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RUNNING PATTERN ASYMMETRY EVALUATION AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION COULD BE A WAY TO DETECT RE-INJURIES

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10.1136/bjsports-2021-IOC.181

Background A test battery is recommended after anterior cruciate ligament reconstruction (ACLR) to help decision-making of return to sport (RTS). Running is important in RTS continuum, but it is currently not included in the usual test batteries. Could running pattern asymmetry, which can be observed after ACLR, be considered as a risk factor of ACL re-injuries?

Objective To analyse the interest of adding running pattern evaluation in test battery after ACLR.

Design Prospective cohort study.

Setting Patient with ACLR with Tegner score >6 and Marx Scale score >8 before first ACL injury.

Patients (or Participants) 21 patients (12 women) with primary ACLR (graft type: Patellar (n=4) or Hamstring tendon (n=17)) without major chondral and/or meniscal lesion.

Interventions (or Assessment of Risk Factors) Running pattern evaluation was performed on a motorised instrumented treadmill in addition to recommended tests (questionnaires, knee laxity, Hop Tests and isokinetic evaluation) at 6 months after ACLR. ACL re-injuries were prospectively collected during the two years after ACLR, and comparisons between parameters were performed between ACLR patients who presented or not an ACL re-injury

Main Outcome Measurements Limb symmetry Index (LSI=operated leg/healthy leg x100) were calculated for running variables (Stride Length, Loading Rate, Leg Stiffness) and other parameters of test battery. Means were compared between groups.

Results Five patients had a re-injury (3 W/ 2 M), without significant differences in baseline characteristics (sport level, training frequency) with un-re-injured patients. For running variables, there was a significant difference for LSIs of Stride Length (Re-injury group $95.8 \pm 2.3\%$ vs $99.0\% \pm 1.8\%$, $p=0.003$), Loading Rate ($86.9 \pm 13.3\%$ vs $98.3 \pm 9.6\%$, $p=0.025$), and Leg Stiffness ($112.6 \pm 7.3\%$ vs $103.7 \pm 8.0\%$, $p=0.035$), while there were no statistical differences for LSIs of other parameters of test battery.

Conclusions As greater running pattern asymmetry was reported in patients with ACL re-injury, this approach could be of interest for secondary prevention.

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RESPONSIVENESS OF THE ANTERIOR CRUCIATE LIGAMENT – RETURN TO SPORTS AFTER INJURY (ACL-RSI) AND INJURY – PSYCHOLOGICAL READINESS TO RETURN TO SPORT (I-PRRS) SCALES

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10.1136/bjsports-2021-IOC.182

Background Both physical and psychological readiness are important for a successful return to sport (RTS) and secondary prevention. The ACL-Return to Sport after Injury (ACL-RSI) and Injury-Psychological Readiness to Return to Sport (I-PRRS) scales were developed to assess psychological factors associated with RTS. Validity and reliability have been determined but responsiveness of both scales has not been examined yet.

Objective To investigate the responsiveness of the Dutch ACL-RSI and I-PRRS scales.

Design Prospective, cohort study.

Setting Patients from a university and regional hospital.

Patients Seventy athletes with ACL reconstruction 3–9 month previous to the start of the study completed both scales twice two months apart, plus a Global Rating of Change (GRC) questionnaire.

Main Outcome Measurements Distribution and logistic regression-based methods were used to study responsiveness.

Results The Standardized Response Mean (SRM) for the ACL-RSI was 0.3 and for the I-PRRS 0.1. The minimally important change (MIC) for ACL-RSI was 2.6 and for the I-PRRS 0.9. Since the smallest detectable change (SDC) was larger than MIC in individual patients, it does not seem possible to distinguish minimally important changes from measurement error in individual patients with either scale. At group level responsiveness of both scales seemed sufficient.

Conclusions In individual patients the responsiveness of the ACL-RSI and I-PRRS scales seems to be insufficient to detect changes in confidence over time with regard to return to sport after ACLR. Neither scale is able to distinguish minimally important changes from measurement error in individual patients. The scales are therefore less suitable for monitoring the effectiveness of individual interventions and to judge whether a patient has reached a change of importance. At the group level responsiveness seems sufficient, so the two scales can be used to investigate the effectiveness of an intervention at the group level.

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CHALLENGING ACL RECONSTRUCTED ATHLETES AND THEIR SENSORIMOTOR SYSTEM AT RETURN-TO-SPORT: A VITAL STEP TOWARDS EXPOSING THE ROOTS OF THEIR NEUROMUSCULAR DEFICITS

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10.1136/bjsports-2021-IOC.183

Background Evidence increasingly suggests that neuromuscular alterations in ACL reconstructed (ACLR) patients are rooted in neurocognitive and proprioceptive deficits.

Objective The aim of this study was to reveal how neurocognitive and proprioceptive deficits determine neuromuscular control alterations seen in ACLR athletes.

Design Cross-sectional study.

Setting Athletes who return to a cutting or pivoting sport after an ACL reconstruction.

Patients 20 athletes who had an ACL reconstruction and were cleared by the surgeon/physiotherapist to return to sport (RTS), were tested at time of RTS. A control group of 20