Organic Versus Conventional Food

Subjects: Others

Contributor: Vanessa Vigar, Stephen Myers, Christopher Oliver, Jacinta Arellano, Shelley Robinson, Carlo Leifert

A comprehensive systematic review of the health benefits of an organic vs. conventional diet has found that significant positive outcomes are shown in longitudinal studies where increased organic intake was associated with reduced incidence of infertility, birth defects, allergic sensitisation, otitis media, pre-eclampsia, metabolic syndrome, high BMI, and non-Hodgkin lymphoma. Few clinical trials have assessed direct improvements in health outcomes associated with organic food consumption, and the evidence in support from clinical trials is limited primarily to clear reductions in organophosphate metabolite excretion with an organic diet.

Keywords: organic ; diet ; health outcomes

1. Introduction

A comprehensive review has systematically assessed the evidence related to human health outcomes when an organic diet is consumed in comparison to its conventional counterpart, updated to January 2019 [1]. Clinical trials and observational research studies were included, with thirty-five papers meeting the criteria for inclusion in the review. Significant positive outcomes were seen in longitudinal studies where increased organic intake was associated with reduced incidence of infertility, birth defects, allergic sensitisation, otitis media, pre-eclampsia, metabolic syndrome, high BMI, and non-Hodgkin lymphoma. Clinical trial research on the other hand has been largely short-term and measured only surrogate health markers, with limited positive results. The current evidence base does not allow a definitive statement on the health benefits of organic dietary intake, however, a growing number of important findings are being reported from observational research linking demonstrable health benefits to organic food consumption.

Few clinical trials assessed direct improvements in health outcomes associated with organic food consumption, although pesticide excretion studies have consistently shown a reduction in urinary pesticide metabolites with an organic diet. The finding that organic food consumption substantially reduces urinary organophosphate (OP) levels is important information for consumers who would like to take a precautionary approach and minimise OP-pesticide exposure. Given the current knowledge on the toxicity of these chemicals, it seems possible that ongoing reduced exposure may translate to health benefits.

While findings from this systematic review showed significant positive outcomes from observational studies in several important health areas, the current evidence base does not allow a definitive statement on the long-term health benefits of organic dietary intake. Consumption of organic food is often tied to overall healthier dietary practices and lower levels of overweight and obesity, which are likely to be influential in the results of observational research.

2. Recommendations for Future Research

Single-food substitution studies have shown no benefits and should not be undertaken without substantive pre-clinical data. Additionally, surrogate markers, i.e., antioxidant levels and pesticide excretion, are insufficient to determine actual benefit to health and ideally should be coupled with measurements related to specific health outcomes. Unlike the current exposure studies which measure changes in days or weeks, longer-term health benefit studies are needed. Specifically, long-term whole-diet substitution studies, using certified organic interventions will provide the most reliable evidence to answer the question of whether an organic diet provides true measurable health benefits.

Additional research options may include further evaluation of biological data collected through previous large cohort studies, such as the Nutri-Net Santé study, and the MoBa biobank, to test hypotheses on organic diet and health.

References

1. Vigar, Vanessa; Myers, Stephen; Oliver, Christopher; Arellano, Jacinta; Robinson, Shelley; Leifert, Carlo; A Systematic Review of Organic Versus Conventional Food Consumption: Is There a Measurable Benefit on Human Health?. *Nutrients* **2020**, *12*, 1, 10.3390/nu12010007.
