

**1469 Isoflavone Exposure Has No Effect on Breast Cell Proliferation or Apoptosis in Healthy Women or Breast Cancer Patients**

M. Messina², A. Shao³ and J. C. Griffiths¹. ¹*Council for Responsible Nutrition, Washington, DC*, ²*Nutrition Matters, Inc., Port Townsend, WA* and ³*Herbalife, Torrance, CA*.

Soyfoods are uniquely-rich dietary sources of isoflavones classified as both phytoestrogens and selective estrogen receptor modulators (SERMs). The impact of isoflavone intake on breast cancer has been the subject of intense debate. Exposure to isoflavones in childhood and/or adolescence is hypothesized to make breast cells more resistant to transformation into cancer cells. However, concern exists that the phytoestrogenic properties of isoflavones may worsen the prognosis of breast cancer patients and increase the likelihood that high-risk women will develop breast cancer. No clinical trials have evaluated the impact of isoflavone exposure on breast cancer recurrence or mortality but several have evaluated effects on breast cell proliferation and/or apoptosis. Immunohistochemical increases in proliferation as measured by changes in Ki67 and/or decreases in apoptosis are viewed as adversely affecting breast cancer prognosis. Six studies were identified (based on a PubMed search using key words: clinical, isoflavones, soy, breast cancer; and references within relevant papers and that came to the authors' attention) in which proliferation and/or apoptosis were measured in response to isoflavone exposure. The intervention period ranged from approximately 2 weeks to one year, participant number from 18 to 104 and isoflavone dose (expressed in aglycone equivalent weight) from 36 to 235 mg/d. One study involved healthy women, one involved high-risk women, three involved breast cancer patients and one involved a mix of healthy women and breast cancer patients. None of the six trials found that at study termination proliferation differed between the placebo and isoflavone groups nor was apoptosis affected in the four trials in which this endpoint was assessed. In conclusion, although high-dose exposure may exert subtle estrogen-like effects on breast tissue, there is no change in proliferation and apoptosis. Therefore, the published clinical data are supportive of the safety of isoflavone exposure.