

Microtearing of the Superficial Layer of Lumbar Fascia as a Source for Low Back Pain

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BACKGROUND: The superficial layer of human lumbar fascia has been shown to serve a load bearing function, particularly during forward bending. It has been suggested that microinjuries in this structure could be a frequent source of low back pain [1,2].

METHODS: A literature search was conducted (Medline 1950-2009 for MeSH terms ‘fascia’ AND ‘lumbosacral region’ OR ‘back pain’). Additionally samples of superficial layer of lumbar fascia were analyzed for the presence of stress fiber bundles containing alpha smooth muscle actin (as a marker for density of myofibroblasts) from 10 rats and were compared with those of 10 human donors. Finally a preliminary study used the same histological analysis with lumbar fascia from a person with acute low back pain.

RESULTS: The literature search yielded 39 relevant papers. Most striking are early surgical documentations (1950-1972) which report frequent signs of injuries in the lumbar fascia in low back pain patients. Histological changes typically associated with inflammation were additionally reported in a more recent study [3]. Our histological comparison of human and rat lumbar fascia indicates a higher density of myofibroblasts in humans. This is further corroborated by the finding of regions with marked myofibroblasts proliferation in the sample from the acute low back pain patient.

CONCLUSION: The frequent occurrence of low back pain associated with the human upright posture seems to be associated with a higher likelihood of injuries (and resulting tissue regeneration processes) in the superficial layer of lumbar fascia. Preliminary indications suggest that such injuries should be further explored as potential generators of acute low back pain.

REFERENCES

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