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The positive impact of dietary guidelines on the environment

In 2017, France updated its dietary guidelines to incorporate environmental preservation for the first time. Researchers at INRAE, INSERM, Université Paris 13 and Solagro conducted a multi-criteria evaluation of French food-based dietary guidelines based on data from 28,340 participants of the NutriNet-Santé cohort study. Their results, published on 23 March in *Nature Sustainability*, show that following the new dietary guidelines has a positive impact, not only on people's health, but also on the environment.

Western diets often include a high intake of sugar, salt, saturated fats, and meat, and tend to be rich in processed foods. Beyond health consequences for individuals, current food systems are also responsible for almost a third of the greenhouse gas emissions and they are a major cause of risks in terms of water and soil pollution and biodiversity loss. In this context, changing food production and consumption habits has become a necessity. The Food and Agriculture Organization of the United Nations (FAO) defines a sustainable diet as "protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources"¹.

Since 2001, France has established dietary guidelines within the framework of the French Nutrition and Health Programme (PNNS in French), with the purpose of improving the population's health by focusing on one deciding factor: nutrition (food and physical activity). Among other recommendations, the 2001 dietary guidelines advocated an increment in the consumption of fruits and vegetables and encouraged the intake of dairy products for their calcium. In the light of new scientific literature, the recommendations were updated in 2017², accentuating the importance of adding an environmental component. In 2017, the French Nutrition and Health Programme recommended reducing the consumption of red meat, processed meat, and sugary products; eating dairy products in moderation; limiting the intake of alcohol; encouraging plant-based diets (fruits, vegetables, wholegrain products); and favouring the consumption of organic products, among others. Additionally, new food categories were added, such as unsalted nuts. In this study, researchers focused on evaluating the impact of dietary guidelines not only on people's health, but also on the environment, by comparing results from the participants that followed the guidelines to those who did not, or at least not to the same extent. They also compared the degree of sustainability of both sets of guidelines.

A multi-criteria analysis to understand the influence of the dietary recommendations on health and the environment

To analyse the impact of the 2001 and 2017 dietary guidelines on health and the environment, researchers have evaluated the associations between various indicators, based on multiple criteria: nutritional (calories, types of food), environmental (greenhouse gas emissions, energy demand, land use), economic (cost of food), and toxicological

¹ Garnett T. *Where are the best opportunities for reducing greenhouse gas emissions in the food system (including the food chain)?* Food Policy 36, S23-S32 (2011)

² <https://www.santepubliquefrance.fr/presse/2019/sante-publique-france-presente-les-nouvelles-recommandations-sur-l-alimentation-l-activite-physique-et-la-sedentarite> (in French)

(pesticides exposure). Two objectives motivated the study. The first was to estimate the influence of 2017 guidelines on health and the environment. The second was to compare the relative differences between these recommendations and those of 2001 in terms of their impacts.

Using three main indicators, researchers discovered that participants that followed the 2017 dietary recommendations—compared to those who did not follow them or not completely—reduced the global environmental impact caused by the food system by 50%. On the other hand, those who followed 2001 recommendations reduced their environmental impact by 25%. In terms of health benefits, 2017 guidelines proved to be more efficient than those of 2001. In fact, following the 2017 recommendations could prevent 35,000 premature deaths, particularly those related to cardiovascular disease. In the case of the 2001 guidelines, that number was 10% lower. At the economic level, however, the cost of food for people following the 2017 guidelines closely is slightly higher—a little under one euro extra per person per day.

These results confirm the dual benefits of dietary guidelines for health promotion and environmental preservation. If adopted by a large portion of the population, the 2017 recommendations could contribute to the prevention of chronic disease such as diabetes, cardio-vascular disease, and certain cancers, while, at the same time, reducing the environmental impact caused by the food production system.

NutriNet-Santé Study

Launched in 2009, NutriNet-Santé is a French cohort study carried out with a large number of adult volunteers, called *Nutrinautes*; its main objective is to study the connexion between nutrition and health.

New volunteers for the NutriNet-Santé study are currently being recruited. To participate, candidates must register online (www.etude-nutrinet-sante.fr) and fill out the questionnaires. Their information will allow researchers to learn more about the connection between food and health, and to improve the prevention of chronic disease by changing people's dietary habits.

The NutriNet-Santé study is coordinated by the Nutritional Epidemiology Research Team (EREN), the Health, Medicine, and Human Biology Training and Research Unit at Bobigny, Université Paris 13 (U1153 INSERM, U1125 INRAE, CNAM, Université Paris 13, Centre of Research in Epidemiology and Statistics).

Reference:

Emmanuelle Kesse-Guyot, Dan Chaltiel, Juhui Wang, Philippe Pointereau, Brigitte Langevin, Benjamin Allès, Pauline Rebouillat, Denis Lairon, Rodolphe Vidal, François Mariotti, Manon Egnell, Mathilde Touvier, Chantal Julia, Julia Baudry, Serge Hercberg, *Sustainability analysis of French dietary guidelines using multiple criteria*, Nature Sustainability, 23 March 2020.

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About INSERM

Founded in 1964, INSERM is a public scientific and technological institute that operates under the joint authority of the French Ministries of Health and Research. Dedicated to biomedical research and human health, this institute is involved in a wide range of activities, from the laboratory to the patient's bedside. At the international level, the institute works together with the most prestigious research institutions in the world, sharing their commitment to address scientific challenges and strive for innovation in these fields.

About Université Paris 13 (Université Sorbonne Paris Nord)

Université Paris 13 is a major centre of education and research in the north of Paris. Located on 5 campuses (Argenteuil, Bobigny, la Plaine Saint Denis, Saint-Denis and Villetaneuse), this multidisciplinary university welcomes more than 24,500 students, both in initial training and continuing education, in all of its fields: health, medicine, and human biology; literature, languages; social and human sciences; law, political and social sciences; communication; economics and business management. The university has five joint research units, one institute (Institut Galilée), three technology university institutes (IUT), a physical and sport activities department, and 28 laboratories. Université Paris 13 combines research, education and international relations with a commitment to excellence.

About Solagro

For many years, Solagro has contributed to the development of key studies and innovations for the implementation of the agroecological, nutritional, and energy transition, in France as in Europe, with an emphasis on environmental and climate issues. Solagro has developed an expertise on the analysis of the environmental impact of our food system. This expertise was the foundation of leading systemic foresight studies on the climate and energy footprint of our food system.

For more information about Solagro, including the [project CECAM](#) (Energy and carbon footprint of food in France) and [Afterres2050](#), visit their website at <https://solagro.com/works-and-products>.