

# Phytoestrogens

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**Do they contribute to  
the primary prevention  
of breast cancer?**

by

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# Phytoestrogens

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What do we know  
today for certain ?

# Phytoestrogens

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- ◆ “ Soy phytoestrogens should be considered *natural selective estrogen receptor modulators* because they seem to be estrogen agonists for the cardiovascular system, bone, and brain while acting as antiestrogens for mammary gland and uterus.”

Clarkson TB,  
Menopause 2000; 7: 71-75

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- ◆ “ Of great interest to my colleagues and me is the possibility ( probability ? ) that the most important role for soy phytoestrogens in postmenopausal HRT *may not relate to their estrogen agonist effects but rather to their antiestrogen effects at the level of the breast and uterus.*”

Clarkson TB, Menopause, 2000; 7: 71-75

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- ◆ The favourable effects obtained with diets rich in phytoestrogens are not equivalent to the “in vitro” and “in vivo” effects of the administration of the pure compounds.

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- ◆ “One of the main differences between flavonoids and lignans on one hand and steroids on the other is that the steroids act mainly *via* receptors, but phytoestrogens do not to our present knowledge have any specific receptors in animal or man.”
- ◆ “*The anticancer effects seem to be mainly the results of interaction with other proteins than receptors.*”

Adlercreutz H,  
Proc Soc Exp Biol Med 1998; 217(3): 241-246

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- ◆ “ Effects vary according to the phytoestrogen studied, cell line, tissue, species, and response being evaluated.
- ◆ “ Overall, it is naive to assume that exposure to these compounds is always good; inappropriate or excessive exposure may be detrimental.”

Davis SR *et al.*

Recent Prog Horm Res 1999; 54:185-210

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- ◆ “ Soy supplementation is effective in preventing chemically induced breast cancer in rats.”
- ◆ “ Significant reduction in breast cancer risk among women with increased urinary excretion of soy phytoestrogens and/or metabolites.”
- ◆ “ Tofu consumption was inversely associated with breast cancer development among Asian Americans.”
- ◆ “ Soy intake among women in Singapore was inversely associated with breast cancer occurrence.”

Quoted by Clarkson TB,  
Menopause 2000; 7: 71-75



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- ◆ “ Isoflavonoids in plasma or urine are good biomarkers of the intake of soy products, although *their presence does not necessarily mean that they are the active components in breast cancer prevention.*”
- ◆ “ Urinary equol in Western or Australian populations serves as a biomarker for a diet likely to prevent breast cancer as a result of factors other than their content of isoflavones.”
- ◆ “ We believe that enterolactone in plasma or urine serves as a good biomarker for a diet that reduces the risk of breast cancer.”

Adlercreutz H, Baillière's Clinical Endocrinology and Metabolism - vol 12, 4, Dec 1998

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- ◆ “ It is, however, possible that the phytoestrogens measured in biological fluids serve as *biomarkers for a “healthy” diet* and are not themselves responsible, or not solely responsible, for the low incidence of chronic diseases and cancer in the Asian and other populations whose diet is vegetarian or semi-vegetarian.”

Adlercreutz H, Baillière's Clinical Endocrinology and Metabolism - vol 12, 4, Dec 1998

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- ◆ “ Our hypothesis trying to explain the possible preventive role of phytoestrogens with regard to Western diseases has been extended to include the *importance of an intact and normal intestinal microflora* as a mediator of the effects of phytoestrogens, particularly lignans, in the human organism.”

Adlercreutz H, Baillière's Clinical Endocrinology and Metabolism - vol 12, 4, Dec 1998

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- ◆ “ *The epidemiological evidence in favour of protection from breast cancer by phytoestrogens is based on foods rather than on concentrated isoflavone extracts.* Therefore, it is reasonable to recommend a soy food as part of a healthier diet, but not necessarily the isoflavone extracts. The preparation of the latter may result in the omission of critical soy components that have synergistic effects in combination with isoflavones.”

Barnes S, Baillière's Clinical  
Endocrinology and Metabolism - vol 12, 4, Dec 1998

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- ◆ “ It is concluded that *for cancer prevention we need an intact well-functioning gastrointestinal microflora and a good supply of plant-derived protective compounds* like vitamins, isoflavonoids, lignans, and maybe other types of flavonoids. This supply is ensured by consuming particularly soy (and rice; complex carbohydrates are important) and/or whole-grain products as well as various berries, seeds, vegetables, and fruits.”

Adlercreutz H,

Proc Soc Exp Biol Med 1998; 217(3): 241-246

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We cannot decrease  
human mortality below  
100%...

But ...

**We can do our best**

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**to compress morbidity,**

**adding more years to life**

**and**

**more life to the years**

**still to come !**