

Role of soy in menopausal health reported

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Soy has recently been reviewed and supported for introduction into general medical practice as a treatment for distressing vasomotor symptoms of menopause, such as hot flashes, but its use in other medical areas, such as heart health, requires further research, according to a new report reviewing the risks and benefits of soy protein, isoflavones and metabolites in menopausal health from The North American Menopause Society (NAMS)/Wulf H. Utian Translational Science Symposium, published in the July Menopause, the peer-reviewed NAMS journal.

"Although a significant amount of scientific research about soy and soy isoflavones exists, the adoption of soy isoflavones into the care of women in menopause has to date been recommended mainly by physicians and health care practitioners involved in [integrative medicine](#). We believed that facilitating a robust review of the current scientific evidence about the benefits and risks of soy could yield a document useful to physicians to help them make decisions about soy use with their patients, particularly those in menopause," said Belinda H. Jenks, Ph.D., director of Scientific Affairs & Nutrition Education at Pharmavite LLC. Otsuka Pharmaceutical Co., Ltd., Pharmavite LLC and the Allmen Foundation supported the development of the symposium and report via an unrestricted educational grant.

The report focuses on a review of soy's mechanism of action and processing within the body (bioavailability and pharmacokinetics), as well as on several therapeutic areas, concluding that use of soy isoflavones for hot flashes is reasonable and that soy food consumption is associated with lower risk of breast and endometrial cancer. The

report also recommended more research to further characterize the effects of soy isoflavones on bone and cardiovascular health as well as cognition, which involves thinking, reasoning, or remembering.

The report, approved by the NAMS Board of Trustees, was authored by 22 clinicians and well-respected scientific research experts in women's health and botanicals who participated in the symposium in October 2010. They examined basic and clinical research findings from more than two hundred key published controlled trials as well as laboratory studies of the soy isoflavones genistein and daidzein and the daidzein metabolite, S-equol. A supplement containing Natural S-equol for the management of menopausal symptoms is in development by Pharmavite LLC, the makers of Nature Made® vitamins and minerals and a subsidiary of Otsuka Pharmaceutical Co., Ltd.

About Soy Isoflavones and S-Equol

Soy isoflavones are compounds that can bind to estrogen receptors. The isoflavones genistein and daidzein are primarily found in whole soybeans and soy products. S-equol [7-hydroxy-3-(4'-hydroxyphenyl)-chroman] is a compound resulting -- when certain bacteria are present in the digestive tract -- from the metabolism, or conversion, of daidzein.

S-equol binds to the same estrogen receptors as naturally occurring, endogenous estrogen, but with a stronger affinity for the estrogen beta receptor. On binding to these receptors, S-equol mimics some, but not all, activities of endogenous estrogen. Because of these actions, it has been proposed that S-equol alleviates some of the symptoms caused by diminished estrogen production during menopause.

However, not everyone can produce S-equol after soy consumption, as the production depends on the types of bacteria present in the large intestine and may be influenced by the amount of soy consumed. About

50 percent of Asians and 20 to 30 percent of North Americans and Europeans, who in general consume less soy than Asians, have the ability to produce high levels of S-equol. Controlled clinical trials have documented that a supplement containing Natural S-equol reduces the frequency of hot flashes as well as muscle discomfort associated with menopause, in women both in Japan and the United States.

Soy Isoflavone Bioavailability and Pharmacokinetics

Not all soy foods or supplements contain the same amount or percentage of the three primary isoflavones genistein, daidzein or glycitein. Soyfoods and supplements can vary in soy isoflavone amounts and forms which, in turn, may impact the way the body will metabolize the isoflavones and subsequently can impact their effectiveness in health care, the report states.

For example, the rates of absorption in the body of the isoflavones daidzein and genistein depend on their form. As glycosides, which have an attached sugar molecule, both isoflavones can reach a peak plasma concentration in four to 10 hours. However, the human body cannot use this form, and during digestion the sugar is removed. This resulting aglycone form can be absorbed faster. When consumed as aglycosides, both daidzein and genistein can achieve peak concentrations in just one hour, or up to three hours if eaten with a meal. When the daidzein metabolite S-equol is consumed, its peak plasma rate rapidly occurs in just one to two hours.

The time needed for the total plasma concentration of either isoflavone to decrease by half typically is six to 12 hours and for S-equol, six to eight hours. However, genistein takes significantly longer to leave the body than daidzein. S-equol is excreted almost exclusively in urine, with 75 percent excreted within 12 hours after consumption.

Soy-isoflavones Reasonable for Menopausal Symptoms

The NAMS report advises that in postmenopausal women with distressing [vasomotor symptoms](#), such as hot flashes, initial treatment with soy isoflavones is reasonable because of demonstrated modest effectiveness in early post-menopausal women who have at least four hot flashes daily. The report recommends a starting dose of 50 milligrams (mg) or more daily for at least 12 weeks. If a woman responds, the treatment can continue with monitoring for side effects, but for women who do not respond after 12 weeks, other treatment options should be discussed, the authors suggest.

However, the report points to increasing evidence that women whose gut bacteria have little or no capacity to covert daidzein to S-equol may continue to suffer from severe hot flashes despite daidzein supplementation. The report suggests that dietary supplements providing higher proportions of genistein or S-equol may provide more relief of menopausal symptoms than the modestly effective relief recognized by soy isoflavones alone. Also, the report recommends a supplement containing natural S-equol may be effective for some women who do not have the capacity to produce S-equol, which occurs only when certain bacteria are present in the digestive tract.

The authors' menopause symptom treatment recommendations were based on a review of 14 studies that included data on soy isoflavone content and dosing, at least 12 weeks of treatment, women who experienced natural (not induced) [menopause](#) and the women's average age, their prevalence of [hot flashes](#) at study start and their magnitude of symptom improvement.

Potential Protection for Breast and Endometrial

Cancer

Soy foods, in populations that typically consume them, appear to protect against breast cancer. Therefore, the NAMS report advises that moderate life-long dietary soy consumption is recommended as part of a healthy lifestyle. The best evidence indicates that there are no adverse effects from this diet and it has potential for prevention of breast and endometrial cancer, the report states.

However, the authors note that specific recommendations regarding soy food or soy isoflavone consumption by breast cancer survivors cannot be made at this time, although such studies in humans indicate either no effect or a protective effect, but in contrast laboratory and rodent studies indicate a potential for risk.

The authors recommend studies of endometrial risk should focus on long-term, postmenopausal exposures to soy. The authors' breast and endometrial cancer recommendations were based on a review of at least 18 studies.

Further Research about Soy Effects on Women's Health

The NAMS report identifies several areas for further research on soy in midlife women. Specifically, the authors call for more studies that compare outcomes among women whose intestinal bacteria have the ability to convert daidzein to S-equol with those that do not to determine if equol producers derive greater benefits from soy supplementation. Also, larger studies are needed in younger postmenopausal women, as is more research to understand soy isoflavone supplement use in women. The authors also propose studies on the relationships of other dietary components as well as prescription and over-the-counter medications on

soy isoflavones, consumed as a part of the diet or as a supplement, and S-equol production. And finally, the authors request greater standardization and documentation of clinical trial data regarding [soy](#).

More information: The NAMS Report is at www.menopause.org/PSisoflavones11.pdf

Provided by Porter Novelli

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