

“SOY INTAKE AND BREAST CANCER”

E. Virgili ¹, L. Calza ², F. Calcagnoli³, M. Gardarelli⁴, R. Emili ⁵

¹*Outpatient Nutritionist, Porto Sant'Elpidio, Italy*

²*Outpatient Nutritionist, Fermo, Italy*

³*Outpatient, Nutritionist, Monte Urano, Italy*

⁴*Outpatient Doctor, Ancona, Italy*

⁵*Department of Oncology, Urbino Hospital S. Maria, Italy*

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Recently, research and clinical practice discuss on the role of soy, particularly of soy isoflavones, especially in relation to breast cancer risk. Isoflavones are a class of phytoestrogens; plant compounds structurally similar to estradiol-17 β and selective estrogen receptor modulators. While the use of isoflavones seems to be successful to alleviate menopausal disorders and as an alternative to hormone replacement therapy, studies on cancer-related properties are still contradictory. On one hand, isoflavones seem to have estrogen-independent antitumor effects through activation of the immune system and antineoplastic properties, such as inhibition of enzymes involved in DNA replication, metastatic progression and signal transduction. Many studies indicate that the onset of breast cancer is significantly lower in Asian populations where soybean represents a daily diet constituent. Other works claim the not-estrogenic effect of soy isoflavones, declared safe to use also in patients with risk of relapse. On the contrary, growing literature is showing that frequent consumption of soy isoflavones positively correlates with breast cancer incidence, and that soy isoflavones interfere with antineoplastic agents, like tamoxifen.

It is worth to note that the difficult quantity- and quality-based standardization of isoflavonoids in soybean and its derivatives might explain the confounding and not replicable results. Moreover, we should consider the individual intestinal microbiota and, in particular, the "estraboloma"- the set of intestinal microbes' genes able to produce enzymes, like beta-glucuronidase, that transform estrogens into active estradiol. If there is intestinal dysbiosis, beta-glucuronidase activity can be altered, compromising free/conjugated estradiol homeostasis and all physiological estrogen-receptor-binding dependent processes. Lastly, suggested antineoplastic properties of soy in Asian women may be due to its consumption timing, since childhood and daily, maybe also together with other bioactive nutrients, like fish-oil and spices; thus might have an action on the microbiota selecting species with reduced glucuronidase activity.