

Report of the Scientific Committee of the Spanish Agency for Food Safety and Nutrition (AESAN) on the implementation in Spain of the Nutri-Score information system regarding the nutritional quality of food products

Reference number: AESAN-2020-004

Report approved by the Scientific Committee in its plenary session on 4 March 2020

Working group

Montaña Cámara Hurtado (Coordinator), Carlos Alonso Calleja, Rosa María Giner Pons, Elena González Fandos, Jordi Mañes Vinuesa, José Alfredo Martínez Hernández, Esther López García, Victoria Moreno-Arribas, María del Puy Portillo Baquedano, David Rodríguez Lázaro, Magdalena Rafecas Martínez, Marta García Solano (AESAN), Enrique Gutiérrez González (AESAN) and M^a José Yusta Boyo (AESAN)

Scientific Committee

Carlos Alonso Calleja Universidad de León	Rosa María Giner Pons Universitat de València	Sonia Marín Sillué Universitat de Lleida	Magdalena Rafecas Martínez Universitat de Barcelona
Montaña Cámara Hurtado Universidad Complutense de Madrid	Elena González Fandos Universidad de La Rioja	José Alfredo Martínez Hernández Universidad de Navarra	David Rodríguez Lázaro Universidad de Burgos
Álvaro Daschner Hospital de La Princesa de Madrid	María José González Muñoz Universidad de Alcalá de Henares	Francisco José Morales Navas Consejo Superior de Investigaciones Científicas	Carmen Rubio Armendáriz Universidad de La Laguna
Pablo Fernández Escámez Universidad Politécnica de Cartagena	Esther López García Universidad Autónoma de Madrid	Victoria Moreno Arribas Consejo Superior de Investigaciones Científicas	María José Ruiz Leal Universitat de València
Carlos Manuel Franco Abuín Universidade de Santiago de Compostela	Jordi Mañes Vinuesa Universitat de València	María del Puy Portillo Baquedano Universidad del País Vasco	Pau Talens Oliag Universitat Politècnica de València
Technical Secretary Vicente Calderón Pascual			

Abstract

Non-communicable diseases are the main cause of morbidity and mortality in Europe. Imbalances in the intake of salt and some nutrients, particularly fats, sugars or fibre, among others, are the main modifiable risk factors with regard to these diseases.

One of the tools of public health policies to promote healthy diets is nutrition labelling, which is regulated in the European Union by Regulation (EU) No. 1169/2011 on the provision of food information to consumers. This regulation enables the possibility of using, in a complementary and voluntary way, a system of front-of-pack nutrition labelling in order to make the use and understanding of the mandatory nutritional information easier for consumers, favouring healthier choices, and encouraging manufacturers to make products with a better nutritional composition.

Among the front-of-pack nutrition labelling schemes, the Nutri-Score system stands out. It is a graphic system developed in France based on the use of a letters and colours code to inform consumers, in a simple way, of the nutritional quality of food and drinks in addition to the mandatory nutritional information set forth by European legislation.

The purpose of this report is to respond to the request for the opinion of the Scientific Committee on the suitability of the adaptation of the Nutri-Score system by incorporating the content of olive oil in its algorithm.

In answer to the question raised, a review of the front-of-pack nutrition labelling models used in the WHO European Region has been conducted, with a special focus on the model applied in the United Kingdom and Nutri-Score in France. The value scale used is described and the amendments made are explained, including the one corresponding to olive oil.

The Scientific Committee considers that the Nutri-Score adaptation proposal including olive oil improves the consideration of a product, which presents nutritional benefits based on its oleic acid content, and entails an improvement regarding this front-of-pack nutrition labelling system.

It is necessary to keep identifying other aspects that may be incorporated into the Nutri-Score system for the nutritional assessment of foods and drinks usually found in the Spanish diet.

Key words

Nutri-Score, labelling, FOPL, olive oil.

Suggested citation

AESAN Scientific Committee. (Working group) Cámara, M., Alonso, C., Giner, R.M., González, E., Mañes, J., Martínez, J.A., López, E., Moreno-Arribas, V., Portillo, M.P., Rodríguez, D., Rafecas, M., García, M., Gutiérrez, E. and Yusta, M.J. Informe del Comité Científico de la Agencia Española de Seguridad Alimentaria y Nutrición (AESAN) sobre la aplicación en España del sistema Nutri-Score de información sobre la calidad nutricional de los alimentos. *Revista del Comité Científico de la AESAN*, 2020, 31, pp: 77-97.

1. Introduction

Noncommunicable diseases are the main cause of morbidity and mortality in the World Health Organization (WHO) European Region (WHO, 2018). Diet plays a determining role in the prevention of a number of noncommunicable diseases including cardiovascular diseases, cerebrovascular disease, type 2 diabetes mellitus and different types of cancer. Imbalances in salt intake and some nutrients, in particular fats, sugars and fibre, are the main preventable risk factors for these diseases.

In most European Union Member States, governments have approved health policies aimed at promoting healthy diets, tackling growing obesity rates and guaranteeing nutrition and food safety. However, there is a margin for improvement in the exhaustiveness of these policies and their ambition. The European Food and Nutrition Action Plan 2015-2020 (WHO, 2014) and the EU Action Plan on Childhood Obesity 2014-2020 (EU, 2014) promote the development of a series of public health policies through a multidisciplinary focus on all areas of general government, with the involvement of both the private sector and citizens. The objective is to improve the availability, accessibility and appeal of healthy food, with a view towards improving the general quality of the citizens' diet and, ultimately, the health and well-being of the population.

To foster healthy eating, promote physical activity and reverse the rising trend in the prevalence of obesity and, with that, substantially reduce the high rates of morbidity and mortality attributable to chronic diseases, Spain has developed the NAOS Strategy for Nutrition, Physical Activity and the Prevention of Obesity.

Nutritional labelling is one of the public health policy tools to promote a healthy diet. The European regulation on nutritional information (Regulation (EU) No. 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers) has set, since 2016, the requirements to be met by mandatory nutritional information. It also mentions the possibility of using, on a complementary and voluntary basis, front-of-pack labelling (FOPL) in order to facilitate consumers' use and understanding of mandatory nutritional information, fostering healthier choices and encouraging manufacturers to produce products with better nutritional composition.

Among the different front-of-pack nutrition labelling schemes, the Nutri-Score system stands out. This is a graphic scale developed in France based on the use of a code of letters and colours to inform consumers of the nutritional quality of food and drinks in a simple way in addition to the mandatory nutritional declaration established in the European regulation.

The graphic system or Nutri-Score logo consists of five colours (from dark green to dark orange), each associated with a letter (A to E), and each signifying five categories based on the nutritional information (from best to worst, respectively). Classification into one category is the result of the calculation of an algorithm, designed based on public health criteria and scientifically validated. Points are allocated based on the nutritional composition per 100 g of the product. It takes into account nutrients considered "unfavourable" from a nutritional perspective (calories, sugars, saturated fatty acids and sodium) and "favourable" (proteins, fibre and percentage of fruits, vegetables, pulses and nuts). A score is assigned depending on the content of each, according to grids included in two different tables.

The usage regulation establishes cheeses as a specific case. The limits for specific nutrient content showed on the grids are not modified, but the final score is calculated considering the protein content score in all cases regardless of the sum of the unfavourable points. Other specific cases contained in the regulation are beverages and added fats, for which the content limits for some nutrients showed in the grids, are modified.

In Spain, in November 2018, the Minister of Health, Consumer Affairs and Social Welfare published the intention to implement Nutri-Score, it being considered the most suitable front-of-pack labelling system for Spain's public health objectives. This was a response to the demands of citizens, professionals and the scientific community; the intentions of some Regional Authorities to adopt their own models; and the announcement of the imminent implementation of another model proposed by five food sector multinationals in several countries, including Spain.

Over subsequent months, *Santé publique France*, the French national public health agency, developed an amendment to allow for the positive consideration of the olive oil content of foods, whose Nutri-Score grading did not differ from other oils with worse nutritional profile.

Consequently, in September 2019, an amendment to the decree regulating the use of Nutri-Score in France was published in the *Journal Officiel de la République Française*. This amendment shall apply homogeneously across all countries that adopt Nutri-Score.

The purpose of this report is to respond to the request for the opinion of the Scientific Committee on the suitability of adapting the Nutri-Score system by incorporating the content of olive oil in its calculation.

In response to the question raised, a review of the front-of-pack nutrition labelling models used in the WHO European Region has been conducted, focusing especially on the model applied in the United Kingdom and the Nutri-Score in France. The value scale used is described and the adaptations made are explained, including the one corresponding to olive oil.

2. Font-of-pack labelling models in the WHO European Region

Regulation (EU) No. 1169/2011 establishes the possibility of using FOPL, on a complementary and voluntary basis, in addition to the mandatory nutritional information, without replacing it, provided that it complies with the requirements mentioned in said Regulation: it shall not mislead the consumer, it shall not be ambiguous or confusing for the consumer and it shall be based on the relevant scientific data (EU, 2011).

Therefore, European Union Member States are afforded certain freedom for the development of FOPL, provided it complies with the requirements established in Regulation (EU) No. 1169/2011, which also calls on the European Commission to prepare a report, yet to be published, on the use of additional forms of expression and presentation, with the effect on the internal market and whether further harmonisation is advisable.

Awaiting the publication of the European Commission report, various FOPL models have been developed in different European Union countries that can be classified according to different criteria. The FOPL models are primarily split between the non-interpretive models, which provide a summary

of the nutritional value of the products to help purchase decisions; and interpretive models, which provide an assessment of the nutritional quality of the product.

According to data for the WHO European Region, the governments of 15 countries have backed an interpretive FOPL policy, and 13 of them have adopted a logo (Kelly and Jewell, 2018). Most of the logos identify healthy products; however, in three countries these logos also provide information on less healthy components (warning labels in Israel, Nutri-Score in France and the Traffic Light system in the United Kingdom). FOPL that identifies the unfavourable components of food products seems to support consumers better in choosing nutritionally healthy products.

The four main interpretive FOPL systems used in the WHO European Region (including European Union Member States for whom compliance with Regulation (EU) No. 1169/2011 is mandatory and countries outside the European Union) are detailed in Table 1 and are the following:

1. Endorsement logos: based on an assessment of positive products, favourable criteria are taken into account. They will only appear on those products that comply with certain established nutritional standards. Most products, therefore, don't carry this type of logo.

The criteria to define these nutritional standards vary from one logo to another depending on the nutrients and/or ingredients considered, the content limits and measurement units used, the food groups to which they apply and whether the criteria are established for each food group.

The inclusion of text to accompany the logo usually improves consumers' understanding.

2. Nutrient-specific warning labels are classified on an unfavourable criteria-based assessment of the product for each nutrient. The result is a negative evaluation.

This type of logo shows those products that exceed the established limits for certain critical nutrients (salt, saturated fats, sugars, energy, etc.). The criteria may be established at a general level for all products or for specific food groups.

The same product may carry more than one warning logo, each relating to a nutrient.

3. Nutrient-specific interpretive system: a positive or negative assessment is obtained for each nutrient.

The FOPL in the United Kingdom, provides numerical information on the percentage contribution a food contributes to the recommended daily intake of a nutrient (non-interpretive) and also includes the interpretive information on the content in nutrients using a colour code (positive or negative assessment).

4. Summary indicator system: a general assessment of the product with a positive or negative result, considering favourable and unfavourable criteria.

According to some established criteria for content in nutrients and/or ingredients, a score is calculated, considering favourable and unfavourable points. The final score classifies the products across a range of categories associated with a colour, letter etc. from healthiest to least healthy. In the case of Nutri-Score the scoring criteria are the same for all food groups (except for beverages, fats and cheeses).

The logo may be displayed on all products.

Table 1. Summary of the main types of logos present in interpretive FOPL systems used in the WHO European Region

Type of logo	Name of logo		Countries
Endorsement logo	Choice logo		Belgium, Czech Republic and Poland
	Green endorsement logo		Israel
	Healthy Living Guarantee Mark		Croacia
	Heart Symbol		Finland
	Keyhole logo		Denmark, Iceland, Lithuania, Norway and Sweden
	Protective Food logo (Little Heart logo)		Slovenia
Nutrient-specific warning system	Red warning label		Israel (mandatory logo)
Nutrient-specific interpretive system	Traffic Light (colour coding according to % of recommended intake)		United Kingdom, Ireland
Summary indicator system	Nutri-Score		France, Belgium

Adapted from: Kelly and Jewell (2018).

Recently, Italy, in application of Article 35 of Regulation (EC) No. 1169/2011, notified the European Commission (27 January 2020) of the draft ministerial decree which will recommend that food business operators in Italy use an additional form of expressing nutritional information, the “NutrInform Battery”, consisting of the display, within a battery symbol for each nutrient, of the percentage of the recom-

mended daily intake for energy value, fats, saturated fats, sugars and salt per portion of the product. To date, there are no studies available on the level of understanding, usefulness for discriminating between foods, the association with health outcomes, consumer preferences or studies on consumers of different socioeconomic status in different countries, including Spain, for NutriInform Battery.

3. Nutritional profiles used in the development of FOPL models

The different types of FOPL models are developed based on nutritional profiles that allow for the classification of food and drinks according to their nutritional composition using criteria relating to the prevention of illnesses and the promotion of health.

For this classification, the nutritional profiles can use specific criteria for each food and drink group or the same criteria that apply to almost all food groups.

The nutritional profiles used in most FOPL models are differentiated in four key aspects:

1. Nutrients considered: in general, only nutritional information for nutrients considered unfavourable are taken into account in terms of their association with noncommunicable diseases, that is, the content in total fats, saturated fats, *trans* fatty acids, sodium (or salt) and/or added/free sugars. However, some FOPL models such as Nutri-Score consider favourable nutrients or ingredients in terms of how they relate to health, such as fruit and vegetable content, for the calculation of nutritional quality.

2. Reference units: most FOPL models use units of content in g/100 g or ml/100 ml of the product, although in some specific cases other units are used on a complementary basis. In the United Kingdom, in order to establish the products with high content of a nutrient, if the size of the portion is greater than 100 g, thresholds per portion are applied.

In other cases, such as that of the Keyhole logo, nutritional criteria relating to saturated fats apply to the total fat, those relating to total fat to the percentage of total energy and the salt content criteria on per portion basis, for some food groups.

In the case of Nutri-Score, the g/100 g reference is generally used, with the exception of the added fats group. In this case, the nutritional criteria relating to saturated fat content are applied to the total fats.

3. Nutritional criteria: the nutritional criteria used to develop a FOPL model generally follow three principal approaches:

- a. Contribution of each nutrient to recommended daily intake.

The United Kingdom's traffic light system shows the contribution of each nutrient to the recommended daily intake, in addition to a colour code for some content limits established for each nutrient.

- b. Compliance with content limits for each nutrient.

The endorsement logos, specific warning labels for each nutrient and the specific logos for each nutrient use content thresholds. The criteria for setting the content limits vary across the different FOPL models. They are generally based on the national or WHO recommended intakes. In the case of the United Kingdom's traffic light system, limits for green colour are established for nutritional claims in accordance with Regulation (EC)

No. 1924/2006 on nutrition and health claims made on foods (EU, 2006); red colour red is applied for all nutrients with content in excess of 25 % of the recommended intakes (30 % if applied per portion), and amber colour amber for intermediate contents.

- c. Use of an algorithm to obtain a general nutritional assessment.

A single score is obtained using an algorithm with the aim of categorizing foods in accordance with their nutritional composition, showing which are the healthiest and least healthy. Nutri-Score uses this focus to categorize foods and drinks into five categories from best to worst nutritional quality.

4. Food groups: in general, the FOPL are applied to packaged products. However, the Keyhole logo used in Nordic countries, the Healthy Living Guarantee Mark in Croatia and Israel's Green Endorsement are applied to both packaged and unpackaged products.

Furthermore, the Keyhole logo and Healthy Living Guarantee Mark exclude products that contain artificial sweeteners.

4. Nutri-Score description

Nutri-Score is a front-of-pack labelling model adopted by France in 2017 (JORF, 2017) and by Belgium from 1 April 2019 (Moniteur Belge, 2019).

It consists of a logo that can be displayed voluntarily on the front of food and drink packaging for which there is an obligation to display the mandatory nutritional information, in accordance with Regulation (EU) No. 1169/2011, without replacing it. Unprocessed products, such as fruit, vegetables or fresh fish are not affected, nor are alcoholic drinks, as they are not obliged to display said labelling.

There are five possible variations of the Nutri-Score logo, each consisting of a colour (dark green, light green, yellow, light orange and dark orange) corresponding to a letter (A, B, C, D and E, respectively). The products are classified according to their nutritional quality and are assigned one of five variations of the logo:

- A (dark green): the most favourable product from a nutritional perspective.
- E (dark orange): the least favourable product from a nutritional perspective.

The nutritional criteria used in the Nutri-Score model to classify the foods and drinks are based on the algorithm of the British Food Standards Agency's Nutrient Profile System (FSA-NPS) (FSA, 2011), which was initially developed for the implementation of restriction policies for food and drink television advertising aimed at children, thus producing a dichotomous variable (advertising permitted or not).

4.1 British Food Standards Agency Nutrient Profile System (FSA-NPS)

The nutritional profiles developed by the United Kingdom (FSA-NPS) have also served as the basis of the scoring criteria for the nutritional profiles of Food Standards from Australia and New Zealand, the nutritional profiles model in South Africa and the nutritional profiles model in Ireland.

The FSA algorithm consists of a simple scoring system in which points are allocated based on the nutrient content per 100 g of product. The calculation uses tables that connect the nutrient content included in the mandatory nutritional information with a point scale.

On the one hand, **“A” or “unfavourable” points** are obtained based on the content across four components for which excessive consumption is considered unhealthy: energy (kJ/100 g), saturated fat (g/100 g), sugars (g/100 g) and sodium (mg/100 g), among those contained in mandatory nutritional labelling established in Regulation (EU) No. 1169/2011 of the European Union. A point scale from 0 to 10 is applied for each component.

Calculation of A points per 100 g of product:

A points	Calories (kJ)	Sugars (g)	Saturated fatty acids (g)	Sodium (mg)(*)
0	≤335	≤4.5	≤1	≤90
1	>335	>4.5	>1	>90
2	>670	>9	>2	>180
3	>1005	>13.5	>3	>270
4	>1340	>18	>4	>360
5	>1675	>22.5	>5	>450
6	>2010	>27	>6	>540
7	>2345	>31	>7	>630
8	>2680	>36	>8	>720
9	>3015	>40	>9	>810
10	>3350	>45	>10	>900

(*) The sodium content corresponds to the salt content contained in the mandatory declaration divided by 2.5.

$$\text{A points} = \text{calorie points [0-10]} + \text{sugar points [0-10]} + \text{saturated fatty acids points [0-10]} + \text{sodium points [0-10]} = [0-40]$$

Meanwhile, **“C” or “favourable” points** are obtained depending on the content in three components whose consumption is recommended for a healthy diet: fruit, vegetables, pulses and nuts (% in weight); fibre (g/100 g) and protein (g/100 g) A points scale from 0 to 5 is applied for each component.

Calculation of C points:

C points	Fruit, vegetables, pulses and nuts (% en peso)	Fibre (g)	Protein (g)
0	≤40	≤0.9	≤1.6
1	>40	>0.9	>1.6
2	>60	>1.9	>3.2
3	-	>2.8	>4.8
4	-	>3.7	>6.4
5	>80	>4.7	>8.0

$$\text{C points} = \text{fruit, vegetable, pulses and nut points [0-5]} + \text{fibre points [0-5]} + \text{protein points [0-5]} = [0-15]$$

The final score is obtained by subtracting the C points from the A points, with the exception that if the A score is 11 or higher and the score obtained for the fruit and vegetables content is under 5 then the points for protein content will not be taken into account in the C points calculation. This prevents a high A score resulting from a high content of unfavourable components being compensated by protein content.

Calculation of final score:

- A points ≥ 11
Fruit, vegetable points = 5 \rightarrow Final score = A points - C points
Fruit, vegetable points < 5 \rightarrow Final score = A points - (fruit and vegetables points [0-5] + fibre points [0-5])
- A points < 11
Final score = A points - C points

This calculation algorithm (see Annex I) is applied in the same manner for all products, with no specific criteria for food and drink categories. It was initially developed to be applied in the regulation of advertising aimed at children with solid food products with a final score of 4 or more considered less healthy and, therefore, not suitable for use in advertising aimed at children. For drinks, products with a score of 1 or higher do not meet the criteria for advertising to children.

The FSA algorithm is one of the most studied in the scientific literature and the most frequently validated (Labonté et al., 2018). It has been used extensively internationally for the development of different health policies, such as the regulation of health claims in Australia, New Zealand and South Africa; the implementation of FOPL in Australia, New Zealand and France and the regulation of advertising aimed at children in Ireland.

4.2 Implementation of the British FSA nutritional profile (FSA-NPS) in the development of Nutri-Score

Regarding FOPL development, the use of a dichotomous scoring system (with binary scoring implying the notion of good and bad food products) may not be considered appropriate (Julia et al., 2014). Taking this into account, *Santé publique France*, in collaboration with the University of Paris developed, based on the British FSA-NPS, five categories of nutritional quality for the purposes of ensuring a high discriminating power within each group of foods and drinks, while maintaining a central category to avoid classifying food products as good or bad.

To facilitate citizens' understanding, each category would be represented by a letter and a colour (five variations of the Nutri-Score logo) (Julia et al., 2015a).



To validate the FSA algorithm in the French context, the French Higher Council for Public Health (*Haut Conseil de la Santé Publique*, HCSP) conducted several studies (Julia et al., 2014, 2015b) to assess the capacity to adequately classify food and drinks into five nutritional quality categories in line with France's food-based dietary guidelines. Using the Open Food Facts database on the composition of foods, which includes food regularly consumed by the French general public, the classification of food and drinks was consistent with nutritional recommendations: 95.4 % of fruit and vegetables were classified into the first quintile of distribution (letter A), while 86 % of "sugary snacks" were classified in the fourth and fifth quintiles (letters D and E). Moreover, variability was observed within each one of the food and drink groups, allowing for the discrimination of nutritional quality between groups of products and within them. However, for three groups of food products: cheeses, drinks and fats, the results of the classification into five categories were not consistent. Therefore, some adaptations to the initial scoring system were applied to ensure greater coherence with France's dietary guidelines.

a. FSA-NPS modification for cheese

Most cheeses (73.3 %) were allocated the letter E, as in this group the A points are 11 or higher, meaning the protein content was not taken into account in the calculation of the final score.

The HCSP took up the opinion of the FSA that proteins are a good indicator of the presence of calcium, and, on the other hand, cheeses are an important source of calcium for the French population (Coudray, 2011). Therefore, it was concluded that for the cheese group, the protein content should always be taken into account for the final score, regardless of the value of the A points.

- A points ≥ 11
 - Fruit, vegetable points = 5
→ Final score = A points - C points
 - Fruit, vegetable points < 5
→ Final score = A points - (fruit, vegetable points [0-5] + fibre points [0-5])
- A points < 11 or for cheeses
→ Final score = A points - C points

b. FSA-NPS modification for drinks

For drinks, the classification does not reflect French dietary guidelines, given that fruit juices obtained a more favourable score than water despite water being the only recommended drink. Moreover, the variability of the scoring for drinks is very low and it did not allow consistent identification of five categories.

The modifications for the drinks group consist of a new table for the allocation of points for energy, sugar and fruit and vegetable content (Tables 2 and 3).

Table 2. Point allocation for energy and sugar content for drinks per 100 ml

A points	Drinks Calories (kJ)	Drinks Sugars (g)	Saturated fatty acids (g)	Sodium (mg)(*)
0	≤0	≤0	≤1	≤90
1	≤30	≤1.5	>1	>90
2	≤60	≤3	>2	>180
3	≤90	≤4.5	>3	>270
4	≤120	≤6	>4	>360
5	≤150	≤7.5	>5	>450
6	≤180	≤9	>6	>540
7	≤210	≤10.5	>7	>630
8	≤240	≤12	>8	>720
9	≤270	≤13.5	>9	>810
10	>270	>13.5	>10	>900

(*) Sodium content corresponds to the salt content shown in the mandatory declaration divided by 2.5.

Table 3. Point allocation for fruit and vegetable content for drinks

C points	Drinks Fruit, vegetables (%)	Fibre (g)	Protein (g)
0	≤40	≤0.9	≤1.6
1	-	>0.9	>1.6
2	>40	>1.9	>3.2
3	-	>2.8	>4.8
4	>60	>3.7	>6.4
5	-	>4.7	>8.0
10	>80	-	-

c. FSA-NPS modifications for fats

In terms of fats, score range for saturated fat content did not allow for any discrimination between fats of animal and vegetable origin. 75.1 % of fats were classified with the letter E, regardless of origin.

The fact that the maximum score for the content in saturated fat is reached with 10 g saturated fat/100 g of product would explain the lack of a distinction between the different types of fats.

The modification applied for the group of fats consists of a new table for allocating points for saturated fats content, which is considered over total fat content (Table 4).

Table 4. Point allocation for content in saturated fats

A points	Calories (kJ)	Sugars (g)	Specific fat limits SFA/lipids (% in weight)	Sodium (mg)(*)
0	≤335	≤4.5	<10	≤90
1	>335	>4.5	<16	>90
2	>670	>9	<22	>180
3	>1005	>13.5	<28	>270
4	>1340	>18	<34	>360
5	>1675	>22.5	<40	>450
6	>2010	>27	<46	>540
7	>2345	>31	<52	>630
8	>2680	>36	<58	>720
9	>3015	>40	<64	>810
10	>3350	>45	≥64	>900

(*) Sodium content corresponds to the salt content shown in the mandatory declaration divided by 2.5.

d. Classification of food products according to final score obtained

Depending on the final score obtained, food products are classified in five categories, each represented by a colour and a letter according to the following table.

Table 5. Classification of food products according to Nutri-Score

Solid foods (points)	Drinks (points)	Nutri-Score
-15 to 1	Water	
0 to 2	≤1	
3 to 10	2 to 5	
11 to 18	6 to 9	
19 - 40	≥10	

With regard to the adoption of Nutri-Score, the development of the five nutritional quality categories and the FSA nutritional profile modifications described above have been evaluated through validation studies of several aspects, providing significant scientific support to this public health initiative adopted at the national level in France (Julia et al., 2014, 2015b) (Szabo de Edelenyi, 2019).

Switzerland has already implemented it and Germany has submitted a notification to the European Commission.

The Minister of Health, Consumer Affairs and Social Welfare announced in November 2018 Spain's intention to adopt Nutri-Score. The application of Nutri-Score will be voluntary and its use in Spain shall require the submission of a notification to AESAN. Agri-food companies and distributors will therefore have the option of choosing whether or not to use the logo to inform consumers of the nutritional quality of their products.

5. Modification of Nutri-Score for the inclusion of olive oil

For the successful implementation of Nutri-Score in Spain, AESAN considered necessary to take into account specific aspects of the dietary guidelines given to the Spanish population different from the French guidelines. In this regard, the recommendation to consume olive oil as the main source of monounsaturated fatty acids in the Spanish diet must be noted and a very different nutritional consideration must be applied to olive oil as compared to other fats, in light of its status as the principal oil consumed in Spain.

The initial proposal integrated the quantity of fruit oil, principally virgin olive oil/extra virgin olive oil (V00/EV00) and walnut oil in the component "Fruit, vegetables, pulses and nuts" which is included in the positive points (C points) category for the calculation of the Nutri-Score. Therefore, this component would be amended to "Fruit, vegetables, pulses, nuts and fruit and nut oils"¹.

A modification was subsequently proposed which would only apply to olive oil, walnut oil and rapeseed oil, and not all fruit and nut oils.

This modification is based on the scientific evidence of the health benefits of consuming olive oil (Reis de Souza, 2013), considering it is the most widely consumed oil in Spain and the fact that rapeseed and walnut oils are also recommended in French dietary guidelines.

This modification allows for Nutri-Score to be applied to oil itself in a harmonised and uniform manner across all the countries that adopt the system. Thus, olive oil will obtain the maximum points (content in olive oil of 100 %) and can be distinguished from other oils such as sunflower, palm or coconut oils.

This modified proposal includes olive oil and not just V00/EV00. This decision is because for the other components in the "Fruit, vegetables, pulse and nuts" group, extraction method is not taken into account in calculating the Nutri-Score. Nevertheless, and even though Nutri-Score does not

¹ This proposal was drafted by the team at the Universidad Rovira i Virgili, Reus, Spain (Dr. Jordi Salas and Dr. Nancy Babio), in collaboration with the INSERM/INRA/University of Paris 13 team, which conducted the scientific validation work on Nutri-Score in relation to health (Dr. Serge Hercberg, Dr. Chantal Julia and Dr. Pilar Galán).

establish any differences between olive oil on the one hand and virgin and extra virgin olive oil on the other, it must be borne in mind at all times that the latter have a very beneficial impact on cardiovascular health and risk factors, thanks to their content in components other than oleic acid, such as phenolic compounds. These effects have been described in numerous scientific publications including multi-centre trials, such as the PREDIMED study (Estruch et al., 2018), which associates the Mediterranean diet with a 30 % reduction in major cardiovascular events (heart attack, stroke or death from cardiovascular causes), and meta-analyses than link consumption of extra virgin olive oil with a significant improvement in total cholesterol, HDL cholesterol, inflammatory markers and blood pressure (George et al., 2018). The specific recommendation promoting VOO/EVOO forms part of the communication actions around the dietary guidelines implemented in each country.

Tabla 6. Points table incorporating of olive oil

Points	Fruit, vegetables, pulses, nuts and olive, walnut and rapeseed oil (% in weight)	Fibre (g/100 g)	Protein (g/100 g)
0	≤40	≤0.9	≤1.6
1	>40	>0.9	>1.6
2	>60	>1.9	>3.2
3	-	>2.8	>4.8
4	-	>3.7	>6.4
5	>80	>4.7	>8
Subtotal	0-5 (a)	0-5 (b)	0-5 (c)
Total (0-15)	P points = (a) + (b) + (c)		

With this modified Nutri-Score proposal, olive oil, rapeseed oil and walnut oil will benefit from a C Nutri-Score (the most favourable score for an oil). Moreover, products that contain olive oil could also benefit, if the content in fruit, vegetables, pulses and nuts and olive, walnut or rapeseed oil exceeds 40 %.

5.1 Publication of the rule modifying the calculation of Nutri-Score

In accordance with these considerations, on 5 September 2019, the Decree amending the form of complementary display of the nutritional declaration recommended by the State was published in the *Journal Officiel de la République Française* (JORF, 2019). Along with other modifications, reference to “rapeseed, walnut and olive oils” is included in the “Fruit, vegetables, pulses and nuts” category. Thus, in the calculation of the Nutri-Score, the component considered is “**Fruit, vegetables, pulses, nuts and olive, walnut and rapeseed oil**”.

This involves the updating to the Nutri-Score usage regulation and the frequently asked questions document developed by *Santé publique France*.

Conclusions of the Scientific Committee

The conclusions of the Scientific Committee with respect to the suitability of the adaptation of the Nutri-Score system incorporating olive oil content into the calculation are the following:

- The European Union has not established a harmonised model for front-of-pack labelling and therefore Member States decide this matter.
- Neighbouring countries that currently have some form of front-of-pack labelling are the following: France, Switzerland and Belgium (Nutri-Score), the United Kingdom (Traffic light), Sweden, Norway, Denmark, Iceland, Lithuania and North Macedonia (Keyhole or Nordic Keyhole) and the Netherlands (FOP Choices). These systems have been the subject of debate within the European Commission over the last 2 years.
- Spain has always expressed a position in favour of harmonisation at EU level for front-of-pack nutritional labelling.
- The Scientific Committee considers that AESAN's Nutri-Score adaptation proposal for the inclusion of olive oil in the "Fruit, vegetables, pulses and nuts" group and the resulting positive consideration in the Nutri-Score calculation improves the consideration of a product that has nutritional benefits based on its oleic acid content and constitutes an improvement of said front-of-pack nutrition labelling system.
- The Scientific Committee believes that the correct wording to apply to the included oils would be: "**olive oil, walnut oil and rapeseed oil**" and under no circumstances should reference be made to "olive oils".
- The Scientific Committee suggests that, without prejudice to the numerical calculation, a separate column be created, not within the current fruit and vegetables column (Table 7).

Table 7. Suggested scoring table presentation for the inclusion of olive oil in Nutri-Score

Points	Fruit, vegetables, pulses and nuts (% in weight)	Olive oil, walnut oil and rapeseed oil (g/100 g o 100 ml)	Fibre (g/100 g)	Protein (g/100 g)
0	≤40		≤0.9	≤1.6
1	>40		>0.9	>1.6
2	>60		>1.9	>3.2
3	-		>2.8	>4.8
4	-		>3.7	>6.4
5	>80		>4.7	>8
Subtotal	0-5 (a)		0-5 (b)	0-5 (c)
Total (0-15)	P points = (a) + (b) + (c)			

- It is necessary to continue to identify other aspects that may need to be incorporated into the Nutri-Score system for the nutritional assessment of foods and drinks characteristic of the Spanish diet.

References

- Coudray, B. (2011). The Contribution of Dairy Products to Micronutrient Intakes in France. *Journal of the American College of Nutrition*, 30 (5 Suppl 1), pp: 410S-404S. Doi: 10.1080/07315724.2011.10719984.
- Estruch, R., Ros, E., Salas-Salvadó, J., Covas, M.I., Corella, D., Arós, F., Gómez-Gracia, E., Ruiz-Gutiérrez, V., Fiol, M., Lapetra, J., Lamuela-Raventós, R.M., Serra-Majem, L., Pintó, X., Basora, J., Muñoz, M.A., Sorlí, J.V., Martínez, J.A., Fito, M., Gea, A., Hernán, M.A. and Martínez-González, M.A. PREDIMED Study Investigators. (2018). Primary Prevention of Cardiovascular Disease with a Mediterranean Diet Supplemented with Extra-Virgin Olive Oil or Nuts. *The New England Journal of Medicine*, 378 (25), e34. <https://doi.org/10.1056/NEJMoa1800389>.
- EU (2006). 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. OJ L 404 of 30 December 2006, pp: 9-25.
- EU (2011). Regulation (EC) No. 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers. OJ L 304 of 22 November 2011, pp: 8-63.
- EU (2012). Commission Regulation (EU) No. 432/2012 of 16 May 2012 establishing a list of permitted health claims made on foods, other than those referring to the reduction of disease risk and to children's development and health. OJ L 136 of 25 May 2012, pp: 1-40.
- EU (2014). EU Action Plan on Childhood Obesity 2014-2020. Available at: https://ec.europa.eu/health/sites/health/files/nutrition_physical_activity/docs/childhoodobesity_actionplan_2014_2020_en.pdf [accessed: 01-03-20].
- FSA (2011). Nutrient profiling Technical Guidance. Available at: <https://www.gov.uk/government/publications/the-nutrient-profiling-model> [accessed: 01-03-20].
- George, E.S., Marshall, S., Mayr, H.L., Trakman, G.L., Tatucu-Babet, O.A., Lassemillante, A.C.M., Bramley, A., Reddy, A.J., Forsyth, A., Tierney, A.C., Thomas, C.J., Tsiopoulos, C. and Marx, W. (2018). The effect of high-polyphenol extra virgin olive oil on cardiovascular risk factors: A systematic review and meta-analysis. *Critical reviews in food science and nutrition*, 59 (17), pp: 2772-2795. <https://doi.org/10.1186/1476-511X-13-154>.
- JORF (2017). Journal Officiel de la République Française. Ministère des Solidarités et de la Santé. Arrêté du 31 octobre 2017 fixant la forme de présentation complémentaire à la déclaration nutritionnelle recommandée par l'Etat en application des articles L. 3232-8 et R. 3232-7 du code de la Santé Publique.
- JORF (2019). Journal Officiel de la République Française. Ministère des Solidarités et de la Santé. Arrêté du 30 août 2019 modifiant l'arrêté du 31 octobre 2017 fixant la forme de présentation complémentaire à la déclaration nutritionnelle recommandée par l'Etat en application des articles L. 3232-8 et R. 3232-7 du code de la Santé Publique.
- Julia, C., Ducrot, P., Lassale, C., Fézeu, L., Méjean, C., Péneau, S., Touvier, M., Hercberg, S. and Kesse-Guyot, E. (2015a). Prospective associations between a dietary index based on the British Food Standard Agency nutrient profiling system and 13-year weight gain in the SU.VI.MAX cohort. *Preventive Medicine*, 81, pp: 189-194. <https://doi.org/10.1016/j.ypmed.2015.08.022>.
- Julia, C., Ducrot, P., Péneau, S., Deschamps, V., Méjean, C., Fézeu, L., Touvier, M., Hercberg, S. and Kesse-Guyot, E. (2015b). Discriminating nutritional quality of foods using the 5-Color nutrition label in the French food market: Consistency with nutritional recommendations. *Nutrition Journal*, 14, 100. <https://doi.org/10.1186/s12937-015-0090-4>.
- Julia, C., Kesse-Guyot, E., Touvier, M., Méjean, C., Fezeu, L. and Hercberg, S. (2014). Application of the British Food Standards Agency nutrient profiling system in a French food composition database. *The British Journal of Nutrition*, 112 (10), pp: 1699-1705. <https://doi.org/10.1017/S0007114514002761>.
- Kelly, B. and Jewell, J. (2018). What is the evidence on the policy specifications, development processes and effectiveness of existing front-of-pack food labelling policies in the WHO European Region? Copenhagen: WHO Regional Office for Europe; Health Evidence Network (HEN) synthesis report 61.
- Labonté, M.É., Poon, T., Gladanac, B., Ahmed, M., Franco-Arellano, B., Rayner, M. and L'Abbé, M.R. (2018). Nutrient Profile Models with Applications in Government-Led Nutrition Policies Aimed at Health Promotion and

- Noncommunicable Disease Prevention: A Systematic Review. *Advances in Nutrition*, 9 (6), pp: 741-788. <https://doi.org/10.1093/advances/nmy045>.
- Moniteur Belge (2019). Service Public Federal Santé Publique, Sécurité de la Chaîne Alimentaire et Environnement. 1er Mars 2019. Arrêté royal relatif à l'utilisation du logo «Nutri-Score».
- Reis de Souza, P., Crema-Peghini, B., Santana da Silva, J. and Ribeiro Cardoso, C. (2013). An Overview of the Modulatory Effects of Oleic Acid in Health and Disease. *Mini Reviews in Medicinal Chemistry*, 13 (2), pp: 201-210.
- Szabo de Edelenyi, F., Egnell, M., Galan, P., Druesne-Pecollo, N., Hercberg, S. and Julia, C. (2019). Ability of the Nutri-Score front-of-pack nutrition label to discriminate the nutritional quality of foods in the German food market and consistency with nutritional recommendations. *Archives of Public Health*, 77, pp: 28. <https://doi.org/10.1186/s13690-019-0357-x>.
- WHO (2014). World Health Organization. European Food and Nutrition Action Plan 2015-2020. Available at: <http://www.euro.who.int/en/publications/abstracts/european-food-and-nutrition-action-plan-20152020-2014> [accessed: 01-03-20].
- WHO (2018). World Health Organization. Non communicable diseases. Available at: <https://www.who.int/es/news-room/fact-sheets/detail/noncommunicable-diseases> [accessed: 01-03-20].

Annex I. Calculation of Nutri-Score: Flowchart

FLOWCHART FOR CALCULATION OF NUTRI-SCORE

Food product with **mandatory nutritional information and list of ingredients**.
Calculation of unfavourable points (A POINTS) and favourable points (C POINTS)

Unfavourable components (A points): Energy, sugars, saturated fat, salt

Favourable components (C points): Fruit, vegetables, pulses and nuts and olive, rapeseed and walnut oil; Proteins; Fibre.

