

Cognitive Rest in Concussion Management

VERLE VALENTINE, MD, *Sanford Orthopedics and Sports Medicine, Sioux Falls, South Dakota*

KELSEY LOGAN, MD, MPH, FAAP, *Ohio State University Sports Medicine, Columbus, Ohio*

► See accompanying article on page 123.

In recent years, there have been significant and progressive changes in the evaluation, management, and return-to-play principles of sports concussions. Previously, we were led by grading scales that used loss of consciousness and amnesia as the primary guides for indicating severity. However, recent research has shown that these two markers are not necessarily indicative of injury severity. Today, the medical community manages each case individually by applying guidelines that are based on the best scientific evidence.

There have also been sweeping changes in how the public and media view concussion. Increased awareness and recognition of the seriousness of this injury have been emphasized at the highest level of professional sports down to youth sports programs. This has led to legislative measures that mandate removing an athlete from play if a concussion is suspected, educating coaches and parents, and obtaining permission from a physician before returning to play after a concussion.

After a concussion, it is important to protect the cognitive function of patients as they recover from this traumatic and sometimes long-lasting injury. We do not yet understand the injury threshold or what may increase the risk of long-term problems from concussion (e.g., number of previous concussions, presence of specific symptoms, length of recovery, patient age). Emerging data show that the accumulation of proteins related to neurodegeneration may occur at younger ages and with lesser traumatic force than previously thought.¹ It is important for patients with concussion to avoid contact

sports until signs or symptoms of impact- and force-induced neurometabolic dysfunction are completely resolved. However, it is just as important to assist in recovery and prevent secondary injury with physical and cognitive rest, and eventually a graduated progression of physical exertion before full return to play.

In this issue of *American Family Physician*, Scorza and colleagues briefly mention cognitive and physical rest in the management of concussion.² For years, it has been generally well recognized that physical rest is important in the recovery of patients with concussion, but the impact of cognitive rest is much less appreciated by physicians.³ Although the brain is recovering from injury, the energy mismatch between what is available and what is needed is exacerbated by continued cognitive stress, such as using a computer or doing schoolwork, job tasks, or simple mental activities of daily living.⁴ This energy mismatch most often manifests as increased symptoms (e.g., headache, fatigue, concentration difficulties) with cognitive tasks. Therefore, one of the principles of cognitive rest is avoiding mental activities that trigger symptoms. However, we must be cautious in assuming that total cognitive rest is necessary. A study of patients 15 years and older with concussion did not show significant benefit in symptom relief or recovery with six days of increased bedrest, compared with no increased bedrest.⁵ Hence, we do not yet know what the optimal amount of cognitive rest is. It is likely different for each person, and should be guided by the individual patient's symptoms and tolerance for cognitive work.

Because most athletes with concussion are students, academic considerations have to be a part of the treatment plan. Unfortunately, this is commonly overlooked. These student athletes are often instructed to refrain from sports, but are allowed to attempt normal schoolwork (e.g., full school days, normal homework, testing). It is important to counsel the patient on what

is likely to trigger or worsen concussion symptoms and inform the school about accommodations that would be helpful during recovery. For example, postponing any testing is often needed in the early stages of recovery. Reducing school hours, allowing breaks between classes, and delaying assignments until symptoms are minimal or resolved may help expedite recovery. It is also sometimes necessary to delay return to school until the student is able to tolerate several school hours at a time with minimal headache and near-normal concentration.

Continued aggressive efforts to educate athletes, coaches, parents, and physicians are essential. Once a concussion is diagnosed, appropriate management can begin. We must recognize that cognitive rest is an essential element of the management plan.

Address correspondence to Verle Valentine, MD, at verle.valentine@sanfordhealth.org. Reprints are not available from the authors.

Author disclosure: No relevant financial affiliations to disclose.

REFERENCES

1. DeKosky ST, Ikonovic MD, Gandy S. Traumatic brain injury—football, warfare, and long-term effects. *N Engl J Med*. 2010;363(14):1293-1296.
2. Scorza KA, Raleigh MR, O'Connor FG. Current concepts in concussion: evaluation and management. *Am Fam Physician*. 2012;85(2):123-132.
3. Valovich McLeod TC, Gioia GA. Cognitive rest: the often neglected aspect of concussion management. *Athletic Ther Today*. 2010;15(2):1-3.
4. Logan K. Recognition and management of post-concussion syndrome. *Athletic Ther Today*. 2010;15(3):4-7.
5. De Kruijk JR, Leffers P, Meerhoff S, Rutten J, Twijnstra A. Effectiveness of bed rest after mild traumatic brain injury: a randomised trial of no versus six days of bed rest. *J Neurol Neurosurg Psychiatry*. 2002;73(2):167-172. ■

“I read it on ~~the internet~~ FamilyDoctor.org.”

Your patients research health and wellness information online. Make sure they go somewhere you both can trust.

FamilyDoctor.org features scientifically accurate health information reviewed by family physicians.

The redesigned site offers new features:

- A text-to-audio tool that allows users to listen to content in English and Spanish
- Rehab exercise animations
- “Questions to ask your doctor”

