

CORRESPONDENCE



The Double Pyramid: bridging nutrition and sustainability recommendations with traditional ways of eating

© The Author(s), under exclusive licence to Springer Nature Limited 2023

European Journal of Clinical Nutrition; <https://doi.org/10.1038/s41430-023-01278-8>

TO THE EDITOR:

We have read with interest the article by Bonaccio et al. [1]. The authors underline how the UNESCO recognition of the Mediterranean Diet (MD) as a cultural heritage can be an invitation for each country to rediscover its own eating traditions and bind food choices to its territory, with notable advantages not only for people's health but also for environmental preservation.

With less than ten years left to reach the Sustainable Development Goals [2], much still must be done to improve the way we produce and consume food and achieve global commitments making our food systems able to safeguard our health and the ecosystem by delivering affordable diets to everyone, everywhere and at all times [3]. In fact, unhealthy diets contribute to disability and death worldwide [4, 5], and food systems account to up to 37% of anthropogenic GHG emissions and other environmental pressures [6, 7].

As stated in the Bonaccio's paper, the MD fits today with the need of moving our dietary habits towards more sustainable food choices for the present and future generations, with a preference for seasonal, fresh and minimally processed foods to maximize the content of protective nutrients and bioactive components in the diet.

In line with this approach, the Double Health and Climate Pyramid (DP) (Fig. 1) [8] has been developed as a guideline for daily food choices that are healthy for humans and more sustainable for the planet. This simple communication tool is based on a very comprehensive and detailed examination of the scientific literature according to a sound and validated methodology extensively described elsewhere [9]. The key message is that all foods can be part of a food pattern adequate to promote human health and contribute to climate mitigation, provided that their frequency of consumption and serving sizes are appropriate.


Proposed dietary changes in the DP emphasize plant-based foods, such as fruit, vegetables, and wholegrains to replace high glycemic index refined starchy foods and sugar. A variety of protein sources, mainly legumes and nuts, but also dairy, fish, poultry, and eggs are also suggested. Fish and poultry are recommended as the preferential animal-sourced food choices instead of red and processed meat. As for fat sources, olive oil as well as other non-tropical vegetable oils represent the most appropriate option limiting the intake of saturated fatty acids

and trans-fatty acids. The DP illustrates that overall, foods that should be consumed more frequently for our health are generally also the ones with a low climate impact [8].

The DP is in line with the features of the MD but, in fact, it bridges dietary recommendations to many local contexts, celebrating the richness of their culture and culinary traditions. In our release, we have developed seven experimental Cultural Double Pyramids as a first attempt to capture the diversity of sustainable diets by exploring different geographical areas such as South Asia, East Asia, Africa, the Mediterranean, the Nordics and Canada, Latin America, and USA. To develop context-specific Double Pyramids, food habits of the different regions have been analyzed and a literature review (grey literature, scientific papers) has been undertaken to identify the most representative food items of each gastronomic tradition.

One major outcome of this scientific exercise is that food groups for which the frequency of consumption should be increased or reduced—based on the scientific evidence on their health and global climate impact—can include food items from different food cultures and habits, making it adaptable to different local contexts [10]. Therefore, sustainable diets can be pursued all over the world in a way that is healthy, accessible, affordable, safe, equitable and culturally acceptable [11]. In fact, healthy and climate-friendly food choices can be implemented in any country, combining the recommendations of frequency of consumption of specific food groups with local gastronomic traditions and individual preferences. Therefore, the MD represents an example of a healthy and climate-friendly diet among the many possible ways of eating across the world, that emphasizes local food, seasonality, and biodiversity, as pointed out in Bonaccio's article.

In conclusion, celebrating diversity can promote a new approach to the healthiness and sustainability of food choices. Many traditional dietary patterns around the world already feature the fundamental ingredients of diets good both for us and for the planet, and their dishes and recipes can contribute to the desirability and to the gastronomic appeal of a sustainable way of eating. This may be extremely important for long lasting improvements of our dietary behavior, since eating for enjoyment is an important determinant of any dietary change that is intended to last.

Katarzyna Dembska¹ , Marta Antonelli¹, Annalisa Giosuè²,
Ilaria Calabrese², Olga Vaccaro³ and Gabriele Riccardi²

¹Barilla Foundation, Via Madre Teresa di Calcutta, 3/a, Parma, Italy.

²Department of Clinical Medicine and Surgery, "Federico II" University of Naples, Via Sergio Pansini, 5, Naples, Italy. ³Department of Pharmacy, "Federico II" University of Naples, Via Domenico Montesano, 49, Naples, Italy. ✉email: kd.dietista@gmail.com

Received: 16 March 2022 Revised: 2 February 2023 Accepted: 7 February 2023

Published online: 17 February 2023

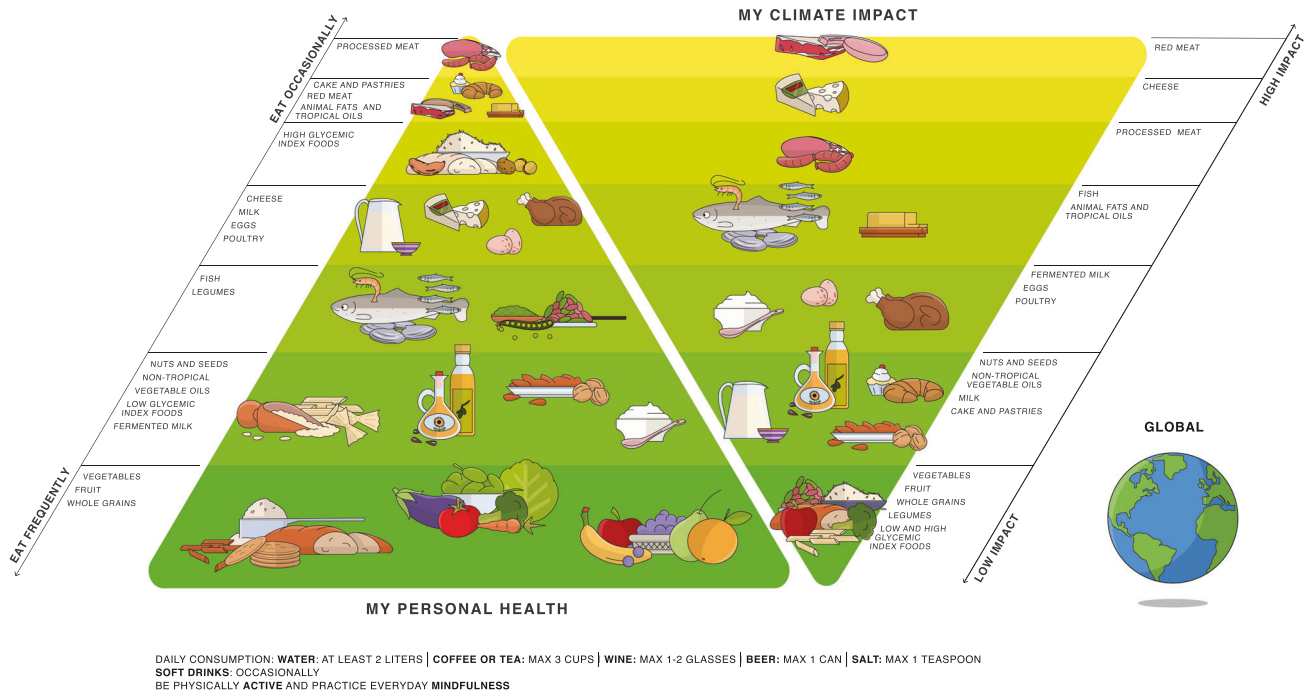


Fig. 1 The Double Health and Climate Pyramid illustrates how foods recommended for our health are generally also those with a low climate impact. Source: Barilla Foundation 2021.

DATA AVAILABILITY

Data described in the manuscript are available from the corresponding author on reasonable request.

REFERENCES

- Bonaccio M, Iacoviello L, Donati M, de Gaetano G. The tenth anniversary as a UNESCO world cultural heritage: an unmissable opportunity to get back to the cultural roots of the Mediterranean diet. *Eur J Clin Nutr.* 2021;76:179–83.
- UN General Assembly. Transforming our world: the 2030 Agenda for Sustainable Development A/RES/70/1. 2015. <https://www.refworld.org/docid/57b6e3e44.html>.
- FAO. How to Feed the World in 2050. 2019. http://www.fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf.
- Afshin A, Sur P, Fay K, Cornaby L, Ferrara G, Salama J, et al. Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet.* 2019;393:1958–72.
- Stanaway J, Afshin A, Gakidou E, Lim S, Abate D, Abate K, et al. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet.* 2018;392:1923–94.
- IPCC. Summary for Policymakers. In: Shukla PR, Skea J, Calvo Buendia E, Masson-Delmotte V, Pörtner H-O, Roberts DC, et al. editors. *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems.* IPCC;2019. <https://www.ipcc.ch/srccl/chapter/summary-for-policymakers/>
- Xu X, Sharma P, Shu S, Lin T, Ciaisi P, Tubiello F, et al. Global greenhouse gas emissions from animal-based foods are twice those of plant-based foods. *Nat Food.* 2021;2:724–32.
- Barilla Foundation. Double Pyramid. 2022. <https://www.fondazionebarilla.com/en/double-pyramid/>. 2022.
- Riccardi G, Giosuè A, Calabrese I, Vaccaro O. Dietary recommendations for prevention of atherosclerosis. *Cardiovasc Res.* 2022;118:1188–204. <https://doi.org/10.1093/cvr/cvab173>.
- Nicholls J, Drewnowski A. Toward sociocultural indicators of sustainable healthy diets. *Sustainability.* 2021;13:7226.

- FAO and WHO. Sustainable healthy diets – Guiding principles. Rome: FAO and WHO;2019.

AUTHOR CONTRIBUTIONS

All authors contributed to acquiring data and interpreting results, drafted and revised the manuscript and approved the final version. All authors ensure any questions related to accuracy and integrity are appropriately investigated and resolved.

FUNDING

GR is member of the Barilla Health and Well-being Advisory Board, of the Nutrition Foundation of Italy and of 'Istituto Nutrizionale Carapelli'. The "Barilla Foundation" supported the Double Pyramid with a grant aimed at the development of an evidence-based reformulation of the Food Pyramid for the prevention of cardiovascular disease for the University of Naples Federico II. The funder had no role in the study design, collection, analysis, and interpretation of data. MA is a consultant of the Barilla Foundation.

COMPETING INTERESTS

KD, MA, AG, IC, OV declare no competing interests.

ADDITIONAL INFORMATION

Correspondence and requests for materials should be addressed to Katarzyna Dembska.

Reprints and permission information is available at <http://www.nature.com/reprints>

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.