

Review of labelling reference intake values

Scientific Opinion of the Panel on Dietetic Products, Nutrition and Allergies on a request from the Commission related to the review of labelling reference intake values for selected nutritional elements¹

(Question No EFSA-Q-2008-772)

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PANEL MEMBERS

Jean-Louis Bresson, Albert Flynn, Marina Heinonen, Karin Hulshof, Hannu Korhonen, Pagona Lagiou, Martinus Løvik, Rosangela Marchelli, Ambroise Martin, Bevan Moseley, Hildegard Przyrembel, Seppo Salminen, Sean (J.J.) Strain, Stephan Strobel, Inge Tetens, Henk van den Berg, Hendrik van Loveren and Hans Verhagen.

SUMMARY

Following a request from the European Commission, the Panel on Dietetic Products, Nutrition and Allergies was asked to review and provide advice on labelling reference intakes for energy, fat, saturates (saturated fat), carbohydrate, sugars and salt that are included in a proposal for a Regulation of the European Parliament and the Council on the provision of food information to the consumer (COM(2008) 40).

The proposed labelling reference intakes for energy and nutrients are to be used to enable the nutrient content of a food product (per 100 g, per 100 ml, or per portion) to be expressed as a percentage of a typical recommended daily intake (adults). This information allows comparison of the nutritional values of food products and can help to convey the relative significance of the food as a source of energy and nutrients in the context of a total daily diet.

For practical application in nutrition labelling, a single reference intake is proposed for each nutrient using rounded values for ease of calculation.

Labelling reference intakes for total fat, saturated fat, carbohydrate, sugars and salt may be derived from science-based nutrient intake recommendations for the general population that have been established by national and international authorities. For these nutrients, intake recommendations for the general population are based on evidence of relationships between intake and the risk of obesity and/or diet-related diseases (e.g. cardiovascular disease, diabetes mellitus, dental caries). The nutrient intake recommendations for the general population established by authorities in different EU countries are generally consistent (but not uniform). It is important to distinguish the labelling reference intakes for nutrients from dietary reference values established for population groups.

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Because of the nature of the relationships between intake and health, the recommended intakes for total fat, saturated fat, sugars and salt represent upper limits for individuals while for carbohydrate the recommended intake is based on a lower limit. Thus the labelling reference intakes derived from these recommendations should be interpreted in this way.

In addition to its use for conveying the relative significance of the food as a source of energy, a labelling reference intake for energy also serves as a base from which to derive labelling reference intakes of energy-producing nutrients (such as total fat, saturated fat, carbohydrate and sugars) by weight from intake recommendations that are usually expressed as % energy intake (E%).

Energy

The proposed labelling reference intake for energy (8400 kJ or 2000 kcal) corresponds to the recommended energy intake for a moderately active woman. The Panel considers that a labelling reference intake for energy based on intakes of women (as compared with a higher value based on intakes of men) gives a greater emphasis to the relative significance of a food as a source of energy, total fat, saturated fat and sugars and is more consistent with dietary advice for the general population on avoiding excess intakes of energy and these nutrients.

Total fat

The proposed labelling reference intake for total fat (70 g) corresponds to 31.5 E% for a 8400 kJ (2000 kcal) diet. This value is within the range of the upper limits of intake of fat (30 – 35 E%) recommended for individuals in the general population in EU countries and by other authorities. It is at the lower end of the range of average total fat intakes in adults observed in EU countries (about 30 - 47 E%). The Panel considers that the proposed labelling reference intake is consistent with dietary advice for the general population on avoiding excess intakes of total fat.

Saturated fat

The proposed labelling reference intake for saturated fat (20 g) corresponds to 9 E% for a 8400 kJ (2000 kcal) diet. This value is consistent with the upper limits of intake of saturated fat (8 - 10 E%) recommended for individuals in the general population in EU countries and by other authorities. It is at the lower end of the range of average saturated fat intakes in adults in EU countries (about 9 - 18 E%). The Panel considers that the proposed labelling reference intake is consistent with dietary advice for the general population on avoiding excess intakes of saturated fat.

Carbohydrate

The proposed labelling reference intake for carbohydrate (230 g) corresponds to 46 E% for a 8400 kJ (2000 kcal) diet. This is less than the lower limits of intake of carbohydrate (generally 50 - 55 E%) recommended for individuals in the general population in EU countries and by other authorities.

The Panel proposes that the labelling reference intake for carbohydrate be 260 g (corresponding to 52 E% for a 8400kJ or 2000 kcal diet) which is within the range of lower limits of recommended intakes for individuals in the general population and close to the upper end of the range of average carbohydrate intakes in adults in EU countries. The Panel considers that a labelling reference intake of 260 g is consistent with dietary advice for the general population on ensuring adequate intake of carbohydrate.

Sugars

The proposed labelling reference intake for (total) sugars (90 g) corresponds to 18 E% for a 8400 kJ (2000 kcal) diet. The proposed value is at the lower end of the range of average intakes of total sugars in adults in EU countries (about 17 - 26 E%). Total sugars include both indigenous (sugars naturally present in foods such as fruit, vegetables, cereals and lactose in milk products) and added sugars. There are generally no recommended intakes for total sugars. Some authorities have recommended upper limits of intake of added sugars (generally 10 E%) for individuals in the general population, while others recommend that intake of added sugars, or certain foods containing added sugars, be limited but do not recommend an upper limit.

It has been estimated that indigenous sugars provided by recommended daily intakes of fruits, vegetables, cereals and dairy products would amount to about 45 g in adults. Assuming that the remaining 45 g of sugars (up to the 90 g proposed for the labelling reference intake) are added sugars, this would correspond to 9 E% for a 8400 kJ or 2000 kcal diet.

Thus the Panel considers that the proposed labelling reference intake of 90 g for (total) sugars is compatible with a recommended upper limit of intake of added sugars of 10 E% for individuals in the general population as proposed by some authorities.

Salt

The proposed labelling reference intake for salt is 6 g. This value is within the range of the upper limits of intakes of salt (generally 5-8 g) recommended in EU countries and by other authorities. It is less than the lower end of the range of average salt intakes in adults in EU countries (about 8-11 g). The Panel considers that the proposed labelling reference intake is consistent with dietary advice for the general population on avoiding excess intakes of salt.

Key words: labelling reference intake values, energy, total fat, saturated fat, carbohydrates sugars, salt, sodium, dietary reference values, dietary recommendations.

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BACKGROUND AS PROVIDED BY THE EC

The European Commission has adopted a proposal for a Regulation of the European Parliament and the Council on the provision of food information to consumers (COM(2008) 40) which includes a proposal for the revision of the nutrition labelling legislation (Directive 90/496/EEC on nutrition labelling for foodstuffs).

With respect to nutrition labelling, the main proposed change is that nutrition information should be provided on six nutritional elements (energy, fat, saturates, carbohydrate, sugars and salt) on the majority of processed products. The proposal is that the information should be expressed as a percentage of a reference intake per 100g, 100mL or per portion. The following reference intakes, which take into account the values that have been used by the European food industry on a voluntary basis for many years, have been included in the proposal.

Extract from the Commission proposal for a Regulation of the European Parliament and of the Council on the provision of food information to consumers -COM(2008) 40 final :

ANNEX XI

PART B - REFERENCE INTAKES FOR ENERGY AND SELECTED NUTRIENTS OTHER THAN VITAMINS AND MINERALS (ADULTS)

Energy or nutrient	Reference Intake
Energy	8400 kJ (2000 kcal)
Total fat	70 g
Saturates	20 g
Carbohydrate	230 g
Sugars	90 g
Salt	6 g

TERMS OF REFERENCE AS PROVIDED BY THE EC

During the discussions in the Council, Member States requested that the European Food Safety Authority be asked to review the proposed labelling reference intakes. Therefore, the EFSA is asked for advice on the reference intakes included in the Commission proposal for a Regulation of the European Parliament and the Council on the provision of food information to consumers (COM(2008) 40).

ASSESSMENT

1. Introduction

Article 31(3) of the draft regulation ((COM(2008) 40) states that “the mandatory nutrition declaration shall be expressed, as appropriate, as a percentage of the reference intakes set out in Part B of Annex XI in relation to per 100 g or per 100 mL or per portion.” The proposed labelling reference intake values in Part B of Annex XI – reference intakes for energy and selected nutrients other than vitamins and minerals (adults) - represent typical recommended daily intakes that are to be used for this purpose. This information allows comparison of the nutritional values of food products and can help to convey the relative significance of the food as a source of energy and nutrients in the context of a total daily diet. For practical application in nutrition labelling a single reference intake is proposed for each nutrient using rounded values for ease of calculation.

Labelling reference intakes for total fat, saturated fat, carbohydrate, sugars and salt may be derived from science-based nutrient intake recommendations for the general population that have been established by national and international authorities (DoH, 1991; Health Council of The Netherlands, 2006; NNR, 2004; Eurodiet, 2000; WHO, 2003; USDA, 2005). For these nutrients intake recommendations are based on evidence of relationships between intake and the risk of obesity and/or diet-related diseases (e.g. cardiovascular disease, diabetes mellitus, dental caries). Such recommendations are derived from dietary reference values for these nutrients established for population groups (DoH, 1991; SCF 1993; D-A-CH, 2000; GR, 2001; AFSSA, 2001; NNR, 2004; IoM, 2003; IoM, 2005) and generally take account of observed nutrient intakes in the population. The nutrient intake recommendations for the general population established by authorities in different EU countries are generally consistent (but not uniform). It is important to distinguish the labelling reference intakes for nutrients, which are based on nutrient intake recommendations for the general population, from dietary reference values, which are derived for population groups.

Because of the nature of the relationships between intake and health, the recommended intakes for total fat, saturated fat, sugars and salt represent upper limits for individuals while for carbohydrate the recommended intake is based on a lower limit. Thus the labelling reference intakes derived from these recommendations should be interpreted in this way.

In addition to its use for conveying the relative significance of the food as a source of energy, a labelling reference intake for energy also serves as a base from which to derive reference intakes of energy-producing nutrients (such as total fat, saturated fat, carbohydrate and sugars) by weight from intake recommendations that are usually expressed as % energy intake (E%).

Table 1. **Proposed labelling reference intake values for nutrients and labelling reference intakes currently used**

Energy or nutrient	“Reference Intake” as proposed in the draft regulation	Conversion factor kcal/g	kcal	% Energy for a 2000 kcal (8400 kJ) diet	Labelling reference intake values currently used ^a
Energy	8400 kJ (2000 kcal)				W: 2000-2070 kcal ^b M: 2500 kcal ^b
Total fat	70 g	9	630	31.5	W: 65-70 g M: 80-95 g
Saturated fat	20 g	9	180	9	W: 20 g M: 30 g
Carbohydrate	230 g	4	920	46	W: 230-270 g M: 300-340 g
Sugars	90 g	4	360	18	W: -90 g M: 110-120 g
Salt	6g	-	-	-	Women: 6 g M: 6 g

W = Women; M = Men

^a From: CIAA, 2006; EUFIC, 2007; IGD, 2005; FSANZ, 2008; FDA, 2007.

^b A factor of 4.2 is used for the conversion of kcal into kJ.

2. Selected nutritional elements

2.1. Energy

Recommended intakes for energy are derived from the average requirements of specific age and sex groups, taking into account body size and average physical activity levels (DoH, 1991; SCF 1993; D-A-CH, 2000; GR, 2001; AFSSA, 2001; NNR, 2004; IoM, 2005).

The proposed value of 8400 kJ (2000 kcal) is about the middle of the range of the average energy intakes observed for women (6800-10000 kJ or 1625-2400 kcal) and lower than the average intakes for men (9100 to 13300 kJ or 2200-3200 kcal) in European countries (see list of references reporting data on nutrient intakes in adults in the EU). It corresponds to the recommended energy intake for a moderately active woman (DoH, 1991; SCF 1993; D-A-CH, 2000; GR, 2001; AFSSA, 2001; NNR, 2004; IoM, 2005).

The value is also consistent with values for labelling reference intakes for energy established by some regulatory authorities (e.g. 2000 kcal (8400 kJ) in USA, 8700 kJ (2070 kcal) in Australia/New Zealand) as well as with the value for women/adults currently used by the European food industry (2000 kcal or 8400 kJ) (Table 1).

The Panel considers that a labelling reference intake for energy based on intakes of women (as compared with a higher value based on intakes of men) gives a greater emphasis to the relative significance of a food as a source of energy, total fat, saturated fat and sugars and is more consistent with dietary advice for the general population on avoiding excess intakes of energy and these nutrients.

2.2. Total fat

The proposed labelling reference intake for total fat (70 g) corresponds to 31.5 E% for a 8400 kJ (2000 kcal) diet. This value is within the range of the upper limits of intake of fat (30 – 35 E%) recommended for individuals in the general population in most EU countries and by other authorities (DoH, 1991; NNR, 2004; Eurodiet, 2000; WHO, 2003; USDA, 2005). It is at the lower end of the range of average total fat intakes in adults observed in EU countries (about 30 - 47 E%, see list of references reporting data on nutrient intakes in the EU)

The proposed value is also consistent with labelling reference intakes for total fat currently used by some regulatory authorities (e.g. 65 g in USA, 70 g in Australia/New Zealand) as well as with the value for women/adults (70 g) currently used by the European food industry (Table 1).

The Panel considers that the proposed labelling reference intake for total fat (70 g) is consistent with dietary advice for the general population on avoiding excess intakes of total fat.

2.3. Saturated fat

The proposed labelling reference intake for saturated fat (20 g) corresponds to 9 E% for a 8400 kJ (2000 kcal) diet.

The proposed value is consistent with recommended upper limits of intake of saturated fat (SFA) for individuals in the general population (8-10 E%) in EU countries and by other authorities (DoH, 1991; Health Council of The Netherlands, 2006; NNR, 2004; Eurodiet, 2000; WHO, 2003; USDA, 2005). These recommendations are based mainly on risk of cardiovascular disease that is a leading cause of mortality in Europe.

It is at the lower end of the range of average saturated fat intakes in adults in EU countries (about 9 - 18 E%), with lowest values in Southern European countries. More than one third of the reported average intakes were 15 E% or higher (see list of references reporting data on nutrient intakes in adults in the EU).

The proposed value is also consistent with labelling reference intakes for saturated fat currently used by some regulatory authorities (e.g. 20 g in USA, 24 g in Australia/New Zealand) as well as with the value for women/adults (20 g) currently used by the European food industry (Table 1).

The Panel considers that the proposed labelling reference intake for saturated fat (20g) is consistent with dietary advice for the general population on avoiding excess intakes of saturated fat.

2.4. Carbohydrate

The proposed labelling reference intake for carbohydrate (230 g) corresponds to 46 E% for a 8400 kJ (2000 kcal) diet.

This is less than the lower limits of intake of total carbohydrate (generally 50 - 55 E%) recommended for the general population in EU countries and by other authorities (NNR, 2004; Eurodiet, 2000; WHO, 2003; USDA, 2005). These recommendations are based mainly on ensuring limited intake of total fat and saturated fat, taking into account the contribution of protein to energy intake.

It is around the middle the range of average carbohydrate intakes in adults in EU countries (about 38 to 56 E%, with most ≤ 52 E%; see list of references reporting data on nutrient intakes in the EU).

The value is at the lower end of the range of labelling reference intakes currently used by the European food industry on a voluntary basis and those established by regulatory authorities in the USA and Australia/New Zealand, i.e. 230-270 g for women and 300-340 g for men, corresponding to 46 to 55 E%.

The Panel proposes that the labelling reference intake for carbohydrate be 260 g (corresponding to 52 E% for a 8400 kJ (2000 kcal) diet) which is within the range of lower limits of recommended intakes for individuals in the general population and close to the upper end of the range of average intakes in adults in EU countries. It lies towards the upper end of the range of labelling reference intakes (230-270 g for women) currently used by the European food industry and is lower than those used by some regulatory authorities (e.g. 300-310 g in USA and Australia/New Zealand).

The Panel considers that a labelling reference intake of 260 g is consistent with dietary advice for the general population on ensuring adequate intakes of carbohydrate.

2.5. Sugars

The proposed labelling reference intake for (total) sugars (90 g) corresponds to 18 E% for a 8400 kJ (2000 kcal) diet. Total sugars include both indigenous (sugars naturally present in foods such as fruit, vegetables, cereals and lactose in milk products) and added sugars.

There are generally no recommended intakes for total sugars. However, upper limits of intake of added sugars (generally 10 E%) have been recommended by some authorities (NNR, 2004; DoH, 1991; WHO, 2003). Other authorities recommend that intake of added sugars, or certain foods containing added sugars, be limited but do not recommend an upper limit of intake (AFSSA, 2001; D-A-CH, 2000; Health Council of The Netherlands, 2006; Eurodiet, 2000).

Labelling reference intakes for (total) sugars currently used by the European food industry and by regulatory authorities in Australia/New Zealand are 90 g for women/adults and 110-120 g/d for men, corresponding to 18 - 19 E% (Table 1).

It has been estimated that indigenous sugars provided by a recommended daily intake of 400 g fruits and vegetables (28 g) and three portions of dairy products (17 g) would amount to 45 g (DGE, 2007). A total daily intake of 45 g of indigenous sugars has also been estimated for adult women in the UK based on the amount obtained from the recommended daily intake of fruits, vegetables and cereals (35 g) and the current intake of dairy products (10 g) (IGD, 2005; Rayner et al., 2003). Assuming that the remaining 45 g of sugars (up to the 90 g proposed for the labelling reference intake) are added sugars, this would correspond to 9 E% for a 8400 kJ (2000 kcal) diet. Thus the proposed labelling reference intake of 90 g for (total) sugars is compatible with a recommended upper limit of intake of added sugars of 10 E% for individuals in the general population as proposed by some authorities (NNR, 2004; DoH, 1991; WHO, 2003).

In adults the average intake of total sugars (mono- and disaccharides) in EU countries varies from 17 to 26 E%. From the available data, the proposed labelling reference intake for (total) sugars is close to the lower bound of the observed range of average intake of total sugars in adults in European countries.

The Panel considers that the proposed labelling reference intake for (total) sugars (90 g) is compatible with a recommended upper limit of intake of added sugars of 10 E% for individuals in the general population as proposed by some authorities.

2.6. Salt

The proposed labelling reference intake for salt is 6 g.

This value is within the range of the upper limits of intakes of salt (generally 5-8 g) recommended in EU countries (EFSA, 2005; EFSA, 2008) and by other authorities (WHO, 2003). These recommendations are based mainly on the evidence for an effect of salt on blood pressure and risk of cardiovascular disease. It is less than the lower end of the range of average salt intakes in adults in EU countries (8-11 g) (EFSA, 2005; EFSA, 2008).

The proposed value is consistent with the labelling reference intake for adults (6 g) currently used by the European food industry and by some regulatory authorities (e.g. 6 g in the USA and Australia/New Zealand) (Table 1).

The Panel considers that the proposed labelling reference intake for salt (6 g) is consistent with recommended intakes and less than the lower end of the range of average intakes in adults in EU countries.

The Panel considers that the proposed labelling reference intake is consistent with dietary advice for the general population on avoiding excess intakes of salt.

CONCLUSIONS

The Panel concludes that:

- The proposed labelling reference intake for energy (8400 kJ or 2000 kcal) corresponds to the recommended energy intake for a moderately active woman. The Panel considers that a labelling reference intake for energy based on intakes of women (as compared with a higher value based on intakes of men) gives a greater emphasis to the relative significance of a food as a source of energy, total fat, saturated fat and sugars and is more consistent with dietary advice for the general population on avoiding excess intakes of energy and these nutrients.
- The Panel considers that the proposed labelling reference intakes for total fat (70 g), saturated fat (20 g) and salt (6 g) are consistent with dietary advice for the general population on avoiding excess intakes of these nutrients.
- The Panel considers that the proposed labelling reference intake for (total) sugars (90 g) is compatible with a recommended upper limit of intake of added sugars of 10 E% for individuals in the general population as proposed by some authorities.
- The Panel proposes that the labelling reference intake for carbohydrate be 260 g which is consistent with dietary advice for the general population on ensuring adequate intakes of carbohydrate.

DOCUMENTATION PROVIDED TO EFSA

Proposal for a Regulation of the European Parliament and of the Council on the provision of food information to consumers - COM(2008) 40 final.

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GLOSSARY / ABBREVIATIONS

E%	expressed as % of energy intake
EU	European Union
kcal	Kilocalories
kJ	Kilojoules