Neuromuscular Electrical Stimulation (NMES)

**Patient name**

**Background**
Neuromuscular electrical stimulation (NMES) is often used in cases where voluntary muscle contractions are inhibited after injury or surgery because of its ability to induce action potentials in the motor nerves and overrule inhibition. This condition is often referred to as arthrogenic muscle inhibition.

Muscle weakness after surgery or injury can partly be explained by atrophy of the muscle, but also this decreased ability to activate the muscle fibres available.

Furthermore, NMES can be applied as a complementary intervention to regular exercise training programs.

**Intervention**
A 2018 Systematic Review (1), for the used of NMES effect in strengthening the quadriceps muscle after anterior cruciate ligament surgery, shown that the intervention varied from 840 min active stimulation per week to only 3 min and 20 s of stimulation per week.

Most of the studies used a qualitative perception of the maximum “tolerable” or “comfortable” intensity.

In conclusion, there is no clear intervention protocol regarding the use of NMES.

However a recent study showed that a 6 week NMES intervention, perform 5 x per week in a functional sit-to-stand-to-sit (STST) exercise from 15 to 60 days after ACL (BTB-reconstruction) surgery (18-40yr) starting from 90 degree knee flexion angle with a progressive protocol had a higher outcome for STST / lower extremities loading and CMJ was measured on a force platform up to 180 days after ACL surgery.

The NMES group had less pain compared to exercise alone and usual care.

**Reference**
1) Hauger, A. H. et al, Neuromuscular electrical stimulation is effective in strengthening the quadriceps muscle after anterior cruciate ligament surgery, Knee Surgery, Sports Traumatology, Arthroscopy, 2018, Volume 26, Number 2, Page 399

**Notes**