

endermologie[®] AND MUSCLE SORENESS

Muscle soreness, usually related to eccentric movements, occurs as **muscular pain 12 to 24 hours after unusual physical activity** and may last for **5 to 7 days**.

Although classified as mild injuries, they are accompanied by reduced muscle capacity, restricted movement, stiffness and swelling, thus compromising sports performance.

Moreover, full recovery can take up to 3 weeks and there is a lag between sensations during exercise, muscle soreness and subsequent injuries.

Over the past decade, many hypotheses have been developed to explain muscle soreness, and there is a wide range of different interventions aimed at preventing or reducing symptoms. Many studies have evaluated various types of therapy including **massage**. It has been prescribed since antiquity to improve the performance of athletes, but also to facilitate recovery after intense muscular exercise⁽¹⁾.



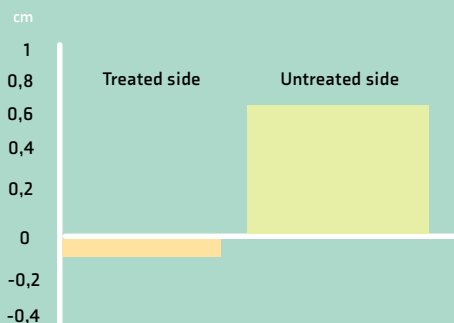
A Chinese-Australian team has analysed 11 studies on the interest of massage in the treatment of muscle soreness involving a total of 504 subjects. Results show that muscular pains is significantly reduced when participants receive **massage** compared to those who do not receive massage after strenuous exercise. In addition, massage therapy has improved muscle strength and reduced serous rate of Creatine Kinase, a biochemical tracer of muscle damage. This analysis shows that massage therapy after strenuous exercise is efficient in relieving muscle soreness and improving muscle performance. The highest efficiency was obtained 48 h after exercise⁽²⁾.

EFFECT OF endermologie® TECHNIQUE ON RECOVERY FROM MUSCLE SORENESS (3,4)

A study has been carried out to quantify the effects of endermologie® sessions on the recovery of muscle soreness induced by intense physical exercise. Ten healthy volunteers have participated in an experimental protocol involving a **40-minute running** test on a treadmill inclined at 10% in the downhill direction. These same volunteers have received a 10-minute endermologie® treatment every day on one thigh during 6 days after the test. Various measurements have been taken (quadriceps strength, thigh circumference, pain) in the treated and untreated thigh (control group) before, just after, and 1, 2, 3, 4 and 5 days after the test.

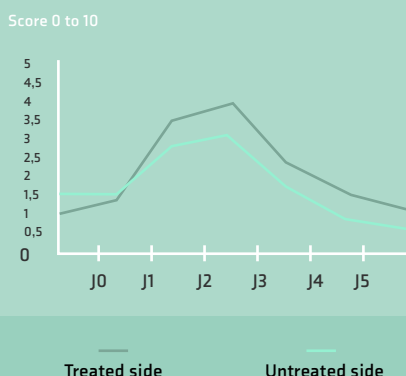
THE 3 MAIN RESULTS SHOW:

THIGH CIRCUMFERENCE VARIATION AT D2.



A significant increase in thigh circumference on the control side, oedema reflect resulting from eccentric work. The endermologie® sessions have limited its appearance on the treated side.

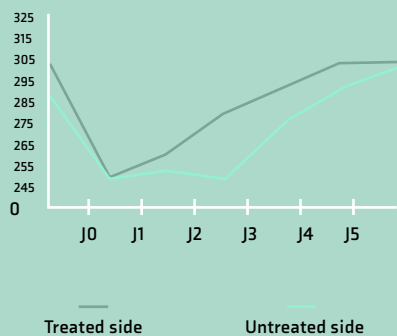
PAIN ON CONTRACTION LESS PRONOUNCED ON THE TREATED SIDE



Significantly less pain at maximum contraction on the treated side, probably due to the absence of oedema.

RECOVERY OF MUSCLE STRENGTH AFTER EXERCISE

Quadricep strength



Within 2 days, the decrease in quadriceps strength persists on the untreated side, while recovery is effective on the treated side. The decrease of the pain on contraction has probably helped muscle recovery.

IN CONCLUSION...

Endermologie® sessions have therefore proved to be efficient in the **recovery** of post-exercise **muscle function** by limiting the development of oedema, which has probably limited pain and has facilitated the recovery of strength two days after intense physical exercise. They are also used by sportsmen and athletes in many disciplines.

SOURCES :

1. Heiss R. et al. Advances in Delayed-Onset Muscle Soreness (DOMS) - Part II: Treatment and Prevention. Sportverletz Sportschaden. 2019 Mar;33⁽¹⁾:21-29. Epub 2019 Mar 13.
2. Guo J et al. Massage Alleviates Delayed Onset Muscle Soreness after Strenuous Exercise: A Systematic Review and Meta-Analysis. Front Physiol. 2017 Sep 27;8:747.
3. Portero P; , Vernet J.M. Effects of the LPG Technique on the recovery of muscle function after Strenuous physical exercise Ann. Physiotherapist. 2001, T. 28, n°4, PP 145-151.
4. Portero P., Canon F., Duforez F. Effects of a new massage technique on the recovery of muscle soreness. 18th Congress of the French Society of Sport Medicine; 1st-4th October 1998, Lille.



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