

Impact of Sporting activities on Bone Mineral Density

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Abstract

It is known that participating in sports can have a beneficial effect on bone mass. However, it is not well established which type of sporting activity is more beneficial for increased bone mineral density. The objective of the study was to determine the relationship between impact of sporting activities and bone mineral density. As a part of study, bone mineral density of sportspersons was compared with age-matched non-sportspersons. Research design for present study was a cross-sectional design. A total of 70 subjects in the age group of 25-75 years participated in the study. They were divided into two groups: (1) sportspersons group (n=35, mean age=48.05 years, mean BMI=25.99 kg/m²) and (2) non-sportspersons group (n=35, mean age=48.14 years, mean BMI=26.29 kg/m²). Bone mineral density was measured by using Osteopro-ultrasound bone mineral density system. The results revealed statistically significant difference with t value of 4.2061 (**p<0.05**), indicating that sportspersons had higher bone mineral density than their non-sports cohort. A statistically significant positive relationship was exhibited ($r = 0.463$) between impact of sporting activities and bone mineral density which implies that sportspersons involved in high impact sports (basketball, football, and athletics) have greater bone mineral density as compared to athletes involved in moderate impact sports (table tennis and cycling). It is concluded that bone mineral density is higher in sportspersons than their non-sports cohort and sportspersons involved in high impact sports possess substantially higher bone mineral density than sportspersons involved in moderate impact sports.

Keywords: BMI, Bone Mineral Density, High Impact Activities, Low Impact Activities

Introduction

Bone mineral density is used in clinical medicine as an indirect indicator of osteoporosis and fracture risk. There is a statistical association between poor bone density and higher probability of fracture. Fragility fractures, which result from a fall from no greater than standing height, are a significant public health problem leading to much medical cost, inability to live independently, and even risk of death. Bone density measurements are used to screen people for osteoporosis risk and to identify those who might benefit from

measures to improve bone strength. It is estimated that around 40% of US white women and 13% of US white men aged 50 years will experience at least one clinically apparent fragility fracture in their lifetime. At age 50, a white woman has a 17% chance of sustaining a hip fracture, 15% chance of vertebral fracture and 16% chance for forearm fracture, with comparable figures of 6%, 5% and 2.5% respectively, for fractures in white males (Cummings & Melton, 2002). The 1st year total direct cost of osteoporotic fractures is estimated to be 25 billion Euros in Europe (Melton *et al*, 1992). The report of