

Comparative Study of the Age Related Structural Changes in the Knee between Sportspersons and Non Sportspersons

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Abstract

Knee joint degeneration is the major cause of disability among the Indian population. The structural changes subject to differ among the sportspersons and non sportspersons. The aim of the study was to compare the structural changes in the knee between age-matched sportspersons and non sportspersons. Thirty sportspersons and thirty non sportspersons aged ≥ 50 years were randomly selected on the basis of selection criteria. Physical examination that included effusion, tenderness, atrophy, knee joint range, lower extremity muscle strength, physical activity levels and knee injury and osteoarthritis status was done in all the sixty subjects. Digital X ray examination was then carried out for measurement of joint space width and Kellgren Lawrence grading. Statistically significant difference was found in the joint space width and Kellgren Lawrence grades between the sportspersons and non sportspersons. Also significant difference was found in effusion, tenderness, atrophy, knee joint range, lower extremity muscle strength, physical activity levels and knee injury and osteoarthritis status between the sportspersons and non sportspersons. The study concluded that sportspersons have less worsened structural knee changes, better knee joint range of motion, muscle strength, physical activity levels and a better quality of life as compared to the age-matched non sportsperson peers.

Key words: Structural changes, joint space width, sportspersons, non sportspersons.

Introduction

The most consistent knee structural changes with increasing age are increase in cartilage defect severity and prevalence, cartilage thinning and increase in bone size with inconsistent change in cartilage volume (Ding *et al*, 2005). High-impact and torsional loads may increase the risk of degeneration of normal joints, and individuals who have an abnormal joint anatomy, joint instability, disturbances of joint or muscle innervation, or inadequate muscle strength or endurance probably have a greater risk of degenerative joint disease.

It is reported that exercise contributes to cartilage healing and reduces risk for injury, and that moderate exercise can even decrease the number of cases requiring arthroplasty. Conversely, excessive (harsh) exercise may be associated with increased cartilage damage or degenerative changes. Despite the presence of osteophytic changes in joint cartilage of athletes performing mild sports activities, these may not result in osteoarthritis due to the adaptive feature of joint cartilage. In contrast, the risk for osteoarthritis is increased in professional sportsmen exposed to acute repetitive impact and torsional loading (Ozkan *et al*, 2007).