Fascial plasticity – a new neurobiological explanation Part 2

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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.

Introduction

Part 1 of this article showed that fascial responsiveness cannot be explained by its mechanical properties alone. Fascia is populated by a dense network of mechanoreceptors. The majority of fascial sensory nerve endings which are stimulated by fascial manipulation are interstitial receptors (type III & IV) which have been shown to induce a change in local vasodilation. The additional group of Pacinian receptors seem to be involved in high-velocity manipulation, while Ruffini endings are mostly stimulated by slow deep pressure techniques, specially if they involve tangential forces, i.e. lateral stretch (Kruger 1987). Stimulation of fascial mechanoreceptors leads to changes in muscle tonus which come primarily from a resetting of the gamma motor system, rather than the more volitional alpha motor coordination. Additionally, stimulation of Ruffini organs as well as of many of the interstitial receptors effects the autonomic nervous system, which can result in a lowering of sympathetic tone, or in changes in local vasodilation. Part 2 of this article will explore further implications and practical applications of this neurobiological orientation.

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