

## Return to sports after ACL reconstruction: individual considerations

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When, how and if ACL-injured athletes can return to sports is a very controversial topic [1–6]. ACL injuries are still a major problem for the insured athlete and the society, in spite of the great number of research studies published. In fact, even though the number of studies appears to be increasing and our knowledge rapidly increasing as well, new research questions are more and more obvious and relevant. Today, probably the majority of ACL reconstructions are performed using anatomical techniques. And, there is no doubt that during the last decade, the scientific knowledge about injury mechanisms, biomechanics and relevant knee anatomy has substantially increased. We have also studies and accepted prevention as a natural part of the big picture. Today, we have also learned to better understand the term “individualised treatment”. This means that physicians better understand not only the injury mechanism and the knee anatomy, but also the patient who is injured, the requirements and the demands and what the individual athlete wishes to use her/his knee for. Does she/he want to return to sports, in spite of the inherent risk of a reinjury? Or are patients well enough educated about the long-term risks of developing osteoarthritis? And how relevant is it to take the long-term consequences into consideration? Most people like to live for today. Do athletes really care about what happens after 15–30 years?

The main problem in terms of safe return to sports is that until now we really do not know how to evaluate and how to decide on safe return to sports, e.g. football. Previously,

a time-related return to sports has been most common, for instance 6 months after ACL reconstruction? But, during the last years, physicians understand better and better that time-related decisions are not correct and moreover that we must think individually. So, are there any new and better ways to decide on return to sports. What about the objective tests, e.g. strength testing? Approximately 10 years ago, a research group forwarded the idea to use not only one objective test, but a test battery. The reason for this is increased accuracy and less risk of incorrect judgement [1, 4, 5]. The test battery was concentrated around hop performance and strength testing. Myer et al. [4] described criteria-based algorithm that can be used through the entire rehabilitation phase after an ACL reconstruction. They included in their protocol assessment of baseline limb strength, patient-reported outcomes, functional knee stability bilateral limb symmetry with functional tasks, postural control, power, endurance and sports-specific tasks. They concluded that if criteria-based guidelines were not used, this might lead to deficits in proprioception, strength and reaction forces. They also concluded that such deficits might follow the athlete into competitive play and increase the risk of reinjury.

A few years later (in 2011), a group of physiotherapists performed a thorough systematic analysis on the factors that are most relevant in terms of decision-making for safe return to sports [6]. They concentrated mainly on muscle strength recovery after the ACL reconstruction.

In this issue of the journal, Herbst et al. and Hildebrandt et al. have taken this even further [2, 3]. In two studies, they describe the development of a new test battery for functional assessment for decision-making with regard to return to sports following ACL reconstruction [2]. And in the second study, they describe the clinical application of the new test battery [3]. The following tests were included:

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one- and two-legged stability tests, counter-movement jumps, speedy tests, plyometric jumps and quick-feet test [2, 3]. The combination of tests is important, and the measurement of LSI (Leg Symmetry Index) is important. These tests in combination cover the most important neuromuscular abilities that are relevant for safe return to sports. An interesting and important finding was that most athletes were not ready for a safe return to sports 8 months post-operatively. Accordingly, they conclude that the definitive decision should be based on patient-related and sports-demand factors. In other words, we need to work on the individual level. We, who treat athletes, need to understand each injury, each knee, the requirements and demands. Some athletes will be able to return safely after 6 months, but others after a year or more (or not at all).

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