

# **A novel mechanotronic Orthosis enables symmetrical Gait Kinematics in a Patient with a Femoral Nerve Palsy - Case report**

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Introduction: For decades now, patients with loss of the quadriceps muscle are limited in function despite their therapeutic remedies. Shortcomings of knee-foot-ankle orthoses and stance control orthoses (SCOs) may be overcome by pneumatic, hydraulic and microprocessor-controlled systems.

Patient: A 37-year-old woman had undergone surgical reconstruction of the right-sided posterior cruciate ligament in 2005 in a local hospital, after experiencing accidental rupture while skiing. The intraoperative femoral nerve block led to a permanent high-grade axonal lesion of the femoral nerve. The patient was eventually unable to walk without crutches.

Result: The fitting of a SSCO (Stance and Swing Control Orthosis, C-Brace, Otto Bock, introduced in 2012) in 2013 transformed her daily routine. C-brace enabled the patient to safely walk without crutches. The extension/flexion patterns in the hip and the knee of the SSCO side nearly matched those of the healthy leg.

Conclusion: Stance- and swing-phase control orthoses (SSCO) may enable patients with loss of muscular function due to different neuro-musculo-skeletal disorders to remarkably improve their gait.