

HOW TO COMPLETE REHABILITATION AND FOOTBALL RECONDITIONING AFTER ACL RECONSTRUCTION



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Introduction

We can achieve the complete recovery of a football player after Anterior Cruciate Ligament (ACL) reconstruction only if we finish every single phase of the rehabilitation and reconditioning. Where it is possible we should also have a proper measurement of the results during the process (3). The rehabilitation of the player should start before the surgery with an adequate education of the player and with a complete recovery of the range of motion and swelling. We always organise at least one pre-operative session with the physiotherapist in the gym before surgery. In this session we give the player all of the information needed to manage the immediate post operative time in the best way, and try some of the exercises of the first phases. In order to obtain a safe return to professional sport we propose a rehabilitation methodology and programme that is managed by a case manager doctor (2).

Method

The programme for the entire rehabilitation period is designed upon the following progressive functional steps:

- Managing the acute phase. Immediately after surgery the focus should be on the control of the swelling to avoid muscle inhibition during the strengthening phase.
- Walking without crutches and a limp. To allow the player to walk without crutches, we need the consensus of the surgeon, the same extension as the controlateral knee, no more than 0/1 intraarticular effusion, and a correct gate cycle (Coach's Eye).
- Recovery of full range of motion and flexibility. The player need to achieve as soon as possible a complete Range Of Motion (ROM) and is not allowed to leave the crutches if there is not a full active extension.
- Running on a treadmill (Threshold test). We allow the player to start running on the treadmill when there is no pain walking (Numeric Rating Scale <3), when they have 120° of active flexion and when they have a proper muscle tone and control of trunk, thigh and limb. As soon as possible we perform a threshold test on the treadmill to define the proper aerobic training based on the aerobic and anaerobic thresholds.
- Achieving 100% of the strength and endurance of all the muscle of the injured leg compared to the contra-lateral (Isokinetic test). The test provides a quantitative measure of the torque of a specific muscle group in dynamic conditions. The goal of the isokinetic assessment is to understand the ability of the player to express force, power and endurance.
- Full recovery of proprioception and balance (Lybra test). The recovery of proprioception and balance starts as soon as the player leaves the crutches with some simple exercises on the floor; the progression pass through exercises on unstable surfaces on the injured leg than perturbation training during functional movements. The measurement of the result of the training is achieved using a balance test performed on the Lybra board.

Commencing functional activities in a safe environment (Green Room). With all players we always should consider the importance of the gluteus and the core to improve the control of the lower body and in particular the rotational stability of the knee. This type of work is basically done in Closed Kinetic Chain with functional exercises and starts in the gym but is mainly done in a specific, synthetic surfaced, space, which we call the Green Room.

Recovery of sport specific technical skills and physical fitness (Movement Analysis Test and control threshold test). The Movement Analysis Test (MAT) is a biomechanical 2D (motion capture) test thought to predict the likelihood of injuries to the lower limb and to assess if the player is ready to perform and return to sport without risking a recurrence of a specific type of injury, especially to the knee. Practically it consists of a 2D-double frame (frontal and lateral) movement evaluation.

Complete the full programme of field rehabilitation and attend an adequate programme of prevention of re injury (FIFA 11+). Once on the field we progressively bring back the player to a similar training to that normally done with the team and we teach them how to complete, properly, the FIFA 11+ warm up programme (1).

Conclusions

The criteria to allow the player to return to play with the team are:

- Surgeon's consensus
- Complete ROM
- Complete recovery of the strength (Isokinetic test 100%)
- Complete on-field rehabilitation (five phases) and MAT test score ≥ 90 .
- Complete recovery of match fitness (Aerobic Threshold Speed >11.5 km/h; Anaerobic Threshold Speed >13.5 km/h)

All the criteria presented should be considered the traffic lights that we must pass through and subsequent phases are functional and not temporal.

References

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