42% Age:50 BMI: mean not reported	Parallel	1 year	Dietary advice and free living diet plan	202	1. Low glycaemic load diet (LGL) 2. Low fat diet	1. Advice for a third of plate protein (all meals), 1 meal - third of plate low GI CHO and third vegetables/ legumes. Other 2 meals- 2 thirds plate vegetables/ legumes. 2. Nordic dietary guidelines and recommended un refined high fibre CHO's ( but not those with low GI)	Target intakes: 1. 30-35% CHO, 25-30% protein, 35-40% fat 2. 55-60% CHO, 15% protein, <30% fat	Only graphically	Norwegian National Research Council

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continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Kristensen <i>et al.</i> , 2012b)	BMI 27-37, age 45-70y, >1y postmenopausal,  Excluded: smoking, DM, CVD, untreated HTN, cholesterol >6.5mmol/l, glucose >7.0 mmol/l, dietary supps, medication (except HTN meds).	Country: Denmark  % Male: 0  Age: not reported separately  BMI:30	Parallel	12 week	Substitution of usual foods	79	1. Refined wheat (RW)  2. Wholegrain wheat (WW)	1. refined 62g bread/day, 60 pasta/day, 28g biscuits/day to replace 2MJ of habitual diet. Within an energy restricted diet.  2. >50% wholegrain 62g bread/day, 60 pasta/day, 28g biscuits/day to replace 2MJ of habitual diet. Within an energy restricted diet.	1. intervention foods provided 2.07 MJ/d, CHO 95.8g, Sugars 11.5g, fibre 4.5g  2. intervention foods provided: 1.99MJ/d, CHO 86.8g, sugars 11.8g, fibre 11.0g	yes	European Commission in the Communities 6 <sup>th</sup> Framework Programme, University of Copenhagen
(Lim <i>et al.</i> , 2010)	20-65 years with at least one CVD risk factor, BMI 28-40kg/m <sup>2</sup> . No hypoglycaemic medication or drugs affecting insulin sensitivity, history of metabolic or CHD, type 1 or type 2 diabetes.	Country: Australia  % Male: 16.3  Age: 47  BMI: 32	Parallel	15 months	Free living diet plan- all designed to be reduced energy isocaloric diets	113	1. Very low carbohydrate (VLC)  2. Very low fat (VLF)  3. High unsaturated fat (HUF)	1. Target %E C 4, F 60, P35  2. %E C70, F 10, P20  3. %E C50, F 30, P20	1.%E C 36.5, F 37.1, P23.9 Energy 6841 KJ  2. %E C 50.5, F28.3, P 19.6 Energy 7936 KJ  3. %E C 43.2, F 30.3, P24.4 Energy 6593 KJ	Yes	National Heart Foundation and CSIRO Health Sciences and Nutrition

continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Maersk <i>et al.</i> , 2012)	Healthy, No DM, BMI 26-40, 20-50yrs, BP <160/100mmHg,	Country: Denmark  % Male 36.2  Age: 39  BMI: ~32 not reported separately	parallel	6 month	Additional 1L beverage/ day	60	1. Regular cola  2. Milk (data not extracted)  3. Diet cola  4. water	1. 1L/d sucrose sweetened regular cola  2. 1L/d Semi skimmed milk (1.5%fat)  3. 1L/d Aspartame – sweetened diet cola  4 1L/d water	Drink composition/ 100ml:  1. CHO 10.6g, Protein 0g, fat 0g,  2. 4.7g CHO, 3.4g protein, 1.5g fat  3. 0g CHO, <0.1g protein, 0g fat  4. 0g nutrients	no	The Danish Council for Strategic Research, The Food Study Group/Danish Ministry of Food, Agriculture and Fisheries, Novo Nordic Foundation, Clinical Institute at Aarhus University
(Pal <i>et al.</i> , 2012)	BMI 25-40, wt stable, 18-65yrs,  No smoking, lipid-lowering meds, steroid or warfarin use, DM, hypo- or hyper thyroidism, Cardiovascular event in last 6mo, major systemic disease, GI problems, Proteinuria, liver or renal failure, vegetarian.	Country: Australia  % Male 43.8  Age: mean not reported  BMI: mean not reported	Parallel	12 weeks	Supplement with and without healthy eating advice	72	1. control  2 fibre supplement (FIB)  3. healthy eating with control supplement (HLT) (not extracted)	1. 12g breadcrumbs with flavouring 3x day  2. 12g Metameucil-7g Psyllium 3x day  3 12g breadcrumbs with flavouring 3x day plus <i>ad libitum</i> healthy eating plans	1. control provided 1.5g soluble fibre per dose  2. 7g psyllium fibre	yes	ATN Centre for Metabolic Fitness



continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Tighe <i>et al.</i> , 2010)	40-65yrs, BMI 18.5-35, <2 aerobic activity sessions per week, metabolic syndrome, moderate hypercholesterolaemia.  No CVD, DM, fasting blood glucose >7.0mmol/l, asthma, BP >160/99 mmHg, thyroid conditions, high habitual wholegrain intake, no meds or drugs known to effect the outcomes measured.	Country: Scotland  % Male: 50.5  Age: 52  BMI: 28	Parallel	12 weeks	Substitution of usual foods, provided with refined, whole wheat and/ or oat foods)	226	1. refined  2. Wholegrain  3. Wholegrain & oats	1. Refined cereals and white bread  2. Substitution with 3 servings of whole wheat foods (serving sizes 70-80g whole-meal bread, 30-40g wholegrain cereals)  3. Substitution with 1 serving whole wheat foods and 2 servings of oats.	Week 12 intakes  1. 2080kcal, CHO 245g, Protein 84g, fat 79.9g, NSP 11.3g  2. 2121 kcal, CHO 253g, Protein 89.1g, fat 79.7g, NSP 18.5g  3. 2142 kcal, CHO 253g, Protein 87g, fat 82.1g, NSP 16.8g	Yes	Food Standards Agency, Scottish government
(Toscani <i>et al.</i> , 2011)	Women reproductive age (14-35 years), BMI 18.5-39.9 kg/m <sup>2</sup> , with PCOS or controls-  Data extracted for controls only	Country: Brazil  % Male :0  Age: 29.35 (controls)  BMI: ≥25kg/m <sup>2</sup>	parallel	2 months	Not reported	40 (22 controls)	1. Normal protein diet (NP)  2. High protein diet (HP)	1. Target intake %E: C55, F30, P15.  2. Target %E: C40, F30, P30	Not reported	No	Conselho Nacional de Desenvolvimento Científico e Tecnológico, FIPE-HCPA and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Venn <i>et al.</i> , 2010)	BMI >28, fasting blood glucose <6.1mmol/l, 2hr OGTT <11.1mmol/l  No DM , cancer, CHD, pregnant women,	Country: New Zealand  % Male :14  Age: 42  BMI: mean not reported	parallel	18 months.  6 mo with counselling sessions and foods provided fortnightly  12 mo with monthly contact	Substitution of foods	113	1.control  2. Intervention	1. instructed to follow National Heart Foundation of New Zealand guidelines (to eat at least 3 servings veg, 2 servings fruit, 6 servings bread/cereals, 2 servings low fat milk or dairy, 1-2 small servings protein, 1-2tbsp unsaturated fats, small amount nuts/seeds.  2. Similar advice to control except instructed to consume 2 servings of pulses as a substitution for 2 servings bread/ cereals and all other breads/ cereals to be wholegrain.	Used 6 mo values:  1. %E: CHO 54, Fat 25, protein 20, fibre 21g  2. %E: CHO 52, Fat 25, protein 21, fibre 28g	yes	New Zealand Foundation for Research, Science and Technology and the Lifestyle Foods program industry partners.

continued: Table 46 - Characteristics of RCTs on blood pressure

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Wood <i>et al.</i> , 2012)	Men 50-75yrs, with metabolic syndrome (revised NCEP ATP III criteria),  No wt loss ≥5lb in previous 6mo, CVD, thyroid disease, DN, cancer, gout, musculoskeletal pathology, no change in lipid lowering meds in last 6mo.	USA  % Male: 100  Age : 58  BMI:mean not reported	Parallel	12 week	Weight loss study with free living diet plan	22 (42 total RCT)	1. LFD – low fat diet  2. CRD – carbohydrate restricted diet  3&4. Two additional Exercise groups – not extracted	1. target <30%E from fat and 1800kcal/d. 3-4 servings F&V, 6-8 servings grains (with at least half wholegrain), 2-3 servings low fat dairy, 3-6oz lean meat per day and low fat condiments.  2. target <50g/d CHO. Unlimited meat, fish and eggs, moderate amounts of hard cheese, low carbohydrate vegetables and small amounts of nuts and seeds. Avoid fruit, fruit juices, pasta, rice, cereals, breads and desserts.	Intakes on intervention  1. 1780kcal, CHO 244g (51.4%), Protein 79g (17.8%), fat 49g (24.8%)  Fibre 22g/d  2. 1707kcal, CHO 64g (14%), protein 114g (26.7%) fat 105g (55.4%)  Fibre 11g/d	yes	Springfield College Faculty Research Fund

**Table 47 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and blood pressure: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Brooking et al 2012	Weight loss phase	High carbohydrate, high fibre diet	26/31	133.2 (SD 19.06)	130.4 (SD 18.6)					SBP	Clinic BP (mmHg)	8 weeks	Decrease	
		High protein	22/28	127.8 (SD 19.21)	124.2 (SD 13.85)								Decrease	
		Control	23/25	117.7 (SD 11.97)	119.3 (SD 9.99)								No change	
Brooking et al 2012	Weight maintenance	High carbohydrate, high fibre diet	26/31	82.2 (SD 14.28)	79.6 (SD 16.02)					DBP	Clinic BP (mmHg)	8 weeks	Decrease	
		High protein	22/28	79.6 (SD 13.61)	75.0 (SD 9.98)								Decrease	
		Control	23/25	76.6 (SD 8.90)	73.0 (SD 7.15)								No change	
Brooking et al 2012	Weight maintenance	High carbohydrate, high fibre diet	23/31	133.2 (SD 19.06)	128.1 (SD 14.92)					SBP	Clinic BP (mmHg)	16 weeks	Decrease	
		High protein	20/28	127.8 (SD 19.21)	123.9 (SD 13.31)								Decrease	
		Control	20/25	117.7 (SD 11.97)	118.8 (SD 9.66)								Decrease	

continued: Table 47 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias	
Brooking et al 2012	Weight maintenance	High carbohydrate, high fibre diet	22/31	82.2 (SD 14.28)	75.9 (SD 9.10)					DBP	Clinic BP (mmHg)	16 weeks	Decrease		
		High protein	20/28	79.6 (SD 13.61)	72.3 (SD 9.55)									Decrease	
		Control	19/25	76.6 (SD 8.90)	72.4 (SD 6.36)									Decrease	
Brooking et al 2012	Weight maintenance	High carbohydrate, high fibre diet	22/31	133.2 (SD 19.06)	128.6 (SD 14.17)			0.958 (vs. control)	-0.11 (CI - 4.06, 3.85)	SBP	Clinic BP (mmHg)	24 weeks	Decrease		
		High protein	20/28	127.8 (SD 19.21)	124.3 (SD 14.15)			0.423 (vs. control)	-1.64 (CI- 5.66, 2.37)					Decrease	
		Control	19/25	117.7 (SD 11.97)	120.5 (SD 9.22)									Decrease	
Brooking et al 2012		High carbohydrate, high fibre diet	22/31	82.2 (SD 14.28)	74.7 (SD 9.74)			0.555 (vs. control)	0.75 (-3.61, 1.55)	DBP	Clinic BP (mmHg)	24 weeks	Decrease		
		High protein	20/28	79.6 (SD 13.61)	73.3 (SD 8.75)			0.435 (vs. control)	-1.03 (- 3.61, 1.55)					Decrease	
		Control	19/25	76.6 (SD 8.90)	71.9 (SD 6.54)									Decrease	
Foster et al., 2010		Low fat diet	145/154	124.6 (SD 15.8)		-5.20 (CI - 7.09, - 3.31)		0.06		SBP	Seated BP (mmHg)	3 months	Decrease		
		Low carbohydrate diet	139/153	124.3 (SD 14.1)		-7.74 (CI - 9.59, - 5.89)									

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continued: Table 47 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Foster et al., 2010		Low fat diet	145/154	76 (SD 9.7)		-3.05 (CI - 4.29, - 1.81)		0.004		DBP	Seated BP (mmHg)	3 months	Decrease	
		Low carbohydrate diet	139/153	73.9 (SD 9.4)		-5.53 (CI - 6.70, - 4.36)								
Foster et al., 2010		Low fat diet	135/154	124.6 (SD 15.8)		-6.97 (- 8.89, - 5.05)		0.78		SBP	Seated BP (mmHg)	6 months	Decrease	
		Low carbohydrate diet	128/153	124.3 (SD 14.1)		-7.36 (- 9.26, - 5.47)								
Foster et al., 2010		Low fat diet	135/154	76 (SD 9.7)		-2.50 (CI - 3.76, - 1.25)		0.005		DBP	Seated BP (mmHg)	6 months	Decrease	
		Low carbohydrate diet	128/153	73.9 (SD 9.4)		-5.15 (CI - 6.49, - 3.82)								
Foster et al., 2010		Low fat diet	115/154	124.6 (SD 15.8)		-4.06 (CI - 6.07, - 2.05)		0.27		SBP	Seated BP (mmHg)	12 months	Decrease	
		Low carbohydrate diet	113/153	124.3 (SD 14.1)		-5.64 (CI - 7.62, - 3.67)								

continued: Table 47 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Foster et al., 2010		Low fat diet	115/154	76 (SD 9.7)		-2.19 (CI - 3.58, - 0.79)		0.31		DBP	Seated BP (mmHg)	12 months	Decrease	
		Low carbohydrate diet	113/153	73.9 (SD 9.4)		-3.25 (- 4.74, - 1.76)								
Foster et al., 2010		Low fat diet	105/154	124.6 (SD 15.8)		-2.59 (CI - 5.07, - 0.12)		0.96		SBP	Seated BP (mmHg)	24 months	Decrease	
		Low carbohydrate diet	89/153	124.3 (SD 14.1)		-2.68 (CI - 5.08, - 0.27)		0.40 overall across each time point						
Foster et al., 2010		Low fat diet	105/154	76 (SD 9.7)		-0.50 (CI - 2.13, 1.13)		0.016		DBP	Seated BP (mmHg)	24 months	Decrease	
		Low carbohydrate diet	89/153	73.9 (SD 9.4)		-3.19 (- 4.66, - 1.73)		0.36 overall across each time point						

continued: Table 47 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Gulseth et al., 2010		HSFA	93/102	137.9 (SD 14.8)		-2.7 (CI - 5.3-0.0)		0.52 (across 4 arms the LHFCC-n3 not extracted.)		SBP	Clinic BP (mmHg)	12 weeks	Unchang ed	
	LIPGENE	HMUFA	105/115	139.4 (SD 15.1)		-3.2 (CI -- 5.7, -0.7)							Unchang ed	
		LFHCC (control)	100/109	139.5 (SD 15.0)		-4.3 (CI- 6.5, -2.2)								Slight decrease
Gulseth et al., 2010	Males	HSFA	41/	138.3 (SD 16.8)		1.4 (CI - 2.6, 5.3)				SBP	Clinic BP (mmHg)	12 weeks	Unchang ed	
	LIPGENE	HMUFA	44/	139.2 (SD 12.5)		-2.3 (CI- 6.2, 1.7)							Unchang ed	
		LFHCC (control)	43/	139.6 (SD 16.8)		-3.5 (CI- 6.7, -0.3)							Slight decrease	
Gulseth et al., 2010	Females	HSFA	52/	137.6 (SD 13.3)		-5.8 (CI- 9.3, -2.4)				SBP	Clinic BP (mmHg)	12 weeks	Unchang ed	
	LIPGENE	HMUFA	61/	139.6 (SD 16.8)		-3.9 (CI - 7.2, -0.6)							Unchang ed	
		LFHCC (control)	57/										Slight decrease	

continued: Table 47 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assesse ment Bias
Gulseth et al., 2010		HSFA	93/102	85.9 (SD 8.3)		-1.8 (CI -3.2, -0.4)		0.24 (across 4 arms the LHFCC-n3 not extracted.)		DBP	Clinic BP (mmHg)	12 weeks	Unchang ed	
	LIPGENE	HMUFA	105/115	86.7 (SD 9.0)		-1.4 (CI -2.7, -0.1)							Unchang ed	
		LFHCC (control	100/109	85.5 (SD 9.2)		-1.9 (CI -3.3, -0.5)								Slight decrease
Gulseth et al., 2010	Males	HSFA	41/	87.3 (SD 8.2)		-1.5 (CI -3.7, 0.8)				DBP	Clinic BP (mmHg)	12 weeks	Unchang ed	
	LIPGENE	HMUFA	44/	88.7 (SD 8.4)		-0.7 (-3.1, 1.7)							Unchang ed	
		LFHCC (control	43/	86.8 (SD 8.4)		-1.1 (CI-3.3, 1.1)							Slight decrease	
Gulseth et al., 2010	Females	HSFA	52/	84.8 (SD 8.2)		-2.1 (CI -3.8,-0.4)				DBP	Clinic BP (mmHg)	12 weeks	Unchang ed	
	LIPGENE	HMUFA	61/	85.3 (SD 9.3)		-1.9 (CI-3.5, -0.3)							Unchang ed	
		LFHCC (control	57/	84.5 (SD 9.7)		-2.4 (-4.3, -0.6)							Slight decrease	

continued: Table 47 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Jebb et al., 2010														
RISCK		HS/HGI	84/137	126 (IQR 117, 138)	126 (IQR 119, 137)	-1.5 (CI - 3.2, 0.3)		0.33 (p- value between all groups)		SBP	Supine BP (mmHg)	24 weeks	Very slight increase	
		HM/HGI	109/145	126 (IQR 115, 137)	124 (IQR 114, 134)	-2.0 (CI - 3.6, -0.3)							Very slight decrease	
		HM/LGI	113/144	130 (IQR 120, 140)	128 (IQR 116, 136)	-2.5 (CI- 4.0, -1.0)							Very slight increase	
		LF/HGI	113/145	130 (IQR 120, 143)	127 (IQR 115, 142)	-1.7 (-3.1, -0.4)							Small decrease	
		LF/LGI	120/149	128 (IQR 118,138)	124 (IQR 116, 137)	-1.5 (-3.0, 0.0)							Small decrease	

continued: Table 47 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assesse nt Bias
Jebb et al., 2010	RISCK	HS/HGI	83/137	77.8 (IQR 71.8, 86.0)	79 (IQR 71.5, 84.0)	-0.5 (CI - 2.6,1.5)		1.00 (p- value between all groups)		DBP	Supine BP (mmHg)	24 weeks		Very slight increase
		HM/HGI	110/145	78 (IQR 73.0, 85.0)	78.5 (IQR 72.0, 84.0)	-1.6 (CI - 3.3, 0.0)								Very slight decrease
		HM/LGI	114/144	79 (IQR 72.5, 84.5)	78.5 (IQR 72.5, 85.0)	-0.9 (-2.6, 0.8)								Very slight increase
		LF/HGI	113/145	81 (IQR 74.0, 87.0)	78.5 (IQR 71.5, 87.0)	-1.5 (-2.9, -0.1)								Small decrease
		LF/LGI	120/149	79.5 (IQR 74.0, 87.0)	79.3 (IQR 73.5, 85.0)	-1.7 (-3.1, -0.2)								Small decrease
Howard et al., 2010		Low fat	1068 sample of 19, 541 randomised	127	126	-1		NS	1.98 (CI 0.43, 3.54)	SBP	Clinic BP	6 year follow up		No change
Women's health initiative dietary modificatio n trial		control	1662 sample of 29,294	129	126	-3.1								No change

continued: Table 47 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Tierney et al., 2011		High SFA diet	100/121	137.90 (SEM 1.52)	135.24 (SEM 1.50)			NS		SBP	Seated mmHg	12 weeks	Very small decrease	
		High MUFA diet	111/126	139.40 (SEM 1.43)	136.19 (SEM 1.41)								Very small decrease	
		Low fat high complex carbohydrate (LFHCC) diet	106/119	139.53 (SEM 1.46)	135.18 (SEM 1.44)								Very small significan t decrease	
Tierney et al., 2011		High SFA diet	100/121	85.88 (SEM 0.91)	84.07 (SEM 0.87)			NS		DBP	Seated mmHg	12 weeks	Very small decrease	
		High MUFA diet	111/126	86.71 (SEM 0.85)	85.31 (SEM 0.82)								Very small decrease	
		Low fat high complex carbohydrate (LFHCC) diet	106/119	85.5 (SEM 0.87)	83.64 (SEM 0.84)								Very small significan t decrease	

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**Table 48 - Higher carbohydrate, average protein diets vs. lower carbohydrate, higher protein diets and blood pressure: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Aldrich et al., 2011	Feeding phase	Control diet	6/6	117.8 (SE 4.3)		-2.2 (SE 5.1)		0.541 (across 3 groups)		SBP	Not reported	2 months	Decrease	
		Mixed protein diet	6/6	117.7 (SE 2.7)		-8.7 (SE 3.9)								
Aldrich et al., 2011	Feeding phase	Control diet	6/6	67.7 (SE 2.9)		3.8 (SE 4.2)		0.255 (across 3 groups)		DBP	Not reported	2 months		
		Mixed protein diet	6/6	66.8 (SE 2.4)		-4.3 (SE 2.1)								
Aldrich et al., 2011	<i>Ad libitum</i> phase	Control diet	5/6	117.3 (SE 4.18)		3.2 (SE 4.5)		0.106 (across 3 groups)		SBP	Not reported	5 months	Decrease	
		Mixed protein diet	5/6	117.7 (SE 2.7)		-3.6 (SE 2.7)								
Aldrich et al., 2011	<i>Ad libitum</i> phase	Control diet	5/6	67.7 (SE 2.9)		1.2 (SE 3.2)		0.289 (across 3 groups)		DBP	Not reported	5 months		
		Mixed protein diet	5/6	66.8 (SE 2.4)		-2.6 (SE 1.3)								

continued: Table 48 - Higher carbohydrate, average protein diets vs. lower carbohydrate, higher protein diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Gogebakan et al., 2011  (DiOGenes )	Low protein, Low GI		92/150	118.6 (SD 13.7)		4.47 (SD 12.81)	<0.05	0.556 (across all groups)		SBP	Supine BP (mmHg)	26 weeks	Small non sig increase	
	Low protein, high GI		80/155	115.5 (SD 13.9)		5.12 (SD 10.67)	<0.05						Small sig increase (P<0.05)	
	High protein, low GI		105/159	118.8 (SD 13.3)		4.24 (SD 14.27)	<0.05						Small non- sig decrease	
	High protein, high GI		93/155	120.1 (SD 15.0)		2.72 (SD 13.39)	NS						Small non sig increase	
	Control		101/154	116.8 (SD 14.1)		4.50 (SD 12.90)	<0.05						Small non sig increase	

continued: Table 48 - Higher carbohydrate, average protein diets vs. lower carbohydrate, higher protein diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Gogebakan et al., 2011  (DiOGenes )	Low protein, Low GI		92/150	73.9 (SD 9.4)		1.01 (SD 7.89)	NS	0.098 (across all groups)		DBP	Supine BP (mmHg)	26 weeks	Small non sig increase	
	Low protein, high GI		80/155	71.4 (SD 9.2)		3.55 (SD 7.68)	<0.05						Small sig increase (P=<0.05)	
	High protein, low GI		105/159	73.5 (SD 9.6)		1.94 (SD 8.01)	<0.05						Small non- sig decrease	
	High protein, high GI		93/155	73.4 (SD 10.3)		0.96 (SD 7.99)	NS						Small non sig increase	
	Control		102/154	70.9 (SD 10.1)		3.49 (SD 8.02)	<0.05						Small non sig increase	
Toscani et al., 2011	High protein		13/13	116.1 (SD 10.41)	117.85 (SD 10.18)			NS		SBP	Clinic BP	2 months	Decrease	
	Normal protein		9/9	116.43 (SD 10.3)	110.71 (SD 7.32)									
Toscani et al., 2011	High protein		13/13	74.6 (SD 8.46)	74 (SD 8.83)			NS		DBP	Clinic BP	2 months	Decrease	
	Normal protein		9/9	75.14 (SD 9.6)	72.57 (SD 7.72)									

**Table 49 - Higher carbohydrate, lower fat and average protein diets vs. lower carbohydrate, average or higher fat and higher protein diets and blood pressure: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Klemsdal et al., 2010	Low fat group		NR/102	129.1 (SD 16)	123.7 (SD 16)					SBP	Supine (mmHg)	3 months	Decrease	
	LGL group		NR /100	129.7 (SD 13)	125.3 (SD 12)								Decrease	
Klemsdal et al., 2010	Low fat group		NR /102	92.3 (SD 10)	89.6 (SD 12)					DBP	Supine (mmHg)	3 months	Decrease	
	LGL group		NR /100	90.6 (SD 9)	87.1 (SD 9)								Decrease	
Klemsdal et al., 2010	Low fat group		NR /102	129.1 (SD 16)	126.2 (SD 17)					SBP	Supine (mmHg)	6 months	Decrease	
	LGL group		NR /100	129.7 (SD 13)	125.3 (SD 14)								Decrease	
Klemsdal et al., 2010	Low fat group		NR /102	92.3 (SD 10)	90.6 (SD 10)					DBP	Supine (mmHg)	6 months	Decrease	
	LGL group		NR /100	90.6 (SD 9)	87.2 (SD 9)								Decrease	
Klemsdal et al., 2010	Low fat group		86/102	129.1 (SD 16)	126.6 (SD 17)		0.048	0.392		SBP	Supine (mmHg)	12 months	Sig Decrease	
	LGL group		78/100	129.7 (SD 13)	128.8 (SD 15)		0.532						Sig Decrease	
Klemsdal et al., 2010	Low fat group		86/102	92.3 (SD 10)	91.2 (SD 11)		0.205	0.016		DBP	Supine (mmHg)	12 months	Sig Decrease	
	LGL group		78/100	90.6 (SD 9)	86.6 (SD 10)		<0.001						Sig Decrease	

continued: Table 49 - Higher carbohydrate, lower fat and average protein diets vs. lower carbohydrate, average or higher fat and higher protein diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Lim et al., 2010	VLC		24/30	129.8 (SD 15.1)		-10.5 (SD 12.7)			P=0.172	SBP	Clinic BP (mmHg)	3 month	Decrease	
	VLF		22/30	129.4 (SD 12)		-7.1 (SD 12.6)							Decrease	
	HUF		21/30	130.9 (SF12.1)		-3.1 (SD 14.5)							Decrease	
	Control		22/23	116.8 (SD 10.4)	-								No change	
Lim et al., 2010	VLC		24/30	77.2 (SD 13)		-3.8 (SD 9.5)			P=0.790	DBP	Clinic BP (mmHg)	3 month	Decrease	
	VLF		22/30	76.4 (SD 9.6)		-2.1 (SD 11)							Decrease	
	HUF		21/30	79.8 (SD 8.3)		-2.0 (SD 9.3)							Decrease	
	Control		22/23	70.6 (SD 9.1)									No change	

continued: Table 49 - Higher carbohydrate, lower fat and average protein diets vs. lower carbohydrate, average or higher fat and higher protein diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Lim et al., 2010		VLC	17/30	129.8 (SD 15.1)		-10.6 (SD 10.6)	<0.05	<0.05 (vs. control)	P=0.011	SBP	Clinic BP (mmHg)	15 month	Decrease	
		VLF	18/30	129.4 (SD 12)		-6.0 (SD 13.3)	<0.05	<0.05 (vs. control)					Decrease	
		HUF	15/30	130.9 (SD 12.1)		-5.4 (SD 13.3)		<0.05 (vs. control)					Decrease	
		Control	19/23	116.8 (SD 10.4)		1.9 (SD 8.3)							No change	
Lim et al., 2010		VLC	17/30	77.2 (SD 13)		-6.6 (SD 12.1)	<0.05	<0.05 (vs. control)	P=0.002	DBP	Clinic BP (mmHg)	15 month	Decrease	
		VLF	18/30	76.4 (SD 9.6)		-7.5 (SD 8.7)	<0.05	<0.05 (vs. control)					Decrease	
		HUF	15/30	79.8 (SD 8.3)		-9.0 (SD 9.3)	<0.05	<0.05 (vs. control)					Decrease	
		Control	19/23	70.6 (SD 9.1)		2.9 (SD 8.2)							No change	

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continued: Table 49 - Higher carbohydrate, lower fat and average protein diets vs. lower carbohydrate, average or higher fat and higher protein diets and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Wood et al., 2012*		Low fat diet	8/11	140 (SD 14)			NS	NS		SBP	Clinic BP (mmHg)	12 weeks	Sig Decrease	
		Carbohydrate restricted diet	8/11	138 (SD 8)			NS						Sig Decrease	
Wood et al., 2012*		Low fat diet	8/11	87 (SD 6)			NS	NS		DBP	Clinic BP (mmHg)	12 weeks	Sig Decrease	
		Carbohydrate restricted diet	8/11	83 (SD 8)			NS						Sig Decrease	

\*Authors state that SBP and DBP decreased significantly from baseline, but not between groups. No follow up measures were presented.

**Table 50 - Wholegrain and pulses intake and blood pressure: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Venn et al., 2010)		Pulse and Wholegrain diet	49/56	132 (SD 15.4)	123(SD 12.8 )			NS	-1.1 (-4.9-2.8)	SBP	Not reported (mm Hg)	6 months	Decrease	
		Control National Heart foundation of New Zealand diet	49/57	133 (SD 13.2)	124 (SD 10.9 )									Decrease
(Venn et al., 2010)		Pulse and Wholegrain diet	43/56	132 (SD 15.4)	122 (SD 13.9 )			NS	0.6 (-3.6-4.7)	SBP	Not reported (mm Hg)	18 months	Decrease	
		Control National Heart foundation of New Zealand diet	30/57	133 (SD 13.2)	123 (SD 16.9 )									Decrease
(Venn et al., 2010)		Pulse and Wholegrain diet	49/56	83(SD 8.7)	78 (SD 8.0)			NS	0.3 (-2.1-2.7)	DBP	Not reported (mm Hg)	6 months	Decrease	
		Control National Heart foundation of New Zealand diet	49/57	83 (SD 9.0)	77 (SD 8.3)									Decrease

continued: Table 50 - Wholegrain and pulses intake and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
(Venn et al., 2010)		Pulse and Wholegrain diet	43/56	83(SD 8.7)	79 (SD 9.5 )			NS	-0.9 (-3.6, 1.8)	DBP	Not reported (mm Hg)	18 months	Decrease	
		Control National Heart foundation of New Zealand diet	30/57	83 (SD 9.0)	80 (SD 10.9 )								Decrease	

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**Table 51 - Fibre isolates, psyllium and blood pressure: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
(Pal et al., 2012)	Control		15/18	114.3 (SEM 2.7)	Reported graphically					SBP	Supine BP (mmHg)	6 weeks/12 weeks	Not reported	( in 2011 paper states weight was sig lower in intervent ion groups)
	Fibre supplement (FIB)		16/18	115.0 (SEM 2.5)			0.04	-7% (Control vs. FIB)				6weeks		
(Pal et al., 2012)	Control		15/18	66.3 (SEM 2.3)	Reported graphically					DBP	Supine BP (mmHg)	6 weeks/12 weeks	Not reported	( in 2011 paper states weight was sig lower in intervent ion groups)
	Fibre supplement (FIB)		16/18	66.4 (SEM 2.6)			0.04	-7% (Control vs. FIB)				6weeks		

•Pal et al., 2012 outcomes at 12 weeks for DBP and SBP on fibre supplement were not reported. For DBP paper states that there was no difference between groups at 12 weeks.

**Table 52 - Beta-glucans (oat and barley) and blood pressure: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
(Charlton et al., 2012)		Oats high	30/31	128.8 (SD 20.7)	123.2 (SD 17.8)			0.643		SBP	Clinic BP (mmHg)	6 weeks	Decrease	
		Oats low	26/31	132.1 (SD 17.1)	127.4 (SD 15.3)									
		Control	31/33	131.8 (SD 20.4)	122.9 (SD 16.3)									

**Table 53 - Legume intake and blood pressure: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcom e Assessm ent Bias
(Belski et al., 2011)	Weight loss	Control diet	55/63	121 (SD 10)	118.5 (CI 117.8, 119.2)				0.51 (CI -0.5, 1.5)	SBP	24h ambulatory	4 months	Decrease	
		Lupin diet	55/68	122 (SD 9)	119.0 (CI 118.4, 119.7)									
(Belski et al., 2011)		Control diet	55/63	75 (SD 8)	73.4 (CI 72.9, 74.0)				0.19 (CI -0.6, 1.0)	DBP	24h ambulatory	4 months	Decrease	
		Lupin diet	55/68	75 (SD 7)	73.6 (CI 73.1, 74.1)									
(Belski et al., 2011)	Weight maintenance phase	Control diet	47/63	121 (SD 10)	120.9 (CI 120.1, 121.7)		<0.05		-1.33 (CI 2.4, -0.3)	SBP	24h ambulatory	12 months	Decrease (from baseline)	
		Lupin diet	46/68	122 (SD 9)	119.6 (CI 118.8, 120.3)									
(Belski et al., 2011)		Control diet	55/63	75 (SD 8)	74.3 (CI 73.7, 74.9)		<0.05		-1.0 (-1.9, 0.2)	DBP	24h ambulatory	12 months	Decrease (from baseline)	
		Lupin diet	55/68	75 (SD 7)	73.3 (CI 72.7, 73.9)									
(Hermsdorff et al., 2011)		Control diet	15/15	115 (SD 9)	111 (SD 12)		NS	0.193	P=0.043 (control vs. legume)	SBP	WHO criteria (mmHg)	8 weeks	Decrease	

continued: Table 53 - Legume intake and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcom e Assessm ent Bias
		Legume diet	15/15	115(SD 13)	106 (SD 10)		P<0.01						Decrease (sig greater decrease vs. control)	
(Hermsdorff et al., 2011)		Control diet	15/15	76 (SD 9)	72 (SD 10)		P<0.05	0.444	P=0.377 (control vs. legume)	DBP	WHO criteria (mmHg)	8 weeks	Decrease	
		Legume diet	15/15	76 (SD 6)	70 (6)		P<0.01						Decrease (sig greater decrease vs. control)	

**Table 54 - Wholegrain intake and blood pressure: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Brownlee et al., 2012		Control	100/106	127.3 (SD 14.8)	126.0 (SD 15)					Seated BP	SBP (mmHg)	8 weeks	Very small non- signifi- cant decrease	
Brownlee et al., 2012		Intervention 1(60g/day)	85/105	125.5 (SD 16.1)	125.5 (SD 16.9)								No change	
Brownlee et al., 2012		Intervention 2 (80, 120g/day)	81/105	129.5 (SD 15.5)	127.3 (SD 16.3)								No change	
Brownlee et al., 2012		Control	100/106	127.3 (SD 14.8)	124.3 (SD 14.9)					Seated BP	SBP (mmHg)	16 weeks	No change	
Brownlee et al., 2012		Intervention 1(60g/day)	85/105	125.5 (SD 16.1)	123.5 (SD 17.4)								Very Small increase	
Brownlee et al., 2012		Intervention 2 (80, 120g/day)	81/105	129.5 (SD 15.5)	126.8 (SD 16.2)		>0.05	-0.73 (CI - 2.17, 0.73) *					No change	
Brownlee et al., 2012		Control	100/106	79.8 (SD 10.2)	78.5 (10.5)					Seated BP	DBP (mmHg)	8 weeks	Very small non- signifi- cant decrease	
Brownlee et al., 2012		Intervention 1(60g/day)	85/105	79.0 (SD 9.8)	78.8 (10.6)								No change	

continued: Table 54 - Wholegrain intake and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Brownlee et al., 2012		Intervention 2 (80, 120g/day)	81/105	79.0 (9.3)	77.5 (10.3)								No change	
Brownlee et al., 2012		Control	100/106	79.8 (SD 10.2)	77.0 (SD 9.7)					Seated BP	DBP (mmHg)	16 weeks	No change	
Brownlee et al., 2012		Intervention 1(60g/day)	85/105	79.0 (SD 9.8)	76.5 (SD 10.0)								Very Small increase	
Brownlee et al., 2012		Intervention 2 (80, 120g/day)	81/105	79.0 (9.3)	77.8 (SD 10.1)		>0.05	-0.18 (CI- 1.99, 1.66)*					No change	
Kristensen et al., 2012		Refined wheat	34/37	138 (SEM 4)	131 (SEM 2)					Clinic BP	SBP (mmHg)	6 weeks	Non- significan t decrease in both groups	
		Wholegrain wheat	38/42	133 (SEM 2)	130 (SEM 2)							6 weeks		
Kristensen et al., 2012		Refined wheat	34/37	138 (SEM 4)	132 (SEM 3)					Clinic BP	SBP (mmHg)	12 weeks		
		Wholegrain wheat	38/42	133 (SEM 2)	132 (SEM 2)			0.42 (completer s analysis)				12 weeks		

continued: Table 54 - Wholegrain intake and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Kristensen et al., 2012		Refined wheat	34/37	87.3 (SEM 1.6)	84.1 (SEM 1.6)					Clinic BP	DBP (mmHg)	6 weeks		Non- significan t decrease in both groups
		Wholegrain wheat	38/42	85.5 (SEM 1.4)	82.3 (SEM 1.6)						DBP (mmHg)	6 weeks		
Kristensen et al., 2012		Refined wheat	34/37	87.3 (SEM 1.6)	84.6 (SEM 1.4)					Clinic BP	DBP (mmHg)	12 weeks		
		Wholegrain wheat	38/42	85.5 (SEM 1.4)	83.8 (SEM 1.6)			0.52 (completer s analysis)			DBP (mmHg)	12 weeks		
Tighe et al., 2010		Refined	63/76	131.2 (SEM 1.4)	Shown graphically		NS		-1.3	British hypertension guidelines (seated)	SBP (mmHg)	6 weeks		Not reported
		Wheat	73/77	125.9 (SEM 1.4)			NS	NS						
		Wheat and oats	70/73	131.7 (SEM 1.4)			NS	<0.05 (vs. refined)	-5					
Tighe et al., 2010		Refined	63/76	79.1 (SEM 0.8)	Shown graphically		NS			British hypertension guidelines (seated)	DBP (mmHg)	6 weeks		Not reported
		Wheat	73/77	75.7(SEM 0.8)			NS	NS						

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continued: Table 54 - Wholegrain intake and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
		Wheat and oats	70/73	78.4 (SEM 0.8)			NS	NS						
Tighe et al., 2010	Refined		63/76	131.2 (SEM 1.4)	Shown graphically		NS			British hypertension guidelines (seated)	SBP (mmHg)	12 weeks	Not reported	
		Wheat	73/77	125.9 (SEM 1.4)			NS	<0.01 (vs. refined)						
		Wheat and oats	70/73	131.7 (SEM 1.4)			NS	<0.01 (vs. refined)						
Tighe et al., 2010	Refined		63/76	79.1 (SEM 0.8)	Shown graphically		NS			British hypertension guidelines (seated)	DBP (mmHg)	12 weeks	Not reported	
		Wheat	73/77	75.7(SEM 0.8)			NS	NS						
		Wheat and oats	70/73	78.4 (SEM 0.8)			NS	NS						
Tighe et al., 2010	Refined		63/76	51.7 (SEM 1.4)	Shown graphically		NS			British hypertension guidelines (seated)	Pulse pressure (mmHg)	6 weeks	Not reported	
		Wheat	73/77	50.1 (SEM 0.8)			NS							
		Wheat and oats	70/73	53.6 (SEM 1.2)			NS	0.03 (vs. refined)						

continued: Table 54 - Wholegrain intake and blood pressure: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Tighe et al., 2010		Refined	63/76	51.7 (SEM 1.4)	Shown graphically		NS			British hypertension guidelines (seated)	Pulse pressure (mmHg)	12 weeks	Not reported	
		Wheat	73/77	50.1 (SEM 0.8)			NS	<0.05 (vs. refined)						
		Wheat and oats	70/73	53.6 (SEM 1.2)			NS	<0.05 (vs. refined)						

\*Brownlee et al 2012- the figure represents a comparison between the intervention and control where an average of week 8 and 16 data was taken, plus an average of both wholegrain intervention groups.

**Table 55 - Sweetened beverage intake and blood pressure: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Maersk et al., (2012)		Regular cola	10/15	125 (SEM 7)				<0.05 (regular cola vs. diet cola)		SBP	At rest, digital BP monitor	6 months	Slight non sig increase in all groups from baseline	
		Diet Cola	12/16	134 (SEM 15)										
		Water	13/17	125 (SEM 12)										
		Regular cola	10/15	73 (SEM 10)				0.13 (regular cola vs. diet cola)		DBP				
		Diet Cola	12/16	81 (SEM 8)										
		Water	13/17	74 (SEM 9)										

### 3. Cardio-metabolic health update search - hyperlipidaemias and blood lipids

**Table 56 - Characteristics of cohort studies on hyperlipidaemias and blood lipids**

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Length of follow-up (years)	Dietary assessment methods	Criteria for defining hyperlipidaemia	Initial cohort size	Losses to follow-up (%)
<b>Amsterdam Growth and Health Longitudinal Study (AGAHLS)</b>	(Veldhuis <i>et al.</i> , 2010)	First and second year secondary school children  Mean age: 13.1 at baseline  %Male: 47  Country: Netherlands  Ethnicity: Primarily white	Community cohort	24	Cross-check diet history face to face interview, data reflected the previous months intake.	HDL cholesterol men <40mg/dl, women <50mg.dl, TG >150mg/dl.	600	Not reported
<b>Jiangsu Nutrition Society (JIN)</b>	(Shi <i>et al.</i> , 2012)	Adults from rural and urban areas of the Jiangsu province  Mean age: 48.2  % Male: 45.9  Country: China  Ethnicity: Chinese	Community cohort	5	Diet assessed using a 33 item FFQ and was reported to be validated. The FFQ referred to intakes in the preceding year.	HDL cholesterol men <40mg/dl, women <50mg.dl, TG ≥150mg/dl.	2849	40.9%
<b>National Heart, Lung and Blood Growth and Health Study (NGHS)</b>	(Franko <i>et al.</i> , 2011)	Girls recruited from 3 sites including university hospitals  Mean age: (9-10)  %male: 0  Country: USA  Ethnicity: 51% black	Community cohort	10	3-day validated food records collected at study year 1-5, 7, 8 and 10.	Fasting blood samples - cholesterol >200mg/dl, HDL cholesterol <35mg/dl, LDL cholesterol >130mg/dl	2379	NR

continued: Table 56 - Characteristics of cohort studies on hyperlipidaemias and blood lipids

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Length of follow-up (years)	Dietary assessment methods	Criteria for defining hyperlipidaemia	Initial cohort size	Losses to follow-up (%)
<b>The CARDIA study</b>	(Duffey <i>et al.</i> , 2010)	Young Black and White adults  Mean age: (18-30) 25  %Male: 46.5  Country: USA  Ethnicity: Multi-ethnic	Community cohort	20	Diet assessed through semi quantitative interviewer administered FFQ; The FFQ referred to diet over the previous month and was reported to be validated.	Low HDL cholesterol, defined as <1.3 mmol/L in women or <1.03 mmol/L in men; high LDL cholesterol, defined as ≥4.1 mmol/ and high triglyceride concentrations, defined as ≥1.7 mmol/L	5115	NR

**Table 57 - Sweetened beverage intake and incident hyperlipidaemia: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (95% CI)	Mean Exposure	p	P trend	Adjustments
(Duffey et al., 2010)  CARDIA study	USA, Multi- ethnic, no pregnant women	18-30 (25)	(94)/ 2640	20yr	FFQ	Sugar sweetene d beverages	High LDL ≥130mg/dl or use of cholesterol lowering medication		Quartile average	NR	1.18 (1.02, 1.36)			0.018	Race, sex, exam centre, year 0 age, weight, smoking, EI from food, PA, energy from milk, fruit juice and alcohol
(Duffey et al., 2010)  CARDIA study						Fruit juice			Quartile average	NR	0.96 (0.75, 1.22)			0.741	As above
(Duffey et al., 2010)  CARDIA study	USA, Multi- ethnic, no pregnant women	18-30 (25)	(252)/ 1837	20yr	FFQ	Sugar sweetene d beverages	Low HDL <40mg/dl men, <50mg/dl women or use of cholesterol lowering medication		Quartile average	NR	1.06 (0.97, 1.16)			0.192	Race, sex, exam centre, year 0 age, weight, smoking, EI from food, PA, energy from milk, fruit juice and alcohol
(Duffey et al., 2010)  CARDIA study						Fruit juice			Quartile average	NR	1.00 (0.87, 1.16)			0.927	As above
(Duffey et al., 2010)  CARDIA study	USA, Multi- ethnic, no pregnant women	18-30 (25)	(542)/ 2627	20yr	FFQ	Sugar sweetene d beverages	High TG ≥ 150mg/dl or use of cholesterol lowering medication		Quartile average	NR	1.06 (1.01, 1.13)			0.033	Race, sex, exam centre, year 0 age, weight, smoking, EI from food, PA, energy from milk, fruit juice and alcohol
(Duffey et al., 2010)  CARDIA study						Fruit juice			Quartile average	NR	0.99 (0.91, 1.09)			0.912	As above

**Table 58 - Rice intake and incident hyperlipidaemia: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure	p	P trend	Adjustments
(Shi et al., 2012)	China, Chinese, non DM, stroke, cancer,	20+ years, %M: 45.8	(355)/ 760	5 (40.9)	FFQ (33)	Rice intake	Abnormal HDL <40mg/dl men, <50mg/dl women or specific treatment for this lipid abnormality		≥401 vs. 0- 200	g/d	1.58 (1.01, 2.48)			0.063	Age, sex, smoking, active commuting, PA, ed, occupation, EI, baseline HDL, drinking.
Jiangsu Nutrition Study (JIN)	China, Chinese, non DM, stroke, cancer, extreme wt. change (>20kg)	20+ years, %M: 45.8	(167)/ 945	5 (40.9)	FFQ (33)	Rice intake	Abnormal TG ≥ 150mg/dl or specific treatment for this lipid abnormality		≥401 vs. 0- 200	g/d	0.63 (0.38, 1.06)			0.055	Age, sex, smoking, active commuting, PA, ed, occupation, EI, baseline TG, drinking.
						Percentag e rice in staple foods			Continuous risk estimate	Every 10% increa se	1.07 (1.01, 1.13)		0.033		As above
						Percentag e rice in staple foods			Continuous risk estimate	Every 10% increa se	0.98 (0.91, 1.05)		0.517		As above

**Table 59 - Fibre intake and incident hyperlipidaemia: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	Estimate (CI)	Mean Exposure	Beta	p	Adjustments
(Veldhuis et al 2010)	Netherlands, Primarily white, no selection criteria used.	(13.1) %Male 47	(NR)/368	24 (NR)	Diet history and face to face interview	Fibre intake method not reported	HDL cholesterol level mg/dl		Continuous	g/100 Okcal	9.9	0.30 (-0.36, 0.97 )	0.37		Sex, PA, smoking. alcohol
Health Longitudinal Study (AGAHLS)							Triglyceride level mg/dl				1.00 (0.97, 1.03)		0.97		As above

**Table 60 - Cereal intake and incident hyperlipidaemia: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure	Estimate  95% CI	p	Adjustments
National Heart, Lung and Blood Growth and Health Study (NGHS)  (Franko et al., 2011)	USA  Ethnicity: black  Girls	9-10  %Male: 0	(NR) 2371	Not reported	3-day validated food records collected at study year 1- 5, 7, 8 and 10.	Cereal consumption	Total cholesterol		3days vs. 0days	No. of days consumed out of 3 days		160.2 (158.6 , 162.8)	<0.05	Study site, race, age, parental education, age of menarche, number of parents in the household, physical activity, energy intake, intake of fibre, fruit, vegetables and milk, no. of days eating breakfast.	
							LDL cholesterol					92.5 (90.1, 94.9)	<0.05	As above	
							HDL cholesterol					55.6 (54.5, 56.7)	NS	As above	

**Table 61 - Characteristics of RCTs on hyperlipidaemias and blood lipids**

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Al-Sarraj <i>et al.</i> , 2010)	18-50yr, with metabolic syndrome (NCEP ATP III criteria).  Exclusions not specified	Country: Abu Dhabi Emirate  %Male 38.4%  Age: NR  BMI: NR	Parallel	12 weeks	Free living diet plan	39	1. Carbohydrate restricted diet (CRD)  2. 6wks CRD then 6wk conventional low fat American Heart Association diet (AHA)	1. 20-25% CHO, 25-30% Protein, 45-50% fat  2. 6 weeks as above then 6 weeks 55% CHO, 15-20% protein, <30% fat	At 12 weeks: 24.9% energy CHO  At 6 weeks: 23.4%, then after 12 weeks 52.5% energy CHO	Yes CHO and energy	Health Authority for the Emirate of Abu Dhabi
(Belski <i>et al.</i> , 2011)	Overweight and obese (BMI 27-35 kg/m <sup>2</sup> , healthy, 20-71 yrs. No CVD or peripheral vascular disease, diabetes, hypertension, use of antihypertensive drugs, TC >6.2 mmol/l or triglycerides >2.0mmol/l, lipid lowering medications.	Country: Australia  %Male: 51.9  Age: 46.7 control, 46.5 Lupin  BMI: 31.4 Control, 31.3 lupin	Parallel	12 months (4 months weight loss, 8 months weight maintainance- <i>ad libitum</i> diet)	Foods provided, free living diet plan	131	1. Control  2. Lupin	1. Consumed products- bread, biscuits and pasta with wheat, primarily wholewheat, flour.  2. Consumed foods enriched with lupin flour in place of other foods- bread, biscuits and pasta	1. g/d CHO 218, P 95, F66  Fibre 25 g/d, Energy 8.3 MJ  2. g/d CHO 191, P 110, F 69  Fibre 39 g/d, Energy 8.2 Mj	Yes	Western Australian Government, Department of Industry and Resources

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Brooking <i>et al.</i> , 2012)	<75 yrs, waist circumference ≥ 100cm men, ≥ 90cm women, Maori. No diabetes, pregnancy, lactation, current attempts to lose weight, weight loss of 2kg ≥ in previous 2 months, evidence of chronic disease, use of drugs influence glucose levels and body weight	Country: New Zealand  % Male: 29.7  Age: Mean not reported  BMI: Mean not reported	Parallel	24 weeks	Free living diet plan	84	1. High protein diet  2.High CHO/high fibre  3. Control	1. Intakes of traditional sources of protein were encouraged e.g. mutton-bird, abalone, sea-eggs and fish, lean red meat and skinless chicken. Fruit, vegetables and whole grains recommended sources of CHO.  2. High fibre, carbohydrate containing foods encouraged e.g. vegetables, fruit, wholegrain cereals, breads, pasta and rice together with reduction in high fat foods  3. Usual dietary practices	1. % E CHO 37.5, protein 21.4, fat 38.3  Fibre: 24.6 g Energy:8310 KJ  2. %E CHO 47.8, protein 19.6, fat 30.1  Fibre: 25.9 g Energy: 7725 KJ  3. %E CHO 41.6, protein 18.2, fat 38.4  Fibre: 19.1 g Energy: 9636 KJ	Yes	Health Research Council of New Zealand
(Brownlee <i>et al.</i> , 2010)  WHOLE-heart study	18-65 yrs, Excluded: BMI<25, habitual consumption wholegrain >30g/d, CVD, DM, treated hyperlipidaemia, smoking >20 cigarettes/d, recent wt change ≥3kg,	Country: UK  % Male 47  Age: 46 (median)  BMI: 30	Parallel	16 week	Wholegrain foods provided for substitution	316	1. Intervention 1  2. Intervention 2  3. Control	1. 60g per day for 16 wk (equivalent to wholegrain content of 3 slices of bread)  2. 60g wholegrain for 8 weeks, then 120g wholegrain for final 8 weeks.  3. Maintain usual diet	Substitution of refined products for wholegrain products. Foods provided; (wholewheat bread, wholegrain cereals, porridge oats, brown basmati rice, wholewheat pasta, oat bars and whole grains crisps.)	Yes – assessed by FFQ and reported	Food Standards Agency

continued: Table 61 - Characteristics of RCTs on hyperlipidaemias and blood lipids

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Charlton <i>et al.</i> , 2012)	25-75yrs, (not menopausal women), serum cholesterol $\geq$ 5, <7.5mmol/l, BMI 20- <32, weight stable, breakfast cereal consumer	Country: Australia % Male: 47 Age: 51 BMI: 27.3	Parallel	6 weeks	1 cereal packet & 1 cereal bar on at least 5 days/week.	95	1. Oats high (OH)  2. Oats low (OL)  3. control	1. oat porridge and oat based cereal bars providing 3.2g beta glucan/day  2. ready to eat oat flakes and puffed rice and wheat bars providing 1.5g beta glucan/day  3. minimal B-glucan, cornflakes, puffed rice and wheat bars	Not reported	Yes – compliance reported	Cereal Partners Worldwide Ltd
(de Souza <i>et al.</i> , 2012)	30-70yrs, BMI 25-40, No DM, unstable CVD, meds that affect weight & insufficient motivation as assessed by interview & questionnaire.	Country: USA % Male 43.4% Age: 52 BMI:33	Parallel	2yr	Hypocaloric free living diet plan	811	1.Low fat average protein  2. low fat high protein  3. high fat average protein  4. high fat, high protein	Each participant's caloric target represented a 750kcal deficit. Low GI foods used in all diets  1. 65% CHO, 15% protein 20% fat  2. 55% CHO, 25% protein, 20% fat  3. 45% CHO, 15% protein, 40% fat  4. 35% CHO, 25% protein, 40% fat	Actual intake at 2y  1. 1531kcal, 53%CHO, 20% protein, 27% fat. 21g fibre  2. 1560kcal, 51%CHO, 21% protein, 28% at. 19g fibre  3. 1521kcal, 49%CHO, 20% protein, 33% fat. 17g fibre  4. 1413kcal, 43% CHO, 21% protein, 35% fat. 15g fibre	Yes self-reported for 50% of subjects	National Heart Lung and Blood Institute and General Clinical Research Centre NIH

continued: Table 61 - Characteristics of RCTs on hyperlipidaemias and blood lipids

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Foster <i>et al.</i> , 2010)	18-65 years, BMI 30-40 kg/m <sup>2</sup> and body weight <136kg  No T2D, lipid lowering or obesity medication, hypertensives.	Country: US % Male: 32.2  Age: 45.5 BMI: 36.1	Parallel	24 months	Dietary advice	307	1. Low fat diet  2. Low carbohydrate diet	1. Atkins style diet.  2. Limited energy intake approx. 1200-1500 kcal/d for women and 1500-1800 kcal/d for men.	1. Limit CHO intake to 20g/d for first 12 weeks using low GI vegetables, after 12 weeks increased CHO intake 5g/d per week. Unrestricted amount of fat protein  2. Target %E: C 50, F 30, P 15	No	National Institutes of Health

continued: Table 61 - Characteristics of RCTs on hyperlipidaemias and blood lipids

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Gogebakan <i>et al.</i> , 2011)  DiOGenes study	Families with a least 1 parent BMI>27 and aged <65, and with at least 1 child between 5-18yrs  No adult BMI> 45, liver, cardiovascular or kidney disease, DM, eating disorders, systemic infections, cancer within last 10 years, wt change >3kg in last 3 mo, meds that may interact with outcomes.	Pan-European  % male: 35.2  Age: 42  BMI: 30.3	Parallel	26 weeks	Following an 8 week low calorie diet participants randomised to free living diet plans, 2 centres were “shop centres” where participants collected free food from shops, and 6 “instruction centres” with dietetic instructions only (detailed in Larsen <i>et al.</i> , 2010)	773	1. Low protein Low GI  2.Low protein high GI  3. High protein/ low GI  4. High protein/ high GI  5. control	Target nutritional characteristics  1. C 57-62%, P 10-15%, F 23-28%  2. C 57-62%, P 10-15%, F 23-28%  3. C 45-50%. P 23-28%, F 23-28%  4. C 45-50%. P 23-28%, F 23-28%  5. C55-63%, P12-15%, F 25-30% national dietary guidelines	Intake at 26 weeks:  1. C 51.2%, P 18%, F 29.7%  2. C 50.7%, P 16.3%, F 31.1%  3. C 45.1%, P 21.7%, F 31.2%  4. C 45.7%, P 22.4%, F 30.4%  5. C 46.5%, P 18.3%, F 33.1%	Yes	European Union Food Quality and Safety Priority of the 6 <sup>th</sup> Framework Program

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Haufe <i>et al.</i> , 2011)	Healthy, BMI >30, <2hr physical activity per week, <20g/day alcohol  No medications, no diseases requiring treatment, no type 2 DM, no acute or chronic infections, no pregnant women.	Country: Germany  % Male: 20.5%  Age: mean not reported (35-55)  BMI: mean not reported	Parallel	6 month	Free living diet plan, attended weekly nutrition sessions and individual nutrition counselling every 2 months	170	1. reduced carbohydrate  2. reduced fat	Dietary targets:  1. hypocaloric (energy intake reduced by 30%), ≤90g/d CHO, 0.8g/kg/d protein, ≥30% fat.  2. hypocaloric (energy intake reduced by 30%), ≤20% energy from fat, 0.8g/kg/d protein, remaining energy from CHO.	Intakes for carbohydrate and fat were significantly different between groups	reported graphically –	Federal Ministry of Education and Research, Commission of the European communities. German Obesity Network of Competence
(Hermsdorff <i>et al.</i> , 2011)	Obese, wt stable, No DM, HTN, liver renal or haematological disease, no chronic meds, no surgical or drug related obesity treatments, alc or drug abuse. Excluded non legume consumers.	Country: Spain  % Male: 56%  Age: 36  BMI: 32.5	Parallel	8 weeks	Free living diet plan. 7 day menu sheet provided by dietitian	30	1. Legume free diet (C-diet)  2. Legume based diet (L-diet)	1. No legumes  2. 4 servings per week non-soy legumes (lentils, chickpeas, peas, beans)	Both diets 30% hypo caloric and designed to provide a similar macronutrient distribution (53%CHO, 17%protein, 30%fat)	Yes	Línea Especial about Nutrition, Obesity and Health (University of Navarra), Health Department of the Government Nevarra, Capes Foundation-Ministry of Education Brazil

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Hernandez <i>et al.</i> , 2010)	18-65yrs, BMI 30-40, No organ system dysfunction, metabolic disease, CVD, DM, no steroids, lipid lowering meds, wt loss meds, pregnant, psychiatric illness	USA %Male: 31 Age: 43 BMI: mean not reported	Parallel	6 weeks	Behavioural group sessions,	32	1. high fat/ low carbohydrate 2. High carbohydrate/ low fat diet	1. Low CHO diet (Atkins), unlimited fat and protein, subjects advised that unsaturated fats were healthier than saturated fats. 2. Encouraged diet in line with UDSA food guide pyramid	Target: 1. ~ 20g/ day CHO 2. ~30% F, 15% P, 55% C	No	Clinical Translational Research Institute at the University of Colorado at Denver
(Hodgson <i>et al.</i> , 2010)	20-70 years, BMI 25-35, wt stable, non-smokers. No CVD, PVD, DM, fasting glucose > 5.6mmol/l, asthma, renal or liver disease, gout, psychiatric illness, GI problems, cancer, uncontrolled HTN (SBP <150mm/Hg or DBP>95mmHg or use of >2 HTN meds, no recent change in meds, pregnant women	Australia %Male: 35 Age: mean not reported BMI: 30	Parallel	16 weeks	Test breads provided to replace usual breads	88	1. Lupin 2. Control	Replace 15-20% usual energy intake with test breads 1. Lupin bread Formulated with 40% lupin kernel flour. Recipe adjusted to match fat and sodium content. 2. standard white bread	1. Lupin bread composition: per MJ: CHO 28g, fat 4.1g, protein 17.9g, fibre 10.7g 2. Control bread composition Per MJ: CHO 41g, Fat 4.1g, Protein 8.6g, fibre 2.4g	Yes Subjects ate ~3 slices bread/ day.	Western Australian Government, Department of Industry and Resources
(Howard <i>et al.</i> , 2010) WHI Dietary Modification Trial	Age 50-79y Fat intake >32% Post-menopausal	USA 0% Male Age: 62 BMI: mean not reported	Parallel Group	6 years	Free living diet plan	48835 (2730g ave blood)	1. Low fat 2. Control	1. Advice: reduce fat intake to 20%, increase fruit, vegetables and wholegrains 2. Received information relating to health and healthy diets	1. %E: C 53.9 P 17.7 F 29.3 Energy 1424 kcal/d Fibre g/d:16.7 2. %E: C 46.3 P 17.0 F 37 Energy 1526 kcal/d Fibre g/d:14.1	Yes	National Heart, Lung, and Blood Institute

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Jebb <i>et al.</i> , 2010) RISCK	Men and women 30-70yrs who score $\geq 4$ points according to metabolic criteria. No ischaemic heart disease, >30% 10y risk of CVD, diabetes, cancer, pancreatitis, cholestatic liver disease, renal disease, lipid lowering drugs.	Country: UK % Male: 41.9 Age: Men 52, Women 51 BMI: Men 28.3, women 28.6	Parallel	24 weeks (4 week run-in)	Substitution (food exchange model for fats and carbohydrates)	720	1. High SFA and high GI (HS/HGI) 2. High MUFA and High GI (HM/HGI) 3. High MUFA and low GI (HM/LGI) 4. Low fat and High GI (LF/HGI) 5. Low fat and low GI (LF/LGI)	1. Reference diet – target intake of total fat 38% energy, 12% MUFA, 45% CHO. HM diets target -total fat 38% energy, but reduce SFA to 10% energy and MUFA provide 20% energy, 45% CHO. LF diets target- 28% energy total fat, SFA 10% energy, MUFA 12% energy, 55% CHO. Target difference between HGI and LGI group ~11 and ~13 GI points	1. %E: C 42, F 37.5 protein 82 g/d Energy 8.37 MJ 2. %E: C 44.9, F 35.6. Protein 78.6 g/d Energy 8.05 MJ 3. %E: C 44.6, F 35.7. Protein 84.2g/d Energy 8.28 MJ 4. %E: C 51.1, F 27.5. Protein 80.5 g/d Energy 7.76 MJ 5. %E: C 51.5, F 26.1. Protein 78 g/d Energy 7.28 MJ	Yes	Food Standards Agency
(Klemsdal <i>et al.</i> , 2010)	30-65yrs, BMI 28-40 for men and BMI 28-35 for women, at least 1 symptom of the metabolic syndrome (NECP definition).  No CVD, no DM requiring medication, no lipid lowering or weight management meds in previous 12 wks, no eating disorders.	Country: Norway %Male 42% Age:50 BMI: mean not reported	Parallel	1 year	Dietary advice and free living diet plan	202	1. Low glycaemic load diet (LGL) 2. Low fat diet	1. Advice for a third of plate protein (all meals), 1 meal - third of plate low GI CHO and third vegetables/legumes. Other 2 meals- 2 thirds plate vegetables/legumes. 1. Nordic dietary guidelines and recommended unrefined high fibre CHO's (but not those with low GI)	Target intakes: 1. 30-35% CHO, 25-30% protein, 35-40% fat 2. 55-60% CHO, 15% protein, <30% fat	Only graphically	Norwegian National Research Council

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Krebs <i>et al.</i> , 2010)	12-18yrs, obese or body weight estimated to be $\geq 175\%$ ideal body weight (50 <sup>th</sup> centile)  no DM type 2, gall bladder, liver, renal or eating disorders, hypercholesterolemia (TC >300mg/dl), no hypothyroidism, PCOS, pregnancy, depression, genetic disorders, or meds that effect appetite.	Country: USA  % Male: 45.7  Age: ~14  BMI: mean reported	Parallel	12 weeks	Instructions and written advice to achieve dietary prescriptions	51	1. HPLC high protein low carbohydrate  2. LF low fat control	1. <20g/day CHO, protein to provide 2.0-2.5g protein/ kg ideal body weight, fat and energy not restricted  2. Energy restricted to 70% of REE, $\leq$ energy from fat.	1. P 32%, C 32%, F 57%  2. P 21%, C 51%, F 29%	yes	USDA grant, Paediatric Clinical Translational Research centre, National Cattlemen's Beef Association
(Kristensen <i>et al.</i> , 2012b)	BMI 27-37, age 45-70y, >1y postmenopausal,  Excluded: smoking, DM, CVD, untreated HTN, cholesterol >6.5mmol/l, glucose >7.0 mmol/l, dietary supps, medication (except HTN meds).	Country: Denmark  % Male: 0  Age: 59  BMI:30	Parallel	12 week	Substitution of usual foods	79	1. Refined wheat (RW)  2. Wholegrain wheat (WW)	1. refined 62g bread/day, 60 pasta/day, 28g biscuits/day to replace 2MJ of habitual diet. Within an energy restricted diet.  2. >50% wholegrain 62g bread/day, 60 pasta/day, 28g biscuits/day to replace 2MJ of habitual diet. Within an energy restricted diet.	1. intervention foods provided 2.07 MJ/d, CHO 95.8g, Sugars 11.5g, fibre 4.5g  2. intervention foods provided: 1.99MJ/d, CHO 86.8g, sugars 11.8g, fibre 11.0g	yes	European commission, University of Copenhagen

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Lim <i>et al.</i> , 2010)	20-65 years with at least one CVD risk factor, BMI 28-40kg/m <sup>2</sup> . No hypoglycaemic medication or drugs affecting insulin sensitivity, history of metabolic or CHD, type 1 or type 2 diabetes.	Country: Australia % Male: 16.3 Age: 47 BMI: 32	Parallel	15 months	Free living diet plan- all designed to be reduced energy isocaloric diets	113	1. Very low carbohydrate (VLC) 2. Very low fat (VLF) 3. High unsaturated fat (HUF)	1. Target %E C 4, F 60, P35 2. %E C70, F 10, P20 3. %E C50, F 30, P20	1. %E C 36.5, F 37.1, P23.9 Energy 6841 KJ 2. %E C 50.5, F28.3, P 19.6 Energy 7936 KJ 3. %E C 43.2, F 30.3, P24.4 Energy 6593 KJ	Yes	National Heart Foundation and CSIRO Health Sciences and Nutrition
(Lyon <i>et al.</i> , 2011)	Healthy, 18-50yrs, BMI 27-35, wt stable, <5 cigarettes/day, no current or previous metabolic or digestive disease, no appetite effecting medication	Country: France % Male 47.5 Age: mean not reported BMI mean not reported	Not reported = assume parallel?	15 weeks	supplement	59	1. High viscosity polysaccharide (HVP) 2. inulin	Fibre supplement powders mixed with low fat yoghurt. Week 1: 3g twice a day, Week 2: 5g twice a day, week 3 onwards: 5g 3 times a day	1. HVP composition per 100g – 82g CHO, 87g fibre, 1.4g protein, 0.3g fat. 2. inulin 5-15g	Compliance recorded	InovoBiologic Inc.

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Maersk <i>et al.</i> , 2012)	Healthy, No DM, BMI 26-40, 20-50yrs, BP <160/100mmHg,	Country: Denmark  % Male 36.2  Age: 39  BMI: ~32 not reported separately	parallel	6 month	Additional 1L beverage/ day	60	1. Regular cola  2. Milk (data not extracted)  3. Diet cola  4. water	1. 1L/d sucrose sweetened regular cola  2. 1L/d Semi skimmed milk (1.5%fat)  3. 1L/d Aspartame – sweetened diet cola  4 1L/d water	Drink composition/ 100ml:  1. CHO 10.6g, Protein 0g, fat 0g,  2. 4.7g CHO, 3.4g protein, 1.5g fat  3. 0g CHO, <0.1g protein, 0g fat  4. 0g nutrients	no	The Danish Council for Strategic Research, The Food Study Group/Danish Ministry of Food, Agriculture and Fisheries, Novo Nordic Foundation, Clinical Institute at Aarhus University
(Pal <i>et al.</i> , 2011)	BMI 25-40, wt stable, 18-65yrs,  No smoking, lipid-lowering meds, steroid or warfarin use, DM, hypo- or hyper thyroidism, Cardiovascular event in last 6mo, major systemic disease, GI problems, Proteinuria, liver or renal failure, vegetarian.	Country: Australia  % Male 43.8  Age: mean not reported  BMI: mean not reported	Parallel	12 weeks	Supplement with and without healthy eating advice	72	1. control  2 fibre supplement (FIB)  3. healthy eating with control supplement (HLT) ( <b>not extracted</b> )  4. healthy eating with fibre supplement (HLT-FIB)( <b>Not extracted</b> )	1. 12g breadcrumbs with flavouring 3x day  2. 12g psyllium supplement 3x day  1. 12g breadcrumbs with flavouring 3x day plus <i>ad libitum</i> healthy eating plans  2. 12g Psyllium 3x day plus <i>ad libitum</i> healthy eating plans	1. Control provided 1.5g soluble fibre per dose  2. 7g psyllium per dose	yes	ATN Centre for Metabolic Fitness



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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Tighe <i>et al.</i> , 2010)	40-65yrs, BMI 18.5-35, <2 aerobic activity sessions per week, metabolic syndrome, moderate hypercholesterolemia.  No CVD, DM, fasting blood glucose >7.0mmol/l, asthma, BP > 160/99 mmHg, thyroid conditions, high habitual wholegrain intake, no meds or drugs known to effect the outcomes measured.	Country: Scotland  % Male: 50.5  Age: 52  BMI: 28	Parallel	12 weeks	Substitution of usual foods, provided with refined, whole wheat and/ or oat foods)	206	1. refined  2. Wholegrain  3. Wholegrain & oats	1. Refined cereals and white bread  2. Substitution with 3 servings of whole wheat foods (serving sizes 70-80g whole-meal bread, 30-40g wholegrain cereals)  3. Substitution with 1 serving whole wheat foods and 2 servings of oats.	1. 2080kcal, CHO 245g, Protein 84g, fat 79.7g, NSP 11.3g  2. 2121 kcal, CHO 253g, Protein 89.1g, fat 79.7g, NSP 18.5g  3. 2142 kcal, CHO 253g, Protein 87g, fat 82.1g, NSP 16.8g	yes	Food Standards Agency
(Toscani <i>et al.</i> , 2011)	Women reproductive age (14-35), BMI 18.5-39.9 kg/m <sup>2</sup> , 14-35 years, with PCOS or controls- data extracted for controls only	Country: Brazil  % Male :0  Age: 29.35 (controls)  BMI: ≥25kg/m <sup>2</sup> (controls)	Parallel	2 months	Not reported	40 (22 controls)	1. Normal protein diet (NP)  2. High protein diet (HP)	1. Target intake %E: C55, F30, P15.  2. Target %E: C40, F 30, P30	Not reported	No	Conselho Nacional de Desenvolvimento Científico e Tecnológico, FIPE-HCPA and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Venn <i>et al.</i> , 2010)	BMI >28, fasting blood glucose <6.1mmol/l, 2hr OGTT <11.1mmol/l	Country: New Zealand % Male :14 Age: 42 BMI: mean not reported	Parallel	6 mo with twice weekly counselling sessions  12 mo with monthly contact	Substitution of foods	108	1. Control  2. Intervention	1. instructed to follow National Heart Foundation of New Zealand guidelines (to eat at least 3 servings veg, 3 servings fruit, 6 servings bread/cereals, 2 servings low fat milk or dairy, 1-2 servings protein, 1-2tbsp unsaturated fats, small amount nuts.  2. Similar advice to control except instructed to consume 2 servings of pulses as a substitution for 2 servings bread/ cereals and all other breads/ cereals to be wholegrain.	Used 6 mo values:  1. CHO 52% energy, Fat 26% energy, protein 20% energy, fibre 23g  2. CHO 51% energy, Fat 27% energy, protein 20% energy, fibre 25g	yes	New Zealand Foundation for Research, Science and Technology and the Lifestyle Foods program industry partners.

continued: Table 61 - Characteristics of RCTs on hyperlipidaemias and blood lipids

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Vrolix & Mensink, 2010)	30-65yrs and >2 characteristics of MS (fasting plasma glucose >5.6mmol, TG >1.7mmol, HDL < 1.03 men/ <1.3 women, WC >102cm men/>88 women). Stable PA pattern,  No HTN meds, no other meds known to effect glucose or lipid metabolism, alcohol abuse, illicit drug use, not pregnant, no history (5yr ago) of CHD, cancer, DM, kidney, liver or pancreatic disease, malignancies, familial hypercholesterolemia	Country: Netherlands  % Male: 60  Age: mean not reported  BMI: mean not reported	Cross over  ≥2 weeks wash out	11 weeks each arm	Substitute usual foods for test foods	15	1. decreased GI (dGI)  2. Increased GI (iGI)	Following a 3 week run in period on the decreased GI test foods;  1. continued to consume the decreased GI foods for further 11 weeks  2. switched to consume the increased GI foods for further 11 weeks.	Subjects given decreased and increased GI versions of bread, fruit drink, cake and cookies to replace their usual foods.	Yes	Top Institute of Food and Nutrition, Netherlands

continued: Table 61 - Characteristics of RCTs on hyperlipidaemias and blood lipids

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Wood <i>et al.</i> , 2012)	Men 50-75yrs, with metabolic syndrome (revised NCEP criteria),  No wt loss ≥5lb in previous 6mo, CVD, thyroid disease, DN, cancer, gout, musculoskeletal pathology, no change in lipid lowering meds in last 6mo.	USA  % Male: 100  Age : 58  BMI:mean not reported	Parallel	12 week	Weight loss study with free living diet plan	22 (42 total RCT)	1. LFD – low fat diet  2. CRD – carbohydrate restricted diet  3&4. Two additional Exercise groups – not extracted	1. target <30%E from fat and 1800kcal/d. 3-4 servings F&V, 6-8 servings grains (with at least half wholegrain), 2-3 servings low fat dairy, 3-6oz lean meat per day and low fat condiments.  2. target <50g/d CHO. Unlimited meat, fish and eggs, moderate amounts of hard cheese, low carbohydrate vegetables and small amounts of nuts and seeds. Avoid fruit, fruit juices, pasta, rice, cereals, breads and desserts.	1. 1780kcal, CHO 244g (51.4%), Protein 79g (17.8%), fat 49g (24.8%)  Fibre 22g/d  2. 1707kcal, CHO 64g (14%), protein 114g (26.7%) fat 105g (55.4%)  Fibre 11g/d	yes	Springfield College Faculty Research Fund
(Wycherley <i>et al.</i> , 2010)	24-64yrs, BMI 26-43, abdominal obesity and >1 metabolic syndrome risk factor (IDF).  No CVD, peripheral vascular disease, respiratory or GI disease, DM, pregnancy, malignancy, smoking	Australia  %male 34.7  Age: 50  BMI: 34	Parallel	12 months	Free living diet plan	118	1. Very low CHO (LC)  2.high CHO, low fat (LF)	Dietary targets with moderate energy restriction.  1. %E: 4% CHO, 35% protein, 61% fat. CHO restricted to <20g/d for first 8 weeks with option to increase to <40g/d for remainder of study.  2. %E: 46% CHO, 24% protein, 30% fat.	Achieved diets:  1. 1601kcal, 7% CHO, 32.6% Protein, 57.4% fat  2. 1539kcal, 40.7%CHO, 22.8% Protein, 27.7 % fat.	Yes	National Heart Foundation of Australia, National Health and Medical Research Council of Australia

**Table 62 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and total cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcom e Assessm ent Bias
Howard et al., 2010	Low fat		1068/19541  (with blood sample)	222	215	-7			-2.12 (CI- 4.25, 0.02)	Total cholesterol	mg/dl  fasted plasma	1 year	Decrease	
	Control		1662/29294  (with blood sample)	223	218	-5							No change(los t 0.5 kg)	
	Low fat		1068/19541  (with blood sample)	222	214	-11			-2.52 (- 6.97, 1.94)			6 year	No change (0.4 kg decrease from baseline)	
	Control		1662/29294  (with blood sample)	223	211	-8.5							No change	
Tierney et al., 2011	High SFA diet		100/121	5.32 (SEM 0.10)	5.26 (SEM 0.10)		NS			Total cholesterol	mmol/l  Fasted plasma	12 weeks	Very small decrease	
	High MUFA diet		111/126	5.15 (SEM 0.09)	5.04 (SEM 0.10)		NS						Very small decrease	
	Low fat high complex carbohydrate (LFHCC) diet		106/119	5.22 (SEM 0.10)	5.12 (SEM 0.10)		NS						Very small significant decrease	

continued: Table 62 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and total cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcom e Assessm ent Bias
Jebb et al 2010		High SFA & high GI	83/137	5.6 (IQR 4.8, 6.2)	5.3 (IQR 4.9, 6.1)	Mean % change  -1.2 (95CI -3.1, 0.6)		<0.001		Total cholesterol	mmol/l  Fasted plasma	24 weeks	Slight increase	
		High MUFA & high GI	109/145	5.7 (IQR 4.9, 6.3)	5.5 (IQR 4.6, 6.1)	-3.9 (95%CI- 5.7, -2.1)		concentrati ons sig lower in all diets compared to HSFA/HGI group.					Slight decrease	
		High MUFA & low GI	111/144	5.6 (IQR 5.0, 6.4)	5.4 (IQR 4.6, 6.1)	-7.0 (95%CI- 8.9, -5.0)		0.0006 across all groups					Very slight increase	
		Low fat & high GI	112/145	5.5 (IQR 5.0, 6.3)	5.3 (IQR 4.6, 5.9)	-5.7 (95%CI - 7.4, -4.0)							Small decrease	
		Low fat & high GI	120/149	5.5 (IQR 4.8, 6.3)	5.2 (IQR 4.6, 5.8)	-6.7 (95%CI - 8.5, -4.8)							Small decrease	

continued: Table 62 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and total cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcom e Assessm ent Bias	
Brooking et al 2012		High CHO, High fibre	26/31	5.4 (SD 1.11)	5.0 (SD 1.02)			NS (p=0.759) cf control  (all time points combined)	0.03 (95%CI -0.17, 0.24) compared to control over all time points	Total cholesterol	mmol/l	8 weeks	Decrease		
		High protein	22/28	5.5 (SD 0.90)	4.8 (SD 0.68)			NS (p= 0.256) cf control  (all time points combined)	-0.12 (95%CI - 0.32, 0.09) compared to control over all time points				Decrease		
		Control	23/25	5.1 (SD 1.02)	4.7 (SD 0.97)									Decrease	
		High CHO, High fibre	23/31	5.4 (SD 1.11)	5.0 (SD 1.12)							16 weeks	Decrease		
		High protein	20/28	5.5 (SD 0.90)	5.0 (SD 0.74)								Decrease		
		Control	20/25	5.1 (SD 1.02)	4.6 (SD 0.97)								Decrease		
		High CHO, High fibre	22/31	5.4 (SD 1.11)	5.2 (SD 1.14)							24 weeks	Decrease		
		High protein	20/28	5.5 (SD 0.90)	5.1 (SD 1.08)								Decrease		
	Control	19/25	5.1 (SD 1.02)	4.8 (SD 0.97)								Decrease			

continued: Table 62 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and total cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcom e Assessm ent Bias
Haufe et al 2011		reduced carbohydrates	52/80	NR		-0.08 (SEM 0.09)	NS	0.009		Total cholesterol	mmol/l	6 months		Sig reduction in both groups
		Reduced fat	50/83	NR		-0.45 (SEM 0.11)	P<0.01							

Foster et al did not report follow up total cholesterol

**Table 63 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and LDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Howard et al., 2010	Low fat		1068/19541  (with blood sample)	133	126	-7		NS	-1.17 (- 3.13, 0.80)	LDL cholesterol	mg/dl  fasted plasma	1 year	Decrease	
	Control		1662/29294  (with blood sample)	134	129	-6							No change	
	Low fat		1068/19541  (with blood sample)	133	123	-9		NS	-0.88 (- 5.11, 3.35)			6 year	No change	
	Control		1662/29294  (with blood sample)	134	126	-7.6							No change	
Tierney et al 2011	High SFA diet		100/121	3.17(SEM 0.12)	3.09 (SEM 0.12)			NS		LDL cholesterol	mmol/l  Fasted plasma	12 weeks	Very small decrease	
	High MUFA diet		111/126	3.04 (SEM 0.10)	2.97 (SEM 0.11)			NS					Very small decrease	
	Low fat high complex carbohydrate diet		106/119	3.17 (SEM 0.11)	3.09 (SEM 0.11)			NS					Very small significan t decrease	

continued: Table 63 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and LDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias	
Jebb et al 2010	High SFA & high GI	83/137	3.4 (IQR 3.0, 4.0)	3.4 (IQR 3.0, 4.1)	Mean % change -0.6 (95%CI - 3.4, 2.1)	<0.001	concentrati ons sig lower in all diets compared to HSFA/HGI group	LDL cholesterol	Fasting mmol/l	24 weeks	Slight increase				
	High MUFA & high GI	108/145	3.6 (IQR 3.1, 4.1)	3.5 (IQR 2.9, 4.1)	-5.2 (95%CI -7.8, -2.6)	0.0015 across all groups							Slight decrease		
	High MUFA & low GI	112/144	3.6 (IQR 3.0, 4.1)	3.3 (IQR 2.7, 3.9)	-7.8 (95%CI -10.2, -5.5)									Very slight increase	
	Low fat & high GI	112/145	3.6 (IQR 3.1, 4.2)	3.4 (IQR 2.8, 3.9)	-7.0 (95%CI -9.2, -4.8)										Small decrease
	Low fat & high GI	120/149	3.5 (IQR 2.8, 4.1)	3.2 (IQR 2.7, 3.7)	-7.0 (95%CI -9.5, -4.5)										
reduced carbohydrates	52/80	NR		-0.04 (SEM 0.07)	NS		0.006	LDL cholesterol	mmol/l	6 months	Sig reduction in both groups				
Reduced fat	50/83	NR		-0.33 (SEM 0.08)	<0.01										

continued: Table 63 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and LDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Foster et al., 2010		Low fat diet	145/154	124 (SD 29.2)		-6.36 (95%CI - 9.81, -2.91)		<0.001		LDL cholesterol	mg/dl fasted	3 months	Decrease	
	Low carbohydrate diet		139/153	120.2 (SD 25.7)		+7.20 (95%CI 2.38, 12.02)							Decrease	
	Low fat diet		135/154	124 (SD 29.2)		-9.52 (95%CI - 12.9, -6.15)		<0.001				6 months	Decrease	
	Low carbohydrate diet		128/153	120.2 (SD 25.7)		+0.54 (95%CI - 3.25, 4.33)							Decrease	
	Low fat diet		115/154	124 (SD 29.2)		-8.66 (95%CI - 12.7, -4.56)		0.98				12 months	Decrease	
	Low carbohydrate diet		113/153	120.2 (SD 25.7)		-8.57 (95%CI - 12.9, -4.26)							Decrease	
	Low fat diet		105/154	124 (SD 29.2)		-8.01 (95%CI - 11.4, -4.26)		0.25				24 months	Decrease	
	Low carbohydrate diet		89/153	120.2 (SD 25.7)		-4.78 (95%CI - 9.17, -0.39)							Decrease	

**Table 64 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and HDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Howard et al., 2010		Low fat	1068/19541  (with blood sample)	59	59	-1		P<0.001	-1.60 (- 2.29, -0.90)	HDL cholesterol	mg/dl  fasted plasma	1 year	Decrease	
		Control	1662/29294  (with blood sample)	58	59	+1							Decrease	
		Low fat	1068/19541  (with blood sample)	59	59	-2		NS	-0.98 (- 2.31, 0.34)			6 year	Decrease	
		Control	1662/29294  (with blood sample)	58	58	-1.2							Decrease	
Tierney et al 2011		High SFA diet	100/121	1.05 (SEM 0.03)	1.11 (SEM 0.03)		<0.0005			HDL cholesterol	mmol/l fasting	12 weeks	Very small decrease	
		High MUFA diet	111/126	1.05 (SEM 0.03)	1.10 (SEM 0.03)		=0.006						Very small decrease	
		Low fat high complex carbohydrate diet	106/119	1.09 (SEM 0.03)	1.08 (SEM 0.03)		NS						Very small significan t decrease	

continued: Table 64 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Jebb et al 2010		High SFA & high GI	87/137	1.3 (IQR 1.2, 1.5)	1.3 (IQR 1.2, 1.4)	Mean % change - 2.0 (95%CI - 4.3, 0.3)		P<0.001 concentrati ons lower with LF diets compared to HSFA/HGI		HDL cholesterol	Fasting  mmol/l	24 weeks	Slight increase	
		High MUFA & high GI	107/145	1.3 (IQR1.1, 1.5)	1.3 (IQR 1.1, 1.5)	Mean % change - 2.7 (-4.6, - 0.9)							Slight decrease	
		High MUFA & low GI	112/144	1.3 (IQR 1.1, 1.6)	1.3 (IQR 1.1, 1.5)	Mean % change - 4.3 (-6.3, - 2.2)		P=0.002 concentrati ons lower with LF diets compared to HM diets					Very slight increase	
		Low fat & high GI	108/145	1.3 (IQR 1.1, 1.6)	1.3 (IQR 1.1, 1.5)	Mean % change - 5.9 (-7.7, - 4.0)		0.0009 across all groups					Small decrease	
		Low fat & high GI	104/149	1.3 (IQR 1.2, 1.6)	1.2 (IQR 1.1, 1.4)	Mean % change - 7.2 (-8.9, - 5.5)							Small decrease	

continued: Table 64 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias	
de Souza et al 2012		Low fat, average protein	NR/148  Data available for (n=91 at 6mo)	48 (SD 14)	46 (SD 12)			NR (assume NS)		HDL cholesterol	mg/dl	6 months	Significan t decrease		
		Low fat, high protein	NR/148  Data available for (n=96 at 6mo)	47 (SD 12)	49 (SD 13)								Significan t decrease		
		High fat, average protein	NR/141  Data available for (n=92 at 6mo)	45 (SD 13)	48 (SD 13)									Significan t decrease	
		High fat, high protein	NR/152  Data available for (n=89 at 6mo)	52 (SD 18)	54 (SD 18)									Significan t decrease	
		Low fat, average protein	NR/148  Data available for (n=83 at 24mo)	48 (SD 14)	51 (SD 14)			NS (p=0.12)					2 years	Participa nts regained ~40% of lost weight.	

continued: Table 64 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
		Low fat, high protein	NR/148  Data available for (n=85 at 24mo)	47 (SD 12)	53 (SD 13)									Participa nts regained ~40% of lost weight.
		High fat, average protein	NR/141  Data available for (n=70 at 24mo)	45 (SD 13)	51 (SD 14)									Participa nts regained ~40% of lost weight.
		High fat, high protein	NR/152  Data available for (n=83 at 24mo)	52 (SD 18)	58 (SD 19)									Participa nts regained ~40% of lost weight.

continued: Table 64 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Brooking et al., 2012		High CHO, High fibre	26/31	1.2 (SD 0.32)	1.1 (SD 0.34)		NS (p= 0.252) cf control  (all time points combined)		-0.05 (95%CI - 0.12, 0.03) compared to control across all time points	HDL cholesterol	mmol/l  Fasting	8 weeks	Decrease	
		High protein	22/28	1.2 (SD 0.41)	1.1 (SD 0.38)		P=0.047 cf control  (all time points combined)		-0.07 (95%CI - 0.14, -0.00)				Decrease	
		Control	23/25	1.1 (SD 0.33)	1.1 (SD 0.36)								Decrease	
		High CHO, High fibre	23/31	1.2 (SD 0.32)	1.0 (SD 0.24)							16 weeks	Decrease	
		High protein	20/28	1.2 (SD 0.41)	1.1 (SD 0.36)								Decrease	
		Control	20/25	1.1 (SD 0.33)	1.1 (SD 0.33)								Decrease	
		High CHO, High fibre	22/31	1.2 (SD 0.32)	1.1 (SD 0.34)							24 weeks	Decrease	
		High protein	20/28	1.2 (SD 0.41)	1.1 (SD 0.30)								Decrease	
		Control	19/25	1.1 (SD 0.33)	1.0 (SD 0.31)								Decrease	

continued: Table 64 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assesse ment Bias
Haufe et al 2011		reduced carbohydrates	52/80	NR		-0.09 (SEM 0.1)	NS	NS ( p=0.98)		HDL cholesterol	mmol/l		Significan t decrease	
		Reduced fat	50/83	NR		-0.1 (SEM 0.07)	NS						Significan t decrease	
Foster et al., 2010		Low fat diet	145/154	45.4 (SD 11.7)		-0.47 (95%CI - 1.42, 0.48)		<0.001		HDL cholesterol	mg/dl fasted	3 months	Decrease	
		Low carbohydrate diet	139/153	46.2 (SD 13.5)		2.30 (95%CI 1.04, 3.55)							Decrease	
		Low fat diet	135/154	45.4 (SD 11.7)		0.89 (95%CI -0.24, 2.02)		<0.001		HDL cholesterol		6 months	Decrease	
		Low carbohydrate diet	128/153	46.2 (SD 13.5)		6.21 (95%CI 4.74, 7.67)							Decrease	
		Low fat diet	115/154	45.4 (SD 11.7)		3.94 (95%CI 2.52, 5.36)		<0.001		HDL cholesterol		12 months	Decrease	
		Low carbohydrate diet	113/153	46.2 (SD 13.5)		7.96 (95%CI 6.33, 9.59)							Decrease	
		Low fat diet	105/154	45.4 (SD 11.7)		4.64 (95%CI 3.17, 6.10)		0.008		HDL cholesterol		24 months	Decrease	
		Low carbohydrate diet	89/153	46.2 (SD 13.5)		7.75 (95%CI 6.00, 9.49)							Decrease	

This document was prepared for consideration by the Scientific Advisory Committee on Nutrition. It does not necessarily represent the final views of SACN or the advice/policy of Public Health England and Health Departments.

continued: Table 64 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Foster et al., 2010		Low fat diet	145/154			-0.28 (95%CI - 0.41, -0.16)		0.79		Total cholesterol:H DL cholesterol ratio	mg/dl fasted	3 months	Decrease	
		Low carbohydrate diet	139/153			-0.31 (95%CI - 0.48, -0.15)							Decrease	
		Low fat diet	135/154			-0.48 (95% CI -0.59, - 0.37)		0.035		Total cholesterol:H DL cholesterol ratio		6 months	Decrease	
		Low carbohydrate diet	128/153			-0.68 (95% CI -0.82, - 0.53)							Decrease	
		Low fat diet	115/154			-0.61 (95% CI -0.75, - 0.46)		0.016		Total cholesterol:H DL cholesterol ratio		12 months	Decrease	
		Low carbohydrate diet	113/153			-0.87(95% CI -1.02, - 0.71)							Decrease	
		Low fat diet	105/154			-0.61(95% CI -0.73, 0.49)		0.56		Total cholesterol:H DL cholesterol ratio		24 months	Decrease	

continued: Table 64 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
		Low carbohydrate diet	89/153			-0.67(95% CI -0.82, - 0.51)							Decrease	

**Table 65 - Higher carbohydrate diets, lower fat vs. lower carbohydrate, higher fat diets and non-HDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Howard et al., 2010		Low fat	1068/19541  (with blood sample)	163	153	-8		NS	-1.37 (- 5.91, 3.18)	Non- HDL cholesterol	mg/dl  fasted plasma	6 year	No change	
		Control	1662/29294  (with blood sample)	165	156	-7.5							No change	

**Table 66 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and triacylglycerol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Howard et al., 2010		Low fat	1068/19541  (with blood sample)	134	136	3		NS	2.33 (- 1.89, 6.55)	triglycerides	mg/dl  fasted plasma	1 year	Decrease	
		Control	1662/29294  (with blood sample)	135	136	1							No change	
		Low fat	1068/19541  (with blood sample)	134	135	4		NS	-0.82 (- 9.21, 7.57)			6 year	No change	
		Control	1662/29294  (with blood sample)	135	138	-0.1							No change	

continued: Table 66 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and triacylglycerol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assesse nt Bias
Tierney et al 2011	All	High SFA diet	100/121	1.99 (SEM 0.10)	1.70 (SEM 0.09)		0.018			TAG	mmol/l fasting	12 weeks	Very small decrease	
		High MUFA diet	111/126	1.78 (SEM 0.10)	1.68 (SEM 0.08)		NS						Very small decrease	
		Low fat high complex carbohydrate diet	106/119	1.67 (SEM 0.10)	1.78 (SEM 0.09)		NS						Very small significan t decrease	
	Men	High SFA diet	45/121	2.09 (SEM 0.16)	1.74 (SEM 0.13)		0.039						Not reported separatel y for gender	
		High MUFA diet	46/126	1.75 (SEM 0.17)	1.60 (SEM 0.14)		NS							
		Low fat high complex carbohydrate diet	47/119	1.72 (SEM 0.18)	1.99 (SEM 0.14)		NS							
	Women	High SFA diet	53/121	1.89 (SEM 0.13)	1.68 (SEM 0.12)		NS							
		High MUFA diet	65/126	1.82 (SEM 0.11)	1.76 (SEM 0.10)		NS							
		Low fat high complex carbohydrate diet	59/119	1.63 (SEM 0.12)	1.57 (SEM 0.11)		NS							

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continued: Table 66 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and triacylglycerol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Jebb et al 2010		High SFA & high GI	83/137	1.4 (IQR 1.0, 1.7)	1.3 (IQR1.0, 1.7)	-0.6 (95%CI - 7.1, 6.3)	0.34 across all groups			triacylglycerol s	Fasting mmol/l	24 weeks	Slight increase	
		High MUFA & high GI	110/145	1.4 (IQR 1.1, 1.8)	1.4 (IQR 1.1, 1.8)	1.5 (95%CI - 3.7, 7.0)							Slight decrease	
		High MUFA & low GI	108/144	1.5 (IQR 1.1, 1.9)	1.3 (IQR 0.9, 1.9)	-4.8 (95%CI - 9.6, 0.2)							Very slight increase	
		Low fat & high GI	113/145	1.2 (IQR 0.9, 1.7)	1.2 (IQR 0.9, 1.8)	2.9 (95%CI - 2.0, 8.0)							Small decrease	
		Low fat & high GI	121/149	1.4 (IQR 1.0, 1.7)	1.3 (IQR 1.0, 1.8)	0.3 (95%CI - 4.4, 5.2)							Small decrease	

continued: Table 66 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and triacylglycerol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Brooking et al., 2012		High CHO, High fibre	26/31	1.5 (SD 0.61)	1.5 (SD 0.73)			NS (p= 0.254) cf control  (all time points combined)	-0.21 (95%CI - 0.56, 0.14) compared to control across all time points	Triglycerides	mmol/l  Fasting	8 weeks	Decrease	
		High protein	22/28	1.8 (SD 0.90)	1.7 (SD 0.91)			NS (p= 0.061) cf control  (all time points combined)	-0.38 (95%CI - 0.79, 0.02) compared to control across all time points				Decrease	
		Control	23/25	1.5 (SD 0.68)	1.6 (SD 1.19)								Decrease	
		High CHO, High fibre	23/31	1.5 (SD 0.61)	1.4 (SD 0.80)							16 weeks	Decrease	
		High protein	20/28	1.8 (SD 0.90)	1.6 (SD 0.76)								Decrease	
		Control	20/25	1.5 (SD 0.68)	1.7 (SD 1.29)								Decrease	
		High CHO, High fibre	22/31	1.5 (SD 0.61)	1.6 (SD 0.82)							24 weeks	Decrease	
		High protein	20/28	1.8 (SD 0.90)	1.9 (SD 1.63)								Decrease	
		Control	19/25	1.5 (SD 0.68)	1.8 (SD 1.48)								Decrease	

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continued: Table 66 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and triacylglycerol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Haufe et al 2011		reduced carbohydrates	52/80	NR		-0.19 (SEM 0.06)	<0.01	NS p= 0.53		triglycerides	mmol/l	6 months	Significan t decrease	
		Reduced fat	50/83	NR		-0.14 (SEM 0.08)	<0.05						Significan t decrease	

continued: Table 66 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and triacylglycerol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Foster et al., 2010		Low fat diet	145/154	124 (SD 73.5)		-17.99 (- 24.6, 11.4)	<0.001			triglycerides	mg/dl fasted	3 months	Decrease	
		Low carbohydrate diet	139/153	113.3 (54.6)		-40.08 (- 45.2, - 34.9)							Decrease	
		Low fat diet	135/154	124 (SD 73.5)		-24.30 (- 31.2, - 17.4)	<0.001					6 months	Decrease	
		Low carbohydrate diet	128/153	113.3 (54.6)		-40.06 (- 45.7, - 34.4)							Decrease	
		Low fat diet	115/154	124 (SD 73.5)		-17.92 (- 28.3, - 7.58)	0.039					12 months	Decrease	
		Low carbohydrate diet	113/153	113.3 (54.6)		-31.52 (- 39.5, - 23.6)							Decrease	
		Low fat diet	105/154	124 (SD 73.5)		-14.58 (- 25.8, - 3.40)	0.76					24 months	Decrease	
		Low carbohydrate diet	89/153	113.3 (54.6)		-12.19 (- 22.9, - 1.49)							Decrease	

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**Table 67 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and total cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011		Low protein, Low GI	95/150	4.14 (SD 0.91)		0.70 (SD 0.72)	(p<0.05)			Total Cholesterol	Fasting serum mmol/l	26 wk	Small non sig increase	-
		Low protein, High GI	84/155	4.12 (SD0.92)		0.79 ( SD 0.87)	(p<0.05)						Small sig increase (P<0.05)	-
		High protein, low GI	107/159	4.17 (SD0.87)		0.80 ( SD 0.75)	(p<0.05)						Small non- sig reduction	-
		High protein, High GI	95/155	4.21 (SD0.98)		0.64 ( SD 0.66)	(p<0.05)						Small non sig increase	-
		Control	103/154	4.13 (SD0.88)		0.75 ( SD 0.71)	(p<0.05)						Small non sig increase	-
Toscani et al 2011		High protein	13/13	163.84 (SD 27.23)	161.61 (SD 31.84)		NS			Total cholesterol	mg/dl	2 months	Significant decrease	-
		Normal protein	9/9	156.55 (SD 43.74)	149 (SD 52.45)								Significant decrease	-

**Table 68 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and LDL cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011		Low protein, Low GI	93/150	2.54 (SD0.76)		0.40 ( SD 0.53)	<0.05			LDL Cholesterol	Fasting serum mmol/l	26 wk	Small non sig increase	-
		Low protein, High GI	83/155	2.42 (SD0.79)		0.52 ( SD 0.74)	<0.05						Small sig increase (P<0.05)	-
		High protein, low GI	108/159	2.54 (SD0.81)		0.50 ( SD 0.63)	<0.05						Small non- sig reduction	-
		High protein, Low GI	95/155	2.56 (SD0.81)		0.37 ( SD 0.60)	<0.05						Small non sig increase	-
		Control	104/154	2.49 (SD0.80)		0.47 ( SD 0.61)	<0.05						Small non sig increase	-
Toscani et al 2011		High protein	13/13	141.35 (SD 23.65)	136.64 (SD 29.34)		NS			LDL cholesterol	mg/dl	2 months	Significant decrease	-
		Normal protein	9/9	127.6 (SD 42.92)	121 (SD 51.56)								Significant decrease	-

**Table 69 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and HDL cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011	Low protein, Low GI		93/150	1.13 (SD0.28)		0.23 ( SD 0.21)	<0.05			HDL cholesterol	Fasting serum mmol/l	26 wk	Small non sig increase	-
	Low protein, High GI		83/155	1.17 (SD0.25)		0.23 ( SD 0.26)	<0.05						Small sig increase (P=<0.05)	-
	High protein, low GI		108/159	1.16 (SD0.29)		0.21 ( SD 0.24)	<0.05						Small non- sig reduction	-
	High protein, Low GI		95/155	1.4 (SD0.27)		0.20 ( SD 0.21)	<0.05						Small non sig increase	-
	Control		104/154	1.21 (SD0.26)		0.19 ( SD 0.21)	<0.05						Small non sig increase	-
Toscani et al 2011	High protein		13/13	52.23 (SD 14.63)	51.69 (SD 15.13)		NS			HDL cholesterol	mg/dl	2 months	Significant decrease	-
	Normal protein		9/9	53.78 (SD 10.22)	58 (SD 9.82)								Significant decrease	-

**Table 70 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and non-HDL cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Toscani et al 2011		High protein	13/13	111.61 (SD 18.51)	109.92 (SD 21.85)		NS			Non-HDL cholesterol	mg/dl	2 months	Significant decrease	-
		Normal protein	9/9	102.77 (SD 43.37)	91 (SD 49.52)								Significant decrease	-

**Table 71 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and triglycerides: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011		Low protein, Low GI	93/150	1.06 (SD0.48)		0.13 ( SD 0.53)	<0.05			Triglyceride	Fasting serum mmol/l	26 wk	Small non sig increase	-
		Low protein, High GI	82/155	1.08 (SD0.55)		0.13 ( SD 0.52)	<0.05						Small sig increase (P=<0.05)	-
		High protein, low GI	107/159	1.03 (SD0.40)		0.19 ( SD 0.51)	<0.05						Small non- sig reduction	-
		High protein, Low GI	94/155	1.05 (SD0.42)		0.14 ( SD 0.38)	<0.05						Small non sig increase	-
		Control	102/154	0.95 (SD0.34)		0.19 ( SD 0.41)	<0.05						Small non sig increase	-
Toscani et al 2011		High protein	13/13	60 (IQR 41.5, 67.5)	81 (IQR 49, 90.5)		NS			triglycerides	mg/dl	2 months	Significant decrease	-
		Normal protein	9/9	63 (IQR 36.5, 143.5)	78 (IQR 57-107.5)								Significant decrease	-

**Table 72 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and total cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Al-Sarraj et al., (2010)		Carbohydrate restricted (CRD) (12 wks)	20/20	NR		-6.6 % (SD 1.3)	P<0.01	NS		Total cholesterol	mmol/l	12 weeks	Significant decrease	
		Carbohydrate restricted (till 6 wks) then conventional AHA low fat diet	19/19	NR		-3.7 (SD 0.6)	P<0.01						Significant decrease	
Klemsdal et al., 2010		Low fat diet	NR/102	6.0 (SD 1.04)	5.7 (SD 0.99)			NS p= 0.147 Across all time points		Total cholesterol	mmol/l fasted	3 months	Significant decrease	
		Low GL diet	NR/100	5.8 (SD 0.97)	5.6 (SD 1.00)								Significant decrease	
		Low fat diet	NR/102	6.0 (SD 1.04)	5.8 (SD 0.95)							6 months	Significant decrease	
		Low GL diet	NR/100	5.8 (SD 0.97)	5.7 (SD 1.05)								Significant decrease	
		Low fat diet	86 /102	6.0 (SD 1.04)	5.8 (SD 0.99)		0.05					12 months	Significant decrease	
		Low GL diet	78 /100	5.8 (SD 0.97)	5.8 (SD 1.05)		0.98						Significant decrease	

continued: Table 72 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and total cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias	
Lim et al 2010		Very low CHO (VLC)	24/27	5.9 (SD 1)		0.1 (SD 1.1)			P=0.085	Total cholesterol	mmol/l	3month	Decrease		
		Very low fat (VLF)	22/ 28	5.7 (SD 1.2)		-0.5 (SD 0.8)							Decrease		
		High unsaturated fat (HUF)	21/27	6.1 (SD 1.1)		-0.5(SD 0.6)							Decrease		
		Control	-/22	4.4 (SD 0.8 )	-							No data at 3 mo			
		Very low CHO (VLC)	17/27	5.9 (SD 1)		-0.4 (SD 0.8)		<0.05 (control)	P=0.042			15 month	Decrease		
		Very low fat (VLF)	18/ 28	5.7 (SD 1.2)		-0.3(SD 0.8)		<0.05 (control)					Decrease		
		High unsaturated fat (HUF)	15/27	6.1 (SD 1.1)		-0.3(SD 1.2)		<0.05 (control)					Decrease		
	Control	19/22	4.4 (SD 0.8 )		+0.5 (SD 0.8)							Small increase			

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continued: Table 72 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and total cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Wycherley et al., 2010		Very Low CHO	26 /57	5.40 (SEM 0.16)	6.00 (SEM 0.27)	0.61 (SEM 0.24)	<0.05	<0.05	0.59 (95%CI 0.01, 1.16)	Total cholesterol	mmol/l fasting	12 months	Decrease	
		High CHO low fat	23 /61	5.59 (SEM 0.16)	5.60 (SEM 0.21)	0.02 (SEM 0.015)							Decrease	
Krebs et al., 2010		High protein low carbohydrate (HPLC)	18/27	166.8 (SEM 7.7)	154.1 (SEM 8.6)			0.46		Total cholesterol	mg/dl fasting	13 weeks	Decrease	
		Low fat diet	15/24	161.3 (SEM6.9)	144.7 (SEM 7.0)								Decrease	

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**Table 73 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and LDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Al-Sarraj et al., (2010)		Carbohydrate restricted (CRD) (12 wks)	20/20	4.29 (SD 1.03)		-5.3% (SD 1.3)	P<0.01	NS		LDL cholesterol	mmol/l	12 weeks	Significan t decrease	
		Carbohydrate restricted (till 6 wks) then conventional AHA low fat diet	19/19	4.07 (SD 0.73)		-2.6% (SD 0.5)	P<0.01						Significan t decrease	
Hernandez et al., 2010		High fat/ low carbohydrate	16/16	109 (IQR 77.4, 126.0)	121 (IQR 97.7, 130.0)	11.7 (SD 28.2)		0.01		LDL cholesterol	mg/dl fasting	6 weeks	Significan t decrease	
		High carbohydrate/ low fat (healthy eating)	16/16	102 (IQR 93.2, 115.0)	91.5 (IQR 85.6, 113.2)	-6.7 (SD 7.8)							Significan t decrease	

continued: Table 73 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and LDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Klemsdal et al., 2010		Low fat diet	NR/102	3.84 (SD 1.01)	3.72 (SD0.90)			0.055		LDL cholesterol	mmol/l fasted	3 months	Significan t decrease	
		Low GL diet	NR/100	3.69 (SD 0.86)	3.63 (SD 0.84)								Significan t decrease	
		Low fat diet	NR/102	3.84 (SD 1.01)	3.72 (SD 0.92)							6 months	Significan t decrease	
		Low GL diet	NR/100	3.69 (SD 0.86)	3.68 (SD 0.89)								Significan t decrease	
		Low fat diet	86 /102	3.84 (SD 1.01)	3.70 (SD 0.92)		0.094					12 months	Significan t decrease	
		Low GL diet	78 /100	3.69 (SD 0.86)	3.75 (SD 0.83)		0.329						Significan t decrease	

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continued: Table 73 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and LDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Lim et al 2010		Very low CHO (VLC)	24/27	3.1 (SD 1.7)		+0.3(SD 1.0)		<0.05 (VLF &HUF)	P=0.015 across all groups	LDL cholesterol	mmol/l	3month	Decrease	
		Very low fat (VLF)	22/ 28	2.7 (SD 1.9)		-0.4 (SD 0.6)		<0.05 (VLC)					Decrease	
		High unsaturated fat (HUF)	21/27	3 (SD 2.1)		-0.6 (SD1.1)		<0.05 (VLC)					Decrease	
		Control	-/22	2.7 (SD 0.7)	-							No data at 3 mo		
		Very low CHO (VLC)	17/27	3.1 (SD 1.7)		-0.3 (SD 0.7)		<0.05 (control)	P=0.022 across all groups			15 month	Decrease	
		Very low fat (VLF)	18/ 28	2.7 (SD 1.9)		-0.3 (SD 0.7)		<0.05 (control)					Decrease	
		High unsaturated fat (HUF)	15/27	3 (SD 2.1)		-0.1 (SD 1.1)		<0.05 (control)					Decrease	
		Control	19/22	2.7 (SD 0.7)		0.4 (SD0.7)	<0.05						Small increase	

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continued: Table 73 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and LDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Wycherley et al., 2010	Very Low CHO		26 /57	3.22 (SEM 0.16)	3.82 (SEM 0.25)	0.60 (SEM 0.22)	<0.05	0.03	0.58 (95%CI 0.08,1.08)	LDL cholesterol	mmol/l fasting	12 months	Decrease	
	High CHO low fat		23 /61	3.46 (SEM 0.15)	3.48 (SEM 0.16)	0.02 (SEM 0.10)							Decrease	
Krebs et al., 2010	High protein low carbohydrate (HPLC)		18/27	103.5 (SEM 6.8)	96.8 (SEM 7.6 )			0.24		LDL cholesterol	mg/dl fasting	13 weeks	Decrease	
	Low fat diet		15/24	97.4 (SEM 5.6)	85.5 (SEM 5.6)				Decrease					

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**Table 74 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and HDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Al-Sarraj et al., (2010)		Carbohydrate restricted (CRD) (12 wks)	20/20	0.99 (SD0.17)		-2.0 % (SD 0.3)	NS	NS		HDL cholesterol	mmol/l	12 weeks	Significan t decrease	
		Carbohydrate restricted (till 6 wks) then conventional AHA low fat diet	19/19	1.05 (SD0.24)		1.9% (SD 0.4)	NS						Significan t decrease	
Hernandez et al., 2010		High fat/ low carbohydrate	16/16	42.0 (IQR 34.0, 62.5)	41.0 (IQR 34.0,59.5)	-2.6 (SD 13.1)		NS p= 0.36		HDL cholesterol	mg/dl fasting	6 weeks	Significan t decrease	
		High carbohydrate/ low fat (healthy eating)	16/16	46.5 (IQR 40.5, 56.5)	43.0 (IQR 38.5, 46.5)	-5.1 (SD 7.8)							Significan t decrease	
Wood et al., 2012		Low fat diet	8/11	47 (SD 5)		-5.0 (SD 5.9)		0.062		HDL cholesterol	mg/dl	12 weeks	Significan t decrease	
		Carbohydrate restricted diet	8/11	44 (SD 7)		0.9 (SD 5.1)							Significan t decrease	

continued: Table 74 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Klemsdal et al., 2010		Low fat diet	NR/102	1.29 (SD 0.37)	1.29 (SD 0.35)			0.724		HDL	mmol/l	3 months	Significan t decrease	
		Low GL diet	NR/100	1.28 (SD 0.37)	1.31 (SD 0.35)			across all groups		cholesterol	fasted		Significan t decrease	
		Low fat diet	NR/102	1.29 (SD 0.37)	1.37 (SD 0.39)							6 months	Significan t decrease	
		Low GL diet	NR/100	1.28 (SD 0.37)	1.36 (SD 0.35)								Significan t decrease	
		Low fat diet	86 /102	1.29 (SD 0.37)	1.40 (SD 0.44)			<0.001				12 months	Significan t decrease	
		Low GL diet	78 /100	1.28 (SD 0.37)	1.40 (SD 0.35)			<0.001					Significan t decrease	

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continued: Table 74 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Lim et al 2010		Very low CHO (VLC)	24/27	1.3 (SD 0.3)		+0.1 (SD 0.2)		<0.05 (VLF & HUF)	P=0.025	HDL cholesterol	mmol/l	3month	Decrease	
		Very low fat (VLF)	22/ 28	1.4 (SD 0.4)		-0.1 (SD 0.2)		<0.05 (VLC)					Decrease	
		High unsaturated fat (HUF)	21/27	1.3 (SD 0.3)		-0.1 (SD 0.2)		<0.05 (VLC)					Decrease	
		Control	-/22	1.3 (SD 0.4)	-							No data at 3 mo		
		Very low CHO (VLC)	17/27	1.3 (SD 0.3)		+0.1 (SD 0.3)		NS	P=0.979			15 month	Decrease	
		Very low fat (VLF)	18/ 28	1.4 (SD 0.4)		+0.1 (0.3)		NS					Decrease	
		High unsaturated fat (HUF)	15/27	1.3 (SD 0.3)		-0.1 (SD 0.2)		NS					Decrease	
Wycherley et al., 2010		Control	19/22	1.3 (SD 0.4)		+0.1 (SD 0.2)		NS					Small increase	
		Very Low CHO	26 /57	1.41 (SEM 0.05)	1.69 (SEM 0.10)	0.28 (SEM 0.08)	<0.01	0.07	0.20 (95%CI -0.02,0.42)	HDL cholesterol	mmol/l fasting	12 months	Decrease	
	High CHO low fat	23 /61	1.36 (SEM 0.05)	1.43 (SEM 0.07)	0.08 (SEM 0.08)	<0.01							Decrease	

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continued: Table 74 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and HDL cholesterol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Krebs et al., 2010		High protein low carbohydrate (HPLC)	18/27	39.2 (SEM1.3)	38.4 (SEM2.2)			0.83		HDL cholesterol	mg/dl fasting	13 weeks	Decrease	
		Low fat diet	15/24	42.6 (SEM 2.3)	39.1 (SEM 2.5)								Decrease	

**Table 75 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and triacylglycerol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Al-Sarraj et al., (2010)		Carbohydrate restricted (CRD) (12 wks)	20/20	1.35 (SD 0.74)		-27.7% (SD 17.4)	P<0.01	P<0.01		triglycerides	mmol/l	12 weeks	Significan t decrease	
		Carbohydrate restricted (till 6 wks) then conventional AHA low fat diet	19/19	1.47 (SD 0.70)		-20.1% (SD 10.6)	P<0.01						Significan t decrease	
Hernandez et al., 2010		High fat/ low carbohydrate	16/16	124 (SD 58.1)	80.4 (SD 29.3)	-43.6 (SD 59.5)		NS p= 0.35		triglyceride	mg/dl fasting	6 weeks	Significan t decrease	
		High carbohydrate/ low fat (healthy eating)	16/16	117 (SD 55.4)	90.1 (SD 48.7)	-26.9 (SD 41.3)							Significan t decrease	
Wood et al., 2012		Low fat diet	8/11	208 (SD 92)		3.1% (SD 31.8)		Sig difference p value not specified		triglycerides	mg/dl	12 weeks	Significan t decrease	
		Carbohydrate restricted diet	8/11	148 (SD 79)		-28.0 % (SD 29.5)							Significan t decrease	

continued: Table 75 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and triacylglycerol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Klemsdal et al., 2010		Low fat diet	NR/102	1.91 (SD 1.13)	1.64 (SD 0.76)			0.798		triacylglycerol	mmol/l fasted	3 months	Significan t decrease	
		Low GL diet	NR/100	1.93 (SD 1.21)	1.51 (SD 0.84)								Significan t decrease	
		Low fat diet	NR/102	1.91 (SD 1.13)	1.57 (SD 0.71)							6 months	Significan t decrease	
		Low GL diet	NR/100	1.93 (SD 1.21)	1.56 (SD 0.93)								Significan t decrease	
		Low fat diet	86 /102	1.91 (SD 1.13)	1.62 (SD 0.81)		0.003					12 months	Significan t decrease	
		Low GL diet	78 /100	1.93 (SD 1.21)	1.67 (SD 1.03)		0.001						Significan t decrease	

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continued: Table 75 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and triacylglycerol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Lim et al 2010		Very low CHO (VLC)	24/27	1.8 (SD 1)		-0.7 (SD 0.6)		<0.05 (VLF & HUF)	P=0.001	triglycerides	mmol/l	3month	Decrease	
		Very low fat (VLF)	22/ 28	1.6 (SD 0.6)		-0.1 (SD 0.6)		<0.05 (VLC)					Decrease	
		High unsaturated fat (HUF)	21/27	1.6 (SD 0.6)		-0.2 (SD 0.5)		<0.05 (VLC)					Decrease	
		Control	-/22	1.3 (SD 0.6)		-						No data at 3 mo	Decrease	
		Very low CHO (VLC)	17/27	1.8 (SD 1)		-0.2 (SD 0.7)		NS	P=0.852			15 month	Decrease	
		Very low fat (VLF)	18/ 28	1.6 (SD 0.6)		+0.1 (SD 0.9)		NS					Decrease	
		High unsaturated fat (HUF)	15/27	1.6 (SD 0.6)		-0.3 (SD 0.8)		NS					Decrease	
		Control	19/22	1.3 (SD 0.6)		-0.1 (SD 0.3)		NS					Decrease	

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continued: Table 75 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and triacylglycerol: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Wycherley et al., 2010	Very Low CHO		26 /57	1.70 (SEM 0.14)	1.13 (SEM 0.13)	-0.57 (SEM 0.12)	<0.001	0.06	-0.33 (95%CI - 0.71,0.04)	triglycerides	mmol/l fasting	12 months	Decrease	
	High CHO low fat		23 /61	1.65 (SEM 0.14)	1.41 (SEM 0.21)	-0.24 (SEM 0.15)	<0.001						Decrease	
Krebs et al., 2010	High protein low carbohydrate (HPLC)		18/27	125.8 (SEM 9.7)	80.3 (SEM 6.5)			0.36		triglycerides	mg/dl fasting	13 weeks	reduction on both groups, no sig differenc e	
	Low fat diet		15/24	107.0 (SEM 12.7)	96.5 (SEM 13.8)									

**Table 76 - Psyllium intake and total cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Pal et al., 2011		Control	15/18	6.1 (SEM 0.3)	reported graphically		NS	0.003		Total cholesterol	mmol/l fasting	Week 6	Decrease	
		Fibre supplement	16/18	5.9 (SEM 0.3)	reported graphically		NS						Decrease	
		Control	15/18	6.1 (SEM 0.3)	reported graphically		NS	<0.001				Week 12	Decrease	
		Fibre supplement	16/18	5.9 (SEM 0.3)	5.01		0.001							Significan t decrease compare d to control

**Table 77 - Psyllium intake and LDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Pal et al., 2011		Control	15/18	3.9 (SEM 0.3)	reported graphically			<0.001		LDL cholesterol	mmol/l fasting	6 weeks	Decrease	
		Fibre supplement	16/18	4.0 (SEM 0.3)	3.10		0.013						Decrease	
		Control	15/18	3.9 (SEM 0.3)	4.05			<0.001				12 weeks	Decrease	
		Fibre supplement	16/18	4.0 (SEM 0.3)	2.88		0.002							Significan t decrease compare d to control

**Table 78 - Psyllium intake and HDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Pal et al., 2011		Control	15/18	1.3 (SEM 0.1)	reported graphically		NS	NS		HDL cholesterol	mmol/l fasting	6 weeks	Decrease	
		Fibre supplement	16/18	1.3 (SEM 0.1)	reported graphically		NS						Decrease	
		Control	15/18	1.3 (SEM 0.1)	reported graphically		NS	NS				12 weeks	Decrease	
		Fibre supplement	16/18	1.3 (SEM 0.1)	reported graphically		NS							Significan t decrease compare d to control

**Table 79 - Psyllium intake and Triacylglycerol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Pal et al., 2011		Control	15/18	2.0 (SEM 0.3)	2.05		NS	NS		TAG	mmol/l fasting	6 weeks	Decrease	
		Fibre supplement	16/18	1.5 (SEM 0.2)	reported graphically		NS						Decrease	
		Control	15/18	2.0 (SEM 0.3)	2.16		NS	NS				12 weeks	Decrease	
		Fibre supplement	16/18	1.5 (SEM 0.2)	reported graphically		NS						Significant decrease compared to control	

**Table 80 - Beta glucan intake and total cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Charlton et al., (2012)		Oats high	30/31	5.97 (SD 0.55)	5.49 (SD 0.80)		<0.001	0.563		Total cholesterol	Fasting serum mmol/l	6 weeks	Adjusted for. Decrease in all groups	
		Oats low	26/31	6.12 (SD 0.54)	5.68 (SD 0.77)		<0.001							
		Control	31/33	6.03 (SD 0.58)	5.67 (SD 0.68)		<0.001							

**Table 81 - Beta glucan intake and LDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Charlton et al., (2012)		Oats high	30/31	3.82 (SD 0.56)	3.46 (SD 0.69)		<0.001	0.589		LDL cholesterol	Fasting serum (mmol/l)	6 weeks	Adjusted for. Decrease in all groups	
		Oats low	26/31	3.84 (SD 0.67)	3.49 (SD 0.70)		<0.001							
		Control	31/33	3.86 (SD 0.55)	3.60 (SD 0.53)		<0.001							

**Table 82 - Beta glucan intake and HDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Charlton et al., (2012)		Oats high	30/31	1.53 (SD 0.31)	1.42 (SD 0.31)		<0.001	0.614		HDL cholesterol	Fasting serum (mmol/l)	6 weeks	Adjusted for. Decrease in all groups	
		Oats low	26/31	1.61 (SD 0.56)	1.48 (SD 0.52)		<0.001							
		Control	31/33	1.45 (SD 0.37)	1.36 (SD 0.37)		<0.001							

**Table 83 - Beta glucan intake and triacylglycerol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Charlton et al., (2012)		Oats high	30/31	1.37 (SD 0.59)	1.34 (SD 0.60)		NS (0.279)	0.308		TAG	Fasting mmol/l	6 weeks	Adjusted for. Decrease in all groups	
		Oats low	26/31	1.53 (SD 0.73)	1.56 (SD 0.58)									
		Control	31/33	1.56 (SD 0.70)	1.55 (SD 0.78)									

**Table 84 - Legume intake and total cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Hermsdorf f et al., (2011)		Legume free diet	15/15	181 (SD 35)	173 (SD 30)		NS		0.005	Total cholesterol	mg/dl  fasting blood	8 weeks	Sig decrease	-
		Legume based diet	15/15	215 (SD 27)	182 (SD 27)		P<0.01						Sig decrease	
Hodgson et al., 2010		Lupin bread	37/44	5.35 ( SD 0.97)	5.35 (CI 5.14, 5.56)			0.59		Total cholesterol	mmol/l  fasting	16 weeks	Very small decrease	
		Control bread	37/44	5.39 (SD 0.91)	5.43 (CI 5.22, 5.64)								Very small decrease	
Belski et al 2011		Control products	55/63	5.33 (SD 0.84)	5.03 (CI 4.90, 5.16)			NS	0.05 (CI - 0.13, 0.24)	Total cholesterol	mmol/l  fasting	4 months	Decrease	
		Lupin products	55/68	5.18 (SD 0.84)	5.08 (CI 4.95, 5.21)								Decrease	
		Control products	47/63	5.33 (SD 0.84)	5.04 (CI 4.90, 5.18)			NS	0.04 (-0.16, 0.24)			12 months	Decrease	
		Lupin products	46/68	5.18 (SD 0.84)	5.08 (CI 4.94, 5.22)								Decrease	

**Table 85 - Legume intake and LDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Hermsdorf f et al., (2011)	Legume free diet		15/15	128 (SD 23)	120 (SD 20)		NS		0.010	LDL cholesterol	mg/dl  friedewald equation	8 weeks	Sig decrease	-
	Legume based diet		15/15	142.2 (SD 41)	121 (SD 28)		P<0.01						Sig decrease	
Hodgson et al., 2010	Lupin bread		37/44	3.34 (SD 0.92)	3.30 (CI 3.12, 3.48)			0.83	NR	LDL cholesterol	mmol/l  fasting	16 weeks	Very small decrease	
	Control bread		37/44	3.25 (SD 0.91)	3.33 (CI 3.15, 3.50)								Very small decrease	
Belski et al 2011	Control products		55/63	3.33 (SD 0.76)	3.20 (CI 3.09, 3.31)			NS	0.03 (CI - 0.12, 0.18)	LDL cholesterol	mmol/l  fasting	4 months	Decrease	
	Lupin products		55/68	3.29 (SD 0.77)	3.23 (CI 3.12, 3.34)								Decrease	
	Control products		47/63	3.33 (SD 0.76)	3.18 (CI 3.06, 3.30)			NS	0.03 (CI- 0.14, 0.19)			12 months	Decrease	
	Lupin products		46/68	3.29 (SD 0.77)	3.20 (CI 3.09, 3.32)								Decrease	

**Table 86 - Legume intake and HDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Hermsdorf f et al., (2011)		Legume free diet	15/15	58 (SD 10)	49 (SD 12)		NS		0.244	HDL cholesterol	mg/dl fasting blood	8 weeks	Sig decrease	-
		Legume based diet	15/15	49 (SD 10)	44 (SD 7)		P<0.05						Sig decrease	
Hodgson et al., 2010		Lupin bread	37/44	1.39 (SD 0.33)	1.46 (CI 1.40, 1.51)			0.03 *		HDL cholesterol	mmol/l fasting	16 weeks	Very small decrease	
		Control bread	37/44	1.54 (SD 0.34)	1.55 (CI 1.49, 1.60)								Very small decrease	
Belski et al 2011		Control products	55/63	1.34 (SD 0.27)	1.39 (CI 1.35, 1.42)			<0.05	-0.06 (- 0.12, -0.01)	HDL cholesterol	mmol/l fasting	4 months	Decrease	
		Lupin products	55/68	1.33 (SD 0.28)	1.32 (CI 1.28, 1.36)								Decrease	
		Control products	47/63	1.34 (SD 0.27)	1.42 (CI 1.38, 1.46)			<0.05	-0.08 (- 0.14, 0.02)			12 months	Decrease	
	Lupin products	46/68	1.33 (SD 0.28)	1.34 (CI 1.29, 1.38)									Decrease	

\* Hodgson 2010 - Extra detail in the text that the difference in cholesterol was present in women but not men

**Table 87 - Legume intake and triacylglycerol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Hermsdorf f et al., (2011)	Legume free diet		15/15	104 (SD28)	104 (SD 51)		NS		0.756	Triglycerides	mg/dl fasting blood	8 weeks	Sig decrease	-
	Legume based diet		15/15	99 (SD 38)	97 (SD 37)		NS						Sig decrease	
Hodgson et al., 2010	Lupin bread		37/44	1.23 (CI 1.07, 1.41)	1.19 (CI 1.08, 1.32)			0.25		Triglycerides	mmol/l fasting	16 weeks	Very small decrease	
	Control bread		37/44	1.19 (CI 1.04, 1.37)	1.10 (CI 0.99, 1.22)								Very small decrease	
Belski et al 2011	Control products		55/63	1.30 (CI 1.18, 1.44)	0.95 (CI 0.89, 1.02)			NS	0.08 (CI- 0.02, 0.19)	Triglycerides	mmol/l fasting	4 months	Decrease	
	Lupin products		55/68	1.12 (CI 1.02, 1.23)	1.03 (CI 0.96, 1.11)								Decrease	
	Control products		47/63	1.30 (CI 1.18, 1.44)	0.96 (CI 0.89, 1.04)			NS	0.08 ( - 0.02, 0.19)			12 months	Decrease	
	Lupin products		46/68	1.12 (CI 1.02, 1.23)	1.05 (CI 0.97, 1.13)								Decrease	

**Table 88 - Sweetened beverage intake and total cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Maersk et al., (2012)		Regular cola	10/15	4.9 (SEM 1.0)		+11.4% (SEM 3.2)				Total cholesterol	Fasted mmol/l	6 months		Slight non sig increase in all groups from baseline
		Diet Cola	12/16	5.2 (SEM 0.7)		-5.89 (SEM 3.0)		<0.01 (regular cola)						
		Water	13/17	5.2 (SEM 0.8)		-0.159 (SEM 2.8)		<0.01 (regular cola)						

**Table 89 - Sweetened beverage intake and HDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Maersk et al., (2012)		Regular cola	10/15	1.2 (SEM 0.2)		+6.24% (SEM 4.1)				HDL - cholesterol	Fasted mmol/l	6 months	Slight non sig increase in all groups from baseline	
		Diet Cola	12/16	1.2 (SEM 0.3)		+1.30% (SEM 3.9)								
		Water	13/17	1.1 (SEM 0.3)		+ 6.38 % (SEM 3.7)								

**Table 90 - Sweetened beverage intake and triacylglycerol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Maersk et al., (2012)		Regular cola	10/15	1.1 (SEM 0.3)		+32.7% (SEM 8.6)				Triacylglycero l	Fasted mmol/l	6 months	Slight non sig increase in all groups from baseline	
		Diet Cola	12/16	1.7 (SEM 0.6)		-14.1% (SEM 8.1)		<0.01 (regular cola)						
		Water	13/17	1.7 (SEM 0.8)		-14.2% (SEM 7.7)		<0.01 (regular cola)						

**Table 91 - Wholegrain and pulses intake and total cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Venn et al., 2010		Pulse and Wholegrain diet	49/56	5.3 (SD 1.0)	5.0 (SD 1.0)				0.0 (-0.3, 0.3)	Total cholesterol	Plasma (mmol/L)	6 months	Decrease	
		Control National Heart foundation of New Zealand diet	49/57	5.2 (SD 1.0)	5.0 (SD 0.9)								Decrease	
Venn et al., 2010		Pulse and Wholegrain diet	43/56	5.3 (SD 1.0)	5.2 (SD 1.2)			Significant difference between groups	0.4 (0.1, 0.7)	Total cholesterol	Plasma (mmol/L)	18 months	Decrease	
		Control National Heart foundation of New Zealand diet	30/57	5.2 (SD 1.0)	4.7 (SD 1.1)								Decrease	

**Table 92 - Wholegrain and pulses intake and LDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Venn et al., 2010		Pulse and Wholegrain diet	49/56	3.3 (SD 0.8)	3.1 (SD 0.9)				0.0 (-0.2, 0.3)	LDL- Cholesterol	Plasma (mmol/L)	6 months	Decrease	
		Control National Heart foundation of New Zealand diet	49/57	3.2 (SD 0.8)	3.1 (SD 0.7)								Decrease	
Venn et al., 2010		Pulse and Wholegrain diet	43/56	3.3 (SD 0.8)	3.3 (SD 0.9)			Significant difference between groups	0.3 (0.1, 0.6)	LDL- Cholesterol	Plasma (mmol/L)	18 months	Decrease	
		Control National Heart foundation of New Zealand diet	30/57	3.2 (SD 0.8)	2.9 (SD 0.9)								Decrease	

**Table 93 - Wholegrain and pulse intake and HDL Cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Venn et al., 2010		Pulse and Wholegrain diet	49/56	1.2 (SD 0.3)	1.2 (SD 0.2)				0.0 (-0.1, 0.1)	HDL cholesterol	Plasma (mmol/L)	6 months	Decrease	
		Control National Heart foundation of New Zealand diet	49/57	1.3 (SD 0.3)	1.3 (SD 0.2)								Decrease	
Venn et al., 2010		Pulse and Wholegrain diet	43/56	1.2 (SD 0.3)	1.2 (SD 0.3)			NS	0.1 (-0.1, 0.1)	HDL cholesterol	Plasma (mmol/L)	18 months	Decrease	
		Control National Heart foundation of New Zealand diet	30/57	1.3 (SD 0.3)	1.2 (SD 0.3)								Decrease	

**Table 94 - Wholegrain and pulse intake and triacylglycerol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Venn et al., 2010		Pulse and Wholegrain diet	49/56	1.6 (SD 0.8)	1.4 (SD 0.6)				-0.1 (-0.2, 0.1)	Triacylglycero l	Plasma (mmol/L)	6 months	Decrease	
		Control National Heart foundation of New Zealand diet	49/57	1.6 (SD 0.7)	1.4 (SD 0.6)								Decrease	
Venn et al., 2010		Pulse and Wholegrain diet	43/56	1.6 (SD 0.8)	1.4 (SD 0.7)			NS	0.0 (-0.2, 0.1)	Triacylglycero l	Plasma (mmol/L)	18 months	Decrease	
		Control National Heart foundation of New Zealand diet	30/57	1.6 (SD 0.7)	1.4 (SD 0.7)								Decrease	

**Table 95 - Wholegrain intake and total cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Brownlee et al., (2010)		Control	100/106	5.2 (SD 1.0)	5.2 (SD 1.1)			NS (p>0.05)*		Total cholesterol enzymic colorimetri c assay	Fasting mmol/l	week 8	No change	
		60g/d Wholegrain	85/105	5.1 (SD 0.8)	5.2 (SD 0.8)								No change	
		60g/d then 120g/d wholegrain	81/105	5.3 (SD 1.0)	5.4 (SD 1.0)								No change	
		Control	100/106	5.2 (SD 1.0)	5.4 (SD 1.0)							Week 16	No change	
		60g/d Wholegrain	85/105	5.1 (SD 0.8)	5.2 (SD 0.9)								No change	
		60g/d then 120g/d wholegrain	81/105	5.3 (SD 1.0)	5.5 (SD 1.1)								No change	

continued: Table 95 - Wholegrain intake and total cholesterol: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Tighe et al., (2010)		Refined (control)	63/76	5.94 ( SEM 0.14)	5.75 ( SEM 0.11)			0.009		Total cholesterol	Fasting (mmol/l)	12 weeks		NR – states the effects were not associate d with wt change
		Wholegrain	73/77	5.46 ( SEM 0.14)	5.65 ( SEM 0.12)									
		Wholegrain and oats	70/73	5.57 ( SEM 0.12)	5.52 ( SEM 0.11)									
Kristensen et al., 2012		Refined wheat	34/37	5.61 (SEM 0.14)	5.80 (SEM 0.11)		NS	-		Total cholesterol	Fasted serum mmol/l	6 weeks		Decreas ed in both groups from baseline
		Wholegrain wheat	38/42	5.57 (SEM 0.16)	5.64 (SEM 0.15)		NS							
		Refined wheat	34/37	5.61 (SEM 0.14)	5.91 (SEM 0.17)		<0.01	0.02 (completer s analysis)				12 weeks		Significa nt decreas e in both groups from baseline
		Wholegrain wheat	38/42	5.57 (SEM 0.16)	5.59 (SEM 0.16)		NS							

\*Brownlee et al 2010- the figure represents a comparison between the intervention and control where an average of week 8 and 16 data was taken, plus an average of both wholegrain intervention groups.

**Table 96 - Wholegrain intake and LDL cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias								
Brownlee et al., (2010)		Control	100/106	3.2 (SD 0.9)	3.1 (SD 0.9)			NS ( $p > 0.05$ )*		Calculation based on other measures, friedwald equation	mmol/l	Week 8	No change	-								
		60g/d Wholegrain	85/105	3.2 (SD 0.7)	3.2 (SD 0.7)				No change						-							
		60g/d then 120g/d wholegrain	81/105	3.3 (SD 0.8)	3.3 (SD 0.8)											No change	-					
		Control	100/106	3.2 (SD 0.9)	3.2 (SD 0.9)													Week 16	No change	-		
		60g/d Wholegrain	85/105	3.2 (SD 0.7)	3.3 (SD 0.8)																No change	-
		60g/d then 120g/d wholegrain	81/105	3.3 (SD 0.8)	3.4 (SD 0.9)																	

continued: Table 96 - Wholegrain intake and LDL cholesterol: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Tighe et al., (2010)		Refined (control)	63/76	3.66 ( SEM 0.12)	3.50 ( SEM 0.11)			0.009		LDL cholesterol	Fasting (mmol/l)	12 weeks		NR – states the effects were not associated with wt change
		Wholegrain	73/77	3.45 ( SEM 0.11)	3.51 ( SEM 0.11)									
		Wholegrain and oats	70/73	3.45 ( SEM 0.11)	3.35 ( SEM 0.09)									
Kristensen et al., 2012		Refined wheat	34/37	3.75 (SEM 0.13)	3.97 (SEM 0.12)		NS	-		LDL cholesterol	Fasted serum mmol/l	6 weeks		Decreased in both groups from baseline
		Wholegrain wheat	38/42	3.75 (SEM 0.16)	3.85 (SEM 0.15)		NS							
		Refined wheat	34/37	3.75 (SEM 0.13)	3.96 (SEM 0.15)		<0.01	0.02 (completers analysis)				12 weeks		Significant decrease in both groups from baseline
		Wholegrain wheat	38/42	3.75 (SEM 0.16)	3.73 (SEM 0.15)		NS							

\*Brownlee et al 2010- the figure represents a comparison between the intervention and control where an average of week 8 and 16 data was taken, plus an average of both wholegrain intervention groups.

**Table 97 - Wholegrain intake and HDL cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcom e Assessm ent Bias						
Brownlee et al., (2010)		Control	100/106	1.3 (SD 0.3)	1.3 (SD 0.3)			NS p=>0.05*		HSL cholesterol colorimetri c assay	Fasting mmol/l	Week 8	No change	-						
		60g/d Wholegrain	85/105	1.3 (SD 0.3)	1.3 (SD 0.3)													No change	-	
		60g/d then 120g/d wholegrain	81/105	1.3 (SD 0.2)	1.3 (SD 0.3)														No change	-
		Control	100/106	1.3 (SD 0.3)	1.4 (SD 0.3)													Week 16	No change	-
		60g/d Wholegrain	85/105	1.3 (SD 0.3)	1.3 (SD 0.3)														No change	-
		60g/d then 120g/d wholegrain	81/105	1.3 (SD 0.2)	1.3 (SD 0.3)														No change	-
(Tighe et al., (2010)		Refined (control)	63/76	1.62 ( SEM 0.06)	1.60 ( SEM 0.06)		0.434			HDL cholesterol	Fasting (mmol/l)	12 weeks	NR – states the effects were not associated with wt change	-						
		Wholegrain	73/77	1.55 ( SEM 0.04)	1.59 ( SEM 0.05)															
		Wholegrain and oats	70/73	1.62 ( SEM 0.05)	1.64 ( SEM 0.05)															

continued: Table 97 - Wholegrain intake and HDL cholesterol: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcom e Assessm ent Bias
Kristensen et al., 2012		Refined wheat	34/37	1.28 (SEM 0.04)	1.23 (SEM 0.05)		NS	-		HDL cholesterol	Fasted serum mmol/l	6 weeks		Decreased in both groups from baseline
		Wholegrain wheat	38/42	1.24 (SEM 0.04)	1.23 (SEM 0.04)		NS							
		Refined wheat	34/37	1.28 (SEM 0.04)	1.34 (SEM 0.04)		NS	0.96 (completers analysis)				12 weeks		Significant decrease in both groups from baseline
		Wholegrain wheat	38/42	1.24 (SEM 0.04)	1.27 (SEM 0.05)		NS							

\*Brownlee et al 2010- the figure represents a comparison between the intervention and control where an average of week 8 and 16 data was taken, plus an average of both wholegrain intervention groups.

**Table 98 - Wholegrain intake and triacylglycerol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Brownlee et al., (2010)		Control	100/106	1.5 (SD 1.0)	1.4 (SD 0.9)			NS p>0.05*		Enzymic colorimetri c assay TAG	Fasting mmol/l	Week 8	No change	-
		60g/d Wholegrain	85/105	1.4 (SD 0.8)	1.4 (SD 1.0)									
		60g/d then 120g/d wholegrain	81/105	1.4 (SD 0.8)	1.3 (SD 0.9)								No change	-
		Control	100/106	1.5 (SD 1.0)	1.4 (SD 0.8)							Week 16	No change	-
		60g/d Wholegrain	85/105	1.4 (SD 0.8)	1.3 (SD 0.9)								No change	-
		60g/d then 120g/d wholegrain	81/105	1.4 (SD 0.8)	1.5 (SD 0.8)								No change	-

continued: Table 98 - Wholegrain intake and triacylglycerol: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Tighe et al., (2010)		Refined (control)	63/76	1.49 ( SEM 0.11)	1.45 ( SEM 0.07)			0.242		TAG	Fasting (mmol/l)	12 weeks		NR – states the effects were not associate d with wt change
		Wholegrain	73/77	1.27 ( SEM 0.08)	1.23 ( SEM 0.07)									
		Wholegrain and oats	70/73	1.12 ( SEM 0.06)	1.20 ( SEM 0.07)									
Kristense n et al., 2012		Refined wheat	34/37	1.28 (SEM 0.06)	1.32 (SEM 0.10)		NS			TG	Fasted serum mmol/l	6 weeks		Decreas ed in both groups
		Wholegrain wheat	38/42	1.26 (SEM 0.11)	1.25 (SEM 0.09)		NS							
		Refined wheat	34/37	1.28 (SEM 0.06)	1.33 (SEM 0.12)		NS	0.73 (completer s analysis)				12 weeks		Significa nt decreas e in both groups
		Wholegrain wheat	38/42	1.26 (SEM 0.11)	1.29 (SEM 0.10)		NS							

\*Brownlee et al 2010- the figure represents a comparison between the intervention and control where an average of week 8 and 16 data was taken, plus an average of both wholegrain intervention groups.

**Table 99 - Glycaemic index and total cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011		Low protein, Low GI	95/150	4.14 (SD 0.91)		0.70 (SD 0.72)	(p<0.05)			Total Cholesterol	Fasting serum mmol/l	26 wk	Small non sig increase	-
		Low protein, High GI	84/155	4.12 (SD0.92)		0.79 ( SD 0.87)	(p<0.05)						Small sig increase (P=<0.05)	-
		High protein, low GI	107/159	4.17 (SD0.87)		0.80 ( SD 0.75)	(p<0.05)						Small non- sig reduction	-
		High protein, High GI	95/155	4.21 (SD0.98)		0.64 ( SD 0.66)	(p<0.05)						Small non sig increase	-
		Control	103/154	4.13 (SD0.88)		0.75 ( SD 0.71)	(p<0.05)						Small non sig increase	-
Jebb et al 2010		High SFA & high GI	83/137	5.6 (IQR 4.8, 6.2)	5.3 (IQR 4.9, 6.1)	Mean % change -1.2 (95CI -3.1, 0.6)		0.0006 (across all groups)		Total cholesterol	mmol/l Fasted plasma	24 weeks	Slight increase	
		High MUFA & high GI	109/145	5.7 (IQR 4.9, 6.3)	5.5 (IQR 4.6, 6.1)	-3.9 (95%CI-5.7, -2.1)		<0.001 concentrations sig lower in all diets compared to HSFA/HGI group.					Slight decrease	
		High MUFA & low GI	111/144	5.6 (IQR 5.0, 6.4)	5.4 (IQR 4.6, 6.1)	-7.0 (95%CI-8.9, -5.0)							Very slight increase	
		Low fat & high GI	112/145	5.5 (IQR 5.0, 6.3)	5.3 (IQR 4.6, 5.9)	-5.7 (95%CI -7.4, -4.0)							Small decrease	
		Low fat & high GI	120/149	5.5 (IQR 4.8, 6.3)	5.2 (IQR 4.6, 5.8)	-6.7 (95%CI -8.5, -4.8)							Small decrease	

continued: Table 100 - Glycaemic index and LDL cholesterol: RCT results

**Table 100 - Glycaemic index and LDL cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011		Low protein, Low GI	93/150	2.54 (SD0.76)		0.40 ( SD 0.53)	<0.05			LDL Cholesterol	Fasting serum mmol/l	26 wk	Small non sig increase	-
		Low protein, High GI	83/155	2.42 (SD0.79)		0.52 ( SD 0.74)	<0.05						Small sig increase (P=<0.05)	-
		High protein, low GI	108/159	2.54 (SD0.81)		0.50 ( SD 0.63)	<0.05						Small non- sig reduction	-
		High protein, High GI	95/155	2.56 (SD0.81)		0.37 ( SD 0.60)	<0.05						Small non sig increase	-
		Control	104/154	2.49 (SD0.80)		0.47 ( SD 0.61)	<0.05						Small non sig increase	-
Jebb et al 2010		High SFA & high GI	83/137	3.4 (IQR 3.0, 4.0)	3.4 (IQR 3.0, 4.1)	Mean % change -0.6 (95%CI - 3.4, 2.1)		0.0015 across all groups		LDL cholesterol	Fasting mmol/l	24 weeks	Slight increase	
		High MUFA & high GI	108/145	3.6 (IQR 3.1, 4.1)	3.5 (IQR 2.9, 4.1)	-5.2 (95%CI - 7.8, -2.6)		<0.001 concentrations sig lower in all diets compared to HSFA/HGI group					Slight decrease	
		High MUFA & low GI	112/144	3.6 (IQR 3.0, 4.1)	3.3 (IQR 2.7, 3.9)	-7.8 (95%CI - 10.2, -5.5)							Very slight increase	
		Low fat & high GI	112/145	3.6 (IQR3.1, 4.2)	3.4 (IQR 2.8, 3.9)	-7.0 (95%CI - 9.2, -4.8)							Small decrease	
		Low fat & high GI	120/149	3.5 (IQR 2.8, 4.1)	3.2 (IQR 2.7, 3.7)	-7.0 (95%CI - 9.5, -4.5)							Small decrease	

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continued: Table 100 - Glycaemic index and LDL cholesterol: RCT results

**Table 101 - Glycaemic index and HDL cholesterol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011	Low protein, Low GI		93/150	1.13 (SD0.28)		0.23 ( SD 0.21)	<0.05			HDL cholesterol	Fasting serum mmol/l	26 wk	Small non sig increase	-
	Low protein, High GI		83/155	1.17 (SD0.25)		0.23 ( SD 0.26)	<0.05						Small sig increase (P=<0.05)	-
	High protein, low GI		108/159	1.16 (SD0.29)		0.21 ( SD 0.24)	<0.05						Small non- sig reduction	-
	High protein, Low GI		95/155	1.4 (SD0.27)		0.20 ( SD 0.21)	<0.05						Small non sig increase	-
	Control		104/154	1.21 (SD0.26)		0.19 ( SD 0.21)	<0.05						Small non sig increase	-
Jebb et al 2010	High SFA & high GI		87/137	1.3 (IQR 1.2, 1.5)	1.3 (IQR 1.2, 1.4)	Mean % change -2.0 (95%CI -4.3, 0.3)		P<0.001 concentrations lower with LF diets compared to HSFA/HGI		HDL cholesterol	Fasting mmol/l	24 weeks	Slight increase	
	High MUFA & high GI		107/145	1.3 (IQR1.1, 1.5)	1.3 (IQR 1.1, 1.5)	-2.7 (-4.6, -0.9)							Slight decrease	
	High MUFA & low GI		112/144	1.3 (IQR 1.1, 1.6)	1.3 (IQR 1.1, 1.5)	-4.3 (-6.3, -2.2)		P=0.002 concentrations lower with LF diets compared to HM diets					Very slight increase	
	Low fat & high GI		108/145	1.3 (IQR 1.1, 1.6)	1.3 (IQR 1.1, 1.5)	-5.9 (-7.7, -4.0)							Small decrease	
	Low fat & high GI		104/149	1.3 (IQR 1.2, 1.6)	1.2 (IQR 1.1, 1.4)	-7.2 (-8.9, -5.5)		0.0009 across all groups					Small decrease	

**Table 102 - Glycaemic index and triacylglycerol: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011	Low protein, Low GI	93/150	1.06 (SD0.48)		0.13 ( SD 0.53)	<0.05				Triglyceride	Fasting serum mmol/l	26 wk	Small non sig increase	-
	Low protein, High GI	82/155	1.08 (SD0.55)		0.13 ( SD 0.52)	<0.05							Small sig increase (P=<0.05)	-
	High protein, low GI	107/159	1.03 (SD0.40)		0.19 ( SD 0.51)	<0.05							Small non- sig reduction	-
	High protein, Low GI	94/155	1.05 (SD0.42)		0.14 ( SD 0.38)	<0.05							Small non sig increase	-
	Control	102/154	0.95 (SD0.34)		0.19 ( SD 0.41)	<0.05							Small non sig increase	-
Jebb et al 2010	High SFA & high GI	83/137	1.4 (IQR 1.0, 1.7)	1.3 (IQR1.0, 1.7)	-0.6 (95%CI - 7.1, 6.3)	NS (0.34) across all groups				triacylglycerols	Fasting mmol/l	24 weeks	Slight increase	
	High MUFA & high GI	110/145	1.4 (IQR 1.1, 1.8)	1.4 (IQR 1.1, 1.8)	1.5 (95%CI -3.7, 7.0)								Slight decrease	
	High MUFA & low GI	108/144	1.5 (IQR 1.1, 1.9)	1.3 (IQR 0.9, 1.9)	-4.8 (95%CI - 9.6, 0.2)								Very slight increase	
	Low fat & high GI	113/145	1.2 (IQR 0.9, 1.7)	1.2 (IQR 0.9, 1.8)	2.9 (95%CI -2.0, 8.0)								Small decrease	
	Low fat & high GI	121/149	1.4 (IQR 1.0, 1.7)	1.3 (IQR 1.0, 1.8)	0.3 (95%CI -4.4, 5.2)								Small decrease	

**Table 103 - Glycaemic load and total cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
(Vrolix & Mensink, 2010)		Decreased GI foods	15/20	5.67 (SD1.15) (women)	5.76 (SD 1.04)			0.106	-0.20 (SD 0.44)	Total cholesterol	Fasted Serum (mmol/l)	11 weeks	Not stated	-
		Increased GI foods	15/20	5.98 (SD1.11) (men)	5.56 (SD 0.90)								Not reported	

**Table 104 - Glycaemic load and LDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
(Vrolix & Mensink, 2010)		Decreased GI foods	15/20	3.55 (SD 0.78) (women),  4.03 (SD 0.87) (men)	3.68 (SD 0.80)			0.256	-0.10 (SD 0.32)	LDL cholesterol	Fasted Serum (mmol/l)	11 weeks	Not reported	
		Increased GI foods	15/20		3.57 (SD 0.72)									

**Table 105 - Glycaemic load and HDL cholesterol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
(Vrolix & Mensink, 2010)		Decreased GI foods	15/20	1.68 (SD 0.41) (women),  1.02 (SD 0.22) (men)	1.24 (SD 0.37)			0.209	-0.04 (SD 0.11)	HDL cholesterol	Fasted Serum (mmol/l)	11 weeks	Small increase	
		Increased GI foods	15/20		1.21 (SD 0.38)									

**Table 106 - Glycaemic load and triacylglycerol: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
(Vrolix & Mensink, 2010)		Decreased GI foods	15/20	1.76 (SD 0.57) (women)  1.32 (SD 0.47) (men)	1.78 (SD 1.04)			0.351	-0.17 (SD 0.69)	Triacylglycero l	Fasted Serum (mmol/l)	11 weeks	Small increase	
		Increased GI foods	15/20		1.61 (SD 0.77)									

## 4. Cardio-metabolic health update search - C-reactive protein and vascular function

**Table 107 - Characteristics of RCTs on C-reactive protein and vascular function**

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Belski <i>et al.</i> , 2011)	Overweight and obese (BMI 27-35 kg/m <sup>2</sup> , healthy, 20-71 yrs. No CVD or peripheral vascular disease, diabetes, hypertension, use of antihypertensive drugs, TC >6.2 mmol/l or triglycerides >2.0mmol/l, lipid lowering medications.	Country: Australia %Male: 51.9 Age: 46.7 control, 46.5 Lupin BMI: 31.4 Control, 31.3 lupin	Parallel	12 months (4 months weight loss, 8 months weight maintenance- <i>ad libitum</i> diet)	Foods provided, free living diet plan	131	1. Control  2. Lupin	1. Consumed products- bread, biscuits and pasta with wheat, primarily wholewheat flour.  2. Consumed foods enriched with lupin flour in place of other foods- bread, biscuits and pasta	1. g/d CHO 218, P 95, F66  Fibre 25 g/d, Energy 8.3 MJ  2. g/d CHO 191, P 110, F 69  Fibre 39 g/d, Energy 8.2 Mj	Yes	Western Australian Government, Department of Industry and Resources
(Brownlee <i>et al.</i> , 2010)  WHOLE-heart study	18-65 yrs, Excluded: BMI<25, habitual consumption wholegrain >30g/d, CVD, DM, treated hyperlipidaemia, smoking >20 cigarettes/d, recent wt change ≥3kg,	Country: UK % Male 47 Age: 46 (median) BMI: 30	Parallel	16 week	Wholegrain foods provided for substitution	316	1. Intervention  2. Intervention  3. Control	1. 60g per day for 16 wk (equivalent to wholegrain content of 3 slices of bread)  2. 60g wholegrain for 8 weeks, then 120g wholegrain for final 8 weeks.  3. Maintain habitual diet	Substitution of refined products for wholegrain products. Foods provided; (wholewheat bread, wholegrain cereals, porridge oats, brown basmati rice, wholewheat pasta, oat bars and wholegrains crisps.)	Yes – assessed by FFQ and reported	Food Standards Agency

continued: Table 107 - Characteristics of RCTs on C-reactive protein and vascular function

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(de Mello, V <i>et al.</i> , 2011)	40-70yrs, fasting glucose 5.6-6.9 mmol/l or impaired glucose tolerance 7.8-11.0 mmol/l, and at least 2 of the following; (BMI 26-39, WC ≥102 men/ ≥88 women, TG>1.7mmol/l, HDL<1.0 men/ <1.3mmol/l women, blood pressure ≥130/85)	Country: Finland  % Male: 47  Age: mean not reported  BMI: 31	Parallel	12 week	Free living diet plan, re-imburement for cost of fish given	131	1. healthy diet	1. replace usual cereal products e.g. bread with those with high wholegrain composition (one usual cereal allowed), 3.5g wholewheat pasta week, fatty fish 3/week, Bilberries 3 portions per day. Also advised to avoid SFA.	%E C48.2, F 30.2  Fibre: 36.5 g/d	yes	Academy of Finland, Kuopio University hospital, Finish Diabetes Research Foundation, Sigrid Juselius Foundation, Nordic Centre of Excellence and European Commission.
							2 wholegrain enriched diet (WGED)	2. Same cereal products as healthy diet group but additional 1/d wholegrain oat snack bars. Asked not to change fish or bilberry consumption.	%E C 47.2, F 31.1  Fibre 26.5 g/d		
							3. Control group	3. replaced usual breads with refined breads and other cereals. Max 1-2 portions rye products/ day. Bilberries restricted, Oily fish max 1/week.	%E C47.2, F 31.9  Fibre 17.6 g/d		

continued: Table 107 - Characteristics of RCTs on C-reactive protein and vascular function

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Gogebakan <i>et al.</i> , 2011)	Families with a least 1 parent BMI>27 and aged <65, and with at least 1 child between 5-18yrs	Pan-European % male: 35.2 Age: 42	Parallel	26 weeks	Following an 8 week low calorie diet participants randomised to free living diet plans, 2 centres were "shop centres" where participants collected free food from shops, and 6 "instruction centres" with dietetic instructions only (detailed in Larsen <i>et al.</i> , 2010)	773	1. Low protein Low GI 2. Low protein high GI 3. High protein/ low GI 4. High protein/ high GI 5. Control	Target nutritional characteristics 1. C 57-62%, P 10-15%, F 23-28% 2. C 57-62%, P 10-15%, F 23-28% 3. C 45-50%. P 23-28%, F 23-28% 4. C 45-50%. P 23-28%, F 23-28% 5. C 55-63%, P 12-15%, F 25-30%	Intake at 26 weeks: 1. C 51.2%, P 18%, F 29.7% 2. C 50.7%, P 16.3%, F 31.1% 3. C 45.1%, P 21.7%, F 31.2% 4. C 45.7%, P 22.4%, F 30.4% 5. C 46.5%, P 18.3%, F 33.1%	Yes	European Union Food Quality and Safety Priority of the 6 <sup>th</sup> Framework Program
DiOGenes study	No adult BMI> 45, liver, cardiovascular or kidney disease, DM, eating disorders, systemic infections, cancer within last 10 years, wt change >3kg in last 3 mo, meds that may interact with outcomes.	BMI: 30.3									
(Hermsdorff <i>et al.</i> , 2011)	Obese, wt stable, No DM, HTN, liver renal or haematological disease, no chronic meds, no surgical or drug related obesity treatments, alc or drug abuse. Excluded non legume consumers, weight change ~3kg preceding months.	Country: Spain % Male: 56% Age: 36 BMI: 32.5	Parallel	8 weeks	Free living diet plan. 7 day menu sheet provided by dietitian	30	1. legume free diet (C-diet) 2. legume based diet (L-diet)	1. no legumes 2. 4 servings per week non-soy legumes (lentils, chickpeas, peas, beans)	Both diets 30% hypo caloric and designed to provide a similar macronutrient distribution (53%CHO, 17%protein, 30%fat)	yes	Línea Especial about Nutrition, Obesity and Health (University of Navarra), Health Department of the Government Navarra, Capes Foundation- Ministry of Education Brazil

continued: Table 107 - Characteristics of RCTs on C-reactive protein and vascular function

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Haufe <i>et al.</i> , 2011) B-SMART	Overweight and obese subjects. No T2DM or diseases which require medication.	Country: Germany  % Male: 20.5%  Age: mean not reported (35-55)  BMI: mean not reported	Parallel	6 month	Free living diet plan, attended weekly nutrition sessions and individual nutrition counselling every 2 months	170	1. reduced carbohydrate  2. reduced fat	Dietary targets:  1. hypocaloric (energy intake reduced by 30%), target ≤90g/d CHO, 0.8g/kg/d protein, ≥30% fat.  2. hypocaloric (energy intake reduced by 30%), target ≤20% energy from fat, 0.8g/kg/d protein, remaining energy from CHO.	Actual diet presented graphically.	Yes	Federal Ministry of Education and Research, Commission of the European communities. German Obesity Network of Competence
(Jebb <i>et al.</i> , 2010) RISCK study	Men and women 30-70yrs who score ≥ 4 points according to metabolic criteria. No ischaemic heart disease, >30% 10y risk of CVD, diabetes, cancer, pancreatitis, cholestatic liver disease, renal disease, lipid lowering drugs.	Country: UK  % Male: 41.9  Age: Men 52, Women 51  BMI: Men 28.3, women 28.6	Parallel	24 weeks (4 week run-in)	Substitution (food exchange model for fats and carbohydrates)	720	1. High SFA and high GI (HS/HGI)  2. High MUFA and High GI (HM/HGI)  3. High MUFA and low GI (HM/LGI)  4. Low fat and High GI (LF/HGI)  5. Low fat and low GI (LF/LGI)	1. Reference diet – target intake of total fat 38% energy, 12% MUFA, 45% CHO.  HM diets target -total fat 38% energy, but reduce SFA to 10% energy and MUFA provide 20% energy, 45% CHO.  LF diets target- 28% energy total fat, SFA 10% energy, MUFA 12% energy, 55% CHO.  Target difference between HGI and LGI group ~11 and ~13 GI points	1. %E: C 42, F 37.5 protein 82 g/d Energy 8.37 MJ  2. %E: C 44.9, F 35.6. Protein 78.6 g/d Energy 8.05 MJ  3. %E: C 44.6, F 35.7. Protein 84.2g/d Energy 8.28 MJ  4. %E: C 51.1, F 27.5. Protein 80.5 g/d Energy 7.76 MJ  5. %E: C 51.5, F 26.1. Protein 78 g/d Energy 7.28 MJ	Yes	Food Standards Agency

continued: Table 107 - Characteristics of RCTs on C-reactive protein and vascular function

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Klemsdal <i>et al.</i> , 2010)	30-65yrs, BMI 28-40 for men and BMI 28-35 for women, at least 1 symptom of the metabolic syndrome (NECP definition).  No CVD, no DM requiring medication, no lipid lowering or weight management meds in previous 12 wks, no eating disorders.	Country: Norway  %Male 42%  Age:50  BMI: mean not reported	Parallel	1 year	Dietary advice and free living diet plan	202	1. Low glycaemic load diet (LGL)  2. Low fat diet	1. Advice for a third of plate protein (all meals), 1 meal - third of plate low GI CHO and third vegetables/ legumes. Other 2 meals- 2 thirds plate vegetables/ legumes.  2. Nordic dietary guidelines and recommended unrefined high fibre CHO's ( but not those with low GI)	Target intakes:  1. 30-35% CHO, 25-30% protein, 35-40% fat  2. 55-60% CHO, 15% protein, <30% fat	Only graphically	Norwegian National Research Council
(Lim <i>et al.</i> , 2010)	20-65 years with at least one CVD risk factor, BMI 28-40kg/m <sup>2</sup> . No hypoglycaemic medication or drugs affecting insulin sensitivity, history of metabolic or CHD, type 1 or type 2 diabetes.	Country: Australia  % Male: 16.3  Age: 47  BMI: 32	Parallel	15 months	Free living diet plan- all designed to be reduced energy isocaloric diets	113	1. Very low carbohydrate (VLC)  2. Very low fat (VLF)  3. High unsaturated fat (HUF)	1. Target %E C 4, F 60, P35  2. %E C70, F 10, P20  3. %E C50, F 30, P20	1. %E C 36.5, F 37.1, P23.9 Energy 6841 KJ  2. %E C 50.5, F28.3, P 19.6 Energy 7936 KJ  3. %E C 43.2, F 30.3, P24.4 Energy 6593 KJ	Yes	National Heart Foundation and CSIRO Health Sciences and Nutrition

continued: Table 107 - Characteristics of RCTs on C-reactive protein and vascular function

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Petersson <i>et al.</i> , 2010)  LIPGENE  (Intervention description from (Tierney <i>et al.</i> , 2011)	Caucasian, 35-70 yrs, BMI 20-40 kg/m <sup>2</sup> , and got metabolic syndrome as defined by modified criteria of NCEP adult treatment panel III criteria. No diabetes, inflammatory diseases, use of statins, fatty acid supplements and recent weight change ≥3Kg	Country: Pan European (8 centres)  % Male 45.7  Age: men- 53.4 women- 55.9  BMI: men- 32.1 women- 32.8	Parallel	12 weeks	Substitution (food exchange model) to reduce SFA by replacement with MUFA or CHO	486	1. High SFA diet (HSFA)          2. High MUFA diet (HMUFA)          3. Low fat, high complex carbohydrate diet (LFHCC)          4. Low fat, high complex carbohydrate diet (LFHCC) + n-3 PUFA supplement- not extracted	1. Act as control diet. Requested to eat less carbohydrate, eat only full fat dairy products and replace one snack product with study HSFA cookie. Spreads, cooking oil baking fat, mayonnaise and biscuits with specific fatty acid profile provided.  2. MUFA rich spreads, cooking oil baking fat, mayonnaise and biscuits with provided to be exchanged with habitually used products. Consumed HMUFA mayonnaise or handful cashew or hazelnuts, replaced one snack with HMUFA cookie, low fat dairy products  3. Asked to consume low fat dairy products, two extra portion of complex CHO, reduce intake of high fat snacks  4. Same as above plus capsules of n-3 PUFA supplement.	1. % E CHO 41.9, protein 17.1, fat 39.8  Energy: 8.5 MJ  2. % E CHO 42.0, protein 16.6, fat 39.5  Energy: 8.2 MJ  3. % E CHO 49.1, protein 18.0, fat 29.2  Energy: 8.1	Yes	LIPGENE- European Union Sixth Framework Program  Integrated project, Norwegian Foundation for Health and Rehabilitation, South Eastern Norway Regional Health Authority and Johan Throne Holst Foundation for Nutrition Research and Freia Medical Research Foundation.

continued: Table 107 - Characteristics of RCTs on C-reactive protein and vascular function

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial design (washout duration)	Length of intervention	Intervention style	Total n	Intervention groups	Intervention description	Diet/ Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Wycherley <i>et al.</i> , 2010)	24-64yrs, BMI 26-43, abdominal obesity and >1 metabolic syndrome risk factor (IDF).  No CVD, peripheral vascular disease, respiratory or GI disease, DM, pregnancy, malignancy, smoking	Australia  %male 34.7  Age: 50  BMI: 34	parallel	12 months	Free living diet plan	118	1. Very low CHO (LC)  2. high CHO, low fat (LF)	Dietary targets with moderate energy restriction.  1. %E: 4% CHO, 35% protein, 61% fat. CHO restricted to <20g/d for first 8 weeks with option to increase to <40g/d for remainder of study.  2. %E: 46% CHO, 24% protein, 30% fat.	Achieved diets:  1. 1601kcal, 7% CHO, 32.6% Protein, 57.4% fat  2. 1539kcal, 40.7%CHO, 22.8% Protein, 27.7 % fat.	Yes	National Heart Foundation of Australia, National Health and Medical Research Council of Australia
(Vrolix & Mensink, 2010)	30-65yrs and >2 characteristics of MS (fasting plasma glucose >5.6mmol, TG >1.7mmol, HDL <1.03 men/ <1.3 women, WC >102cm men>88 women, blood pressure ≥130/85). Stable PA pattern,  No HTN meds, no other meds known to effect glucose or lipid metabolism, no history (5yr ago) of CHD, cancer, DM, kidney, liver or pancreatic disease, malignancies, familial hypercholesterolemia	Country: Netherlands  % Male: 60  Age: mean not reported  BMI: mean not reported	Cross over  ≥2 weeks wash out	11 weeks each arm	Substitute usual foods for test foods	15	1. decreased GI (dGI)  2. Increased GI (iGI)	Following a 3 week run in period on the decreased GI test foods;  1. continued to consume the decreased GI foods for further 11 weeks  2. switched to consume the increased GI foods for further 11 weeks.	Subjects given decreased and increased GI versions of bread, fruit drink, cake and cookies to replace their usual foods.	yes	Top Institute of Food and Nutrition, Netherlands

**Table 108 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and C-reactive protein: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Haufe et al 2011		Reduced carbohydrates	52/84	Normal IHL- 1.3 (SD 1.1)		-0.34 (SE 0.19)	<0.10	0.47		hsCRP	(µg/ml)	6 months	Decrease	
				High IHL- 1.7 (SD 0.9)										
	Reduced fat		50/86	Normal IHL- 1.3 (SD 0.6)		-0.51 (SE 0.16)	<0.01						Decrease	
				High 1.9 (SD 1.3)										
Jebb et al., 2010										CRP	(mg/L)	24 weeks	Slight increase	
RISCK	HS/HGI		79/137	0.7 (IQR 0.16, 2.30)	0.95 (IQR 0.30, 1.85)	21.3 (CI - 5.8, 55.2)		0.90 (across all groups)						
	HM/HGI		107/145	0.54 (IQR 0.20, 1.90)	0.65 (IQR 0.20, 2.30)	3.8 (CI - 21.4, 35.6)							Very slight decrease	
	HM/LGI		108/144	0.4 (IQR 0.14,1.10)	0.7 (IQR 0.20, 2.00)	36.3 (CI 3.0- 78.2)							Very slight increase	
	LF/HGI		109/145	0.5 (IQR 0.10,1.95)	0.7 (IQR 0.20, 2.40)	22.4 (CI - 7.6, 60.3)							Small decrease	
	LF/LGI		119/149	0.57 (IQR 0.16, 1.90)	0.60 (IQR 0.20, 1.70)	8.0 (CI - 13.5, 33.9)							Small decrease	

continued: Table 108 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and C-reactive protein: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Petersson et al., 2010		HSFA	99/	3.6 (IQR 2.3, 7.3)		-0.1 (IQR -1.2,1.2)				CRP	Serum (mg/l)	12 weeks	Unchang ed	
LIPGENE		HMUFA	110/	3.7 (IQR 1.8- 7.0)		0.1 (IQR - 1.2, 1.3)							Unchang ed	
Results presented as means and SE in Tierney et al., 2011		LFHCC (control)	106/	3.9 (IQR 2.1, 7.6)		0.0 (IQR - 1.5, 1.3)							Unchang ed	

**Table 109 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and C-reactive protein: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Gogebakan et al., 2011  (DiOGenes )		Low protein, Low GI	95/150			-0.60 (SD 2.84)	<0.05			hsCRP	Serum (mg/L)	26 weeks	Small non sig increase	
		Low protein, high GI	84/155			-0.24 (SD 2.4)							Small sig increase (P<0.05)	
		High protein, low GI	108/159			-0.58 (SD 1.81)	<0.05						Small non- sig decrease	
		High protein, high GI	96/155			0.05 (SD 2.26)							Small non sig increase	
		Control		104/154			-0.10 (SD 2.01)						Small non sig increase	

**Table 110 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and C-reactive protein: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Klemsdal et al., 2010	Low fat group	/102	4.28 (SD 2.9)	3.82 (SD 3.0)						hsCRP	(mg/l)	3 months	Decrease	
	LGL group	/100	4.13 (SD 3.4)	3.68 (SD 3.3)									Decrease	
Klemsdal et al., 2010	Low fat group	/102	4.28 (SD 2.9)	3.76 (SD 3.3)						hsCRP	(mg/l)	6 months	Decrease	
	LGL group	/100	4.13 (SD 3.4)	4.06 (SD 4.1)									Decrease	
Klemsdal et al., 2010	Low fat group	86/102	4.28 (SD 2.9)	3.35 (SD 3.0)		<0.001	0.233			hsCRP	(mg/l)	12 months	Decrease	
	LGL group	78/100	4.13 (SD 3.4)	3.67 (SD 3.7)		0.017							Decrease	
Lim et al., 2010	VLC	24/30	5.7 (SD 4.5)	1.2 (SD 12.2)				P=0.714		CRP	(mg/l)	3 month	Decrease	
	VLF	22/30	5.7 (SD 5.1)	0.3 (SD 5)									Decrease	
	HUF	22/30	5.9 (SD 6.7)	-0.5 (SD 3.2)									Decrease	
	Control	22/23	5.8 (SD 4.1)										No change	
Lim et al., 2010	VLC	17/30	5.7 (SD 4.5)	-1.7 (SD 6.7)		<0.05		P=0.144		CRP		15 month	Decrease	
	VLF	18/30	5.7 (SD 5.1)	-2.1 (SD 2.5)		<0.05							Decrease	
	HUF	15/30	5.9 (SD 6.7)	-1.8 (SD 3.1)									Decrease	
	Control	19/23	5.8 (SD 4.1)	-1.4 (SD 3.2)									No change	

continued: Table 110 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and C-reactive protein: RCT results

**Table 111 - Legume intake and C-reactive protein: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Belski et al., 2011	3 month weight loss, 1month weight maintenance	Control	55/63	2.93 (SD 4.37)	3.68 (CI 2.80, 4.56)				-0.56 (CI - 1.82, 0.69)	hsCRP	(mg/l)	4 months	No change	
		Lupin	55/68	2.93 (SD 3.27)	3.12 (CI 2.22, 4.01)								No change	
Belski et al., 2011	Weight maintenance	Control	47/63	2.93 (SD 4.37)	2.71 (CI 1.74, 3.68)				-0.15 (CI 1.52, 1.21)	hsCRP	(mg/l)	12 months	No change	
		Lupin	46/68	2.93 (SD 3.27)	2.56 (CI 1.60, 3.51)								No change	
Hermsdorf f et al., 2011		Control	15/15	2.0 (SD 1.0)	1.9 (SD 0.8)				0.092 (between endpoint value	Plasma CRP	(mg/l)	8 weeks	Decrease	
		Legume	15/15	2.7 (SD 2.4)	1.6 (SD 0.9)	<0.01							Decrease	
Hodgson et al., 2010	Weight maintenance	Control	37/44		2.71 (CI 1.62, 3.80)			0.66	0.3 (-1.2, 1.9)	hsCRP	Fasting (mg/l)	16 weeks	No change	
		Lupin	37/44		3.05 (CI 1.96, 4.14)					hsCRP	Fasting (mg/l)		No change	

**Table 112 - Wholegrain intake and C-reactive protein: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Brownlee et al., 2010		Control	100/106	2.4 (SD 2.3)	2.7 (SD 2.8)			>0.05		CRP	mg/l	8 weeks	No change	
		Intervention 1 (60g/d)	85/105	2.4 (SD 9.9)	2.6 (SD 2.5)								No change	
		Intervention 2 (60g/d)	81/105	3.2 (SD 4.6)	3.5 (SD 7.2)								No change	
Brownlee et al., 2010		Control	100/106	2.4 (SD 2.3)	2.9 (SD 3.5)			>0.05		CRP	mg/l	16 weeks	No change	
		Intervention 1 (60g/d)	85/105	2.4 (SD 9.9)	3.1 (SD 4.3)								No change	
		Intervention 2 (120g/d)	81/105	3.2 (SD 4.6)	3.2 (SD 5.9)								No change	
de Mello et al., 2011		Healthy diet	36/44	1.4 (IQR 0.7, 3.1)	1.1 (IQR0.9, 2.5)		0.22	0.20	-10 (CI- 37,41)	hsCRP	mg/l	12 weeks	Non- significan t decrease	
		WGED	34/42	1.5 (IQR 0.7, 3.9)	1.2 (IQR 0.6,1.9)		0.02		-20 (CI -40, 11)				No change	
		Control	34/45	1.4 (IQR 0.8, 2.3)	1.3 (IQR 0.9,2.0)		0.97		-8 (CI -35, 49)				No change	

**Table 113 - Glycaemic index and C-reactive protein: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Gogebakan et al., 2011  (DiOGenes )	Low GI		203/			-0.64 (CI - 0.88 to - 0.41)			-0.46 (-0.79 to -0.13) (<0.001)	HsCRP	Serum (mg/L)	26 weeks		
	high GI		180/			-0.18 (- 0.41 to 0.05)								
Jebb et al., 2010  RISCK		HS/HGI	79/137	0.7 (IQR 0.16, 2.30)	0.95 (IQR 0.30, 1.85)	21.3 (CI - 5.8, 55.2)		0.90 (across all groups)		CRP	(mg/L)	24 weeks	Slight increase	
		HM/HGI	107/145	0.54 (IQR 0.20, 1.90)	0.65 (IQR 0.20, 2.30)	3.8 (CI - 21.4, 35.6)							Very slight decrease	
		HM/LGI	108/144	0.4 (IQR 0.14,1.10)	0.7 (IQR 0.20, 2.00)	36.3 (CI 3.0- 78.2)							Very slight increase	
		LF/HGI	109/145	0.5 (IQR 0.10,1.95)	0.7 (IQR 0.20, 2.40)	22.4 (CI - 7.6, 60.3)							Small decrease	
		LF/LGI	119/149	0.57 (IQR 0.16, 1.90)	0.60 (IQR 0.20, 1.70)	8.0 (CI - 13.5, 33.9)							Small decrease	

**Table 114 - Glycaemic load and C-reactive protein: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessme nt Bias
Vrolix et al 2010	15/20	Increased GL	/		2.46 (SD 1.71)			0.268	-0.30 (SD 1.01)	hsCRP	(mg/L)	11 weeks	No change	
		Decreased GL	/		2.76 (SD 1.85)								No change	

**Table 115 - Higher carbohydrate diets and flow-mediated dilation: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Differen ce between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change
Wycherley et al 2010		Low fat diet	23/61	5.9 (SE 0.5)		-0.3 (SE 0.6%)	0.045			Flow mediated dilation (% change artery diameter - ultrasound measurements before and after forearm ischaemia induced by blood pressure cuff)	Clinical assessment (%)	52 weeks	Decrease
		Low carbohydrate diet	26/57	5.7 (SE 0.7%)		-2.1 (SE 0.6%)							Decrease
Wycherley et al 2010		Low fat diet	23/61	11.0 (SE 0.6)	9.5 (SE 0.5)					Pulse wave velocity (Doppler recording at carotid and femoral artery)	Clinical assessment m/s)	52 weeks	Decrease
		Low carbohydrate diet	26/57	10.7 (SE 0.6)	9.3 (SE 0.3)		<0.01	0.80					Decrease
Wycherley et al 2010		Low fat diet	23/61	27.1 (2.1%)	28 (SE 1.8%)		0.80	0.16		Augmentation Index (using the SphygmoCor™ blood pressure analysis system)	Clinical assessment (%)	52 weeks	Decrease
		Low carbohydrate diet	26/57	29.6 (SE 2.0%)	29.7 (SE 2.2%)								Decrease

## 5. Cardio-metabolic health update search - incidence of type 2 diabetes (cohorts)

**Table 116 - Characteristics of cohort studies on type 2 diabetes incidence**

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Length of follow-up (years)	Dietary assessment methods	Criteria for defining diabetes/ glycaemia	Initial cohort size	Losses to follow-up (%)
<b>Alpha-tocopherol, Beta-carotene Cancer Prevention Study (ATBC)</b>	(Simila <i>et al.</i> , 2011) and (Simila <i>et al.</i> , 2012)	Male smokers  Mean age: (range 50-69)  % Male: 100  Country: Finland  Ethnicity: Primarily white	Community cohort	12	Diet was assessed using a validated 276 item FFQ referring to diet over previous year	Medical certificates identified through National Register data of reimbursement for cost of diabetes medications. Must meet diagnostic criteria set at the Social Insurance Institution.	29133	NR
<b>Cohort of Japanese men</b>	(Sakurai <i>et al.</i> , 2012)	Middle aged male factory employees  Mean age: 46.0 (35-55)  %Male: 100  Country: Japan  Ethnicity: Japanese	Occupational cohort	6	Diet was assessed through a 147 item self- administered Diet History Questionnaire (DHQ). The DHQ was reported as previously validated. International GI databases and were used to calculate dietary GI&GL	Diabetes diagnoses was confirmed by at least one of the following (1) a fasting plasma glucose concentration of $\geq 126$ mg/dL (2) a 2hr glucose level of $\geq 200$ mg/dL in a 75g OGTT or use of insulin/ hypoglycaemic medication.	2275	NR
<b>EPIC-Netherlands</b>	(Sluijs <i>et al.</i> , 2010)	Merged cohort of Prospect-EPIC and MORGEN-EPIC.  Mean age: 51 (42-58)  % Male: 25.6  Country: Netherlands  Ethnicity: Primarily white	Prospect-EPIC – women participating in national breast cancer screening program.  MORGEN- EPIC community cohort.	10.1	Diet was assessed using a 79 item FFQ and was reported to be validated. The FFQ referred to the year preceding enrolment.	Self-reported incidence of diabetes and diagnoses of diabetes from Dutch Centre for Health Care Information.  In Prospect-EPIC diabetes also detected by glucose strip test	40072	NR

continued: Table 116 - Characteristics of cohort studies on type 2 diabetes incidence

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Length of follow-up (years)	Dietary assessment methods	Criteria for defining diabetes/ glycaemia	Initial cohort size	Losses to follow-up (%)
<b>Health Professionals Follow Up Study</b>	(de Koning <i>et al.</i> , 2011a) and (de Koning <i>et al.</i> , 2011b)	Male Health professionals  Mean age: 51 (40-75)  %Male: 100  Country: USA  Ethnicity: Primarily white	Occupational cohort	20	Diet was assessed by 131 item semi quantitative FFQ, sent to participants every 4 years. The FFQ was reported to be validated.	Self-reported diagnosis and met criteria for National Diabetes data group (cases pre- 1998) or American Diabetes Association (post- 1998)	51529	NR
	(Sun <i>et al.</i> , 2010)	Male Health professionals  Mean age: - (32-87)  %Male: 100  Country: USA  Ethnicity: Primarily white	Occupational cohort	20	Diet was assessed through a 131 item FFQ every 4 years (used in NHS I). The FFQ was reported to be validated. The FFQ referred to diet over the previous year	Self-reported diagnosis with supplementary info on symptoms, diagnostic tests and treatment. Met criteria for National Diabetes data group (cases pre- 1998) or American Diabetes Association (post- 1998)	51530	NR
<b>Hong Kong Dietary Survey</b>	(Yu <i>et al.</i> , 2011)	Chinese adults  Mean age: 44.4 (25-74)  % Male: 47.8  Country: China  Ethnicity: Chinese	Sample from population - wide Cardiovascular Risk Factor Prevalence Study cohort	11.8 ( range 9-14)	Diet was assessed using a 266 item FFQ and was reported to be validated. Participants also instructed to keep a 7-day diet record prior to the visit	WHO Study Group (1998) criteria used. Diabetes diagnosed if fasting glucose was $\geq 7$ mmol/l and/or 2h post-glucose load was $\geq 11.1$ mmol/l	1010	31.7%
<b>Japan Public Health Centre-based Prospective study</b>	(Nanri <i>et al.</i> , 2010)	Middle aged men and women  Mean age: - (40-69)  %Male: 56.7  Country: Japan  Ethnicity: Japanese	Community cohort	5	Diet was assessed using a 147 item FFQ and was reported to be validated. The FFQ referred to intakes in the preceding year.	Self-reported diabetes, confirmed by medical records	95375	25.5%

continued: Table 116 - Characteristics of cohort studies on type 2 diabetes incidence

Cohort Name	Authors/ Reference	Population characteristics	Recruitment of participants	Length of follow-up (years)	Dietary assessment methods	Criteria for defining diabetes/ glycaemia	Initial cohort size	Losses to follow-up (%)
<b>Multiethnic Cohort (MEC)</b>	(Hopping <i>et al.</i> , 2010)	Hawaii component of MEC  Mean age: (45-75)  %Male: 48  Country: Hawaii  Ethnicity: Caucasian, Japanese American and Native Hawaiian	Population based cohort	14	Diet was assessed a quantitative FFQ calibrated against 24hr recalls.	Self-reported diabetes, urine and blood samples and a medication questionnaire linked to 2 major health plans in Hawaii – Kaiser Permanente and Blue cross/blue shield.	103898	NR
<b>Nurses' Health Study</b>	(Mekary <i>et al.</i> , 2011)	Female nurses  Mean age: - (30-55)  % Male: 0%  Country: USA  Ethnicity: Primarily white	Occupational cohort	26	Diet was assessed by 116 item FFQ in 1984, then 1986-2006 a 131 item previously validated semi-quantitative FFQ was used. The FFQ referred to intakes in the preceding year.	Self-reported diagnosis and met criteria for National Diabetes data group (cases pre-1998) or American Diabetes Association (post-1998)	121700	NR
<b>Nurses' Health Study I</b>	(Sun <i>et al.</i> , 2010)	Female nurses  Mean age: (37-65)  Country: USA  Ethnicity: Primarily white	Occupational cohort	22	Diet was assessed through a 116 item FFQ every 4 years (used in NHS I). The FFQ was reported to be validated. The FFQ referred to diet over the previous year	Self-reported diagnosis and met criteria for National Diabetes data group (cases pre-1998) or American Diabetes Association (post-1998)	81755	NR
<b>Nurses' Health Study II</b>	(Sun <i>et al.</i> , 2010)	Female nurses  Mean age: (26-45)  Country: USA  Ethnicity: Primarily white	Occupational cohort	14	Diet was assessed through a 116 item FFQ every 4 years (used in NHS I). The FFQ was reported to be validated. The FFQ referred to diet over the previous year	Self-reported diagnosis and met criteria for National Diabetes data group (cases pre-1998) or American Diabetes Association (post-1998)	95452	NR

**Table 117 - Total carbohydrate intake (% energy) and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess ment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposur e	p	P trend	Adjustments									
Simila et al., 2012						%Energy from carbohydrate			Q5 vs. Q1	%E	0.78 (0.64, 0.94)		0.02		Age, ATBC intervention group, BMI, Smoking, PA, energy intake, coffee consumption									
									Continuous	Per 2 E%	0.97 (0.95, 0.99)			Age, ATBC intervention group, BMI, Smoking, PA, energy intake, coffee consumption										
						% energy from low GI carbohydrates			Q5 vs. Q1	%E	1.10 (0.91, 1.33)		0.30		Age, ATBC intervention group, BMI, Smoking, PA, energy intake, coffee consumption									
									Continuous	Per 2 E%	1.02 (0.98, 1.06)				Age, ATBC intervention group, BMI, Smoking, PA, energy intake, coffee consumption									
						% energy from medium GI carbohydrates			Q5 vs. Q1	%E	0.69 (0.57, 0.84)		<0.001		Age, ATBC intervention group, BMI, Smoking, PA, energy intake, coffee consumption									
									Continuous	Per 2 E%	0.95 (0.93, 0.98)				Age, ATBC intervention group, BMI, Smoking, PA, energy intake, coffee consumption									
						% energy from high GI carbohydrates			Q5 vs. Q1	%E	1.07 (0.89, 1.30)		0.56		Age, ATBC intervention group, BMI, Smoking, PA, energy intake, coffee consumption									
									Continuous	Per 2 E%	1.0 (0.98, 1.02)				Age, ATBC intervention group, BMI, Smoking, PA, energy intake, coffee consumption									

**Table 118 - Total carbohydrate intake (in grams) and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess ment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposur e	p	P trend	Adjustments
(Mekary et al., 2011) Nurses' Health Study	USA, Female Nurses, No type 2 DM, CVD, or cancer	30-55 %M 0	(6950)/81 827	26 (NR)	FFQ 116 (year 1) then FFQ 131	Carbohydrate total (g/d)	Multiple diagnosis criteria confirmed self-report		>203g vs. 7-150g	g/d	1.14 (1.03, 1.25)			0.01	Age (months), FH DM, BMI, EI, Alcohol, cereal fibre intake, PA, Smoking, Menopausal status&HRT, coffee intake, PUFA:SFA ratio, trans FA, intake, red meat intake.
(Sluijs et al., 2010) EPIC-Netherlands	Netherlands, Primarily white, no diabetes,	42-58 (51) %M 25.6	(915)/378 46	10.1 (NR)	FFQ (76)	Carbohydrate total (g/d)	Health care info confirmed self-report		Continuous risk estimate	Per SD increase	1.20 (1.01, 1.42)	222	<0.05		Sex, age, alcohol, PA, WC, BMI, Smoking, SBP, ed, FH DM, EI, vit C, Vit E, protein, SFA. PUFA, fibre,

**Table 119 - Carbohydrate and glycaemic index dietary patterns and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess ment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposur e	p	P tren d	Adjustments
Simila et al., 2011	Finland, Primarily white, inclusions not reported	50-69  %M: 100	(1098)/25 943	12 (NR)	FFQ (276 )	Substitution of low GI carbohydrates for high GI carbohydrates	National Register data of reimbursement for cost of diabetes medications and certificate		Q5 vs. Q1	% E	0.92 (0.75, 1.13)			0.39	Age, ATBC intervention group, BMI, Smoking, PA, EI, % energy from fat, protein, alcohol, and medium GI carbohydrates, coffee consumption, energy adjusted fibre intake
						Substitution of low GI carbohydrates for high GI carbohydrates			Continuous	Per 1 E%	0.99 (0.97, 1.01)			-	Age, ATBC intervention group, BMI, Smoking, PA, EI, % energy from fat, protein, alcohol and medium GI carbohydrates coffee consumption, energy adjusted fibre intake
						Substitution of low GI carbohydrates for medium GI carbohydrates			Q5 vs. Q1		1.05 (0.83, 1.33)			0.69	Age, ATBC intervention group, BMI, Smoking, PA, EI, % energy from fat, protein, alcohol, high GI carbohydrates, coffee consumption, energy adjusted fibre intake
						Substitution of low GI carbohydrates for medium GI carbohydrates			Continuous	Per 1 E%	1.01 (0.98, 1.03)			-	Age, ATBC intervention group, BMI, Smoking, PA, EI, % energy from fat, protein, alcohol, high GI carbohydrates, coffee consumption, energy adjusted fibre intake

continued: Table 119 - Carbohydrate and glycaemic index dietary patterns and type 2 diabetes incidence: cohort results

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess ment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposur e	p	P tren d	Adjustments
						Substitution of medium GI carbohydrates for high GI carbohydrates			Q5 vs. Q1		0.75 (0.59, 0.96)			0.02	Age, ATBC intervention group, BMI, Smoking, PA, EI, % energy from fat, protein, alcohol, low GI carbohydrates, coffee consumption, energy adjusted fibre intake
						Substitution of medium GI carbohydrates for high GI carbohydrates			Continuous	- Per 1 E %	0.98 (0.97, 1.00)			-	Age, ATBC intervention group, BMI, Smoking, PA, EI, % energy from fat, protein, alcohol, low GI carbohydrates, coffee consumption, energy adjusted fibre intake

**Table 120 - Nutrient-based dietary patterns and type 2 diabetes incidence: cohort results**

Result ID/ Reference / Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Contrast (mean)	Units	RR (CI)	P trend	Adjustments
(de Koning et al 2011a)  Health Professionals Follow Up study (HPFUS)	USA, Primarily White, no type 2 DM, CVD or cancer.	40-75  %M 100	(2689)/ 40475	20 years  (NR)	FFQ (131)	Low carbohydrate, high total protein and fat score  (30= high protein and fat vs. low carbohydrate)	Self- reported DM confirmed by Multiple diagnosis methods	Q5 vs. Q1  20-30 vs. 0-8	Unit	1.31 (1.14, 1.49)	<0.01	Age, smoking, PA, coffee intake, alcohol intake, FH DM, EI, BMI.
HPFUS						Low carbohydrate, high animal protein and fat score		Q5 vs. Q1	Unit	1.37 (1.20, 1.58)	<0.01	As above
HPFUS						Low carbohydrate, high vegetable protein and fat score		Q5 vs. Q1	Unit	0.95 (0.84, 1.07)	0.64	As above

**Table 121 - Sugar intake and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure	P	P trend	Adjustments
(Sluijs et al., 2010) EPIC- Netherlands	Netherlands, Primarily white, no diabetes,	42-58 (51) %M 25.6	(915)/ 37846	10.1 (NR)	FFQ (76)	Sugar (g/d)	Health care info confirmed self- report		Continuous risk estimate	Per SD increase	1.15 (0.98, 1.35)	112.4	Not significant		Sex, age, alcohol, PA, WC, BMI, Smoking, SBP, ed, FH DM, EI, Vit C, Vit E, protein, SFA, PUFA, Fibre, starch

**Table 122 - Sweetened beverage intake and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome Assessment Details	Sub-group Detail	Contrast (mean)	Units	RR (CI)	P trend	Adjustments
de Koning et al., 2011b  Health professional follow up study	USA, Primarily white, no DM, CVD or cancer	40-75 (51)  %M 100	(2680)/ 40389	20 (NR)	FFQ (131)	Sugar sweetened beverages	Self-report confirmed by American Diabetes Association / National Diabetes Data Group criteria		Q4 vs. Q1	servings	1.24 (1.09, 140)	<0.01	Age, smoking, PA, alcohol, multivitamin use, FH DM, high TG, HTN, use of diuretics, previous wt change, previous adherence to low calorie diet, alternative healthy eating index (aHEI), EI, BMI.

**Table 123 - Starch intake and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure	P	P trend	Adjustments
(Sluijs et al., 2010) EPIC- Netherlands	Netherlands, Primarily white, no diabetes,	42-58 (51) %M 25.6	(915)/ 37846	10.1 (NR)	FFQ (76)	Starch (g/d)	Health care info confirmed self- report		Continuous risk estimate	Per SD increase	1.23 (1.07, 1.42)	109.4	<0.05		Sex, age, alcohol, PA, WC, BMI, Smoking, SBP, ed, FH DM, EI, Vit C, Vit E, protein, SFA, PUFA, fibre, sugar

**Table 124 - Total dietary fibre intake and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure	p	P trend	Adjustments
(Sluijs et al., 2010) EPIC-Netherlands	Netherlands, Primarily white, no diabetes,	42-58 (51) %M 25.6	(915)/ 37846	10.1 (NR)	FFQ (76)	Dietary Fibre (g/d)  (Method not reported)	Health care info confirmed self-report		Continuous risk estimate	Per SD increase	0.89 (0.82, 0.98)	23.4	<0.05		Sex, age, alcohol, PA, WC, BMI, Smoking, SBP, ed, FH DM, EI, Vit C, Vit E, protein, SFA, PUFA, GL.
(Hopping et al., 2010) Multi-ethnic Cohort (MEC)	Hawaii, Caucasian, Japanese and Native Hawaiian, No self-reported diabetes	54-75 %M 48	(4555)/ 36256	14 (NR)	FFQ	Total dietary fibre (AOAC)	Self-report, medication questionnaire confirmed by blood sample and health plans	Men	≥14.2 vs. <7.4	g/4184kJ/d	0.75 (0.67, 0.84)	-	<0.0001		Ethnicity, BMI, PA, ed, EI
MEC			(1080)/ 15116					Caucasian men			0.66 (0.53, 0.82)	10.3	<0.0001		As above
MEC			(2677)/ 16572					Japanese American Men			0.84 (0.72, 0.97)	8.7	0.09		As above
MEC			(798)/ 4568					Native Hawaiian men			0.70 (0.52, 0.96)	8.1	0.19		As above
MEC			(4032)/ 39256					Women			0.95 (0.85,1.06)	-	0.05		As above

continued: Table 124 - Total dietary fibre intake and type 2 diabetes incidence: cohort results

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure	P	P trend	Adjustments
MEC			(715)/ 14643					Caucasian women			0.80 (0.62, 1.02)	12.0	0.04		As above
MEC			(2374)/ 18672					Japanese American women			1.04 (0.90, 1.20)	11.3	0.59		As above
MEC			(943)/ 5941					Native Hawaiian women			0.85 (0.66, 1.10)	10.1	0.21		As above
(Sakurai et al., 2011) Cohort of Japanese men	Japan, Japanese, no DM or fasting plasma glucose >126mg/dL	35-55 (46.0) %M 100	(133)/1995	6 (NR)	DHQ 147	Total fibre intake  (method not reported)	Subjects with HbA1c >6.0% and diagnosis confirmed by either fasting plasma glucose conc of ≥ 126 mg/dL, a 2hr glucose level of ≥ 200 mg/dL in a 75g OGTT or use of insulin / hypoglycaemic medication.		Q5 vs. Q1	g/1000 Kcal)	0.99 (0.59, 1.66)		-		Age, BMI, FM DM, Smoking, alcohol, habitual exercise, presence of HTN or hyperlipidaemia at baseline, EI

**Table 125 - Fibre from fruits and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean exposure	p	P trend	Adjustments
(Hopping et al., 2010) Multi-ethnic Cohort (MEC)	Hawaii, Caucasian, Japanese and Native Hawaiian, No self-reported diabetes	54-75 %M 48	(4555)/ 36256	14 (NR)	FFQ	Fibre from fruits	Self-report, medication questionnaire confirmed by blood sample and health plans	Men	≥3.9 vs. <0.8	g/41 84kJ/ d	0.93 (0.84, 1.02)		0.17		Ethnicity, BMI, PA, ed, EI
MEC			(1080)/ 15116					Caucasian men			0.88 (0.71- 1.08)	1.8	0.34		As above
MEC			(2677)/ 16572					Japanese American Men			0.97 (0.85, 1.11)	1.7	0.75		As above
MEC			(798)/ 4568					Native Hawaiian men			0.93 (0.72, 1.19)	1.4	0.46		As above
MEC			(4032)/ 39256					Women	≥5.1 vs. <2.1		0.95 (0.85, 1.06)		0.21		As above
MEC			(715)/ 14643					Caucasian women			0.85 (0.65- 1.11)	2.6	0.36		As above
MEC			(2374)/ 18672					Japanese American women			0.98 (0.85, 1.12)	2.9	0.37		As above
MEC			(943)/ 5941					Native Hawaiian women			0.99 (0.79, 1.24)	2.1	0.70		As above

**Table 126 - Fibre from vegetables and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean exposur e	p	P trend	Adjustmen ts
(Hopping et al., 2010) Multi-ethnic Cohort (MEC)	Hawaii, Caucasian, Japanese and Native Hawaiian, No self-reported diabetes	45-75  %M 48	(4555)/ 36256	14 (NR)	FFQ	Fibre from vegetables	Self-report, medication questionnaire confirmed by blood sample and health plans	Men	≥5.3 vs. <2.2	g/418 4kJ/d	0.78 (0.69, 0.88)		<0.0001		Ethnicity, BMI, PA, ed, EI
MEC			(1080)/ 15116					Caucasian men			0.65 (0.52- 0.82)	3.2	0.0002		As above
MEC			(2677)/ 16572					Japanese American Men			0.79 (0.67, 0.93)	2.8	0.01		As above
MEC			(798)/ 4568					Native Hawaiian men			0.99 (0.75, 1.32)	2.7	0.89		As above
MEC			(4032)/ 39256					Women	≥5.2 vs. <1.3		0.96 (0.87, 1.08)		0.38		As above
MEC			(715)/ 14643					Caucasian women			0.94 (0.73- 1.22)	3.9	0.25		As above
MEC			(2374)/ 18672					Japanese American women			1.00 (0.86, 1.16)	3.6	0.94		As above
MEC			(943)/ 5941					Native Hawaiian women			0.92 (0.73- 1.16)	3.4	0.62		As above

**Table 127 - Fibre from cereal grains and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean ) %Male	(Cases)/ analytic cohort	Follo w Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub-group Detail	Contrast (mean)	Unit s	RR (CI)	Mean exposure	p	P trend	Adjustments
(Hopping et al., 2010) Multi-ethnic Cohort (MEC)	Hawaii, Caucasian, Japanese and Native Hawaiian, No self-reported diabetes	45-75 %M 48	(4555)/ 36256	14	FFQ	Fibre from grains	Self-report, medication questionnaire confirmed by blood sample and health plans	Men	≥4.8 vs. <1.9	g/41 84kJ /d)	0.91 (0.82, 1.00)		0.006		Ethnicity, BMI, PA, ed, EI
MEC			(1080)/ 15116					Caucasian men			0.81 (0.67, 0.99)	3.1	0.02		As above
MEC			(2677)/ 16572					Japanese American Men			0.98 (0.87, 1.11)	2.7	0.30		As above
MEC			(798)/ 4568					Native Hawaiian men			0.83 (0.64, 1.07)	2.4	0.15		As above
MEC			(4032)/ 39256					Women	≥16.2 vs. <8.9		0.88 (0.79, 0.97)		0.02		As above
MEC			(715)/ 14643					Caucasian women			0.79 (0.62- 1.01)	3.4	0.03		As above
MEC			(2374)/ 18672					Japanese American women			0.91 (0.79- 1.04)	3.2	0.35		As above
MEC			(943)/ 5941					Native Hawaiian women			0.87 (0.69- 1.09)	2.8	0.11		As above

**Table 128 - Bran/ germ intake and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Contrast (mean)	Units	RR (CI)	P trend	Adjustments
(Sun et al 2010) HPFUS	USA, Primarily white, no diabetes, CVD or cancer.	32-87 %M 100	(2648)/39765	20 (NR)	FFQ (131)	Bran	Multiple diagnosis criteria confirmed self-report	Q5vs Q1		0.69 (0.60, 0.81)	<0.0001	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, EI, intake of red meat, F&V, coffee, intake of white rice.
HPFUS						Germ		Q5vs Q1		1.04 (0.89, 1.21)	0.65	As above
(Sun et al 2010) NHS I	USA, Primarily white, no diabetes, CVD or cancer.	37-65 %M 0	(5500)/ 69120	22 (NR)	FFQ (116)	Bran	Multiple diagnosis criteria confirmed self-report	Q5vs Q1		0.77 (0.69, 0.86)	<0.0001	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use, EI, intake of red meat, F&V, coffee, intake of white rice.
NHS I						Germ		Q5vs Q1		0.88 (0.79, 0.97)	0.02	As above
(Sun et al 2010) NHS II	USA, Primarily white, no diabetes, CVD or cancer.	26-45 %M 0	(2359)/ 88343	14 (NR)	FFQ (116)	Bran	Multiple diagnosis criteria confirmed self-report	Q5vs Q1		0.83 (0.71, 0.97)	0.07	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use, EI, intake of red meat, F&V, coffee, intake of white rice.
NHS II						Germ		Q5vs Q1		1.04 (0.90, 1.21)	0.56	As above
Sun et al 2010) Pooled analysis		Men and women	10507/197228			Bran		Q5 vs. Q1		0.76 (0.71, 0.82)	<0.0001	
Pooled analysis						Germ		Q5 vs. Q1		0.95 (0.88, 1.03)	0.40	

**Table 129 - Wholegrain intake and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Contrast (mean)	Units	RR (CI)	P trend	Adjustments
(Sun et al 2010)  HPFUS	USA, Primarily white, no diabetes, CVD or cancer.	32-87  %M 100	(2648)/ 39765	20 (NR)	FFQ (131)	Wholegrain	Multiple diagnosis criteria confirmed self- report	Q5 vs. Q1		0.72 (0.63, 0.83)	<0.0001	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, EI, intake of red meat, F&V, coffee, intake of white rice, bran and germ
(Sun et al 2010)  NHS I	USA, Primarily white, no diabetes, CVD or cancer.	37-65  %M 0	(5500)/ 69120	22 (NR)	FFQ (116)	Wholegrain	Multiple diagnosis criteria confirmed self- report	Q5 vs. Q1		0.70 (0.64, 0.77)	<0.0001	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use, EI, intake of red meat, F&V, coffee, intake of white rice, bran and germ
(Sun et al 2010)  NHS II	USA, Primarily white, no diabetes, CVD or cancer.	26-45  %M 0	(2359)/ 88343	14 (NR)	FFQ (116)	Wholegrain	Multiple diagnosis criteria confirmed self- report	Q5 vs. Q1		0.81 (0.70, 0.94)	0.002	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use, EI, intake of red meat, F&V, coffee, intake of white rice, bran and germ
Sun et al 2010)  Pooled analysis		Men and women	10507/197228			Wholegrain		Q5 vs. Q1		0.73 (0.68, 0.78)	<0.0001	As above

**Table 130 - Refined grains and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Contrast (mean)	Units	RR (CI)	P trend	Adjustments
(Yu et al., 2011)	China, Chinese,	25-74 (44.4)	(74 )/ 690	11.8 (31.7)	FFQ (266)	More refined grains	WHO 1998 criteria	Continuous risk estimate	Per SD increase	1.02 (0.80, 1.29)	-	Sex, age, BMI, WHR, smoking, alcohol, exercise participation, FH DM.
Hong Kong Dietary Survey	(inclusions not specified)	%M: 47.8										

**Table 131 - Bread intake and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub group detail	Contrast (mean)	Units	RR (CI)	P trend	Adjustments
(Nanri et al., 2010)	Japan, Japanese, no diabetes,	40-69  %M	(625)/ 25666	5 (25.5)	FFQ (147)	Bread (g/d)	Self- reported DM confirmed by medical records	Men	Q5 vs. Q1	g/d	0.85 (0.64, 1.14)	0.30	Age, study area, smoking, alcohol, FH DM, PA, history HTN, occupation, EI, coffee intake, calcium, magnesium, fibre, F&V, intakes of rice, fish, noodles, BMI
Japan Public Health Centre- based Prospective study	cancer, CVD, chronic liver disease, renal disease	56.7											
Japan Public Health Centre- based Prospective study			(461)/ 33622					Women	Q5 vs. Q1		0.99 (0.73, 1.34)	0.87	As above

**Table 132 - Rice intake and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean ) %Male	(Cases)/ analytic cohort	Follo w Up (% loss)	Diet Assessment	Exposu re	Outcome/ Assessment Details	Sub group detail	Contrast (mean)	Units	RR (CI)	Mean exposure	P trend	Adjustments
(Nanri et al., 2010) Japan Public Health Centre- based Prospective study	Japan, Japanese, no diabetes, cancer, CVD, chronic liver disease, renal disease	40-69 %M 56.7	(625)/ 25666	5 (25.5)	FFQ (147)	Rice (g/d)	Self- reported DM confirmed by medical records	Men	Q5 vs. Q1	g/d	1.19 (0.85, 1.68)		0.32	Age, study area, smoking, alcohol, FH DM, PA, history HTN, Occupation, EI, coffee intake, Calcium, Magnesium, Fibre, F&V, intakes of bread, fish, noodles, BMI
Japan Public Health Centre- based Prospective study			(478)/ 33622					Wome n	Q5 vs. Q1		1.65 (1.06, 2.57)		0.005	As above
(Sun et al 2010) HPFUS	USA, Primarily white, no diabetes, CVD or cancer.	32-87 %M 100	(2648)/ 39765	20 (NR)	FFQ (131)	White Rice	Multiple diagnosis criteria confirmed self- report		<1/month vs. ≥5/week	Serving s/ time	1.02 (0.77, 1.34)		0.08	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM,
HPFUS						Brown rice			<1/month vs. ≥2/ week	Serving s/ time	0.96 (0.82, 1.12)		0.51	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, EI, intake of red meat, F&V, coffee, intake of white rice
(Sun et al 2010) NHS I	USA, Primarily white, no diabetes, CVD or cancer.	37-65 %M 0	(5500)/ 69120	22 (NR)	FFQ (116)	White Rice	Multiple diagnosis criteria confirmed self-report		<1/month vs. ≥5/week	Serving s/ time	1.11 (0.87, 1.43)		0.02	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use,
NHS I						Brown rice			<1/month vs. ≥2/ week	Serving s/ time	0.83 (0.72, 0.96)		0.003	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use, EI, intake of red meat, F&V, coffee, intake of white rice.

continued: Table 132 - Rice intake and type 2 diabetes incidence: cohort results

(Sun et al 2010)	USA, Primarily white, no diabetes, CVD or cancer.	26-45	(2359)/88343	14 (NR)	FFQ (116)	White Rice	Multiple diagnosis criteria confirmed self-report	<1/month vs. ≥5/week	Serving s/ time	1.40 (1.09, 1.80)		0.01	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use,
NHS II		%M 0											
NHS II						Brown rice		<1/month vs. ≥2/ week	Serving s/ time	0.89 (0.75, 1.07)		0.17	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use, EI, intake of red meat, F&V, coffee, intake of white rice.
Sun et al 2010)		Men and women	10507/197228			White rice		<1/month vs. ≥5/week	Serving s/ time	1.17 (1.02, 1.36)		<0.0001	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use,
Pooled analysis													
Pooled analysis						Brown rice		<1/month vs. ≥2/ week	Serving s/ time	0.89 (0.81, 0.97)		0.005	Age, ethnicity, BMI, smoking, alcohol, multivitamin use, PA, FH DM, postmenopausal status, HRT, oral contraceptive use, EI, intake of red meat, F&V, coffee, intake of white rice.
(Yu et al., 2011)	China, Chinese, (inclusions not specified)	25-74 (44.4)	(74 )/690	11.8 (31.7)	FFQ (266)	Rice	WHO 1998 criteria	Continuous risk estimate	Per SD increase	0.87 (0.67, 1.13)	827.8g	-	Sex, age, BMI, WHR, smoking, alcohol, exercise participation, FH DM.
Hong Kong Dietary Survey		%M: 47.8						(827.8)					

**Table 133 - Glycaemic index and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean exposure	P trend	Adjustments
(Mekary et al., 2011) Nurses' Health Study (NHS)	USA, Female Nurses, No type 2 DM, CVD, or cancer	30-55  %M 0	(6950)/81827	26 (NR)	FFQ 116 (year 1) then FFQ 131	Glycaemic index	Multiple diagnosis criteria confirmed self-report		>55 vs. 0.16-50		1.46 (1.34, 1.58)		<0.001	Age (months),FH DM, BMI, EI, Alcohol, cereal fibre intake, PA, Smoking, Menopausal status&HRT, coffee intake, PUFA:SFA ratio, trans FA, intake, red meat intake.
(Sakurai et al., 2011) Cohort of Japanese men	Japan, Japanese, no DM or fasting plasma glucose >126mg/dL	35-55 (46.0)  %M 100	(133)/1995	6 (NR)	DHQ 147	Glycaemic Index	Subjects with HbA1c >6.0% and diagnosis confirmed by either fasting plasma glucose conc of ≥ 126 mg/dL , a 2hr glucose level of ≥ 200 mg/dL in a 75g OGTT or use of insulin / hypoglycaemic medication.		Q5 vs. Q1		1.96 (1.04, 3.67)	-		Age, BMI, FM DM, Smoking, alcohol, habitual exercise, presence of HTN or hyperlipidaemia at baseline, EI, fibre
(Simila et al 2011) Alpha- Tocopherol, Beta-Carotene Cancer Prevention study (ATBC)	Finland, Primarily white, inclusions not reported	50-69  %M: 100	(1098)/25943	12 (NR)	FFQ (276)	Glycaemic index	National Register data of reimbursement for cost of diabetes medications.		Q5 vs. Q1		0.87 (0.71, 1.07)		0.33	Age, ATBC intervention group, BMI, Smoking, PA, EI, alcohol, energy-adjusted intakes of fat and fibre, coffee consumption.
(Sluijs et al., 2010) EPIC- Netherlands	Netherlands, Primarily white, no diabetes,	42-58 (51)  %M 25.6	(915)/ 37846	10.1 (NR)	FFQ (76)	Glycaemic index	Health care info confirmed self-report		Continuous risk estimate	Per SD increase	1.08 (1.00, 1.17)	54.9	NS	Sex, age, alcohol, PA, WC, BMI, Smoking, BP, ed, FH DM, EI, vit C, Vit E, protein, SFA. PUFA, fibre,

**Table 134 - Glycaemic load and type 2 diabetes incidence: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean exposure	P trend	Adjustments
(Hopping et al., 2010) Multi-ethnic Cohort (MEC)	Hawaii, Caucasian, Japanese and Native Hawaiian, No self-reported diabetes	54-75 %M 48	(4555)/ 36256	14 (NR)	FFQ	Glycaemic load	Self-report, medication questionnaire confirmed by blood sample and health plans	Men	Q5 vs. Q1	Units	1.16 (0.99, 1.36)		0.07	Ethnicity, BMI, PA, ed, EI
MEC			(1080)/ 15116					Caucasian men			1.54 (1.12, 2.10)	150	0.003	As above
MEC			(2677)/ 16572					Japanese American Men			1.05 (0.85, 1.31)	173	0.91	As above
MEC			(798)/ 4568					Native Hawaiian men			1.10 (0.76, 1.61)	193	0.29	As above
MEC			(4032)/ 39256					Women	Q5 vs. Q1	Units	1.41 (1.15, 1.73)		0.02	As above
MEC			(715)/ 14643					Caucasian women			2.13 (1.37, 3.31)	125	0.002	As above
MEC			(2374)/ 18672					Japanese American women			1.18 (0.88, 1.58)	144	0.98	As above
MEC			(943)/ 5941					Native Hawaiian women			1.44 (0.98, 2.12)	163	0.03	As above

continued: Table 134 - Glycaemic load and type 2 diabetes incidence: cohort results

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assessment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean exposure	P trend	Adjustments
(Mekary et al., 2011) Nurses' Health Study (NHS)	USA, Female Nurses, No type 2 DM, CVD, or cancer	30-55 (46.0) %M 0	(6950)/81827	26 (NR)	FFQ 116 (year 1) then FFQ 131	Glycaemic Load	Multiple diagnosis criteria confirmed self-report		>12.9 vs. 0-<70		1.32 (1.16, 1.51)		<0.001	Age (months), FH DM, BMI, EI, Alcohol, cereal fibre intake, PA, smoking, menopausal status & HRT, coffee intake, PUFA:SFA ratio, trans FA, intake, red meat intake.
(Sakurai et al., 2011) Cohort of Japanese men	Japan, Japanese, no DM or fasting plasma glucose >126mg/dL	35-55 (46.0) %M 100	(133)/1995	6 (NR)	DHQ 147	Glycaemic Load	Subjects with HbA1c >6.0% and diagnosis confirmed by either fasting plasma glucose conc of ≥ 126 mg/dL, a 2hr glucose level of ≥ 200 mg/dL in a 75g OGTT or use of insulin / hypoglycaemic medication.		Q5 vs. Q1		1.24 (0.65, 2.34)	-		Age, BMI, FM DM, smoking, alcohol, habitual exercise, presence of HTN or hyperlipidaemia at baseline, EI, fibre
(Simila et al 2011) Alpha-Tocopherol, Beta-Carotene Cancer Prevention study (ATBC)	Finland, Primarily white, inclusions not reported	50-69 %M: 100	(1098)/25943	12 (NR)	FFQ (276)	Glycaemic Load	National Register data of reimbursement for cost of diabetes medications.		Q5 vs. Q1		0.88 (0.65, 1.17)		0.30	Age, ATBC intervention group, BMI, Smoking, PA, EI, alcohol, energy-adjusted intakes of fat and fibre, coffee consumption.
(Sluijs et al., 2010) EPIC-Netherlands	Netherlands, Primarily white, no diabetes,	42-58 (51) %M 25.6	(915)/ 37846	10.1 (NR)	FFQ (76)	Glycaemic Load	Health care info confirmed self-report		Continuous risk estimate	Per SD increase	1.27 (1.11, 1.44)	117.9	<0.001	Sex, age, alcohol, PA, WC, BMI, smoking, SBP, ed, FH DM, EI, Vit C, Vit E, protein, SFA. PUFA, fibre,
(Yu et al., 2011) Hong Kong Dietary Survey	China, Chinese, [no inclusions specified]	25-74 (44.4) %M: 47.8	(74 )/ 690	11.8 (31.7)	FFQ (266)	Glycaemic load	WHO 1998 criteria		Continuous risk estimate	Per SD increase	1.03 (0.78, 1.34)	-		Sex, age, BMI, WHR, smoking, alcohol, exercise participation, FH DM.
									(158.2)					

This document was prepared for consideration by the Scientific Advisory Committee on Nutrition. It does not necessarily represent the final views of SACN or the advice/policy of Public Health England and Health Departments.

## 6. Cardio-metabolic health update search – risk markers of type 2 diabetes (trials)

Table 135 - Characteristics of RCTs on markers of type 2 diabetes

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Bays <i>et al.</i> , 2011)	30-70yrs, healthy, BMI 25-40kg/m <sup>2</sup> , wt stable, fasting plasma glucose 95-140mg/dL. No T2DM, food allergy, coeliac disease, uncontrolled HTN, fasting TG >250mg/dL, untreated hypothyroidism, pregnant, lactating women, no recent alc or drug abuse.	USA % Male: 32 Age: mean not reported BMI: mean not reported	Parallel	12 week	supplement	50	1. lower dose  2. Higher dose reduced viscosity  3. placebo	1. 3g/day BBG extract (Barliv™ barley beta fibre) via 3 servings raspberry flavoured sweetened beverages  2. 6g/day BBG extract via 3 servings raspberry flavoured sweetened beverages  3. beverages without fibre supplement	1. per serving – 35 kcal, 8.7g CHO, 6.6g sugars, 1g beta glucan  2. per serving – 38 kcal, 10.0g CHO, 6.6g sugars, 2g beta glucan  3. per serving 32kcal, 7.3g CHO, 6.6g sugars	High compliance reported	Cargill
(Brooking <i>et al.</i> , 2012)	<75 yrs, waist circumference ≥ 100cm men, ≥ 90cm women, Maori. No diabetes, pregnancy, lactation, current attempts to lose weight, weight loss of 2kg ≥ in previous 2 months, evidence of chronic disease, use of drugs influence glucose levels and body weight	Country: New Zealand % Male: 29.7 Age: Mean not reported BMI: Mean not reported	Parallel	24 weeks	Free living diet plan	84	1. High protein diet  2. High CHO/high fibre  3. Control	1. Intakes of traditional sources of protein were encouraged e.g. mutton-bird, abalone, sea-eggs and fish, lean red meat and skinless chicken. Fruit, vegetables and whole grains recommended sources of CHO. Target %E C 40, P30  2. High fibre, carbohydrate containing foods encouraged e.g. vegetables, fruit, wholegrain cereals, breads, pasta and rice together with reduction in high fat foods. Target %E C 55, F 30, P 15  3. Usual dietary practices	1. % E CHO 37.5, protein 21.4, fat 38.3 Fibre: 24.6 g Energy: 8310 KJ  2. %E CHO 47.8, protein 19.6, fat 30.1 Fibre: 25.9 g Energy: 7725 KJ  3. %E CHO 41.6, protein 18.2, fat 38.4 Fibre: 19.1 g Energy: 9636 KJ	Yes	Health Research Council of New Zealand

continued: Table 135 - Characteristics of RCTs on markers of type 2 diabetes

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Brownlee <i>et al.</i> , 2010)  WHOLE-heart study	18-65 yrs, Excluded: BMI<25, habitual consumption wholegrain >30g/d, CVD, DM, treated hyperlipidaemia, smoking >20 cigarettes/d, recent wt change ≥3kg,	Country: UK  % Male 47  Age: 46 (median)  BMI: 30	Parallel	16 week	Wholegrain foods provided for substitution	316	1. Intervention 1  2. Intervention 2  3. Control	1. 60g per day for 16 wk (equivalent to wholegrain content of 3 slices of bread)  2. 60g wholegrain for 8 weeks, then 120g wholegrain for final 8 weeks.  3. Maintain habitual diet	Substitution of refined products for wholegrain products. Foods provided; (wholewheat bread, wholegrain cereals, porridge oats, brown basmati rice, wholewheat pasta, oat bars and whole grains crisps.)	Yes	Food Standards Agency
(Charlton <i>et al.</i> , 2012)	25-75yrs, (not menopausal women), serum cholesterol 5-7.5mmol/l, BMI 20-32, weight stable, breakfast cereal consumer,  Not DM, CHD, renal failure, lipid lowering medication, familial hypercholesterolemia, fasting glucose >5.6mmol/, total cholesterol >7.5mmol/l, dietary supplements, pregnant or lactating women, allergies	Country: Australia  % Male: 47  Age: 51  BMI: 27.3	Parallel	6 weeks	1 cereal packet & 1 cereal bar on at least 5 days/week.	90	1. Oats high (OH)  2. Oats low (OL)  3. control	1. oat porridge and oat based cereal bars providing 3.2g beta glucan/day  2. ready to eat oat flakes and puffed rice and wheat bars providing 1.5g beta glucan/day  3. minimal B-glucan, cornflakes, puffed rice and wheat bars	Not reported	Yes – compliance reported	Cereal Partners Worldwide Ltd

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Gogebakan <i>et al.</i> , 2011)	Families with a least 1 parent BMI ≥ 27 kg/m <sup>2</sup> and aged < 65 yrs, and with at least 1 child between 5-18yrs	Pan-European % male: 35.2	Parallel	26 weeks	Following an 8 week low calorie diet participants randomised if achieved ≥ 8% weight loss to free living diet plans, 2 centres were “shop centres” where participants collected free food from shops, and 6 “instruction centres” with dietetic instructions only (detailed in Larsen <i>et al.</i> , 2010)	773		Target nutritional characteristics	Intake at 26 weeks: 1. C 51.2%, P 18%, F 29.7% 2. C 50.7%, P 16.3%, F 30.8%	Yes	European Union Food Quality and Safety Priority of the 6 <sup>th</sup> Framework Program
DiOGenes study	No adult BMI > 45, liver, cardiovascular or kidney disease, DM, eating disorders, systemic infections, cancer within last 10 years, wt change > 3kg in last 3 mo, meds that may interact with outcomes.	Age: 42 BMI: 30.3					1. Low protein Low GI 2. Low protein high GI 3. High protein/ low GI 4. High protein/ high GI 5. control (follow national dietary guidelines)	1. C 57-62%, P 10-15%, F 23-28% 2. C 57-62%, P 10-15%, F 23-28% 3. C 45-50%. P 23-28%, F 23-28% 4. C 45-50%. P 23-28%, F 23-28% 5. C 55-63%, P 12-15%, F 25-30%	3. C 45.1%, P 21.7%, F 31.2% 4. C 44.7%, P 22.4%, F 30.4% 5. C 46.5%, P 18.3%, F 33.1%		
(Goree <i>et al.</i> , 2011)	21-50yrs, BMI > 25, sedentary, weight stable.  No DM, no PCOS, weight > 136kg, not pregnant, disordered glucose or lipid metab, no glucose, lipid, BP meds or oral contraceptives, no smoking, no use of illegal drugs.	Country: USA %male: 45 Age: 35 BMI: (25-46.9) mean not reported separately	parallel	8 weeks	Foods provided	69	1. Reduced CHO/ higher-fat 2. Standard diet	Breakfast eaten at research centre and other foods provided to meet macronutrient prescription and maintain body weight	1. 43% energy CHO, 18% protein, 39% fat. 2. 55% energy CHO, 18% protein, 27% fat.	no	National Institutes of Health and National Institute of diabetes and digestive and kidney disease

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Hasson <i>et al.</i> , 2012)	Healthy, age 11-18y BMI >85th centile  No medications which influence outcomes No recent weight loss program No T2DM	USA % Male: 39%  Age: 14 - 18  BMI: mean not reported	Parallel Group	16 weeks	Free living diet plan	126	1. Control  2. Nutrition (High fibre, <10 % energy sugar diet - reported in Davies <i>et al.</i> , 2009)	1. No intervention 2. ≤10% added sugar, >14 g/1000 kcal dietary fibre/d	Achieved intakes as reported in Davies <i>et al.</i> , 2009  1. g/d: CHO 282, total sugar 118.5, Added sugar 84.2, Protein 80, Fat 80.3  Energy 2146.6 kcal/d Fibre g/d:17.1  2. g/d: CHO 234, total sugar 101g, Added sugar 57.6, Protein 71.7 Fat 61.5  Energy 1752.1 kcal/d Fibre g/d:17.9	Not in this paper and no baseline data by ethnicity	USC Trans disciplinary Research on Energetics and Cancer, the National Institute of Child Health and Human Development, the Atkins foundation, National Cancer Institute
(Haufe <i>et al.</i> , 2011)	Healthy, BMI >30, <2hr physical activity per week, <20g/day alcohol  No medications, no diseases requiring treatment, no type 2 DM, no acute or chronic infections, no pregnant women	Country: Germany  % Male: 20.5%  Age: mean not reported (35-55)  BMI: mean not reported	Parallel	6 month	Free living diet plan, attended weekly nutrition sessions and individual nutrition counselling every 2 months	170	1. reduced carbohydrate  2. reduced fat	Dietary targets:  1. hypocaloric (energy intake reduced by 30%), ≤90g/d CHO, 0.8g/kg/d protein, ≥30% fat.  2. hypocaloric (energy intake reduced by 30%), ≤20% energy from fat, 0.8g/kg/d protein, remaining energy from CHO.	Reported intakes for carbohydrate and fat were significantly different between groups	reported graphically –	Federal Ministry of Education and Research, Commission of the European communities. German Obesity Network of Competence

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Hermsdorf <i>et al.</i> , 2011)	Obese, wt stable, No DM, HTN, liver renal or haematological disease, no chronic meds, no surgical or drug related obesity treatments, alc or drug abuse. Excluded non legume consumers.	Country: Spain % Male: 56% Age: 36 BMI: 32.5	Parallel	8 weeks	Free living diet plan. 7 day menu sheet provided by dietitian	30	1. legume restricted diet (C-diet) 2. legume based diet (L-diet)	1. no legumes 2. 4 servings per week (each serving 60-90 g raw) non-soy legumes (lentils, chickpeas, peas, beans)	Both diets 30% hypo caloric and designed to provide a similar macronutrient distribution (53%CHO, 17%protein, 30%fat)	Yes, dietary macronutrient composition was similar in both groups	Línea Especial about Nutrition, Obesity and Health (University of Navarra), Health Department of the Government Nevarra, Capes Foundation-Ministry of Education of Brazil
(Hernandez <i>et al.</i> , 2010)	18-65yrs, BMI 30-40, No organ system dysfunction, metabolic disease, CVD, DM, no steroids, lipid lowering meds, wt loss meds, pregnant, psychiatric illness	USA %Male: 31 Age: 43 BMI: mean not reported	Parallel	6 weeks	Behavioural group sessions,	32	1. high fat/ low carbohydrate 2. High carbohydrate/ low fat diet	1. Low CHO diet (Atkins), unlimited fat and protein, subjects advised that unsaturated fats were healthier than saturated fats. 2. Encouraged diet in line with UDSA food guide pyramid	Target: 1. ~ 20g/ day CHO  2. ~30% F, 15% P, 55% C	No	Clinical Translational Research Institute at the University of Colorado at Denver

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Jebb <i>et al.</i> , 2010) RISCK	Men and women 30-70yrs who score $\geq 4$ points according to metabolic criteria. No ischaemic heart disease, >30% 10y risk of CVD, diabetes, cancer, pancreatitis, cholestatic liver disease, renal disease, lipid lowering drugs.	Country: UK % Male: 29.5 Age: Men 52, Women 51 BMI: Men 28.3, women 28.6	Parallel	24 weeks (4 week run-in)	Substitution (food exchange model for fats and carbohydrates)	720	1. High SFA and high GI (HS/HGI) 2. High MUFA and High GI (HM/HGI) 3. High MUFA and low GI (HM/LGI) 4. Low fat and High GI (LF/HGI) 5. Low fat and low GI (LF/LGI)	1. Reference diet – target intake of total fat 38% energy, 12% MUFA, 45% CHO. HM diets target -total fat 38% energy, but reduce SFA to 10% energy and MUFA provide 20% energy, 45% CHO. LF diets target- 28% energy total fat, SFA 10% energy, MUFA 12% energy, 55% CHO. Target difference between HGI and LGI group ~11 and ~13 GI points	1. %E: C 42, F 37.5 protein 82 g/d Energy 8.37 MJ 2. %E: C 44.9, F 35.6. Protein 78.6 g/d Energy 8.05 MJ 3. %E: C 44.6, F 35.7. Protein 84.2g/d Energy 8.28 MJ 4. %E: C 51.1, F 27.5. Protein 80.5 g/d Energy 7.76 MJ 5. %E: C 51.5, F 26.1. Protein 78 g/d Energy 7.28 MJ	Yes	Food Standards Agency
(Johnston <i>et al.</i> , 2010)	21-70yrs, healthy with fasting plasma insulin >60pmol/l, No pregnant or lactating women, no significant current or previous medical history, no medication likely to interfere with the glucose/ lipid outcomes, no GI disease.	Country: England % Male: 40 Age: mean not reported BMI: mean not reported	Parallel	12 weeks	Supplement	20	1. Placebo group 2. resistant starch (RS) group	Instructed to consume 2 sachets per day of starch supplements with meals	1. Amioca supplement (0g/day type II RS and 27g/day rapidly digestible starch) 2. Hi-Maize 260 supplement (40g/day type II RS and 27g/day rapidly digestible starch)	no	The National Starch LLC, Medical Research Council and NIHR Biomedical Facility

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Klemsdal <i>et al.</i> , 2010)	30-65yrs, BMI 28-40 for men and BMI 28-35 for women, at least 1 symptom of the metabolic syndrome (NECP definition).  No CVD, no DM requiring medication, no lipid lowering or weight management meds in previous 12 wks, no eating disorders.	Country: Norway  %Male 42%  Age:50  BMI: mean not reported	Parallel	1 year	Dietary advice and free living diet plan	202	1. Low glycaemic load diet (LGL)  2. Low fat diet	1. advice for a third of plate protein (all meals), 1 meal - third of plate low GI CHO and third vegetables/ legumes. Other 2 meals- 2 thirds plate vegetables/ legumes.  1. Nordic dietary guidelines and recommended unrefined high fibre CHO's ( but not those with low GI)	Target intakes:  1. 30-35% CHO, 25-30% protein, 35-40% fat  2. 55-60% CHO, 15% protein, <30% fat	Only graphically	Norwegian National Research Council
(Krebs <i>et al.</i> , 2010)	12-18yrs, obese or body weight estimated to be ≥175% ideal body weight (50 <sup>th</sup> centile weight height for age/BMI for age)  No type 2 DM, gall bladder, liver, renal or eating disorders, hypercholesterolemia (TC >300mg/dl), no hypothyroidism, PCOS, pregnancy, depression, genetic disorders, or meds that effect appetite.	Country: USA  % Male: 45.6  Age: ~14  BMI: mean not reported	Parallel	12 weeks	Instructions and written advice to achieve dietary prescription. Both groups instructed to undertake 30 mins exercise per day.	51	1. HPLC -high protein low carbohydrate  2. LF -low fat control	1. 20g/day CHO, protein to provide 2.0-2.5g protein/kg ideal body weight/day , fat and energy not restricted  2. Energy restricted to 70% of REE, senergy from fat.	1. P 32%, C 11%, F 57%  2. P 21%, C 51%, F 29%	yes	USDA grant, Paediatric Clinical Translational Research centre, National Cattlemen's Beef Association

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Kristensen <i>et al.</i> , 2012b)	BMI 27-37, age 45-70y, >1y postmenopausal,  Excluded: smoking, DM, CVD, untreated HTN, cholesterol >6.5mmol/l, glucose >7.0 mmol/l, dietary supps, medication (except HTN meds).	Country: Denmark  % Male: 0  Age: mean not reported  BMI:30	Parallel	12 week	Substitution of usual foods	79	1. Refined wheat (RW)  2. Wholegrain wheat (WW)	1. refined 62g bread/day, 60 pasta/day, 28g biscuits/day to replace 2MJ of habitual diet. Within an energy restricted diet.  2. >50% wholegrain 62g bread/day, 60 pasta/day, 28g biscuits/day to replace 2MJ of habitual diet. Within an energy restricted diet.	1. intervention foods provided 2.07 MJ/d, CHO 95.8g, Sugars 11.5g, fibre 4.5g  2. intervention foods provided: 1.99MJ/d, CHO 86.8g, sugars 11.8g, fibre 11.0g	yes	European Commission, University of Copenhagen
(Krog-Mikkelsen <i>et al.</i> , 2011)	Women, 20-40y, BMI 25-30, weight stable, pre-menopausal, BP ≤159/99mmHg, 14 alc drinks per week no physiologic or psychological illness, no regular meds (expect oral contraceptives, any food allergies or special diets, non-smokers, no athletes, not pregnant.	Country: Denmark  % Male 0  Age: 30.5  BMI: 27.6	Parallel	10 week	Substitution of usual CHO rich foods	29	1. Low GI  2. High GI	Carbohydrate rich test foods  1. Wholegrain wheat bread, wholegrain rye bread, long grain rice, pasta.  2. Whole meal wheat bread, wholemeal rye bread, round grain rice, mashed potato powder.	Intake at week 10  1. Energy 8.6MJ/d, CHO % energy 57.3%, starch 50.6g, added sugar 20.2g, fibre 30.3g  2. Energy 9.8MJ/d, CHO % energy 56.6, Starch 56.5g, added sugar 25.7g, fibre 33.8g	Yes	Danone

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Lankinen <i>et al.</i> , 2011)  <b>Sysdimet study</b>  (same study (de Mello, V <i>et al.</i> , 2011))	40-70yrs, fasting glucose 5.6-6.9 mmol/l or impaired glucose tolerance, and at least 2 of the following: (BMI 26-39, WC ≥102 men/ ≥88 women, TG>1.7mmol/l, HDL<1.0 men/ <1.3mmol/l women, blood pressure ≥130/85)  No glucose lowering drugs	Country: Finland  % Male: 47  Age: mean not reported  BMI: 31	Parallel	12 week	Free living diet plan, reimbursement for cost of fish given	131	1. healthy diet  2 wholegrain enriched diet (WGED)  3. Control group	1.replace usual cereal products e.g. bread with those with high wholegrain composition (one usual cereal allowed), 3.5dL wholewheat pasta week, fatty fish 3/week, Bilberries 3 portions per day. Also advised to avoid SFA.  2. Same cereal products as healthy diet group but additional 1/d wholegrain oat snack bars. Asked not to change fish or bilberry consumption.  3. replaced usual breads with refined breads and other cereals. Max 1-2 portions rye products/ day. Bilberries restricted, Oily fish max 1/week.	Not reported	Change in macronutrients reported graphically	Academy of Finland, Kuopio University hospital, Finnish Diabetes Research Foundation, Sigrid Juselius Foundation, Nordic Centre of Excellence and European Commission.
(Lim <i>et al.</i> , 2010)	20-65 years with at least one CVD risk factor, BMI 28-40kg/m <sup>2</sup> . No hypoglycaemic medication or drugs affecting insulin sensitivity, history of metabolic or CHD, type 1 or type 2 diabetes.	Country: Australia  % Male: 16.3  Age: 47  BMI: 32	Parallel	15 months	Free living diet plan- all designed to be reduced energy, isocaloric diets	113	1. Very low carbohydrate (VLC)  2. Very low fat (VLF)  3. High unsaturated fat (HUF)	1.Target %E C 4, F 60, P35  2. %E C70, F 10, P20  3. %E C50, F 30, P20	1.%E C 36.5, F 37.1, P23.9 Energy 6841 KJ  2. %E C 50.5, F28.3, P 19.6 Energy 7936 KJ  3. %E C 43.2, F 30.3, P24.4 Energy 6593 KJ	Yes	National Heart Foundation and CSIRO Health Sciences and Nutrition

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(Lyon <i>et al.</i> , 2011)	Healthy, 18-50yrs, BMI 27-35, wt stable, <5 cigarettes/day, no current or previous metabolic or digestive disease, no medication effecting appetite	Country: France % Male 47.5 Age: mean not reported BMI mean not reported	Not reported = assume parallel?	15 weeks	supplement	60	1. High viscosity polysaccharide (HVP) 2. inulin	Fibre supplement powders mixed with low fat yoghurt and consumed with meals. Week 1: 3g twice a day, Week 2: 5g twice a day, week 3 onwards: 5g 3 times a day	1. HVP made from konjac, sodium alginate and xanthan gum. Composition per 100g – 82g CHO, 87g fibre, 1.4g protein, 0.3g fat. 2. inulin – amount not reported	Compliance assessed from weight of unsure powders  (93.7% compliance HVP, 94.0% control)	InovoBiologic Inc.
(Maersk <i>et al.</i> , 2012)	Healthy, BMI 26-40, 20-50yrs, BP <160/100mmHg,	Country: Denmark % Male 36.2 Age: 39 BMI: 32	parallel	6 month	Additional 1L beverage/ day	60	1. regular cola 2. milk (data not extracted) 3. diet cola 4. water	1. 1L sucrose sweetened regular cola 2. 1L Semi skimmed milk (1.5%fat) 3. 1L Aspartame – sweetened diet cola 4 1L water	Drink composition/ 100ml: 1. CHO 10.6g, Protein 0g, fat 0g, 2. 4.7g CHO, 3.4g protein, 1.5g fat 3. 0g CHO, <0.1g protein, 0g fat 4. 0g nutrients	no	The Danish Council for Strategic Research, The Food Study Group/Danish Ministry of Food, Agriculture and Fisheries, Novo Nordic Foundation, Clinical Institute at Aarhus University

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(Pal <i>et al.</i> , 2011)	BMI 25-40, wt stable, 18-65yrs,  No smoking, lipid-lowering meds, warfarin use, DM, hypo- or hyper thyroidism, Cardiovascular event in last 6mo, major systemic disease, GI problems, proteinuria, liver or renal failure, vegetarianism.	Country: Australia  % Male 43.8  Age: mean not reported  BMI: mean not reported	Parallel	12 weeks	Supplement with and without healthy eating advice	72	1. control  2. fibre supplement (FIB)  3. healthy eating with control supplement (HLT). NOTE: Data not extracted as baseline lipid too high  4. healthy eating with fibre supplement (HLT-FIB) NOTE: Data not extracted as baseline lipid too high	1. 12g breadcrumbs with flavouring 3x day before meals  2. 12g Psyllium 3x day before meals  1. 12g breadcrumbs with flavouring 3x day plus <i>ad libitum</i> healthy eating plans  2. 12g Psyllium 3x day plus <i>ad libitum</i> healthy eating plans	1. control provided 1.5g soluble fibre per dose  week 12 intakes: 8165kJ/d, %E: 44.5 CHO, 18.2 Protein, 37.1 fat, 18.7g fibre.  2. 12g psyllium per dose  week 12 intakes: 7756.8 kJ/d, E%: 46.3 CHO, 19.3 protein, 34.3 fat, 55.3g fibre/d	yes	ATN Centre for Metabolic Fitness
(Penn-Marshall <i>et al.</i> , 2010)	BMI $\geq 25$ , 1 <sup>st</sup> or 2 <sup>nd</sup> degree relative with type 2 DM, $\leq 30$ min/week PA,  No pregnant women, DM, non meds to control blood glucose.	Country: USA  % Male 46.6  Age: 36.6  BMI: 37.7	Cross over  2 week washout	6 week	Bread provided to subjects	17	1. Hi-Maize 260 RS bread  2. control bread	Three slices bread per day, including weekends.	1. Resistant starch 10.17g/100g bread, Soluble starch 64.09g/100g bread  2. Resistant starch 2.64g/100g bread, Soluble starch 67.22g/100g bread.	Not reported	Virginia tech aspires

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(Shikany <i>et al.</i> , 2011)	Age 50-79y Fat intake >32% Post-menopausal	USA % Male: 0% Age: 62 BMI: 29	Parallel Group	6 years	Free living diet plan	2816	1. Low fat 2. Control	1. Advice to reduce fat intake to 20%, increase fruit, vegetables (≥5 servings) and whole grains (≥6 servings)  2. Received information relating to health and healthy diets	1. 1431kcal/d %E: C 54.0 , P NR, F 29.2 Fibre g/d:16.9  2. 1534kcal/d %E: C 46.2 P NR F 37.1 Fibre g/d:14.1	Yes	National Heart, Lung, and Blood Institute



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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Tighe <i>et al.</i> , 2010)	40-65yrs, BMI 18.5-35, <2 aerobic activity sessions per week, metabolic syndrome, moderate hypercholesterolemia.  No CVD, DM, fasting blood glucose >7.0mmol/l, asthma, BP > 160/99 mmHg, thyroid conditions, high habitual wholegrain intake, no meds or drugs known to effect the outcomes measured.	Country: UK  % Male: 50.5  Age: 52  BMI: mean not reported	Parallel	12 weeks	Substitution of usual foods, provided with refined, whole wheat and/ or oat foods)	226	1. refined  2. Wholegrain  3. Wholegrain & oats	1. Refined cereals and white bread  2. Substitution with 3 servings of whole wheat foods (serving sizes 70-80g whole-meal bread, 30-40g wholegrain cereals)  3. Substitution with 1 serving whole wheat foods and 2 servings of oats.	1. 2080kcal, CHO 245g, Protein 84g, fat 79.9g, NSP 11.3g  2. 2121 kcal, CHO 253g, Protein 89.1g, fat 79.7g, NSP 18.5g  3. 2142 kcal, CHO 243g, Protein 87g, fat 82.1g, NSP 16.8g	yes	Food Standards Agency
(Toscani <i>et al.</i> , 2011)	Women reproductive age, BMI 18.5-39.9 kg/m <sup>2</sup> , 14-35 years, with PCOS or controls- data extracted for controls only	Country: Brazil  % Male :0  Age: 29.35 (controls)  BMI: ≥25kg/m <sup>2</sup> (controls)		2 months	Not reported	40 (22 controls)	1. Normal protein diet (NP)  2. High protein diet (HP)	1. Target intake %E: C55, F30, P15.  2. Target %E: C40, F 30, P30	Not reported	No	Conselho Nacional de Desenvolvimento Científico e Tecnológico, FIPE-HCPA and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

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Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Venn <i>et al.</i> , 2010)	BMI >28, fasting blood glucose <6.1mmol/l, 2hr OGTT <11.1mmol/l  No DM, cancer, CHD, pregnant or lactating women,	Country: New Zealand  % Male :14  Age: 42  BMI: mean not reported	parallel	6 mo with twice weekly counseling sessions  12 mo with monthly contact	Substitution of foods	113	1. control  2. Intervention	1. Instructed to follow National Heart Foundation of New Zealand guidelines (to eat at least 3 servings veg, 3 servings fruit, 6 servings bread/cereals, 2 servings low fat milk or dairy, 1-2 servings protein, 1-2tbsp unsaturated fats, small amount nuts per day.  2. Similar advice to control except instructed to consume 2 servings of pulses as a substitution for 2 servings bread/ cereals and all other breads and cereals to be wholegrain.	Used 6 mo values:  1. %E CHO 54, Fat 25% energy, protein 20% energy, fibre 21g  kJ/d 6120  2. CHO 52% energy, Fat 25% energy, protein 21% energy, fibre 28g  kJ/d 5917	yes	New Zealand Foundation for Research, Science and Technology and the Lifestyle Foods program industry partners.
(Vrolix & Mensink, 2010)	30-65yrs and >2 characteristics of MS (fasting plasma glucose >5.6mmol, TG >1.7mmol, HDL ,1.03 men/ <1.3 women, WC >102cm men/>88 women). Stable PA pattern,  No HTN meds, no other meds known to effect glucose or lipid metabolism, alcohol abuse, illicit drug use, not pregnant, no history (5yr ago) of CHD, cancer, DM, kidney, liver or pancreatic disease, malignancies, familial hypercholesterolemia	Country: Netherlands  % Male: 60  Age: mean not reported  BMI: mean not reported	Cross over  ≥2 weeks wash out	11 weeks each arm	Substitute usual foods for test foods	15	1. decreased GI (dGI)  2. Increased GI (iGI)	Following a 3 week run in period on the decreased GI test foods;  1. continued to consume the decreased GI foods for further 11 weeks  2. switched to consume the increased GI foods for further 11 weeks.	Subjects given decreased and increased GI versions of bread, fruit drink, cake and cookies to replace their usual foods.	yes	Top Institute of Food and Nutrition, Netherlands

continued: Table 135 - Characteristics of RCTs on markers of type 2 diabetes

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Weickert <i>et al.</i> , 2011)	24-70yrs, BMI >25, wt stable, WC >80cm females, >94cm men, and 1 more feature of MS according to International Diabetes Federation Criteria  No DM, Pregnancy, heart, liver, kidney disease, allergies, meds known to effect insulin sensitivity, no allergies.	Country: Germany  % Male 38.7%  Age: not reported separately  BMI: 31	Parallel	18 week (6 wk intense period)	Isoenergetic diet plans based and supplements to aid achievement of dietary targets	111	1. Control  2. HCF – high cereal fibre  3. HP high protein  4. Mix (results not extracted)	Supplements and emphasised food groups  1. basic low fibre supplement 2x/d (28g CHO, 8g Protein, 3g fat, 1g cereal fibre)  2. 15g insoluble cereal fibre supplement 2x/d (25g CHO, 8g protein, 3g fat, 15g cereal fibre)  cereal fibre and whole meal carbohydrate foods emphasised  3.29g whey and pea isolates 2x/d. (25g CHO, 29g protein, 3g fat, 1g cereal fibre)  legumes and low fat dairy foods emphasised  4. 8g cereal fibre and 19g whey and pea isolates supplement 2xd (24g CHO, 19g protein, 3g fat, 8g cereal fibre)	Prescribed iso-energetic diets.  1. protein 15% energy, CHO 55% energy, fat 30% energy, <15g/1000kcal cereal fibre  2. protein 15% energy, CHO 55% energy, fat 30% energy, >20g/1000kcal cereal fibre  3. protein 25-30% energy, CHO 40-45% energy, fat 30% energy, <15g/1000kcal cereal fibre  4. protein 20-25% energy, CHO 45-50% energy, fat 30% energy, 15-20g/1000kcal cereal fibre	no	German Ministry of Education and Science, German institute of Human Nutrition, Charité University Medicine Berlin

continued: Table 135 - Characteristics of RCTs on markers of type 2 diabetes

Authors, Study Name	Subject inclusion criteria	Characteristics of participants	Trial Design (washout duration)	Length of Intervention	Intervention Style	Total n	Intervention Group Names	Intervention Description	Diet/Supplement nutritional characteristics	Actual diet consumed reported?	Funding source
(Wood <i>et al.</i> , 2012)	Men 50-75yrs, with metabolic syndrome (revised NCEP criteria),  No wt loss ≥5lb in previous 6mo, CVD, thyroid disease, DN, cancer, gout, musculoskeletal pathology, no change in lipid lowering meds in last 6mo.	USA % Male: 100  Age : 58  BMI:mean not reported	Parallel	12 week	Weight loss study with free living diet plan	22 (42 total RCT)	1. LFD – low fat diet  2. CRD – carbohydrate restricted diet  3&4. Two additional Exercise groups – not extracted	1. 3-4 servings F&V, 6-8 servings grains (with at least half wholegrain), 2-3 servings low fat dairy, 3-6oz lean meat per day and low fat condiments.  2. Unlimited meat and eggs, moderate amounts of hard cheese, <50g CHO.	1. 1780kcal, CHO 244g (51.4%), Protein 79g (17.8%), fat 49g (24.8%)  Fibre 22g/d  2. 1707kcal, CHO 64g (14%), protein 114g (26.7%) fat 105g (55.4%)  Fibre 11g/d	yes	Springfield College Faculty Research Fund

**Table 136 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and glucose tolerance: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011		Low protein, Low GI	85/150	*See note on coversheet		-1.28 (SD 1.84)	<0.05			120 min OGTT	Glucose mmol/l	26 wk	Small non sig increase	-
		Low protein, high GI	79/155			-0.93 (SD 1.75)	<0.05						Small sig increase (P<0.05)	-
		High protein, low GI	102/159			-1.01(SD 1.73)	<0.05						Small non- sig decrease	-
		High protein, high GI	88/155			-1.06 (SD 1.79)	<0.05						Small non sig increase	-
		Control	98/154			-0.89 (SD 1.65)	<0.05						Small non sig increase	-
Toscani et al., (2011)		Normal protein	9/9	97.44 (SD 18.38)	93.33 (SD18.35)			NS		2hr glucose	(mg/dl)	2 month	Decrease	
		High protein	13/13	90.54 (SD 17.76)	101.38 (SD 28.07)			NS					Decrease	

**Table 137 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and glucose tolerance: RCT results**

Table Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Krebs et al., (2010)		High protein low carbohydrate	18/27	NR	NR		NS-reported in the text	NS-reported in the text		2hr glucose	-	13 weeks	Decrease	
		Low fat control	15/24	NR	NR		NS-reported in the text						Decrease	

**Table 138 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Brooking et al., (2012)		High protein diet	22/28	5.3 (SD 0.81)	5.3 (SD 0.59)					Fasting	Glucose (mmol/l)	8 weeks	Decrease	
		High CHO/ High fibre	26/31	5.0 (SD 0.77)	5.0 (SD 0.66)								Decrease	
		Control	23/25	4.7 (SD 0.35)	4.9 (SD 0.70)								No change	
Brooking et al., (2012)		High protein diet	20/28	5.3 (SD 0.81)	5.2 (SD 0.80)					Fasting	Glucose (mmol/l)	16 weeks	Decrease	
		High CHO/ High fibre	23/31	5.0 (SD 0.77)	5.2 (SD 1.08)								Decrease	
		Control	20/25	4.7 (SD 0.35)	4.9 (SD 0.52)								Small decrease	
Brooking et al., (2012)		High protein diet	20/	5.3 (SD 0.81)	5.2 (SD 0.85)		-0.05 (CI- 0.27, 0.18) mean difference across 3 time points	0.694		Fasting	Glucose (mmol/l)	24 weeks	Decrease	
		High CHO/ High fibre	22/	5.0 (SD 0.77)	5.1 (SD 0.73)		-0.04 (CI- 0.27, 0.18) mean difference across 3 time points	0.729					Decrease	
		Control	19/	4.7 (SD 0.35)	4.9 (SD 0.52)								Small decrease	

continued: Table 138 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and glycaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Goree et al., 2011		Reduced CHO/higher fat	34/49	99.7 (SE 1.7)	101.7 (SE 1.7)			0.01		Fasting	Glucose mg/dl	8 wk	Small decrease	-
		Standard diet	28/29	97.5 (SE 1.7)	95.8 (SE 1.6)									
Haufe et al., 2011		Reduced CHO	52/84	Not reported for whole arm		-6.1 (SE 1.3)	<0.01	0.67		Fasting	Glucose mg/dl	6 months	Sig reduction, not sig different between groups	-
		Reduced Fat	50/86	Not reported for whole arm		-5.2 (SE 1.7)	<0.01							
Shikany et al., (2011)  WHI - DMT		Low fat	646/892	100.6 (SD 25.4)	102.2 (SD 27.0)			NS	-0.6 (SD 24.9)	Fasting	Glucose (mg/dl)	6 year	No change	
		Control	990/1371	100.3 (SD 25.6)	102.3 (SD 28.0)									
Tierney et al., (2011)  LIPGENE		High SFA	100/121	5.96 (SE 0.09)	6.00 (SE 0.11)		NS	NS		Fasting	Glucose (mmol/l)	12 weeks	No change	
		High MUFA	111/126	5.90 (SE 0.08)	5.97 (SE 0.10)		NS						No change	
		Low fat high complex CHO	106/119	5.94 (SE 0.08)	5.81 (SE 0.10)		NS						Small sig decrease	

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continued: Table 138 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and glycaemia: RCT results

**Table 139 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011		Low protein, Low GI	92/150	*See note on cover sheet		0.11 (SD 0.58)	NS			Fasting	Glucose mmol/l	26 wk	Small non sig increase	-
		Low protein, high GI	83/155			0.24 (SD 0.46)	<0.05						Small sig increase (P=<0.05)	-
		High protein, low GI	103/159			0.10 (SD 0.60)	NS						Small non- sig decrease	-
		High protein, high GI	94/155			0.08 (SD 0.71)	NS						Small non sig increase	-
		Control	103/154			0.14 (SD 0.44)	<0.05						Small non sig increase	-
Toscani et al., (2011)		Normal protein	9/9	89.78 (SD 7.43)	90.44 (SD 6.38)		NS			Fasting	Glucose (mg/dl)	2 months	Decrease	
		High protein	13/13	89.23 (SD 8.16)	91.08 (SD 9.72)		NS						Decrease	
Weickert et al., (2011)		Control (low fibre supplement/ 55% energy CHO)	22/28	87.9 (SD 8.4)		-3%	0.045	0.079		Fasting	Glucose mg/dl	6 weeks	No sig difference between groups	
		High protein group (whey and pea isolate supplement and 40-45% CHO)	22/28	84.9 (SD 6.9)		+2%								

**Table 140 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow- up	Weight Change	Outcome Assessment Bias
Hernandez et al., (2010)	High fat/ low CHO		16/16	85.5 (SD 10.9)	86.4 (SD 7.6)	0.9 (SD 10.5)	0.94	0.65		Fasting	Glucose (mg/dl)	6 weeks	Decrease	-
	High CHO/ low fat		16/16	85.6 (SD8.3)	85.5 (SD 6.5)	-0.1 (SD 6.0)	0.73						Decrease	
Hernandez et al., (2010)	High fat/ low CHO		16/16	1448 (SD 108)	1464	35.7	0.09	<0.0001		24hr AUC	Glucose (mg/dl)		Decrease	
	High CHO/ low fat		16/16	1428 (SD 112)	1315	-133	<0.0001						Decrease	
Klemsdal et al., (2010)	Low glycaemic load (30- 35%CHO)		78/100	5.62 (SD 0.94)	5.56 (SD 0.79)		0.015	0.344		Fasting	Glucose mmol/l	12 months	Decrease	-
	Low fat (55- 60%CHO)		86/102	5.61 (SD 0.65)	5.48 (SD 0.79)		0.341						Decrease	
Krebs et al., (2010)	High protein low carbohydrate		18/27	NR	NR		NS- as reported in text	NS- as reported in text		Fasting glucose	-	13 weeks	Decrease	
	Low fat control		15/24	NR	NR		NS- as reported in text						Decrease	

continued: Table 140 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and glycaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow- up	Weight Change	Outcome Assessment Bias
Lim et al., 2010		Very low carbohydrate	24/27	5.4 (SD 0.6)		-0.1 (SD 0.3)			P=0.188			3 months	Decrease not sig between groups	
		Very low fat	22/28	5.3 (SD 0.6)		0.1 (SD 0.6)							Decrease not sig between groups	
		High unsaturated fat	21/27	5.4 (SD 0.7)		-0.2 (SD 0.4)							Decrease not sig between groups	
Lim et al., 2010		Very low carbohydrate	17/27	5.4 (SD 0.6)		0.1 (SD 0.3)			P=0.215	Fasting	Glucose (mmol/l)	15 months	Decrease not sig between groups	
		Very low fat	18/28	5.3 (SD 0.6)		0.3 (SD 0.6)							Decrease not sig between groups	
		High unsaturated fat	15/27	5.4 (SD 0.7)		-0.4 (SD 1.0)							Decrease not sig between groups	
		Control	19/22	5.6 (SD 0.7)		-0.1 (SD 0.6)							Decrease not sig between groups	

continued: Table 140 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and glycaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow- up	Weight Change	Outcome Assessment Bias
Wood et al., (2012)		Low fat diet	8/9	111 (SD 12)		-11.8 (SD 7.6)	P<0.05	NS		Fasting serum	Glucose (mg/dl)	12 weeks		Sig reduction in all groups
		Carbohydrate restricted diet	8/10	110 (SD 11)		-7.9 (SD 6.9)	P<0.05							

**Table 141 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Brooking et al., (2012)		High protein diet	22/28	16.9 (SD 14.01)	15.8 (SD 12.14)					Fasting	Insulin (mIU/L)	8 weeks	Decrease	
		High CHO/ High fibre	26/31	17.7 (SD 13.60)	15.6 (SD 12.18)								Decrease	-
		Control	23/25	12.2 (SD 7.47)	16.7 (SD 20.6)								No change	-
Brooking et al., (2012)		High protein diet	20/28	16.9 (SD 14.01)	14.3 (SD 8.61)					Fasting	Insulin (mIU/L)	16 weeks	Decrease	-
		High CHO/ High fibre	23/31	17.7 (SD 13.60)	17.5 (SD 19.66)								Decrease	-
		Control	20/25	12.2 (SD 7.47)	14.2 (SD 13.95)								Small decrease	-

continued: Table 141 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulinaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Brooking et al., (2012)		High protein diet	22/28	16.9 (SD 14.01)	13.7 (SD 8.65)	0.85 (CI 0.63, 1.14) Mean of 3 time points	0.266			Fasting	Insulin (mIU/L)	24 weeks	Decrease	-
		High CHO/ High fibre	26/31	17.7 (SD 13.60)	15.7 (SD 13.20)	0.93 (CI 0.68, 1.26) Mean of 3 time points	0.643						Decrease	-
		Control	23/25	12.2 (SD 7.47)	16.7 (SD 20.64)								Small decrease	-
Goree et al., 2011		Reduced CHO/higher fat	34/40	8.0 (SE 0.9)	8.1 (SE1.1)			0.312		Fasting	Insulin $\mu$ U/ml	8 wk	Small decrease (not sig between groups)	-
		Standard diet	29/29	9.5 (SE 1.1)	8.1 (SE 0.9)									-
Haufe et al., 2011		Reduced CHO	52/84	Not reported for whole arm		-2.6 (SE 0.6)	<0.01	0.27		Fasting	Insulin $\mu$ U/ml	6 months	Sig reduction, not sig different between groups	-
		Reduced Fat	50/86	Not reported for whole arm		-1.8 (SE 0.4)	<0.01							

continued: Table 141 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulinaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Jebb et al., (2010)		High SFA and high GI	79/137	387 (IQR 228, 632)	411 (IQR 248, 687)	% 7.6 (CI -2.5- 18.3)		0.81		Insulin response to glucose (AIRg)	MI/ $\mu$ U/min	24 weeks	Very small increase	
		High MUFA and high GI	104/145	412 (IQR 242, 694)	482 (IQR 286, 708)	% 10.8 (CI 3.4, 18.5)							Very small decrease	
		High MUFA and low GI	97/144	366 (IQR 262, 595)	446 (IQR 283, 672)	% 2.4 (CI -5.5, 9.2)							Very small increase	
		Low fat and high GI	108/145	362 (IQR 216, 692)	403 (IQR 216, 612)	% -0.1 (CI -7.5, 7.7)							Small decrease	
		Low fat and low GI	104/149	390 (IQR 234, 607)	376 (IQR 221,644)	% 0.9 (CI - 6.2,8.3)							Small decrease	
Shikany et al., (2011)		Low fat	645/892	10.3 (SD 5.0)	8.2 (SD 5.1)			NS		Fasting	Insulin ( $\mu$ IU/ml)	6 years	No change	
WHI - DMT		Control	989/1371	10.5 (SD 5.3)	8.6 (SD 5.8)			NS						

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continued: Table 141 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulinaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Tierney et al., (2011)  LIPGENE		High SFA	100/121	9.83 (SE 0.54)	10.05 (SE 0.59)		NS	NS		Fasting	Insulin ( $\mu$ U/ml)	12 weeks	No change	
		High MUFA	111/126	9.86 (SE 0.51)	9.20 (SE 0.56)		NS						No change	
		Low fat high complex CHO	106/119	10.31 (SE 0.52)	10.22 (SE 0.57)		NS							Small sig decrease
Tierney et al., (2011)  LIPGENE		High SFA	100/121	388.6 (SE 42.1)	398.3 (SE 44.0)		NS	NS		Fasting	Acute insulin response to glucose (AIRg)	12 weeks	No change	
		High MUFA	111/126	359.3 (SE 37.3)	383.8 (SE 39.1)		NS						No change	
		Low fat high complex CHO	106/119	365.5 (SE 39.5)	388.7 (SE 41.3)		NS							Small sig decrease

**Table 142 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011		Low protein, Low GI	81/150	*See note on cover sheet		0.79 (SD 8.28)	NS			Fasting	Insulin mU/l	26 wk	Small non sig increase	-
		Low protein, High GI	69/155			3.17 (SD 9.30)	<0.05						Small sig increase (P=<0.05)	-
		High protein, low GI	82/159			1.56 (SD 3.49)	<0.05						Small non- sig decrease	-
		High protein, high GI	80/155			1.32 (SD 5.23)	<0.05						Small non sig increase	-
		Control	85/154			1.30(SD 3.70)	NS						Small non sig increase	-

continued: Table 142 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and insulinaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
Gogebakan et al., 2011		Low protein, Low GI	85/150	*See note on cover sheet		-7.73 (SD 31.38)	<0.05			Insulin following 2hr OGTT	Insulin mU/l	26 wk	Small non sig increase	-
		Low protein, High GI	77/155			-4.31 (SD 32.91)	NS						Small sig increase (P=<0.05)	-
		High protein, low GI	104/159			-3.02 (SD 28.74)	NS						Small non- sig decrease	-
		High protein, high GI	90/155			-7.62 (SD 32.01)	<0.05						Small non sig increase	-
		Control	98/154			-3.40 (SD 30.36)	<0.05						Small non sig increase	-
Toscani et al., (2011)		Normal protein	9/9	8.58 (IQR 5.91-12.17)	6.69 (IQR 4.34-11.17)		NS			Fasting	Insulin μU/ml	2 months	Decrease	
		High protein	13/13	8.33 (IQR 4.06-12.23)	8.17 (IQR 4.78-14.1)		NS						Decrease	
		Normal protein	9/9	34.87 (IQR 23.87-83.12)	50.65 (IQR 31.74-80.11)		NS			2hr insulin	μU/ml	2 months	Decrease	
		High protein	13/13	42.83 (IQR 28.17-65)	34.78 (IQR 17.96-51)		NS						Decrease	

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**Table 143 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Hernandez et al., (2010)		High fat/ low CHO	16/16	11.3 (SD 7.3)	6.6 (SD 3.6)	-4.7 (SD 8.0)	0.06	0.37		Fasting	Insulin μU/ml	6 weeks	Decrease	
		High CHO/ low fat	16/16	10.7 (SD 6.1)	7.9 (SD 5.7)	-2.8 (SD 5.3)	0.03						Decrease	
		High fat/ low CHO	16/16	556 (SD 421)	217 (SD 56.5)	-338.7 (SD 398.1)	0.02	0.0002		24hr AUC	Insulin μU/ml		Decrease	
		High CHO/ low fat	16/16	492 (SD 304)	350 (SD 152)	-141.9 (SD 207.6)	0.004						Decrease	
Lim et al., 2010		Very low carbohydrate	17/27	10.9 (SD 5.8)		-3.9 (SD 3.7)		<0.05 (VLC vs. VLF)	P=0.003			3 months	Decrease not sig between groups	
		Very low fat	18/28	8.4 (SD 3.7)		3.0 (SD 13.8)							Decrease not sig between groups	
		High unsaturated fat	15/27	9.3 (SD 3.4)		-1.8 (SD 2.7)		<0.05 (VLC vs. VLF)					Decrease not sig between groups	

continued: Table 143 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and insulinaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Lim et al., 2010		Very low carbohydrate	17/27	10.9 (SD 5.8)		-1.5 (SD 4.4)			P=0.587	Fasting	Insulin (mU/L)	15 months		Decrease not sig between groups
		Very low fat	18/28	8.4 (SD 3.7)		0.5 (SD 5.5)								Decrease not sig between groups
		High unsaturated fat	15/27	9.3 (SD 3.4)		-1.7 (SD 4.0)								Decrease not sig between groups
		Control	19/22	7.3 (SD 5.0)		-0.3 (SD 3.2)								D Decrease not sig between groups
Klemsdal et al., 2010		Low glycaemic load (30- 35%CHO)	78/100	111 (SD 57)	99 (SD 66)		0.009	0.411		Fasting	Insulin (pmol/l)	12 months		Sig reduction, not sig different between groups
		Low fat (55- 60%CHO)	86/102	122 (SD 75)	101 (SD 66)		0.048							
Krebs et al., (2010)		High protein low carbohydrate	18/27	NR	NR		0.03			2hr insulin	-	13 weeks		Decrease

continued: Table 143 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and insulinaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
		Low fat control	15/24	NR	NR		0.07						Decrease	

**Table 144 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulin sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Goree et al., 2011		Reduced CHO/higher fat	34/40	3.68 (SE 0.47)	3.71 (SE 0.48)			0.16		Whole body insulin sensitivity following liquid meal tolerance test	[ $\times 10^{-4}$ min <sup>-1</sup> /( $\mu$ U/ml)] <sup>4</sup>	8 wk	Small non sig reduction	-
		Standard diet	28/29	2.96 (SE 0.37)	3.72 (SE 0.48)									-
		Reduced CHO/higher fat	34/40	9.4 (SE 0.6)	9.5 (SE 0.7)			0.707		$\phi$ B $\beta$ cell response to glucose during basal condition	(10 <sup>9</sup> /min)			-
		Standard diet	28/29	9.3 (SE 0.7)	9.1 (SE 0.5)									-

continued: Table 144 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulin sensitivity: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Goree et al., 2011		Reduced CHO/higher fat	34/40	59.8 (SE 6.5)	51.7 (SE 7.2)			0.02		φS Amount of insulin secreted for given amount of glucose in non-basal conditions	(10 <sup>9</sup> /min)			-
		Standard diet	28/29	60.0 (SE 6.3)	71.0 (SE 6.6)									-
		Reduced CHO/higher fat		405.9 (SE 41.7)	391.7 (SE 48.5)			0.20		φD response of the β cell to an increase in glucose	(10 <sup>9</sup> )			-
		Standard diet		566.9 (SE 38.3)	568.9 (SE44.0)									-
		Reduced CHO/higher fat		3.8 (SE 0.4)	3.9 (SE 0.6)			0.502		XO Measure of the amount of insulin released immediately after glucose stimulus	(ng/ml)			-
		Standard diet		5.7 (SE 0.7)	5.5 (SE 0.6)									-
	Reduced CHO/higher fat		130.5 (SE 9.7)	133.8 (SE 11.8)			0.504		SRB basal insulin secretion rate	pg/mL /min			-	

continued: Table 144 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulin sensitivity: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
		Standard diet		131.1 (SE 9.1)	128.4 (SE 8.2)									-
Haufe et al., 2011		Reduced CHO	52/84	Not reported for whole arm		-0.61 (SE 0.18)	<0.01	0.39			HOMA	6 months		Sig reduction, not sig different between groups
		Reduced Fat	50/86	Not reported for whole arm		-0.43 (SE 0.11)	<0.01							
Jebb et al., (2010)		High SFA and high GI	79/137	2.92 (IQR 2.00, 4.39)	2.69 (IQR 2.14, 3.77)	% -4.1 (CI - 12.7, 5.3)		0.21		Insulin sensitivity (si)	[x10 <sup>-4</sup> ml /μU/min]	24 weeks		Very small increase
		High MUFA and high GI	103/145	2.59 (IQR 1.86, 3.50)	2.53 (IQR 1.80, 3.67)	% 2.1 (CI - 5.8, 10.7)				IVGTT				Very small decrease
		High MUFA and low GI	100/144	2.71 (IQR1.77, 3.97)	2.45 (IQR 1.59, 3.81)	% -3.5 (- 10.6, 4.3)								Very small increase
		Low fat and high GI	108/145	2.87 (IQR 2.00-4.46)	2.56 (IQR 1.87, 3.54)	% -8.6 (CI- 15.4, -1.1)								Small decrease
		Low fat and low GI	108/149	2.36 (IQR 1.84-3.79)	2.58 (IQR 1.97, 4.65)	% 9.9 (CI 2.4,18.0)								Small decrease

continued: Table 144 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulin sensitivity: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
		High SFA and high GI	76/137	16 (IQR 12, 19)	15 (IQR 13, 19)	% 2.1 (CI - 5.5, 9.8)		0.81		Insulin – independent glucose disposal	(x10 <sup>-3</sup> /min		Very small increase	
		High MUFA and high GI	99/145	16 (IQR 13, 9)	16 (IQR 13, 19)	% -2.0 (CI - 9.2, 5.2)							Very small decrease	
		High MUFA and low GI	101/144	16 (IQR 14, 19)	16 (IQR 13, 20)	% 1.9 (CI- 5.3, 9.2)							Very small increase	
		Low fat and high GI	104/145	17 (IQR 13,19)	17 (IQR 14, 20)	% 4.9 (CI - 2.8, 12.6)							Small decrease	
		Low fat and low GI	105/149	17 (IQR 13,19)	17 (IQR 13, 20)	% 0.2 (CI - 5.8, 6.3)							Small decrease	
		High SFA and high GI	79/137	0.37 (IQR 0.35, 0.40)	0.37 (IQR 0.35, 0.42)	% 1.4 (CI - 0.4-3.3)		0.94		RQUICKI			Very small increase	
		High MUFA and high GI	105/145	0.37 (IQR 0.35, 0.39)	0.38 (IQR 0.35, 0.41)	% 1.1 (CI - 0.5, 2.8)							Very small decrease	
		High MUFA and low GI	102/144	0.37 (IQR 0.35, 0.40)	0.37 (IQR 0.34, 0.41)	% 1.0 (CI - 0.5-2.6)							Very small increase	
		Low fat and high GI	111/145	0.38 (IQR 0.36, 0.40)	0.38 (IQR 0.36, 0.41)	% 0.5 (CI - 1.1, 2.1)							Small decrease	
		Low fat and low GI	110/149	0.37 (IQR 0.34, 0.41)	0.38 (IQR 0.35, 0.42)	% 1.8 (0.3- 3.3)							Small decrease	

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continued: Table 144 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulin sensitivity: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Shikany et al., (2011)  WHI - DMT		Low fat	645/892	2.5 (SD 1.5)	2.0 (SD 1.5)			NS	-0.1 (SD 2.8)	HOMA		6 years	No change	
		Control	988/1371	2.6 (SD 1.6)	2.1 (SD 1.6)			NS						
		Low fat	645/892	0.335 (SD 0.028)	0.348 (SD 0.038)			NS	0.001 (SD 0.032)	QUICKI				
		Control	988/1371	0.334 (SD 0.029)	0.346 (SD 0.040)			NS						
Tierney et al., (2011)  LIPGENE		High SFA	100/121	3.09 (SE 0.19)	2.89 (SE 0.17)		NS	NS		Si IVGTT	Insulin sensitivity (μl/min)	12 weeks	No change	
		High MUFA	111/126	2.89 (SE 0.17)	2.89 (SE 0.16)		NS						No change	
		Low fat high complex CHO	106/119	2.75 (SE 0.18)	2.79 (SE 0.17)		NS						Small sig decrease	
Tierney et al., (2011)  LIPGENE		High SFA	100/121	2.65 (SE 0.16)	2.82 (SE 0.19)		NS	NS		HOMA-IR		12 weeks	No change	
		High MUFA	111/126	2.59 (SE 0.15)	2.45 (SE 0.18)		NS						No change	
		Low fat high complex CHO	106/119	2.75 (SE 0.15)	2.66 (SE 0.18)		NS						Small sig decrease	

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continued: Table 144 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and insulin sensitivity: RCT results

**Table 145 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and insulin sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Toscani et al., (2011)		Normal protein	9/9	1.8 (IQR 0.88-2.61)	1.71 (IQR 1.05- 3.04)		NS			HOMA		2 months	Significant reduction in both groups	
		High protein	13/13	2.01 (IQR 1.25-2.73)	1.61 (IQR 0.92- 2.63)		NS							
Weickert et al., 2011		Control (low fibre supplement/ 55% energy CHO)	22/28	4.38 (SD 1.68)		+1%	NS	NS		Euglycaemic hyperinsulinemic clamp	M-Value Insulin mediated glucose uptake (mg/kg/min)	6 weeks	No sig difference between groups	-
		High protein group (whey and pea isolate supplement and 40-45% CHO)	22/28	4.21 (SD 1.70)		+9%	P<0.05							
		Control (low fibre supplement/ 55% energy CHO)	22/28	4.38 (SD 1.68)		-1%	NS	NS		Euglycaemic hyperinsulinemic clamp	M-Value Insulin mediated glucose uptake (mg/kg/min)	18 weeks	No sig difference between groups	-
		High protein group (whey and pea isolate supplement and 40-45% CHO)	22/28	4.21 (SD 1.70)		No change	NS							

continued: Table 145 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and insulin sensitivity: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Weickert et al., 2011		Control (low fibre supplement/ 55% energy CHO)	22/28	1.62 (SD 0.14)		+3%	NS	NS		Fasting	(endogenous glucose production) (mg/kg/min)	6 week		
		High protein group (whey and pea isolate supplement and 40-45% CHO)	22/28	1.59 (SD 0.18)		+6%	P<0.05							
		Control (low fibre supplement/ 55% energy CHO)	22/28	1.62 (SD 0.14)		+4%	NS	NS		Fasting	(endogenous glucose production) (mg/kg/min)	18 week		
		High protein group (whey and pea isolate supplement and 40-45% CHO)	22/28	1.59 (SD 0.18)		+10%	P>0.05							

**Table 146 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and Insulin sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Krebs et al., (2010)		High protein low carbohydrate	18/27	4.3 (SD 0.6)	2.8 (SD 0.4)			NS		HOMA		13 weeks	Decreas e	
		Low fat control	15/22	4.9 (SD 0.7)	3.3 (SD 0.4)			NS					Decreas e	

**Table 147 - Higher carbohydrate, average protein vs. lower carbohydrate, higher protein diets and glycosylated blood proteins: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Weickert et al., 2011		Control (low fibre supplement/ 55% energy CHO)	22/28	5.0 (SD 0.3)	NR			NS			HbA1c %	NR	No sig differenc e between groups	-
		High protein group (whey and pea isolate supplement and 40-45% CHO)	22/28	5.1 (SD 0.3)	NR									

**Table 148 - Total sugar intake and glucose tolerance: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Hasson et al 2012	African Americans	Control	15/19	NR		-6.9 (SD 22.3)		NS		2hr glucose	(mg/dl)	16wk	No change	
	Latinos		15/22	NR		0.7 (SD 20.0)								
	African Americans	Nutrition education (high fibre/low sugar)	18/19	NR		7.9 (SD 13.6)		<0.05 Ethnicity interaction						
	Latinos		21/22	NR		-17.0 (SD 26.1)								
	African Americans	Control	15/19	NR		1.9 (SD 36.1)		NS		IAUC	Glucose (mmol/m in/l)	16wk	No change	
	Latinos		15/22	NR		22.1 (SD 41.5)								
	African Americans	Nutrition education (high fibre/low sugar)	18/19	NR		9.8 (SD 31.5)		<0.05 ethnicity interaction						
	Latinos		21/22	NR		-19.3 (35.8)								

**Table 149 - Total sugar intake and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Hasson et al 2012	African American s	Control	15/19	NR		-2.7 (SD 3.6)	NR	Ns		Fasting	Glucose mg/dl	16wk	No change	
	Latinos		15/22	NR		-5.3 (SD 6.6)	NR	Ns						
	African American s	Nutrition education (high fibre/low sugar)	18/19	NR		-2.8 (SD 5.9)	NR	Ns						
	Latinos		21/22	NR		-0.9 (SD 7.6)	NR	ns						

**Table 150 - Sweetened beverage intake and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Maersk et al., (2012)		Regular cola	10/15	5.4 (SEM 0.6)		3.4% (SEM 3.4)	NS			Fasting plasma	Glucose (mmol/l )	6 month	Slight increase -non sig	-
		Diet cola	12/16	5.5 (SEM 0.5)		-1.0% (SEM 3.2)								
		Water	13/17	5.3 (SEM 0.6)		2.3% (SEM 3.2)								

**Table 151 - Total sugar intake and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Hasson et al 2012	African Americans	Control	15/19	NR		2.2 (SD 6.3)		NS		Fasting	Insulin $\mu$ U/ml	16wk	No change	
	Latinos		15/22	NR		-1.0 (SD 13.7)								
	African Americans	Nutrition education (high fibre/low sugar)	18/19	NR		-1.3 (SD 7.5)		NS						
	Latinos		21/22	NR		-2.6 (SD 7.1)								
	African Americans	Control	15/19	NR		-1.2 (SD 82.7)		NS		2hr insulin	Insulin $\mu$ U/ml			
	Latinos		15/22	NR		35.1 (SD 133.0)								
	African Americans	Nutrition education (high fibre/low sugar)	18/19	NR		21.8 (SD 55.0)		NS						
	Latinos		21/22	NR		-80.9 (SD 246.8)								
	African Americans	Control	15/19	NR		18.5 (SD 148.5)		NS		Insulin IAUC	mmol/min/l			
	Latinos		15/22	NR		-8.1 (SD 156.5)								

continued: Table 151 - Total sugar intake and insulinaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
	African Americans	Nutrition education (high fibre/low sugar)	18/19	NR		33.8 (SD184.4)		NS						
	Latinos		21/22	NR		-78.9 (SD 127.2)								
	African Americans	Control	15/19	NR		132.3 (SD 753.8)		NS		Acute insulin response to glucose (AIR)	$\mu\text{U/ml} \times$ 10min			
	Latinos		15/22	NR		199.7 (SD 1433.5)								
	African Americans	Nutrition education (high fibre/low sugar)	18/19	NR		384.3 (SD400.3)		NS						
	Latinos		21/22	NR		29.4 (SD 1153.1)								
	African Americans	Control	15/19	NR		-468.3 (SD 1003.7)		NS		Disposition index	$(\times 10^{-4}/\text{min})$			
	Latinos		15/22	NR		53.3 (SD 1344.3)								
	African Americans	Nutrition education (high fibre/low sugar)	18/19	NR		342.8 (SD 1081.1)		<0.05 compared to control						
	Latinos		21/22	NR		582.9 (SD 1090.5)		<0.05 compared to control						

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continued: Table 151 - Total sugar intake and insulinaemia: RCT results

**Table 152 - Sweetened Beverages intake and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Maersh et al., (2012)		Regular cola	10/15	54.3 (SEM26.7)		17.7% (SEM 24.0)		NS		Fasting plasma	Insulin ( pmol/l)	6 month	Slight increase -non sig	-
		Diet cola	12/16	79.0 (SEM 30.0)		-5.0% (SEM 24.0)								
		Water	13/17	80.6 (SEM 58.0)		13.7% (SEM 23.5)								

**Table 153 - Total sugar intake and insulin resistance/sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Hasson et al 2012	African Americans	Control	15/19	NR		0.4					HOMA	16wk	No change	
	Latinos		15/22	NR		-1.1								
	African Americans	Nutrition education (high fibre/low sugar)	18/19	NR		-0.1		<0.05 Compared to control						
	Latinos		21/22	NR		-0.6		<0.05 compared to control						
	African Americans	Control	15/19	NR		-0.4				Insulin sensitivity index (Si)	[x10 <sup>-4</sup> min <sup>-1</sup> /(μU/ml) ]			
	Latinos		15/22	NR		-0.4								
	African Americans	Nutrition education (high fibre/low sugar)	18/19	NR		0.1								
	Latinos		21/22	NR		0.3								

**Table 154 - Sweetened beverage intake and insulin resistance/sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Maersh et al., (2012)		Regular cola	10/15	1.1 (SEM 0.3)		21.6 % (SEM 18.4)		NS			HOMA-IR	6 month	Slight increase -non sig	-
		Diet cola	12/16	1.9 (SEM 0.3)		-0.4% (SEM 15.7)								
		Water	13/17	1.5 (SEM 0.3)		16.8 % (SEM 15.3)								

**Table 155 - Beta-glucan intake and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Bays et al., (2011)		Lower dose Barliv™ barley betafiber	15/16	130.7 (SEM 3.9)	112.0 (SEM 7.6)	8.3 (SEM 7.3)		0.577		Fasting plasma	Glucose (mg/dL)	Week 12	No change	-
		Higher dose Barliv™ barley betafiber	15/17	99.1 (SEM 2.3)	100.6 (SEM 3.1)	1.5 (SEM 3.0)		0.305						
		placebo	14/17	102.4 (SEM 2.4)	110.1 (SEM 4.4)	7.6 (SEM 4.7)								
Charlton et al., (2012)		Oats high	30/30	4.85 (SD 0.46)	4.81 (SD 0.51)			0.473		Fasting not specified	Glucose (mmol/l)	6 weeks	Adjusted for. No sig differenc e between groups	-
		Oats low	26/28	4.96 (SD 0.53)	4.97 (SD 0.61)									
		Control	31/32	4.86 (SD 0.38)	4.84 (SD 0.32)									

**Table 156 - Beta-glucan intake and impaired glucose tolerance: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Bays et al., (2011)		Lower dose Barliv™ barley betafiber	15/16	NR	NR	10.2% reduction		vs. placebo p=0.011		2hr OGTT	iAUC min*mg/ dl	12 weeks	No change	-
		Higher dose Barliv™ barley betafiber	15/17	NR	NR	NR		vs. placebo p=0.373						
		placebo	14/17	NR	NR	7.5% increase								

**Table 157 - Wholegrain intake and impaired glucose tolerance: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Lankinen et al., (2011)		Control	35/45	6.9 (SD 1.9)	6.7 (SD 2.2)		0.81	0.68		glucose	2 hr tolerance (mmol/l)	12 weeks	NR	
<b>Systimet study</b>		Whole grain enriched diet	34/42	6.6 ( (SD 1.6)	6.1 (SD 1.9)		0.058							

**Table 158 - High fibre diets and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Venn et al., (2010)		Control (healthy diet)	55/57	4.5 (0.5)	4.7 (0.4)			NS		Fasting	Glucose (mmol/l)	6 months	Small increase in both groups. Not sig different between groups	-
		Intervention (healthy diet plus pluses and whole grains)	53/56	4.7 (0.6)	4.9 (0.6)									
Weickert et al., (2011)		Control (low fibre supplement)	22/28	87.9		-3%	0.045			Fasting	Glucose mg/dl	6 weeks	No sig differenc e between groups	
		High cereal fibre supplement	18/28	83.6	80.3	-4%								

**Table 159 - Wholegrain intake and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Tighe et al., (2010))		Refined (control)	63/76	5.63 (SEM 0.09)	5.70 (SEM 0.08)			0.229		glucose	Fasting plasma (mmol/l)	12 weeks	NR	-
		Wholegrain	73/77	5.47 (SEM 0.08)	5.38 (SEM 0.08)									
		Wholegrain and oats	70/73	5.53 (SEM 0.06)	5.49 (SEM 0.05)									
Brownlee et al., (2010)		Control	100/106	5.5 (SD 0.5)	5.5 (SD 0.6)			NS (>0.05)		Glucose	Fasting plasma (mmol/l)	8 weeks	No change	-
		60g/d Wholegrain	85/105	5.6 (SD 0.7)	5.5 (SD 0.8)									
		60g then 120g/d wholegrain	81/105	5.4 (SD 0.7)	5.5 (SD 0.8)									
		Control	100/106	5.5 (SD 0.5)	5.5 (SD 0.6)			NS (>0.05)				16 weeks	No change	-
		60g/d Wholegrain	85/105	5.6 (SD 0.7)	5.4 (SD 1.0)									
		60g then 120g/d wholegrain	81/105	5.4 (SD 0.7)	5.4 (SD 0.5)									

continued: Table 159 - Wholegrain intake and glycaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Kristensen et al., 2012)		Refined wheat	34/37	5.63(SEM 0.07)	5.56 (SEM 0.07)		NS	NS		glucose	Fasting plasma (mmol/l)	6 weeks	Small non sig decrease	-
		Wholegrain wheat	38/42	5.73 (SEM 0.09)	5.73 (SEM 0.09)		NS							
		Refined wheat	34/37	5.63(SEM 0.07)	5.55 (SEM 0.07)		NS	NS				12 weeks	Sig decrease in both groups	
		Wholegrain wheat	38/42	5.73 (SEM 0.09)	5.70 (SEM 0.09)		NS							
Lankinen et al., (2011)  <b>Systimet study</b>		Control	35/45	6.2 (SD 0.5)	6.2 (SD 0.5)		0.81	0.90		glucose	Fasting plasma (mmol/l)	12 weeks	NR	
		Whole grain enriched diet	34/42	6.1 (SD 0.4)	6.1 (SD 0.5)		0.99							

**Table 160 - Legume intake and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Hermsdorff et al., (2011)		Legume restricted diet	15/15	92.4 (SD 9.6)	89.7 (SD 6.7)			0.298	P= 0.727	Fasting plasma	Glucose mg/dl	8 weeks	Slight decrease both groups	-
		Legume based diet	15/15	93.2 (SD 5.7)	92.4 (SD 5.3)									

**Table 161 - Beta-glucan intake and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Bays et al., (2011)		Lower dose Barliv™ barley betafiber	15/16	8.7 (SEM 1.6)	8.3 (SEM 1.6)	-0.4 (SEM 0.8)		0.091		Fasting plasma	Insulin ( $\mu$ U/ml)	12 weeks	No change	-
		Higher dose Barliv™ barley betafiber	15/17	8.3 (SEM 1.6)	6.7 (SEM 1.3)	-1.6 (SEM) 1.0)		0.008						
		placebo	14/17	6.5 (SEM 1.1)	8.6 (SEM 1.8)	2.1 (SEM 1.2)								
Charlton et al., (2012)		Oats high	30/30	8.92 (SD 3.91)	8.45 (SD 7.43)			0.435		Fasting serum	Insulin (pmol/l)	6 weeks	Adjusted for. No sig differenc e between groups	-
		Oats low	26/28	10.16 (SD 8.29)	8.31 (SD 8.93)									
		Control	31/32	9.10 (SD 4.86)	7.69 (SD 4.46)									

**Table 162 - Wholegrain intake and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Tighe et al., (2010))		Refined (control)	63/76	7.4 (IQR 4.4, 11.4)	7.8 (IQR 4.8, 12.0)			0.778		Insulin	(mU/L)	12 weeks	NR	-
		Wholegrain	73/77	4.7 (IQR 3.0, 8.5)	6.1 (IQR 3.1, 9.9)									
		Wholegrain and oats	70/73	5.6 (IQR 3.7, 8.6)	5.1 (IQR 3.2, 8.0)									
Brownlee et al., (2010)		Control	100/106	59.2 (SD 34.3)	62.3 (SD 47.2)			NS (>0.05)		insulin	(pmol/l)	8 weeks	No change	-
		60g/d Wholegrain	85/105	53.7 (SD 53.4)	55.8 (SD 58.1)									
		60g then 120g/d wholegrain	81/105	49.6 (SD 33.0)	54.2 (SD 30.8)									
		Control	100/106	59.2 (SD 34.3)	59.6 (SD 66.1)			NS (>0.05)				16 weeks	No change	-
		60g/d Wholegrain	85/105	53.7 (SD 53.4)	50.5 (SD 46.0)									
		60g then 120g/d wholegrain	81/105	49.6 (SD 33.0)	57.7 (SD 32.1)									

continued: Table 162 - Wholegrain intake and insulinaemia: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Kristensen et al., 2012)		Refined wheat	34/37	7.45 (SEM 0.26)	7.59 (SEM 0.26)		NS	NS		insulin	(pmol/l)	6 weeks	Small non sig decrease	-
		Wholegrain wheat	38/42	7.62 (SEM 0.24)	7.76 (SEM 0.26)		NS							
		Refined wheat	34/37	7.45 (SEM 0.26)	7.20 (SEM 0.29)		NS	NS				12 weeks	Sig decrease in both groups	
		Wholegrain wheat	38/42	7.62 (SEM 0.24)	7.37 (SEM 0.30)		NS							
Lankinen et al., (2011)		Control	35/45	12.8 (SD 6.6)	13.2 (SD 6.3)		0.81	0.73		insulin	Fasting (mU/l)	12 weeks	NR	
	<b>Systimet study</b>	Whole grain enriched diet	34/42	12.0 (SD 6.2)	13.7 (SD 8.0)		0.16							

**Table 163 - Legume intake and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Hermsdorff et al., (2011)		Legume restricted diet	15/15	10.5 (SD 10)	8.2 (SD 4.3)			0.163	P=0.752	Fasting Plasma	Insulin ( $\mu$ U/ml)	8 weeks	Slight decrease both groups	-
		Legume based diet	15/15	7.5 (SD 3.8)	5.9 (SD 4.0)									

**Table 164 - Total fibre intake and insulin resistance/sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Weickert et al., 2011		Control (low fibre supplement)	22/28	4.38 (SD 1.68)		+1%	NS	NS		Euglycaemic hyperinsulinemic clamp	Insulin mediated glucose uptake  (mg/kg/min)	6 weeks	No sig difference between groups	-
		High cereal fibre supplement	18/28	4.42 (SD1.65)		+16%	P<0.05				M-Value			-
		Control (low fibre supplement)	22/28	4.38 (SD 1.68)		-1%	NS	NS		Euglycaemic hyperinsulinemic clamp	Insulin mediated glucose uptake  (mg/kg/min)	18 weeks	No sig difference between groups	-
		High cereal fibre supplement	18/28	4.42 (SD1.65)		+6%	P=<0.05				M-Value			-

continued: Table 164 - Total fibre intake and insulin resistance/sensitivity: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Weickert et al., 2011		Control (low fibre supplement)	22/28	1.62 (SD 0.14)		+3%	NS	NS		Fasting	(endogenous glucose production (EGP) (mg/kg/min)	6 weeks		No sig difference between groups
		High cereal fibre supplement	18/28	1.61(SD 0.16)		+3%	NS							
		Control (low fibre supplement)	22/28	1.62 (SD 0.14)		+4%	NS	NS		Fasting	(endogenous glucose production (EGP) (mg/kg/min)	18 weeks		No sig difference between groups
		High cereal fibre supplement	18/28	1.61(SD 0.16)		+2%	NS							

**Table 165 - Beta-glucan intake and insulin resistance/sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Bays et al., (2011)		Lower dose Barliv™ barley betafiber	15/16	2.3 (SEM 0.5)	2.3 (SEM 0.5)	0.0 (SEM 0.3)		0.130			HMOA-IR	12 weeks	No change	-
		Higher dose Barliv™ barley betafiber	15/17	2.1 (SEM 0.4)	1.7 (SEM 0.3)	-0.4 (SEM 0.3)		0.014						
		placebo	14/17	1.7 (SEM 0.3)	2.4 (SEM 0.5)	0.7 (SEM 0.3)								

**NOTE:** Charlton et al., 2012 do not report the HOMA scores but report that there was no significant difference between groups for time, group or interaction ( $p>0.05$ )

**Table 166 - Wholegrain intake and insulin resistance/sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Tighe et al., (2010))		Refined (control)	63/76	2.30 (SEM 0.29)	2.29 (SEM 0.23)			0.840			HOMA- IR	12 weeks	NR	-
		Wholegrain	73/77	2.18 (SEM 0.37)	1.97 (SEM 0.28)									
		Wholegrain and oats	70/73	1.81 (SEM 0.19)	1.73 (SEM 0.18)									
		Refined (control)	63/76	0.239 (SEM 0.004)	0.239 (SEM 0.004)			0.225			Revised QUICKI	12 weeks	NR	-
		Wholegrain	73/77	0.247 (SEM 0.003)	0.245 (SEM 0.004)									
		Wholegrain and oats	70/73	0.248 (SEM 0.003)	0.245 (SEM 0.003)									
Brownlee et al., (2010)		Control	100/106	0.38 (SD 0.06)	0.39 (SD 0.05)			NS (>0.05)			Modified QUICKI	8 weeks	No change	-
		60g/d Wholegrain	85/105	0.38 (SD 0.05)	0.39 (SD 0.04)									
		60g then 120g/d wholegrain	81/105	0.40 (SD 0.05)	0.39 (SD 0.05)									
		Control	100/106	0.38 (SD 0.06)	0.38 (SD 0.05)			NS (>0.05)				16 weeks		-
		60g/d Wholegrain	85/105	0.38 (SD 0.05)	0.39 (SD 0.04)									

continued: Table 166 - Wholegrain intake and insulin resistance/sensitivity: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
		60g then 120g/d wholegrain	81/105	0.40 (SD 0.05)	0.39 (SD 0.05)									
(Kristensen et al., 2012)		Refined wheat	34/37	2.01 (SEM 0.21)	1.98 (SEM 0.22)		NS	NS			HOMA- IR	6 weeks		Small non sig decrease
		Wholegrain wheat	38/42	1.91 (SEM 0.15)	1.89 (SEM 0.16)		NS							
		Refined wheat	34/37	2.01 (SEM 0.21)	1.80 (SEM 0.17)		NS	NS				12 weeks		Sig decrease in both groups
		Wholegrain wheat	38/42	1.91 (SEM 0.15)	1.80 (SEM 0.17)		NS							
Lankinen et al., (2011)		Control	35/45	3.6 (SD 2.0)	3.7 (SD 1.9)		0.89	0.73			HOMA- IR	12 weeks	NR	
<b>Systimet study</b>		Whole grain enriched diet	34/42	3.3 (SD 1.7)	3.7 (SD 2.3)		0.16							
		control	35/45	0.32 (SD 0.03)	0.32 (SD 0.02)		0.81	0.90			QUICKI	12 weeks	NR	
		Whole grain enriched diet	34/42	0.33 (SD 0.02)	0.32 (SD 0.03)		0.16							

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**Table 167 - Legume intake and insulin resistance/sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Hermsdorff et al., (2011)		Legume restricted diet	15/15	2.1 (SD 1.7)	1.6 (SD 1.0)			0.200	P=0.643		HOMA-IR	8 weeks	Slight decrease both groups	-
		Legume based diet	15/15	1.8 (SD 0.9)	1.6 (SD 0.9)									

**Table 168 - Total fibre intake and glycosylated proteins: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Weickert et al., 2011		Control (low fibre supplement)	22/28	5.0 (SD 0.3)	NR			NS			HbA1c %	NR		No sig differenc e between groups
		High cereal fibre supplement	18/28	5.1 (SD 0.4)	NR									

**Table 169 - Wholegrain intake and glycosylated proteins: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Kristensen et al., 2012)		Refined wheat	34/37	5.62 (SEM 0.03)	5.59 (SEM 0.03)			NS			HbA1c %	6 weeks	Small non sig decrease	
		Wholegrain wheat	38/42	5.63 (SEM 0.04)	5.62 (SEM 0.03)									
		Refined wheat	34/37	5.62 (SEM 0.03)	5.71 (SEM 0.03)			NS				12 weeks	Sig decrease in both groups	
		Wholegrain wheat	38/42	5.63 (SEM 0.04)	5.72 (SEM 0.03)									

**Table 170 - High viscosity polysaccharides and inulin intake and impaired glucose tolerance: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Lyon et al., 2011)		High viscosity polysaccharide	29/30	6.02 (SD 1.59)	5.88 (SD 1.48)			NS		2hr 75g OGTT	Glucose (mmol/l)	15 weeks	No significan t change overall	-
		Inulin	30/30	6.12 (SD 1.36)	5.64 (SD 1.35)									

**Table 171 - Resistant starch intake and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Penn- Marshall, (2010)		Hi-Maize 260 RS bread	15/17	99.86 (SEM 2.63)	98.8 (SEM 3.11)			0.057		Fasting plasma	Glucose (mg/dL)	6 weeks	No significan t change	-
		Control bread	15/17	99.86 (SEM 2.63)	92.13 (SEM 2.39)		0.018							

**Table 172 - Psyllium intake and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Pal et al., (2011)		Control	15/18	5.6 (SEM 0.2)	Reported graphically		NS	NS		Fasting serum	Glucose (mmol/l)	6 weeks	No sig diff at week 6	-
		Fibre supplement	16/18	6.5 ( SEM 0.2)	Reported graphically									
Pal et al., (2011)		Control	15/18	5.6 (SEM 0.2)	Reported graphically		NS	NS		Fasting serum	Glucose (mmol/l)	12 weeks	Significan tly lower in intervent ion group (p=0.007)	-
		Fibre supplement	16/18	6.5 ( SEM 0.2)	Reported graphically									

**Table 173 - High viscosity polysaccharide and inulin intake and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Lyon et al., 2011)		High viscosity polysaccharide	29/30	5.27 (SD 0.38)	5.19 (SD 0.48)			NS		Fasting	Glucose (mmol/l)	15 weeks	No significan t change overall	-
		Inulin	30/30	5.15 (SD 0.47)	5.08 (SD 0.46)									

**Table 174 - Resistant starch intake and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Penn- Marshall, (2010)		Hi-Maize 260 RS bread	15/17	13.52 (SEM 2.61)	10.99 (SEM 1.43)		NS (p>0.05)	NS (p>0.05)		Fasted	Insulin ( $\mu$ U/mL)	6 weeks	No significan t change	-
		Control bread	15/17	13.52 (SEM 2.61)	9.84 (SEM 1.42)		NS (p>0.05)							

**Table 175 - High viscosity polysaccharide and inulin intake and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Lyon et al., 2011)		High viscosity polysaccharide	29/30	8.29 (SD 2.91)	9.42 (SD 4.28)		NS	NS		Fasting	Insulin (mU/l)	15 weeks	No significan t change overall	-
		Inulin	30/30	8.64 (SD 4.63)	10.16 (SD 6.26)									

**Table 176 - Psyllium intake and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Pal et al., (2011)		Control	15/18	18.2 (SEM 1.8)	18.27		NS	NS		Fasting serum	Insulin ( $\mu$ UI/ml)	6 weeks	No sig diff at week 6	-
		Fibre supplement	16/18	19.4 (SEM 1.7)	19.53		NS							-
Pal et al., (2011)		Control	15/18	18.2 (SEM 1.8)	19.89		NS	NS		Fasting serum	Insulin ( $\mu$ UI/ml)	12 weeks	Significan tly lower in intervent ion group (p=0.007)	-
		Fibre supplement	16/18	19.4 (SEM 1.7)	19.19		NS							

**Table 177 - Resistant starch intake and insulin resistance/sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
Johnston et al., (2010)		Placebo	10/10	70.5 (SEM 4.05)	70.1 (SEM 5.68)			NS			HOMA %S	12 weeks	No significant change	-
		Resistant starch	10/10	68.5(SEM 4.98)	80.2 (SEM 12.7)									
		Placebo	10/10	165 (SEM 19.9)	176 (SEM 24.2)			NS			HOMA %B			
		Resistant starch	10/10	164 (SEM 24.3)	162 (SEM 12.7)									
		Placebo	10/10	7.7 (SEM 1.6) x10 <sup>-2</sup>	6.6 (SEM 1.5) x10 <sup>-2</sup>			0.023		Hyperinsulinaemic- euglycaemic clamp	Insulin sensitivity (mg/(min kg pmol))			
		Resistant starch	10/10	5.8 (SEM 7.2) x10 <sup>-3</sup>	6.7 (SEM 8.1) x10 <sup>-3</sup>									

continued: Table 177 - Resistant starch intake and insulin resistance/sensitivity: RCT results

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias	
Penn- Marshall., (2010)		Hi-Maize 260 RS bread	15/17	3.51 (SEM 0.76)	2.69(SEM 0.35)		NS	NS (P=0.14)			HOMA-IR	6 weeks	No significant change		
		Control bread	15/17	3.51 (SEM 0.76)	2.23 (SEM 0.29)		NS								
		Hi-Maize 260 RS bread	15/17	43.26 (SEM 8.07)	36.77 (SEM 5.70)		NS	NS (p=0.59)			HOMA - Beta				
		Control bread	15/17	43.26 (SEM 8.07)	35.73 (SEM 6.69)		NS								

**Table 178 - Glycaemic index and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result-specific follow-up	Weight Change	Outcome Assessment Bias
(Krog-Mikkelsen et al., 2011)		Low GI	14/15	4.65±0.08	4.82±0.08	0.17±0.07				glucose	Fasting plasma (mmol/l)	10 week	Significant decrease from baseline	-
		High GI	15/15	4.85±0.13	4.75±0.09	- 0.10±0.07		<0.05					Significant decrease from baseline	

**Table 179 - Glycaemic load and glycaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Vrolix et al 2010)	Decreased GI foods		15/20	Men (n=9) 6.17±0.53, Women (n=6) 5.53±0.34.	5.76±0.64			0.576		glucose	Fasting (mmol/l)	11 weeks	Small increase	-
	Increased GI foods		15/20	Men (n=9) 6.17±0.53, Women (n=6) 5.53±0.34.	5.83±0.57								Small increase	

**Table 180 - Glycaemic index and insulinaemia: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Krog- Mikkelsen et al., 2011)	Low GI		14/15	36.8 $\pm$ 3.76	26.5 $\pm$ 2.72	-10.3 $\pm$ 2.95			NS	insulin	Serum (pmol/L)	10 week		Significant decrease from baseline
	High GI		15/15	41.1 $\pm$ 4.75	27.8 $\pm$ 2.77	-13.3 $\pm$ 3.82			NS					Significant decrease from baseline
(Vrolix et al 2010)	Decreased GI foods		15/20	Men (n=9) 10.5 $\pm$ 4.12, Women (n=6) 6.59 $\pm$ 2.92	9.83 $\pm$ 5.08			0.292		insulin	Fasting insulin (mU/l)	11 weeks		Small increase
	Increased GI foods		15/20		8.33 $\pm$ 2.78									Small increase

**Table 181 - Glycaemic index and insulin resistance/sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Krog- Mikkelsen et al., 2011)		Low GI	14/15	1.1 $\pm$ 1.0	0.8 $\pm$ 0.1	-0.3 $\pm$ 0.1			NS		HOMA - R	10 week		Significan t decrease from baseline -
		High GI	15/15	1.3 $\pm$ 0.2	0.9 $\pm$ 0.1	-0.4 $\pm$ 0.1			NS					Significan t decrease from baseline
		Low GI	14/15	100 $\pm$ 13	61 $\pm$ 8	-39 $\pm$ 8			NS		HOMA - $\beta$ ,%	10 week		Significan t decrease from baseline -
		High GI	15/15	95 $\pm$ 14	65 $\pm$ 6	-30 $\pm$ 13			NS					Significan t decrease from baseline

**Table 182 - Glycaemic load and insulin sensitivity: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Vrolix et al 2010)	Decreased GI foods		15/20	NR	2.52±1.22			0.336		?	HOMA-IR	11 weeks	Small increase	-
	Increased GI foods		15/20	NR	2.18±0.87								Small increase	

**Table 183 - Glycaemic load and glycosylated blood proteins: RCT results**

Author/ Results Number	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome/ Assessment method	Result/ Outcome details	Result- specific follow-up	Weight Change	Outcome Assessment Bias
(Vrolix et al 2010)		Decreased GI foods	15/20	NR	5.75±0.26			1.00		Hb A1c	Plasma %	11 weeks	Small increase	-
		Increased GI foods	15/20	NR	5.75±0.29								Small increase	

## 7. Cardio-metabolic health update search - body weight, body fatness and fat distribution

**Table 184 - Characteristics of cohort studies on body weight, body fatness and fat distribution**

Study name	Reference	Country	Subjects age	Length of follow-up (years)	Gender	Dietary assessment method	Method of body weight assessment	Total number of cohort participants at baseline*	Loss of cohort members to follow-up %
Amsterdam Growth and Health Longitudinal Study	(Veldhuis <i>et al.</i> , 2010)	The Netherlands	First and second year secondary school children  Mean age: 13.1 at baseline  Ethnicity: Not reported	24	%Male: 47	Cross-check diet history face to face interview, data reflected the previous months intake.	Measured with a flexible steel tape at the level midway between the lowest rib margin & the iliac crest.	600	Not reported
The CARDIA study	(Duffey <i>et al.</i> , 2010)	USA	18-30 (mean age 25)	20	%Male: 46.5	Diet assessed through semi quantitative interviewer administered FFQ, The FFQ referred to diet over the previous month and was reported to be validated.	Measured as the average of 2 measures at the minimal girth from participants standing upright	5115	Not reported
European Prospective Investigation into Cancer (EPIC) – DiOGenes (Diet, obesity and genes) project	(Du <i>et al.</i> , 2010)	Italy, UK, Netherlands, Germany, Denmark	20-78, mean age 53	6.5	%Male 42%	FFQ	At baseline measured by trained technician. At follow up measured by trained technician in the UK & Netherlands, self-reported in other countries.	102346	Not reported
Jiangsu Nutrition Study	(Shi <i>et al.</i> , 2012)	China	48.2y	5	%Male 46.5	Diet over the previous year was assessed using a validated 33-item FFQ	Measured by trained and certified field workers using standard protocols and techniques.	2849	40.9

continued: Table 184 - Characteristics of cohort studies on body weight, body fatness and fat distribution

Study name	Reference	Country	Subjects age	Length of follow-up (years)	Gender	Dietary assessment method	Method of body weight assessment	Total number of cohort participants at baseline*	Loss of cohort members to follow-up %
National Growth and Health Study + Cincinnati ancillary	(Morrison <i>et al.</i> , 2010)	USA	Schoolgirls  Mean age: (9-10)  %Male: 0  Ethnicity: African American and Caucasian	15	%Male 0%	Not reported in the paper	Not reported	Not reported	Not reported
National Heart, Lung and Blood Growth and Health Study (NGHS)	(Franko <i>et al.</i> , 2011)	USA	9-10	10	% male: 0 Ethnicity: 51% black	3-day validated food records collected at study year 1-5, 7, 8 and 10.	Not reported	2379	Not reported

**Table 185 - Total carbohydrate intake and body weight: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean)  %Male	(Cases) /Total	Follow Up (% loss)	Diet Assess- ment	Percentage energy from CHO Exposure	Outcome/ Assessment Details	Sub-group detail	Contrast (mean)	Exposure Units	Mean outcome (SD)	Beta coefficient (SE)/(CI)	p	p tren d	Adjustments
Morrison et al., 2010  National Growth and Health Study + Cincinnati ancillary	USA, African- American and Caucasian,	9-10  %M 0	554	15	Not reporte d	Percentage energy from CHO	BMI change in 14 years		Continuous risk assessment		-0.31			<0.0 001	Bivariate analysis

**Table 186 - Dietary fibre, including cereal fibre & fruit and vegetable fibre intake and body weight: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR/mean change (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Du et al., 2010 (EPIC)	Italy, UK, Netherlan ds, Germany, Denmark	20-78y (53y) 42% M	89432		FFQ	Total fibre g/d  (AOAC, except for UK Englyst)	Change in weight baseline to follow up (g/year)		Continuous	g/day	-39g/y (95%CI - 71, -7g/y)	10			Baseline age, weight and height, sex, smoking, education, physical activity, follow up duration, alcohol, fat, carbohydrate, protein and GI. For women menopausal status and use of HRT
	Italy, UK, Netherlan ds, Germany, Denmark	20-78y (53y) 42% M	89432		FFQ	Cereal fibre g/d  (AOAC, except for UK Englyst)	Change in weight baseline to follow up (g/year)		Continuous	g/day	-77g/y (95%CI - 127, - 26g/y)	10			As above additionally fruit and vegetable fibre and fibre from other sources.
	Italy, UK, Netherlan ds, Germany, Denmark	20-78y (53y) 42% M	89432		FFQ	Fruit & vegetable fibre g/d  (AOAC, except for UK Englyst)	Change in weight baseline to follow up (g/year)		Continuous	g/day	2g/y (95%CI - 40, - 44g/y)	10			As above additionally cereal fibre and fibre from other sources.

**Table 187 - Rice intake and body weight: cohort results**

Result ID/ Reference/ Cohort Name	Country, Ethnicity, Inclusion criteria	Age range (mean ) %Male	(Cases ) / Total	Follow Up (% loss)	Diet Assessm ent	Exposure	Outcome/ Assessment Details	Subgroup detail	Contrast (mean)	Exposure Units	Beta coefficient (SE)/(CI)	p	Adjustments
Shi et al., 2012 Jiangsu Nutrition Society (JIN)	China, Chinese, non DM, stroke, cancer, extreme wt. change (>20kg)	20+ years,  %M: 45.8	1231	40.9%	FFQ (33)	Rice	Change in body weight		≥401 vs. 0-200	g/day	-2.08 (-2.75, -1.41)	<0.00 1	Baseline weight, gender, age, smoking, alcohol, active commuting, leisure time physical activity, education, occupation & energy intake
Shi et al., 2012						Rice in staple foods	Change in body weight		Continuou s	Per 10% increase	-0.28 (-0.37, -0.19)	<0.00 1	Baseline weight, gender, age, smoking, alcohol, active commuting, leisure time physical activity, education, occupation & energy intake

**Table 188 - Fibre intake and waist circumference: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Exposu re units	Mean outcome (SD)	Beta coefficie nt (SE)/(CI)	p	p trend	Adjustments
Veldhuis et al., 2010 Amsterdam Growth and Health Longitudinal Study	Netherla nds, Primarily white, no selection criteria used.	(13.1) %Male 47	(NR)/36 8	24 (NR)	Diet history and face to face intervi ew	Fibre intake method not reported	Non- fatal	Waist circumferenc e		Continuous	g/4.0M J	9.9 (8.6- 11.3 interquar tile range)	-0.44 (95%CI - 0.85,- 0.04)	0.0 3		Gender, physical activity, smoking & alcohol intake

**Table 189 - Cereal intake and waist to height ratio: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	Estimate d waist: height ratio (CI)	Mean Exposure (SD)	p	p trend	Adjustments
Nation al Heart, Lung and Blood Growth and Health Study (NGHS)  (Franko et al., 2011)	USA  Ethnicit y: black	9-10	2371	Not reporte d	3-day validat ed food records collect ed at study year 1- 5, 7, 8 and 10.	Cereal consumption	Non- fatal	Waist to height ratio		3days vs. 0days	No. of days consu med out of 3 days	0.440 (95%CI 0.439, 0.449)		P< 0.0 5		Study site, age, parental education, age of menarche, number of parents in the household, physical activity, energy intake, intake of fibre, fruit, vegetables and milk, no. of days eating breakfast.

**Table 190 - Sugar sweetened beverage intake and waist circumference: cohort results**

Result ID/ Reference/ Cohort Name	Country, ethnicity, Inclusion criteria	Age range (mean) %Male	(Cases)/ analytic cohort	Follow Up (% loss)	Diet Assess- ment	Exposure	Fatal / Non- fatal Events	Outcome/ Assessment Details	Sub- group Detail	Contrast (mean)	Units	RR (CI)	Mean Exposure (SD)	p	p trend	Adjustments
<b>The CARDIA study</b>  Duffey et al 2010	USA, Multi- ethnic, no pregnant women	18-30 (25)	(637)/ 2444	Not reporte d	Diet assessed through semi quantitati ve interviewe r administe red FFQ, The FFQ referred to diet over the previous month and was reported to be validated.	Sugar sweetened beverages	Non- fatal	Waist circumferenc e (cm)		Quartile average	Not reporte d	1.09 (95%CI 1.04, 1.15)			P<0.00 1	Race, sex, exam centre, year 0 age, weight, smoking, EI, PA, energy from milk, fruit juice and alcohol
						Fruit juice						1.00 (95%CI 0.92, 1.09)		0.999		As above but adjusted for milk, SSB and alcohol

**Table 191 - Characteristics of RCTs on body weight, body fatness and fat distribution**

Authors, Study Name	Subject Inclusion Criteria	Characteristics of Participants	Trial Design (washout duration)	Intervention Duration	Intervention style/ Energy restriction goal?	Total No. Subjects	Intervention Group Names	Intervention Description	Diet/Supplement Nutritional Characteristics	Consumption data provided ?	Funding Source
(Belski <i>et al.</i> , 2011)	Overweight and obese (BMI 27-35 kg/m <sup>2</sup> , healthy, 20-71 yrs. No CVD or peripheral vascular disease, diabetes, hypertension, use of antihypertensive drugs, TC >6.2 mmol/l or triglycerides >2.0mmol/l, lipid lowering medications.	Country: Australia %Male: 51.9 Age: 46.7 control, 46.5 Lupin BMI: 31.4 Control, 31.3 lupin	Parallel	12 months (4 months weight loss, 8 months weight maintenance- <i>ad libitum</i> diet)	Foods provided, free living diet plan	131	1.Control  2.Lupin	1. Consumed products- bread, biscuits and pasta with wheat, primarily wholewheat, flour.  2. Consumed foods enriched with lupin flour in place of other foods- bread, biscuits and pasta	1. g/d CHO 218, P 95, F66  Fibre 25 g/d, Energy 8.3 MJ  2. g/d CHO 191, P 110, F 69  Fibre 39 g/d, Energy 8.2 Mj	Yes	Western Australian Government, Department of Industry and Resources
(Foster <i>et al.</i> , 2010)	18-65 years, BMI 30-40, body weight <136kg  No T2D, lipid lowering or obesity medication , hypertensives.	USA % Male: 32%  Age 45.5 BMI 36.1  74.9% white  22.1% African American	Parallel	24 months	Dietary advice	307	1. Low carbohydrate diet  2. Low fat diet	1. Atkins style diet  2. Limited energy intake to 1200 to 1500kcal/day for women and 1500 to 1800kcal/d for men.	1. Limited CHO intake of 20g/d in form of low GI vegetables for 1 <sup>st</sup> 12weeks. After then CHO was increased by 5g/d per week until a stable desired weight was achieved.  2. Target %E: C 50, F 30, P 15	No	National Institutes of Health
(Howard <i>et al.</i> , 2010)  WHI Dietary Modification Trial (Shikany <i>et al.</i> , 2011 reports same data but on fewer subjects)	Age 50-79y Fat intake >32% of total energy, Post-menopausal	USA % Male: 0%  Age 50-79	Parallel Group	6 years	Free living diet plan	48,835 (2730 with blood samples)	1. Low fat  2. Control	1. Advice: reduce fat intake to 20%, increase fruit, vegetables and wholegrains  2. Received information relating to health and healthy diets	1. %E: C 53.9 P 17.7 F 29.3 Energy 1424 kcal/d Fibre g/d:16.7  2. %E: C 46.3 P 17.0 F 37 Energy 1526 kcal/d Fibre g/d:14.1	Yes	National Heart, Lung, and Blood Institute

continued: Table 191 - Characteristics of RCTs on body weight, body fatness and fat distribution

Authors, Study Name	Subject Inclusion Criteria	Characteristics of Participants	Trial Design (washout duration)	Intervention Duration	Intervention style/ Energy restriction goal?	Total No. Subjects	Intervention Group Names	Intervention Description	Diet/Supplement Nutritional Characteristics	Consumption data provided ?	Funding Source
(Klemsdal <i>et al.</i> , 2010)	BMI: men 28-40 BMI: women 28-35. At least 1 criterion of metabolic syndrome(NECP definition).  No CVD, no DM requiring medication, no lipid lowering or weight management meds in previous 12 wks, no eating disorders.	Norway  42% Male  Age: 30-65	Parallel group	1 year	Free living diet plan	202	1. Low GL diet  2. Low fat diet	1. Advice for a third of plate protein (all meals), 1 meal - third of plate low GI CHO and third vegetables/ legumes. Other 2 meals- 2 thirds plate vegetables/ legumes.  2. Nordic dietary guidelines and recommended un refined high fibre CHO's ( but not those with low GI)	Target intakes  1. %E: C30-35 P25-30 F35-40  2. %E: C55-60 P15 F<30	No	Norwegian National Research Council
(Lim <i>et al.</i> , 2010)	20-65 years with at least one CVD risk factor, BMI 28-40kg/m <sup>2</sup> . No hypoglycaemic medication or drugs affecting insulin sensitivity, history of metabolic or CHD, type 1 or type 2 diabetes.	Australia  Male: 16.3%  Age: 47  BMI: 32	Parallel	15 months	Free living diet plan	113	1. Very low carbohydrate diet (VLC)  2. Very low fat diet (VLF)  3. High unsaturated fat diet (HUF)  4. Control – no intervention	1. %E: C4, P35, F60  2. %E: C70, P20, F10  3. %E: C50, P20, F30	Achieved intakes  1. E: 6841kj, %E: C36.5, P23.9, F37.1  2. E: 7936 kj, %E: C50.5, P19.6, F28.3  3. E: 6593kj, %E: C43.2, P24.4, F30.3	yes	National Heart Foundation, Australia & CSIRO Health Sciences and Nutrition, Australia

continued: Table 191 - Characteristics of RCTs on body weight, body fatness and fat distribution

Authors, Study Name	Subject Inclusion Criteria	Characteristics of Participants	Trial Design (washout duration)	Intervention Duration	Intervention style/ Energy restriction goal?	Total No. Subjects	Intervention Group Names	Intervention Description	Diet/Supplement Nutritional Characteristics	Consumption data provided ?	Funding Source
(Venn <i>et al.</i> , 2010)	BMI ≥28, fasting blood glucose <6.1mmol/l, 2hr OGTT <11.1mmol/l	Country: New Zealand  % Male :14  Age: 42	parallel	6 mo with twice weekly counselling sessions	Substitution of foods	113	1.Control  2. Intervention	1. Instructed to follow National Heart Foundation of New Zealand guidelines (to eat at least 3 servings veg, 3 servings fruit, 6 servings bread/cereals, 2 servings low fat milk or dairy, 1-2 servings protein, 1-2tbsp unsaturated fats, small amount nuts per day.  2.Similar advice to control except instructed to consume 2 servings of pulses as a substitution for 2 servings bread/ cereals and all other breads and cereals to be wholegrain.	Used 12 mo values:  1. %E CHO 52, Fat 26% energy, protein 20% energy, fibre 23g  kJ/d 6508  2. CHO 51% energy, Fat 27% energy, protein 20% energy, fibre 25g  kJ/d 6350	yes	New Zealand Foundation for Research, Science and Technology and the Lifestyle Foods program industry partners.
(Wycherley <i>et al.</i> , 2010)	BMI 26-43  Abdominal obesity & at least one metabolic syndrome risk factor.  No history of liver, cardiovascular, peripheral vascular, respiratory, or gastrointestinal disease, or diabetes. Not pregnant, no malignancy or smokers.	Australia  35% Male  Age: 24-64	Parallel group	1 year	Free living diet plan	49	1. Very low carbohydrate , high saturated fat diet  2. isocaloric high carbohydrate , low fat diet	Diets designed to be isocaloric with moderate energy restriction.  1. % E: C4 P35 F61 with objective to restrict CHO to <20g/day for first 8wks, with option to increase CHO to <40g/day for rest of study.  2. %E: C46 P24 F30 with objective to restrict SFA to <10g/day for study duration, with inclusion of an approved food exchange (equivalent to energy content of 20g CHO) between wks 8 & 52.	Achieved intakes  1. E: 6694kj/day, C: 30.4g/day, P:130.4g/day, F: 102.1g/day, SFA: 37.3g/day  2. E: 6433kj/day, C: 166.9g/day, P: 87.7g/day, F:47.4g/day, SFA: 11.4g/day	yes	National Heart Foundation of Australia & National Health and Medical Research Council of Australia.

**Table 192 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diet and body weight: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Foster <i>et al.</i> , 2010		1. Low carbohydrate diet	113/153	103.5 (SD 14.4)		-10.87 (95%CI - 12.1 to - 9.67)		0.95		Body weight	Measured by standard methods (kg)	1 year	Decrease	
		2. Low fat diet	115/154	103.3 (SD 15.5)		-10.81 (95%CI - 12.4 to - 9.28)						1 year	Decrease	
		1. Low carbohydrate diet	113/153	103.5 (SD 14.4)		-6.34 (95%CI - 8.06 to - 4.63)		0.41		Body weight	Measured by standard methods (kg)	2 years	Decrease	
		2. Low fat diet	105/154	103.3 (SD 15.5)		-7.37 (95%CI - 9.10 to - 5.63)						2 years	Decrease	
Howard <i>et al.</i> , 2010*		1. Low fat	/1068	77.4	77.0	0.1								
		2.Control	/1662	78.5	78.4	0.3			-0.16 (95%CI - 1.03, 0.71)	Body weight	Measured by standard methods (kg)	6 years	Decrease	
		2.Control	/1371	78.2 (SD 17.5)	78.4 (SD 18.2)									

\*Shikany et al 2011 reports the same data but on fewer subjects.

**Table 193 - Higher carbohydrate, lower fat and average protein vs. lower carbohydrate, average or higher fat and higher protein diets and body weight: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Klemsdal <i>et al.</i> , 2010		Low GL diet	78/100	100 (SD16.4)	96.1 (SD 17)	-4.0 (SD 5.5)	P<0.001	P=0.690		Body weight	Measured by standard methods (kg)	1 year	Decrease	
		Low fat diet	86/102	99.9 (SD14.7)	95.6 (SD 16)	-4.3 (SD 6.2)	P<0.001							
(Wycherley <i>et al.</i> , 2010)		Very low CHO, high SFA diet	26/57	94.2 (SEM3.2)		-14.9 (SE 2.1)		0.20		Body weight	Measured by standard methods (kg)	1 year	Decrease	
		Isocaloric high CHO, low fat diet	23/61	97.5 (SEM2.7)		-11.5 (SE 1.5)								
(Lim <i>et al.</i> , 2010)		Very low carbohydrate diet (VLC)	17/27	87.6 (SD 2.3)		-2.9 (SD 4.9)		P=0.065		Body weight	Measured by standard methods (kg)	15 months	Decrease	
		Very low fat diet (VLF)	18/28	89.4 (SD 2.5)		-2.1 (SD 4.7)								
		High unsaturated fat diet (HUF)	15/27	93.0 (SD 2.8)		-3.9 (SD 6.3)								
		Control – no intervention	19/22	89.1 (SD 2.8)		0.8 (SD 5.0)								

**Table 194 - Dietary fibre intake and body weight: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Venn <i>et al.</i> , 2010		Pulse and Wholegrain diet	43/56	100 (SD 20.7)	94(SD 22.8)	-4.5								
		Control National Heart foundation of New Zealand diet	30/57	95(SD 17.7)	92(SD 21.8)	-5.2		p>0.05	-2.2 (95% CI -4.8, 0.4)	Body weight	Measured by clinician/ professiona l (kg)	18 months	Decrease	

**Table 195 - Legume intake and body weight: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses sment Bias
Belski et al., 2011		Control	47/63	93.7 (15.2)	85.8 (95%CI 84.8, 86.8)				0.6 (95%CI - 2.0, 0.8)	Body weight	Measured by standard methods (kg)	12 months	Decrease	
		Lupin	46/68	91.8 (13.5)	85.2 (95%CI 84.2, 86.2)									

**Table 196 - Dietary fibre intake and body mass index: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses sment Bias
Venn <i>et al.</i> , 2010		Pulse and Wholegrain diet	43/56	36.1 (6.4)	34.1 (7.5)									
		Control National Heart foundation of New Zealand diet	30/57	34.8 (4.7)	33.5 (6.2)				-0.8 (95%CI -1.7, 0.2)	Body mass index	Calculated by standard method	18 months	Decrease	

**Table 197 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and waist circumference: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses sment Bias
Howard et al 2010	1. Low fat		/1068	89.9	90.6	1.7			0.18 (CI- 0.66, 1.01)	Waist circumferenc e	Measured by standard methods (cm)	6 years	Decrease	
	2. Control		/1662	90.3	91.5	1.5								

**Table 198 - Higher carbohydrate, lower fat vs. lower carbohydrate, higher fat diets and waist circumference and waist-to-hip ratio: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Klemsdal et al., 2010		Low GL diet	78/100	110.9 (SD11)	107 (SD11)	-4.1	<0.001	0.031		Waist circumferenc e	Measured by standard methods (cm)	1 year	Decrease	
		Low fat diet	86/102	110.1 (SD10)	104.3 (SD12)	-5.8	<0.001							
		Low GL diet	78/100	0.98 (SD 0.076)	0.97 (SD 0.071)	-0.01	0.010	0.009		Waist hip ratio	Measured by standard methods	1 year	Decrease	
		Low fat diet	86/102	0.97 (SD 0.075)	0.94 (SD 0.080)	-0.03	<0.001							

**Table 199 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and fat mass and lean mass: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Foster <i>et al.</i> , 2010		1. Low carbohydrate diet	113/153	40.0 (SD 7.6)		-7.83 (95%CI -7.89, -6.41)		0.72		Fat mass	Measured by dual energy x-ray absorptiometry (kg)	1 year	Decrease	
		2. Low fat diet	115/154	40.4 (SD 7.8)		-7.29 (95%CI -8.55, -6.03)								
		1. Low carbohydrate diet	113/153	40.0 (SD 7.6)		-3.99 (95%CI -5.50, -2.79)		0.74		Fat mass	Measured by dual energy x-ray absorptiometry (kg)	2 years	Decrease	
		2. Low fat diet	105/154	40.4 (SD 7.8)		-3.84 (95%CI -5.03, -2.64)								

continued: Table 199 - Higher carbohydrate, lower fat diets vs. lower carbohydrate, higher fat diets and fat mass and lean mass: RCT results

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Foster et al., 2010		1. Low carbohydrate diet	113/153	61.3 (SD13.0)		-3.04 (95%CI - 3.21, - 2.31)		0.95				1 year		Decrease
		2. Low fat diet	115/154	61.3 (SD12.2)		-2.74 (95%CI - 3.19, - 2.29)				Lean mass		1 year		Decrease
		1. Low carbohydrate diet	113/153	61.3 (SD13.0)		-2.35 (95%CI - 3.07, - 1.80)		0.48				2 years		Decrease
		2. Low fat diet	105/154	61.3 (SD12.2)		-2.14 (95%CI - 2.68, - 1.59)				Lean mass		2 years		Decrease

**Table 200 - Dietary fibre intake and waist circumference: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses sment Bias
Venn <i>et al.</i> , 2010		Pulse and Wholegrain diet	43/56	106 (SD14)	102 (SD16)			<0.05						
		Control National Heart foundation of New Zealand diet	30/57	102 (SD 12)	100 (SD14)				-2.8 (95%CI -5.1, -0.4)	Waist circumferenc e	Measured by clinician (CM)	18 months	Decrease	

**Table 201 - Legume intake and body fat mass: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Belski et al., 2011		Control	47/63	34.7 (SD7.3)	29.9 (95%CI 28.9, 30.8)					Change in body fat mass	Measured by DEXA (Kg)	12 months	Decrease	
		Lupin	46/68	34.1 (SD7.2)	28.9 (95%CI 28.0, 29.9)			-0.9 (95%CI -2.2, 0.4)						

**Table 202 - Legume intake and fat free mass: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group $\Delta$ from baseline	p-value Within group $\Delta$ from baseline	p-value difference between groups	Difference between groups in $\Delta$ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Belski et al., 2011		Control	47/63	57.5 (SD 13.3)	55.9 (95%CI 55.5, 56.4)				0.2 (95%CI - 0.5, 0.8)	Change in fat free mass	Measured by DEXA (kg)	12 months	Decrease	
		Lupin	46/68	56.6 (SD 11.6)	56.1 (95%CI 55.6, 56.6)									

**Table 203 - Legume intake and android fat: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Belski et al., 2011		Control	47/63	48.3 (SD 6.3)	44.3 (95%CI 43.3, 45.4)									
		Lupin	46/68	47.7 (SD 6.7)	44.0 (95%CI 43.0, 45.1)				-0.3 (95%CI -1.8, 1.2)	Change in android fat	Measured by DEXA (%)	12 months	Decrease	

**Table 204 - Legume intake and gynoid fat: RCT results**

Result ID/ Author	Subgroup detail	Intervention group	Completers/ Allocated	Baseline	Follow-up	Within group Δ from baseline	p-value Within group Δ from baseline	p-value difference between groups	Difference between groups in Δ from baseline	Outcome	Result/ Outcome details	Result- specific follow-up	Weight Change	Outco me Asses men t Bias
Belski et al., 2011		Control	47/63	40.7 (SD 9.7)	38.7 (95%CI 37.9, 39.4)					Change in gynoid fat	Measured by DEXA (%)	12 months	Decrease	
		Lupin	46/68	40.8 (SD 9.0)	38.2 (95%CI 37.5, 39.0)			-0.5 (95%CI -1.5, 0.6)						

## 8. Colorectal health update search

**Table 205 - Characteristics of RCTs on dietary fibre intake and faecal output**

Study	Date	Study design	Country	Subject characteristics	Basal diet	Control intervention	Intervention	Total control intake (g/d)	Additional intervention dose (g/d)	Dietary fibre method	Sample size at start	Duration	Faecal collection period (d)	Number collecting faeces	Funding Source
(Vester Boler <i>et al.</i> , 2011)		XO – no washout	US	Healthy adult men, 20-40yrs	Usual diet, excluding pro – and pre biotic supplements	No supplemental fibre control	Soluble maize fibre	NR	21 DF	AOAC	25	3 wk	5	25	General Mills Inc
(Sarria <i>et al.</i> , 2012)		XO – 3 wk washout	Spain	Healthy men and women, 18-55yrs.	Ad libitum, usual diet	Cocoa product A	Cocoa product B supplemented with cocoa bran	2.26g NSP	6.6g NSP (4.34 additional(	NSP	50	4 wk	-	-	Nutrexpa, European Social Fund,
(Kristensen <i>et al.</i> , 2012a)		XO ≥1 wk wash out	Denmark	Healthy young subjects (7M), mean age 24.8y	Foods provided, maximum two cups tea/ coffee per day.	Drinks containing a non-fibre thicken modified corn starch (MCS) and plain breads with standardised iso-caloric diets	Drinks containing flaxseed fibre and plain breads with a standardised isocaloric diet	14.1 DF	Additional 5.2DF	NR	17	1 wk	5d	17	Basic Research, Salt Lake City and University of Copenhagen
							Bread containing flaxseed fibre and (MCS) drink with a standardised isocaloric diet		Additional 5.2DF						
(Ross <i>et al.</i> , 2011)		XO 5-7 wk washout	Switzerland and	Healthy adults, 20-50yrs, 6M	Ad libitum diet provided by study centre	Refined grain diet	Wholegrain diet	19g total fibre	32g total fibre ( additional 13g)	NR	22	2 wk	Spot faecal collections at baseline and after intervention	22	No funding grant, conducted by Nestle Research Centre
(Turunen <i>et al.</i> , 2011)		Parallel	Greece	Polyectomised adults, mean age 57.6yrs.	Ad libitum usual diet, excluding pre – and pro biotic supplements	Wheat bread	Wheat bread enriched with barley derived beta-glucan	0g beta glucan (DF Not reported)	3g beta glucan	NR	33	3 months	Samples collected at baseline, day 30, day 90 and 2 wks after intervention	33	

XO, cross over trial; DF, dietary fibre; d, days; M, male; NR, not reported

**Table 206 - Dietary fibre intake and faecal output: RCT results**

Study	Intervention	Dose (g/d)	Duration	Faecal wet weight C (g/d)	Faecal wet weight I (g/d)	Faecal dry weight C (g/d)	Faecal dry weight I (g/d)	BM/d C	BM/d I	Moisture C (%)	Moisture I (%)	Transit time C (h)	Transit time I (h)	Transit time method	Results
Vester Boler et al 2011	Soluble maize fibre	21	3wk	147	176	31	38	1.1	1.2	NR	NR	NR	NR	NR	Faecal wet and dry weight significantly greater on the soluble maize fibre supplement compared to the control. No difference in number of defecations between groups.
Sarriá et al 2012	Cocoa bran	6.6	4 wk	NR	NR	NR	NR	NR	NR	NR	NR	35.0	30.1	50mg capsule brilliant blue dye with breakfast	No significant difference in transit time between trial stages.
Kristensen et al 2012	Flaxseed fibre in bread	19.3	1wk	121 ± 12	119 ± 13	28 ± 2.2	30 ± 2.3					49.7 ± 3.1	47.9 ± 3.3	Non-absorbable radio opaque transit markers	No significant difference between groups in faecal weight or transit time
	Flaxseed fibre in drinks	19.3	1wk		142 ± 13		33 ± 2.3						43.9 ± 3.3		
Ross et al 2011	Wholegrains	32	2 wk	-	-	-	-	0.96	1.40	NR	NR	NR	NR	NR	Stool frequency increased significantly on the wholegrain diet (p<0.0001)
Turunen et al 2011	Beta-glucan in bread	3	3 m	-	-	-	-	NR	NR	-	-	NR	NR	NR	Beta-glucan had not effect on stool frequency or consistency.

C, control; I, intervention; NR, not reported; BM, bowel movement; d, day

**Table 207 - Characteristics of RCTs on non-digestible oligosaccharides and inulin, polyols and polydextrose intake and faecal output**

Study	Study design	Country	Subject characteristics	Basal diet	Control intervention	Intervention	Additional intervention dose (g/d)	Sample size at start	Duration	Faecal collection period (d)	Number collecting faeces	Funding Source
(Vester Boler <i>et al.</i> , 2011)	XO -no washout	US	Healthy adult men, 20-40yrs	Usual diet excluding pro and pre biotic supplements	No supplemental fibre control	Polydextrose	21	25	3 wk	5	25	General Mills Inc
(Slavin & Feirtag, 2011)	XO- no washout	US	Healthy males aged 27-49y	Food supplied, advised not to drink caffeinated beverages	Low fibre diet	Basal diet and chicory inulin incorporated into low fat vanilla ice cream	20	12	3 wk	Days 16& 37	12	National Centre for Research Resources, Imperial Sensus USA and Sensus Netherlands
(Damen <i>et al.</i> , 2012)	XO – 3 wk wash out	Belgium	Healthy adults, IQR 23-29yrs, 10M	Ad libitum, usual diet	Wheat/ rye bread	Wheat/Rye bread enriched with arabinoxylan oligosaccharides	180g bread ( 2.14g/d arabinoxylan oligosaccharides)	27	3 wk	One sample collected (evening day 20 or morning day 21)	28	Puracor NV Belgium
(Francois <i>et al.</i> , 2012)	XO – 2 wk washout	Belgium	Healthy men and women (33M), mean age 42yrs.	Usual diet with regular eating pattern (3 meals/d). excluding pro - and/or prebiotics	Placebo treatment	Low dose wheat bran extract	3g (2.4g arabinoxylan oligosaccharides)	63	3 wk	NA	NA	Fugeia NV
						High dose wheat bran extract	10g (8g arabinoxylan oligosaccharides)					

XO, cross over trial; DF, dietary fibre; d, days; M, male; NR, not reported

**Table 208 - Non-digestible oligosaccharide and inulin intake and faecal output: RCT results**

Study	Date	Duration	NDO	DP	Dose (g/d)	Faecal wet weight C (g/d)	Faecal wet weight I (g/d)	Faecal dry weight C (g/d)	Faecal dry weight I (g/d)	BM/d C	BM/d I	Moisture C (%)	Moisture I (%)	Transit time C (h)	Transit time I (h)	Transit time method	Results
Vester Boler et al	2011	3wk	polydextrose	NR	21	147	162	31	37	1.1	1.2	NR	NR	NR	NR	NR	Dry weight significantly greater on the polydextrose intervention. No difference in wet weight or number of defecations per day.
Slavin et al	2011	3 wk	Chicory inulin	2-60	20	-	-	-	-	NR	NR	NR	NR	32.5 (SD 25.3)	30.50 (SD 16.10)	Radio opaque pellets	No statistically significant differences between diets in stool weight (from 2 non-consecutive days), transit time, stool frequency, or stool consistency. Flatulence increased ( p=0.046) during inulin phase.
Damen et al	2012	3 wk	Arabinoxylan oligosaccharides	18	2.14	-	-	-	-	1.3 (1.1-1.7)	1.1 (1.0-1.4)	NR	NR	NR	NR	NR	Stool frequency significantly increased in the intervention period compared to control ( p=0.02). Stool consistency did not differ.
François et al	2012	3 wk	Arabinoxylan oligosaccharides	5	2.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NR	NR	N/A	Wheat bran extract at either dose did not influence number of bowel movements per day or modulate stool frequency.

NDO, non-digestible oligosaccharide; DP, degree of polymerisation; C, control; I, intervention; NR, not reported; BM, bowel movement; d, day

**Table 209 - Characteristics of RCTs in adult outpatients with constipation or patients with self-reported constipation**

Study	Study design	Country	Constipation criteria	Water intake	Laxative use	Subject characteristics	Outcomes assessed	Control intervention	Intervention	Daily dose (g/d)	Sample size at start	Duration	Funding source
<i>Psyllium</i>													
(Attaluri <i>et al.</i> , 2011)	XO – 1 wk washout	US	>2 Rome III criteria fulfilled 25%of the time and symptoms in >3days/month	Psyllium taken with 250ml water	Only if no stools were passed for 3 consecutive days	Subjects aged 18-75 years with constipation	CSBM , Global constipation symptom score, stool consistency, straining score, BM/wk, SBM, CBM, abdominal boating/distension.	50g dried plums twice a day	Psyllium twice a day with water	22g psyllium (6g DF)	40	14 wk (3 wk interventions)	California Dried Plum board
(Hull <i>et al.</i> , 2011)	Parallel	US	>2 symptoms of Rome II criteria for ≥12wk in past 12 months.	Psyllium taken with 250ml water Instructed to consume adequate water.	NR	Female outpatients with constipation	BM, painful evacuation, incomplete evacuation, abdominal pain, time per attempt, assistance with defecation, unsuccessful attempts per 24hrs, duration of constipation.	4tbsp/day Bowel recipe (1cup wheat bran, 1 cup apple sauce, ¼ cup prune juice)	Psyllium once a day with water	Placebo 6.5 DF, intervention 6g DF	86	6 wk	NR
<i>Oligosaccharides</i>													
(Marteau <i>et al.</i> , 2011)	Parallel	Belgium	Rome definition (<3 BM/wk, and/or straining in defecation.	NR	NR	Subjects aged 50-70 years with constipation	Intestinal microflora, bloating, flatulence, stool frequency, consistency, difficulties in defecation.	maltodextrin	Inulin	15g	50	4 wk	NR
<i>Gums and extracts</i>													
(Linetzky <i>et al.</i> , 2012)	Parallel	Brazil	At least 3 months of constipation (<3BM/ week)	NR	No volunteers used laxatives	Women health workers with constipation, 18-65y	Frequency BM, Faecal bacteria, SCFA content,	maltodextrin	Mixture of inulin and partially hydrolysed guar-gum	15g/d	60	3wk	Foundation for Research Support of the State of São Paulo

XO, cross over trial; DF, dietary fibre; NR, not reported; BM, bowel movement; d, day

**Table 210 - Outpatients with constipation or patients with self-reported constipation: RCT results**

Study	Duration	Bowel motion control (/wk)	Bowel motion intervention (/wk)	Bowel motion increase	Overall symptom improvement	Laxative use sparing	Improved stool consistency	Less abdominal pain	Less strain at defecation	Results
<i>Psyllium</i>										
Attaluri et al., 2011	3wk	6.8	5.7	Y	N	Y	Y	NR	Y	BM/wk were significantly higher during dried plum treatment (control) (P=0.002) than with psyllium. Stool consistency score was higher with dried plums (p=0.02). Straining scores were similar. Global symptom scores not significantly different between groups (P=0.1).
Hull et al., 2011	6wk	NR	NR	Y	Y	Y	N	N	N	Global symptoms significantly improved in both groups compared to baseline (no difference between groups), subjects taking bowel recipe strained significantly less than those taking psyllium, no difference between groups in other outcomes.
<i>Oligosaccharides</i>										
Marteau et al., 2011	4wk	NR	NR	Y	N	NA	Y	NR	Y	Number of participants with >1BM/d was significantly increased in inulin group between start and end of study but not placebo group. Number of participants complaining from defecation difficulties significantly reduced in inulin group between start and end of study - this was significantly different from the placebo group (p<0.01). Flatulence occurred significantly more frequently in the inulin group.
<i>Gums and extracts</i>										
Linetzky et al., 2012	3wk	6.7	5.95	Y	Y	NA	NR	NR	NR	Increased frequency of weekly BM and patient satisfaction in both groups (no difference between groups)
BM, bowel movement										

**Table 211 - Characteristics of RCTs on constipation in children**

Study	Study design	Country	Constipation criteria	Water intake	Laxative use	Subject characteristics	Outcomes assessed	Control intervention	Intervention	Daily dose (g/d)	Sample size at start	Duration	Funding source
(Chmielewska <i>et al.</i> , 2011)	Parallel	Poland	Rome III criteria fulfilled in last 2 months	NR	Only if no stools were passed for 3 consecutive days	Children aged 3-16years with constipation. Mean age 6 years. (58% female)	Treatment success defined as >3 BM with no episodes of soiling.  Secondary outcomes: Stool consistency, stool frequency, <i>episodes of soiling, flatulence pain during defecation or abdominal pain.</i>	Placebo maltodextrin with 125ml water	Glucomannan with 125ml water	2.52g/d	80	4 wk	Medical University of Warsaw

NR, not reported; BM, bowel movement

**Table 212 - Constipation in children: RCT results**

Study	Duration	Bowel motion control (/wk)	Bowel motion intervention (/wk)	Bowel motion increase	Overall symptom improvement	Laxative use sparing	Improved stool consistency	Less abdominal pain	Less strain at defecation	Results
Chmielewski et al., 2011	4 wk	4	6	Y	N	Y	Y	Y	NR	No significant difference in treatment success between groups. Significant difference in stool consistency and frequency observed at wk 3 but not at wk 4. Abdominal pain reported significantly more frequently in intervention group at wk 4. Percentage of participants requiring rescue laxative therapy same in both groups.

NR, not reported

**Table 213 - Characteristics of RCTs on non-digestible carbohydrate intake and faecal bacteria, faecal pH and short-chain fatty acid content**

Study	Study design	Country	Subject characteristics	Basal diet	Control intervention	Intervention	Intervention dose (g/d)	Sample size at start	Duration	Funding source
<b>NDO and inulin</b>										
(Damen <i>et al.</i> , 2012)	XO - 3 wk washout	Belgium	Adults aged 23-29y (IQR); 10M, 17F	Ad libitum, usual diet	Wheat/rye bread	Wheat/Rye bread enriched with arabinoxylan	180g bread (2.14g/d)	28 (27 complete d)	3 wk	Puracor NV Belgium
(Francois <i>et al.</i> , 2012)	XO- 2 week washout	Belgium	Adults mean age 42 y 33M, 30F	Excluding probiotics	Placebo	Wheat bran extract (3g) in non-carbonated soft drink  Wheat bran extract (10g) in non-carbonated soft drink	2.4g/d  8g/d	66	3 wk	NR
(Slavin & Feirtag, 2011)	XO- no wash out	US	Adults aged 27-49y, 12M	Food supplied, advised not to drink caffeinated beverages.	Low fibre diet	Basal diet and chicory inulin incorporated into low fat vanilla ice-cream	20g	12	3 wk	National Centre for Research Resources, Imperial Sensus USA and Sensus Netherlands
(Walton <i>et al.</i> , 2012b)	XO- 3 week washout	UK	Adults aged 50-81y;	Ad libitum, usual diet, excluding prebiotic supplemented foods and probiotics	Unsupplemented placebo orange juice product containing 4 g less simple sugars	Orange juice supplemented with GOS	2x4g	39	3 wk	Novartis, Switzerland
(Walton <i>et al.</i> , 2012a)	XO- 3 week wash out	UK	Adults aged 18-55y; 22M, 22F		Wheat/rye bread	Bread in situ enriched arabinoxylan	180g bread (2.2g/d)	44	3 wk	Puratos Group

continued: Table 213 - Characteristics of RCTs on non-digestible carbohydrate intake and faecal bacteria, faecal pH and short-chain fatty acid content

<b>Dietary fibre</b>										
(Ross <i>et al.</i> , 2011)	XO-5-7 week wash out	Switzerland	Adults 20-50y; 6M, 11F	Ad libitum diet provided by study centre	Refined grain diet	Wholegrain diet	32g fibre/d	22	2 wk	Not receive grant, conducted in Nestle research centre
(Turunen <i>et al.</i> , 2011)	P	Greece	Adult, mean age 57.6; gender not reported, polypectomized	Ad libitum, usual diet excluding probiotics and prebiotics	Wheat Bread	Wheat bread enriched with -barley derived $\beta$ glucan	3g/d	33	3 months	
<b>Polydextrose</b>										
(Vester Boler <i>et al.</i> , 2011)	XO-no wash out	US	Adults aged 20-40y; 25M	Ad libitum, usual diet, excluding prebiotic or probiotic supplements	Snack bar with no fibre supplement	Snack bar plus PDX (polydextrose)  Snack bar SCF (soluble maize fibre)	21 g	25	3 wk	General Mills, Inc.
(Costabile <i>et al.</i> , 2012)	XO-3 week wash out	UK	Adults aged 18-50y; 17M, 16F	Ad libitum, usual diet excluding probiotics and prebiotics	Maltodextrin powder	PDX powder	8g	33	3wk	Danisco

XO, cross over trial; P, parallel trial; M, male; F, female; GOS, galactooligosaccharides

**Table 214 - Dietary fibre intake and faecal pH and short-chain fatty acid content: RCT results**

Study	Intervention	Time	DF dose (g/d)	Faecal pH C	Faecal pH I	SCFA method	SCFA unit of measure	Total SCFA C	Total SCFA I	Butyrate C	Butyrate I	Propionate C	Propionate I	Acetate C	Acetate I	Results
Vester Boler, 2011	Polydextrose	3 wk	21	6.4	6.3	GLC	µmol/g DM faeces	511.4	407.0	93.8	60.5	97.3	74.0	320.3	272.3	Faecal propionate and butyrate concentrations significantly lower (P<0.05). pH not significantly different
Vester Boler, 2011	Soluble Maize Fibre	3 wk	21	6.4	6.2	GLC	µmol/g DM faeces	511.4	534.0	93.8	81.0	97.3	101.6	320.3	351.6	Faecal pH was lower (P=<0.01)
Costabile 2012	Polydextrose			NR	NR	GLC		NR	NR	7.6	7.4	9.8	8.9	24.7	23.9	No significant differences in SCFA

I, intervention group; C, control group; NR, not reported; SCFA, short chain fatty acid; GLC, gas chromatography; HPLC, high-performance liquid chromatography; wk, week; d, day; wt, weight. \* Values least squared means; \*\* Median values NR not reported, DM Dry matter

**Table 215 - Non-digestible oligosaccharide and inulin intake and faecal bacteria: RCT results**

Study	Time	Intervention	Degree of polymerisation	Dose (g/d)	Flora unit of measure	Bif C	Bif. I	Microbiological method	Bacteria investigated	Results
Damen, 2012	3 wk	Arabinoxylan	18	2.14g/d	Log 8 cells/g wet faeces	8 (IQR 2-17)	11 (IQR 4-24)	FISH as described in Langendijk et al., 1995	Total bacteria, Bif, <i>Lactobacillus</i> , lactobacillus rods, <i>Enterobacteriaceae</i> , <i>Clostridium histolyticum/lituburiense</i>	Bif counts tended to be higher at the end of the arabinoxylan enriched bread intervention compared with the run-in/wash out period (p=0.06). The intervention had no significant effect on other bacterial populations.
Francois, 2012	3 wk	Arabinoxylan	2-9	2.4 g of low dose 8 g higher dose	Log 10 cells/g dry faeces	8.9 (SD 0.6)	9.0 (SD 0.5) 9.3 (SD 0.7)	FISH	Total bacteria, Bif, <i>Lactobacilli</i> , <i>Clostridium histolyticum</i> , <i>Faecalibacterium prausnitzii</i> , <i>Roseburia- Eubacterium rectale</i>	Intake of WBE at 10g/d increased Bif counts by 0.36 log units (p<0.001), whereas WBE at 3g/d vs. placebo had no effect on Bif counts. Levels of other bacteria remained unchanged.
Slavin, 2011	3 wk	Inulin	2-60	20g	Log 9 cfu (other units not reported)	1.75 (SD 2.44)	2.15 (SD 3.29)	Cultured selective media	Total anaerobes, Bif, <i>Lactobacillus</i> , <i>Clostridium</i> , <i>Enterobacteriaceae</i>	Levels of Bif and <i>Clostridia</i> did not differ between the control and inulin intervention phase (p=0.33 and p=0.17). Total anaerobes and <i>Lactobacilli</i> significantly increased following the inulin phase. There was a tendency for <i>Enterobacteriaceae</i> to increase following the inulin intervention, but it was not statistically significant (p=0.067)
Walton, 2012 a	3 wk	GOS	2-8	2x4	Log 10 CFU/g faeces	8.64 (SD 0.95)	9.16 (SD 1.09)	FISH	Total bacteria, Bif, <i>Lactobacillus</i> , <i>E.coli</i> , <i>Bacteroides</i>	Treatment with GOS resulted in significantly more Bif compared to placebo (p=0.024). No changes were observed with other bacterial populations.
Walton 2012b	3 wk	Arabinoxylan	18	2.2g/d	Log 10 cells/g faeces	9.31 (SD 0.44)	9.40 (SD 0.42)	FISH using 16S rRNA targeted probes	Total bacteria, Bif, <i>E.coli</i> , <i>Clostridium histolyticum</i> group, <i>Lactobacillus</i> – <i>Enterococcus</i> , <i>Atopobium</i> - <i>Coriobacterium</i> Group, E. rectale group, <i>Bacteroides</i> , <i>Roseburia</i> – <i>Eubacteria</i> , <i>Faecalibacterium prausnitzii</i> cluster	Bif levels were not significantly different compared to placebo.

GOS, galactooligosaccharides; FISH, fluorescent in situ hybridization; Bif, *Bifidobacterium* spp; WBE, wheat bran extract; CFU, colony forming units; IQR, interquartile range.

**Table 216 - Dietary fibre and polydextrose intake and faecal bacteria: RCT results**

Study	Time	Intervention	Dose (g/d)	Flora unit of measure	Bif C	Bif. I	Microbiological method	Bacteria investigated	Results
Dietary fibre									
Ross, 2011	2 wk	Wholegrain	32g fibre	Log10 CFU/g fresh weight	8.93 (SE 0.4)	9.30 (SE0.3)	Quantitative PCR	Total bacteria, <i>Bif</i> , <i>Lactobacillus</i> , <i>Enterobacteria</i> , <i>Enterococcus</i> , <i>Clostridium coccooides</i> , <i>Clostridium leptum</i> , <i>Bacteroides</i>	No overall change in the faecal bacterial population was observed except for <i>C. leptum</i> , which showed a small increase following the wholegrain diet (p=0.02) and a trend for an increase in <i>Enterococcus spp.</i> (p=0.06).
Turunen, 2011	3 months	B-glucan	3g/d	Log 10 CFU/g faeces	8.50 (SD 1.16)	7.70 (SD 1.86)	Described by Mitsou et al.,2010	Total aerobes, <i>Bif</i> , total coliforms, <i>E.coli</i> , <i>Enterococcus spp</i> , total anaerobes, <i>Bacteroides spp</i> , <i>Lactobacillus spp</i> . <i>Clostridium perfringens</i>	No significant differences between any of the bacterial populations were observed when the intervention phase was compared with the placebo phase.
Vester Boler, 2011	3 wk	Soluble maize fibre	21 g/d	Log CFU/g dry mass faeces	6.9	8.2	Quantitative PCR	<i>Bif</i> , <i>Lactobacillus spp.</i> , <i>E.coli</i>	Bif numbers were significantly higher following the soluble maize fibre intervention compared with no fibre control (p<0.05).
Polydextrose									
Vester Boler, 2011	3 wk	Polydextrose	21g/d	Log CFU/g dry mass faeces	6.9(NR)	8.2 (NR)	Quantitative PCR	<i>Bif</i> , <i>Lactobacillus spp.</i> , <i>E.coli</i>	No significant differences between any of the bacterial populations were observed
Costabile, 2012	3 wk	Polydextrose	8g/d	Log10 cells/g faeces	8.99 (SD 0.88)	9.13 (SD 0.72)	FISH 16S rRNA probes	Total bacteria, <i>Atopobium grou</i> , <i>Bacteroides spp</i> , <i>Bif</i> , <i>Eubacterium rectale/Clostridium coccooides</i> group, <i>Clostridium histolyticum</i> group, <i>Lactobacillus/Enterococcus spp.</i> <i>Faecalibacterium prausnitzii</i>	No difference was observed between the bacterial populations except for <i>Lactobacillus/Enterococcus spp.</i> count when the polydextrose treatment was compared to the placebo (P<0.001).

FISH, fluorescent in situ hybridization; CFU, colony forming units; Bif, Bifidobacterium spp.

**Table 217 - Characteristics of RCTs on non-digestible oligosaccharide and inulin intake and faecal bacteria in infants**

Study	Study design	Country	Subject characteristics	Basal diet	Control intervention	Intervention	Intervention dose (g/d)	Sample size at start	Duration	Funding source
(Salvini <i>et al.</i> , 2011)	P	Italy	Infants HCV negative followed from birth to 12 months; 7M, 13F (completers)	Formula	maltodextrins	GOS/FOS mixture	8g/L	22	6 months intervention period (6mth follow up)	Danone
(Veereman -Wauters <i>et al.</i> , 2011)	P	Belgium	Infants recruited up to 5 <sup>th</sup> day of life	Formula/breastfeeding	Breastfed babies, non-supplemented formula fed	Formula, SYN1  Formula GOS:FOS (90:10)	0.4 g/dl  0.8g/dl  0.8g/dl	110	28 days	Beneo-Orafti

P, parallel; GOS, galactooligosaccharides; FOS, fructooligosaccharides. HCV, hepatitis C virus.

**Table 218 - Non-digestible oligosaccharide and inulin intake and faecal bacteria in infants: RCT results**

Study	Intervention	Dose	Duration	Flora unit of measure	Bif C	Bif. I	Microbiological method	Bacteria investigated	Results
Salvini, 2011	GOS/FOS mixture 9:1 ratio	8g/L	12 months (6m intervention, 6m follow up)	CFU/g stool	9.4 (CI 8.9-10.0)	7.3 (6.9-7.7)	Reported in Fanaro et al., 2003	<i>Bif, Lactobacilli</i>	Both Bif and lactobacilli counts were higher in infants receiving prebiotic supplemented formula (p=0.0014 and p=0.0054 respectively)
Veereman-Wauters, 2011	Orafti Syngery1 (FOS/inulin)  GOS/FOS mixture 9:1 ratio	0.4 g/dl 0.8 g/dl  0.8 g/dl	28 days	Log10 cells/g faeces	875 (F)	908 9.74  9.88	FISH	<i>Bif, Lactobacilli, Clostridia histolyticum/ lituseburens</i>	At 14 days the SYN1 0.8g/dl and GOS:FOS group had significantly higher Bif counts compared to the non-supplemented formula control. This difference was no longer significant at day 28. Breastfed infants were not included in statistical analysis because they were not randomly allocated to the group.

CFU, colony forming units; FISH, fluorescent in situ hybridization; GOS, galactooligosaccharides; FOS, fructooligosaccharides; Bif, Bifidobacterium spp

**Table 219 - Characteristics of cohort studies on colorectal cancer**

Cohort	Author	Year	Country	Sex	Age (y)	CRC cases	CC cases	RC cases	Cohort size	Mean follow-up duration (y)	Dietary assessment method	Carbohydrate components investigated	Funding source
HELGA Cohort	(Hansen <i>et al.</i> , 2012)		Scandinavian countries (Norway, Sweden, Denmark)	Mixed	30-64	1168	691	477	108081	11.3	FFQ	Total fibre, vegetable fibre, fruit fibre, potato fibre, cereal fibre, low fibre cereal foods, high fibre cereal foods.	European Commission
EPIC	(Murphy <i>et al.</i> , 2012)		Europe	Mixed	35+	4517	2869	1648	477312	11	Centre specific dietary questionnaires	Total fibre, cereal fibre, fruit and vegetable fibre	European Commission, International Agency for Research on Cancer and national funding agencies.
Shanghai Women's Health Study (SWHS)	(Li <i>et al.</i> , 2011)		China	Women	40-70	475	287	188	74942	9.1	FFQ	Total carbohydrate, Glycaemic index, Glycaemic load.	US Public Health Service,
NIH-AARP Diet and Health Study	(Tasevska <i>et al.</i> , 2012)		US	Mixed	50-71	2601	-	-	435674	7.2	FFQ	Total sugars, added sugars, fructose, sucrose	NR

CRC, colorectal cancer; CC, colon cancer; RC, rectal cancer; FFQ, food frequency questionnaire; NR, not reported.

**Table 220 - Adjusted confounders for studies investigating carbohydrate intake and colorectal cancer**

Study	Age	Sex	BMI	Energy	Smoking	Family	Education	Alcohol	PA	NSAIDs	Meat	Folate	Calcium	Multivitamin use	HRT use
Hansen et al., 2012		Y*	Y		Y		Y	Y			Y				Y
Murphy et al., 2012	Y**	Y**	Y	Y	Y		Y	Y	Y		Y	Y	Y		Y
Li et al., 2011	Y		Y	Y		Y	Y		Y						Y
Tasevska et al., 2012***	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y			

*\*each gender analysed separately, \*\*stratified by age and sex. \*\*\* Additionally adjusted for fibre*

**Table 221 - Carbohydrate, starch or sugar intake, glycaemic index or load and colorectal cancer: cohort results**

*Adjusted relative risk ratios for the highest compared with the lowest quantile of intake and colorectal cancer risk*

Study	Sex	Outcome	Carbohydrate constituent	Comparison	CRC RR	CC RR	RC RR	CRC P for trend	CC P for trend	RC P for trend	Reported association
Li et al., 2011	Women	CRC, CC, RC	Glycaemic load	Q1 159.7g/d vs. Q5 225.9g/d	0.94 (0.71-1.24)	0.92 (0.64- 1.32)	0.99 (0.64-1.52)	0.84	0.45	0.55	No association
	Women	CRC, CC, RC	Glycaemic index	Q1 64.4 vs. Q5 76.0	1.09 (0.81, 1.46)	1.05 (0.71 – 1.54)	1.16 (0.73-1.84)	0.86	0.77	0.53	No association
	Women	CRC, CC, RC	Carbohydrates	Q1 242.2g/d vs. 302.3g/d	0.87 (0.66-01.15)	0.79 (0.55-1.12)	1.02 (0.66-1.59)	0.41	0.20	0.76	No association
Tasevska et al., 2012	Mixed	CRC	Total sugars	Q1 33.8g/1000kcal vs. Q5 85.3g/1000kcal	0.95 (0.83, 1.09)	-	-	0.54			No association
	Mixed	CRC	Added sugars	Q1 2.2tsp/1000kcal vs. Q5 11.2tsp/1000kcal	1.02 (0.89, 1.16)	-	-	0.55			No association
	Mixed	CRC	Fructose	Q1 12.8g/1000kcal vs. Q5 38.1g/1000kcal	0.99 (0.87, 1.14)	-	-	0.91			No association
	Mixed	CRC	Sucrose	Q1 11.9 g/1000kcal vs. Q5 35.5g/1000kcal	1.06 (0.93, 1.21)	-	-	0.36			No association

CRC, colorectal cancer; CC, colon cancer; RC, rectal cancer

**Table 222 - Total fibre intake and colorectal cancer: cohort results**

*Adjusted relative risk ratios for the highest compared with the lowest quantile of carbohydrate intake and colorectal cancer risk*

Study	Sex	Outcome	Carbohydrate constituent (inc DF technique)	Comparison	CRC RR	CC RR	RC RR	CRC P for trend	CC P for trend	RC P for trend	Reported association
Hansen et al., 2012	Men	CC, RC	Total fibre (AOAC)	Linear per 10g/d	-	0.74 (0.64-0.86)	1.02 (0.87-1.19)				Significantly lower risk of colon cancer in men with increased fibre intake.
	Women	CC, RC	Total fibre (AOAC)	Linear per 10g/d	-	0.99 (0.86-1.14)	0.99 (0.82-1.19)				No association for rectal cancer
Murphy et al., 2012	Mixed	CRC, CC, RC	Total dietary fibre (AOAC except UK and Greece)	Q1 <16.4g/d vs. Q5 ≥28.5g/d	0.83 (0.72-0.96)	0.80 (0.67-0.95)	0.90 (0.72-1.14)	0.013	0.017	0.34	Higher total fibre significantly reduced risk of CRC and CC. No significant association for rectal cancer
Murphy et al., 2012				Calibrated per 10g/day	0.87 (0.79–0.96)	0.88 (0.80–0.97)	0.87 (0.79–0.96)				Calibrated models show significantly reduced risk for CRC, CC and RC per 10g/d increase in total fibre intake.

CRC, colorectal cancer; CC, colon cancer; RC, rectal cancer

**Table 223 - Cereal fibre intake and colorectal cancer: cohort results**

*Adjusted relative risk ratios for the highest compared with the lowest quantile of carbohydrate intake and colorectal cancer risk*

Study	Sex	Outcome	Carbohydrate constituent (inc DF technique)	Comparison	CRC RR	CC RR	RC RR	CRC P for trend	CC P for trend	RC P for trend	Reported association
Hansen et al., 2012	Men	CC, RC	Cereal fibre	Linear per 2g/d	-	0.94 (0.91-0.98)	0.98 (0.94-1.02)				Significantly lower risk of colon cancer in men with increased cereal fibre intake No association for rectal cancer
	Women	CC, RC	Cereal fibre	Linear per 2g/d	-	0.97 (0.93-1.00)	0.98 (0.92-1.04)				Borderline significantly lower colon cancer with higher cereal fibre intake. No association for rectal cancer
	Men	CC, RC	Low cereal fibre content	Linear per 2g/d	-	0.99 (0.84-1.16)	1.11 (0.94-1.32)				No association
	Women	CC, RC	Low cereal fibre content	Linear per 2g/d	-	1.01 (0.81-1.26)	1.311 (0.84-1.46)				No association
	Men	CC, RC	High cereal fibre content	Linear per 2g/d	-	0.94 (0.90-0.98)	0.98 (0.94-1.02)				Significantly lower risk of colon cancer in men No association for rectal cancer
	Women	CC, RC	High cereal fibre content	Linear per 2g/d	-	0.97 (0.93-1.02)	0.98 (0.93-1.04)				No association
Murphy et al., 2012	Mixed	CRC, CC, RC	Cereal fibre	Q1 < 4.64g/d vs. Q5 ≥ 12.3g/d	0.87 (0.77-0.99)	0.88 (0.76-1.03)	0.86 (0.70-1.06)	0.003	0.032	0.031	Higher cereal fibre significantly reduced risk of CRC, CC and RC.
Murphy et al., 2012				Calibrated per 10g/day	0.89 (0.82–0.97)	0.89 (0.80–0.99)	0.89 (0.78–1.01)				Calibrated models show significantly reduced risk for CRC and CC per 10g/d increase in total fibre intake.

CRC, colorectal cancer; CC, colon cancer; RC, rectal cancer

**Table 224 - Fruit and vegetable fibre intake and colorectal cancer: cohort results**

*Adjusted relative risk ratios for the highest compared with the lowest quantile of carbohydrate intake and colorectal cancer risk*

Study	Sex	Outcome	Carbohydrate constituent (inc DF technique)	Comparison	CRC RR	CC RR	RC RR	CRC P for trend	CC P for trend	RC P for trend	Reported association
Hansen et al., 2012	Men	CC, RC	Vegetable fibre	Linear per 2g/d	-	0.95 (0.84-1.07)	1.00 (0.89-1.14)				No association
	Women	CC, RC	Vegetable fibre	Linear per 2g/d	-	1.05 (0.96-1.14)	1.03 (0.91-1.15)				No association
	Men	CC, RC	Fruit fibre	Linear per 2g/d	-	0.95 (0.86-1.05)	1.08 (0.99-1.18)				No association
	Women	CC, RC	Fruit fibre	Linear per 2g/d	-	0.98 (0.91-1.05)	1.00 (0.91-1.10)				No association
	Men	CC, RC	Potato fibre	Linear per 2g/d	-	0.89 (0.77-1.03)	1.01 (0.87-1.17)				Q1vs Q4 incidence rate ratio (0.65, CI 0.47-0.92) showed lower risk for potato fibre intake and colon cancer. No association for rectal cancer
	Women	CC, RC	Potato fibre	Linear per 2g/d	-	1.15 (0.98-1.36)	0.98 (0.92-1.04)				No association Q1vs Q4 incidence rate ratio (1.59; CI 1.12-2.26 showed higher risk associated with potato fibre intake and colon cancer. No association for rectal cancer
Murphy et al., 2012	Mixed	CRC, CC, RC	Fruit and vegetable fibre	Q1 < 5.1g/d vs. Q5 ≥ 12.9g/d	0.94 (0.82 – 1.07)	0.83 (0.70-0.98)	1.17 (0.94-1.45)	0.19	0.022	0.40	No association observed with colorectal or rectal cancer. Increased fruit and vegetable fibre intake was associated with a decreased risk of colon cancer.
Murphy et al., 2012				Calibrated per 10g/day	0.91 (0.83–1.00)	0.89 (0.79–0.99)	0.96 (0.82–1.12)				Calibrated models show significantly reduced risk for CC per 10g/d increase in total fibre intake.

DF, dietary fibre; CRC, colorectal cancer; CC, colon cancer; RC, rectal cancer

**Table 225 - Characteristics of RCTs on resistant starch intake and prevention of adenoma development**

Author	Trial design	Cohort	Country	Age (y)	Patient characteristics prior to randomization	Duration (y)	Cohort size	Dietary assessment method	Intervention	Control intervention	Funding source
(Burn <i>et al.</i> , 2011)	parallel	Familial Adenomatous Polyposis (FAP) prevention trial	UK	10-21	Confirmed or high likelihood of FAP or presence of multiple colonic polyps	1-12	227 randomised (133 eligible for analysis)	Collection of unused sachets every 6mo	Resistant starch ( 30g as 2 sachets/d in a 1:1 blend of potato starch and high amylose maize starch)	Matched placebo	EU Biomedical Program Cancer Research UK and UK Medical Research Council.

**Table 226 - Resistant starch intake and prevention of adenoma development: RCT results**

Study	Control adenoma cases/subject number (%)	Intervention adenoma cases/subject number (%)	Risk for increased polyp number (95% CI)	Adjustments	Results
(Burn <i>et al.</i> , 2011)	NR	NR	RR = 1.05 (0.73, 1.49)	Adjusted for first result and time on intervention	After median intervention 17mo the risk of an increased polyp number in the rectum or sigmoid colon was not significantly reduced

NR, not reported

## 9. Oral health update search

**Table 227 - Characteristics of cohort studies on carbohydrate intake and dental caries in mixed and permanent dentition (studies which adjusted for tooth-brushing)**

Study	Country	Sex	Baseline age (y)	Cohort size	Mean follow-Up duration (y)	Statistical method	Fluoride intake/ water content	Caries assessment and method	Dietary assessment method	Dietary components investigated	Funding source
(Chankanka <i>et al.</i> , 2011a)	US	Mixed	3-5	151	8	Multivariable negative binomial generalised lineal mixed model	NR	dmfs/DMFS; clinical examination	Three-day diaries from age 1.5mo to 8.5yrs then questionnaires from 9yrs.	Low middle or high frequency of beverage exposures (milk, water, powdered beverages, sugar sweetened soda, 100% juice, and juice drinks) using approximate 25 <sup>th</sup> and 75 <sup>th</sup> percentile cut offs.	NR
(Chankanka <i>et al.</i> , 2011b)	US	Mixed	5	198	4	Multivariate logistic regression	0.8ppm (±0.4)	dmfs/DMFS; clinical examination	Three-day diaries sent every 1.5-6months from age 1.5mo to 8.5yrs	Consumption of foods and drinks at meals or as snacks. Drinks: milk, 100% juices, juice drinks, powder-sugared beverages, sugar sweetened soda, diet soda, sports drinks and water. Foods: sugar based desserts, candy, added sugar, bakes starch with sugar, unsweetened cereals, pre-sweetened cereals, unprocessed starches and processed starches.	National Institute of Health

NR= not reported, dmft/DMFT = decayed missing or filled teeth (deciduous or permanent dentition)

**Table 228 - Confounders adjusted for in cohort studies investigating dental caries in mixed and permanent dentition (studies which adjusted for tooth-brushing)**

TabStudy	Age	Sex	Tooth-brushing habits	SES	Parent's education	Gingival index	Fluoride intake	Parent's dental health	Baseline caries prevalence	Antibiotic use	Ethnicity	Saliva streptococci mutans
Chankanka et al., 2011a			Y	Y								
Chankanka et al., 2011b		Y	Y	Y			Y		Y			

**Table 229 - Carbohydrate intake and dental caries in mixed and permanent dentition: cohort results (studies which adjusted for tooth-brushing)**

Study	Dental caries assessment measure	Mean caries increment (±SD)	% caries-free	% with caries	Dietary exposure	Reported association
Chankanka et al., 2011a	Caries prevalence at age 13 including non-cavitated lesions	NR	64.1	35.9	Low middle or high frequency of beverage exposures (milk, water, powdered beverages, sugar sweetened soda, 100% juice, and juice drinks)	Significant association between frequency of 100% fruit juice consumption and new non-cavitated caries and new cavitated caries. No association with other beverages.
Chankanka et al., 2011b	Caries prevalence at age 9 including non-cavitated lesions	1.17 (SD 2.28)	61%	39%	Drinks: milk, 100% juices, juice drinks, powder-sugared beverages, sugar sweetened soda, diet soda, sports drinks and water. Foods: sugar based desserts, candy, added sugar, bakes starch with sugar, unsweetened cereals, pre-sweetened cereals, unprocessed starches and processed starches.  Three dietary factors included in multivariate analysis (soda pop, unprocessed starches and processed starches)	Greater frequency of processed starch snacks significantly associated with caries experience. Other dietary variables not associated in multivariate model.

NR= not reported

**Table 230 - Characteristics of cohort studies on carbohydrate intake and dental caries in deciduous dentition (studies which did NOT adjust for tooth-brushing)**

Study	Country	Sex	Baseline age (y)	Cohort size	Mean follow-Up duration (y)	Statistical method	Fluoride intake/ water content	Caries assessment and method	Dietary assessment method	Dietary components investigated	Funding source
(Fontana <i>et al.</i> , 2011)	US	Mixed	26 months (±6)	329	1	Multivariate logistic regression	NR	ICDAS score; Clinical examination	107 item questionnaire	Snacking on candy, cookies, fresh fruit, cake, ice cream, cereal with milk, dried fruit, popcorn, crisps, yoghurt. Drinking from bottle, sippy cup, water, non diet soda and juice consumption.	National Institute of Dental and Craniofacial Research

ICDAS = international Caries Assessment and Detection System

**Table 231 - Characteristics of cohort studies on carbohydrate intake and dental caries in mixed and permanent dentition (studies which did NOT adjust for tooth-brushing)**

Study	Country	Sex	Baseline age (y)	Cohort size	Mean follow-Up duration (y)	Statistical method	Fluoride intake/ water content	Caries assessment and method	Dietary assessment method	Dietary components investigated	Funding source
(Alm <i>et al.</i> , 2012)	Sweden	Mixed	1	568	14	Multivariate logistic regression	NR	Bitewing radiographs Aproximal caries (DFa)	Interviews with parents when children were aged 1&3 years to assess frequency of consumption of caries-risk products and sweets.	Caries risk products, defined as soft drinks, fruit soup, ice cream or biscuits and sweets	Skaraborg Research and Development Council and the Swedish Dental Association
(Ferreira <i>et al.</i> , 2011)	Brazil	Mixed	2-17	118	4	Multi variate poisson regression analysis	NR	dmft/ DMFT; Clinical examination	Family caregivers recall of complete food intake for last 3 days.	Frequency of sweets, sugared crackers and candies, soft drinks and sugared beverages. (high defined as >3 incidents during last 3 days, Medium 3 incidents and low < 3)	NR

NR= not reported, DFA aproximal caries, dmft/DMFT = decayed missing or filled teeth (deciduous or permanent dentition)

**Table 232 - Confounders considered in cohort studies on dental caries (studies which did NOT adjust for tooth-brushing)**

Study	Age	Sex	Tooth-brushing habits	SES	Parent's education	Gingival index	Fluoride intake	Parent's dental health	Baseline caries prevalence	Antibiotic use	Ethnicity	Saliva streptococci mutans
Deciduous dentition												
Fontana et al., 2011											Y	
Mixed and permanent dentition												
Alm et al., 2012		Y						Y				
Ferreira de Camargo et al., 2011	Y				Y							

**Table 233 - Carbohydrate intake and dental caries in deciduous dentition: cohort results (studies which did NOT adjust for tooth-brushing)**

TablStudy	Dental caries assessment measure	Mean caries increment (±SD)	% caries-free	% with caries	Dietary exposure	Reported association
Fontana et al., 2011	ICDAS score >3 at 1 year	NR	77%	23%	Snacking on candy, cookies, fresh fruit, cake, ice cream, cereal with milk, dried fruit, popcorn, crisps, yoghurt. Drinking from bottle, sippy cup, water, non diet soda and juice consumption.	Overall dietary behaviours associated with caries in the multivariate model were child does not snack on fresh fruit (OR 2.54 (95% CI 1.25-5.13) and child does snack on popcorn (OR 2.16 (95% CI 1.19-3.91)

NR = not reported, ICDAS = international Caries Assessment and Detection System

**Table 234 - Carbohydrate intake and dental caries in mixed and permanent dentition: cohort results (studies which did NOT adjust for tooth-brushing)**

Study	Dental caries assessment measure	Mean caries increment (±SD)	% caries-free	% with caries	Dietary exposure	Reported association
Alm et al., 2012	Carious lesions and fillings in approximal tooth surfaces at 15 years (DFa)	3.2 (4.0)	33%	67%	Consumption of caries risk products and consumption of sweets	Consumption of sweets (times/week) significantly associated with caries.
Ferreira de Camargo et al., 2011	Caries incidence after 4 yrs follow up: including non cavitated lesions	0.83 (2.02)	71.6	28.4	Frequency of sweets, sugared crackers and candies, soft drinks and sugared beverages.	High/medium frequency of sugar intake significantly associated with caries incidence (p=0.034)

DFa= aproximal caries

**Table 235 - Characteristics of RCTs on polyol intake and dental caries in mixed and permanent dentition (studies which did NOT adjust for tooth-brushing)**

Study	Trial design	Country	Fluoride	Age (y)	Subject characteristics	Caries assessment and method	Duration (y)	Cohort size	Dietary assessment method or compliance determination	Intervention	Control intervention	Funding source
(Lenkkeri <i>et al.</i> , 2012)	Parallel	Finland	Water content <1.5mg/ml	10	School children	DMFS; clinical assessment and radiograph	4y follow up (1-2y intervention)	579 randomised	Monitored by teachers each school day	1 or 2 year xylitol/ maltitol lozenges (8 lozenges 4.7g xylitol, 4.6g maltitol per day)  1 or 2 year erythritol/ maltitol lozenges (9 lozenges 4.5g erythritol and 4.2g maltitol per day)	Non lozenge group	Lozenges provided by CMS Leaf.

DMFS = decayed missing or filled surfaces (caries index)

**Table 236 - Risk of bias of RCTs on polyol intake and dental caries in mixed and permanent dentition (studies which did NOT adjust for tooth-brushing)**

Study	Randomisation	Sequence generation	Allocation concealment	Blinding	Incomplete outcome data	Dropouts (%)
Lenkkeri <i>et al.</i> , 2012	Yes	Drawing lots	Lozenges colour coded	Open to control group, other participants and assessors blind	Missing data did not lead to significant difference in age or gender split between groups	14%

**Table 237 - Polyol intake and dental caries in mixed and permanent dentition: RCT results (studies which did NOT adjust for tooth-brushing)**

TableStudy	Caries determinant	Intervention	Control	Risk assessment	Adjustments	Results
Lenkkeri et al., 2012	4 year $\Delta$ DMFS clinical and radiographical	1 year xylitol/ maltitol 2.75 (SD2.7)	2.74 (SD 3.1)	P=0.434	Unadjusted	No significant difference between groups
		2 year xylitol/ maltitol 3.02 (SD 3.3)				
		1 year erythritol/ maltitol 2.77 (SD 2.4)				
		2 year erythritol/ maltitol 2.32 (SD 2.5)				

$\Delta$ DMFS = change in decayed missing or filled surfaces (caries index)

**Table 238 - Characteristics of cohort studies on fibre intake and periodontal disease**

Study	Country	Sex	Baseline age (y)	Cohort size	Mean follow-Up duration (y)	Statistical method	Fluoride intake/ water content	Outcome assessment and method	Dietary assessment method	Dietary components investigated	Funding source
(Schwartz <i>et al.</i> , 2012)	USA	Male	NR	625	2-24	Multivariate Cox proportion hazards regression analysis	NR	Advancement of alveolar bone loss (ABL) by >40% from baseline, advancement of probing pocket depth (PPD) by >2mm both with or without tooth loss.	126 item FFQ gathered since 1984 every 3-5 years.	Daily intake of dietary fibre, and servings of good and excellent sources of fibre (good = foods providing 10-19% RDI for fibre and excellent = >20% RDI)	VA Cooperative Studies Programme, Massachusetts Veterans Epidemiology Research and Information Centre and Research Awards.

NR = not reported, ABL = alveolar bone loss, PPD = probing pocket depth, FFQ = food frequency questionnaire, RDI = Recommended daily intake

**Table 239 - Fibre intake and periodontal disease: cohort results**

Study	Carbohydrate components investigated	Advancement of alveolar bone loss (ABL) by >40% from baseline or tooth loss HR (95%CI)	Advancement of probing pocket depth (PPD) by >2mm from baseline or tooth loss HR (95%CI)	Tooth loss only HR (95%CI)	Reported association
Schwartz., 2012	Dietary fibre (per 10g/d)	<65yrs 0.98 (0.78-1.22)	<65yrs 1.01 (0.90-1.13)	<65yrs 1.17 (0.86-1.60)	No association
		>65yrs 0.93 (0.62-1.41)	>65yrs 1.00 (0.86-1.16)	>65yrs 1.20 (0.67-2.17)	
	Total good to excellent fibre foods (servings/d)	<65yrs 0.99 (0.85-1.16)	<65yrs 1.07 (0.99-1.14)	<65yrs 0.97 (0.81-1.16)	In men aged over 65yrs ABL progression and tooth loss were 24% and 28% less, respectively, for each additional serving of good to excellent sources of fibre consumed. No association in seen younger men
		>65yrs 0.76 (0.60- 0.95)	>65yrs 0.98 (0.90-1.06)	>65yrs 0.72 (0.53-0.97)	
	Good to excellent fibre grains (servings /d)	<65yrs 1.05 (0.98-1.13)	<65yrs 1.02 (0.99-1.06)	<65yrs 0.99 (0.90-1.08)	No association
		>65yrs 0.93 (0.85 – 1.10)	>65yrs 0.99 (0.96-1.03)	>65yrs 0.93 (0.82-1.05)	
	Good to excellent fibre fruits (servings /d)	<65yrs 1.02 (0.92-1.12)	<65yrs 1.00 (0.96-1.04)	<65yrs 1.00 (0.89-1.13)	Risk of disease progression or tooth loss were 5% to 14% less, respectively, for each additional serving of fruits that were good to excellent sources of fibre. No association seen in younger men
		>65yrs 0.86 (0.78-0.95)	>65yrs 0.95 (0.91-0.99)	>65yrs 0.88 (0.78-0.99)	

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