

Tensile load enhance cell proliferation in rat subcutaneous fascia

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PURPOSE To investigate the effect of mechanical tensile load on the proliferation of cells in rat facial connective tissue.

METHODS Nine male Sprague–Dawley rats were randomized into control group (A), acupuncture without rotation group (B) and tensile stimulation group (C). The rats in group C were subjected to mechanical tensile stimulation of the facial connective tissue in the groin area with an acupuncture needle, which was rotated after insertion to cause tissue stretching. And in group B, needle was inserted into the rats' tissues without rotation. 5-bromo-2'deoxyuridine incorporation assay was used to label the proliferative cells after the treatments.

RESULTS Tensile stimulation caused a significant enhancement of the cell proliferation activity in the fascia, whereas acupuncture did not produce significant changes in the cell proliferation as compared with group A. Tensile stimulation also resulted in the loss of normal structure of the inguinal fat pad, where numerous blood vessels and hemorrhagic foci were observed.

CONCLUSIONS Mechanical tensile stimulation can significantly enhance cell proliferation in the fascia, The mechanism underlying the therapeutic effect of complement therapies may involve the reconstruction of the loose connective tissue and enhancement of the cell proliferative activity under tensile load.