

MEETING ABSTRACT

Open Access

Fascia as a Proprioceptive Organ and its Role in Chronic Pain - a Review of Current Literature

Cornelia Kopeinig, Barbara Gödl-Purrer*, Beate Salchinger

From Safety in hospitals: from strategy to implementation Annual Scientific Meeting 2015
Graz, Austria. 29-30 September 2015

Background

Latest research shows that the fascia is highly innervated. Especially the thoracolumbar fascia exhibits a high density of mechanoreceptors [1]. They are responsible for afferent proprioceptive information, i.e. implicit information about joint position and movement. In chronic pain patients, proprioception is impaired and studies indicate that connective tissue structures in painful body parts exhibit pathological changes. Thus, a hypothetical connection between the chronification of pain and proprioceptive deficits exists. This should be considered when treating chronic pain [2]. So far, the connection between fascial and proprioceptive dysfunctions has not been elaborated from a physiotherapeutic point of view, even though fascia and its proprioceptive ability could explain the working mechanisms behind physiotherapeutic methods such as manual therapy [3,4].

Objectives

Which proprioceptive abilities of fascia are relevant for physiotherapeutic clinical reasoning and treatment of chronic pain?

Material and methods

Literature search was performed via Medline, Pubmed, CINAHL, PeDro. Data extraction followed the Consort criteria in its latest version.

Results

The thoracolumbar fascia is densely innervated with mechanoreceptors, which fulfill an important task in proprioceptive processing. Besides the finding that the thoracolumbar fascia is pathologically altered in a low back pain population, this population displays proprioceptive

deficits, measured with joint positioning sense and two-point discrimination, too [2,5]. Fascia should therefore be considered a cause of pain and proprioceptive deficits and treatment should be applied accordingly. Manual therapy could be used to regain proprioceptive acuity in the region of pain. The passive movement with different frequencies, amplitudes and intensities stimulates fascial tissue and the mechanoreceptors. Through this stimulation, additional proprioceptive input is generated, which could lead to altered central processing. This in turn leads to tonus regulation and better performance in proprioceptive assessments [5]. Therapists should include this effect in their clinical reasoning in order to apply more specific treatments.

Conclusions

The impact of physiotherapeutic treatment on fascia could establish a completely new perspective in clinical reasoning and therapy. Only few studies exist on proprioceptive deficits, their assessment and treatment in relation to pain. Further research is required, since the proprioceptive properties of fascia could be an integral part in explaining chronification mechanisms of pain as well as therapy methods; how they are applied and the underlying mechanisms involved.

Competing interests

There are no competing interests.

Acknowledgements

This is a thesis submitted in part fulfilment of the award of the degree of Bachelor of Science in Physiotherapy (Student: C. Kopeinig; Tutor: B. Goedl-Purrer MSc; Head of department B.Salchinger, MSc, MSc)

Published: 30 October 2015

References

1. Tesarz J, Hoheisel U, Wiedenhöfer B, Mense S: **Sensory innervation of the thoracolumbar fascia in rats and humans.** *Neuroscience* 2011, **194**:302-308.

* Correspondence: Barbara.goedl-purrer@fh-joanneum.at
Institute of Physiotherapy, FH JOANNEUM, University of Applied Sciences,
Graz, Austria

2. Langevin HM, Tuttle-Stevens D, Fox JR, Badger GJ, Bouffard NA, Krag MH, Wu J, Henry SM: **Ultrasound evidence of altered lumbar connective tissue structure in human subjects with chronic low back pain.** *BMC Musculoskeletal Disorders* 2009, **10**:151-160.
3. Schleip R: **Fascial plasticity - a new neurobiological explanation: Part 1.** *Journal of Bodywork & Movement Therapies* 2003a, **7**(1):1-9.
4. Schleip R: **Fascial plasticity - a new neurobiological explanation: Part 2.** *Journal of Bodywork & Movement Therapies* 2003a, **7**(2):104-116, (2003b).
5. Simmonds N, Miller P, Gemmel H: **A theoretical framework for the role of fascia in manual therapy.** *Journal of Bodywork & Movement Therapies* 2010, **16**:83-93.

doi:10.1186/2056-5917-1-S1-A2

Cite this article as: Kopeinig *et al.*: Fascia as a Proprioceptive Organ and its Role in Chronic Pain - a Review of Current Literature. *Safety in Health* 2015 **1**(Suppl 1):A2.

**Submit your next manuscript to BioMed Central
and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit

