

Factors affecting knee cartilage volume in healthy men.

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Abstract:

OBJECTIVES: To understand the factors that influence joint cartilage in health and disease as they are important for the prevention and management of osteoarthritis.

METHODS: We conducted a cross-sectional study to determine factors influencing knee cartilage volume in 45 males aged (mean \pm S.D.) 52.5 \pm 13.2 yr. **RESULTS:** Total and medial tibial volumes were inversely associated with age, body mass index (BMI) and amount of physical activity and positively associated with total bone content. BMI explained the largest amount of the variation in tibial cartilage volume (18.7%). There were similar findings at the lateral tibial cartilage, but for age and total bone content this did not reach statistical significance. There was a positive association with serum testosterone at all tibial cartilage sites, but this only reached statistical significance for medial tibial cartilage, where serum testosterone explained up to 8% of the variation in cartilage volume.

CONCLUSIONS: Modifiable risk factors of osteoarthritis also appear to be significant determinants of tibial cartilage volume. Serum testosterone may provide one possible explanation for gender differences in tibial cartilage volume and prevalence of tibiofemoral osteoarthritis. The proposed link between osteoarthritis and knee cartilage volume and the effect of testosterone will need to be confirmed in longitudinal studies.

