

Appendix 2

Chapter 8 Dietary vitamin D intakes and plasma 25 hydroxyvitamin D concentration of the UK population tables

Table 1**Percentage contribution of food groups (food sources) to daily vitamin D intake (μg) for non-breastfed children only, by age at Stage 1***Diet and Nutrition Survey of Infants and Young Children aged 4-18 months*

Food group ^a	Age group (months)			
	4-6 %	7-9 %	10-11 %	12-18 %
Non-infant specific foods:				
Cereals and cereal products	0	0	1	7
Milk and milk products	1	3	6	16
Eggs and egg dishes	0	0	2	7
Fat spreads ^b	0	1	3	11
Meat and meat products and dishes, total	0	1	3	13
Fish and fish dishes	0	1	2	5
Vegetables, potatoes	0	0	0	1
Savoury snacks	0	0	0	0
Fruit	0	0	0	0
Sugar, preserves and confectionery	0	0	0	0
Beverages	0	0	0	0
Miscellaneous	0	0	0	1

Infant specific foods:				
Infant formula	85	80	72	29
<i>of which:</i>				
<i>'First milk'</i>	35	19	14	1
<i>'Hungrier babies milk'</i>	22	8	4	1
<i>Follow-on milk</i>	27	48	49	11
<i>'Growing up milk'</i>	0	0	3	14
<i>Soy milk</i>	0	1	0	0
<i>Other milk products^c</i>	1	5	2	2
Commercial infant foods:	12	12	10	9
<i>of which:</i>				
<i>Meat and fish based products and dishes</i>	2	2	2	2
<i>Cereal based foods and dishes</i>	7	7	6	5
<i>Snacks (sweet and savoury)</i>	2	2	2	2
Commercial infant beverages	0	0	0	0
Average daily Vitamin D intake (food sources) μg^{d}	9.8	8.7	7.5	3.5
<i>Bases (unweighted)</i>	240	489	381	1177

^a Some food groups are not included due to small numbers of consumers; e.g. nuts and seeds and savoury snacks.

^b Some oils which are used as a condiment on bread or salads are included in this food group; however this food group does not include cooking oils.

^c Includes hypoallergenic, goats and 'goodnight' milks.

^d Vitamin D intake does not include values for breastfed children as the vitamin D content of breast milk is not known.

Table 2

Percentage contribution of food groups to average daily vitamin D intake, by age and sex

Aged 1.5 years and over

National Diet and Nutrition Survey: year 1, 2, 3 and 4 combined (2008/09 - 2011/12)

Food group ^a	Age group (years)				
	Total	4-10	11-18	19-64	65+
	1.5-3 %	%	%	%	%
Cereals and cereal products	14	20	17	13	13
<i>of which:</i>					
Pasta, rice, pizza and other miscellaneous cereals	2	2	4	2	1
High fibre breakfast cereals	2	2	2	2	3
Other breakfast cereals	6	7	6	4	3
Biscuits	0	1	1	0	0
Buns, cakes, pastries and fruit pies	3	6	4	3	4
Puddings	1	2	2	1	2
Milk and milk products	24	13	6	5	6
<i>of which:</i>					
Other milk and cream	7	1	0	0	1
Cheese	4	3	2	2	2
Cheddar cheese	1	1	1	1	0
Other cheese	3	3	2	2	1
Yoghurt, fromage frais and other dairy desserts	11	6	2	1	2
Ice cream	2	3	2	1	1
Eggs and egg dishes	9	8	9	13	13
Fat spreads ^b	20	21	20	19	19
<i>of which:</i>					
Butter	1	1	1	1	2
Reduced fat spread polyunsaturated (41-75% fat)	4	4	3	4	4
Reduced fat spread not polyunsaturated (41-75% fat)	12	12	13	11	8
Low fat spread polyunsaturated (18-39% fat)	2	3	2	3	3
Low fat spread not polyunsaturated (18-39% fat)	0	1	1	1	1
Meat and meat products	21	25	35	30	23
<i>of which:</i>					
Bacon and ham	2	3	4	4	4
Beef, veal and dishes	3	4	5	6	5
Lamb and dishes	1	1	2	2	2
Pork and dishes	1	1	2	3	2
Coated chicken and turkey	1	2	3	1	0
Chicken, turkey and dishes	1	3	6	5	3
Liver and dishes	0	0	0	0	1
Burgers and kebabs	1	2	3	2	0
Sausages	7	7	6	5	3
Meat pies and pastries	2	2	3	2	2
Other meat, meat products and dishes	1	1	1	1	1

Fish and fish dishes	8	8	9	17	23
<i>of which:</i>					
Other white fish, shellfish, fish dishes and canned tuna	4	3	5	5	2
Oily fish	4	5	4	11	20
Vegetables and potatoes	1	1	2	2	1
<i>of which:</i>					
Vegetables (not raw) including vegetable dishes	0	0	1	1	0
Other potatoes, potato salads and dishes	1	1	1	1	1
Savoury snacks	0	0	0	0	0
Nuts and seeds	0	0	0	0	0
Fruit	0	0	0	0	0
Non-alcoholic beverages ^c	0	0	0	0	0
Alcoholic beverages	0	0	0	0	0
Miscellaneous ^d	3	1	1	2	3
<i>of which:</i>					
Dry weight beverages	1	1	0	0	2
Savoury sauces, pickles, gravies and condiments	0	0	1	1	0
Commercial toddler foods	1	0	0	0	0
Bases (unweighted)	604	1277	1497	2697	753

^a Food groups that contribute <0.5% to intake across all age/sex groups are excluded from the table. All other food groups are included.

^b Some oils which are used as a condiment on bread or salads are included in this food group; however this food group does not include oils or fats used in cooking.

^c Non-alcoholic beverages are reported as consumed with diluent water.

^d In addition to dry weight beverages; soup, manufactured/retail and homemade; savoury sauces, pickles, gravies and condiments; and commercial toddler foods, Miscellaneous also includes nutrition powders and drinks.

Table 3

Percentage contribution of food groups to average daily vitamin D intake - low income / materially deprived consumers

Aged 2 years and over

Low Income Diet and Nutrition Survey 2003/05

Food group ^a	Age group (years)											
	Boys			Men			Girls			Women		
	2-10 %	11-18 %	19-34 %	35-49 %	50-64 %	65+	2-10 %	11-18 %	19-34 %	35-49 %	50-64 % %	65+
Cereals and cereal products	21	16	9	7	9	14	20	14	13	14	13	19
<i>of which:</i>												
<i>Breakfast cereals</i>	6	3	3	1	4	3	6	4	5	5	5	6
<i>Buns, cakes, pastries and fruit pies</i>	8	6	3	3	3	6	8	5	4	4	4	9
<i>Puddings</i>	3	2	1	0	1	1	1	1	1	2	1	2
Milk and milk products	5	4	3	3	5	4	7	4	3	4	4	4
Eggs and egg dishes	6	8	15	13	15	11	7	8	10	9	11	9
Fat spreads	26	29	24	32	27	28	25	26	26	25	27	25
<i>of which:</i>												
<i>Butter</i>	1	1	1	3	1	2	1	2	1	2	2	3
<i>Margarine and other fats and oils</i>	4	5	3	3	2	1	3	4	4	2	1	1
<i>Reduced fat spread (41-75% fat)</i>	17	18	15	19	18	17	15	15	15	15	14	14
<i>Low fat spread (18-39% fat)</i>	5	4	4	8	5	8	5	5	5	4	10	7

Meat and meat products	30	36	37	35	32	27	28	37	31	34	27	24
<i>of which:</i>												
<i>Bacon and ham</i>	2	3	3	4	4	4	3	3	3	4	4	4
<i>Beef, veal and dishes</i>	9	8	10	12	12	11	7	10	11	11	9	10
<i>Coated chicken and turkey</i>	3	3	2	1	1	0	4	4	2	1	1	0
<i>Chicken, turkey and dishes</i>	3	5	7	5	3	3	3	5	5	5	4	3
<i>Liver and liver dishes</i>	0	0	0	0	2	1	0	0	0	0	0	1
<i>Burgers and kebabs</i>	3	3	4	2	1	0	1	3	2	3	1	0
<i>Sausages</i>	6	6	6	5	4	4	5	6	5	3	2	2
<i>Meat pies and pastries</i>	4	6	3	4	2	3	4	5	3	4	4	2
<i>Other meat, meat products and dishes</i>	1	1	1	1	3	2	2	1	1	2	1	2
Fish and fish dishes	4	5	10	6	10	12	6	7	12	10	14	13
<i>of which:</i>												
<i>Canned tuna and dishes</i>	3	4	7	3	1	1	3	5	5	4	3	1
<i>Oily fish</i>	1	1	3	2	8	10	2	2	6	6	11	11
Vegetables	0	0	0	1	0	0	1	1	1	1	1	1
Potatoes and savoury snacks	2	2	1	1	1	1	2	2	2	2	1	1
Fruit and nuts	0	0	0	0	0	0	0	0	0	0	0	0
Sugar, preserves and confectionery	0	1	0	0	0	0	0	0	0	0	0	0
Beverages (alcoholic and non-alcoholic)	4	0	0	1	0	0	3	0	0	1	0	0
Miscellaneous	0	0	1	1	1	1	1	1	1	1	2	3
<i>Base (unweighted)</i>	239	200	194	226	258	268	278	215	483	494	336	537

Table 4

Percentage contribution of food groups to average daily vitamin D intake (μg) in Scotland, by sex and age
Aged 1.5 years and over

2008/09 - 2011/12

Food group ^a	Sex and age group (years)														
	Boys		Total boys	Men		Girls		Total girls	Women		Total	4-10	11-18	19-64	65+
	4-10 %	11-18 %	%	19-64 %	65+ %	4-10 %	11-18 %	%	19-64 %	65+ %	1.5-3 %	%	%	%	%
Cereals and cereal products	18	16	17	14	13	20	18	19	17	18	15	19	17	16	16
of which:															
Pasta, rice, pizza and other miscellaneous cereals	3	3	3	2	2	3	3	3	3	1	2	3	3	3	1
High fibre breakfast cereals	1	3	2	2	2	3	2	2	3	2	2	2	2	3	2
Other breakfast cereals	6	5	6	6	3	7	5	6	6	7	6	7	5	6	5
Biscuits	1	0	0	0	1	0	1	1	0	1	0	1	1	0	1
Buns, cakes, pastries and fruit pies	6	3	4	3	5	5	5	5	4	5	4	6	4	3	5
Puddings	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1
Milk and milk products	12	5	8	3	4	14	7	10	5	5	25	13	6	4	4
of which:															
Other milk and cream	1	0	0	0	0	1	1	1	0	0	6	1	0	0	0
Cheese	2	2	2	2	2	2	3	3	2	1	4	2	2	2	1
Cheddar cheese	0	1	1	0	0	0	1	1	1	0	1	0	1	1	0
Other cheese	2	1	1	1	1	2	2	2	1	1	3	2	1	1	1
Yoghurt, fromage frais and other dairy desserts	6	2	4	1	1	7	1	4	1	2	13	7	1	1	1
Ice cream	4	2	2	1	1	4	2	3	1	1	1	4	2	1	1
Eggs and egg dishes	7	10	9	11	16	7	7	7	12	16	7	7	8	11	16
Fat spreads ^b	23	20	21	19	20	20	22	21	16	18	20	21	21	18	19
of which:															
Butter	1	1	1	1	2	0	2	1	2	2	1	1	1	1	2
Reduced fat spread polyunsaturated (41-75% fat)	5	4	5	4	3	4	5	4	2	4	3	5	4	3	4
Reduced fat spread not polyunsaturated (41-75% fat)	12	13	13	10	8	13	12	13	9	7	11	13	12	9	8
Low fat spread polyunsaturated (18-39% fat)	4	3	3	4	6	1	3	2	3	3	4	3	3	3	4
Low fat spread not polyunsaturated	0	0	0	0	1	1	0	0	1	1	1	1	0	1	1

Table 5.30 (continued)

Percentage contribution of food groups to average daily vitamin D intake (μg) in Scotland, by sex and age

Aged 1.5 years and over

2008/09 - 2011/12

Food group ^a	Sex and age group (years)															
	Boys		Total boys	Men		Girls		Total girls	Women		Total		4-10	11-18	19-64	65+
	4-10	11-18	%	19-64	65+	4-10	11-18	%	19-64	65+	1.5-3	%	%	%	%	%
Sugar, preserves and confectionery	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
of which:																
Chocolate confectionery	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Non-alcoholic beverages ^c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alcoholic beverages	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous ^d	1	1	1	2	2	1	2	2	3	1	3	1	1	2	2	2
Dry weight beverages	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
Soup, manufactured/retail and homemade	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0
Savoury sauces, pickles, gravies and condiments	0	0	0	1	1	0	1	1	1	0	0	0	1	1	1	1
Commercial toddler foods	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Average daily total vitamin D intake μg	2.0	2.4	2.2	3.1	3.5	2.0	1.8	1.9	2.4	2.9	1.8	2.0	2.1	2.7	3.2	
Bases (unweighted)	163	199	362	273	80	144	197	341	377	137	125	307	396	650	217	

^a Food groups that contribute <0.5% to intake across all age/sex groups are excluded from the table. All other food groups are included.^b Some oils which are used as a condiment on bread or salads are included in this food group; however this food group does not include oils or fats used in cooking.^c Non-alcoholic beverages are reported as consumed with diluent water.^d In addition to dry weight beverages; soup, manufactured/retail and homemade; savoury sauces, pickles, gravies and condiments; and commercial toddler foods, Miscellaneous also includes nutrition powders and

National Diet and Nutrition Survey. Results from Years 1,2,3 and 4 (combined) of the Rolling Programme (2008/2009 – 2011/12); Scotland.

Table 5

Percentage contribution of food groups to average daily vitamin D (μg) in Northern Ireland, by sex and age

Aged 1.5 years and over

2008/09 - 2011/12

Food group ^a	Sex and age group (years) ^b												
	Boys		Total	Men	Girls		Total	Women	Total	4-10	11-18	19-64	65+
	4-10 %	11-18 %	boys %	19-64 %	4-10 %	11-18 %	girls %	19-64 %	1.5-3 %	%	%	%	%
Cereals and cereal products	19	15	17	12	18	16	17	15	12	18	15	14	13
of which:													
Pasta, rice, pizza and other miscellaneous cereals	1	3	2	1	1	2	1	2	2	1	2	1	0
High fibre breakfast cereals	2	2	2	2	3	2	3	3	1	3	2	3	2
Other breakfast cereals	7	6	6	4	6	5	6	5	5	7	6	5	3
Biscuits	1	0	1	0	0	1	0	0	0	1	1	0	0
Buns, cakes, pastries and fruit pies	7	2	4	3	5	5	5	4	4	6	4	3	7
Puddings	1	1	1	1	1	1	1	1	0	1	1	1	1
Milk and milk products	13	5	9	3	11	4	7	4	17	12	5	3	4
of which:													
Other milk and cream	0	0	0	0	0	0	0	0	2	0	0	0	0
Cheese	2	1	2	1	3	1	2	2	3	2	1	2	1
Cheddar cheese	1	0	0	0	0	0	0	1	0	0	0	1	1
Other cheese	1	1	1	1	2	1	1	1	2	2	1	1	1
Yoghurt, fromage frais and other dairy desserts	7	1	4	1	5	1	3	1	11	6	1	1	2
Ice cream	5	3	3	1	3	1	2	1	1	4	2	1	1
Eggs and egg dishes	7	7	7	12	5	8	6	14	7	6	7	13	13
Fat spreads ^c	25	24	24	20	27	25	26	23	28	26	24	22	27
of which:													
Butter	2	2	2	3	1	2	2	3	2	2	2	3	4
Margarine and other fats and oils	0	1	1	1	1	0	1	1	0	1	0	1	2
Reduced fat spread polyunsaturated (41-75% fat)	3	3	3	3	4	4	4	2	7	3	4	2	2
Reduced fat spread not polyunsaturated (41-75% fat)	13	10	11	10	11	11	11	9	13	12	10	10	8
Low fat spread polyunsaturated (18-39% fat)	5	8	6	3	9	7	8	7	5	7	7	5	9
Low fat spread not po.	2	0	1	1	1	1	1	1	0	1	0	1	3

Table 5.30 (continued)

Percentage contribution of food groups to average daily vitamin D (μg) in Northern Ireland, by sex and age

Aged 1.5 years and over

2008/09 - 2011/12

Food group ^a	Sex and age group (years) ^b												
	Boys		Total	Men	Girls		Total	Women	Total	4-10	11-18	19-64	65+
	4-10 %	11-18 %	boys %	19-64 %	4-10 %	11-18 %	girls %	19-64 %	1.5-3 %	%	%	%	%
Sugar, preserves and confectionery	1	0	0	0	1	0	0	0	0	1	0	0	0
<i>of which:</i>													
Chocolate confectionery	1	0	0	0	1	0	0	0	0	1	0	0	0
Non-alcoholic beverages ^d	0	0	0	0	0	0	0	0	0	0	0	0	0
Alcoholic beverages	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous ^e	1	2	1	1	1	2	1	1	3	1	2	1	1
<i>Savoury sauces, pickles, gravies and condiments</i>	0	1	0	1	0	2	1	1	0	0	1	1	0
Commercial toddler foods	0	0	0	0	0	0	0	0	2	0	0	0	0
Average daily total vitamin D (μg)	1.9	2.4	2.2	2.9	1.9	1.8	1.8	2.3	1.8	1.9	2.1	2.6	3.6
<i>Bases (unweighted)</i>	<i>94</i>	<i>120</i>	<i>214</i>	<i>145</i>	<i>88</i>	<i>116</i>	<i>204</i>	<i>246</i>	<i>94</i>	<i>182</i>	<i>236</i>	<i>391</i>	<i>79</i>

^a Food groups that contribute <0.5% to intake across all age/sex groups are excluded from the table. All other food groups are included.^b Due to small cell sizes, participants aged 65 years and over have only been reported as males and females combined.^c Some oils which are used as a condiment on bread or salads are included in this food group; however this food group does not include oils or fats used in cooking.^d Non-alcoholic beverages are reported as consumed with diluent water.^e In addition to dry weight beverages; soup, manufactured/retail and homemade; savoury sauces, pickles, gravies and condiments; and commercial toddler foods, Miscellaneous also includes

National Diet and Nutrition Survey. Results from Years 1,2,3 and 4 (combined) of the Rolling Programme (2008/2009 – 2011/12): Northern Ireland.

Table 1.6**Average daily intake of vitamin D from all sources (including dietary supplements) and food sources, by age at stage 1***Diet and Nutrition Survey of Infants and Young Children aged 4-18 months*

Vitamins	Age group (months)			
	4-6	7-9	10-11	12-18
All sources				
Vitamin D non-breastfed μg^{a}				
Mean	10.0	8.9	7.7	3.9
Median	9.7	8.8	7.8	1.9
sd	2.9	3.1	3.5	3.9
Upper 2.5 percentile	17.1	16.0	15.7	14.0
Lower 2.5 percentile	4.3	3.0	0.7	0.3
Vitamin D breastfed excluding breast milk μg^{b}				
Mean	3.5	3.6	3.8	2.6
Median	2.3	3.1	3.2	1.5
sd	3.8	2.7	3.5	2.8
Upper 2.5 percentile	9.6	10.0	15.7	10.8
Lower 2.5 percentile	0.0	0.2	0.2	0.2
Food sources				
Vitamin D non-breastfed μg^{a}				
Mean	9.8	8.7	7.5	3.5
Median	9.6	8.7	7.6	1.7
sd	2.7	2.9	3.4	3.5
Upper 2.5 percentile	14.8	15.2	15.6	12.0
Lower 2.5 percentile	4.3	3.0	0.7	0.3
Vitamin D breastfed excluding breast milk μg^{b}				
Mean	3.0	3.2	2.7	1.8
Median	1.5	2.6	2.2	1.2
sd	3.5	2.6	2.3	1.7
Upper 2.5 percentile	9.6	8.5	8.2	5.7
Lower 2.5 percentile	0.0	0.2	0.1	0.2

^a Vitamin D intake does not include values for breastfed children as the vitamin D content of breast milk is not known. excluding any exclusively breastfed children (n=2)) as the vitamin D content of breast milk is not known. The bases

Table 7**Average daily intake of vitamins as a percentage of Reference Nutrient Intake (RNI), by age at Stage 1***Diet and Nutrition Survey of Infants and Young Children aged 4-18 months*

Vitamin		Age group (months)			
		4-6	7-9	10-11	12-18
		%	%	%	%
All sources					
Vitamin D non-breastfed ^a	Mean	117	127	111	55
	Median	115	126	111	27
	sd	34	44	50	55
Vitamin D breastfed excluding breast milk ^b	Mean	41	52	54	37
	Median	27	44	45	21
	sd	44	39	51	40
Food sources					
Vitamin D non-breastfed ^a	Mean	115	125	108	50
	Median	113	124	108	24
	sd	32	41	49	50
Vitamin D breastfed excluding breast milk ^b	Mean	35	46	38	26
	Median	18	37	31	17
	sd	41	37	33	24
<i>Bases (unweighted)</i>		329	630	449	1275

^a Vitamin D intake does not include values for breastfed children as the vitamin D content of breast milk is not known. The bases are: 240 for 4-6M, 489 for 7-9M, 381 for 10-11M and 1177 for 12-18M. Note breastfeeding status is defined by whether it was recorded in the four-day diary.

^b Vitamin D intake includes values for breastfed children excluding the contribution from breast milk (therefore excluding any exclusively breastfed children (n=2)) as the vitamin D content of breast milk is not known. The bases are 89 for 4-6M, 141 for 7-9M, 68 for 10-11M and 98 for 12-18M. Note breastfeeding status is defined by whether it was recorded in the four-day diary.

Table 8

Vitamin D intake ($\mu\text{g/day}$) by age and sex

Aged 1.5 years and over

National Diet and Nutrition Survey year 1, 2, 3 & 4 combined (2008/09 - 2011/12)

Vitamin D	Sex and age group (years)														
	Boys		Total boys	Men		Girls		Women			Total				
	4-10	11-18		19-64	65+	4-10	11-18	Total girls	19-64	65+	1.5-3	4-10	11-18	19-64	65+
Intake from food sources															
Vitamin D μg															
Mean	2.0	2.4	2.2	3.1	3.9	1.9	1.9	1.9	2.6	2.9	1.9	2.0	2.1	2.8	3.3
Median	1.9	2.1	2.0	2.5	3.2	1.7	1.6	1.7	2.1	2.5	1.4	1.8	1.8	2.3	2.7
sd	1.0	1.3	1.2	2.3	2.7	1.1	1.2	1.2	1.9	1.9	2.0	1.1	1.3	2.1	2.3
Upper 2.5 percentile	4.5	5.7	5.4	9.2	11.9	4.2	4.9	4.6	7.5	7.7	8.5	4.4	5.4	8.5	9.2
Lower 2.5 percentile	0.5	0.4	0.5	0.5	0.9	0.4	0.3	0.4	0.4	0.5	0.3	0.4	0.4	0.5	0.7
Intake from all sources^a															
Vitamin D μg															
Mean	2.7	2.6	2.7	3.9	5.1	2.6	2.1	2.3	3.4	5.2	2.3	2.7	2.4	3.6	5.1
Median	2.1	2.2	2.2	2.7	3.7	1.9	1.7	1.8	2.5	3.5	1.5	2.0	1.9	2.6	3.6
sd	2.1	1.9	2.0	4.5	4.0	4.5	1.6	3.2	3.0	4.8	2.4	3.5	1.8	3.8	4.5
Upper 2.5 percentile	8.0	7.7	7.7	12.3	16.8	7.3	6.4	6.9	11.8	20.2	10.6	7.5	6.9	12.0	19.2
Lower 2.5 percentile	0.6	0.4	0.5	0.6	0.9	0.4	0.3	0.4	0.5	0.7	0.3	0.5	0.4	0.6	0.8
<i>Bases (unweighted)</i>	665	744	1409	1126	317	612	753	1365	1571	436	604	1277	1497	2697	753

^a All sources includes the contribution from dietary supplements containing vitamin D

Table 9

Average daily intake (μg) of vitamin D from food sources only in Scotland, by sex and age

Aged 1.5 years and over

2008/09 - 2011/12

Vitamin	Sex and age group (years)														
	Boys		Total	Men	Girls		Total	Women	Total	4 - 10		11-18	19 - 64		65+
	4-10	11-18	boys	19-64	65+	4-10	11-18	girls	19-64	65+	1.5-3	4 - 10	11-18	19 - 64	65+
Intake from food sources															
Vitamin D															
μg															
Mean	2.0	2.4	2.2	3.1	3.5	2.0	1.8	1.9	2.4	2.9	1.8	2.0	2.1	2.7	3.2
Median	1.8	1.9	1.8	2.6	3.2	1.8	1.6	1.7	1.8	2.4	1.5	1.8	1.7	2.3	2.5
sd	1.2	1.5	1.4	2.2	2.4	1.0	1.2	1.1	1.7	1.9	1.4	1.1	1.4	2.0	2.1
Upper 2.5 percentile	5.3	6.8	5.9	9.5	9.8	4.4	5.3	4.6	7.1	7.4	7.0	4.5	5.8	7.9	9.0
Lower 2.5 percentile	0.5	0.7	0.5	0.8	0.6	0.6	0.3	0.4	0.4	0.7	0.5	0.5	0.4	0.5	0.6
Bases (unweighted)	163	199	362	273	80	144	197	341	377	137	125	307	396	650	217
Intake from all sources															
Vitamin D															
μg															
Mean	2.5	2.5	2.5	3.7	4.7	2.5	2.0	2.2	3.1	4.6	2.1	2.5	2.2	3.4	4.7
Median	1.9	2.0	2.0	2.9	3.9	1.9	1.7	1.7	2.2	3.1	1.5	1.9	1.8	2.5	3.3
sd	1.9	1.6	1.7	2.9	3.4	2.2	1.5	1.9	3.2	4.5	1.8	2.0	1.6	3.1	4.0
Upper 2.5 percentile	8.0	6.8	7.2	11.5	13.1	10.8	6.0	8.0	10.2	22.4	7.6	8.2	6.8	10.9	15.1
Lower 2.5 percentile	0.5	0.7	0.6	0.8	0.6	0.6	0.3	0.4	0.4	0.7	0.5	0.6	0.4	0.6	0.6
Bases (unweighted)	163	199	362	273	80	144	197	341	377	137	125	307	396	650	217

Table 10

Average daily intake of vitamin D in Northern Ireland, by sex and age

Aged 1.5 years and over

2008/09 - 2011/12

Vitamin	Sex and age group (years) ^a												
	Boys		Total	Men	Girls		Total	Women	Total	4 -10	11-18	19 - 64	65+
	4-10	11-18	boys	19-64	4-10	11-18	girls	19-64	1.5-3	4 -10	11-18	19 - 64	65+
Intake from food sources													
Vitamin D													
µg													
Mean	1.9	2.4	2.2	2.9	1.9	1.8	1.8	2.3	1.8	1.9	2.1	2.6	3.6
Median	1.7	2.3	1.9	2.4	1.6	1.6	1.6	2.0	1.5	1.6	1.8	2.2	2.9
sd	0.9	1.3	1.2	1.8	1.0	1.0	1.0	1.2	1.1	0.9	1.2	1.6	2.2
Upper 2.5 percentile	4.0	5.7	4.6	6.9	4.3	4.3	4.3	5.7	4.8	4.0	5.1	6.7	10.1
Lower 2.5 percentile	0.5	0.6	0.5	0.8	0.7	0.5	0.5	0.6	0.3	0.5	0.5	0.6	0.6
Intake from all sources													
Vitamin D													
µg													
Mean	2.4	2.6	2.5	3.4	2.5	2.0	2.2	3.0	1.9	2.4	2.3	3.2	5.7
Median	1.8	2.5	2.1	2.6	1.9	1.6	1.7	2.3	1.6	1.8	1.9	2.5	4.0
sd	1.8	1.7	1.7	2.8	1.8	1.4	1.6	2.4	1.5	1.8	1.5	2.6	4.8
Upper 2.5 percentile	7.4	7.2	7.3	11.1	6.8	6.0	6.4	8.7	6.4	7.1	6.8	10.6	19.3
Lower 2.5 percentile	0.5	0.6	0.5	0.9	0.7	0.5	0.5	0.6	0.3	0.5	0.5	0.7	0.8

Table 11

Average daily intake of vitamin D as a percentage of Reference Nutrient Intake (RNI), by age and sex

Aged 1.5 years and over

National Diet and Nutrition Survey year 1-4 combined (2008/09 - 2011/12)

Vitamin		Sex and age group (years) ^b			
		Total	Men	Women	Total
		1.5-3	65+	65+	65+
		%	%	%	%
Food sources only					
Vitamin D	Mean	27	39	29	33
	Median	20	32	25	27
	sd	29	27	19	23
All sources^a					
Vitamin D	Mean	32	51	52	51
	Median	21	37	35	36
	sd	34	40	48	45
<i>Bases (unweighted)</i>		604	317	436	753

^a All sources includes the contribution from dietary supplements containing vitamin D

^b There are no RNIs set between ages four and 64 years; therefore % RNI is only expressed for those aged 1.5 to three years and 65 years and over.

Table 12

Average daily intake of vitamin D from food sources ($\mu\text{g}/\text{day}$) in low income / materially deprived consumers by age and sex

Aged 2 years and over

Low Income Diet and Nutrition Survey: 2003/05

Vitamin D	Sex and age group (years)														Total women	
	Boys		Total boys	Men				Total men	Girls		Women					
	2-10	11-18			19-34	35-49	50-64		65+		2-10	11-18	Total girls	19-34	35-49	50-64
Intake from food sources																
Vitamin D μg																
Mean	2.00	2.43	2.18	3.01	3.03	3.67	3.41	3.28	1.74	2.07	1.88	2.16	2.52	2.83	2.64	2.51
Median	1.78	2.03	1.88	2.54	2.70	3.00	2.88	2.81	1.45	1.87	1.60	1.86	1.93	2.34	2.24	2.04
sd	1.30	1.44	1.37	2.09	1.87	2.81	2.29	2.30	1.15	1.14	1.15	1.51	3.25	2.13	1.70	2.26
Upper 2.5 percentile	4.76	7.00	5.14	10.03	7.53	10.03	9.71	9.52	4.09	5.04	4.85	6.05	7.77	9.23	6.67	7.09
Lower 2.5 percentile	0.08	0.79	0.22	0.64	0.33	0.46	0.65	0.60	0.12	0.31	0.25	0.44	0.35	0.25	0.37	0.41
<i>Bases (unweighted)</i>	239	200	439	194	226	258	268	946	278	215	493	483	494	336	537	1850

Table 13

Average daily intake of vitamin D for low income / materially deprived consumers as a percentage of Reference Nutrient Intake (RNI), by age and sex

Low Income Diet and Nutrition Survey 2003/05

Aged 1.5 years and over

Vitamin		Sex and age group (years)			
		2-10 %	65+ %	2-10 %	65+ %
Food sources only					
Vitamin D ^a	Mean % RNI	22	34	22	26
	Median	21	29	20	22
<i>Bases (unweighted)</i>		239	268	278	537

^a For Vitamin D, there are no RNIs set between ages four and 64 years; therefore % RNI is only expressed for those aged 1.5 to three years and 65 years and over.

Table 14**Vitamin D status in the UK - Infants and young children 4-18 months***Aged 4-18 months**Diet and Nutrition Survey of Infants and Young Children 2011*

Analyte	Sex and age group (years)	
	5-11 months	12 months +
Plasma 25-hydroxyvitamin D (nmol/L)		
Mean	68.6	64.3
Median	67.6	62.9
sd	25.2	24.3
Upper 2.5th percentile	110.0	122.0
Lower 2.5th percentile	12.1	26.2
<i>% below 25nmol/L</i>	6%	2%
<i>Bases (unweighted)</i>	166	300

Table 15

Vitamin D status in the UK - adults and older children

Aged 11-64 years

National Diet and Nutrition Survey years 1-4 combined (2008/09-2011/12)

Analyte	Sex and age group (years)												
	Boys		Men		Girls		Women		1.5-3	All			
	4-10	11-18	19-64	65+	4-10	11-18	19-64	65+		4-10	11-18	19-64	65+
Plasma 25-hydroxyvitamin D (nmol/L)													
Mean	52.3	44.9	43.5	47.0	48.0	41.1	47.3	42.5	[58.1]	50.2	43.0	45.4	44.5
Median	51.7	42.8	39.0	45.5	49.1	38.3	44.5	41.4	[51.0]	50.4	40.7	41.8	43.1
sd	23.96	23.75	23.87	22.47	22.21	21.08	25.61	20.18	[26.75]	23.16	22.51	24.84	21.29
Upper 2.5th percentile	16.1	10.4	7.1	12.3	14.3	7.1	10.2	11.8	[17.4]	14.3	7.1	7.1	12.1
Lower 2.5th percentile	106.0	100.0	92.4	94.8	108.0	87.5	106.0	87.1	[105.0]	106.0	96.3	104.0	94.8
% below 25nmol/L	12.3	19.7	24.0	16.9	15.6	24.4	21.7	24.1	[7.5]	13.9	22.0	22.8	21.0
Bases (unweighted)	129	273	551	140	108	250	770	198	[42]	237	523	1321	338

Table 16

Vitamin D status in England - people aged 65 years and over

Aged 65 years and over

Health Survey for England 2005

Plasma 25-hydroxyvitamin D (nmol/L)	Sex and age group (years)														
	Men					Women					All				
	65-69	70-74	75-79	80-84	85+	65-69	70-74	75-79	80-84	85+	65-69	70-74	75-79	80-84	85+
Mean	53.3	55.6	51.6	48.6	48.2	52.4	51.7	43.5	44.8	42.3	52.8	53.5	47.1	46.2	44.6
Median	52.5	54.0	47.7	45.0	48.0	49.0	49.0	40.0	43.0	38.0	50.1	51.0	44.0	44.0	41.0
sd	21.4	23.8	23.8	20.0	19.5	23.8	21.7	20.2	19.3	24.0	22.6	22.8	22.2	19.6	22.5
Upper 2.5th percentile	101.5	109.0	111.4	95.8	88.7	107.4	98.1	88.0	84.0	116.2	101.9	101.0	102.0	87.6	102.4
Lower 2.5th percentile	17.0	14.7	14.6	18.0	11.9	15.9	17.0	12.0	13.0	11.0	16.0	16.0	13.0	15.0	11.3
% below 25nmol/L	8	8	12	7	8	7	11	19	16	22	7	9	16	13	17
% below 15 nmol/L	2	2	2	0	3	2	1	4	3	8	2	1	3	2	6
Bases (unweighted)	295	240	185	113	74	316	278	240	205	119	610	518	425	318	193

Table 17

Vitamin D status in the UK - low income / materially deprived consumers

Aged 8 years and over

Low Income Diet and Nutrition Survey 2004/05

Plasma 25-hydroxyvitamin D (nmol/L)	Sex and age group (years)											
	Boys			Men			Girls			Women		
	8-10	11-18	19-34	35-49	50-64	65+	8-10	11-18	19-34	35-49	50-64	65+
Mean	[65.9]	43.5	44.9	43.2	45.8	52.8	[52.2]	39.6	48.5	48.7	43.2	44.2
Median	[61.0]	41.0	37.5	39.0	38.0	44.0	[51.2]	33.0	44.0	44.0	39.0	40.0
sd	[18.0]	16.8	22.6	21.2	26.4	35.4	[19.4]	21.8	26.0	25.4	22.7	20.7
Upper 2.5th percentile	[109.0]	80.2	106.0	84.5	107.0	193.0	[86.0]	92.0	108.0	103.0	117.0	95.0
Lower 2.5th percentile	[40.0]	12.0	15.0	12.4	14.2	17.0	[20.0]	11.0	12.0	10.0	14.0	9.1
% below 25nmol/L	[0]	8	18	24	25	14	[16]	23	19	14	24	14
<i>Bases (unweighted)</i>	8	37	65	95	133	145	15	45	200	237	181	258

Table 18

Plasma 25-hydroxyvitamin D by month blood sample was taken, by age

Aged 1.5 years and over

National Diet and Nutrition Survey: years 1-4 combined (2008/09-2011/12)

Plasma 25-OHD*	Age group (years)					
	Total	1.5-3 ^a	4-10	11-18	19-64	65+
Plasma 25-hydroxyvitamin D (nmol/L) January-March ^{1,b}						
Mean			37.2	31.5	34.8	40.5
Median			32.9	28.1	29.4	36.7
sd			17.56	18.77	22.91	22.91
% below 25nmol/L ^c			31.4	40.0	39.3	29.3
Plasma 25-hydroxyvitamin D (nmol/L) April-June ^{2,b}						
Mean		[47.2]	43.5	44.2	44.9	
Median		[48.9]	41.2	40.4	38.2	
sd		[18.60]	19.27	24.39	21.89	
% below 25nmol/L ^c		[8.2]	12.7	24.4	21.3	
Plasma 25-hydroxyvitamin D (nmol/L) July-September ^{3,b}						
Mean		66.0	52.3	57.5	50.5	
Median		60.8	50.3	56.3	48.7	
sd		22.66	21.39	23.42	18.31	
% below 25nmol/L ^c		1.7	13.4	8.4	3.6	
Plasma 25-hydroxyvitamin D (nmol/L) October-December ^{4,b}						
Mean		50.2	44.3	45.6	43.7	
Median		52.9	37.3	41.0	42.6	
sd		23.14	26.62	22.73	19.94	
% below 25nmol/L ^c		11.7	24.3	16.9	25.7	
Bases (unweighted)						
¹ Plasma 25-hydroxyvitamin D (nmol/L) January-March	[12]	68	125	345	106	
² Plasma 25-hydroxyvitamin D (nmol/L) April-June	[8]	[48]	152	369	85	
³ Plasma 25-hydroxyvitamin D (nmol/L) July-September	[8]	59	136	341	75	
⁴ Plasma 25-hydroxyvitamin D (nmol/L) October-December	[14]	62	110	266	72	

* 0.0% represents no cases in this dataset.

^a Due to cell sizes for those aged 1.5 to 3 years being below 30, data has not been presented for children aged 1.5 to 3 years.^b Due to limited cell sizes, the 2.5th and 97.5th percentiles have not been presented.

Table 19

Vitamin D status in England - adults by season of interview

Aged 16 years and over

Analyte	Sex and season of interview**			
	Summer	Autumn	Winter	Spring
	July - September	October - December	January - March	April - June
	M&F	M&F	M&F	M&F
Plasma 25-hydroxyvitamin D (nmol/L)				
Mean	60.1	39.4	33.1	45.2
Median	58.5	36.5	27.0	43.0
% below 25nmol/L	6.9	27.4	42.2	18.2
Bases (unweighted)	998	971	1,557	1,220

** Blood sample was taken shortly after the interview

Table 20

Vitamin D status in Scotland - adults by season of interview

*Aged 16 years and over**Scottish Health Survey 2010-2011 combined*

Analyte	Sex and season of interview**			
	Summer	Autumn	Winter	Spring
	July - September	October - December	January - March	April - June
	M&F	M&F	M&F	M&F
Plasma 25-hydroxyvitamin D (nmol/L)				
Mean	51.3	34.9	27.9	36.1
SE	1.9	1.4	1.2	1.3
sd	26.2	19.7	16.9	18.8
% below 25nmol/L	17	32	54	30
95% CI %	12-23	26-39	47-62	25-36
<i>Bases (unweighted)</i>	364	320	413	356
<i>Bases (weighted)</i>	363	363	363	363

** Blood sample was taken shortly after the interview

Table 21

Vitamin D status in English regions by season - adults 16 years and over

Aged 16 years and over

Health Survey for England 2010

	Region											
	Summer July - September			Autumn October - December			Winter January - March			Spring April - June		
	Midlands and North	South incl London	South excl. London	Midlands and North	South incl London	South excl. London	Midlands and North	South incl London	South excl. London	Midlands and North	South incl London	South excl. London
% below 25nmol/L	6	7	5	29	26	21	46	38	35	22	14	12
Bases	504	494	391	517	454	344	837	720	570	645	575	469

% below 25nmol/l in London:

Summer 16%

Autumn 47%

Winter 55%

Spring 16%

Table 22

Vitamin D status in pregnant women in North West London, by season

Multi-ethnic sample of pregnant women in North West London 2008-2009

Analyte	Month blood sample taken				
	July - September	October - December	January - March	April - June	Overall
Plasma 25-hydroxyvitamin D (nmol/L)					
Median	38.0	38.0	26.0	32.0	35.0
Inter quartile range	22, 76	18, 66	12, 48	20, 60	19, 64
% below 25nmol/L	29	36	49	34	36
<i>Bases (unweighted)</i>					346

McAree T, (et al) Vitamin D deficiency in pregnancy - still a public health issue. (2013) Maternal and child nutrition ,. 9 23-30

Table 23**Vitamin D status in pregnant women in Southampton***Pregnant women taking part in the Southampton Women's Survey*

Plasma 25-hydroxyvitamin D (nmol/L)**

Median	62.0
Inter quartile range	43-89
<i>% below 75nmol/L</i>	63.4
<i>% below 50nmol/L</i>	35.1
<i>Bases (unweighted)</i>	977

* Mean age 30.4 years

** Measured at 34 weeks gestation

Blood samples were taken throughout the year. Season of sampling was the most important predictor of higher vitamin D status

Crozier SR et al. (2012) Maternal vitamin D status in pregnancy is associated with adiposity in the offspring: findings from the Southampton Women's Survey. *AJCN* 96 57-63

Table 24

Vitamin D status in pregnant women** in South West England, by trimester

ALSPAC study 1991 / 1992

	First trimester	Second trimester	Third trimester
Plasma 25-hydroxyvitamin D (nmol/L)**			
Median	55.1	60.1	67.4
Inter quartile range	40.7 - 74.1	41.4 - 83.4	46.8 - 93.0
% below 50 nmol/L			34%
% below 27.5 nmol/L			6%
<i>Bases (unweighted)</i>	1035	879	2,046

** Mainly white European . Mean age 29 years.
Blood samples collected throughout the year

Lawlor DA et al. (2013) Association of maternal vitamin D status during pregnancy with bone-mineral content in

Table 25

Vitamin D status in England by ethnicity

*Aged 16 years and over**Health Survey for England 2010*

Analyte	Ethnic Group				
	White	Mixed	Asian	Black	Other
Plasma 25-hydroxyvitamin D (nmol/L)					
Mean	45.8	[31]	20.5	27.7	[22.4]
Median	43.0	[24]	15.0	23.0	[18]
% below 25nmol/L	21	[52]	74.8	54.2	[63.9]
<i>Bases (unweighted)</i>	3,548	[25]	135	72	[36]

Table 26

Vitamin D status in Asian children aged 2 years in England

	<i>Asian Infant Feeding Survey 1996</i>		
	Ethnic group		
	Bangladeshi	Pakistani	Indian
Plasma 25-hydroxyvitamin D (nmol/L)**			
Mean	42.1	36.2	42.2
Median	37.5	30.0	37.5
sd	21.30	19.60	22.50
Upper 2.5th percentile	91.2	92.5	102.5
Lower 2.5th percentile	16.5	14.5	14.7
<i>% below 25nmol/L</i>	<i>20</i>	<i>34</i>	<i>25</i>
<i>% below 20nmol/L</i>	<i>13</i>	<i>18</i>	<i>13</i>
<i>% below 12.5nmol/L</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Bases (unweighted)</i>	<i>139</i>	<i>200</i>	<i>279</i>

** Blood sample taken October - November

Table 27

Vitamin D status by ethnicity and season

Aged 19-70 years

Asian and Caucasian women living in Southern England (D-Fines study)

Analyte	Sex and season blood sample taken							
	Summer 2006		Autumn 2006		Winter 2006/07		Spring 2007	
	Asian	Caucasian	Asian	Caucasian	Asian	Caucasian	Asian	Caucasian
Plasma 25-hydroxyvitamin D (nmol/L)								
Mean	26.8	67.9	21.4	58.3	20.2	43.7	21.9	48.6
Median	24.4	65.1	18.7	54.0	16.1	40.7	19.0	44.3
sd	10.20	23.10	10.10	21.60	10.40	16.20	10.10	20.90
% below 25nmol/L	52.5	0.4	80	1.8	75.4	9.7	72.7	6.7
<i>Bases (unweighted)**</i>	86	279	77	247	71	224	70	223

**The same women gave blood samples in each season.

Table 28**Vitamin D status in Scotland by Body Mass Index***Aged 16 and over**Scottish Health Survey 2010-2011 combined*

Plasma 25-hydroxyvitamin D		BMI		
		Less than 25	25 to less than 30	30 and over
Mean Vitamin D	nmol/L	41	38.5	33.3
SE of mean	nmol/L	1.8	1.1	1.1
Standard deviation	nmol/L	25.7	21.7	18.4
% below 25 nmol/l	%	33	28	38
95% C.I.	%	(27-40)	(24-33)	(32-44)
<i>Bases (weighted):</i>		470	498	364
<i>Bases (unweighted):</i>		412	515	400