# New study exposes flaws in NOVA classification for plant-based proteins



A recent study from Finland's University of Turku raises critical questions about the efficacy of current processed food labelling and classification schemes, particularly those pertaining to plant-based proteins. Published in *Nature Food*, the research indicates that existing systems, notably the NOVA classification, fail to accurately capture the variable nutrient density and potential health benefits associated with diverse processing methods.

The NOVA system categorises foods into four groups based on processing levels: unprocessed or minimally processed foods, processed culinary ingredients, processed foods, and ultra-processed foods. While this classification has gained traction in nutrition and public health research, the authors of the study argue that it does not account for the meaningful biochemical alterations that occur through different processing methods. Essentially, the system oversimplifies complex nutritional realities by lumping together products with vastly different health profiles.

For instance, the researchers highlighted significant differences within soy-based foods. Tempeh, a fermented soy product, boasts a rich supply of beneficial phytochemicals, including isoflavonoids known for their health-promoting properties. In contrast, soy-based products derived from isolates or concentrates exhibit markedly lower levels of these compounds. The study authors assert that such distinctions are crucial, as phytochemicals serve as indicators of how closely a food retains the integrity of its original ingredients throughout processing. Previous epidemiological studies have consistently linked diets rich in such phytochemical-dense foods to positive health outcomes.

Ville Koistinen, a co-author of the study, emphasised that processing methods should not automatically be deemed harmful. He noted that common cooking techniques, such as baking or freezing, are also forms of processing, and that the nutritional components and their bioavailability ultimately determine a product's health impact. “It cannot be assumed that all processing makes a product unhealthy,” Koistinen remarked in an interview with Phys.org.

Though critics frequently caution against the tendency to generalise about "processed" foods, some recent studies suggest that substituting animal products with plant-based alternatives can lead to improved health outcomes. Diets high in whole, plant-based foods have been linked to various health advantages, including lower risks of chronic diseases.

Moreover, meat alternatives, which are predominant in contemporary discussions on plant-based diets, often fall under the NOVA classification as ultra-processed. Even though such classifications typically imply poorer health qualities, the nutritional landscape of these alternatives is complex and requires further scrutiny. Not all ultra-processed foods lack nutritional value, and many can offer unique health benefits.

In conclusion, the research from the University of Turku calls for an evolution in the way categorisation and labelling of processed foods, particularly plant-based proteins, are approached. By evolving existing systems to recognise nutrient density and the specific processing methods employed, better guidance can be provided for consumers aiming to make informed dietary choices.

### Reference Map

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## Bibliography

1. <https://plantbasednews.org/news/science/processed-food-labels-plant-proteins/> - Please view link - unable to able to access data
2. <https://en.wikipedia.org/wiki/Nova_classification> - The Nova classification is a framework for grouping edible substances based on the extent and purpose of food processing applied to them. Proposed by researchers at the University of São Paulo in 2009, it categorizes foods into four groups: unprocessed or minimally processed foods, processed culinary ingredients, processed foods, and ultra-processed foods. This system has been widely used in nutrition and public health research to understand the health implications of different food products.
3. <https://en.wikipedia.org/wiki/Ultra-processed_food> - Ultra-processed foods are industrially manufactured food products made up of several ingredients, including sugars, oils, fats, and salts, along with food substances of no or rare culinary use, such as high-fructose corn syrup, hydrogenated oils, modified starches, and protein isolates. These foods are typically ready-to-eat or ready-to-heat and are often consumed alone or in combination. The Nova classification system defines ultra-processed foods as those where unprocessed or minimally processed foods are absent or represent a small proportion of the ingredients.
4. <https://en.wikipedia.org/wiki/Meat_alternative> - Meat alternatives are foods designed to replace meat in the diet. They often have lower amounts of saturated fat, vitamin B12, and zinc than meat products but higher amounts of carbohydrates, dietary fiber, sodium, iron, and calcium. While many meat alternatives are rated as ultra-processed foods under the Nova classification, not all products classified as ultra-processed are rated as unhealthy. The health effects of plant-based meat alternatives are still being studied, with some organizations calling for more research to investigate their nutritional composition and health impacts.
5. <https://en.wikipedia.org/wiki/Nutritional_rating_systems> - Nutritional rating systems are tools designed to help consumers make healthier food choices by providing information about the nutritional quality of foods. One such system is NuVal, developed at the Yale-Griffin Prevention Research Center, which assigned foods a score between 1 and 100 reflecting overall nutrition relative to calories consumed. However, NuVal was discontinued in 2017 amid accusations of conflicts of interest and for its refusal to publish the scoring algorithm. Scoring inconsistencies occurred, in which processed foods scored higher than canned fruits and vegetables.
6. <https://plantbasednews.org/news/science/processed-food-labels-plant-proteins/> - A study published in the journal Nature Food suggests that existing processed food labelling and classification strategies do not accurately reflect the variable nutrient density and potential health benefits of plant-based proteins. The research, conducted by the Food Sciences unit at Finland’s University of Turku, found that different processing methods significantly alter the biochemical composition of plant-based and alternative proteins, a factor not considered by the four-group NOVA system that categorizes foods by the extent of their processing. The study emphasizes the need for improved classification systems to better reflect nutrient density.
7. <https://www.nature.com/articles/s41574-023-00856-0> - The study published in Nature Food by researchers from the University of Turku examines the impact of different processing methods on the biochemical composition of plant-based proteins. The authors found clear differences between soy-based foods, particularly highlighting that tempeh, a fermented soy-based protein, is rich in beneficial phytochemical compounds like isoflavonoids, whereas products made from soy isolates or concentrates contain significantly fewer isoflavonoids. The study suggests that current food classification systems, such as the NOVA system, should be improved to better reflect nutrient density and the health benefits of plant-based proteins.