Ready or Not: Does Return-to-Play Protocol Truly Assess Psychological Readiness After Acute Sports-Related Concussions?

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ABSTRACT

Introduction: Psychological readiness (PR) is an underrecognized component of recovery after sport-related concussion (SRC). Current return-to-play (RTP) protocols emphasize physical recovery despite evidence that anxiety, fear of reinjury, and reduced confidence may delay recovery. Family physicians are often responsible for longitudinal concussion management and are positioned to identify these psychological barriers.

Methods: Systematic scoping review using PubMed, SPORTDiscus, Web of Science, and Active Search Ultimate. Searches included ("concussion") AND ("return to play") AND ("mental health" OR "psychological readiness"). Study selection followed PRISMA guidelines, and methodological quality was appraised using the Mixed Methods Appraisal Tool.

Results: Psychological factors were consistently linked to concussion recovery. In one prospective cohort, 11% of athletes returned to competition with persistently low confidence despite medical clearance. Each 1-point increase in GAD-7 score was associated with a 1.4-fold greater risk of prolonged recovery, while pre-existing anxiety was associated with a 47% greater risk of recovery exceeding 90 days. Fear avoidance correlated with acute concussion symptom burden (r=0.493, P=0.003), and fear avoidance, depression, and anxiety collectively explained 41% of symptom-severity variance. Early physical activity also significantly predicted RTP timing (P=0.006).

Conclusion: Psychological factors are influential through optimizing recovery and reducing injury risk, however they remain incompletely incorporated into RTP protocols. Family physicians can be crucial in this process through routine psychological screening, confidential self-reporting, and referrals for targeted psychological interventions when indicated. Future research should focus on validating sport-specific PR tools and establishing evidence-based interventions addressing both physical and psychological domains.

BACKGROUND & SIGNIFICANCE



Sport-related concussions (SRC) comprise about 9% of high school sport-related injuries alone



Prevalence rate of depression for athletes can be as high as to 26.7% for men and 36.5% for women while 14.7-33% of both genders consistently experience symptoms of anxiety.

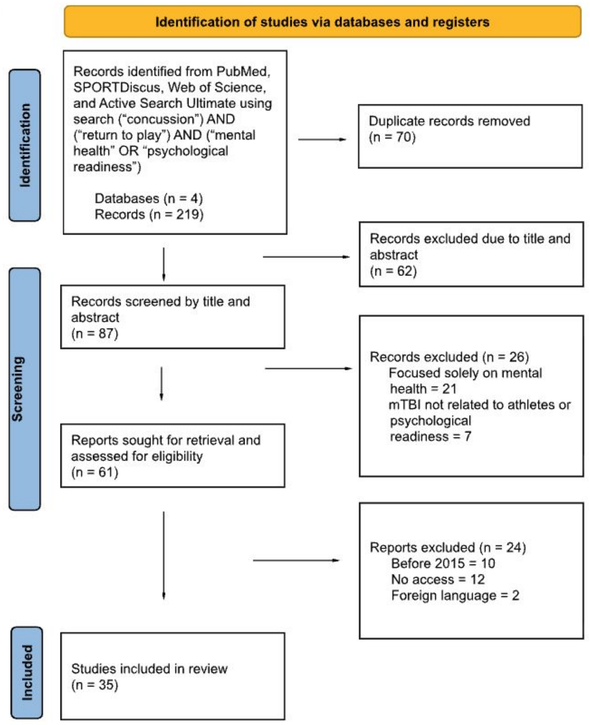


10-15% of adults and 30% of children can experience minimum of prolonged symptoms for over 1 month which can cause social isolation, stress with lifestyle changes, and grief from loss of athletic identity

STUDY OBJECTIVES & HYPOTHESES

To evaluate existing concussion management protocols, examine the role of PR in RTP outcomes, and identify gaps in integrating psychological assessment into clinical practice.

RESULTS



KEY TAKEAWAYS

- **Across included studies, clinical recovery and psychological readiness were not consistently achieved together prior to RTP.**
  → In Crofts et al., 11% of athletes returned with low confidence (I-PRRS <50) after completion of RTP protocols
- **The most common psychological factor impairing PR is the fear of injury or fear avoidance**
  → Fear avoidance and the number of concussion symptoms (r = 0.493, p = 0.003)
- **Low psychological resilience has been associated with persistent symptoms and prolonged recovery**
  → At 3 months, low-resilience group remained symptomatic in
- 36.6% vs 17.6% average and 12.0% high (P=.003)
- **Trait anxiety has consistently been associated with sport injury occurrence**
  → Nearly 66% of studies found a relationship between trait anxiety and orthopedic injury.
- **Pre-existing psychological factors with fear avoidance can contribute to symptom variance**
  → Fear avoidance + hospital anxiety and depression screening explained 41% of symptom-severity variance (P=.001)

DISCUSSION & FUTURE APPLICATION

SRCs have become a significant concern as they can cause long-term consequences or even poor quality of life after an athlete retires. While RTP protocols are often based on clinic signs and self-reported symptoms, resolution of these signs may not indicate that an athlete may internally feel ready to RTP. Lack of proper RTP and stress can lead to increased risk of re-injury especially when an athlete does not have psychological readiness, or the emotional, cognitive, and behavioral preparedness/maturity to return to sport.

While research continues to emerge about concussion protocols and management, there still seems to be limited evidence or recommendations on assessing and treating athlete's PR. While guidelines recommend screening for depression and anxiety in an athlete if warranted with mental health screening tools, but there have been no recommendations on how to manage an athlete if there is poor psychological readiness.

POSSIBLE AREAS OF IMPROVEMENT:

- Assessments such as I-PRRS, PRIA, and SIRSI should be used more consistently throughout the RTP process with certain time points or frequencies.
- Modify current assessments to be more specific about an athlete's emotions and barriers to RTP such as if they are fearful about RTP and other common areas for lack of confidence.
- Implement an assessment for PR within 72 hours of injury, 24 hours after starting the RTP process, and then at every 24-48 hours until an athlete is cleared.
- Providing more social support through national or local group meetings for athletes undergoing concussions RTP and symptoms.

PRIMARY CARE APPLICATIONS: As usually first point of contact for many of these athletes, we can provide more screening, resources, and appropriate referrals. Additionally, physicians can facilitate collaborations between psychologists, trainers, coaches, and parents for further understanding of an athlete's medical and mental position in the RTP process.

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