

Increased expression of aggrecan and biglycan mRNA in Achilles tendinopathy.

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Abstract

OBJECTIVES: To determine the expression of mRNA encoding the proteoglycans aggrecan, versican, biglycan and decorin in mid-tendon samples of chronic painful Achilles tendinopathy and ruptured Achilles tendons, compared with normal tendons. **METHODS:** Total RNA isolated from frozen tendon samples (14 normal, 13 painful, 14 ruptured) was assayed by relative quantitative reverse transcription polymerase chain reaction for aggrecan, versican, biglycan and decorin mRNA, normalized using 18S rRNA.

Differences between sample groups were tested by univariate analysis of variance with age as co-variate.

RESULTS: In normal tendon samples expression of each of the proteoglycan mRNA decreased with increasing age. Decorin mRNA was the most highly-expressed of the proteoglycan mRNA, while versican mRNA expression was higher (3.8-fold) than that of aggrecan. In painful tendinopathy both aggrecan and biglycan mRNA expression increased (more than 10-fold and 5-fold, respectively) compared with normal tendon samples, but levels of versican and decorin mRNA were not significantly changed. In ruptured tendons the levels of aggrecan, biglycan and versican mRNA were not changed compared with normal tendon samples, but decorin mRNA decreased markedly. **CONCLUSIONS:** Increased aggrecan and biglycan mRNA expression in painful tendinopathy resembles the pattern in fibrocartilaginous regions of tendon, and may reflect an altered mechanical environment at the site of the lesion. Increased aggrecan mRNA expression may underlie the increase in glycosaminoglycan observed in painful tendinopathy.

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