Effect of MELT method on thoracolumbar connective tissue

Faria Sanjana1, Hans Chaudhry, PhD1, Thomas Findley, MD, PhD2,
1Department of Biomedical Engineering, New Jersey Institute of Technology, Newark, NJ 07102
2VA Medical Center, East Orange, NJ 07108 Phone: 973-641-9180 Email:fs256@njit.edu

BACKGROUND: Altered connective tissue structure in the lumbar spine was seen in subjects with chronic or recurrent low back pain (LBP) [1]. Myofascial Energetic Length Technique (MELT) is a hands-off technique that is said to rehydrate connective tissue and reverse the effects of chronic inflammation [2]. The objective of this study is to determine how the thickness of connective tissue and other biomechanical properties of subcutaneous muscle tissue may change in subjects with chronic LBP as a result of MELT.

METHODS: Ultrasound images of the low back were taken with Terason T3000 at 2 cm lateral to the midpoint of L2-3 spinous process. The thickness of the thoracolumbar fascia was calculated in MATLAB using the algorithm developed by Langevin et al.[1]. A hand-held digital palpation device, MyotonPRO [3] [4], was used to measure the biomechanical properties at 2 cm lateral to the midpoint of L2-3 spinous process, 2 cm lateral to T9-10 and 2 cm lateral to S2-3. We also conducted forward bending tests, with subjects performing trunk flexion reaching down to the floor. After informed consent, in a single session, baseline measures on right and left sides were taken in 7 subjects with chronic low back pain, VAS pain scale 2 to 6. Subjects then received MELT treatment for 30 minutes, and following a 5-minute break, repeat measures were taken.

RESULTS: Results are presented for the first 7 subjects after MELT. There was a 20% decrease (p=0.35) in perimuscular connective tissue thickness on the right side L2 paraspinal muscles. Average stiffness on the left side of the 3 regions decreased by 2% (p=0.60) in S2-3, by 3% (p=0.37) in L2-3 regions, and by 7% (p=0.32) in T9-10. There was an increase in the average mechanical stress relaxation time for the S2-3 region of 8% (p=0.045). Forward flexion increased from -9.1 ± 3.8 inches to -7.6 ± 2.2 inches (p=0.15). VAS pain score decreased from 4.6 (range 2-6) to 1 (range 1-1) (p=0.02, Wilcoxon sign rank test).

CONCLUSION: We found a trend toward decrease in subjects’ perimuscular connective tissue thickness and reduction of stiffness and increase of relaxation in paraspinal tissues immediately after MELT. The study will continue with a larger sample size and normal controls. Sample size calculations indicate that about 50 LBP subjects will be needed.


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