



Dietary Supplements in Menopause

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Menopause marks the culmination of several years of perimenopausal changes during which hormones secreted by the ovaries (estrogen and progesterone) gradually decline. Estrogens play important role not only in reproductive system but also in functioning of cardiovascular, central nervous, immune and skeletal systems. Hence fall in estrogens after menopause leads to detrimental effects. Peri- and menopausal symptoms vary considerably from person to person and may include body changes such as hot flashes, night sweats, reduced libido, forgetfulness, loss of bladder control and frequent urination.

Menopausal women are also at relatively high risk for memory loss, hypertension and diabetes. A decade ago, the standard treatment for these problems was long-term hormone replacement therapy (HRT). However HRT is associated with increased risk of breast cancer, endometrial cancer, ovarian cancer, gall stones and venous thromboembolism (1). To avoid such risk it is imperative to seek alternatives. Certain naturally occurring edible compounds found in plants have been shown to have some beneficial effects in relieving symptoms of menopause similar to HRT but without the appreciable adverse effects. Substances that have potential to afford such protection include pomegranate, black cohosh, red clover, soya, green tea cruciferous like broccoli, dong quai and lycopene.

Pomegranate (*Punica granatum*)

Pomegranate (*Punica granatum*) is native to a region ranging from Iran to the Himalayas. It later spread to the Mediterranean area and now grows in most of the United States. Pomegranate is an essential component in the pomological approach in management of menopausal symptoms. Pomology, a science of fruit, was founded in 2005 by a team of renowned nutritionists and athletic performance experts who saw the need for nutraceuticals that combined the benefits of the latest medical research

with the long-term building blocks of good health found in all-natural antioxidants.

Pomegranates have been used medicinally for thousands of years dating back to ancient Babylonia. Pomegranates have anti-inflammatory effects and powerful antioxidant potential which protect the body from free-radical damage. Its juice and peels possess potent antioxidant properties, while juice, peel and oil are all weakly estrogenic and heuristically of interest for the treatment of menopausal symptoms and sequelae. The use of juice, peel and oil have also been shown to possess anticancer activities, including interference with tumor cell proliferation, cell cycle, invasion and angiogenesis. These may be associated with plant based anti-inflammatory effects. The phytochemistry and pharmacological actions of all *Punica granatum* components suggest a wide range of clinical applications for the treatment and prevention of cancer, as well as other diseases where chronic inflammation is believed to play an essential etiologic role (2).

Black cohosh (*Cimicifuga racemosa*)

Black cohosh also known as snakeroot, bugbane or rattle weed, is native to eastern North America, and has historically been used by Native Americans for a variety of female conditions. *Cimicifuga racemosa* contains a variety of phytoestrogens. The German Commission E has approved *Cimicifuga racemosa* for the treatment of menopause symptoms, premenstrual syndrome and dysmenorrhea.

Cimicifuga racemosa reduces hot flashes (3,4). Studies indicate therapeutic effects of the *Cimicifuga racemosa* preparation on climacteric complaints, bone metabolism and endometrium as equipotent in comparison to 0.6 mg conjugated estrogens (CE) per day. It is proposed that *Cimicifuga racemosa* contains substances with SERM activity, i.e. with desired effects in the brain/hypothalamus, in the bone and in the vagina, but without

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exerting uterotrophic effects (5).

Safety reviews suggest that black cohosh is well tolerated and that adverse events are rare when used appropriately (6).

Red Clover (*Trifolium pretense*)

Red clover herb is a native plant of Europe, central Asia, and northern Africa. The flower head is the part of the plant used in herbal remedies. Red clover supplements are used to treat symptoms of menopause because of their high content of the mildly estrogenic isoflavones daidzein, genistein, formononetin, and biochanin A. Red clover also possesses some coumarin-like activity.

Red clover extract acts on the mu-opiate receptor and the delta-opiate receptor. The opioid system has an essential role in regulating temperature, mood, and hormonal levels and this may explain in part the beneficial effect of red clover in reducing the menopausal symptoms.

Red clover isoflavone supplementation in postmenopausal women has been shown to significantly decrease menopausal symptoms with a positive effect on vaginal cytology and triglyceride levels (7).

In vitro estrogenic activities of red clover revealed that red clover could be attractive for the development as herbal dietary supplements to alleviate menopause-associated symptoms (8).

Soya

Soya is another important contributor of the isoflavones beneficial for perimenopausal symptoms (9). After menopause there occurs an increase in total cholesterol, low density lipoproteins, triglycerides and reduction in high density lipoproteins and these are important markers of cardiovascular diseases (10). Soy foods improve menopausal symptoms and have positive health effects on plasma lipid concentrations and may reduce heart disease (11). Soya are also often used for treating the climacteric syndrome (12). Similarly Oats show immense favourable potential in correcting lipid levels (13) in menopausal women.

Green Tea

Green tea is emerging as one of the most important botanical supplements in the dietary supplement industry. Green tea is one of the oldest health remedies known to man and its beneficial effects were documented thousands of years ago in traditional Chinese medicine. In fact, population studies indicate that green tea consumption in eastern Asia has been responsible for

multiple health benefits, including anti-cancer effects, weight control and the promotion of cardiovascular health, but such claims are not allowed in the United States.

In some nations, green tea is a staple in the diet. Japanese and Chinese people may consume more than 10 cups of green tea per day as a refreshing drink. So important is the research on green tea that in Japan it is used as a disease preventive. It has been accepted by the Japanese Government as playing a specific role in the potential prevention of cancer. In contrast, in Western society the most popular beverage is coffee, but coffee does not present the versatile and potent health benefits that have been associated with green tea consumption.

The principal natural substance that provides much of its health benefit is a compound with a complicated name, *epi-gallocatechin gallate*, known as EGCG. There are other ingredients within green tea that have both stimulatory and relaxing effects on the body. For example, the substance L-theanine has an interesting and potential "calming effect" on the body, and it has been well applied in the management of unpleasant symptoms associated with the menopause.

Green tea contains polyphenols which are powerful antioxidants which protect the cells from a natural process called "oxidative stress". Although oxygen is vital for life, oxidation produces free radicals that damage human cells. This damaging, physiological process works against the immune system and is also responsible for ageing. Antioxidants help our body eliminate these harmful free radicals. Women experiencing hot flashes associated with menopause may find that drinking green tea morning and night may help reduce their frequency. Even extract of green tea has shown effective inhibition of tumour promotion (14).

DIM (diindolylmethane)

DIM is a dietary indole found in cruciferous vegetables: broccoli, cauliflower, cabbage and Brussels sprouts. Unlike other phytonutrients such as soy isoflavones, DIM has no hormonal properties in itself. DIM helps to restore oestrogen balance during pre-menopause. DIM stimulates more efficient oestrogen metabolism. Supplementing the diet with DIM and eating cruciferous vegetables increases the specific aerobic metabolism for oestrogen, multiplying the chance for oestrogen to be broken down into its beneficial or "good" oestrogen metabolites. These "good" oestrogen metabolites are



known as the 2-hydroxy oestrogen's. Many of the benefits that are attributed to oestrogen, which include its ability to protect the heart and brain with its antioxidant activity, are now known to come from these "good" metabolites. Brassica vegetable consumption is a potentially effective and acceptable dietary strategy to prevent breast cancer (15).

Dong quai

Dong quai are reported to alleviate menstrual disorders (dysmenorrhea, PMS, irregular menstruation) and menopausal symptoms like fatigue and headache. Dong quai stimulated the growth of MCF-7 cells, possibly dependent of weak estrogen-agonistic activity, and augmented the BT-20 cell proliferation independent of estrogen receptor-mediated pathway. Studies provide data regarding the estrogen-like activity of dong quai, which might assist in decision making on herbal therapy use by women at risk for both estrogen-sensitive and insensitive breast cancer.(16) Dong quai and ginseng stimulate the growth of MCF-7 cells independent of estrogenic activity (17).

Lycopene

Antioxidative stress ,usually associated with the risk of osteoporosis, is associated with the risk of osteoporosis, and can be reduced by certain dietary antioxidants like lycopene. The dietary antioxidant lycopene reduces oxidative stress and the levels of bone turnover markers in postmenopausal women, and may be beneficial in reducing the risk of osteoporosis (18).

Conclusion: For most women, the symptoms of menopause last for a relatively short time. However, a woman's level of estrogen naturally remains low after menopause. This can affect many parts of the body including the reproductive system, heart, bones and changes of menopause will be lifelong. But eating right food with good intake of fiber, spinach, kale, cabbage, broccoli, tomatoes, beans, lentils and citrus fruits will be of immense value. One can avoid of fatty diet and black coffee. All the excess sugars, even honey should be avoided. Vitamins (B2,B6,B12 and folic acid) supplementation and Chinese tea should be encouraged. Regular weight-bearing exercise, like walking, may also help to prevent osteoporosis.

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