Male fertility and soy-containing foods, beverages, and supplements have been a subject of current and past research in animals and humans. Some study results might raise questions about inclusion of foods and beverages that contain bioactive isoflavones in diets; but, soy isoflavones, though they have a chemical structure similar to estrogen, do not act exactly like estrogens in humans and may in some cases actually function as anti-estrogens, inhibiting the effects of estrogen. In interpreting the study results, the reader should first understand what measures infertility, were all factors that affect fertility considered, what was the level of isoflavone consumption and intake of soy-based foods, and were animals or humans studied.

- The American Society for Reproductive Medicine recognizes that male fertility and sperm quality is measured by sperm count, shape, motility, and semen volume. Though sperm concentration is a measurement often reported in studies, it is not recognized as an indication of male fertility. When assessing research on men’s reproductive health, it is important that studies have controlled for consumption of alcohol, medication use, smoking, and overweight/obesity, as these factors are proven to negatively impact sperm quality.

- Studies of men consuming soy-based foods of low or high isoflavone content and soy supplements (40mg) did not find any adverse effect on semen volume, pH, sperm motility, shape, or concentration compared to men consuming other protein foods. Although a 2008 observational study by Chavarro spurred speculation of soy-based foods having a negative impact on sperm concentration, the author actually concluded that soyfood and isoflavone intakes were unrelated to total sperm count, semen volume, sperm motility, and sperm shape. Researchers did note a trend of sperm concentration being associated with men being overweight/obese – factors known to impact sperm quality.

- No significant effects of soy protein or isoflavone intake was shown on testosterone levels, sex hormone-binding globulin (SHBG), free testosterone, or free androgen index when 32 studies were examined in a 2010 meta-analysis. A 2013 study with a small sample size did find a partial blunt in serum testosterone, but there were no signs of pro-estrogenic or anti-anabolic

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effects in men fed soy protein for 14 days during resistance training. A 2007 study\(^8\) with a larger sample size of men consuming soy protein for 12 weeks during resistance training, found no effects of soy isoflavone on testosterone, sex hormone-binding globulin (SHBG), or other measures of sex hormones in men.

- Even early in life, both short- and long-term studies have concluded that soy protein infant formulas do not exert any estrogenic effects on prostate, testicular, or breast bud volumes, or reproductive organs studied.\(^9,10\)

- Older rodent studies suggesting that isoflavones increase the risk of erectile dysfunction are not applicable to men, since men breakdown isoflavones differently than rodents and some studies gave excessively high amounts of isoflavones to animals.\(^11\) The use of animal models for the purpose of predicting human risks has been questioned.\(^12,13\) Furthermore, various fertility problems seen in some animals but not humans are believed to be due to differences between humans and non-humans in the way isoflavones are metabolized.\(^14,15,16\)

- Consuming dairy and processed meat appears to be more frequently associated with lower semen quality, when compared to vegetable and legume consumption.\(^17,18\) Two 2013 studies suggest that sperm counts drop and sperm shape changes as saturated fat in the diet increases\(^19,20\) and levels of serum total cholesterol, free cholesterol, and phospholipids climb.\(^21\)

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\(^11\) Messina M. Soybean isoflavone exposure does not have feminizing effects on men: a critical examination of the clinical evidence. Fertil Steril. 2010 May 1;93(7):2095-104.


