Tendon and fascial structure contributions to knee muscle excursions and knee joint displacement

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BACKGROUND. Semitendinosus and gracilis muscles whose tendons are used in surgical reconstruction of the anterior cruciate ligament maintain their contractile ability, and a limited decrease of hamstring muscles force is observed postoperatively despite important changes [1-4]. The goal was to quantify the influence of the myofascial structures on excursions and moment arms of knee muscles to attempt explaining the above-mentioned post-surgical observations.

METHODS. Hamstring harvesting procedures were performed by a senior orthopaedic surgeon on seven lower limbs from fresh-frozen specimens. Femoro-tibial kinematics and tendons excursion were simultaneously recorded at each steps of the surgery.

RESULTS. No significant difference was demonstrated for excursions and moment arms after tenotomies and gracilis tendon harvesting (p ≥ 0.05). The first significant semitendinosus excursion (p<1.17x10^{-4}) and moment arm (p<6.88x10^{-5}) decrease was observed after semitendinosus tendon harvesting (46% of the initial excursion) [5].

CONCLUSION. Gracilis and semitendinosus myofascial pathway is crucial for force transmission towards the knee joint.

REFERENCES
