A Brief Update on Concussion Management

Virginia Academy of Family Physicians
Sports Medicine Task Force

Overview

- Be suspicious of a concussion and hold the athlete from further activities until completely evaluated and cleared.
- The signs and symptoms of a concussion involve many domains in the brain. Make sure you evaluate the athlete looking at all of these: cognitive, physical, emotional, sleep.
- There are many tools to help you on the sidelines and in the office.
- Treatment is based on both physical and cognitive rest until the symptoms resolve.
- Returning to participation is a gradual process following a very strict protocol.
- Work closely with all of the health care providers involved (athletic trainers, school nurses, consulting neurologist or neuropsychologists) to provide the best care for this complex problem.
- The following slides cover these topics in slightly more detail and at the end are a few cases to exemplify the main points.

A public service announcement video from the NCAA on concussions

- http://www.ncaa.org/wps/wcm/connect/public/NCAA/Student-Athlete+Experience/Student-Athlete+Well+Being/Concussions

Major Point # 1

- Be suspicious of a concussion even when there is no loss of consciousness or direct head injury; if it looks like a concussion it needs to be respected like a concussion.

When in Doubt, Sit Them Out!

Major Point # 2

- Signs and Symptoms of a Concussion:
  - Cognitive
    - Confusion; amnesia; disorientation; feeling in a fog or zoned out; inability to focus; delayed verbal or motor responses; slurred speech
  - Physical
    - Headache; fatigue; balance problems; dizziness; nausea/vomiting; blurry vision; double vision; nystagmus; sensitivity to light or noise
  - Emotional
    - Labile emotions; irritability/short tempered; crying/laughing – reacting out of proportion to the situation; sadness; depression; nervousness
  - Sleep
    - Excessive sleepiness; restless sleep; decreased sleep; shifted sleep cycle

Major Point # 3

- **In the office, carefully assess an athlete's:**
  - Symptoms
  - Cognitive function
  - neurologic exam including balance/coordination.
- **Use a concussion tool like the SCAT2 or ACE form to help in this process.**
  - SCAT2 Form
    - http://vafp.org/PDF-Files/concussion_management/SCAT2%20test.pdf
  - CDC Acute Concussion Evaluation Form
    - http://vafp.org/PDF-Files/concussion_management/ACE%20Office%20Visit.pdf
- **This information along with your clinical impressions are used together to decide the patient's concussion status and when the concussion appears to have resolved.**

Major Point # 4

- **The athlete is not “cleared” to start a gradated return to participation protocol until ALL of the following:**
  - their symptoms are completely resolved
  - their neurologic exam is normal
  - their concussion tool (like the SCAT2 or ImPACT) score is up to normal/baseline.

Major Point # 5

- Treatment of a Concussion should include both:
- **Physical rest**
  - No athletic competition, practice, cross training, weight lifting, PE.
- **Cognitive rest**
  - Limit computer time, TV time, class work initially. It may be necessary to hold the athlete out from school or limit school time initially.
- Here is an example of a “doctors note” that can be used to achieve these treatment goals both at home and at school:
  - ACE care plan for students
    - http://vafp.org/PDF-Files/concussion_management/ACE%20Care%20Plan%20School%20Version.pdf

Major Point # 6

- “Clearance” by an appropriate licensed health care professional (MD, DO, PA, NP, ATC, Neuropsychologist) allows the athlete to start a gradated return to participation protocol(***not to return directly back into full participation***).
- This is often a 5-7 day program with gradual increases in activities. An example:
  - CDC ACE Care Plan School Version
    - http://vafp.org/PDF-Files/concussion_management/ACE%20Care%20Plan%20School%20Version.pdf
- The athlete is only allowed to progress through this protocol if they remain asymptomatic at each step. If symptoms do return, the athlete should be put back to physical and cognitive rest.

An example of a gradated Return To Play protocol:

Day 1. rest until asymptomatic (physical and mental rest)

Day 2. light aerobic exercise

(e.g. stationary cycle or walking laps for 30 minutes)

Day 3. sport-specific exercises at moderate effort for less than 1 hour

(e.g. moderate jog, moderate footwork drills, shooting drills)

Day 4. non-contact training drills at full effort for less than 1 ½ hours

(e.g. sprinting/running, full speed drills in non-contact situation, OK to start light resistance training)

Day 5. full contact training after medical clearance

(this must be a practice situation and not competition)

Day 6. return to competition (game play)

Note: each “Day” is 24 hours (no accelerated days)

Major Point # 7

- The Virginia Board of Education has instructed each school board to implement a concussion policy. So each school district may have slight variations. Work closely with the school's athletic trainer or nurse to make sure your recommendations match up with the school's policy.
- Concussion management is best done as a team whose members include the physician, athletic trainer, guidance counselor, parents, athlete and coaches.

Online Resources

- Sidelines tools (pocket cards):
  - http://vafp.org/PDF-Files/concussion_management/Pocket_SCAT2.pdf
  - http://vafp.org/PDF-Files/concussion_management/Concussion_in_Sports_palm_card.pdf
- Symptom Score Form from CDC:
- http://vafp.org/PDF-Files/concussion_management/ACE%20Office%20Visit.pdf
- SCAT2 Concussion Assessment Test:
  - http://vafp.org/PDF-Files/concussion_management/SCAT2%20test.pdf
- Concussion Care Form For Schools from CDC:
  - http://vafp.org/PDF-Files/concussion_management/ACE%20Care%20Plan%20School%20Version.pdf
- Consensus Statement on Management of Concussion:
  - http://vafp.org/PDF-Files/concussion_management/concussion%20zurich%202008.pdf
- Virginia Board of Education Guidelines on Concussion Policies for Schools
  - http://vafp.org/PDF-Files/concussion_management/BOE%20concussions_in_student_athletes.pdf

Sample Case # 1

- JM is a 17 year old football player who gets tackled in the third quarter of the last game of the season. He feels like he got his ‘bell rung’ but shakes it off without telling anyone. A few plays later he is getting a headache, feels queasy, feels ‘foggy’ and can not walk a strait line. His athletic trainer evaluates him on the sidelines and pulls him from the game because of his clinical suspicion of a concussion. You are asked to see JM in the office on Monday because football is over and he is supposed to start basketball practice this afternoon. He says he feels perfectly fine and doesn’t think he really had a concussion.
- Do you think he had a concussion?
- How are you going to evaluate him in your office?
- Can he practice basketball this afternoon?

Sample Case # 1

- JM definitely had both the signs, symptoms and a known trauma that are consistent with a concussion. Even though he is feeling better by Monday**, he still should be diagnosed with a concussion**.
- In your office, you should evaluate him by checking a detailed history, neurologic exam including balance and coordination and perform some form of a cognitive concussion test (SCAT2).
- If he scores well (at his baseline or at what you consider his baseline), his examination is all normal and his symptoms are completely resolved
  - Then you can **"clear him" to begin the school's gradated return to participation protocol**. He may be at basketball practice today but he is limited to "Day 2" activities (light aerobic exercise) and will be rechecked by the school's athletic trainer to make sure he does not develop any recurrent symptoms today or with each step up along the protocol.
- If he does not "pass" all of the above elements, he is still symptomatic from his concussion Friday night. He is not allowed to resume any activities (gym class, weight room, cross training, practice). You may have to have him make accommodations in the classroom depending on the severity of his symptoms.
  - **Have him check a symptom score sheet daily until he is back to baseline. Then have him come back to be re-evaluated by you.**

Sample Case # 2

- AD is a 14 year old gymnast who competes with a gymnastics team affiliated with the YMCA. Last night she lost her grip on the uneven bars during a competition. She landed on her back from 5 feet in the air. She does not recall hitting her head but did get the wind knocked out of her. She got back up to resume her routine but was unsteady on her feet and her hands felt uncoordinated. Her coach felt like she was just 'shook up' from the fall and had her rest for the remaining of that evening's competition. She was very emotional about this and cried all the way home. Her sleep was restless. You are seeing her in the office today to make sure she is OK to compete in the second round of competition tonight. She says she feels perfectly fine and denies any headache or other symptoms. Your physical exam reveals a young lady with unsteadiness who frequently catches herself when she tries to balance on one foot and with tandem feet (BESS Test).
- Do you think she had a concussion?
- How are you going to evaluate her in your office?
- Can she compete tonight? Even if she passes all of your tests?

Sample Case # 2

- AD had several symptoms consistent of a concussion even though she did not hit her head or loose consciousness. Although she says she feels fine, her poor balance says that she is still struggling with symptoms. They maybe mild but they are consistent with persistent symptoms of an ongoing concussion.
  - **When in doubt, sit them out.**
- In your office, you should evaluate her by checking a detailed history, neurologic exam including balance and coordination and perform some form of a cognitive concussion test (SCAT2).
  - **Given her balance and symptoms from last night, she is not back to normal and needs to be at physical and cognitive rest until feeling better.**
  - **She will not be eligible for tonight's competition because she is still symptomatic.**
  - **Have her check her symptoms daily and return when she is symptom free with just simple activities of daily living.**
  - **When she is back to baseline and feeling well, you can 'clear' her to begin a gradated return to participation protocol.**
  - **Since her sport is not part of a school, you should print off a copy of the ACE Care Plan For School from the CDC Heads Up website and give it to mom, dad or the coach to follow each step. You should recheck her at the last step to make sure she is ready for full participation.**

Sample Case # 3

- WM is a 19 year old men's lacrosse player who got hit in the head with a lacrosse stick in practice Monday evening. His head was ringing and he had a headache for about 10 minutes and he felt a little unsteady. After these initial few minutes he began to feel better and by the end of practice he was asking to go back in but the athletic trainer who initially evaluated him would not let him back in. He slept well and felt fine in class yesterday. You are seeing him on Wednesday because he feels 100% and wants to play in tonight's game.
- Do you think he had a concussion?
- How are you going to evaluate him in your office?
- Can he play in tonight's game?

Sample Case # 3

- Although his initial symptoms were mild and brief, the athletic trainer was correct in diagnosing him with a probable concussion and restricting him from further participation that day.
- In your office, you should evaluate him by checking a detailed history, neurologic exam including balance and coordination and perform some form of a concussion assessment test (like the SCAT2).
- If he checks out perfectly in your office, he still has a presumed concussion from his initial symptoms and the athletic trainers' evaluation at the time of injury. He will have to progress through the daily gradated return to participation protocol before he is allowed to play in a game.
- Therefore he is not playing in tonight's game. Your clearance today allows him to start progressing through the protocol.