Impact of flaxseed and soy nuts as dietary supplements on lipid profile, insulin sensitivity and GLUT4 expression in ovariectomized rats

Luciana Dresano, Alexandre Lehmen, PhD, Gabriela Teló, Ariel Silveira, Melissa M. MARKS, Ubiratan F. Machado, Beatriz D. Schaan

Published on the web 28 May 2018.
Received February 24, 2018.


ABSTRACT

We assessed the effects of a diet with flaxseed or soy nuts versus estradiol on lipid profile, insulin sensitivity, and GLUT4 expression in ovariectomized female rats. Forty-four Wistar female rats (26 days old) underwent ovariectomy were divided: C (standard diet); E (standard diet+subcutaneous 17β-estradiol pellets); L (standard diet+subcutaneous placebo pellets); and S (standard diet+soy nuts+subcutaneous placebo pellets). Customized diets and the insertion of pellets were started 21 days after ovariectomy, and maintained for another 21 days. We measured body weight, insulin tolerance, total cholesterol, LDL-cholesterol, HDL-cholesterol, triglycerides, and GLUT4 (cardiac and adipose tissues). We found lower body weight and Lee index in group E, a trend for improved insulin sensitivity in S (p=0.066). Groups L and S showed lower lipid profile vs. C. Micromolar GLUT4 increased in L (cardiac and adipose tissues); plasma membrane GLUT4 increased in E, L, and S (both tissues). We conclude that flaxseed and soy nuts as dietary supplements improve lipid profile and they increased GLUT4 expression.