ILIOTIBIAL BAND ELASTICITY EVALUATED WITH SHEAR WAVE ELASTOGRAPHY AFTER OSTEOPATHIC RECOIL TECHNIQUE ON THE FIBULA

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BACKGROUND:

Elastography offers new perspectives for understanding manual therapies effects. It allowed Luomala et al. [1] to visualize changes in deep fascia after manual technique, but results were only qualitative. Other authors [2,3] quantified the effect of hip position on iliotibial band (ITB) elasticity using this technology. The objective of this study is to check whether changes in local elasticity of ITB after osteopathic recoil technique (ORT) on the fibula can be measured with shear wave elastography.

METHODS:

Five volunteers (mean age: 26 years-old) agreed to participate in this preliminary study that conformed to the Declaration of Helsinki. They were positioned at rest in lateral decubitus, with hip, knee and ankle flexed at 90°. An ultrasonic probe was positioned on the ITB to measure its local shear modulus (SM) representative of elasticity. First, three elasticity measurements were performed to assess intra-operator variability (repeatability). Then, elasticity measurements were performed ten seconds pre and post ORT on the fibula. This step was repeated three times on one leg with short rest periods in between. Volunteer was then asked to walk, and the same protocol was applied on the other leg.

RESULTS:

SM varied between 12kPa and 193kPa. Repeatability measurements showed a mean variation of 5% (standard deviation: 4.3%). Therefore, a variation of 11.5% (mean variation plus 1.5 times standard deviation) was chosen as significance level for analyzing SM variation after recoil [4].

The first recoil resulted in either 27% decrease or 29% increase in SM. Second and third recoil had a smaller effect. However, 26% decrease in SM was observed for 6 legs out of 10, before the first and after the last recoil. A 54% increase was noted for 3 legs, and variation was not significant for one leg. For one volunteer leg, SM decreased significantly after each recoil.

CONCLUSIONS:

With this preliminary study, variation of ITB elasticity was observed after ORT on the fibula. Results also suggest that the cumulative effect of recoils over time may impact significantly ITB elasticity. Further investigations are required to confirm these observations and give new insight to quantify the effect of osteopathy on tissues mechanical properties.

REFERENCES:

