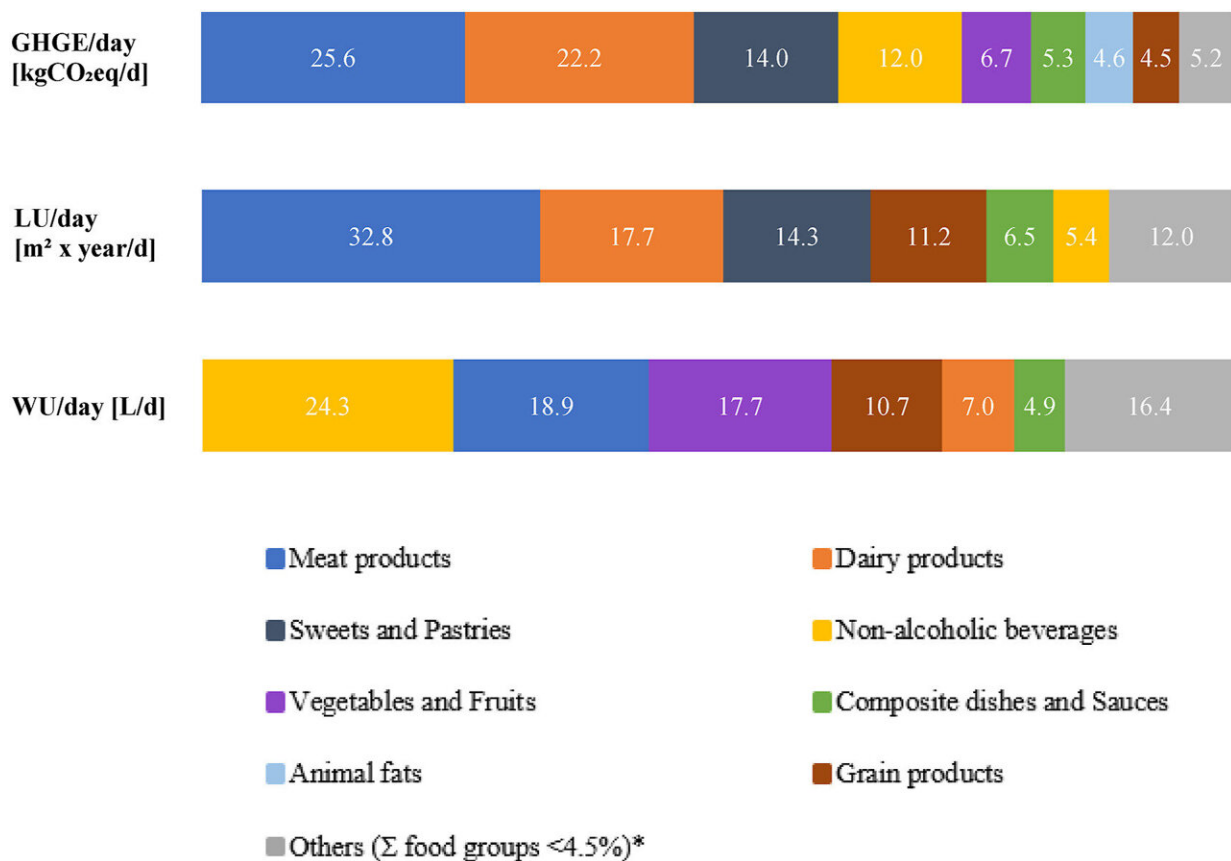


Study analyzes the environmental sustainability of diets among children and adolescents

May 16 2024, by Katrin Piecha



Contribution of food groups in % to GHGE/d (greenhouse gas emission [kgCO₂eq]), LU/d (land use [m² × y]), and WU/d (water use [L]) from 5510 3-d-weighted dietary records of 856 DONALD study participants. Credit: *The American Journal of Clinical Nutrition* (2024). DOI: 10.1016/j.ajcnut.2024.04.026

Our diet puts a strain on planetary resources. Shifting to a sustainable diet that benefits both our health and that of the planet is therefore assuming increasing importance. Researchers at the University of Bonn have analyzed the diets of children and adolescents in terms of their contribution to the ecological sustainability indicators of greenhouse gas emissions, land use and water use.

The study shows that there is both the potential and a need to make the diet of younger generations more sustainable. [The study](#) has been published in the *American Journal of Clinical Nutrition*.

"We sought to analyze age and temporal trends over the past 20 years," explains Professor Ute Nöthlings from the Institute for Nutritional and Food Science (IEL) at the University of Bonn. Her team drew on data from the DONALD study. The Dortmund Nutritional and Anthropometric Longitudinally Designed [cohort study](#) has been collecting detailed data on a range of factors including the diet, metabolism, development and health status of children and adolescents at regular intervals since 1985.

The team analyzed data from 856 schoolchildren aged between six and 17. The children recorded their diet between 2000 and 2021 in a total of over 5,000 3-day-weighed dietary records. The researchers calculated the environmental sustainability of the recorded diets in terms of greenhouse gas emissions, land use and water use using existing databases.

Potential to reduce greenhouse gas emissions through changing eating habits

"Studying the period from 2000 to 2010, we observed that the values for greenhouse gas emissions increased for both girls and boys, but have also

decreased since then," summarizes the study's first author Karen van de Locht from the IEL, who is also a member of the Transdisciplinary Research Area (TRA) "Sustainable Futures" at the University of Bonn.

"We have concluded that there is potential to reduce greenhouse gas emissions by changing dietary intakes. Nevertheless, more needs to be done," adds Ute Nöthlings, who is the speaker of the TRA "Sustainable Futures" and a member of the TRA "Life and Health." "We were able to show that as expected, the consumption of animal-based foods is most responsible for [greenhouse gas emissions](#)."

In a further step, the study also analyzed the nutrient adequacy of the diets of the participants and found that on average, it was not optimal. "The average values for calcium and iron in particular were below the levels recommended in Germany; this is also reflected in the results of other studies," says van de Locht.

The analyses performed by the study showed that a diet with a higher nutrient adequacy were not associated with reduced environmental impact. "We conclude that nutritionally favorable food choices are especially important when reducing the consumption of animal-based foods in this age group," says Nöthlings.

The researchers argue in favor of context-related nutritional recommendations. Children and adolescents have special nutritional needs due to their growth, but they are often underrepresented in nutritional research.

"More studies will help foster the improvement of recommendations issued to achieve an ecologically sustainable [diet](#) that is also healthy for children and [young people](#)," concludes Nöthlings.

More information: Karen van de Locht et al, Environmental sustainability of diets among children and adolescents in the German DONALD cohort study: age and time trends, and nutrient adequacy, *The American Journal of Clinical Nutrition* (2024). [DOI: 10.1016/j.ajcnut.2024.04.026](https://doi.org/10.1016/j.ajcnut.2024.04.026)

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