Soy and Men's Health

Much of the research involving soyfoods published over the past 20 years, especially the clinical research (human intervention studies), has focused on the health of postmenopausal women. This focus is understandable because soyfoods are uniquely rich sources of isoflavones. Soybean isoflavones are commonly referred to as phytoestrogens (plant estrogens). Clinical research indicates that isoflavones alleviate bothersome menopausal symptoms such as hot flashes [1] and may also reduce risk of heart disease [2] and improve skin health [3]. So it's understandable women are attracted to soyfoods.

There is also reason for men to consume soy, however. For example, soy protein is a high quality protein [4] and directly lowers blood cholesterol levels [5]. Also, soyfoods provide healthy fat as they are one of the few good sources of both essential fatty acids, the omega-6 fatty acid, linolenic acid, and the omega-3 fatty acid, alpha-linolenic acid [6]. In addition, population studies show higher soyfood intake reduces risk of developing prostate cancer. A meta-analysis of Asian epidemiologic studies found that men consuming the most soy were nearly 50 percent less likely to have cancer of the prostate in comparison to men consuming little soy [7]. Some studies suggest soy may even benefit prostate cancer patients [8, 9]. Most evidence indicates it is the isoflavones in soybeans that are responsible for the prostate benefits [10].

Unfortunately, despite the nutritional and health attributes of soyfoods, some men may be reluctant to consume soy because of concerns that the isoflavones in these foods may cause feminizing effects. However, the clinical trial evidence clearly shows this fear is unwarranted.

Those concerned about feminizing effects often fail to appreciate that isoflavones are different from the hormone estrogen [11]. That these two molecules differ is not at all surprising because even small differences in chemical structure can lead to important differences in physiological effects. For example, cholesterol, which is found in animal foods, and phytosterols, which are found in plant foods. These two compounds have almost identical chemical structures (they are much more similar than estrogen and isoflavones) and yet the former raises blood cholesterol and the latter lowers it [12].

There are many examples in the scientific literature showing that in human studies, isoflavones have effects that differ from estrogen. In fact, in some cases, isoflavones have effects opposite to those of estrogen. Usually, articles claiming soy has feminizing effects cite the results of rodent studies as support. However, not only are the rodents in these studies typically fed more soy than humans could possibly consume, they aren't

particularly good models for studying soyfoods because they metabolize isoflavones differently than humans [13, 14]. In contrast to animal studies, the clinical research shows neither soy protein nor isoflavones lower testosterone levels.

A meta-analysis of the clinical research published in 2009 found overwhelmingly that soy does not affect circulating levels of total testosterone or free (unbound) testosterone, the biologically available form [15]. Not surprisingly, the authors of this analysis concluded that "the results of this meta-analysis suggest that neither soy foods nor isoflavone supplements alter measures of bioavailable testosterone concentrations in men." Research published subsequent to this meta-analysis concurs with these findings. In addition, a comprehensive review published in 2010 concluded that the clinical research shows soy does not affect estrogen levels in men [16]. Interestingly, older men actually produce more estrogen than older women.

Finally, three intervention studies have found that soy does not affect sperm or semen in healthy men (see reference 16 for a description of the third study) [16-18]. One study is particularly notable because it intervened with very large amounts of isoflavones. Furthermore, Italian researchers, based on their experience in treating a patient, actually suggested that isoflavones might be a treatment for low sperm count [19].

In conclusion, there are ample reasons for men to consume soyfoods. They are nutritious, help to reduce risk of chronic disease and do not produce feminizing effects.

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