The potential health effects of dietary phytoestrogens.

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Abstract
Phytoestrogens are plant-derived dietary compounds with structural similarity to 17-β-oestradiol (E2), the primary female sex hormone. This structural similarity to E2 enables phytoestrogens to cause (anti)oestrogenic effects by binding to the oestrogen receptors. The aim of the present review is to present a state-of-the-art overview of the potential health effects of dietary phytoestrogens. Various beneficial health effects have been ascribed to phytoestrogens, such as a lowered risk of menopausal symptoms like hot flushes and osteoporosis, lowered risks of cardiovascular disease, obesity, metabolic syndrome and type 2 diabetes, brain function disorders, breast cancer, prostate cancer, bowel cancer and other cancers. In contrast to these beneficial health claims, the (anti)oestrogenic properties of phytoestrogens have also raised concerns since they might act as endocrine disruptors, indicating a potential to cause adverse health effects. The literature overview presented in this paper illustrates that several potential health benefits of phytoestrogens have been reported but that, given the data on potential adverse health effects, the current evidence on these beneficial health effects is not so obvious that they clearly outweigh the possible health risks. Furthermore, the data currently available are not sufficient to support a more refined (semi) quantitative risk-benefit analysis. This implies that a definite conclusion on possible beneficial health effects of phytoestrogens cannot be made.

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PMID: 27723080 DOI: 10.1111/bph.13622
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