Abstract

Long term isokinetic evaluation of the knee flexor muscles after ACL reconstruction, using gracilis and semitendinosus tendon grafts

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The aim of this study was to evaluate the regain of thigh flexor muscular force after ACL reconstruction, using gracilis and semitendinosus tendon grafts.

The isokinetics of the hamstrings muscles was evaluated during the second postoperative year after ACL reconstruction in twelve patients with mean age 26 years (range 21–35). Concentric (60°/sec; 180°/sec and 300°/sec) and eccentric (60°/sec) measurements were performed by a isokinetic dynamometer. The registered parameters on flexors were 1) the peak torque (PT), (Nm), 2) the moment force at 75° flexion (MF75), (Nm) and 3) the work performed at 90° ROM (W), (J). The parameters of the quadriceps were 1) the peak torque (PT), (Nm), 2) the work performed at 90° ROM (W), (J).

In the concentric measurements on flexors, there was a significant difference in the PT only at 60°/sec (\( p = 0.013 \)) between the operated and non-operated limb, and in MF75 there was a significant difference at the two lower velocities (60°/sec \( p = 0.003 \); 180°/sec \( p = 0.042 \)). As regards W there was a significant difference at low and high speed (60°/sec \( p = 0.012 \); 300°/sec \( p = 0.039 \)). There was a significant difference in the eccentric measurements in PT (\( p = 0.018 \)) and in MF75 (\( p = 0.002 \)). There was no significant difference in the quadriceps parameters.

This study showed a significant persistent loss of muscular force in the knee flexors, at most 15–25% at 75° flexion, more than one year after ACL replacement. This persistent weakness in the flexors late after surgery illustrates the problem of lack in muscular protection.
of the knee joint, already impaired by an ACL injury, when hamstrings tendon grafts are used.