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Modification of nutrition labelling: proposals, arguments and research avenues

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Consultation of stakeholders

The report finalised by the working group and then validated by the "Human Nutrition" CES on 26 October 2006 was sent to stakeholders on 8 February 2007 to gather their comments from discussions which will be used as a scientific basis for France's standpoint in the framework of European discussions on nutrition labelling regulations.

The following were also consulted:

- Afssa's supervisory ministries, the DGAI, DGCCRF and DGS;
- Association nationale des industries alimentaires (National Association of Food Industries/ANIA)
- Consumers' Association, Consommation, logement et cadre de vie (Consumers, Housing and Living Environment/CLCV);
- UFC – Que choisir;
- UFCS.

All of the comments and proposals resulting from this consultation gave rise to discussions within the working group and "Human Nutrition" CES who judged the validity of their adoption.

The main conclusions of the report were presented and submitted for discussion during the session of the Conseil national de la consommation (National Consumers Council/CNC) of 12 February 2007.

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Abbreviations table

TEI: Total Energy Intake

AFSSA: Agence française de sécurité sanitaire des aliments (French Food Safety Agency)

FA: Fatty acid

MUFA: Monounsaturated fatty acid

PUFA: Polyunsaturated fatty acid

LCPUFA: Long-chain polyunsaturated fatty acid

SFA: Saturated fatty acid

LA: Linoleic acid

ALA: Alpha-Linolenic Acid

RDI: Recommended dietary intakes

EAR: Estimated average requirements

FS: Food Supplements

CES: Scientific Panel

CIQUAL: Centre Informatique sur la Qualité des Aliments (Food Quality Information Centre)

CLA: Conjugated Linoleic Acid

CLCV: Consommation Logement Cadre de Vie (Consumers, Housing and Living Environment)

FIPNU: Foodstuff Intended for Particular Nutritional Uses

DERNS: Department for the assessment of nutrition and health risks

DG SANCO: Directorate General for Health and Consumer Protection

DGAl: Directorate General for Food

DGCCRF: Directorate General for Competition, Consumer Affairs and Fraud Control DGS: Directorate General for Health

DHA: Docosohexaenoic Acid

EAR: Estimated Average Requirements

EPA: Eicosopentaeoic Acid

EPIC: European Prospective Investigation Into Cancer

EUFIC: European Food Information Council

FSA: Food Standards Agency

GDA: Guideline Daily Amounts

WG: Working Group

AFI: Agri-Food Industry

INCA: (survey) Nationale Individuelle sur les Consommations Alimentaires (Individual National Food Consumption Survey)

INPES: Institut national de Prévention et d‘Éducation pour la Santé (National Institute for Prevention and Health Education)

CVI: Cardiovascular Illness

MEDHEA: Mediterranean Diet and Health

LPA: Level of Physical Activity

NLEA: Nutrition Labelling and Education Act

GMO: Genetically Modified Organism

PASER: Pôle d’Appui Scientifique à l’Evaluation des Risques (Risk Assessment Scientific Support Unit)

PNNS: Programme National Nutrition Santé (National Programme for Nutrition and Health)

RDA: Recommended Daily Allowances

Su.Vi.Max: Supplémentation en Vitamines et Minéraux Antioxydants (Antioxidant Vitamins and Minerals Supplements)

UENRN: Unité d’Evaluation de la Nutrition et des Risques Nutritionnels (Nutritional risks and Nutrition Assessment Unit)

USDA: United States Department of Agriculture

WHO: World Health Organization

1 TERMS OF THE REQUEST

The French Food Safety Agency (Afssa) was requested on 14 February 2005 by the Directorate General for Health (DGS), Directorate General for Food (DGAl) and Directorate General for Competition, Consumer Affairs and Fraud Control (DGCCRF) within the context of global discussions on nutrition labelling set up at Community level.

The request concerns two points:
- state the nutrient categories that should be prioritised in labels;
- propose the most relevant wording to enable consumers to adapt their diet to their needs.

The request letter is presented in annex 1.
A working group (WG) was created to answer these questions (decision of creation in annex 2). This work falls within a global framework of reinforcing French nutritional policy, particularly in terms of nutrition labelling and information for the consumers, the varied presentations of which have different impacts on consumers (cf. paragraph 3). At the same time, the WG worked on the setting of nutrient[T1] profiles[1] provided for in the European Regulations on claims[2] as a criterion for permitting nutritionnal and health claims.
Discussions have focused on the labelling of ordinary foodstuffs and foodstuffs intended for a particular nutritional purpose, since the labelling of bottled water and food supplements are regulated elsewhere.

2 WORKING METHODOLOGY

In order to prioritise the labelling of amounts of nutrients and substances with nutritional or physiological purposes with their means of expression, the assessment methods used by the group were:
- a bibliographical review of the various points to be dealt with, including how nutrition labelling is perceived by consumers and its impact on their food choices;
- a summary of recommendations on labelling formulated in the previous opinions drawn up by Afssa, more generally concerning the benefits and risks of nutrients or substances.

The conclusions of the WG were validated by the Scientific Panel (CES) "Human nutrition" on 26 October 2006 and 29 March 2007.

3 IMPACT OF NUTRITION LABELLING ON CONSUMERS

The studies published in international reviews and assessing the impact of nutrition labelling have, for the most part, been conducted in the United States and United Kingdom; very few in the rest of Europe (Cowburn & Stockley, 2005). The questions studied concern several points:
- nutrition labelling reading by consumers;
- understanding of the nutrition labelling by consumers;
- influence of labelling on consumers' nutritional knowledge;
- impact on consumers' food choices and overall diet;
- impact on public health;
- cost/benefit relationship of compulsory labelling.

These questions may be addressed in various ways depending on the disciplinary fields of the researchers (economic approach, psychological and motivational approach, information processing approach) and no study incorporates all dimensions (Gomez, 2006). Despite a different level of scientific quality, the results are mainly convergent and consistent with those from surveys conducted in France.

3.1 Nutrition labelling reading

The Baromètres Santé Nutrition (Health Nutrition Barometers) implemented by the National Institute for Prevention and Health Education (INPES), indicate that more than one French person in two claims to

[1] This analysis will be presented in more detail in the future Afssa report on food nutritional profiles
[2] Regulation (EC) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods

systematically read the nutrition labelling on all products or on certain products at the time of purchase, women more than men (58% vs. 46%) (Baudier *et al*., 1997; Guilbert & Perrin-Escalon, 2004). A study conducted at points of sale in Paris indicates a reading rate of 45%, the main reason for not reading the labelling being a lack of interest. Nevertheless, 95% of subjects would like mandatory nutrition labelling (Mannel *et al*., 2006).
Differences related to gender, income and level of education are revealed in France as elsewhere (Lin *et al*., 2004; Larsson *et al.,* 1999). Labelling seems to be used for the most part by women, young people, privileged social categories, who, moreover, have faith in the information issued and understand the link between nutrition and health (Smith *et al.,* 2000; Marietta *et al.,* 1999; Satia *et al*., 2005). A meta-analysis (Cowburn & Stockley, 2005) confirms these data, although it also highlights their variability due to methodological differences.

However, studies show that nutrition labelling may be completed with other sources of nutrition information, particularly those presented in a simple form or as a front-package claim. In this case, this last information has a greater influence than the full nutrition information printed somewhere else on the packaging (McCullum & Achterberg, 1997; Hrovat *et al.,* 1999; Chan *et al*., 2005). The study conducted in France by the Consumers, Housing and Living Environment Association (CLCV) (DGAl/CLCV, 2004) also reveals that clearly visible claims on the front of packaging have a greater influence on the purchase (50% of consumers) than nutrition labelling (33%) or the list of ingredients. A study performed by the European Food Information Council (EUFIC, 2006) confirms consumers' interest in simple front-package information.

These elements reinforce the interest in and need for an in-depth study on the links between labelling, claims, nutrient profiles and consumer information.

3.2 **Understanding nutrition labelling**

Most of the studies (Cowburn & Stockley, 2005) confirm that consumers partially understand nutrition labelling and are able to find some information and carry out simple numerical calculations. But some terms are misunderstood (energy and calories) and confusion most commonly surrounds sodium and salt (Gilbey & Fifield, 2006), sugar and carbohydrate, cholesterol and fatty acids (Reid & Hendricks, 1994), as well as servings and the whole package (Pelletier *et al*., 2004). Diabetics, who are aware of the importance of their diet, only partially understand labelling and claims (Miller & Brown, 1999). The DGAl/CLCV study (2004) indicates that, in France, 40% of consumers do not understand the term "lipids" and 60% the term "saturated fat". According to the Baromètres Santé Nutrition implemented in 1996 and 2002, half of the people who read nutrition labelling find the information "very easy" or "easy" to understand (especially among those under the age of 30 (64%)). Nevertheless, the percentage of people with comprehension difficulties has increased from 19 to 38% between 1996 and 2002, probably due to the growing complexity of information in quantitative and qualitative terms. The level of understanding of labelling increases significantly with the level of education.

One of the main difficulties lies in the consumer's incorporation of this information into his/her overall diet. Additional information, such as the percentage of reference nutritional values provided by the product (Daily values in the USA), does help consumers, but is still only understood by 30 to 40% of individuals (Levy *et al.,* 2000 ; Hrovat *et al*., 1994). Very often, consumers use the information concerning a single nutrient (particularly lipids) (Kristal *et al*., 1998) to judge the overall quality of the product, and most would like a labelling system that is easier to understand. The Dgal/CLCV (2006) study shows that only 30 to 35% of the population spontaneously understand the reference to average nutritional needs straightaway. Nonetheless, three-quarters of people consulted believed that these systems were more useful than current labelling for achieving balanced diets (DGAl/CLCV, 2006).
However, the studies clearly state that no system is understood when read and *a fortiori* used by all consumers, due in particular to the diversity of interests, knowledge and motivations.

3.3 **Impact of nutrition labelling on consumers' knowledge**

The primary purpose of nutrition labelling is not to educate consumers. The Moorman study (1996), conducted after mandatory nutrition labelling was introduced in the United States, does indicate, however, that the level of nutritional knowledge has increased, while the objectives of the NLEA (Nutrition Labelling and Education Act) concerning the correct use of this information by consumers have not been met . Neither is this benefit found in all studies (Kessler & Wunderlich, 1999).

The Pan-European Survey, conducted in 1996 by researchers from Trinity College, Dublin (Institute of European Food Studies, 1996), reveals that the French mean nutritional knowledge is less than that of people in other European countries. The INPES Barometer implemented in 1996 and 2002 among 2000 people, using the same methodology, gives a more positive view of nutritional knowledge among the French, with a general average mark of 12/20, a little better among young people than elderly people, without notable change in this knowledge between the two barometers (Guilbert & Perrin-Escalon, 2004).
Most of the studies published in the United States conclude on the importance and necessity of enhancing education for correct understanding and use of nutrition labelling (McCullum & Achterberg, 1997; Miller & Brown, 1999; Levy *et al*., 2000; Kessler & Wunderlich, 1999; Marietta *et al*., 1999; Reids & Hendricks, 1994; Macon *et al*., 2004). Such programmes have proved effective on knowledge among teenagers (Hawthorne *et al*., 2006). One study shows that a programme carried out in a supermarket reaches out to all categories of consumer, particularly ethnic minorities (Lang *et al*., 2000). The CLCV-DGAI survey confirms that some [T2]explanations of the system increase the rate of consumers understanding the concept of daily values from around 35 to 50% (CLCV-DGAI, 2006).

3.4 Impact of labelling on consumers' food choices and quality of their overall diet

60 to 80% of Americans claim to read nutrition labelling, and 30 to 40% state that it influences their choices (Philipson, 2005). There are only a few studies on the real impact of food choices. For example, one study shows that 6% of the total variability of lipid intake is significantly correlated by the use of labelling (Neuhouser *et al*., 1999). Other studies show that among consumers who read labelling, the contribution of lipids and saturated fat to the total energy intake is less than in those who do not read labelling. What's more, readers of the nutrition labelling consume less cholesterol and sodium, more fibre (Kin *et al*., 2000; Macon *et al*., 2004) and have a better overall diet quality index (index calculated on the basis of the recommendations of the FDA food pyramid) (Perez-Escamilla & Haldeman, 2002). This effect is all the more marked if the subjects have high blood pressure or cholesterol levels (Kreuter *et al*., 1997). Among less privileged population groups, the reading of nutrition labelling is associated with a higher consumption of fruit and vegetables and lower consumption of lipids (Satia *et al*., 2005), and a better overall diet quality index (Perez-Escamilla & Hadelman, 2002). For teenagers, the reading of labels does not result in healthier food choices (Huang *et al*., 2004) and may be associated, among boys, with a higher lipid intake. "Healthy eaters" are more focused on information research than "non healthy eaters" (Dutta-Bergman, 2004). In this type of study, it is nevertheless difficult to link the cause and the effect, namely if individuals have a better diet because they read nutrition labels or, on the contrary, if they read the labels because they are better informed and more interested in nutrition.

Experimental psychology studies shed light on this subject by showing that neutral information on familiar and believable risks (such as those linked to eating too many lipids) is effective in prompting consumers to avoid products with high lipid contents (Bushman, 1998). Such studies also confirm the interest in nutritional education.
Moreover, it is generally considered that nutrition labelling benefits the whole of the population through better products or better communication on products (Moorman, 1998). Accordingly, the study by Mayer *et al.* (1998) reveals a drop (from 77% in 1991 to 49% in 1995) in misleading claims on certain types of products.

In the United Kingdom, where voluntary labelling is more widespread than in other European countries, foods that are high in simple carbohydrates bear less labelling information, particularly as regards their simple carbohydrate content (McDonald & Rugg-Gunn, 1997). In France, there are lots of high-energy products that are not labelled: a report of food labels (Lavoillotte, 2005) on 443 products, carried out in February 2005, indicates that:

- 49.4% of products bear nutrition labelling;
- the percentages of labelled products are lower in certain categories: sweets (13.7%), mayonnaises (14%), chocolate (14.4 %), sweet biscuits (16%), spreads (17%), olive oils (17.7%), fruit cordials (20%), butter (28.5%).

Although these figures should be considered with precaution due to the non-exhaustive list of products and low representativeness of this survey, they are consistent with those provided by the European Commission's survey or other studies.
The study into reaction to the presentation of packaged products conducted for the Directorate General for Health and Consumer Protection of the European Commission (DG Sanco, 2004) shows that consumer concerns over the nutritional value of "comfort food" ~~(snaks??)~~[T3] (chocolate, fizzy drinks, etc.) are very limited as these products are already known to be high in fat and/or simple carbohydrates.

Lastly, a recent analysis conducted exclusively on national brand products confirms these data and indicates labelling levels of around 100% for some food categories (dietetic products, refreshing drinks) (Annex 7).

In the United States, where the NLEA objectives were not met, a revision of nutrition labelling methods is envisaged to make it more effective and easier to understand. However, it has been demonstrated that, without nutritional education or explanation of the notion of energy density, labelling has no impact on consumer food choices (Kral *et al*., 2002). Research is required for improved insight into the link between labelling and food choices (Philipson, 2005).

Lastly, it may be noted that there are no studies on the link between nutrition labelling and the development of food behaviour problems such as orthorexia, or the risk of increasing social inequalities. The desire of consumers for compulsory nutrition labelling (DGAI/CLCV, 2006)[3] is strong: nutrition labelling as part of the “right to information” falls within the general regulatory framework of loyal consumer information.

3.5 Impact of labelling on public health and health expenses

The United States (Zarkin, 1993), New Zealand and Australia (Food Standards Australia New Zealand, 2002) and Canada (Health Canada, 2003) conducted a benefit/risk analysis prior to the introduction of compulsory labelling, based on the hypothesis that widespread nutrition labelling could help to cut costs related to nutritional determinism illnesses.
Based on various modelling types, these analyses each imply a number of hypotheses: links between labelling and changes in the consumer’s eating habits, links between dietary changes and the onset of illness, and cost of illnesses.

These theoretical analyses lack confirmation. The study conducted for the DG Sanco (2004) analysed the potential impact of nutrition labelling on consumer health without being able to draw a conclusion, given the multi-factorial character of health costs. The results of this study recognise that compulsory nutrition labelling is only significant in the wider context of consumer education so that this information guides them in their food choices.

[3] This result is not at odds with the result of the DG Sanco study mentioned a few lines higher up, due to methodological differences. The latter study focused on reactions to the presentation of products during qualitative “focus groups”; the quantitative survey DGAI/CLCV studied a more general question.

Afssa's opinion on the issue of nutrition labelling
Afssa believes that the scientific data available to date tend to show the value of nutritional labelling in terms of public health. Studies show that reading labels is associated with a better diet, although the epidemiological approach implemented (correlation studies for the most part) does not reveal a cause-effect link.
The opinion that there needs to be significant education along with any labelling reform is unanimous, and this may only be effective within a global and cohesive nutrition policy.

Finally, consumers have a strong desire for compulsory nutrition labelling, within the general context of their right to information.

4 TOP-PRIORITY NUTRITIONAL INFORMATION

Given the large amount of nutritional information concerning the composition of a food, the nutrients that must be mentioned as a priority on labels need to be selected. Selection criteria are multiple, and the nutritional interest and health benefits or risks are considered as the most important. Associated criteria may concern the potential impact on product improvement, the reliability or difficulty in obtaining data or the possible difficulty in consumer communication.

In this chapter, Afssa sets out a list of information considered to be relevant to appear on labelling than develop [T4]the scientific grounds underlying these choices.

4.1 Nutrients considered to be a priority in labelling

Current regulations

General labelling of foodstuffs is compulsory. It includes the name under which the product is sold, the list and relative quantity of ingredients, the type of foodstuff (Foodstuff Intended for Particular Nutritional Uses or FIPNU, food supplements or FS), special storage conditions or conditions of use, the presence of genetically modified organisms (GMOs), allergens, etc. It is governed by amended Directive 2000/13/EC, whose evolution is currently being discussed.
The inclusion of other information, particularly the natural state of a food, absence or presence of an ingredient or nutritional information, is optional.

Nutrition labelling is governed by Directive 90/496/EC and its transcription into French law, Decree 93/1130 of 27 September 1993 (O.J. of 29 September 1993).
Articles 6 and 7 of this decree stipulate that:
"Article 6. When nutrition labelling is provided, the information to be given shall consist of either group 1 or group 2 in the following order::
Group 1
a) the energy content
b) the protein, carbohydrate and lipid contents.

Group 2
a) the energy value
b) the protein, carbohydrate, sugars, lipid, saturated fat, dietary fibre and sodium contents.

Article 7. Nutrition labelling may also include the amounts of one or more of the following nutrients or substances:
a) starch;
b) polyols;
c) monounsaturated fatty acids;
d) polyunsaturated fatty acids;
e) cholesterol;
f) any of the minerals or vitamins, the list for which is laid down in accordance with the provision of article 9 of this decree.

2. When the nutritional claim concerns sugar, saturated fat, dietary fibre or sodium, the information to provide is that of group 2, defined in article 6 of this decree.
3. The energy value to indicate is calculated using the conversion coefficients laid down in accordance with the provisions of article 9 of this decree.
4. The declaration of substances which belong to or are components of one of the categories of nutrients referred to in article 6 is compulsory when they were subject to a nutrition claim. In addition, when the amount of polyunsaturated or monounsaturated fatty acids or cholesterol is given, the amount of saturated fatty acids must also be given, the declaration of the latter not constituting - in this case - a nutrition claim within the meaning of paragraph 1 of article 4 of this decree."

Afssa's opinion on the issue of nutrition labelling
Afssa highlights the practical interest of the concept of information groups. For pragmatic purposes, attention should be paid to the simplicity and quantity of information transmitted in the definition of groups.
Afssa recommends maintaining labelling on the basis of two groups in which the nutrients considered are reviewed, in line with the justifications presented in the following chapters. Group A contains the most important indications, common to all foods bearing nutritional labelling. Group B proposes a non-exhaustive list of information which may be declared in nutrition labelling on a voluntary basis..

❖ *Nutrients in group A*

Group A *contains the 7 following indications:*
- *energy density;*
- *total carbohydrates*
  - *including total sugars (TS);*
- *proteins;*
- *total lipids*
  - *including % of SF;*
- *salt or salt equivalent.*

Three nutrients can be added to this list, for foods for which this would be appropriate:
- *added sugars;*
- *trans fatty acids;*
- *isoflavones.*

Afssa points out that the nutrient list in group A has been formulated on the basis of public health concerns covered by previous recommendations and likely to be understood by consumers, such as seeking a balanced diet, reducing total energy intake (TEI), reducing SFA consumption, reducing TS consumption or limiting salt consumption.

Afssa's opinion also takes account of the fact that consumers, healthcare authorities, the agri-food industry (AFI) and distribution would all like simpler labelling[4]. Afssa considers the information included in Group A to be the most important, and that it cannot be simplified further. However, Afssa recommends that some of these nutrients or substances (added sugars, trans FAs, isoflavones) be mentioned on labelling only when this is relevant. The criteria of this relevance will be defined in the paragraphs corresponding to each of these nutrients or substances.
Afssa believes that there are currently no consensual scientific grounds on which the elements included in Group A can be prioritised.

[4] Les Rencontres de la Consommation. Information Nutrition : comment prévenir l'indigestion ? – At the initiative of the Coordination Consommateurs et des Centres E.Leclerc. Paris, 29 September 2006

❖ Nutrients in group B

The list of nutrients in group A, including those whose consumption should now be reduced, is not enough by itself for consumers to put the principle of a balanced diet into practice. The labelling of nutrient contents belonging to a second group of nutrients, the consumption of which is proven to have a positive health impact, must also be encouraged. This labelling concerns nutrients that are naturally present in a food or have been added (by restoration or enrichment). Only those nutrients that are present in significant quantities (based, for example, on the threshold of “source” claims for vitamins and minerals), should be indicated on the labelling.

Afssa suggests that this group be presented as a fairly wide, positive list that can include all the nutrients whose indication is already authorised. The addition of other nutrients to this list remains possible on the basis of a scientific file, under the terms which can be specified in the future European regulatory text on food labelling.

***Group B** contains:*
- *bioavailable complex carbohydrates;*
- *fibres;*
- *minerals and trace elements;*
- *vitamins;*
- *omega 3 FAs and w6/w3 ratio;*
- *phytosterols.*

Other substances may be added to this list as soon as their health effect has been proven at a nutritional dose.

4.2 Review of nutritional information in group A

This review is based on the recommendations made by Afssa in its previously published opinions. Since energy and lipids have not been covered by Afssa’s previous opinions, the considerations presented in this report are those of the “labelling” WG.
This chapter describes nutrients that labelling should mention, without prioritising them. Any prioritisation of the information in Group A would require other parameters to be taken into account, such as consumer understanding and the feasibility of analytical measurements.
The choices made below are based on the nutrient characteristics, with account taken of national public health nutritional priorities and with a view to simplifying labelling.

4.2.1 Energy

Current labelling indicates the energy provided per 100 g of food. For most products (except for foods which require rehydration), this value corresponds to the energy density of the food, i.e. the amount of energy provided per 100 g of this food *in the form that it is consumed.*
This information must be printed clearly on packaging.

❖ *Energy density and nutrient density*

The energy density is the energy provided per given quantity of food. It has a high negative correlation with the water content in foods and a positive correlation with their lipid content (Grunwald *et al*., 2001; Drewnowski, 1998). Foods that are dry and/or rich in lipids therefore have a higher energy density. On the other hand, foods with a high water content have a lower energy density. Vegetables are the least energy dense foods (around 20 kcal/100 g) whereas vegetable oils have the highest energy density (900 kcal/100 g).

The table presented in annex 3 gives the average energy density (or median) of food groups and sub-groups.

The nutrient density is the quantity of nutrients per 100 kcal of food.

Low energy-dense foods often have a high nutrient density. This is the case for fruit, and vegetables especially (Darmon *et al*, 2005), as well as lean meat, fish and low-fat dairy products. However, not all low energy-dense foods systematically have a high nutrient density. Indeed, soft drinks have both a low energy density (around 40 kcl/100g) as they contain a lot of water, and a very low nutrient density. On the contrary, nuts have a high energy density (around 600 kcal/100 g) but are also an excellent source of nutrients.

- *Energy density of foods and energy intake*

The volume or mass, of foods may be the main determining factor in food intake, since each individual consumes a relatively constant daily amount of food. People start to feel full after eating a certain volume, that they learn to recognise as satisfactory. This explains why the consumption of foods providing high amounts of energy in a small volume results, at least in the short term, in an overconsumption of energy (Lissner *et al*., 1987; Rolls & Bell, 1999). Energy density also increases energy intake by prompting consumers to "acquire a taste" for foods (McCrory *et al*., 2006). Indeed, we have an innate preference for fatty, sugary foods, which more generally reflects a preference for energy-dense foods. These foods are called "palatable", bringing a sense of satisfaction after eating, which is likely to induce excessive intake beyond the objective physiological needs (greater than the level of hunger felt). This preference for energy-dense foods is evident at all ages and influenced by genetic and/or acquired factors (McCrory *et al*, 2006; Gibson & Wardle, 2003).

- *Energy density of a diet*

The energy density of a diet is calculated by dividing the total energy intake by the total mass of food consumed. The edible mass of foods consumed (cooked, rehydrated foods, excluding waste) which should be counted. The average energy density of a French adult's diet is around 140 kcal/100g (Darmon *et al*., 2004), excluding alcoholic drinks and non-energy drinks. This value corresponds to a daily dietary intake of 1.4 kg for an energy intake of 2000 kcal. Water consumed via food and not drinks influences the energy intake (Rolls *et al.,* 1999). For example, energy intake is reduced after a meal in which soup is the starter, but not after eating the same amount of vegetables and water, the water being drunk separately (Himaya & Louis-Sylvestre, 1998). This is why the energy density of a diet is calculated on the basis of solid foods only. People with a low energy density diet consume more fruits and vegetables than those with a high energy density diet (Cuco *et al*., 2001; Darmon *et al*., 2004). But they consume fewer soft drinks than those with a high energy density diet (Kant & Graubard, 2005; Ledikwe *et al.,* 2006 b). They have a higher vitamin and mineral intake despite a lower energy intake (Andrieu *et al*., 2006).

- *Energy density and obesity*

The link between dietary energy density and the corpulence of individuals has not been clearly established to date (Drewnowski *et al*., 2004). This is because, under strictly experimental conditions, the stimulating effect of energy density on energy intake observed over the short term seems to be compensated over the long term (De Castro, 2004 ; Stubbs *et al*., 2000). This compensation does not therefore have a significant effect on the body weight of individuals.
However several transversal epidemiological studies conducted in North America have shown a positive relationship between the energy density of a person's diet and his/her corpulence or risk of obesity (Kant & Graubard, 2005; Ledikwe *et al*., 2006 a; Howarth *et al*., 2006). It seems that the stimulating effect of energy density on weight gain is a cumulative effect over the long term. The methodologies of transversal epidemiological studies, the only type available at present on this subject, are not suitable for demonstrating this effect.

Large portion sizes may also contribute to higher dietary intake. This effect is added to the energy density to induce an overconsumption of energy (Rolls *et al*., 2004).
The overconsumption of energy induced by high energy densities and large portions is called "passive" energy consumption. If repeated, it is supposed to induce weight gain over the long term, increasing the risks of obesity. Reducing the energy density in your diet is therefore presented today, particularly by WHO, as one of the strategies for preventing weight gain and obesity (WHO, 2004; Rolls *et al*., 2005).

Afssa's opinion on the labelling of energy density

Given the fact that consumption of high energy-dense foods can increase the risk of overconsumption of energy, it is important to help consumers to identify low energy-dense and high energy-dense foods. Afssa *therefore recommends that the first key information to give to consumers is the food energy density, expressed in kcal/100 g or 100 ml.*

All liquid foods should be labelled in the same way, i.e. in kilocalories/100 ml. Afssa particularly recommends alcoholic drinks to be labelled as regards their energy density, including the energy provided by the alcohol.

The energy density should be expressed for foods "as consumed", i.e. after cooking or rehydration. There are correction factors enabling the energy value of a food in the form that it is consumed to be obtained (3 for dry pasta, 10 for powdered milk or 7 for mashed potato in flakes). Even if the food is cooked or diluted in a liquid other than water, the value given shall consider that the dilution is done in water so that it corresponds to the energy density of the product itself, and not to that of the liquid in which it is cooked and/or diluted.

Regarding the choice of unit of expression, the following was taken into account:

- the need to simplify and limit the amount of information on labelling;
- the fact that consumers are used to seeing energy expressed in kilocalories, a unit that they understand;
- the use of joule and its multiples in the international system of units, and the use of kilojoules in education in France and abroad. In a number of countries that have adopted the international system of units, units from other systems (degrees Fahrenheit, miles, etc.) are still in use today.

Furthermore, it would be interesting to study the reliability of replacing traditional Atwater coefficients with new energy conversion coefficients for nutrients (Livesey, 2001), and in the same way for new ingredients (Livesey *et al.,* 2000). These coefficients are derived from the net metabolisable energy and are therefore closer to physiological reality. Indeed, the energy density of low energy-dense foods can be overestimated by 25% by the current system (Livesey *et al*., 2000).

4.2.2 Carbohydrates

Afssa's report on carbohydrates (Afssa, 2004 b) recommends systematic labelling of the content of complex carbohydrates (oligo and polysaccharides), fibres, sugars (mono and disaccharides) and added sugars. There is strong consensus at the international level for recommending a total carbohydrate intake contributing to between 45 and 65% of the total energy intake. The value adopted for the French population is 50-55 %. This recommendation (ANC, 2001) encourages a balanced diet between macronutrients which seem to help maintain an appropriate physiology, and reduce metabolic anomalies that may become pathological.
Various international bodies (WHO, 2003; Ferro-Luzzi et al., 2001) suggest limiting sugar intake, although the available scientific data from often imperfect studies do not draw a definitive conclusion. Indeed, their excessive consumption may increase the risk of weight gain, and so it is desirable that nutrition labelling indicates both complex carbohydrates and sugars..
Within sugars, a distinction can be made between sugars that are intrinsic to the product (sugars present in the food matrix: lactose (milk sugar), fructose (fruit sugar), etc.) and sugars added during processing. Although no information about chemical structure differentiates them, public health considerations justify such a differentiation in principle, since the addition of sugars considerably increases the energy density of the food portion. This phenomenon has been identified with soft drinks in particular (USDA, 2005 b). Moreover, sweeteners that are added are often lacking in vitamins, minerals and other micro-components.

Afssa's opinion on the labelling of carbohydrates content
Afssa recommends labelling of total carbohydrate and sugar contents as a priority.
Afssa highlights the public health interest in labelling added sugars. If this option is selected, these values will need to be calculated on the basis of recipes.
Afssa also highlights the highly restrictive nature of the actual [T5]*regulatory definition of sugars, which is based on structural considerations (mono and disaccharides) and certain sweeteners partially escape this definition when they may have similar metabolic effects. Afssa therefore recommends that discussions on the regulatory definition of sugars be held at the European level.*

However, there are certain difficulties to be considered when analysing this issue:

- the addition of sugars to certain products so as to standardise the total sugar content and maintain the constancy of organoleptic properties and/or for the technological functions of sugars, is variable. It can therefore be tricky for manufacturers to guarantee constant added sugar rates between different manufactured batches;
- the analytical difficulty to mesure intrinsic sugars enabling them to be differentiated from exogenous sugars, and the cost of these analyses, would impose a constraint both for manufacturers and inspection administrations; however, it may be possible to avoid this constraint with technological advances.

4.2.3 Protein

Afssa’s report on proteins (AFSSA, 2007 b) responds to questions relating to protein and amino acid needs, the quality of food proteins, the effects of proteins on physiological functions and claims. It does not give recommendations on the labelling of protein and amino acid contents.

Proteins play a role in all the major functions of the body. Some have essentially a structural role, but the vast majority are involved in recognition and interaction functions with other molecules (enzymatic, motor and hormonal activities, regulation of gene expression, immune functions, etc.). Proteins are an essential part of our diet. They are found in animal products, vegetable products and unicellular organisms. They are present in very variable quantities in food sources, which explains the relatively marked differences in consumption levels depending on the populations considered.

On the basis of data from the INCA 1 survey, it appears that virtually all French people, irrespective of age and gender, cover their protein needs, and even exceed them. However, a balanced distribution of macronutrient intake is essential to cover energy and micronutrient needs. In this context, the labelling of protein content in foods is useful for consumers’ information, particularly to compare various products with a view to achieving a balanced diet.

Afssa’s opinion on the labelling of protein content
Afssa recommends labelling of protein content.

4.2.4 Lipids

Lipids cover a wide range of nutrients containing fatty acids (FAs) in particular, glycerides and phosphoglycerides, sphingolipids, sterols and liposoluble vitamins.
Total lipids and each fatty acid will be considered in turn, firstly in its absolute content and then between each other. In a general manner, Afssa highlights the interest of a detailed description of fats through their main categories of fatty acids (SFAs, MUFAs, PUFAs, trans FAs, etc.).

- *Total lipids*

Total lipid consumption in France generally exceeds the recommendations (ANC, 2001). It amounts to 92.6 g/d on average in men, or 36.6% of the TEI (including alcohol).

An excessive consumption of lipids increases the risk associated with the death rate, all causes included, and with hypertension, type 2 diabetes, cardiovascular illnesses (CVIs), pulmonary infections and cancers (Adams *et al*, 2006). The physiopathological mechanisms most probably linked with these pathological states are insulin resistance, chronic inflammation, alterations in the lipid and hormonal parameters. A reduction in total lipid intake is therefore recommended, the PNNS (National Programme for Nutrition and Health) sets as an objective an intake that is lower than or equal to 35% of the TEI.
A working group is currently working on the recommended dietary intakes for FAs, since this category of nutrients has not been the subject of a recent overall assessment by Afssa.

Afssa’s opinion on the labelling of total lipid content
Afssa believes that the labelling of total lipids is a priority, especially as consumers tend to underestimate the content of lipid-rich products (Mela, 1993).

Moreover, Afssa recommends that the relevance of a replacement of the term “lipid” by another expression be studied among consumers. This is because, in France, the term “lipids” is not clearly understood by 40% of consumers DGAl/CLCV, 2004) and several countries recommend labelling lipid content using the current linguistic terms referring to the concept of fat (fett, etc.) (DGAl, 2004).

- *Saturated fatty acids*

SFA consumption in France generally exceeds current recommendations, which are 8% of the TEI (ANC, 2001). In men, this intake amounts, on average, to 40.5 g/d, or 16% of the TEI (ANC, 2001). Most European countries recommend an SFA intake lower than 10% of the TEI (8% in Mediterranean countries).
Taken in their entirety, SFAs are nutrients whose intake has the greatest influence over plasma cholesterol, one of the major risk factors and markers of CVIs. They also preferentially accumulate in fatty tissue, being oxidised after the PUFAs. Hence why these FAs are considered to play the greatest role in the development of obesity.

Afssa's opinion on the labelling of saturated fat content
SFA content labelling with a view to reducing their consumption is widely agreed upon. This labelling may take the form of either a percentage of the total energy intake or an absolute value.

- *Trans fatty acids*

Source: Report “Health risks and benefits of *trans* fatty acids in foods – Recommendations” (Afssa, 2005)

Trans FAs are MUFAs and PUFAs with at least one double bond in the *trans* configuration.
The average consumption levels of total *trans* FAs are 3.2 g/d in men and 2.8 g/d in women, or 1.3% of the TEI. They represent, on average, 3% of the lipid intake. The age group with the highest intake levels is 12 to 14 year old boys with an average of 3.5 g/d. These values correspond to the average consumption levels assessed in the United States. Several studies show that a daily *trans* FA intake exceeding 2% of the TEI significantly increases the CVI rate.

The main contributing foods are dairy products: they provide 53% of total *trans* FAs in adults (45% in children). All products of animal origin provide 60%. This means that *trans* FA consumption is strongly correlated with SFA intake. The main *trans* FA is vaccenic acid (18:1 11t). The next highest contributing foods are breads, manufactured sweet pastries and biscuits: they provide 18% of total *trans* FAs in adults (almost 30% in children). They are of technological origin and correspond to elaidic acid (18:1 9t) and 18:1 10t.

Recommendations on trans fatty acids featuring in the Afssa opinion (Afssa, 2005 c)

Afssa recommends limiting the daily consumption of *trans* FAs to 2% of TEI. Conjugated linoleic acid (CLA) is not taken into account given the lack of data on its health effects.
To achieve this, specific recommendations are formulated per type of products.

Moreover, compulsory labelling of *trans* FAs is recommended in the form of “total FAs including X% *trans* FAs” on products for which this has been deemed relevant.

In several countries, including the United States, the labelling of *trans* fatty acids is mandatory since the beginning of 2006 (Moss, 2006). *Trans* FA intake in the French population does not reach the levels observed in other countries, but certain population groups, particularly children and teenagers, currently present a worrying level of intake (5% in adults and 10% in 12-14 year old boys).

Afssa considers that the counting of *trans* FAs in the amount of SFAs on labelling is not relevant, in so far as the cardiovascular risk associated with *trans* FA consumption is higher than the risk associated with SFA consumption (daily dietary intake limits are set at 2% and 10% respectively for *trans* FAs and SFAs). This confusion could increase the risks of drifting into the replacement of SFAs by hydrogenated fats containing *trans* FAs when seeking a technological effect.

Afssa's opinion on the labelling of* trans *fatty acid content
The consumption of the main food sources of trans FAs, excluding CLA, needs to be limited. Afssa considers it relevant to label trans *FA content in this objective, particularly on products whose content exceeds the thresholds defined in Afssa's opinion on* trans *FAs.*

Afssa reiterates that, beyond labelling for consumers, the reduction of *trans* FA intake must be obtained through a reduction in the *trans* FA content in food sources.
Indeed, studies (DGAI/CLCV, 2004) show that most consumers are a long way from understanding the notions of "total lipids" and "saturated fat".

4.2.5 Salt

Source: Afssa report "Salt: assessment and recommendations", (Afssa, 2002)

Sodium has a key role to play in the hydro-electrolytic balance and in the transmission of flows in the nervous and muscular tissues. The minimum need for sodium chloride is 1 to 2 g/d (Drüecke & Lacour, 2001). Our diet provides considerably more since 80% of salt ingested comes from processed foods. The INCA 1 survey found that average consumption in France is 8g/d excluding added salt. If the amount of added salt is estimated to be 1 to 2 g/d, total average consumption is estimated to be 9 to 10 g/d.

Although the link between salt consumption and arterial pressure has been controversial, several European and North American expert committees now recommend a reduction in sodium intake for the general population with a view to preventing arterial hypertension, a major risk factor of CVI and cerebral vascular accidents. This measure is part of a global nutritional policy (EURODIET, 2000; WHO, 2003; SACN, 2003; AHANC, 2006). In France, one of the key objectives of the PNNS is to reduce systolic arterial pressure by 10 mm Hg in adults.

Recommendations on salt featuring in Afssa's opinion (Afssa 2002 b)

In 2002, Afssa (Afssa, 2002 b) suggested the systematic labelling of sodium content or salt equivalent, in grams per 100 g, 100 ml and possibly per portion. The salt equivalent is indicated according to the formula Na x 2.54 when NaCl is used as an ingredient. This formula should be adapted when NaCl is used as an additive or technological additive.
Moreover, Afssa recommended reducing average salt consumption by 20% over 5 years; a reference value of 8 g of salt (current mean intake reduced from 20%) to be considered as the quantity that should not be exceeded daily has been proposed. This reference value, including table salt (representing 15 to 20% of salt intake), has been adopted in France as a realistic value in view of current consumption habits. However, most countries have adopted a value of 6 g/d (without the actual salt levels ingested by the population necessarily being closer to this value than in France, with the exception of Finland).

Afssa's opinion on the labelling of salt content
Afssa believes that the labelling of both sodium content and its salt equivalent would give more complete information, but considers that the indication of a double value does not simplify or limit the amount of information transmitted.
If a single indication has to be adopted, Afssa believes that salt content should be the priority.

Afssa's decision in terms of labelling salt content is based on the following arguments:
- population's global sodium intake is mainly due to the form of sodium chloride added to foods;
- sodium naturally found in foods only represents a small part of sodium intake according to an analysis of the main food sources (breads, pork products, cheese, etc.). Moreover, data on dietary salt sales and sodium intake in the population, calculated on the basis of food composition, are consistent.
- standardised routine methods for determining salt content in foods do not all measure NaCl directly, rather, depending on the food matrix, the sodium ion or chloride ion;
- the notion of salt is instinctively understood by consumers and is subjected to public health recommendations and appears in various food guides of the PNNS;
- managing sodium intake would be more complicated;

- sodium labelling would require specific education, an Australian study has shown for example the frequent confusion between the two terms (Gibnez & Fifild, 2006). Other authors are also in favour of salt instead of sodium labelling (Sharp, 2004).

The quantitative indication of added salt in the list of ingredients (which is currently not provided for in the Directive on nutrition labelling) may be an alternative to it featuring on nutrition labelling. This quantitative approach should only concern salt (sodium chloride) so as to respect the confidentiality of recipes.

4.2.6 Isoflavones

Source: Afssa report "Safety and benefits of phytoestrogens provided by food – Recommendations" (2005 a)

Phytoestrogens are substances naturally occurring in plants or produced by the metabolism of a vegetable precursor by colic flora. These molecules are similar in chemical structure to 17 β-estradiol. This structural similarity results in functional similarities.
Soya isoflavones, including genistein and daidzein, have been studied the most as they represent virtually the whole phytoestrogen intake in Asian women. In the West, excluding people who eat products derived from soya (about 1% of the population in France), phytoestrogen intake comes mainly from foods containing enterolignan precursors.
While a moderate intake of isoflavones (45 to 50 mg/day) does not seem to increase the risk of cancer, reproducible and coherent animal testing raises the possibility of at-risk situations in humans (exposure of children under 3 and women with a personal or family history of breast cancer).

Recommendations on isoflavones featuring in Afssa's opinion (Afssa 2005 b)

Recommended labelling information for soya-based foods (tonyu, miso, tofu, soya desserts and yoghurts) are as follows:
- contain X mg of isoflavones in the form of aglycone equivalents;
- to be consumed in moderation: maximum consumption 1 mg/kg body weight./day;
- not recommended for children under the age of 3.

Afssa's opinion on the labelling of isoflavone content

Afssa highlights the interest in the systematic labelling of isoflavone content (expressed in aglycone equivalents) of foods likely to be significant sources, i.e. made from whole soya or soy protein isolates. This is because the standardisation of units is necessary to obtain relevant comparisons between different products, particularly in the European countries.

It is not appropriate to label all products containing phytoestrogens, but it is necessary to define an isoflavone threshold on the basis of which labelling its content would be required.

The isoflavone threshold for labelling could be calculated on the basis of Afssa's recommendation in terms of consumption and on composition data of soya-based products.

Afssa states that the notion of aglycone equivalents is a specification intended for manufacturers which does not necessarily need to be communicated to consumers. The values indicated will actually correspond to "aglycone equivalents" even if the term used is "isoflavones".
Afssa nevertheless believes that consumer understanding of the term "isoflavone" should be assessed.

4.3 **Review of nutritional information in group B**

The information dealt with in this chapter only concern omega 3 fatty acids, the omega 6/omega 3 ratio, iodine and fibres which were the subject of discussions at Afssa.

4.3.1 Omega 3 fatty acids

Estimation of their consumption is relatively recent given the lack of food composition tables in their regard.

The results of the SU.VI.MAX (antioxidant vitamins and minerals supplements) survey show that:

- Alpha-linolenic acid (ALA) intake represents on average 0.39% of the TEI in men (5th percentile: 0.30 %; 95th percentile: 0.52%) and 0.41% of the TEI in women (5th percentile: 0.32%; 95th percentile: 0,55 %):
- The linoleic acid (LA)/ALA ratio is on average 11.1 in men (5th percentile: 7.5; 95th percentile: 16.1) and 10.8 in women (5th percentile: 7.3; 95th percentile: 15,7) ;
- 38% of the SU.VI.MAX sample subjects have an ALA intake less than 0.4% of the AET (i.e. less than 50% of the recommended intake).

The MEDHEA (Mediterranean Diet and Health) survey conducted on a representative sample of the Herault region in France shows, for ALA, an intake of 0.43% of the TEI in men (compared with 0.47% in women); for eicosapentaenoic acid (EPA), an intake of 0.04% in men (compared with 0.04% in women); for docosahexaenoic acid (DHA) an intake of 0.06% in men (compared with 0.07% in women).
The Aquitaine study conducted among pregnant women shows, for ALA, an intake of 0.34% of the TEI.

On the whole, these studies demonstrate an insufficient intake of omega 3 FAs: RDIs are 0.8% and 0.05% of TEI, for ALA and DHA respectively, in adults (men and women).

It is now accepted that omega 3 FAs, particularly DHA, are needed for infant and child development (Heird et Lapillonne, 2005). Furthermore, omega 3 FAs play a key role in the prevention of chronic degenerative diseases.
As for CVD, it is established that long-chain PUFAs (LCPUFAs) significantly reduce triglyceridemia (hyper-triglyceridemia is an element of metabolic syndrome). They also cut risks of post-infarctus mortality by reducing myocardial fibrillation (Daviglus & Sheeshka, 2002).
The links between FAs and cancer were reviewed in 2003 (Afssa-NACRe, 2003).
In the case of colorectal cancer, most case-control and cohort studies based on a food questionnaire do not reveal a link between the consumption of fish and ω 3 LCPUFAs and a cancer risk, a fall in risk is proven in the results of the European study EPIC (European prospective investigation into cancers) (Norat *et al*., 2005). The statistical power of this study, with a wide consumption scale between the various centres, corroborated by mechanistic studies mentioned above, prompts a reconsideration of the link between colorectal cancer and fish consumption being possible, if not probable.
Accordingly, while animal model data contribute to showing the inhibitive effect of LCPUFAs on tumoral proliferation, no conclusion may be drawn from epidemiological data in their entirety.
For prostate cancer, several epidemiological studies prove the existence of an increase in cancer risk, also at an advanced stage, associated with the consumption of ALA. Although there is no animal model or biological plausibility supporting this association, care should be taken (Gerber *et al*, 2005). In an opinion on the consumption of flaxseed oil (2004-SA-0213), rich in ALN (55 g/100 g), Afssa recommends that daily ALA consumption not exceed 2 g in men.

Relative proportion of omega 3 and omega 6 FAs
Today, it is accepted that a high intake of ω6 PUFAs may induce the excessive synthesis of eicosanoids inductive of inflammatory reactions. Omega 3 PUFAs, that compete in the substratum for enzymatic activities, inhibit this pathway and behave like anti-inflammatory substances.
A linoleic acid/alpha-linolenic acid ω6/ω3 ratio equal to 5 is recommended (RDI, 2001), but the French population is far from reaching this ratio (exceeding 10 on average in the SU.VI.MAX study, and ranging between 13 and 14 in the MEDHEA study), with wide variation, since in the Fleurbaix-Laventie population, the ratio observed varies between 3 and 49.
Regarding illnesses relating to this imbalance, breast and prostate cancers have been studied specifically, revealing that ω3 PUFAs only act as protectors if the ω6 PUFA intake is low; or that the ω6 PUFAs increase the risk only if the ω3 PUFA intake is low (Gago-Dominguez *et al.,* 2003; Leitzmann *et al,* 2004; Gerber *et al*, 2005).

Recommendations on omega 3 fatty acids featuring in Afssa's opinion (Afssa, 2003)

Source: report "The omega 3 fatty acids and the cardiovascular system: nutritional benefits and claims" (Afssa, 2003)

In this report, no quantitative labelling obligation is made. Claims such as "source of", "rich in", "rebalancing of the intake[T6]" and "contributes to healthy cardiovascular function" may be used if the product meets precise composition criteria. In this case, labelling of ω 3 fatty acid content is compulsory in accordance with current regulations on nutrition claims.

Relative proportion of omega 3 and omega 6 FAs
Discussions are being held at Afssa with a view to revising the recommended nutritional allowances of fatty acids proposed in 2001.

Afssa's opinion on the labelling of omega 3 fatty acid content
Afssa highlights the relevance of omega 3 fatty acid labelling for products containing significant amounts for 100g or 100 ml or 100 kcal, i.e. amounts more than or equal to 15% of RDIs (Afssa, 2003).
There is interest in the labelling of the w6/w3 ratio, with an indication of the fatty acids used for the calculation, and it should be systematic for all fats.

4.3.2 Iodine

Source: Afssa report "Assessment of the nutritional impact of introducing iodine compounds into processed foods" (2005 b)

Reducing iodine deficiency is one of the public health objectives in France. It is preferable that the frequency of iodine deficiency in the French population be reduced by 20% by the end of the 2004-2008 period, since results of the Su.Vi.Max study on biological parameters show that the French adult population (35-60 years old) is at risk of a slight to moderate iodine deficiency, women being more exposed than men (Valeix *et al.*, 1999). In pregnant women, at the end of their pregnancy, iodine intake corresponds to less than 50% of a pregnant woman's RDA (Caron *et al.*, 1997; Pivot, 2003). Consumption data taken from the INCA survey for children aged 3 and over, and from recent studies on biological status, have identified a substantial section of the population aged 10 and over as at risk from an iodine deficiency, particularly in teenagers and women of childbearing age.

In March 2005, Afssa issued recommendations on the iodine enrichment of foods, concerning enrichment limits, food vectors and consumer information (Afssa, 2005 b).

Afssa's opinion on the labelling of iodine content
Given that iodine deficiency is a real public health issue in France, Afssa considers that this nutrient may be included in group B. It does not give any particular recommendation on how it should be labelled, however.

4.3.3 Fibre

Source: report "Dietary fibre: definitions, analysis and nutrition claims",(Afssa, 2002)

Afssa proposes the following definition of fibre: "Dietary fibre consists of:
- *Carbohydrate polymers (Polymerization Degree (PD) ≥ 3) of plant origin, which may or may not be associated in the plan, with lignin or other non-carbohydrate components (polyphenols, waxes, saponins, cutin, phytates, phytosterols, etc.);*
- *<u>or</u> transformed carbohydrate polymers (PD ≥ 3) proceeded (by physical, enzymatic or chemical means) or synthetic), included in the attached list, whose contents may change on the basis of Afssa recommendations;*
- *<u>In addition</u>, dietary fibre is neither digested nor absorbed in the small intestine. It has at least one of the following properties:*
    - *increase stools production;*
    - *stimulate colonic fermentation;*
    - *reduce pre-prandial cholesterol levels;*
    - *reduce post-prandial blodd sugar and/or insulin levels ".*

Rq: cette définition provient d'un rapport Afssa 2002 déjà traduit en anglais. Donc, merci de garder les corrections telles que mentionnées

Afssa's opinion on the labelling of fibre content
Afssa would like to maintain the possibility of labelling fibre content, the consumption of which helps to reduce the risk of degenerative diseases, particularly certain types of cancer (colon). As a result, the

independent labelling of fibre content in absolute value should be recommended. The working group is referring to Afssa’s report on the subject as regards fibre measuring methods (Afssa, 2002 a).

5 INDICATIONS TO HELP CONSUMERS ADAPT THEIR CHOICES TO THEIR NEEDS

5.1 MEANS OF EXPRESSING NUTRIENT CONTENT IN PRODUCTS

5.1.1 Per 100 g

This system enables products to be compared easily. It does not, however, take account of consumption habits of the product, and induces the risk of abusive claims.

5.1.2 Per 100 kcal

This system takes account of the product’s energy density, but is not practical for consumers. In fact, it is only used in the definition of conditions for accessing nutritional claims.

5.1.3 Per serving

This means of expression is practical for consumers, but does not enable easy comparison of products in the absence of standardised portion sizes.
Indeed, it seems difficult to draw up a common definition of a serving, both on the national and international level. This notion depends on the food in question, when it is consumed (breakfast, snack, lunch, etc.), on its situation in the meal (starter, main course, dessert, side dish, etc.) and more generally in a diet, which are all associated with the cultural context. At present, portion definitions have not been standardised and may refer to the sum of the quantities of a given food consumed during a meal, during one of the courses of the meal, or in a single helping.
An administrative definition of a serving may moreover confuse consumers: there is no correlation in the United States between standardised servings and quantities actually consumed (Schwartz & Byrd-Bredbenner, 2006). There is also the risk of confusion between the serving and the whole packaging, which may contain several servings (Pelletier et al., 2004).
Finally, estimation of the average portion size from consumption data, assuming that a definition has been set for the ‘portion’, depends on how the surveys are carried out (type of survey, number of observation days taken into account in the calculation, and on the cultural context of the diet previously mentioned).

Afssa’s report on the comparison of data from the Baromètre Santé Nutrition of INPES and the INCA survey, compared with PNNS recommendations highlights these difficulties (Afssa, 2004 c).

Afssa’s opinion on the means for expressing nutrient content

In the absence of strong and indisputable scientific arguments for choosing a reference, Afssa draws attention to the fact that the choice of a single reference for all products, particularly pre-packaged, is not the only possible solution, and recommends a pragmatic mixed approach.
Labelling for 100 g (which makes products easier to compare) and labelling per portion (which helps to pinpoint the quantity of nutrient actually consumed) are complementary. Afssa therefore considers that a double labelling system would be the most appropriate, as it gives the most information for comparing products. Nevertheless, Afssa recognises that this double system goes against the objective of simplifying and limiting the amount of information given, and would not be possible technically in all cases (size of packaging).
For products presented in packaging that is designed explicitly for individual consumption, the reference per portion appears appropriate, the reference per 100 g being possible on a voluntary basis. For products that are not packaged on an individual basis, the reference per 100 g should be indicated. Inevitably, more complex situations could persist that could be dealt with on a case-by-case basis within professionals, possibly on the basis of general standardised guidelines. In all cases, the energy density (in kcal/100g or 100ml) must be mentioned on labelling.

5.1.4 Indication of the reference to consumer needs

To help consumers in making educated choices, current labelling systems state the nutrient content of the food in comparison with dietary reference intake (DRI) values. Different DRIs have been proposed for food labelling (Fulgoni & Miller, 2006):
Several types of reference are used:

- for micronutrients
    - *reference covering the needs of 97.5% of the population: these are Recommended Nutritional Intakes (Apports Nutritionnels Conseillés (ANCs)) in France, Population Reference Intakes (PRIs) in Europe and Recommended Dietary Allowances/Intakes (RDA/RDI) in the US;*
    - *reference corresponding to the population's average nutritional need: Mean Nutritional Need (Besoin nutritionnel moyen (BNM)) in France, Estimated Average Requirements (EARs) in the US; the RDIs and ANCs are derived from these values;*
    - *regulatory reference for labelling: Recommended Daily Allowances (RDAs) in Europe;*

- for macronutrients and energy
    - *current definitions of EARs and RDIs are relatively different to those accepted for micronutrients;*
    - *there is currently no regulatory reference for RDAs.*

RDA/RDIs have been used for nutritional labelling in the US for the past thirty or so years. According to Murphy & Barr (2006), this value must be considered as an individual target-value: the premise is that consumers are entitled to expect that a product containing 100% of the DRI covers their needs. The use of this value presents a higher potential benefit (increasing the prevalence of sufficient intake levels in the population) than the potential risk of excessive intake. In this regard, the reference value for labelling should be the highest RDI (reducing the risk of inadequate intake as far as possible) rather than a weighted value of RDI based on the weight of each population group for which a RDI has been defined (Yates, 2006).

On the contrary, other scientists believe that the validity of the EAR is greater than for RDIs. Indeed, the use of RDIs, by providing an excessive value for most consumers, leads the consumer to underestimate the nutrient contribution of the food labelled in relation to its overall nutrient needs (IOM, 2003; Tarasuk, 2006). According to Beaton (2006), the use of RDIs leads to distorted information on the nutritional quality of the product in so far as the variation coefficient used to derive the RDI from the EAR varies depending on nutrient from 10 to 20%.

Afssa draws attention to the fact that the RDAs are designed, by definition, to cover the needs of a whole population presenting the same characteristics and are therefore higher for a majority of individuals in theory. Consequently, they should not constitute a reference at an individual level but at a population level (ANC, 2001). Moreover, Afssa's opinions state that the nutritional status of the French population is satisfactory overall, and that the reduction of intake deficiency risks observed in certain subgroups is unlikely to be achieved through the proposal of intake levels that are too high for the majority of the population.

Afssa's opinion on the reference value for the labelling of micronutrient content

Afssa considers the most appropriate reference to be the EAR. RDAs, labelling values defined at European level and similar to EARs for many nutrients, should be used as a priority.

Afssa is in favour of the possibility of expressing the specific needs of a subgroup of the population, when they are significantly different to those of the reference population (but avoiding a multiplication of the subgroups), and when the products are clearly intended for this subgroup. As a result, it could be appropriate to define specific RDA values for children and elderly people.

This viewpoint was also adopted by the Scientific Committee for Food (SCF) in 1992 (SCF, 1992). Moreover, the SCF (SCF, 2003) has only proposed a specific RDA for children aged 1 to 3.

It is important to note that any modification of the nutritional reference value risks confusing consumers.

Moreover, regarding regulations on claims, choosing the RDI or its equivalent at European level, the PRI, is likely to modify the status of some foods. In the case of calcium for example, choosing a reference value of 1000mg/day (PRI) instead of 800 mg/day (current RDA) means that the claim "source of calcium" can no longer be used for milk (12% of the reference value for 100 ml, whereas the limit was set at 15%).

The situation is more complicated for macronutrients and energy.
For energy, the definition of an RDA by the addition of two standard deviations would result in a value that is too high for most individuals, which is unacceptable in an obesity epidemic context. Current RDI values therefore correspond to an EAR.

Afssa's opinion on the reference value for the labelling of energy

Given the difficulty in defining a standardised daily energy intake for the whole population, Afssa recommends a methodology that does not need the use of this reference (see the method proposed in the following paragraph).
Afssa does, however, recommend a reference daily energy intake of 1900 kcal (8 MJ) if the labelling standardisation project maintains a reference value. This value is halfway between those observed for women and those observed for men in most French dietary surveys. When products are specifically intended for children, however, it would be sensible to adapt this reference.

An EAR has been defined for proteins, from which a RDI has been derived. Changes have been made following discussions of the protein working group (Afssa, 2007). The EAR is mainly defined on the basis of the nitrogen balance over the short term and probably only represents a minimal need. The RDA for proteins is therefore considered to be a minimum reference intake at present, since the optimal intake, as knowledge currently stands, is impossible to fix between the RDA (0.83 g/kg/d) and the limit of high intake levels (2.2 g/kg/d).
For proteins, the RDA is thus the reference value to take into account.

For carbohydrates and lipids, no EAR has been defined, but an interval is proposed as being acceptable for most people. In the reference choice, account should also be taken of the consensus on the need to encourage greater consumption of complex carbohydrates (in this case, the high reference is suitable) and less consumption of total lipids and SFAs (in this case, the lowest reference is suitable).

Regarding fibre and essential FAs, a single weighted value has been proposed, based mainly on epidemiological studies. A choice needs to be made between the "artificial" derivation of an EAR on the basis of this value and the use of this value as a reference, in so far as consumption of these nutrients is to be encouraged.

Afssa's opinion on the reference value for the labelling of macronutrients

Pending the establishment of PRIs by the European Food Safety Authority (EFSA), Afssa considers that the most suitable solution is to keep the current RDAs and adopt provisional values for nutrients that don't have one for the time being.
Afssa suggests that a food guide for the general public be compiled when the definitive system is adopted, to help consumers use and understand the new labelling.

5.2 Use of the notion of a balanced diet for the expression of nutrient content

In most current labelling systems, nutrient contents are expressed in percentages of daily needs on the basis of a single reference in terms of energy intake. But whatever the chosen reference, it is shown that this reference does not concern more than a third of the population (see annexes 4, 5).

Afssa's opinion on the expression of nutrient content

Afssa recommends a means of expressing nutrient content based on a reference concerning the whole of the population: the balance of macronutrients in their contribution to the energy intake provided by the product in question.

5.2.1 Observational data

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The observed energy intakes for boys and girls under 14 years of age and for adult males and females aged 15 years and over, as recorded in the INCA 1 survey, are set out in Annex 4.
The observed energy intakes both for the population as a whole and for populations deemed to be steady in their weight (Annex 3, Table 3) show that:

- over 80% of adult males have intakes in excess of 2000 kcal;
- over 60% of boys have intakes of less than 2000 kcal;
- - over 60% of women have intakes of less than 2000 kcal;over 70% of girls have intakes of less than 2000 kcal

The standard deviations are around 500 kcal and with less than 30% of individuals who consume around 2000 kcal (range from 1800 to 2200 kcal) (Annex 5) for all four sub-populations. An energy intake reference of 2000 kcal results therefore in consumer misinformation since it only corresponds to the requirements of a limited part of the population, adult males with a low physical activity level (PAL), whereas recommended energy intakes (RDA, 2001) depend on an individual's age, gender, weight and PAL. The graph presented in annex 5 shows the variability of the distribution of energy allowances by plotting them against the French population frequencies for which these allowances are recommended. On the other hand, the distribution of macronutrient percentages is not as variable (Food typologies, ANC, 2001)) (Annex 6), and recommended percentages concern the whole population.
The proposed reference avoids the overestimation of energy requirements for certain populations, such as young children, particularly affected by the obesity epidemic, and would allow the standardised expression of requirements to be dropped.

5.2.2 Balanced diets

The recommended macronutrient balance (ANC, 2001), expressed as a percentage of the TEI, is as follows:

- Carbohydrates: 50-55 % of TEI;
- Protein: 10-15 % of TEI;
- Fat: 30-35% of TEI.

Account should also be taken of the qualitative dimension of macronutrients, namely the contribution of complex carbohydrates and certain types of fatty acids. For the sake of legibility and of harmonisation within the European Community, the proposed Eurodiet threshold values [5] will be used as a reference:

- Total carbohydrates: 55 % of TEI;
- Sugars: 10% of TEI;
- Fat: 30 % of TEI;
- Saturated fatty acids: 10% of TEI.

These values correspond to the Public Health recommendations seeking to reduce lipid intake and increase carbohydrate intake.

Since Eurodiet does not specify a value for proteins, the value of 15% of the TEI is adopted for this macronutrient on the basis of the RDAs. Afssa recommendations in terms of protein intake (Afssa, 2007) state that it is impossible to fix an optimum intake value between the RDA and the limit of high intake, corresponding approximately to 27% of the TEI.
In all cases, these proportions have been found to be valid with only slight variability for all individuals, irrespective of their age, gender and PAL.

5.2.3 Principle of labelling

With the proposed methodology, labels would show the contribution of each macronutrient to the energy supplied by the relevant food.

[5] Core report - Nutrition & Diet for Healthy Lifestyles in Europe Science & Policy Implications

. An example is given for two products.

Contribution of macronutrients to the energy provided by 100 g of lentils (87 Kcal per 100 g) (Code Regal 20505)

	Equivalent kcal	% of total energy provided by food	Recommended % of TEI
Protein (4 kcal/g): 8.2 g	33 kcal	37 %	15 %
Lipids (9 kcal/g): 0.5 g	4.5 kcal	5 %	30 %
of which saturated fatty acids (SFAs): 0.06 g	0.5 kcal	0.6 %	10 %
Carbohydrates (4 kcal/g): 12.6 g	50 kcal	58 %	55 %
of which sugars: 0.3 g	1 kcal	1.3 %	10 %

Contribution of macronutrients to the energy provided by 100 g of milk chocolate (541 Kcal per 100 g) (Code Regal 31004)

	Equivalent kcal	% of total energy provided by food	Recommended % of TEI
Protein (4 kcal/g): 7.5 g	30 kcal	5 %	15 %
Lipids (9 kcal/g): 32 g	287 kcal	53 %	30 %
of which saturated fatty acids (SFAs): 18.4 g	166 kcal	31 %	10 %
Carbohydrates (4 kcal/g): 56.5 g	225 kcal	42 %	55 %
of which sugars: 53.9 g	215 kcal	38 %	10 %

5.2.4 Advantages of this proposal

This proposal aims to help consumers in their choices by providing a reference in relation to their needs. The advantages of this proposal are as follows:

- the labelling of this information avoids the need to use absolute references based mainly on a recommended energy intake of 1900 or 2000 kcal/d. These absolute references only concern a small proportion of the population, while recommendations on a balanced diet concern the whole population. This proposal is independent of all references other than the one relating to a balanced diet, and eliminates the need to comply with a reference system per 100 g or per serving;
- the information given to consumers is factual as it gives details about the overall composition of the food. In the first example presented, it states that this food is rich in carbohydrates and protein, and low in lipids compared with the recommendations on an overall balanced diet;
- the information provided promotes a qualitative approach to food, by stating the information required to achieve a balanced diet in accordance with individual needs and enables consumers to identify products with complementary compositions easily;
- this proposal is a warning stating if the product is likely to balance out your overall diet, or throw it off balance, in view of the other foods making up your diet.

However, other elements may be highlighted:

- such an expression cannot be used for non-energy foods (tea, coffee, water, etc.) as it deliberately avoids the quantitative aspect;
- consumer understanding of this proposal should be studied in so far as consumers could be tempted to look for the ideal food, whereas the objective is to reinforce food complementarity. Nutrition education would help consumers to make enlightened choices for a balanced diet;
- research is needed to adapt this initiative to micronutrients.

6 CONCLUSION

The review on the perception of nutrition labelling by consumers, and its impact on their choices, strongly suggests that there is a link between the reading of labels and a better diet. However, no real beneficial effect on consumer health can be achieved without supporting educational measures, forming part of a more global nutritional policy.
On the basis of these observations and its recommendations on nutrients, Afssa proposes a non-exhaustive list of nutrient contents that should be labelled as a priority, among all of the nutrients making up a food, given the current nutritional situation in France. This proposal is part of a Public Health context that aims to improve the quality of nutritional information provided to consumers. It also takes account of how consumers understand the choices made and the feasibility by manufacturers of the options proposed, as far as possible.

Afssa considers however, that the scientific data currently available are insufficient to respond to all of the issues surrounding nutrition labelling. It therefore recommends that research be carried out in this field, especially on the following points:
- *study on the impact of nutrition labelling on eating habits and consumer choices;*
- *development and optimisation of nutrition labelling tools;*
- *study of how consumers perceive different representations of labelling. In this case, it would be helpful if operators who have already implemented new systems supply information on the understanding, effectiveness and acceptance of their system;*
- *analysis of the system performances used, i.e. how accurate the information provided by consumers is after reading the labelling;*
- *development of tools for assessing the performances of tested and validated systems;*
- *supporting measures for all new systems providing information and education about how labelling should be interpreted by the public.*

Afssa recommends a system providing information on the contribution of each macronutrient contained in a food to the energy intake, with a method avoiding the need for a single reference in terms of needs. Afssa also highlights the importance of the visual aspect of labelling in consumer understanding. Lastly, pending a standardisation of labelling representations, and given the abundance of systems used by economic operators to date, it is essential that reference values be standardised rapidly at the Community level.

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8 ANNEXES

8.1 ANNEX 1: Request letter

Laisser la version scannée en français

8.2 ANNEX 2: Decision on the creation of the working group

Laisser la version scannée en français

8.3 ANNEX 3: Average energy densities (or means) of the main food groups and of some foods (Composition Table SU.Vi.Max)

	Energy density	(kcal/100 g)	n
ADDED FAT (including salad sauces)	**Mean**	**664**	21
	Oil	899	
	Mayonnaise	762	
	Butter	747	
	Vinaigrette made from olive oil	664	
	Light vinaigrette	334	
BREAKFAST CEREALS	**Mean**	**373**	6
STARCHY FOODS (excluding breakfast cereals and sweet pastries)	**Mean of all starchy foods**	**116**	31
	Bread	265	
	Cooked pasta	116	
	Lentils	88	
	Potato boiled in water	79	
FRUIT & VEGETABLES (excluding dried fruits and nuts)	**Mean**	**34**	104
	Fresh banana	91	
	Peas	73	
	Grape juice	63	
	Apple	51	
	Fresh orange	40	
	Raw carrot	30	
	Vegetable soup	30	
	Raw tomato	19	
	Cooked green beans	19	
	Lettuce without seasoning	14	
	Cooked courgette	13	
	Cooked chicory	9	
DRIED FRUITS	**Mean**	**251**	5
NUTS	**Mean**	**646**	5
PREPARED FOODS/SNACKS	**Mean**	**195**	70
	Cheese puff	427	
	Quiche Lorraine	310	
	Hamburger	270	
	Gratin Dauphinois	167	
	Tinned sauerkraut with meat	158	
CHEESE	**Mean**	**328**	52
	Gruyère	377	
	Camembert 45% fat	283	
FRESH DAIRY PRODUCE (excluding dairy desserts)	**Mean**	**81**	35
	Full-fat fruit yoghurt	100	
	Plain yoghurt	46	
	UHT semi-skimmed milk	46	
SWEET AND SAVOURY FATTY PRODUCTS	**Mean**	**340**	95
	Tarama	593	
	Crisps	516	
	Crackers	497	
	Dry biscuits	431	
	Croissant	405	
	Sugar	400	
	Sweets	384	
	Fruit tart	219	
	Liégeois Viennois (with whipped cream)	219	
	Ice cream in a container	174	
	Manufactured creamy dessert	129	
SUGARY DRINKS	**Mean**	**42**	12
MEAT EGGS FISH (excluding pork products)	**Mean**	**159**	136
	Fried fish croquette	271	
	Cooked beefburger, 15% fat	251	

	Energy density	**(kcal/100 g)**	**n**
	Cooked roast pork	246	
	Roast leg of lamb	226	
	Steamed salmon	180	
	Roast chicken	161	
	Cooked beefburger, 5% fat	160	
	Cooked heifer liver	152	
	Sautéed escalope of turkey	148	
	Egg	146	
	Cooked ham	113	
	Seafood	102	
	Alaska hake	78	
PORK PRODUCTS	**Mean**	**321**	30
	Dried sausage	427	
	Farmhouse pâté	328	
	Frankfurters	301	
	Cured ham	192	

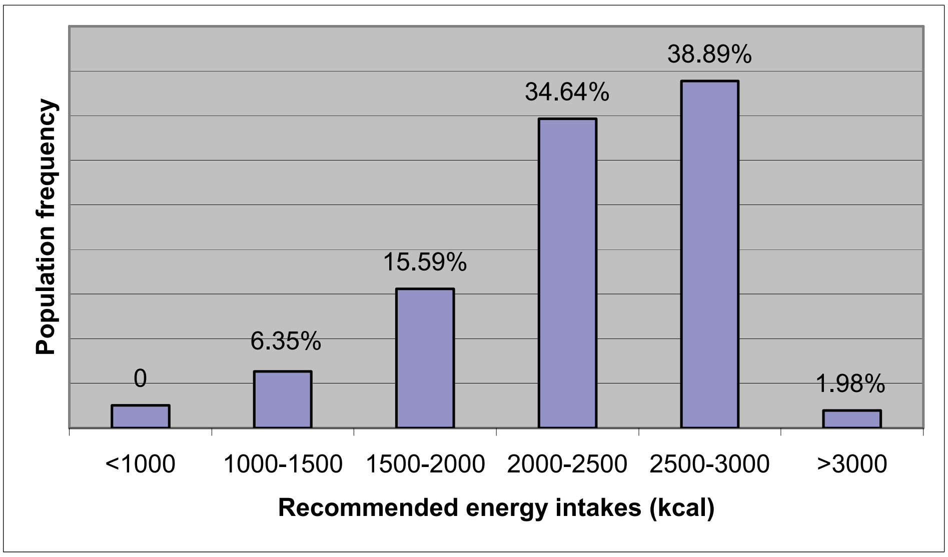
8.4 ANNEX 4: Distribution of total energy intake (TEI) in the French population from INCA 1 survey data (1998-99), by gender and age group

All subjects				
	Men		Women	
	ADULTS	CHILDREN	ADULTS	CHILDREN
N	672	530	802	488
Average ± standard deviation	2513 ± 588	2000 ± 653	1944 ± 421	1792 ± 497
TEI < 1800 kcal/d	6.4%	41.1%	41.4%	55.7%
1800≤TEI≤ < 2200 kcal/d	27.3%	29.1%	34.2%	25.0%
TEI > 2200 kcal/d	66.4%	29.8%	24.4%	19.3%
Percentile 10	1889	1337	1486	1227
Percentile 20	2033	1506	1583	1388
Percentile 30	2158	1649	1681	1526
Percentile 40	2277	1785	1786	1634
Percentile 50	2426	1895	1877	1748
Percentile 60	2558	2041	1997	1850
Percentile 70	2712	2185	2125	1969
Percentile 80	2933	2423	2268	2176
Percentile 90	3306	2783	2470	2441

Adults >14 years old; children <15 years old

After exclusion of overweight or obese people or people on a slimming diet				
	Men		**Women**	
	ADULTS	**CHILDREN**	**ADULTS**	**CHILDREN**
N	359	450	501	388
Average ± standard deviation	2501 ± 560	2007 ± 648	1930 ± 390	1817 ± 509
TEI < 1800 kcal/d	6.4%	40.7%	42.1%	53.3%
1800≤TEI≤ < 2200 kcal/d	28.7%	28.9%	35.7%	25.8%
TEI > 2200 kcal/d	64.9%	30.4%	22.2%	20.9%
Percentile 10	1860	1358	1485	1227
Percentile 20	2016	1525	1573	1400
Percentile 30	2144	1679	1683	1543
Percentile 40	2282	1793	1785	1652
Percentile 50	2417	1911	1870	1754
Percentile 60	2562	2050	1986	1874
Percentile 70	2725	2205	2111	1992
Percentile 80	2946	2451	2233	2223
Percentile 90	3255	2757	2415	2462

8.5 ANNEX 5: Recommended energy intakes and population frequency (INCA1 data)



8.6 ANNEX 6: Dietary balance and consumption typology

In Recommended Dietary Intakes for the French Population, 3rd edition, Martin A (coord.) Ed Tec & Doc, Paris, 605 pp.

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Diversity index*	69.3	63.1	60.2	46.5	44.3	41.7
Total energy ($Kj.j^{-1}$)	7,882	11,928	8,178	9,545	7,522	11,711
Energy excluding alcohol ($Kj.j^{-1}$)	7,667	11,194	7,698	9,351	7,128	9,973
% provided by carbohydrate	41.9	41.2	40.2	45.0	42.7	41.5
including % provided by sugars	12.6	11.3	11.4	15.3	12.7	10.2
% provided by lipids	39.5	42.1	41.4	38.6	39.8	40.9
% provided by protein	18.6	16.7	18.4	16.4	17.5	17.6
Total food amount ($g.j^{-1}$)**	1,345	1,534	1,129	1,392	1,012	1,176
Energy density ($Kj.g^{-1}$) (excluding alcohol)	5.7	7.3	6.8	6.7	7.04	8.5
% BMI > 30 $kg.m^{-2}$	0.4	9.7	5.6	0.9	1.3	8.7

* Percentage of subjects from the group with an index of 5 on the first day of the survey
** including milk, fruit juice, soft drinks and soups, excluding alcoholic drinks, tea and coffee

The consumption typologies have been identified by the Observatoire des consommations alimentaires (Observatory of Food Consumptions) in participants in the ASPCC survey. They are based on all foods consumed over 7 days, split into 44 categories. An analysis of the main compounds and classification in ascending order of importance have revealed 6 typologies, maximising the differences in consumption profile between the groups and minimising the variability of consumption profiles within each group. The groups are numbered from 1 to 6 according to the food diversity index (in group 1, 69.3% of subjects have an index of 5 on the first day of the survey and in group 6, the proportion is 41.7%). The food diversity index is defined on the basis of the consumption of 5 food groups: dairy products, meat and fish, cereal, fruit and vegetables.

8.7 ANNEX 7: Estimation of the percentage of national food brands presenting nutrition labelling (ANIA 2006)

- **Milk products:**

Milk	**≈90 %**	
Cream	**≈60 %**	(and systematic indication of the fat content)
Butter	**≈40 %**	(and systematic indication of the fat content)
Cheese	**≈60 %**	(and systematic indication of the fat content)
Fresh dairy products (yoghurts, fermented milks, desserts, fromage frais)	**≈95 %**	

* F: fats

- **Fruit juice/cordials: 74 %**
- **Refreshing drinks: 100 %** (in 2007)
- **Ice creams/sorbets: ≈90 %**
- **Frozen foods: 75 %** (Labelling almost always present on ready meals, and less so on raw products)
- **Meat products: ≈40%** of products Help yourself
- **Breakfast cereals: 100%**
- **Biscuits: ≈75%**
- **Chocolate: ≈75%** of GMS products (commitment charter for 100% of products, adopted in March 2006, except pick & mix and small packaging)
- **Sweets: 100%** of sugar-free chewing-gum and sweets and **≈ 30%** for other sweets
- **Breads/Crispbreads: ≈ 80%**
- **Nuts: ≈ 75%**
- **Pastries: 100 %**
- **Oils and spreadable fats: > 90%**
- **Children's food, Clinical nutrition and Dietetics for adults: 100%** (labelling compulsory)