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Increased deposition of sulfated glycosaminoglycans in human patellar tendinopathy.

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Abstract
OBJECTIVE: To investigate if the increased proteoglycans in patellar tendinopathy involves a qualitative change in the types of proteoglycans. DESIGN: This is an observational study based on the biochemical analysis of proteoglycans. SETTING:: University Teaching Hospital. PATIENTS: Patellar tendon samples from 12 patients with patellar tendinopathy and 12 healthy controls were collected and proteoglycans were extracted for biochemical analyses. All patients fulfilled the diagnostic criteria of having patellar tendinopathy with well-defined clinical features, more than 6 months of insufficient nonoperative treatment including physiotherapeutic modalities, and verification by ultrasound or magnetic resonance imaging. Twelve control subjects, 10 men and 2 women with an average age of 31 years (range 16 to 38 years), represented patients with anterior cruciate ligament deficiency who were operated on using the healthy patellar tendon as an autograft. The control subjects had no previous history or clinical signs of patellar tendon injury. INTERVENTIONS: The independent variable is the presence of pathological conditions of patellar tendinopathy. MAIN OUTCOME MEASUREMENTS: The dependent variables include the electromobility of proteoglycans, staining intensity of proteoglycan core proteins, and the tissue content of glycosaminoglycan disaccharides. RESULTS: The results indicated that the increased proteoglycans in pathological tissues also exhibited qualitative changes as compared to those in healthy patellar tendons. Dermatan monosulfates were significantly increased in the proteoglycans extracted from the pathological tissues of patellar tendinopathy. CONCLUSIONS: Our results indicate that proteoglycans deposited in the pathological tissues of patellar tendinopathy were oversulfated as compared to healthy tendons, which may represent a new pathological attribute for the understanding of chronic pain in patellar tendinopathy.

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