

Effects of soy protein on bone mineral content and bone mineral density in growing male rats.

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Soybeans are a rich source of the isoflavones genistein and daidzein. Soy isoflavones have both weak estrogenic and antiestrogenic effects and are structurally similar to tamoxifen, an agent that acts similarly to estrogen on bone in reducing postmenopausal bone loss.

The purpose of this study was to determine to which differences in the source of protein (soy vs casein) and of isoflavones in soy protein are responsible for differential effects of bone mineral density.

Thirty 21-d-old Sprague-Dawley young male rats were divided into 3 groups: control group fed a casein-based diet, soy protein group fed soy protein concentrate with totally reduced isoflavones content , and soy isolated group with higher isoflavone content than normal. The spine and femur bone mineral density and bone mineral content will be measured using Dual Energy X-ray Absorptiometry. The soy isolated group had significantly greater total bone mineral density/weight, spine bone mineral density/weight, and femoral bone mineral density (in g/cm²) than the control and soy protein concentrate group. The soy protein concentrate group had significantly greater total bone mineral density/weight and total bone mineral content/weight than the control group.

The results suggest that exposure to these soy or its isoflavones early in life may have bone health benefits.