

Performance Training Systems Inc. Sport Concussion Management

Resources for the Athlete, Coach, Athlete Support Personnel and Parents

Return-to-Sport Management

The foundation of concussion management is physical and cognitive rest until symptoms resolve, followed by a progressive, exertion based exercise program, to medical clearance and return-to-play. Following the on-field concussion evaluation, the coaches, parents, or team support staff should follow the Acute Management Guidelines as defined at the Vienna (2001) Symposium on Sport Concussions. These guidelines represent the 1st step in effective concussion management.

Guidelines for Acute Management of a Sports Related Concussion

When a player shows any symptoms or signs of a concussion:

1. The player should not be allowed to return to play in the current game or practice
2. The player should not be left alone; regular monitoring for deterioration is essential
3. The player should be medically evaluated after the injury.
4. Return to play must follow a medically supervised step-wise process.

The majority of head injuries and concussion will recover spontaneously over several days. In these situations, it is expected that an athlete will proceed progressively through a stepwise return-to-play strategy. During this period of recovery, while symptomatically following an injury, it is important to emphasize to the athlete that physical and cognitive rest is required. Activities that require concentration and attention (eg, school work, videogames, text messaging, etc.) may exacerbate symptoms and possibly delay recovery. In such cases, apart from limiting relevant physical and cognitive activities (and other risk-taking opportunities for re-injury), while symptomatic, no further intervention is required during the period of recovery, and the athlete typically resumes sport without further problem.

A Graduated Return to Sport protocol following a concussion follows a stepwise process as outlined below. With this stepwise progression, the athlete should continue to proceed to the next level if they are asymptomatic at the current level. Generally, each step should take 24 hours so that an athlete would take approximately one week to proceed through the full rehabilitation protocol once they are asymptomatic at rest and with provocative exercise. If any post-concussion symptoms occur while in the stepwise program, then the patient should drop back to the previous asymptomatic level and try to progress again after a further 24-hour period of rest has passed.

Most athletes recover within several days. To ensure a gradual and safe progression for athletes to return to play, the panel recommended a specific progression of activities. The progression levels begin with complete rest and progress through to return to play.

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Each level should take 24 hours with the athlete asymptomatic (symptom free) before moving to the next level in the progression. If any symptoms occur during the progression, the athlete should drop back to the previous level and try to complete that level after a 24 hour rest period. The progression levels are listed below:

Rehabilitation Stage	Functional Exercise at each Stage of Rehabilitation	Objective of each Stage
1.No activity	Complete physical and cognitive rest	Recovery
2.Light aerobic exercise	Walking, swimming, or stationary cycling keeping intensity <70% HRmax. No resistance training.	Increase Heart Rate
3.Sport-Specific Exercise	Skating drills in ice hockey, running drills in soccer etc.	Add movement
4.Non-Contact training drills	Progression to more complex training drills (passing etc.). May begin progressive resistance training.	Exercise, coordination, cognitive load
5.Full-Contact practice	Following medical clearance, participate in normal training activities.	Restore confidence, assessment of functional skills by coaching staff.
6.Return-to-play	Normal game play	

Ideally, the progression should take about one week from asymptomatic rest to full competition. The challenge for coaches, parents and sport administrators is going to be in implementing this program in the world of competitive athletics. Convincing coaches and athletic administrators that this type of progression is necessary for the protection and health of the athlete is going to be a difficult task. Historically, coaches are used to having athletes with concussions return to play within 24 hours (if that long) of being asymptomatic. Holding every athlete who shows signs and symptoms of concussion out of play for one week is going to cause tension among the athlete, the medical staff, and the athletic staff. The new progression is a step in the right direction for protecting athletes. The challenge is going to be getting buy-in from the athletes, their parents, their coaches, and their athletic staff. A coach, parent, and sport administrator must never forget that their responsibility is athlete safety first, competition second.

Performance Training Systems Inc., through our Consulting and Management Services, work with sport administrators in developing organization and sport 'Best-Practice' policies and procedures specific to On- and Off-Field Concussion Management.

Performance Training Systems is an athletic conditioning consulting firm based out of Brampton, ON, Canada. We provide athlete development, exercise nutrition, performance psychology, athletic training, and management and consulting services to clients within the greater Toronto area and around the world. We are committed to ethical sport values based training, and promote sport as a vehicle for developing healthy bodies, healthy minds, and healthy communities.

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