

## **THE LUMBAR ZYGAPOPHYSIAL JOINTS AND AGEING**

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**INTRODUCTION** The fundamental age changes of the lumbar spine occur at the biochemical level. Consequently these affect the biomechanics and the morphology of different components of the lumbar spine. The subchondral bone of the lumbar zygapophysial joints increases in thickness during growth and reaches a maximum between the ages of 20 and 50 years. Thereafter it gradually gets thinner.

**PURPOSE** To clarify some aspects of the zygapophysial joints in the natural biological process of ageing.

**MATERIAL AND METHOD** Bibliographic review and anatomic studies.

**RESULTS** The articular cartilage steadily increases in thickness with age but exhibits certain focal changes that start in the fourth decade and which can be related to the stresses applied to these joints. In the anteromedial third of curved zygapophysial joints, the cartilage exhibits cell hypertrophy, which progresses to vertical fibrillation of the cartilage associated with sclerosis of the subchondral bone plate. Where cartilage is lost, fibro-fatty intra-articular inclusions may increase in size to fill the space vacated by the cartilage. The posterior section of the joint characteristically exhibits a different kind of splitting of cartilage-parallel to the joint surface. A split piece of cartilage may remain attached to the joint capsule and form a false intra-articular meniscoid. Cell hypertrophy is almost universal in the fourth decade and minor fibrillation is common in the fourth and fifth decades. Older joints exhibit gross thickening and irregularity of the calcified zone of cartilage and increased collagen in the superficial layers. In elders joints, the distinction between changes in the anteromedial and posterior portions of the joint is lost. Other features exhibited by the joints are the development of osteophytes and 'wrap-around bumpers'.

**CONCLUSION** The so-called 'osteoarthrosis' or 'degenerative joint disease' is not a disease but an expression of the morphological consequences of stresses applied to the zygapophysial joints during life. Adaptive changes occur, but with severe or repeated stress destructive features may develop. The incidence of 'osteoarthrosis' is just as great in patients with symptoms as in patients without symptoms.