

## Phytoestrogen and Its Food Sources

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The major phytoestrogen groups are isoflavones, flavones, coumestans and [lignans](#). The former three are [flavonoids](#). Isoflavones are found in high concentration in soy bean and soy bean products (eg. [tofu](#)) where as lignans are mainly found in [flax seed](#).

Some studies indicate that phytoestrogens have health benefits including potential reduction in [breast cancer](#), [prostate cancer](#) and cardiovascular disease risks, possible protection against osteoporosis (bone loss) and menopausal symptoms. Besides, both flavonoid and lignan phytoestrogens have [antioxidant](#) activity.

Estrogen is available in medically formulated pills. However, dietary estrogen (phytoestrogen) can be also found in wide variety of food products (including herbs), even though the level varies depending on the source. Below is a short list of phytoestrogen food sources analyzed by researchers in Canada. The Canadian researchers analyzed 121 food samples, of which the food samples with the highest total phytoestrogen content are presented below. The food samples with the highest total phytoestrogen content were nuts and oil seeds followed by soy products.

Total phytoestrogen content presented below is the sum of isoflavones (genistein, daidzein, glycitein, formononetin), lignans (secoisolariciresinol, matairesinol, pinoresinol, lariciresinol), and coumestan (coumestrol).

Table 1. Foods high in phytoestrogen content.

Phytoestrogen sources	food	Phytoestrogen content (µg/100g)
<a href="#">Flax seed</a>		379380
<a href="#">Soy beans</a>		103920
<a href="#">Tofu</a>		27150.1
Soy yogurt		10275
Sesame seed		8008.1
Flax bread		7540
Multigrain bread		4798.7
Soy milk		2957.2
Hummus		993
Garlic		603.6
Mung bean sprouts		495.1
Dried apricots		444.5
Alfalfa sprouts		441.4
Dried dates		329.5
Sunflower seed		216
Chestnuts		210.2
Olive oil		180.7
Almonds		131.1
Green bean		105.8
Peanuts		34.5
Onion		32
<a href="#">Blueberry</a>		17.5
Corn		9

Coffee, regular	6.3
<a href="#">Watermelon</a>	2.9
Milk, cow	1.2

Table 2. Total phytoestrogen and lignan content in vegetables, fruits, nuts and drinks.

Food items	Lignan content ( $\mu\text{g}/100\text{g}$ )	Total phytoestrogen ( $\mu\text{g}/100\text{g}$ )
<b>Vegetables</b>		
Soy bean sprouts	2.2	789.6
Garlic	583.2	603.6
Winter squash	113.3	113.7
Green beans	66.8	105.8
Collards	97.8	101.3
Broccoli	93.9	94.1
Cabbage	79.1	80
<b>Fruits</b>		
Dried prunes	177.5	183.5
Peaches	61.8	64.5
Strawberry	48.9	51.6
Raspberry	37.7	47.6
Watermelon	2.9	2.9
<b>Nuts and other legume seeds</b>		
Pistachios	198.9	382.5
Chestnuts	186.6	210.2
Walnuts	85.7	139.5
Cashews	99.4	121.9
Hazel nuts	77.1	107.5
Lentils	26.6	36.5
<b>Beverages</b>		
Wine, red	37.3	53.9
Tea, green	12	13
Wine, white	8	12.7
Tea, black	8.1	8.9
Coffee, decaf	4.8	5.5
Beer	1.1	2.7
<b>Other</b>		
Black bean souce	10.5	5330.3
Black licorice	415.1	862.7
Bread, rye	142.9	146.3

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Phytoestrogen data source:

Thompson, L. U., Boucher, B. A., Lui, Z., Cotterchio, M., and Kreiger, N. 2006. Phytoestrogen content of foods consumed in Canada, including isoflavones, lignans and coumestan. *Nutrition and Cancer*, 54(2), 184-201.

Additional references:

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Ganry O. Phytoestrogens and prostate cancer risk. *Prev Med*. 2005 Jul;41(1):1-6.

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