

## How Much Time is Required to Modify a Fascial Fibrosis?

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**BACKGROUND:** It is theorized that tissue can alter its density due to numerous pathologies, overuse, or trauma, and that different manual and physical techniques could restore it to its normal physiological state. However, no definitive explanation for the biomechanical bases of these transformations exists. Nonetheless, the perception of what appears to be connective tissue fibrosis, and its consequent modification during therapy, is a daily experience for all manual therapists. In addition, a correlation between changes in pain, or discomfort, as experienced by patients during palpation of this fibrotic tissue, and changes in tissue consistencies as perceived by therapists has been reported. Furthermore, in literature, an evaluation of the mean time required for such changes to occur and the correlation between different patient subgroups with different degrees of fibrosis is still lacking. Therefore, the aim of this study was to evaluate the time required to modify a palpatory sensation of fibrosis or “densified fascia” in correlation with changes in levels of patient discomfort. In this study, all subjects were treated according to the methodology of the Fascial Manipulation technique.

**METHODS:** Forty subjects (17M, 23F, 15–67 years old) with mechanical low back pain participated in this study. In all subjects, the pressure pain threshold was evaluated in 6 points of the lumbar region that correspond to the most frequent Centers of Coordination (CC) implicated in low back pain. All subjects were educated to describe their painful sensations using a verbal analogue scale. The most painful point was then treated using the Fascial Manipulation technique. The time required to halve the subject’s initial pain and the time within which the therapist perceived a definite change in tissue consistency was recorded.

**RESULTS:** The mean time necessary to halve the initial pain is 3.24 minutes ( $\pm$ SD 1.3). The mean time for the therapist to perceive modification of tissue fibrosis is 7.2 seconds earlier ( $\pm$ SD 2.3). Specific differences are evident between different patient subgroups. In subjects with sub-acute pathologies (< 3 months), the mean time to halve the pain ( $\pm$  SD) is 2.20 minutes ( $\pm$  1.1), whereas in subjects with chronic problems this time increases (3.29 min  $\pm$  1.3). Differences among the evaluated points are also evident: for the CC of the fascia over the serratus posterior inferior muscle (ER-LU), the mean time to halve the pain is 2.56 min ( $\pm$ 0.9). For the CC of the fascia over the quadratus lumborum muscle (LA-LU) it is 3.73 min ( $\pm$ 1.3) and for the CC of the fascia over the lumbar erector spinae (RE-LU) the mean time is 2.91 min ( $\pm$ 1.1). In younger subjects (<25 yrs), the mean time to halve pain is 3.43 min ( $\pm$ 1.2), in adults (26-55 yrs) 2.98 min ( $\pm$ 1.4) and in older subjects (>55 yrs) 3.2 min ( $\pm$ 1.2). A small difference also exists between males (3.38 min  $\pm$  1.2) and females (2.98 min  $\pm$  1.4).

**CONCLUSIONS:** This study evidenced, for the first time, the existence of differences in the time required to modify an apparent fascial density according to variations in subject age, chronicity of symptoms, and location of the densified tissue. In particular, a statistical relevance was noted in the difference between sub-acute and chronic patients ( $p < 0.01$ ) and in the differences between the specific points that were manipulated ( $p < 0.05$ ).