

DEVELOPMENT OF OSTEOARTHRITIS IN THE HIP AND SPORT ACTIVITIES

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It was found that there is a potential risk for the development of osteoarthritis of the hip in certain sports. In this study we describe some geometrical and biomechanical aspects of the hip that might be involved in the pathogenesis of osteoarthritis of the hip, taking into account that long-lasting high articular stress is less favorable regarding the development of osteoarthritis of the hip. Our objective was to determine some factors that could be important for the pathogenesis of osteoarthritis of the hip in sport activities. Parameters which influence articular stress were determined, such as the femoral head center, pelvic height and width, center-edge angle of Wiberg, collodiaphyseal angle, hip-joint reaction force, hip articular stress and the size of the weight-bearing area.

Standard anteroposterior radiographs of the hip were taken from the archives of the University Medical Center in Ljubljana from 1985 to 1995. For all examined subjects the hip-joint geometry was without pathological changes, in order to study the normal geometry and biomechanical factors of the hip and the pelvis. The final analysis of geometrical and biomechanical factors were performed for 79 adult women and 21 adult men with a computer-aided system that was specially developed for this purpose.

Our present results show that there are some important differences between women and men regarding the femoral and pelvic geometry (pelvic width is significantly higher in the female population, the femoral head radius is significantly smaller in the female population) and biomechanical parameters (the hip-joint reaction force is significantly greater in the female than in the male population, the magnitude of the weight-bearing area is significantly greater in the male population). There are some indications that the average female morphological and biomechanical parameters are less favorable regarding the development of osteoarthritis of the hip, so, more attention should be paid to the female population participating in the high level of training usual in certain sports in order to prevent the development of osteoarthritis of the hip in early phases of the disease with lower levels of activity.