

Return to Play After a Shoulder Injury: Let's Not Put the Cart Before the Horse!

Pablo Oscar Policastró, PT¹, Paula Rezende Camargo, PT, PhD²

¹ Laboratory of Analysis and Intervention of the Shoulder Complex, Department of Physical Therapy, Universidade Federal de São Carlos; KINÉ-Kinesiologia Deportiva y Funcional Sports Clinic, ² Laboratory of Analysis and Intervention of the Shoulder Complex, Department of Physical Therapy, Universidade Federal de São Carlos

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Shoulder disorders are common in athletes who practice overhead and collision sports,^{1,2} and represent an important clinical problem with a high rate of recurrence.³ Return-to-sport decision-making after a shoulder injury is a significant challenge and should be a shared decision among all stakeholders due to the complexity of the process.^{4,5} There are currently no evidence-based criteria to be followed during the process of return-to-sport following shoulder injuries, unlike published guidelines for anterior cruciate ligament reconstruction,⁶ for example. Athletes should also be aware that they may be unable to return to the same level as previous to injury.

Despite the lack of evidence to define return-to-play guidelines, a recent consensus statement has provided important guidance to support decision-making during the return-to-sport process after a shoulder injury.⁷ The authors outlined 6 domains to consider for the athlete who is in the process of returning to sport after a shoulder injury: pain, active shoulder range of motion, strength, power and endurance, the kinetic chain, psychology, and return-to-sport specific activities. This consensus may be helpful for clinicians and athletes to start gathering information to optimize the plan to return to sport. Still, additional support should be created in the near future. For now, this consensus may be used as a template for clinicians to remember that athletes with a shoulder injury should also have the other segments of the kinetic chain assessed (not only the shoulder) as well as psychological and social aspects.

Shoulder functional performance tests are suggested to assess strength, power, and endurance, not only of the shoulder but also of the entire kinetic chain.⁸ Although several shoulder functional performance tests have been described in the literature to help in the understanding of the physical condition of the athlete, there is no battery of valid shoulder tests to guide the decision-making for return-to-sport. In addition, many tests may not be specific to the functional demands of the shoulder in the athlete's sport.

The reference values for shoulder functional performance tests that are available in the current literature are not sport-specific, which makes interpretation difficult. For instance, the Y-Balance Test – Upper Quarter (YBT-UQ) is described as a quantitative analysis of an athlete's ability to reach with the free hand while maintaining weight bearing on the contralateral upper limb.⁹ The performance of the athlete in the YBT-UQ may make sense for some sports

like rugby or American football where the shoulder works in open and closed kinetic chains. However, the YBT-UQ may not be relevant for overhead sports (e.g. volleyball), where the gestures are predominantly in open kinetic chain. Due to the lack of normative values, clinicians commonly use the contralateral shoulder as a reference to compare the injured shoulder. Depending on the sport, this comparison may not be appropriate if we consider the arm dominance and level of activity of the athlete.

Another example is the drop catches test, which is highly influenced by the arm dominance, especially in unilateral sports. This test quantifies the number of repetitions to drop a tennis ball and quickly catch it by twisting the shoulder from an externally rotated position to an internally rotated position with 90° of arm abduction and elbow flexion.¹⁰ Therefore, it is reasonable to consider that shoulder functional performance tests may not always bring valuable information about the status of the shoulder to decide on return-to-sport readiness.

Other factors should also be considered and further investigated in the return-to-play process, such as biopsychosocial context. Athletes with similar shoulder injuries and results of functional performance tests may not fully return to sports activity, especially at the same time and level.¹¹ Factors such as fear of reinjury, apprehension during training, being involved in contact sports, and motivation may influence this process. In addition, self-report questionnaires are not enough to fully understand the athlete's condition and context.

In comparison to other body regions, we are clearly a few steps behind on decision making for the return-to-play after a shoulder injury. The scientific sports community should focus on improving the evidence to guide clinicians and all stakeholders for return-to-sport after a shoulder injury. More research exploring and combining shoulder performance tests, biopsychosocial context, sport-specific tasks and clinical information could be useful as well as high-quality longitudinal studies to determine a cluster of shoulder functional tests to guide the decision for return-to-play. Finally, we should now try to understand the value of the available performance tests instead of creating new ones. Let's not put the cart before the horse!

The process of return-to-play after an injury is challenging for both athletes and clinicians. Considering the lack of robust information to support the decision making for

shoulder injuries, the process of return-to-play is difficult and can place increased psychological pressure on athletes and sports physical therapists. As members of the sports science community, we must continue to work together to change this reality.

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