

OSTEOSCOOP

News on current events in osteoporosis and rheumatology

Early smoking is associated with peak bone mass and prevalent fractures in young, healthy men

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Smoking is associated with lower areal bone mineral density and higher fracture risk, although most evidence has been derived from studies in elderly subjects. This study [1] investigates smoking habits in relation to areal and volumetric bone parameters and fracture prevalence in young, healthy males at peak bone mass. Healthy male siblings (n=677) at the age of peak bone mass (25 to 45 years) were recruited in a cross-sectional population-based study. Trabecular and cortical bone parameters of the radius and cortical bone parameters of the tibia were assessed using peripheral quantitative computed tomography (pQCT). Areal bone mass was determined using dual energy X-ray absorptiometry (DXA). Sex steroids and bone markers were determined using immunoassays. Prevalent fractures and smoking habits were assessed using questionnaires.

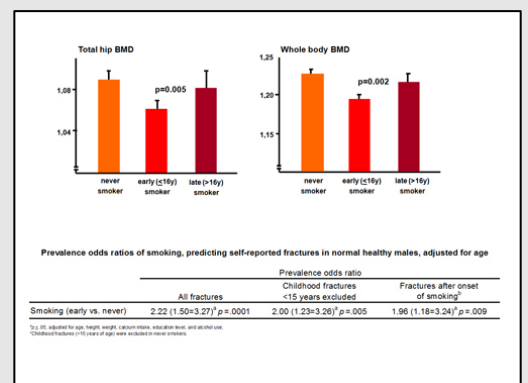
Self-reported fractures were more prevalent in the current and early smokers than in the never smokers ($P < .05$), with a fracture prevalence odds ratio for early smokers of 1.96 after adjustment for age, weight, educational level, and alcohol use and exclusion of childhood fractures. Current smoking was associated with a significantly larger endosteal circumference and a decreased cortical thickness at the tibia. In particular, early smokers (<16 years) had a high fracture risk and lower areal BMD, together with a lower cortical bone area at the tibia and lower trabecular and cortical bone density at the radius. An interaction between free estradiol and current smoking was observed in statistical models predicting cortical area and thickness.

In conclusion, smoking at a young age is associated with unfavorable bone geometry and density and is associated with increased fracture prevalence, providing arguments for a disturbed acquisition of peak bone mass during puberty by smoking, possibly owing to an interaction with sex steroid action.

1. Taes Y et al. *J Bone Miner Res.* 2010;25:379-387.

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Early smoking in young, healthy men was associated with a lower bone mineral density and a lower bone mineral content, as well as with abnormal bone architecture. Furthermore, early smoking was associated with more frequent fractures. This association may involve, at least in part, deranged secretion of androgens and estrogens.



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