

Accepted Manuscript

Fascial well-being: Mechanotransduction and manual and movement therapies

Leon Chaitow, Editor-in-Chief



PII: S1360-8592(17)30331-5

DOI: [10.1016/j.jbmt.2017.11.011](https://doi.org/10.1016/j.jbmt.2017.11.011)

Reference: YJBMT 1638

To appear in: *Journal of Bodywork & Movement Therapies*

Please cite this article as: Chaitow, L., Fascial well-being: Mechanotransduction and manual and movement therapies, *Journal of Bodywork & Movement Therapies* (2017), doi: 10.1016/j.jbmt.2017.11.011.

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Editorial YJBMT issue 22(1)**Fascial well-being: mechanotransduction and manual and movement therapies.**

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Mechanotransduction refers to the multiple ways in which mechanosensitive cells respond to different degrees, directions, frequency and duration of mechanical load, such as torsion, tension, shear, compression, stretch, bend and friction.. Mechanotransduction in connective tissues, involves both physical and chemical communication processes that occur between specialized cells, such as fibroblasts and telocytes, and their immediate environment, - the soupy, mesh--like extracellular matrix (ECM) network, in which they operate.

- In mechanosensitive cells, such mechanical stimuli result in architectural shape modification, altering cellular behavior and physiological adaptation – potentially resulting in modified gene expression, enhanced protein synthesis, modulated inflammatory responses, more efficient repair and remodeling, and more. (Kahn & Scott 2009, Kjaer et al 2009, Kumka & Bonar 2012, Standley & Meltzer 2008, Cao et al., 2015)
- Depending on many variables, mechanical signaling may have quite contrasting effects. For example, in a 2012 basic science study investigating the effects of different forms of mechanical load applied to fibroblasts, Hicks et al (2012) observed that 8 hours of cyclic short-duration stretches - such as occur during repetitive motion strain – result in an inflammatory response from the affected fibroblasts. In contrast, modelled Myofascial Release – involving acyclic, long-duration (60 seconds), light (~10%) stretch – applied to the already distressed fibroblasts - under controlled laboratory conditions - significantly reduced that inflammatory process.

The question is whether or not such changes - that can be predictably achieved in laboratory settings – can be replicated using clinically applied manual or movement methods?

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