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Fibroblast responses to variation in soft tissue mobilization pressure

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Abstract

Fibroblast responses to variation in soft tissue mobilization pressure. *Med. Sci. Sports Exerc.*, Vol. 31, No. 4, pp. 531-535, 1999. Augmented soft tissue mobilization therapy (ASTM), a newly developed massage therapy, has been successfully used in the treatment of chronic tendinitis patients. We theorized that the ASTM technique promotes healing through a controlled application of microtrauma.

Purpose: The purpose of this study was to determine morphologic changes in the rat Achilles tendon after enzyme-induced injury with collagenase and subsequent pressure variations in ASTM therapy.

Methods: Thirty male white rats were randomly assigned to one of five groups with six animals per group: tendinitis (A), tendinitis plus light ASTM (B), tendinitis plus medium ASTM (C), tendinitis plus extreme ASTM (D), and control with surgery only (E). ASTM was performed for 3 min, for a total of six treatment sessions. The Achilles tendons of each group were harvested 1 wk after the last ASTM treatment. Fibroblast numbers were assessed by light microscopy. An electron microscope was used to observe enlargement of fibroblasts.

Results: Statistical analysis of the number of fibroblasts present indicated a significant difference ($P < 0.00$) between group D and all other groups.

Conclusion: The morphological evidence indicated that the application of heavy pressure promoted the healing process to a greater degree than light or moderate pressure.

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