



Effect of Soy Beans on Women Health

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Abstract

Soybean contains all amino acid essential to human beings and has a positive effect on health. It is widely available in India and many studies reported the positive effects of soybeans. Ingestion of soybeans may help to prevent and control chronic diseases such as diabetes mellitus, cancer and improve the quality of life in postmenopausal women.

Keywords: Soybeans; Woman Health; Diabetes; Post-Menopausal; Cholesterol

"Soy by itself is not a magic food. But rather it is an example of the different kinds of food that together in a complete diet can have a positive effect on health".

- Christine Lewis

Introduction

Nutrients play an important role in maintaining our health. Nature has provided us with wide range of plants which provide quality nutrient to the betterment of our health and soy bean is one among them.

The soybean, a hearty and versatile legume, contains a wealth of beneficial ingredients. It is a source of complete protein and also rich in other essential nutrients which has positive effect on health. Intake of soybeans prevents and control chronic diseases like Diabetes mellitus, Cancer and increased serum cholesterol level.

Diabetes mellitus and soy beans

Diabetes mellitus is one of the leading chronic diseases in India and the treatment is mainly based on diet, exercise and medication. Diabetes patients should receive 20 - 25% of their calorie from protein and they are recommended to take diet with low glycemic index. Soy beans are described as having low glycemic index. It also contains soluble fibers which help to control blood glucose in both healthy and diabetes patients.

Menopause and soy beans

Menopause is the cessation of ovarian function resulting from depletion of ovarian follicle. It is the major physiologic change for

middle aged women and they experience hot flushes, night sweats, fatigue, depression, headache, palpitation and anxiety. Hot flush occurs because of the decreased amount of estrogen which in turn affects the temperature regulating center in the hypothalamus. Hot flush in menopausal women is medically treated with hormone replacement therapy. But studies have reported that soy beans can be used as a supplement to reduce menopausal symptoms.

Soybeans naturally produce estrogen like molecules called isoflavones in response to environmental stress to the Soy plant during cultivation. These are known to have weak estrogenic activity in biologic system. Isoflavones act as a phytoestrogen which can activate mammalian estrogen receptors.

The phytoestrogen has a dual effect: antiestrogenic effect and estrogenic effect. When estrogen is high, isoflavone exerts an antiestrogenic effect by occupying cell receptor site for estrogen, thus preventing its potential tumor promoting effect. When estrogen is low soy phytoestrogen has the ability to mimic endogenous estrogen and alleviate menopausal symptoms. Studies have reported that ingestion of soy beans reduce post-menopausal hot flushes. It also improves bone health by preventing bone resorption and enhancing bone formation among postmenopausal women.

Blood cholesterol and Soy beans

Increased serum cholesterol is a major risk factor for coronary heart disease and soy bean has a positive effect on control of blood cholesterol. Soybean contains saponin, which lowers cholesterol either by blocking cholesterol absorption or by excreting more cho-

lesterol from the body. Phytosterol, another component of soybean compete with dietary cholesterol for absorption by the intestine resulting in lower blood cholesterol level.

Mammalian estrogen has a positive effect on cholesterol control in women. It decreases the low density lipoprotein level and increases the high density lipoprotein. Postmenopausal women are more prone to develop coronary heart disease due to decrease in estrogen level. The estrogenic effect stimulated by ingestion of soy isoflavones in postmenopausal women reduces the blood cholesterol level.

Cancer and soybeans

Cancer is a disease process that begins when an abnormal cell is transformed by genetic mutation of the cellular DNA. Soybeans contain certain phytochemicals which has anti-cancerous effect.

Protease inhibitor

Protease inhibitor, one of the phytochemicals present in the soybean prevents the activation of specific genes that cause cancer. It also has protective effect against the harmful effect of radiation and free radicals which can attack DNA and cause mutation.

Phytate

Soybeans contain phytate which is the storage form of mineral phosphorus. It binds with calcium and iron in the intestine. Iron generates free radicals through the process called oxidation. These free radicals cause mutation of the cells. Phytate acts as an antioxidant to destroy the free radicals thus preventing mutation of DNA.

Phytosterols

Phytosterols, equivalent to cholesterol in the plant kingdom is not absorbed in the human intestine. These are transported directly to the colon where they inhibit cancer growth by protecting against the harmful effect of bile acid.

Isoflavone genistein

Cancer cells rely on blood flow to receive oxygen and nutrients for their expansion and stimulate the growth of new blood vessels through a process called angiogenesis. Isoflavone genistein acts as an antiangiogenic agent thus interfering with tumor growth [1-4].

Conclusion

Soybean contains all amino acid essential to human beings and has a positive effect on health. It is widely available in India and many studies reported the positive effects of soybeans. Ingestion of soybeans may help to prevent and control chronic diseases such as diabetes mellitus, cancer and improve the quality of life in postmenopausal women.

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