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Title: Investing in early nutrition and food systems for human and planetary health.

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Article

Poor diet-related health, climate change, environmental degradation, and growing social inequities require urgent global, aligned, systemic action. In 2021, COVID-19, climate change, and conflict are some of the biggest drivers of food insecurity¹. Recovery from COVID-19 impact creates an opportunity to change trajectories to ensure optimal human and planetary health for today's children. Healthy diets are not only compatible with environmental objectives but necessary for attaining global climate² and biodiversity goals³. Actioned commitments to achieve healthy and sustainable diets for children can progress multiple global goals simultaneously; human health, reduced social inequalities, and climate and environmental stability.

In 2020, 22% of children under age 5 globally were stunted, 7% affected by wasting, and 6% having overweight or obesity primarily driven by compromised food and nutrient intakes⁴. Strengthening global action towards food systems that support healthy child and adolescent

growth and development can be achieved by improving the nutritional quality of their food environments and dietary practices. Transition to diverse, culturally appropriate healthy dietary patterns is key to prevent further degradation of environmental capital (biodiversity, ecosystems, and climate) and crucial to current and future human health. Major global investments are urgently needed, with children at the heart of action.

Transforming food systems must start with children's first foods. Breastfeeding provides infants with all energy and nutritional needs for their first months, with zero environmental impact or food waste. Effective strategies that start during pregnancy and continue throughout lactation are needed to support exclusive breastfeeding up to six months, continued up to two years with age and stage appropriate complementary foods. Government policies must be resourced to support appropriate duration of parental leave to facilitate exclusive breastfeeding, workplace breastfeeding policies, and access to trained breastfeeding specialists, health workers and peer counsellors.

Reducing production and over-consumption of ultra-processed foods (UPFs), and increasing consumption of minimally-processed foods will concurrently improve diet quality and reduce environmental footprints through reduced resources used to manufacture, package and distribute UPFs. UPFs are made mostly or entirely from compounds extracted or derived from whole foods, combined with additives to enhance taste and/or sensory qualities and extend shelf life⁵. UPFs are typically high in added fat, sugars and salt, with low nutrient density. With relentless UPF marketing, it is unsurprising that UPFs contribute 30-50% of total energy intakes in some high-income country populations⁵, with sales increasing rapidly in middle-income countries, including Latin America⁶ and Asia⁷. UPF consumption is associated with higher body fat in children⁸. Higher UPF intakes are associated with a population increased risk of overweight/obesity outcome⁹, all-cause mortality in adults; and asthma and cardio-metabolic risk factors among children. The tracking of dietary patterns from childhood to adulthood highlights the importance of limiting UPFs, and appropriate consumption of nutrient-dense foods including fruits and vegetables, from early life.

Increasing consumption of diverse minimally-processed plant foods complemented with appropriate amounts of animal sourced foods (ASF), has important human and planetary health benefits, could meet cultural preferences and be produced in a variety of climatic zones. Systematic interventions and policies that create healthy, sustainable and diverse food systems are needed. These include improving availability and affordability of minimally-processed foods with low food miles; pricing-policies (e.g. subsidising unprocessed or minimally-processed plant foods while taxing UPFs¹⁰); increasing the protection of children from harmful, aggressive food marketing by strengthening regulatory measures; and removing UPF sponsorship from children's sport. People's choices are constrained by the environment in which they live, calling for effective approaches to address food systems.

Food based dietary guidelines (FBDG) should incorporate environmental considerations and characterize sustainable healthy dietary patterns in a culturally appropriate way that meet the population needs, including children. Sustainable, healthy dietary recommendations promote balanced consumption of plant-based foods and ASF. Successfully attaining healthy diets for all would reduce food-based greenhouse gas emissions (GHGE) by 30% compared to current intakes². In considering environmental impacts in addition to health, the Netherlands' FBDGs recommend a lower intake of ASFs predicted to result in GHGE reductions of 28-46%¹¹. In contrast, in many developing countries in sub-Saharan Africa and South Asia, ASFs are minimally consumed yet provide important sources of vitamins and minerals, especially for children. In the absence of alternative nutrient-dense foods, increasing ASF consumption in these chronically undernourished, vulnerable populations would benefit health. Emphasis should be on 'appropriate' ASF consumption, acknowledging widely varying ASF health and environmental impacts¹². Further attention on how and where foods are produced, and reducing food waste have important environmental impacts and merit mention in FBDGs. While further defining optimal child dietary patterns in FBDGs is an important step, globally,

child dietary intakes are far from meeting recommendations. Population dietary behaviour change warrants major global investment.

We have a collective global responsibility to act immediately to ensure that every child has access to adequate, appropriate nutrition. This includes a safe, equitable food system that optimises diet-related health for current and future child populations, and assures climate and environmental security into their adult lives. This will require the international community to work cooperatively, through responsible and transparent partnerships including declaring conflicts of interests. The UN Food System Summit (UNFSS) meets in New York, US in September, the Biodiversity COP15 meets in Kunming, China in October, and the Climate COP26 meets in Glasgow, Scotland in November in 2021. The UNFSS and COPs bring together world leaders, negotiators, governments, businesses and citizens to drive action. World leaders should commit to major global investments to achieve healthy, sustainable diets as a key measure to synergistically address human and environmental health, which is lower than the cost of inaction. In so doing, every child would have a chance to reach their full potential within planetary boundaries.

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