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Probiotics effectiveness on calcium absorption, bone mass density (BMD), and trabecular structure of bone

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Bone needs many nutrients to grow to remain healthy. Calcium (Ca) intake in comparison to other nutrients is most often compromised, but not all intake of Ca absorb by the body especially menopause or aging decrease the bioavailability of minerals including Ca followed by incidence loss of bone. Thus enhancement of Ca intake is a vital role for prevention of bone loss. The aim of the current study is to examine the effect of probiotics; strain of Bifidobacterium longum, *Lactobacillis helveticus* and their mixture on calcium bioavailability, BMD, and trabecular structure of bone. For this purpose thirty-five female Sprague-Dawley rats of 10 weeks old, were enrolled in this study. Prior to the research bilateral ovariectomy (Ovx) and sham-ovx (S-ovx) was performed on the rats. After 2 weeks of surgery the rats were randomly divided to 4 groups of Ovx and one group of S-ovx. The surgical process and diet are as follow: S-ovx, ovx, ovx+ B.longum, ovx + *L.helveticus*, and ovx + mixture of L. helveticus and *B. longum*. The urine and fecal were collected as a baseline and final data for the measurement of Ca followed by sacrificing all the rats after 16 weeks of intervention. The femur of the rats was analyzed using Micro-CT scan imaging for BMD and trabecular measurements. As results, L. helveticus, *B. longum*, and their mixture group shows increase in Ca absorption (98.5±30.4, 70.7±4.4, 50.3±14.3 vs. 46.4±20.1 (mg/day), BMD (0.90±0.05, 0.078±0.06, 0.086±0.03 vs. 0.74±0.05 g.cm-3, $p<0.05$ respectively), and significant increasing ($p<0.05$) in trabecular thickness and number compare to Ovx-non-treatment group. Consequently choosing appropriate probiotics as a single species or mix strain is important to consider as a functional food for intervention or treatment of the specific disease and target organ.

Biography

Kolsoom Parvaneh is doing her PhD in Clinical Nutrition, in the Faculty of Medicine and Health Sciences in Universiti Putra Malaysia (UPM). She has publications related to effectiveness of probiotics on bone and obesity as well as others filed of nutrition.

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