

Active fascial contractility: Fascia may be able to contract in a smooth muscle-like manner and thereby influence musculoskeletal dynamics.

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Abstract

Dense connective tissue sheets, commonly known as fascia, play an important role as force transmitters in human posture and movement regulation. Fascia is usually seen as having a passive role, transmitting mechanical tension which is generated by muscle activity or external forces. However, there is some evidence to suggest that fascia may be able to actively contract in a smooth muscle-like manner and consequently influence musculoskeletal dynamics. General support for this hypothesis came with the discovery of contractile cells in fascia, from theoretical reflections on the biological advantages of such a capacity, and from the existence of pathological fascial contractures. Further evidence to support this hypothesis is offered by in vitro studies with fascia which have been reported in the literature: the biomechanical demonstration of an autonomous contraction of the human lumbar fascia, and the pharmacological induction of temporary contractions in normal fascia from rats. If verified by future research, the existence of an active fascial contractility could have interesting implications for the understanding of musculoskeletal pathologies with an increased or decreased myofascial tonus. It may also offer new insights and a deeper understanding of treatments directed at fascia, such as manual myofascial release therapies or acupuncture. Further research to test this hypothesis is suggested.

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