Ⅱ-35

Beneficial Effect of Various Bean Consumption on Serum Lipids and the Relationship between Lipid Profile and Bone Mineral Density in Ovariectomized Rats

Na Jin[1], Sun Hee Lee[2], Yongsoon Park[1*]

[1]Department of Food and Nutrition, Hanyang University
[2]Korean Living Science Research Institute, Hanyang University

난소절제 흰쥐에서 다양한 콩의 섭취가 혈중 지질 및 지질과 골밀도의 상관관계에 미치는 영향

김나[1], 이순희[2], 박용순[1*]

[1]한양대학교 생활과학대학 식품영양학과
[2]한양대학교 한국생활과학연구소

Objectives The beneficial effects of soy protein and isoflavones on cardiovascular-related disease have been well documented. This study was investigated the effects of various legume consumption on lipid profile and the relationship between serum lipids and bone mineral density in ovariectomized rats.

Materials and Methods Forty-two female Sprague-Dawley rats were either sham-operated (Sham, n=7) or surgically ovariectomized, and then fed a regular AIN-93M diet (OVX, n=7) or AIN-93M containing soybean (OS, n=7), mung bean (OM, n=7), cowpea (OC, n=7) or adzuki beans (OA, n=7) for 10 weeks. The levels of serum total cholesterol, triglyceride, HDL-cholesterol, and LDL-cholesterol were measured. The relationships between lipid profile and bone mineral density (BMD) or bone mineral content (BMC) were also compared.

Results The level of total cholesterol was significantly lower in OC group than OVX and other bean consumed groups. Serum triglyceride level was significantly lower in OM group than OVX and OC group. The level of LDL-cholesterol was significantly higher in OVX group compared with Sham group, but there were no significant differences between bean consumed groups and OVX group. Total cholesterol levels were negatively correled with BMD and BMC of spine in OVX, OS, and OC group, as well as BMC of femurs in OS group and BMD of tibia in OC group. Serum triglyceride levels were also negatively correlated with BMD of femurs in OVX group. In conclusions, our results showed that cowpea has beneficial effects on

*Corresponding author : Yongsoon Park, E-mail : yongsoon@hanyang.ac.kr / Tel : 02-2220-1205

hypercholesterolemia and mung bean has influenced serum triglyceride in ovariectomized rats. Our results also indicated that the serum levels of total cholesterol and triglyceride were inversely related to BMD or BMC of spine, femur or tibia.

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