# Physical Medicine Blog

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## Are Athletes Returning to Sport After COVID-19 More at Risk of Injury?

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As the world returns to sport after COVID-19 pandemic isolation, there are many questions regarding how time on the sidelines will affect everyone from the athletes, sports medicine professionals, coaches and managers, and even spectators. One primary concern is the health of the athletes as they return to sport from a training cycle that is not familiar to their minds or bodies. A significant question is whether these athletes will experience a higher rate of injury, reinjury and time loss as a result of delayed and potentially compressed workload cycles, not to mention game play.

Events similar to this delay have had deleterious effects in the past. After the 2011 National Football League Lockout the athletes returned to a rash of Achilles tendon ruptures. In Myers, et al. 2011 it was noted on average there are eight Achilles tears in a full season of NFL football. In 2011, "following a rapid transition into training camp and pre-season practice from the NFL Lockout, 10 Achilles tendon tears occurred over the first 12 days of training camp, with 2 additional injuries occurring in the subsequent 17 days which included the first 2 weeks of pre-season competition."

> *Sports medicine professionals should ask what the response must be to dampen the effect of these altered training cycles on the athlete's preparedness.*

We already have data demonstrating that during the first two weeks of the return of 2020 German Professional Football, Bundesliga, players have experienced an increase in soft tissue injuries at a significantly higher rate than the first two weeks of the 2019 campaign. In Mark McGowan's 2020 interview of Dr. Joel Mason on Bundesliga injuries, Dr. Mason noted that based on club and league data, the pre-lockdown injury rate per game was 0.27. In 2020, this season's rate climbed to 0.88 in the first two weeks of matches, a 226% increase in the rate of injury. While these sample sizes may be considered small, the results did not go unnoticed.

Australian Rules Football was a concern as it opened its 2020 season in June. During normal seasons the Australian Football League (AFL) demonstrates a high number of ACL injuries. In North America, delayed season starts or restarts for the National Basketball Association, Major League Baseball and National Hockey League are all on the precipice of beginning competition. Sports medicine professionals should ask what the response must be to dampen the effect of these altered training cycles on the athlete's preparedness from an injury risk management perspective.

### What tools are available to properly assess risk of initial injury or reinjury?

Nicol van Dyk, et al. recently published a paper, "There Are Many Good Reasons to Screen Your Athletes" in which the concept of "Odds Ratio" (OR) of injury is discussed rather than prediction of injury. They collected data on 614 subjects and 190 injuries during a Periodic Health Evaluation (PHE). "In the 558 professional football [soccer] players included, more than a third had a musculoskeletal condition requiring follow-up in the form of prevention intervention or treatment."

While deficiencies did not predict which individual would go on to suffer an injury (individual risk), proper assessment and subsequent intervention was integral in reducing the Odds Ratio (group risk) of injury. What can the sports medicine clinician do to decrease the Odds Ratio of injury or reinjury?

1. Periodic Health Evaluations, aka screenings
2. Monitor athlete's workload ratios with your performance professional
3. Use isolated joint testing to screen for musculoskeletal deficiencies
4. If necessary, design an intervention with the goal of reducing the Odds Ratio of injury or reinjury

## Return-to-Play After ACL Reconstruction

The current literature is also focused on return-to-play criteria after ACL reconstruction. If we can anticipate a higher rate of injury after competitive sports resume play, ACL injury/reinjury will be a concern. The recommended criteria consistently mentioned regarding RTP after ACL reconstruction are as follows:

Time
Isokinetic strength testing: symmetry and hamstring/quadriceps ratios
Functional test symmetry
Agility testing
Psychological readiness

Limb Symmetry Index (LSI) is a good tool for functional assessment for return to play, but we know from Wellstandt et al. 2017 , a concomitant isolated joint strength measure is needed to compensate for the LSI's overestimation bias. This could be one explanation for the recent resurgence of isokinetic strength testing after ACL-R. Limb strength symmetry and balanced hamstring to quadriceps ratios are important components of return-to-play criteria shown to reduce reinjury in athletes.

New reporting capabilities in the Biodex System 4 Dynamometer make it even easier to communicate with patients, doctors, third party payers and employers – adding confidence to the RTP decision.

Returning to sport after a pandemic and even after an ACL reconstruction can be extremely challenging and filled with many unknowns. It is imperative that sports medicine professionals use all of the tools available to them to reduce the risk of injury or reinjury and are armed with the latest evidence and objective measures available.

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