

ASSOCIATIONS BETWEEN SMOKING, ALCOHOL CONSUMPTION AND BONE QUALITY IN YOUNG ADULTS

Simona Sulis, Darina Falbova, Alexandra Hozakova and Lenka Vorobelova

Comenius University Bratislava, Department of Anthropology, Slovakia

Background: The effects of smoking and alcohol consumption on bone health in older adults are well established, nonetheless their influence on bone quality in young adults remains limited.

Objective: This study aimed to examine the relationship between bone quality, alcohol consumption, and smoking, considering the influence of physical activity (PA) and body composition.

Subjects and methods: The sample included 1001 Slovak men and women aged 18–30 years (mean age 22 ± 2.35 years). Bone quality was assessed using a quantitative ultrasound device (Sunlight MiniOmni™), which provided Z-score values. Body composition variables, including skeletal muscle mass (SMM, kg) and percent body fat (PBF, %), were measured with a bioimpedance analyser (InBody 770). Lifestyle behaviours such as alcohol consumption, smoking habits and PA were collected using the WHO STEPS 2014 questionnaire.

Results: Regression analysis revealed that the duration of alcohol consumption favourably impacted bone quality Z-scores ($\beta = 0.172$, $p < 0.001$), whereas the number of cigarettes smoked was negatively associated with ($\beta = -0.113$, $p = 0.042$). The SNHA results confirmed the positive association with alcohol ($r = 0.19$), while for smoking ($r = 0.23$) inconsistent results were observed, suggesting an apparently positive effect likely mediated by the relationship with alcohol consumption.

Conclusion: These findings indicate that lifestyle risk factors such as smoking and alcohol use are associated with bone tissue quality in young adults; however, the mixed evidence observed in this, and previous studies highlights the need for further research to clarify the biological and behavioural mechanisms involved.

Keywords: Bone quality; Smoking; Alcohol consumption.

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