FUNCTIONAL OUTCOMES FOLLOWING MEDIAL PATELLOFEMORAL LIGAMENT RECONSTRUCTION: A PILOT STUDY

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Introduction: Previous studies have acknowledged the medial patellofemoral ligament (MPFL) as the primary structure that provides stability to the patella. Typically, surgical intervention is reserved for patients with recurrent patellofemoral instability or osteochondral fractures. MPFL reconstruction restores stability and functionality to the patellofemoral joint and has emerged as the preferred treatment option. However, a lack of objective criteria on knee function following MPFL reconstruction presents challenges to clinicians assessing when patients may resume sport activities.

Hypothesis: Patients following MPFL reconstruction will demonstrate functional deficits at the time of full release to sport.

Methods: A prospective case control design was employed on a total of 16 athletes who underwent MPFL reconstruction and were medically cleared to return to sport. These athletes were age, gender, and activity matched to 15 healthy controls with no history of lower extremity injury. Subjects and controls completed validated questionnaires, hopping, jumping, and cutting tests with 3D motion analysis, and underwent strength, flexibility, laxity, and balance measurements.

Results: The mean patient age for the 16 (6 M, 10 F) athletes who underwent MPFL reconstruction was 16.1 ± 2.74 years. The mean age for the 15 (5 M, 10 F) healthy controls was 17.1 ± 3.27 years. Patients following MPFL reconstruction demonstrated reduced hip and ankle flexion in involved limb relative to matched control limb ($P<0.05$). The reduced sagittal plane range of motion at ankle and knee were associated with trend towards increased hip flexion in MPFL cohort. No statistically significant difference was found in anthropometrics, knee extension or flexion strength, hamstring flexibility, hip peak torque, and joint laxity between MPFL subjects injured and control limbs.

Conclusions: MPFL subjects tended to have increased hip range of motion combined with reduced sagittal plane range of motion at ankle and knee on the uninjured limb during landing. These minor alterations in landing mechanics were not associated with any concomitant strength or anthropometric outcomes. These results indicate that MPFL reconstruction can effectively restore function-landing strategies to the injured limb. Future trials are necessary to understand the effects of MPFL on long-term outcomes and secondary injury in athletes who return to sport.

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