

Source
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Abstract

BACKGROUND:
A proper knee rehabilitation after a surgical reconstruction of the anterior cruciate ligament (ACL) should start immediately after the injury and it should be focused on recovery of symmetry, proprioception, swelling reduction, gait training, hyperextension exercises, and even mental preparation.

AIM:
Aim of this study was to test a neurocognitive rehabilitative approach based on proprioceptive exercises and proper motor strategy choices, compared with conventional rehabilitation, assessing baropodometric, gait and clinical changes.

DESIGN:
Randomized controlled trial.

SETTING:
Ambulatory University Centre.

POPULATION:
Fourteen subjects (27.9±5.2 years) underwent to a surgical reconstruction of ACL were divided into the two groups.

METHODS:
The subjects were randomly assigned into a group who received a specific neurocognitive and perceptive rehabilitation treatment (TG), and into a control group who received the common physical therapy (CG). The following outcome measures were assessed pre-intervention, one, three and six months later: static and dynamic baropodometry, Visual Analog Scale for pain, Short Form SF-36, Range of Motion, trophism of thigh region, edema, Manual Muscle Test, magneto-resonance imaging assessment.

RESULTS:
Lower impairment was observed in TG in respect of CG in terms of load asymmetry during static baropodometry (from 7% to 3% vs. from 10% to 7%, interaction time per treatment: P=0.037), less wide steps during gait (effect size=1.05 vs. 0.38 for CG), swelling (treatment effect: P=0.012). A significantly higher improvement (from 35% to 100%) in terms of SF-36 was recorded only in TG for physical activity (P=0.027). CG showed a quite higher walking speed (treatment effect: P=0.049).

CONCLUSION:
Even if further studies are needed on larger samples, the obtained results showed that a neurocognitive rehabilitative approach could be an effective treatment after ACL-reconstruction: in TG we observed a more rapid load symmetrization, the reduction of step width and a more rapid resolution of edema. CLINICAL REHABILITATION IMPACT: Posture, gait, clinical features and quality of life could benefit from a neurocognitive rehabilitation after ACL surgical reconstruction.