

# How long do motor deficits persist after ACL reconstruction? A long-term quantitative performance assesment.

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## Introduction

Decision making regarding return to sport (RTS) after ACL reconstruction surgery (ACLR) is subject of debate in the literature. In recent years it has emerged that the time parameter is not sufficient to define the readiness for RTS [1]. The high re-injury rate [2] and the low percentage of return to pre-injury levels [3] show how necessary it is to objectively measure any motor performance deficits to create protocols aimed at recovering motor skills. The purpose of the study is to measure the presence of motor performance deficits in patients at least 9 months after ACLR and comparing the results with those of a control group.

## Methods

The sample includes 28 subjects equally distributed in two groups: experimental group A and control group B. All participants underwent a single session assessment of balance with the Biodex platform, proprioception (Joint Position Sense) with X-Sens sensors, vertical jump with the G-Walk sensor and the lower limbs strength with Chronojump Boscossystem dynamometer.

## Results

The results show that the subjects in group A present significant deficits compared to group B in the reproduction of the JPS at 60°(p=0,014), in the postural stability with closed eyes (0,039), in the peak of isometric strength in knee flexion (p=0,002) as well as in all plyometric tests Counter Movement Jump (p=0,012), Squat Jump (0,027), Counter Movement Jump with swinging arms (p=0,005).

**Table 1.** Characteristics of enrolled participants

	Group A	Group B
Participants (n)	14	14
Age (years)	30.8±7.3	27.7±2.7
Gender (female)	4	6

## Discussion

The deficits that emerged in group A are elements that altogether represent an indicator of risk of re-injury of the neo ligament. Therefore, it is essential to provide some complete and objective evaluations of the elements that characterize the performance to early intercept these deficits and intervene to restore the correct motor patterns.

## REFERENCES

- [1] Meredith SJ, et al. J ISAKOS. 2021, 6 (3),138-146.
- [2] Barber-Westin S. et al. Health. 2020, 12 (6), 587-597.
- [3] Waldén M et al. Knee Surg Sports Traumatol Arthrosc. 2011, 19 (1), 3-10.