Fascial plasticity – a new neurobiological explanation

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Abstract Part 1 of this two part article showed that immediate fascial responsiveness to manipulation cannot be explained by its mechanical properties alone. Fascia is densely innervated by mechanoreceptors which are responsive to myofascial manipulation. They are intimately connected with the central nervous system and specially with the autonomic nervous system. Part 2 of the article shows how stimulation of these receptors can trigger viscosity changes in the ground substance. The discovery and implications of the existence of fascial smooth muscle cells are of special interest in relation to fibromyalgia, amongst other conditions. An attitudinal shift is suggested, from a mechanical body concept towards a cybernetic model, in which the practitioner’s intervention are seen as stimulation for self-regulatory processes within the client’s organism. Practical implications of this approach in myofascial manipulation will be explored.

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Fig. 2 Within a typical muscle nerve there are almost three times as many sensory neurons than motor neurons. Note that only a small portion of the sensory information comes from types I and II afferents which originate in muscle spindles, Golgi receptors, Pacinian and Ruffini endings. The majority of the sensory input comes from the group of types III and IV afferents or interstitia receptors which are intimately linked with the autonomic nervous system. Figure by Twyla Wei, Munich, Germany.

Fig. 5 The superficial fascia is perforated at specific points by a triad of nerve (left), vein (large body in middle) and artery. Based on Heine most of these perforation points are topographically identical with traditional Chinese acupuncture points. The perforating nerves usually innervate Ruffini and Meissner corpuscles under the skin.