

AVCS CONCUSSION PROTOCOL

Management of concussion in sport can be challenging as there are no universal standards on concussion care and return to play guidelines. The following protocol was developed for use by the **Adirondack Medical Center (AMC), Department of Rehabilitation and Sports Medicine**. The goal for developing this protocol is that athletic trainers and physicians dealing with concussions adopt a common management program to allow for the diagnosis, treatment and return to play guidelines of concussed athletes (**AMC**).

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Return to Play Guidelines:

- When considering return-to-play criteria for simple concussion, medical providers should focus attention on the athlete's recovery via:
 - symptoms,
 - neurocognitive testing,
 - postural stability testing.
- During this period of recovery in the first few days following injury, it is important to emphasize to the athlete that physical **AND** cognitive rest is required. Activities that require concentration and attention may exacerbate the symptoms and as a result delay recovery.
- The return-to-play (RTP) decision should be made after an incremental increase in activity with an initial cardiovascular challenge*, followed by sports-specific activities that do not place the athlete at risk for concussion. The athlete can be released to full participation as long as no recurrent signs or symptoms are present, and AVCS's support program has been successfully completed.

*Cardiovascular/Exercise Challenge

1. 20 minute aerobic exercise – treadmill, bike, stair stepper
2. 10 jumping jacks
3. 10 squat thrusts
4. 10 push ups
5. 10 sit ups

Return – To – Play Protocol:

To return to play following a concussion follows a stepwise process:

1. No activity, complete rest: once asymptomatic proceed to level 2.
2. Light aerobic exercise such as walking or stationary cycling, no resistance training.
3. Sport-specific exercise (i.e., skating in hockey, running in soccer), progressive at steps 4 or 5.
4. Non-contact training drills.
5. Primary care M.D. clearance, proceed to level 6.
6. Full contact training after medical clearance from school M.D.
7. Game play.

Resistance training has been shown to increase intracranial pressure and to exacerbate post concussive symptoms, particularly headaches, dizziness and so forth. Resistance training can be generally added in the later stages of the step-wise approach (around step 5), beginning with low weight/high repetition exercises and then progressing to higher weights if asymptomatic and tolerated.

It must be emphasized that each step must take a minimum of 1 day, as it is widely recognized that symptoms may not worsen at the time of exertion, but later in the day or even the next day.

Progression through the protocol is dependent upon being asymptomatic at each level. If any symptoms occur, then the athlete should cease activity, drop back to the previous asymptomatic level, and try to progress again the next day. However, if symptoms recur and are persistent, the athlete should return to resting until asymptomatic.

With complex concussion, the rehabilitation will be more prolonged and return to play advice will be more circumspect. It is envisaged that complex cases should be managed by physicians with a specific expertise in the management of such injuries.