

**A new treatment technique on delayed onset muscle soreness
recovery: Preliminary study on physiological mechanisms**

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Unaccustomed or eccentric muscle exercise causes delayed muscle onset soreness (DOMS) which can be detrimental for exercise adherence and performance. Classical physiotherapy modalities used have equivocal effects on DOMS. This study tries to investigate the effects and the actual physiological mechanisms by which a new technique (LPG Systems) could influence recovery from DOMS induced by eccentric exercise. LPG technique associates a suction action with a mobile rolled technique for the mobilization of soft tissue.

Studies were performed on 30 healthy men and showed the effects on thigh circumference, quadriceps muscle soreness and loss of strength (about 15 %) after downhill running.

Significant differences were noticed between treated (LPG) and non-treated side:

- 1) Circumference of the untreated thigh was higher.
- 2) Muscle soreness during maximal isometric contraction was reduced on the treated side.
- 3) Maximal strength recovery was quasi-effective on the treated side 2 days after running, whereas the recovery on the untreated side was delayed until 5th day post-exercise.

These differences are probably due to the absence of oedema on the treated side.

Magnetic Resonance Imaging (T2 relaxation times) was also used, which reflects changes in cell water due to oedema and muscle swelling for the determination of the anatomical location of the injury sites as well as for the follow-up of repair process.

The LPG technique is efficient for DOMS recovery. Mechanisms probably involve the facilitation of the interstitial or intracellular liquid mobilisation in order to limit the oedema.