How Much Force is Required to Treat the Lumbar Fasciae?

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BACKGROUND: When treating the fascia, it is a common experience for all physical and manual therapists that a different force is required according to the area being treated and the characteristics of the individual subjects. Notwithstanding, in literature, studies relative to the amount of force required to effect fascial tissue or the differences between applications to the diverse fasciae are still lacking. According to the Fascial Manipulation method, within the same fascia it is possible to identify specific points known as Centers of Coordination (CC) that, when "fibrotised", due to any pathological process (trauma, surgery, overuse), are found to be more sensitive to pressure. On firm palpation, this type of "fibrosis" often produces a characteristic piercing pain. The aim of this study was to quantify the amount of pressure required to evoke a similar piercing pain.

METHOD: 30 subjects (16 f, 14 m, mean age 34.4) affected by chronic low back pain (< 3 mths) with a mean VAS of 6.2 participated in this study. Criteria for exclusion included subjects with herniated discs, pregnancy, women during menstruation, and acute low back pain. No subjects were receiving pharmacological treatment during the test period. An analogical algometer (Wagner Instruments, model FDN 100, pressure surface 1cm^2 (sensitivity ±1N) was used to measure pressure applied at the selected sites. Three CC frequently implicated in low back pain were investigated: the CC over the fascia of the erector spinae at the L1 level (known as RE-LU), the CC over the fascia of quadratus lumborum immediately below the 12th rib (LA-LU), the CC over the insertion of the internal obliques onto the 12th rib (ER-LU). All points were measured bilaterally and the algometer was calibrated to a maximum pressure of 100N/cm^2. While applying a perpendicular force to the skin, subjects were asked to report when a piercing pain was experienced and this value was then measured. Apart from differences in age and gender, height and weight were also measured.

RESULTS: From this study, it emerged that the pressure required to evoke a piercing pain in the three points evidenced distinct differences: in the CC of RE-LU, a mean force of 73,5N was required; in the CC of LA-LU a mean force of 61,97N; CC of ER-LU a mean force of 35,83N. In women, a mean force of 17, 47% less was required with respect to that in men, whereas no correlation was observed between pressure and BMI (Body Mass Index), or between pressure and age variations.

CONCLUSIONS: It is probable that the pressure values evidenced in this study overestimate the amount of force that a therapist normally needs to apply to dissolve a fascial "fibrosis". In fact, treatment is commonly more effective if the fascia is mobilized using deep, prolonged, and tangential friction. However, it is interesting to note that a statistically significant difference exists between the pressures required in the three points examined in this study. This could be due to the specific characteristics of the fasciae and their localization with respect to the underlying muscle layer. In fact, the CC of RE-LU is localized more deeply, over the fascia of the erector spinae (F=73,5N), whereas LA-LU, over the fascia of quadratus lumborum, is at a more intermediate depth (F=61,97N), and ER-LU is over a thinner, more superficial fascia (F=35,83N).