UW Concussion Injury Testing and Return to Protocol

This is a brief outline of the protocol we currently follow when an athlete presents with concussion-like symptoms. These guidelines follow the 2016 Berlin Conference and 2017 SCAT5 card. This process is in line with the OUA policy.

1. ImPACT Concussion Baseline Testing for Contact Sport Athletes, performed by Dr. Eric Roy/Tara McCauley's lab, with all efforts, prior to competitive season/games. This is completed every 2 seasons or every season after sustaining a concussion. If the athlete has sustained a concussion outside of the normal timelines- i.e. during the off season or while away from UW not competing as a UW athlete, and indicates such in their medical questionnaire or yearly follow up, said athlete must be cleared via UW's Sport Medicine physician.
2. King-Devick baseline also completed, along with a balance evaluation. The athlete will be responsible for providing any out of season management documentation for UW Therapy prior to being cleared for competition. This may include the return to play process listed below per the direction of the UW Sport Physician.
3. Student athlete sustains a concussion or mechanism whereby they could sustain a concussion- whiplash, rotational acceleration, facial laceration/abrasion, etc. Identified by student trainer, Therapy Staff, coaches or teammates.
4. Student athlete is assessed by student trainer or Athletic Therapist using SCAT5 evaluation. Gradual integration of the King Devick (KD) sideline test will facilitate sideline KD retesting. Assuming no emergent symptoms or deteriorating condition player sent home with instructions on SCAT5 and a family member, roommate or responsible person is instructed (advice card) as to the potentially worsening signs and symptoms and the follow up process. Student trainer notifies Athletic Therapist for follow up evaluation of athlete in clinic by AT. Athlete given Concussion Checklist form.
5. Therapy staff completes Concussion Incident Form and sends to Dr. Roy/McAuley to indicate future ImPACT testing.
6. AccessAbility Office is notified of injury to student athlete to initiate accommodations based upon current advice of therapy staff and current symptoms and difficulties. UW Therapy can assist athlete in setting up an account via the AA online system. AA then initiates process to notify professors on behalf of athlete.
7. Student athlete is referred on to UW Sport Medicine physician for evaluation at the earliest opportunity. SCAT5 should have been completed prior and given to physician for review.
8. Sport Medicine Physician visit, VIF completion and VIF taken to AccessAbility by athlete, once cleared to return to campus. Athlete is directed by UW physician as to concussion management guidelines- limitation of mental and physical exertion. AT may assess or test visual and vestibular issues via VOMS testing.
9. Athlete checks in with Athletic Therapist and/or Therapy staff and completes ***daily*** symptom checklist via email or in person, if able. AT manages or treats any issues per physician direction and/or AT assessment. May include cervical, vestibular or visual issues. Physician will direct the rehab and return to learn and return to play.
10. Athlete completes ImPACT retest once asymptomatic for multiple days, per Sport Medicine Physician's directions- results evaluated by Dr Eric Roy/McAuley. Results sent to Dr. Hall/McCuaig prior to re-evaluation of student athlete. Retests on the King Devick and balance tests are completed. King Devick can be retested via the KD test cards. Comparison is made to the original baseline test. Contact Dr McIlroy's lab for balance retests.
11. Athlete reports to UW Sports Medicine physician, once asymptomatic for multiple days, as determined by the physician, for re-evaluation (If athlete is asymptomatic and Dr. Hall is unavailable for evaluation alternate

arrangements may be coordinated per his direction, in consultation with the Athletic Therapist. Please email Dr. Hall with evaluation and thoughts prior to testing). Return to play process will take a minimum of 7 days for non-contact and 10 days for contact sports.

12. **Return to Sport:** If cleared to start exertional trials by UW CASEM physician, athlete returns to clinic to start exertional trials under supervision of UW Staff Athletic Therapist and/or Therapy Staff. Staged exertional trials commence as per the SCAT5 guidelines:

    a. Graded symptom checklist completed at start and end of each trial
    b. 20 minutes steady state stationary bike ride at 70% max heart rate (70-80 RPM)
    c. 24 hour rest
    d. 3 minute warm up, 5 x 15 sec max effort/ 45 sec recovery, 3 min cool down, if asymptomatic 10 pushups, sit ups, burpees
    e. 24 hour rest
    f. Running/skating, no contact, no drills – can also be light workout under supervision
    g. 24 hour rest
    h. Non-contact practice
    i. 24 hour rest
    j. Full practice
    k. 24 hour rest
    l. Return to competition (See physician before return to play if requested by physician)

Graduated Return to Sport Strategy

Exercise step	Functional exercise at each step	Goal of each step
1. Symptom-limited activity	Daily activities that do not provoke symptoms.	Gradual reintroduction of work/school activities.
2. Light aerobic exercise	Walking or stationary cycling at slow to medium pace. No resistance training.	Increase heart rate.
3. Sport-specific exercise	Running or skating drills. No head impact activities.	Add movement.
4. Non-contact training drills	Harder training drills, e.g., passing drills. May start progressive resistance training.	Exercise, coordination, and increased thinking.
5. Full contact practice	Following medical clearance, participate in normal training activities.	Restore confidence and assess functional skills by coaching staff.
6. Return to play/sport	Normal game play.	

In this example, it would be typical to have 24 hours (or longer) for each step of the progression. If any symptoms worsen while exercising, the athlete should go back to the previous step. Resistance training should be added only in the later stages (Stage 3 or 4 at the earliest).

Written clearance should be provided by a healthcare professional before return to play/sport as directed by local laws and regulations.

- If symptoms return during or after any of the exertional stages the athlete returns to the previous stage or step until symptoms clear.
- If directed by physician these stages may be expanded in duration i.e. one stage may be completed multiple times or multiple days may intersperse stages.

Graduated Return to School Strategy

Concussion may affect the ability to learn at school. The athlete may need to miss a few days of school after a concussion. When going back to school, some athletes may need to go back gradually and may need to have some changes made to their schedule so that concussion symptoms do not get worse. If a particular activity makes symptoms worse, then the athlete should stop that activity and rest until symptoms get better. To make sure that the athlete can get back to school without problems, it is important that the healthcare provider, parents, caregivers and teachers talk to each other so that everyone knows what the plan is for the athlete to go back to school.

Note: If mental activity does not cause any symptoms, the athlete may be able to skip step 2 and return to school part-time before doing school activities at home first.

Mental Activity	Activity at each step	Goal of each step
1. Daily activities that do not give the athlete symptoms	Typical activities that the athlete does during the day as long as they do not increase symptoms (e.g. reading, texting, screen time). Start with 5-15 minutes at a time and gradually build up.	Gradual return to typical activities.
2. School activities	Homework, reading or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work.
3. Return to school part-time	Gradual introduction of school-work. May need to start with a partial school day or with increased breaks during the day.	Increase academic activities.
4. Return to school full-time	Gradually progress school activities until a full day can be tolerated.	Return to full academic activities and catch up on missed work.

If the athlete continues to have symptoms with mental activity, some other accomodations that can help with return to school may include:

- Starting school later, only going for half days, or going only to certain classes
- More time to finish assignments/tests
- Quiet room to finish assignments/tests
- Not going to noisy areas like the cafeteria, assembly halls, sporting events, music class, shop class, etc.
- Taking lots of breaks during class, homework, tests
- No more than one exam/day
- Shorter assignments
- Repetition/memory cues
- Use of a student helper/tutor
- Reassurance from teachers that the child will be supported while getting better

The athlete should not go back to sports until they are back to school/ learning, without symptoms getting significantly worse and no longer needing any changes to their schedule.