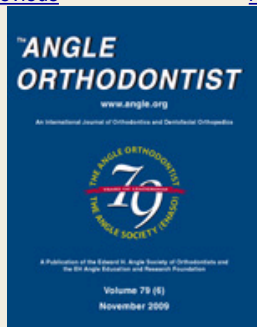


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Original Articles

Functional Lateral Shift of the Mandible Effects on the Expression of ECM in Rat Temporomandibular Cartilage

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Abstract

Objective: To test the hypothesis that the effects of mechanical stress from a functional lateral shift of the mandible have no effect on the expression of two main condylar cartilage extracellular matrix components, type II collagen and aggrecan, in rats from early puberty to young adulthood.

Materials and Methods: Functional lateral shift of the mandible was induced in experimental groups of 5-week-old male Wistar rats, using guiding appliances. The rats were sacrificed at 3, 7, 14, and 28 days post appliance attachment. The condyles were immunohistochemically evaluated for type II collagen and aggrecan (the immunoreactive areas were quantified).

Results: As compared with the control group, on the contralateral condyles, the immunoreactivity of the experimental groups was significantly increased from 7 to 14 days. While on the ipsilateral condyles, the immunoreactive areas were significantly decreased throughout the experimental period.

Conclusion: A functional lateral shift of the mandible modulated the condylar cartilage extracellular matrix differently on each side of the condyle, which affected condylar morphology, growth, biomechanical properties, and even the susceptibility of the condylar cartilage to pathogenesis.

Keywords: [Condylar cartilage](#), [Functional lateral shift of the mandible](#), [Extracellular matrix](#)

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