

## Plasma isoflavones in Malaysian men according to vegetarianism and by age

### ABSTRACT

Epidemiological studies indicate lower prevalences of breast and prostate cancers and cardiovascular disease in Southeast Asia where vegetarianism is popular and diets are traditionally high in phytoestrogens. This study assessed plasma isoflavones in vegetarian and non-vegetarian Malaysian men according to age. Daidzein, genistein, equol (a daidzein metabolite), formononetin, biochanin A, estrone, estradiol and testosterone were measured by validated liquid chromatography tandem mass spectrometry (LCMSMS). Plasma isoflavone and sex hormone concentrations were measured in 225 subjects according to age (18-34, 35-44 and 45-67 years old). In all age groups, vegetarians had a higher concentration of circulating isoflavones compared with non-vegetarians especially in the 45-67 year age group where all isoflavones except equol, were significantly higher in vegetarians compared with omnivores. By contrast, the 18-34 year group had a significantly higher concentration of daidzein in vegetarians and significantly higher testosterone and estrone concentrations compared with non-vegetarians. In this age group there were weak correlations between estrone, estradiol and testosterone with some of the isoflavones. This human study provides the first Malaysian data for the phytoestrogen status of vegetarian and nonvegetarian men.

**Keyword:** Isoflavones; Vegetarian; Sex-hormones; LCMSMS; Malaysians