

Healthier and more sustainable catering: Nutrition principles.

The scientific principles for developing nutrient based standards for planning nutritionally balanced menus.

DH INFORMATION READER BOX

Policy	Estates
HR / Workforce Management	Commissioning
Planning / Clinical	IM & T
	Finance
	Social Care / Partnership Working

Document Purpose	Best Practice Guidance
Gateway Reference	15655
Title	Healthier and more sustainable catering: Nutrition principles
Author	Department of Health, Health and Well-being, Nutrition Advice Team
Publication Date	June 2011
Target Audience	Caterers, procurers of catering goods and services and nutritionist/dietitians working within catering, particularly but not exclusively within the public sector
Circulation List	A range of stakeholders, many within organisations listed above, will have received the original document.
Description	The scientific principles for developing nutrient-based standards to use for planning nutritionally balanced menu cycles. Analysed menus that meet nutrient-based standards ensure that consumers of the food provided are able to meet dietary recommendations.
Cross Ref	References Government Buying Standards for Food, Defra
Superseded Docs	Nutrient and food based guidance for UK Institutions
Action Required	N/A
Timing	N/A
Contact Details	Jamie Blackshaw Nutrition Advice Team/Health and Wellbeing 6th Floor North, Wellington House 133-155 Waterloo Road SE1 8UG 2079724266
For Recipient's Use	

Healthier and more sustainable catering: Nutrition principles.

The scientific principles for developing nutrient based standards to use for planning nutritionally balanced menus.

Prepared by the Nutrition Advice Team

© Crown copyright 2011

This updates 'Nutrient and food based guidelines for UK institutions' (2005) published by the Food Standards Agency.

Published to DH website, in electronic PDF format only.

<http://www.dh.gov.uk/publications>

Contents

Contents.....	4
Executive Summary	5
Introduction	6
Background.....	7
Food-based healthy eating advice	7
Nutrient based recommendations for the population.....	8
How the population’s intakes compare to these recommendations.....	11
Nutrient standards – principles to plan menus to help consumers move towards recommendations.....	11
Menus that meet nutrient-based standards.....	15
Healthier and more sustainable catering.....	16

Executive Summary

1. The nutrition principles for healthier catering underpin the development of a framework for food and nutrient standards. It deals with establishing food-based guidance and emphasises the importance of basing this on evidence based Government advice. Maintaining consistency with consumer dietary advice is important and hence the principles use 'The eatwell plate' to frame the food-based guidance.
2. The main population dietary recommendations are set out and the nutrients we currently eat too much of and those that we do not eat in sufficient amounts are identified. The principles cover issues to consider when planning menus and how, through establishing food and nutrient based standards, we can help consumers get the nutrients they need. Along the way, the principles illustrate example nutrient standards for adults and set out some of the specific nutritional requirements for this group.

Introduction

3. Large sections of the population rely on others to buy, prepare and serve food on their behalf for a significant number of their meals. For some people this may be all the food that they eat. These individuals rely on the providers of their food to plan menus in such a way that it is possible for them to meet dietary recommendations. Using food and nutrient based standards as a framework on which to base menus will help to ensure that consumers can achieve dietary recommendations.
4. On average, the population consumes too much saturated fat, salt, added sugars, and eats too little fibre, fruit and vegetables than is recommended. We also know that some sections of the population have intakes of some vitamins and minerals below recommended levels.
5. Planning menus, based on food and nutrient standards for the specific population group being catered for, is a clear and objective way of helping to reduce intakes of fat, sugar and salt. It also helps to increase the amount of foods and nutrients in the diet where intakes are lower than Government recommendations.
6. This document sets out the principles behind establishing nutrient based standards for specific population groups. These principles underpin the following toolkit - [*Healthier and more sustainable catering: a toolkit for serving food to adults.*](#)

Background

Food-based healthy eating advice

7. The Government recommends that everyone eats a diet that contains:
 - plenty of starchy foods such as potatoes, rice, bread and pasta (choosing wholegrain varieties when possible)
 - plenty of fruit and vegetables; at least 5 portions of a variety of fruit and vegetables a day
 - some protein-rich foods such as meat, fish, eggs, beans and non dairy sources of protein, such as nuts and pulses
 - some milk and dairy, choosing reduced fat versions or eating smaller amounts of full fat versions or eating them less often
 - just a small amount of foods and drinks high in fat and/or sugar.

8. It is important to avoid dehydration and the recommendation is that people drink between 6 – 8 glasses (about 1.2 litres) of water, or other fluids, every day.

9. The eatwell plate (figure 1, overleaf) is a pictorial representation of Government healthy eating advice and is helpful for planning healthier menus.

10. Diets high in salt and saturated fat but low in fish, fruit, vegetables and fibre increase the risk of high blood pressure, cardiovascular disease and some cancers. Consuming foods and drinks that are high in fat and non-milk extrinsic sugars (NMES, often referred to as added sugars) too frequently can contribute to weight gain and obesity carries with it many negative effects on health.

Figure 1: The eatwell plate



Nutrient based recommendations for the population

11. Recommendations for nutrient intakes for the general public are based on advice from the Committee on Medical Aspects of Food and Nutrition Policy (COMA) and the Scientific Advisory Committee on Nutrition (SACN). In 1991, the Department of Health published Dietary Reference Values (DRVs) which cover a range of intakes for most nutrients¹. DRVs for total fat, fatty acids, starch, sugars and fibre (as non-starch polysaccharides, NSP) were set as a percentage of daily energy intake for adults in addition to those for energy and some vitamins and minerals. Tables 1 and 2 on the following pages show a selection of the current DRVs and Table 3 shows the maximum daily salt intakes for children and adults.

¹ Report on Health and Social Subjects 41 *Dietary Reference Values (DRVs) for Food Energy and Nutrients for the UK*, Report of the Panel on DRVs of the Committee on Medical Aspects of Food Policy (COMA) 1991. The Stationery Office. London

12. DRVs for children have not been set for some of these nutrients and, in particular, children below the age of five with small appetites, who need energy-dense diets, should not have their fat intake restricted.

Table 1: Current recommendations for fat, carbohydrates (including sugars) and fibre for the population

	Population average % of food energy
Saturated fatty acids	Not more than 11
Polyunsaturated fatty acids	6.5
Monounsaturated fatty acids	13
Trans fatty acids	Not more than 2
Total fat	Not more than 35
Non-milk extrinsic sugars	Not more than 11
Intrinsic and milk sugars, and starch	39
Total carbohydrate	50
Fibre as non-starch polysaccharide (g/day)	18*

*Only applicable to children over 5 years

13. Recommendations for protein, vitamins and minerals vary by age. Where different intakes for males and females are recommended, the higher value is identified in Table 2 to ensure that the greatest needs of the group is met.

Table 2: Protein, vitamins and minerals

Nutrient	1-3yrs	4-6yrs	7-10yrs	11-14yrs	15-18yrs
Protein	15g	20g	28g	42g	55g
Iron	7mg	6mg	9mg	14.8mg	14.8mg
Zinc	5mg	6.5mg	7mg	9mg	9.5mg
Vitamin A (retinol equivalents)	400mcg*	400mcg	500mcg	600mcg	700mcg
Folate	70mcg	100mcg	150mcg	200mcg	200mcg
Vitamin C	30mg	30mg	30mg	35mg	40mg
Salt ²	<2g	<3g	<5g	<6g	<6g

* mcg used to indicate microgram to ensure consistency when downloading the document

² Scientific Advisory Committee on Nutrition (2003) Salt and Health. The Stationery Office. London

Table 2 continued

Nutrient	Adults 19-50 years	Adults 50 years and above
Protein	55g	53g
Iron	14.8mg	9mg
Zinc	9.5mg	9.5mg
Vitamin A (retinol equivalents)	700mcg*	700mcg
Folate	200mcg	200mcg
Vitamin C	40mg	40mg
Salt ²	<6g	<6g

* mcg used to indicate microgram to ensure consistency when downloading the document

Table 3: Recommended maximum daily salt intakes for infants, children & adults³

Age	Target average salt intake (g/d)
0-6 mths	Less than 1
7-12 mths	1
1 – 3 yrs	2
4-6yrs	3
7-10yrs	5
11yrs +	6

³ Scientific Advisory Committee on Nutrition (2003) Salt and Health. The Stationery Office. London

How the population's intakes compare to these recommendations.

14. We know from the National Diet and Nutrition Surveys (NDNS)^{4 5 6 7 8} that, while on average the population consumes about the right amount of total fat, the highest consumers of fat are eating close to 50% of their energy as fat, far greater than recommended amounts (no more than 35%).
15. These surveys also tell us that on average the population consumes too much saturated fat, salt and non-milk extrinsic sugar (NMES, some people call this added sugars). We also know that for different sections of the population, some people have intakes of vitamins and minerals below recommended levels.

Nutrient standards – principles to plan menus to help consumers move towards recommendations

16. Planning menus to meet nutrient based standards for a given population will contribute to helping reduce intakes of fat, sugars and salt. This will also help to increase the amount of fibre, vitamins, minerals and foods in the diet where intakes are lower than Government recommendations.
17. When planning menus it is useful to consider how people consume food and how to apportion nutrient intake throughout the day. For the purposes of developing menus, the convention is that people usually divide their intakes across four eating occasions; breakfast, lunch, evening meal and foods consumed between meals i.e. snacks.
18. Using this approach, you can estimate the proportion that each eating occasion makes. Since most people usually consume a wider range of foods at lunch and evening meals, these meals account for a greater proportion of intake. As such, it is assumed that breakfast contributes 20% of daily intake,

⁴ Gregory, J (2000) National Diet and Nutrition Survey: young people aged 4 to 18yrs. The Stationery Office. London

⁵ Henderson et al (2002) National Diet and Nutrition Survey: adults aged 19 to 64yrs. The Stationery Office. London

⁶ Finch, S (1998) National Diet and Nutrition Survey: older people aged 65yrs and over. The Stationery Office. London

⁷ Bates, B., Lennox, A., & Swan, G. (Eds.). (2010). *National Diet and Nutrition Survey: Headline results from year One of the Rolling Programme (2008/09)*. [Online]. Available from: <http://www.food.gov.uk/science/dietarysurveys/ndnsdocuments/ndns0809year1>

⁸ - Gregory J, Collins DL, Davies PSW, Hughes JM & Clarke PC. *National Diet and Nutrition Survey: Children aged 1½ to 4 ½ years. Volume 1: Report of the diet and nutrition survey*. HMSO (London: 1995).

with lunch and evening meals contributing 30% each. The remaining 20% is for foods consumed between meals (snacks).

19. To help shift nutrient intakes towards Government recommendations it is necessary to consider measures to tackle those nutrients that we know people do not consume enough of i.e. at risk of insufficiency and those that people consume too much of i.e. in excess. For macronutrients (fat and sugar) and salt we have based '*target recommendations*' (see Table 4) on the estimated average requirement (EAR) for relevant nutrients – the EAR represents an average that many people will need more of and many will need less.
20. Where more than 5% of a stated population group have intakes below the Lower Reference Nutrient Intake (LRNI) there is a risk of insufficiency within that group. The LRNI is the amount of a nutrient that is only sufficient for those people who have the lowest requirements. Most people require an intake greater than the LRNI to meet their requirements. For these nutrients, you should provide increased amounts relative to the energy content of meals – this protects individuals at risk of insufficiency.
21. For vitamins and minerals, where insufficiencies are apparent *target recommendations* are set so that, in general, 100% of the average population requirement is provided from breakfast, lunch and evening meals. Any food and drink eaten outside of these eating occasions would further contribute to intakes. Table 4, overleaf, sets out the *target recommendations*.
22. Where people consume certain nutrients in excess of recommended amounts e.g. fat, saturated fat, salt and NMES; you should plan menus to provide these in lower amounts relative to the energy content of meals – this will help prevent excess consumption. To achieve dietary recommendations, where excesses are apparent, the *target recommendations* are set equivalent to 98% of the Estimated Average Requirement provided from all meals and snacks.

Table 4. The *target recommendations* are summarised in the following table:

Percentage of daily intake					
	Energy, Protein, fibre	Total/sat fat, sugar, salt		Vitamins and minerals (where insufficiencies are apparent)	
		average population requirement	target[#]	average population requirement	target[#]
Breakfast	20	20		20	-
Lunch	30	30	29	30	35-40
Evening meal	30	30	29	30	35-40
Snacks	20	20		*	
Total	100	100	98 or less	100	100 or more

- target for nutrients where excess or insufficiencies are apparent.

*Snacks will provide additional micronutrients to contribute to the micronutrient target of 100% or more over the day. You should take care not to encroach upon maximum safe levels of intake.

23. Table 5, overleaf, gives an example, for adults aged 19-74 years, of the recommended targets for nutrients that this group may consume in excess or in insufficient amounts. You can use the principles to identify nutrient standards for different population groups.

24. Using these principles and standards such as those in Table 5, to plan menus would help the majority of consumers to meet dietary guidelines and have the opportunity to get all the nutrients they need.

Table 5. Nutrient-based standards for adults aged 19-74yrs:

Nutrient	Average population requirement (provided as daily averages over 7 days)	Recommended target for areas of excess or insufficiency (provided as daily averages over 7 days)
Energy (kcal/MJ)	2349	
Total fat (g)	Max 91	Less than 89
Saturated fat (g)	Max 29	Less than 28.42
Carbohydrate (g)	Min 313	
NMES (g)	Max 70	Less than 68.6
Fibre (as NSP g)	18	
Protein (g)	Min 50	
Sodium (mg)	Max 2400	Less than 2352
Salt (equivalent g)	Max 6.0	Less than 5.9
Iron (mg)	15	More than 15
Potassium (mg)	3500	More than 3500
Riboflavin (mg)	1.3	More than 1.3
Folate (mcg)	Min 200	>200
Vitamin D (mcg)	Min 10*	

*Some population groups will need supplementary vitamin D, see paragraph 26

25. Certain groups within the population may have particular dietary requirements that are not easily met within a planned menu. In some settings, targeted advice to these groups may be possible or appropriate. You do need to ensure that you cater for people with specific medical needs as they may have different requirements – these should be met on an individual basis. Some groups may also need to take supplements. These groups include:

- Women who could become pregnant or who are planning a pregnancy are advised to take an additional 400 micrograms (mcg) of folic acid per day as a supplement from before conception until the 12th week of pregnancy. In addition to this, they should also eat folate rich foods such as, green vegetables, brown rice and fortified breakfast cereals (making a total of 600 mcg of folate per day from both folate rich foods and a supplement).
- Children under the age of 5 who are not good eaters may need to take a supplement containing vitamins A, D & C. Children who have a good appetite and eat a wide variety of foods, including fruit and vegetables, might not need vitamin drops. Parents who are concerned about their child's diet should talk to their GP or health visitor for further advice.

- Most people can get all the vitamin D they need by eating a healthy, balanced diet and getting a little sun. The Department of Health recommends a daily 10 microgram vitamin D supplement for the following people:
 - all pregnant and breastfeeding women
 - all people aged 65 and over
 - people who are not exposed to much sun, for example those who cover up their skin for cultural reasons, who are housebound or confined indoors for long periods
 - people with darker skin such as people of African-Caribbean and South Asian origin

Menus that meet nutrient-based standards

26. Once you have established nutrient based standards for the specific population group, such as those for adults in Table 5, then you can develop and analyse menus to assess how they meet those standards. You will have to use or have access to appropriate nutrient analysis software with up to date information (as a minimum the most recent edition of McCance & Widdowson⁹) and takes into account cooking losses and waste.
27. You can then develop menus that meet nutrient and certain food based standards for example including at least 5 portions of a variety of fruit and vegetables a day and 2 portions of fish a week, including one portion of oily fish. If you are responsible for commissioning food provision then it is important to request this information and to check that actual provision meets the menus and standards. This will help ensure that you meet the needs of your customers.
28. If planning menus to nutrient standards in-house then the support of a registered nutritionist or dietician is advisable. Their experience and training will assist in choosing or establishing appropriate nutrient-based standards. Some catering service providers can offer menu planning to meet nutrient standards as part of their service and have registered nutritionists or dietitians employed.
29. Using nutrient-based standards to develop menus can be particularly useful when catering for vulnerable groups and those in a residential setting where some of those provided for are unable to obtain food from alternative sources. It also allows a means of demonstrating the nutrient content of food provided and this is useful for consumers, relatives of cared for individuals in residential care and governing/inspection bodies.

⁹ Food Standards Agency (2002) McCance and Widdowson's The Composition of Foods, Sixth summary edition. Cambridge: Royal Society Chemistry.

Healthier and more sustainable catering

30. The principles in this document were used to develop a toolkit for serving food to adults. The toolkit is a good illustration of setting nutrient based standards for different groups and includes example menus. This nutrient and food based toolkit enables dietary targets described in this document to be met. The targets will differ according to the specific section of the population provided for and can be adapted by those providing food for individual eating occasions or the whole day. The toolkit for adults:

- [Healthier and more sustainable catering: A toolkit for food served to adults](#) (suitable for central Government departments and their agencies and useful to local authority provision, NHS (including staff and visitors), prisons, Armed Forces, higher and further education and central and local government)

31. Information on specific standards for children is not included as there is guidance available in relation to the provision of food for children and in schools/nurseries. Useful references and links include:

<http://www.legislation.gov.uk/ukxi/2008/1800/made> links to the statutory instrument for implementing nutrient based standards for school lunches.

Eating well for under-5s in care: Practical and nutritional guidelines, Second Edition. (2006) The Caroline Walker Trust

www.schoolfoodtrust.org.uk/