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Bone mineral content (bmc) and bone mineral density (bmd) in postmenopausal women formerly practising kayaking and fencing

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The investigation was aimed at answering the following questions: 1) Can a prolonged career in sports associated with considerable training loads, in conjunction with other osteoporosis risk factors (both past and present), affect the bone mineral content (BMC) and bone mineral density (BMD) of the former female athletes in their postmenopausal period of life?, and 2) How does the present lifestyle of the tested women, including physical activity and diet (calcium intake), influence the preservation of the optimal bone mass in these subjects? The postmenopausal subjects recruited to the present study included 15 former athletes (ten kayakers and five fencers) and 11 women who never actively engaged in sports (control group). BMC (g) and BMD (g/cm²) were densitometrically determined in the lumbar segment (L2-L4) of the spine, and the bone stiffness coefficient was ultrasonically determined in calcaneus. The effects of the osteoporosis risk factors (both past and present) were estimated from individual replies to the questionnaire inquiries about the past career in sports, present physical activity, gonadal dysfunctions (dysmenorrhoea during the career and the present need for hormonal supplementary treatment), and the current dietary patterns. The results indicate that mean BMC and BMD values detected in the former athletes did not differ significant from those obtained in the non-athlete, control women: the BMC values equalled to 54.5± 10.5, 52.6± 14.6, and 46.5± 3.2 g in the kayakers, the fencers, and the control women, respectively, while the respective BMD values were 1.05± 0.45, 0.96 ± 0.66, and 1.08± 0.58 g/cm². The questionnaire-based studies showed that neither the former female athletes nor the non-athlete controls exhibited in the past longer (i.e., lasting more than three months) periods of hormonal disorders (amenorrhoea). As assessed from the dietary intake, only in the former fencers the diet covered the demand for calcium in 100%. In conclusion, in the absence of such risk factors of osteoporosis as dietary and hormonal disorders, the prolonged career in sports associated with considerable training loads do not seem to adversely affect bone mineralisation and bone density in the former female kayakers and fencers.

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