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Abstract

There are several organizations that have published statements related to concussion management especially as it relates to cognitive rest. A review of these statements reveals that this issue is more complicated than proposed. Further research is needed to establish (1) the type and severity of concussion symptoms that may benefit from cognitive rest, if any, and the (2) type, degree, and duration of cognitive rest. Parents need to be counseled that definitive recommendations about cognitive rest are not currently based on sufficient research to make specific recommendations for every child with a concussion. This issue has important clinical and medicolegal ramifications to practitioners.

Keywords

concussion, pediatrics, position statements, practice guidelines

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Although we have learned a great deal about concussion in the past decade, especially as it relates to the vulnerable adolescent and preadolescent brain, much remains to be learned. There have been numerous position statements and clinical practice guidelines published that relate to cognitive rest in the management of concussion.¹⁻⁶ Some authors have written that these guidelines recommend cognitive rest during the initial stages of recovery from concussion.⁷ Yet, a review of those articles notes that this issue may not be as clear-cut as stated. This issue can have both clinical and medicolegal ramifications to practitioners who rely on such guidelines in helping to formulate decisions about how to manage concussion in children.^{6,8,9}

The American Academy of Pediatrics is the most definitive in the recommendation for cognitive rest.¹ Yet the guideline notes that “cognitive exertion, such as doing homework, reading, playing video games, using a computer and watching television, may worsen symptoms *although no link to long term outcomes has been described* (italics mine).”¹ Furthermore, there is no cited literature on the effectiveness of cognitive rest on outcome in this statement. The American Academy of Neurology evidence-based practice parameter on concussion does not recommend cognitive rest.² In fact, it states that the “data are insufficient to show that any intervention enhances recovery or diminishes long term sequelae post concussion” and that “no conclusion can be drawn regarding the effect of post concussive activity level on the recovery from SRC (sports related concussion) or the likelihood of developing post concussion complications.” Cognitive restructuring, which is not cognitive

rest, is recommended because of its apparent effectiveness in mild traumatic brain injury. The “bullet point” in the Abstract of the position statement of the American Medical Society for Sports Medicine notes that “students will require cognitive rest and may require academic accommodations . . .” but the text of the statement is more ambivalent.³ The text does not specifically address research related to effectiveness of cognitive rest and notes that there is “no standardized guideline for returning the athlete to school.” There are some practical suggestions made including “an athlete should not engage in physical or cognitive activities that result in an increase in symptoms” and “*If* (italics mine) the athlete develops increased symptoms with cognitive stress, student athletes *may* (italics mine) require academic accommodations.” The American College of Sports Medicine revised consensus statement acknowledges “the importance of cognitive rest” but then does not discuss the issue in its statement.⁴ This statement is more applicable to the team physician and “return to play” rather than on global treatment of post concussion symptoms.⁴ Another well

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established Zurich International Consensus Statement notes that “the cornerstone of concussion management is physical and cognitive rest until the acute symptoms resolve” without mentioning specifics.⁵ This statement further states that “the current published evidence evaluating the effect of rest following a sports-related concussion is sparse.” The guideline proceeds with a discussion of physical rest with no mention of cognitive rest. Most recently, the position statement of the National Athletic Trainers’ Association notes that cognitive rest should be individualized yet further notes that “little empirical evidence supports the utility and efficacy of cognitive rest on recovery outcomes after concussion.”⁶ None of these statements address the fundamental question of whether all children who sustain a concussion should have some form of cognitive rest or should it be reserved only for those who seem to be having worsening symptoms associated with various degrees of cognitive stimulation.

Two recent pediatric studies published subsequent to these statements are relevant to this issue. One prospective study noted that nearly 20% of children complained of cognitive symptoms 1 month following concussion.¹⁰ This is consistent with data that demonstrate a reduction in cerebral blood flow for 1 month or longer in many children following concussion.¹¹ Yet, one statement on concussion recommends “rest, both physically and cognitively, until their symptoms have resolved both at rest and with exertion.”¹ Does this imply cognitive rest for 1 month or more depending on the time for resolution of symptoms? Another well-designed prospective pediatric study demonstrated that increased cognitive activity was associated with longer recovery from postconcussive symptoms.⁷ However, this was true only for the most vigorous level (highest quartile) of cognitive activity; the lower levels all had a similar recovery period. Although this suggests that cognitive rest from vigorous cognitive activity may be of value in recovery from concussion, it does not resolve issues such as the type and degree of concussive symptoms requiring cognitive rest and the type, degree, and duration of cognitive rest. Also, these authors themselves note that “complete abstinence from cognitive activity may be unnecessary.” They cite another study which demonstrated that those engaging in postconcussion moderate levels of activity had better outcomes than those engaging in the highest and lowest levels of activity.¹²

Position and consensus statements of specialty organizations undergo an extensive review process but one that typically differs from a clinical practice guideline. Some practitioners rely on these statements similarly to clinical practice guidelines. These statements should not be construed as the “standard of care.” The definition of the standard of care varies among the states but generally includes 2 principles: (1) a minimal acceptable level of competence based on qualifications and expertise of the treating physician and (2) a consideration of the specific circumstances of the particular case.⁸ Clinical practice guidelines are a means to attempt to universalize a standard of care on a particular issue. But not all clinical practice guidelines are based on evidence-based medicine methodology. Yet they

have been used by both plaintiff and defense attorneys in medical malpractice cases to varying degrees of success by each side.^{8,13,14} During malpractice litigation, the standard of care is typically established through medical experts who base their opinions on their own customary and reasonable practice, knowledge of similar practitioner’s practice, and learned treatises such as scientific articles and books. Position statements, practice parameters, and clinical practice guidelines can be included as learned treatises. Although these statements can be of value to the practitioner, critics have noticed that there is a tendency to lump them together rather than acknowledge the varying levels of empirical certainty on which they are based.^{13,14}

Thus, is it practical to be recommending cognitive rest in all children in the absence of evidence that this is necessary? There are many practical questions that currently remain unanswerable in counseling parents of children with concussion. There is currently no universally agreed on opinion relating to the effectiveness, type, degree, and duration of cognitive rest for the treatment of concussion. In fact, a recent survey of practicing child neurologists showed no consistent approach to the management of concussion.¹⁵ One explanation for this could be the wide variability in training in the management of concussion that is not necessarily restricted to neurologists but also to pediatricians and other specialties (eg, orthopedics, neurosurgery, family medicine).^{9,13} Another explanation is that the current guidelines are not universally consistent or have not addressed all issues related to the management of concussion. Until further research can clarify these issues, the decision about cognitive rest should be made on a case-by-case basis. Currently, we do not have sufficient evidence to routinely recommend cognitive rest in all patients. Children can have prolonged postconcussive symptoms despite the prior implementation of significant cognitive rest.^{16,17} A basic recommendation to eliminate activities such as texting, video-games, and the computer for nonacademic tasks and TV watching is unlikely to be harmful, despite the lack of evidence supporting the restricting of these activities. However, removing from school and recommending a modification of school academic activity is a more complicated and, at times, impractical recommendation to implement because of the long duration of recovery from symptoms in some patients. Also, there are factors that need to be considered before recommending any type of cognitive rest, such as (1) will the student be adequately monitored for cognitive rest, (2) could the student actually have less anxiety and stress from activities such as watching TV, and (3) will the student have increased stress and anxiety because of concerns about missing school. Additional concerns that have been raised include a request for unneeded academic accommodations or unproven postconcussive neuropsychotropic medication based on an underlying ulterior motive of the student that may not be in the best interest of the student.⁹

Currently, a prudent approach to pediatric concussion should be conservative, especially as it relates to return to play and reducing the risk for subsequent concussion. Further research may demonstrate that cognitive rest may be routinely

needed in the management of pediatric concussion. But the notion that “shutting down” children from all cognitive activity for an indeterminate time will improve their recovery is not based on the available evidence.

Practitioners who do not recommend cognitive rest for every patient should be aware that their recommendations are not in conflict with all current guidelines. To diminish the likelihood of parents receiving confusing and conflicting opinions about the treatment of concussion by various practitioners who treat concussion, various treatment options should be discussed with them with the caveat that the final answer on this issue remains unsettled and one for future research.

References

1. Halstead ME, Walter KD; the Council on Sports Medicine & Fitness. Clinical report—sport-related concussion in children and adolescents. *Pediatrics*. 2010;126:597-615.
2. Guideline Developmental Subcommittee of the American Academy of Neurology. Summary of evidence-based guideline update: evaluation and management of concussion in sports. *Neurology*. 2013;80:2250-2257.
3. Harmon KG, Drezner JA, Gammons M, et al. American Medical Society for Sports Medicine position statement: concussion in sport. *Br J Sports Med*. 2013;47:15-26.
4. Herring SA, Cantu RC, Guskiewicz KM, et al. Concussion (mild traumatic brain injury) and the team physician: a consensus statement—2011 update. *Med Sci Sports Exercise*. 2011;43:2412-2422.
5. McCrory P, Meeuwisse WH, Aubry M, et al. Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012. *Br J Sports Med*. 2013;47:250-258.
6. Broglio SP, Cantu RC, Gioia GA, et al. National Athletic Trainers' Association Position Statement: management of sports concussion. *J Athl Train*. 2014;49:245-265.
7. Brown NJ, Mannix RC, O'Brien MJ, et al. Effect of cognitive activity level on duration of post-concussion symptoms. *Pediatrics*. 2014;133:e299-e304.
8. Taylor C. The use of clinical practice guidelines in determining standard of care. *J Legal Med*. 2014;35:273-290.
9. Kirschen MP, Tsou A, Nelson SB, et al. Legal and ethical implications in the evaluation and management of sports-related concussion. *Neurology*. 2014;83:352-358.
10. Eisenberg MA, Meehan WP, Mannix R. Duration and course of post-concussive symptoms. *Pediatrics*. 2014;133:999-1006.
11. Maugans TA, Farley C, Altaye M, et al. Pediatric sports related concussion produces cerebral blood flow alterations. *Pediatrics*. 2012;129:28-37.
12. Majerske CW, Mihalik JP, Ren D, et al. Concussion in sports: post concussive activity levels, symptoms, and neurocognitive performance. *J Athl Train*. 2008;43:265-274.
13. Mello MM. Of swords and shields: the role of clinical practice guidelines in medical malpractice litigation. 149 U PA Law Rev 645 (2001).
14. Paul SR. Are clinical practice guidelines swords or shields in malpractice cases. *Pediatricians and the Law*. *AAP News*, August 2014.
15. Broshek DK, Samples H, Beard J, Goodkin HP. Current practices of the child neurologist in managing sports concussion. *J Child Neurol*. 2014;29:17-22.
16. DeKruijk JR, Leffers P, Meerhoff S, et al. Effectiveness of bedrest after mild traumatic brain injury: a randomized trial of no versus six days of bed rest. *J Neurol Neurosurg Psych*. 2002;73:167-172.
17. Gibson S, Nigrovic LE, O'Brien M, et al. The effect of recommending cognitive rest on recovery from sport-related concussion. *Brain*. 2013;27:839-842.