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ISOKINETIC DEFICITS AT 6 MONTHS AFTER ACL RECONSTRUCTION INFLUENCE THE RATE OF REINJURIES AND ACTIVITY LEVEL

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Background Recent evidence suggests that athletes may not be prepared to return to sport at 6 months following an anterior cruciate ligament (ACL) reconstruction.

Objective Identify knee isokinetic neuromuscular deficits at 6 months after ACL reconstruction and assess if deficits impact on the rate of new knee injuries and level of activity.

Design Retrospective study.

Setting Recreational and competitive athletes.

Patients (or Participants) Fifty-eight patients (27.1±7.1 years old; 79% male) that underwent ACL reconstruction (62% hamstrings and 38% bone-patellar-tendon-bone grafts) and that performed the knee isokinetic testing at 6 months.

Interventions (or Assessment of Risk Factors) Bilateral knee isokinetic assessment at 6 months, 6 and 8 Con/Con repetitions, at 60°/s and 180°/s, respectively.

Main Outcome Measurements Peak torque of knee extensors and flexors at 60°/s and 180°/s and Con/Con unilateral ratio. Prevalence of bilateral (>10%) and unilateral ratio (<0.47 and >0.80) abnormalities. The level of activity (Tegner) and number of new knee injuries (ACL or other knee injury).

Results Fifty-two participants (90%) had bilateral deficits at 60°/s, 74% and 59% for knee extensors and flexors, respectively. Unilateral abnormalities were present on 16% of participants at 60°/s and 180°/s. Thirty-seven participants had 2 or more years follow-up (28 hamstrings and 9 bone-patellar-tendon-bone graft). From these, there were 4 new ACL injuries (75% contralateral) and 8 other knee injuries (50% contralateral). Rate of new knee injuries was more frequent on hamstrings graft (25% vs 10%). Those with bilateral deficits at 60°/s (n=31) had higher rate of new knee injuries (23% vs 17%) and higher rate of Tegner level decrease (45% vs 17%).

Conclusions We found an unacceptably high rate of participants (90%) display knee isokinetic bilateral deficits at 60°/s at 6 months after ACL reconstruction. Bilateral deficits seem to influence the rate of new knee injuries and Tegner activity level.

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ASSESSMENTS FOR NEUROMUSCULAR CONTROL AFTER AN ANTERIOR CRUCIATE LIGAMENT INJURY TO DECIDE UPON RETURN TO SPORTS

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Background Adequate neuromuscular control of the knee could be one element to prevent secondary injuries after an anterior cruciate ligament (ACL) injury. However, it is unclear which measurements should be used to assess neuromuscular control of the knee for a safe return to sports (RTS).

Objective To summarize assessments for neuromuscular control after an ACL injury to decide upon a safe RTS.

Design Systematic literature review, registered in PROSPERO (CRD42019122188).

Setting MEDLINE, EMBASE, CINAHL, Cochrane Library, SPORTDiscus, PEDro, and Web of Science were searched from inception to March 2019 and updated in November 2020. Risk of bias was assessed with a modified Downs & Black checklist.

Patients (or Participants) Male or female adults after an ACL injury, either treated surgically or conservatively. Time from injury until the assessment should be at least six months and the participants should have medical clearance for RTS.

Interventions (or Assessment of Risk Factors) Assessments for neuromuscular control in ACL-injured adults compared to the contralateral limb or healthy controls during dynamic activities.

Main Outcome Measurements Outcome measures describing neuromuscular control of lower limb muscles in domains of time, amplitude or activity related to electromyography (EMG).

Results From initially 1388 hits, a total of 38 mainly cross-sectional, case-controlled studies were included for qualitative analysis. Most studies provided surface EMG outcomes of thigh muscles during jumping, running or squatting. Outcomes measures described neuromuscular control of the knee in domains of time, amplitude or activity. Risk of bias was medium to high due to an unclear description of participants and prior interventions, confounding factors and incompletely reported results.

Conclusions Despite a wide range of EMG outcome measures for neuromuscular control, none was used to decide upon a safe RTS. Additional studies are needed to assess neuromuscular control in adult ACL patients to prevent secondary injuries.

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RISK FACTORS FOR CONTRA-LATERAL SECONDARY ANTERIOR CRUCIATE LIGAMENT INJURY: A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Background There is limited knowledge about which risk factors that contribute to the high numbers of contra-lateral anterior cruciate ligament (C-ACL) injury after primary ACL injury.

Objective To systematically review intrinsic risk factors for sustaining a C-ACL injury.

Design A systematic review with meta-analysis according to the PRISMA guidelines. Four databases (MEDLINE, CINAHL, EMBASE, Sport Discus) were searched from inception to January 2020. Meta-analyses were performed and expressed as odds ratios (OR).