Background: Much is already known about the benefits of coffee on the cardiovascular system, nervous system, diseases such as diabetes mellitus. However, the effects of coffee on bone metabolism are still not fully understood. There are evidences the coffee consumption can change bone metabolism. 

Aim: This study focus to verify if coffee intakes in moderate shots change bone remodeling, what it would impact on bone mineral density (BMD) and biomechanical characteristics.

Material and methods: 24 male rats sixty days old Wistar were divided by three experimental groups, making the treatment: Group 1 (control), Group 2 (coffee - 3ml/kg), Group 3 (coffee - 3ml/kg + 5mg of calcium) and Group 4 (5mg of calcium). After 56 days of experiment, the animals were anesthetized and necropsied, dissecting both femurs. The left femurs were subjected to densitometric analysis, and the rights to tests of head flexion and compression of the middle third. Biomechanically determined the maximum strength and rigidity. Data analysis was performed using descriptive statistics. The comparison between groups was performed by analysis of variance followed by Tukey's test with a significance level of 5%. The software used for analysis was the SISVAR.

Results: BMD was significantly higher in the control group compared to the experimental (p = 0.0000). A biomechanical analysis of the studied variables showed no significant differences between groups.

Conclusions and clinical implication: We conclude that coffee intake in moderate doses can lead to a reduction in BMD without altering the biomechanical properties of bone. The daily calcium intake is not beneficial to interfere in determining BMD. These results show that routine habits can negatively influence bodily functions and must be considered in an assessment protocol for individuals included in the group at risk for osteoporotic fractures.

References:


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