



**UPDATE of the REPORT on**  
***“Food classification: the Ultra-Processed concept”***  
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Having food for the entire population and correct and adequate information on its nutrient composition and diets is included in the Sustainable Development Goals (SDG) of the United Nations. This represents a challenge in the current context of global food security.

### **Population and food security**

The world's population is growing with a tendency to concentrate in urban areas. Food processing helps to secure the supply and extend the shelf life of food, while ensuring food quality, hygiene and safety, helping to reduce waste and prevent disease. Not processing food mainly affects populations in situations of food poverty, hygienic and sanitary security and unfavourable living conditions. Food processing is therefore necessary and contributes to ensuring food safety.

## **Processed Foods**

Processed foods have been part of our diet since ancient times. During human evolution, food processing allowed greater access to nutrients, energy, and a varied diet, which came to be a key competitive advantage over other mammals. Food technology has evolved in parallel with humanity. Its application today is complex but effective. A process can be defined as the set of steps that lead us to obtain a product from a raw material, and each of the steps is called a basic operation. These operations involve physical changes and/or bio/chemical transformations. The application of technologies has been adapted to the needs and food process engineering has systematized it perfectly in its production chains.

Science and knowledge determine human development in all its aspects, and responsible business activity is the motor of the system. Eating is a biological need, the satisfaction of which must be safe as well as pleasurable, bearing in mind the importance of diet. From a sustainable food system approach, it is essential to have adequate coordination and harmony between dietetics, nutrition and food processing technology based on scientific evidence.

### **The term "ultra-processed"**

The term "ultra-processed" appeared in 2009 with a publication by Monteiro et al. (Monteiro et al, 2009), where he classified foods into four groups, and subsequent updates (Monteiro et al, 2023).

It is a very confusing term due to its ambiguous definition and lax classification. This confusion has led to the assimilation of the term "ultra-processed food" with "processed food", and with a pejorative connotation of unhealthy food, which is universally associated with something "bad" or even toxic.

It must be remembered that the processes and ingredients used in food processing are perfectly studied and legalized by the competent authorities based on scientific evidence. A food may be admitted to be excessively processed or "over-processed" when the intensity of the treatment applied is unjustifiably more severe than the reference process, e.g. in sterilization treatments, pasteurization, etc. In this case, "over-processing" reduces the quality and acceptability of the food, which is neither necessary nor good. So, it is important to differentiate between the level and way of processing food and its composition. The relationship between food and health is, in fact, due more to the final composition of nutrients in food than to the process to which they have been subjected, and always taking into account the context of the diet.

## **Confusion and misinformation continue**

There are more than 7 classification proposals in the world around the concept of "ultra-processed" food. The lack of precision, objectivity and consensus in the scientific definition generates confusion and misinformation in the citizen, with the serious consequences that this generates in society, both in the consumer and in the productive sector, health sector and even administration, among others.

It is important not to associate the term ultra-processed with foods of low nutritional quality, as this does not depend only on the intensity or complexity of the processing but also on the final composition of the food.

## **The NOVA Classification**

The NOVA classification has been extensively analysed in the *Triptolemos Report on food classification: the concept of "ultra-processed"* (Carretero, C. et al. 2020). It is a very broad, generic and imprecise classification, which has fallen into simplification and many of its considerations are outside the scope of scientific rigor, which makes it unacceptable in the field of food science and technology, although widely known in society and more accepted in informative areas of nutrition and dietetics.

The NOVA classification mixes the composition of foods and their processing, with the result of uncertainty and confusion, both for the population and for the medical/clinical field, as it is the most widely used in epidemiological research despite the lack of scientific consensus and a regulatory framework.

## **Clinical Studies**

Although a huge number of studies have been published on the relationship of "ultra-processed foods" with health, the vast majority of them have low or very low levels of quality (expressed as levels of credibility) and degrees of evidence (GRADE) (Dinerstein, C., 2024). This is due to the fact that, generally, these are observational epidemiological studies that, due to the characteristics of the population group studied, do not allow the establishment of cause-and-effect relationships. In general, these types of studies are considered to provide a low degree of evidence from the outset.

It has been suggested that nutrition recommendations should not be made with low levels of evidence or inconclusive studies and that it is necessary to have evidence based on clinical trials and their most scientifically consistent meta-analyses, which do allow causal relationships to be established.

It should be noted that the available epidemiological evidence is not sufficient to establish a cause-effect relationship. More scientific studies are needed to accurately define the amounts and proportions of certain foods or products according to their

impact on health and robust risk assessments. All this in order to avoid confusion and social alarmism.

### **Some publications**

To date, there is a lack of rigorous scientific studies and robust risk assessments that accurately define the maximum intakes of certain products for their impact on health. More randomized, controlled clinical trials are needed, as studies are being done that do not detail precisely which foods are being considered.

The journal *Nature Food* published the article "*Best practices for applying the Nova food classification System*" (Martinez-Steele, E. et al. 2023). The authors suggest a possible connection between consumption of group 4 "ultra-processed" foods and the possibility of developing certain diseases. It is difficult to make a conclusive nutritional diagnosis and recommendation if the technological process criteria that affect the final composition have not been previously and objectively defined. The criteria lacking objectivity in the classification lead to the lack of definition between "chance" and "causality".

In line with the previous comments is the article "*Ultra-processed Food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses*" published in the *British Medical Journal* (Lane, M. et al. 2024) with great media impact despite its medium or low degree of evidence according to the authors themselves or the article "*Dietary Guidelines meet NOVA: Developing a menu for a healthy Dietary Pattern using Ultra-Processed Food*" published in *The Journal of Nutrition* (Hess, J.M. et al. 2023)

Similarly, it is worth including the work published in the journal *Foods* (Vlassopoulos A. 2024) "*Precision Food Composition Data as a Tool to Decipher the Riddle of Ultra-Processed Foods and Nutrition Quality*", which criticizes that all ultra-processed foods included in the NOVA definition have the same inadequate composition and it is crucial to establish appropriate and contrasted databases that include food composition.

It is worth mentioning the document "*The Impact of Ultra-Processed Foods on Health*" (Popkin, B., 2020), the text of which was reviewed by C. Monteiro of the São Paulo School of Public Health. This document defines ultra-processed foods as those products composed of multiple ingredients developed in an industrial way. This publication refers to the "result of an epidemiological study related to the consumption of ultra-processed foods for two weeks and concludes that a high consumption of ultra-processed foods is related to higher rates of total mortality, cancer and cardiovascular mortality, diabetes and a host of infectious diseases", when the degree of scientific evidence in this regard is still low or very low. The publication also refers to fiscal, regulatory and labelling notes, which are applied in different countries.

## Some examples that add to the confusion

Referring to a number of ingredients in "ultra-processed" foods is meaningless. We must refer to diets. As an example, it is correct to consume 100 grams of emperor fish or swordfish a week because scientifically and through a risk assessment it has been proven that distributed those 100 grams over 7 days there is no cumulative effect of heavy metals. Thus, the fact that a food contains salt, sugar, flour, etc. does not necessarily make it unhealthy; What can make it unhealthy is its frequent consumption above a scientifically determined value. A food with a formulation high in simple sugars, salt and/or saturated fats if consumed continuously is not healthy, and again the frequency and context of the diet should be considered. This is regardless of whether it is processed in industry, at home or made in the best restaurant in the world.

Some authors have indicated that various plant-based meat substitutes or analogues can be considered as "ultra-processed" due to their composition and production procedures. It is an issue that should be studied, valued and taken into consideration, as its consumption is increasing considerably.

In the NOVA classification, alcohol initially produced by fermentation of grapes and the like is considered a processed food (group 3). If it is later distilled, it becomes ultra-processed (group 4). It should be noted that the molecular identity of alcohol, and therefore the risks of its consumption, do not vary with distillation.

Another example could be infant formula milks that are based on the fractionation of food and subsequent recombination, which is why they are considered ultra-processed foods, despite the fact that specific processing only includes drying as a more intense process, without being considered as foods of low nutritional quality. This does not mean that infant formula has a better nutritional quality than breast milk, but it can be said that, if you need to use them, you can have the peace of mind that being an *ultra-processed* food (according to the generalized consideration), it is not a food of low nutritional quality. This shows the inadequacy of the definition. It should be added that the additives included in these formulations require a strict risk assessment adjusted to the target population (<16-week population and child population) to be authorized.

## Food Safety Agencies

The report of the Scientific Committee as a risk assessment body of the *Spanish Agency for Food Safety and Nutrition* (AESAN) of March 2020, which does not represent AESAN's position on the impact of the consumption of "ultra-processed" foods on the health of consumers, states: *"Although there is currently no legal standard that establishes a specific definition for the concept of ultra-processed food, The attempt to improve public health policies has led to the emergence of different*

*systems for classifying foods according to their degree of processing." "The proposed definitions have generated some scientific controversy, since in some cases the definition refers to the type and degree of processing that foods undergo, while in other cases to their formulation and composition. In this sense, it is important to bear in mind that trying to relate the degree of processing with an effect on health cannot be done independently of the composition of the food and it is important not to associate the term ultra-processed with foods of low nutritional quality, since this does not depend only on the intensity or complexity of the process but on the final composition of the food". (Scientific Committee, AESAN-2020-003).*

*AESAN is independent of the **European Food Safety Agency (EFSA)**, both of which are Food Safety Agencies, with different areas of action (national and EU). AESAN does evaluation and management and EFSA only evaluates.*

There is a lack of consensus on the definition of "ultra-processed food". It is therefore not only a matter of rigorously and adequately defining a classification, but also of developing a consensus so that it is universal and understandable, if we want to avoid consumer confusion and lack of rigor in studies.

### **Spread of the term "ultra-processed food"**

It is unknown whether the population understands the meaning and scope of the term. But the confusion is such that the consumer in general does not want to consume "ultra-processed foods", without knowing how to define exactly what they are.

In short, there is a **paradox in the concept of ultra-processed foods**. On the one hand, there is no objective, rigorous definition agreed upon by the scientific community, and on the other hand, its use is widespread in society, in the media, social networks, among consumers, in the scientific community itself, in health professionals and even in the administration itself.

To convey balanced messages to society that build trust, it is necessary to bridge the gap between experts in public health and in food and nutrition science and technology.

### **Sustainable food and food system**

The **Triptolemos Foundation** contributes with its actions to **optimize the food system**, achieve adequate food for the entire population, the confidence of citizens and the dignification of the sector. Among its activities, the Foundation writes reports on current issues, with a scientific basis and independence of criteria, from a sustainable food system approach. In May 2020 he wrote the report "Food classification: the ultra-processed concept", but to this day, confusion and misinformation continue. The Foundation has assembled its working group of 23 researchers to update the topic.

The **Triptolemos Foundation focuses on the sustainable food system in four basic main axes:** availability and accessibility, economy, policies and knowledge (behaviour, knowledge and culture). All of them are interrelated and must be in balance if we want to achieve an adequate and harmonious functioning of the Sustainable Global Food System aligned with the SDGs (Sustainable Development Goals).

If the aim is to **improve the health of the population through food**, the challenge will have to be approached from a global system vision (4 axes), where a multitude of interrelated factors influence, such as training, education, knowledge, purchasing power, beliefs, culture, habits, hours of sleep, etc. doing sports, the availability of time for preparation, psychological aspects, access and ease of purchase, diets, knowing how to interpret labels... and where not only the processing and composition of the food will be determining factors. Training and adequate information are essential for society to have a contrasted message.

### **Legislation**

At present there is no legal standard that establishes a specific definition for the concept of ultra-processed food, the attempt to improve public health policies has led to the emergence of different food classification systems depending on their degree of processing.

In order to establish a regulatory framework that allows standardizing criteria for this classification, there is a prior task of defining and agreeing on the concept in an objective and rigorous manner. This would be the responsibility of official and independent agencies and institutions with a global programme with coordination and financial support. It is difficult to legislate, let alone penalize with the information available today.

All this for the benefit of improving the availability and production of food, guaranteeing food quality and safety and ensuring responsible consumption, providing consumers with adequate and accurate food and nutritional information, which generates citizen confidence in a safe and sustainable global food system.

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