

Neuromuscular Electrical Stimulation Superimposed on Movement Early after ACL Surgery

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Med Sci Sports Exerc. 2017 Oct 20. [Epub ahead of print]

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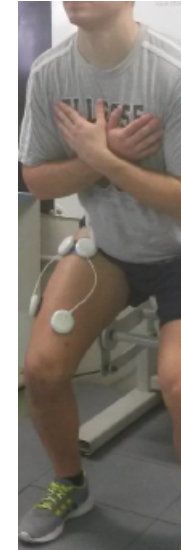
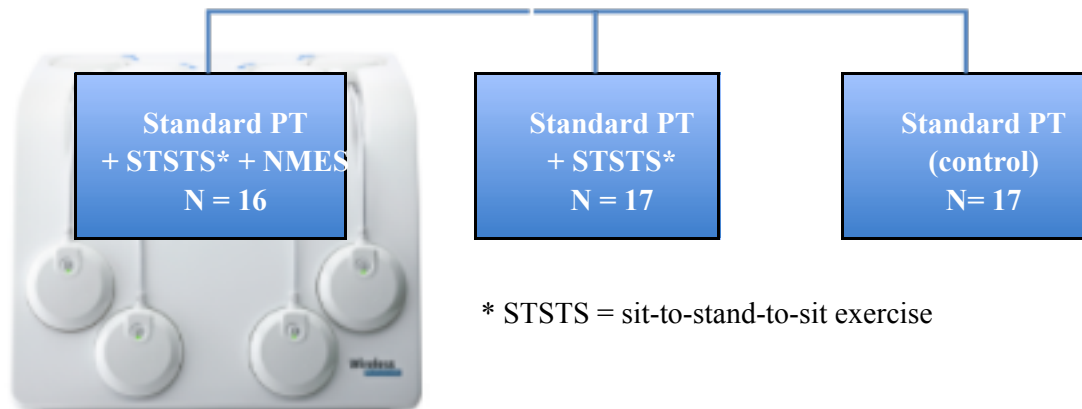




Design & methods

- Randomised controlled trial
- 63 ACLR patients (autologous bone-patellar tendon-bone graft)

50 patients completed 6-months follow-up

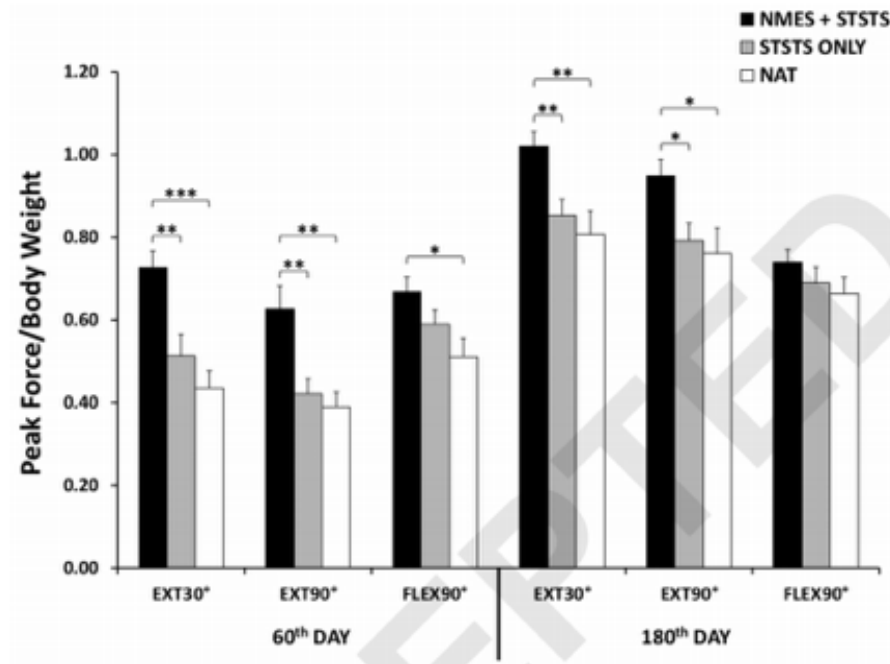


Active exercise and **Wireless Pro** NMES were started at 15th postop day for 6 wks

- Main outcome measures:
 - Knee extensor and flexor max voluntary isometric strength (MVIC)
 - Knee joint pain during MVIC exercise
 - Symmetry of lower extremity loading during sit-to-stand and countermovement jump
 - Knee/Thigh circumference (difference between operated and non-operated leg)



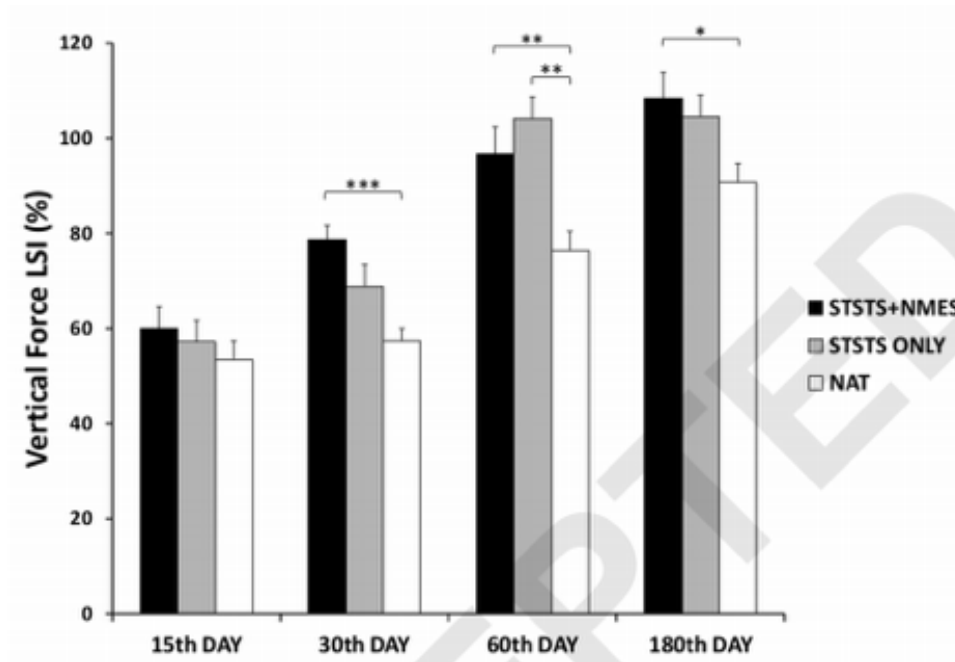
Results: 1. Max isometric knee extensor/flexor strength



Significantly higher quadriceps strength in superimposed-NMES group than STSTS only group and control group at 2m and 6m follow-up



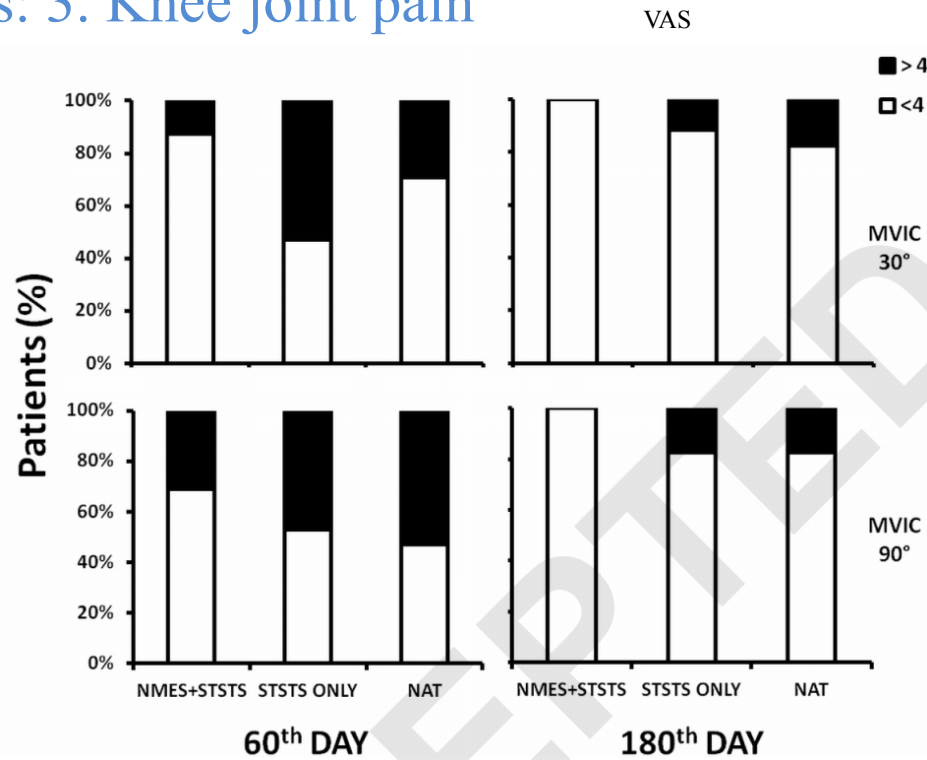
Results: 2. Limb symmetry index during sit-to-stand



Significantly higher limb symmetry index in superimposed-NMES group than STSTS only group at 2m follow-up



Results: 3. Knee joint pain



Significantly less pain (VAS<4) during max voluntary quadriceps contraction exercise in superimposed NMES group than other groups



Results: 4. Anthropometric measurements

- **Significantly lower between-limb difference of thigh circumference** in NMES+STSTS group compared to STSTS ONLY and control groups at 1, 2 and 3 months postop.
- No differences were found between STSTS ONLY and control groups.



Conclusions

- The NMES+STSTS participants showed **higher muscle strength of the knee extensors**, which was accompanied by **lower perception of pain**, and **higher symmetry in lower extremity loading** compared to STSTS-only and control participants after both 60 and 180 days from surgery.

Early intervention based on NMES superimposed to repeated STSTS exercises is effective for recovering quadriceps strength and symmetry in lower extremity loading by the time of return to sport.

iDJO/Dealernet: http://intranet.djo.eu/en_US/detail-30927.html?tax=134773

Pubmed abstract: <https://www.ncbi.nlm.nih.gov/pubmed/29059108>

Journal website: <http://journals.lww.com/acsm->

[msse/Abstract/publishahead/Neuromuscular_Electrical_Stimulation_Superimposed.97078.aspx](http://journals.lww.com/acsm-msse/Abstract/publishahead/Neuromuscular_Electrical_Stimulation_Superimposed.97078.aspx)