

**P005** Investigation of the remodelling response of human tenocytes to anabolic and catabolic factors when cultured in 3D collagen gels

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The extracellular matrix (ECM) of tendons such as the Achilles is actively maintained by the tendon fibroblasts. Both soluble factors and mechanical factors may regulate expression of ECM components and matrix-degrading enzymes by these cells. We have examined the expression of ECM and metalloproteinase mRNA in collagen gel cultures of Achilles tendon-derived fibroblasts, compared with monolayer cultures of the same cells. MMP-13, MMP-1 and ADAMTS-4 mRNA were expressed at markedly higher levels in the collagen gels, while MMP-23, ADAMTS-1 and aggrecan mRNA expression were substantially lower in the gels than in the monolayer cultures. Interleukin-1 (IL-1) stimulated large increases in the expression of MMP-13 mRNA in both monolayer and gel cultures, while transforming growth factor- $\beta$  stimulated increased expression of versican and biglycan mRNA; both of these agonists stimulated the expression of ADAMTS-4 mRNA. Tendon-derived fibroblasts exerted tension on the collagen gels, causing a rapid contraction of gels that had been released from the plate. The addition of IL-1 inhibited contraction over 24 hours after release of the gel, while fetal calf serum increased the rate and extent of contraction observed.