

Climate change mitigation through dietary change: a systematic review of empirical and modelling studies on the environmental footprints and health effects of 'sustainable diets'

Globally, 32% of children are stunted, 39% of adults are living with overweight and 2 billion people have an iron deficiency. Major food system transformations are required to improve global health and ensure a sufficient supply of nutritious foods for all in the future. The global food system also has a major environmental impact and contributes 21-37% of greenhouse gas emissions, with a significant impact on land, water use and biodiversity. Despite increased technological efficiency, the impact of food systems on the environment are expected to substantially increase by 2050. In response to existing and projected challenges, there have been many analyses of the adoption of diets with low environmental impact. Often referred to as sustainable diets, they are typically high in plant sourced foods and low in animal sourced and processed foods. It is highlighted there are 'co-benefits' for both population health and the environment. This study addresses an evidence gap with systematic review of scientific studies that assess both the environmental and human health effects of sustainable diets. The review aims to inform the design of evidence based climate change mitigation policy.

18 studies met the inclusion criteria for the review. Consistent evidence was found that aspiring sustainable diets had dual health and environmental benefits. The most profound effects on health were for diets that were vegan, vegetarian, pescatarian or for diets that followed national dietary guidelines (an average effect of 4% for reducing negative health outcomes). However, environmentally there was evidence of increased water use and to a lesser extent land use. The authors recommend that for realistic goals, sustainable diets should be flexible for the intended population. The authors also highlight that sustainable diets can have unintended negative consequences, such as a large-scale shift from animal food could cause problems for global food prices, livestock welfare and livelihoods of producers. Moreover, any sustainable diet recommendations must be adequately assessed so they are affordable.

Overall, it is concluded that with careful design, the adoption of diets with low environmental impact offers opportunity for both climate mitigation and health benefits. However, it is a complex area requiring more research on potential unintended negative consequences.

Jarmul S, Dangour AD, Green R, Liew Z, Haines A, Scheelbeek PFD. Climate change mitigation through dietary change: A systematic review of empirical and modelling studies on the environmental footprints and health effects of "sustainable diets." *Environmental Research Letters*. 2019;15(12).

[doi:10.1088/1748-9326/abc2f7](https://doi.org/10.1088/1748-9326/abc2f7)