

# Unveiling the Deeper Layers: Latest in Fascia Research

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## NEWS

Fascia, earlier regarded as an inert filler tissue, was often removed and ignored in dissection halls, with very little of it being mentioned regarding its physiological relevance in medical teaching.<sup>[1]</sup> It is defined as “a sheath, a sheet, or any other dissectible aggregation of connective tissue that forms beneath the skin to attach, enclose, and separate muscles and other internal organs.”<sup>[2]</sup> The role of fascia in body biomechanics and locomotion came into light over the last 2 decades with current understanding being that it may contribute to neural, immune and endocrine functions in the body.<sup>[3]</sup>

The evidence for the varied roles of fascia has been an intriguing area of ongoing research. A recent study using Low-Vacuum Scanning Electron Microscopy (LVSEM) in cryofixed samples from male Wistar rats revealed a triple layer construction of the deep fascia with abundant vasculature and nerve supply in the superficial layer indicating its role in blood supply to the skin and its likely role in pain mediation.<sup>[4]</sup> The fascia also contains receptors for immune mediators which contribute to local inflammation when diseased.<sup>[3]</sup>

Different types of deep fascia may also have function-specific properties. Thoracolumbar fascia has been found to have greater density of nociceptive fibres whereas epimysial fascia such as that surrounding the gluteal muscle has a higher concentration of Golgi tendon organs and muscle spindles, showing modifications for physiological functions of nociception and proprioception respectively.<sup>[5]</sup>

Fascial tissues also exhibit autonomic reactivity, as evidenced by the enzyme tyrosine hydroxylase, which contributes to vascular responses and potential for ischemia under the influence of the sympathetic system. The rich sympathetic innervation of fascia underscores its link to chronic pain, especially under stress-induced sympathetic overactivation.<sup>[6]</sup>

Expanding the knowledge on fascia and its role in healthy and disease states can reduce physician load of patients with chronic pain and restore functionality, improving quality of life significantly.

## CONFLICT OF INTEREST

The author declares that there are no conflicts of interest.

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## VIEWS

### Fascia in stress and pain management-The missing link?

The growing evidence on the multi system impact of fascia and an understanding of the methods to repair and maintain fascial health may be pivotal in addressing many chronic disease states.

Lower back pain is a chronic condition often found to be exacerbated under high levels of stress. Although pharmacological therapies may give temporary relief, the root cause may be more complex than improper posture and stress. Postural muscle imbalance coupled with the sympathetic stimulation caused by psychological stress may lead to ischemia of the fascia and stimulation of the nociceptive afferents. Combined effect is a less optimal muscle function, worsening the posture further. Breathing techniques like diaphragmatic breathing may be useful in reducing such pain as the diaphragm connects to the thoracolumbar fascia encompassing postural muscles and deep

breathing can stretch and relieve ischemia, restoring tensile properties of the fascia and underlying muscle. Diaphragmatic breathing also restores the autonomic balance by activation of vagal afferents during inspiration thus disrupting the vicious cycle of stress begetting pain.

The evolving understanding of fascia also reshapes the narrative on exercise recovery. Delayed Onset Muscle Soreness (DOMS), traditionally attributed to metabolic and mechanical muscle stress, may instead stem from nociceptive sensitization within the fascia. These insights open avenues for integrating complementary therapies such as yoga, acupuncture, and osteopathy into currently accepted treatments.

To conclude, the fascia is more than a structural support system-it is a dynamic tissue influencing both physical and psychological well-being. A mobile and healthy fascial system may be a potential marker of homeostasis. Embracing this perspective could redefine approaches to rehabilitation, sports performance, and chronic disease management.

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