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FOCUS ON WINTER SPORTS

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Sports Concussions: A Massage Therapist's Perspective

By Richard Lebert, RMT

Over the past decade, there has been rapid development in concussion awareness, advocacy and research. This has led to the development of new protocols and treatment interventions, but there is still no "silver bullet" that exists for concussion rehabilitation. As health care practitioners, it is important to clear up myths that remain in this area. The goal of this article is to give massage therapists a background in current terms and best practices as they relate to concussions. Winter sports—including but not limited to skiing, snowboarding, bobsledding, figure skating and hockey—all carry the risk of concussions. In this article, I will focus on hockey because of my familiarity with the sport as an athlete, spectator and therapist.

This summer, the University of Western Ontario hosted the Second Annual See The Line Symposium, and I had the good fortune to sit in on a presentation by Dr. Robert Cantu on the latest research and advocacy projects revolving around sports concussions. Dr. Cantu is the leading expert on athletic brain trauma, and a pioneer in the study of the link between concussions and progressive brain disease. His book *Concussions and Our Kids* is a great resource for anyone interested in learning more about sport-related concussions. NHL alumnus Eric Lindros and Ron McLean of Coach's Corner fame were also notable speakers at this symposium. Fans of the NHL know of Sidney Crosby and his past concussions, but he is not the only professional hockey player to experience concussions. Some of hockey's greatest players—including Eric Lindros, Paul Kariya, Keith Primeau and Marc Savard—all sat out for lengthy periods of time due to concussion-related injuries.

Dr. Cantu spoke about a team of physicians who belong to the Hockey Concussion Education Project (HCEP). This group concluded, in the December 2012 edition of the Journal of Neurosurgery, that there is a "significant underreporting" of concussions in men's and women's hockey. This is a concern given the long-term side effects of an undiagnosed concussion.

Richard Lebert, RMT, works at The Fowler Kennedy Sport Medicine Clinic at Western University in London, Ontario. He integrates contemporary acupuncture and manual therapy techniques as a treatment approach for sports injuries and concussion. He is also a continuing education instructor for massage therapists, chiropractors and physiotherapists. Twitter @AdaptiveTherapy.

What is a concussion?

A concussion is a mild traumatic brain injury that changes how the cells in the brain work. It is caused by a blow to the head or body that causes the brain to move rapidly inside the skull. Even a "mild" blow to the head can be serious. Concussions can also result when players fall, or if they collide with each other or with obstacles such as a goalpost. Rapid growth in the diagnosis of concussion over the past decade can be attributed to the education of professionals and the public about the severity of this injury.

The symptoms of concussions fall into four major categories:

1. **Somatic:** Headaches, nausea, vomiting, balance and/or visual problems, dizzy spells, and issues such as sensitivity to light and noise.
2. **Emotional:** Sadness to the point of depression (even suicide), nervousness and

irritability.

3. **Sleep disturbance:** Sleeping less or more than usual and having trouble falling asleep.
4. **Cognitive:** Difficulty concentrating, troubles with memory, feeling mentally slow or as if in a fog that will not lift.

Post-concussion syndrome

Post-concussion syndrome refers to the lingering symptoms following a concussion. It is typically diagnosed when a person who has recently suffered a head injury continues to feel at least three of the main symptoms listed above following a concussion. Post-concussion syndrome can begin to occur within days of the head injury, although it can sometimes take weeks for the symptoms to appear.

Second impact syndrome (SIS)

SIS occurs when the brain swells rapidly, and catastrophically, after a person suffers a second concussion before symptoms from an earlier one have subsided. This second blow may occur minutes, days or weeks after an initial concussion.

Chronic traumatic encephalopathy (CTE)

CTE is post-traumatic degeneration of the brain after repeated concussions. Prominent clinical features include dementia, personality change, emotional disorders (especially depression) and movement disorders. The latent period after concussion is usually decades, but shorter latent periods have occurred in some cases. Although CTE shares several neuropathological features with Alzheimer's disease, it appears to be a distinct entity. It was first described in boxers, but has since been identified in other athletes with repeated concussions, including football, hockey and soccer players. Post-mortem autopsies of Derek Boogaard and Bob Probert have found that these NHL enforcers were afflicted with CTE. When Derek Boogaard died at the age of 28 from an accidental drug and alcohol overdose while recovering from a concussion, a posthumous examination of his brain performed by the Sports Legacy Institute found he had suffered from very advanced CTE.

How are concussions diagnosed?

The diagnosis of concussion is based on mechanism of injury, onset of symptoms, neurologic evaluation, and balance and cognitive assessments. It is outside the scope of practice of a massage therapist to diagnose someone with a concussion. If you suspect someone has suffered from a concussion that has not yet been diagnosed, ask them to seek out a physician who specializes in concussions. If an athlete is suspected of receiving a concussion during a game or event, he or she should be immediately removed from the field of play. Under no circumstances should a person suspected of having a concussion be allowed to return to play on the same day.

Baseline testing

When it comes to baseline testing, the current standard is called SCAT3, which stands for Standardized Concussion Assessment Tool. This is a tool for evaluating injured athletes for concussion; it can be used in athletes from the age of 13 years and older. Encourage athletes to get baseline testing at the beginning of the year. Without a baseline testing, concussions can often be overlooked due to their varying symptoms.

What role can massage therapists play in concussion management?

Physicians may recommend massage therapy as part of the concussion management treatment plan. When physicians see patients, they are not concerned solely about how to identify and treat concussions; they also want to prevent the long-term consequences of suffering multiple concussions, which can lead to post-concussion syndrome.[1] Most concussions, if identified and treated properly, will clear up within seven to 10 days, according to studies cited by the Canadian Concussion Collaborative (CCC).[2]

For massage therapists interested in providing care for this patient demographic, it is important to develop confidence in your

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approach. When athletes have suffered a concussion and come for treatment, they are in a vulnerable state. Take time to set up your room so there are options available for patients who are experiencing photosensitivity (light sensitivity) or phonosensitivity (sound sensitivity). When working with an athlete who has suffered a concussion, here are some questions you can ask:

- Was this your first concussion?
- Have you been assessed by a physician yet?
- What symptoms are you currently experiencing?
- What is your goal with massage therapy?
- What special precautions do you need? (e.g., different positioning, alternate lighting and little to no noise)

Become a resource for patients

Massage therapists can be a valuable resource for patients who have suffered a concussion for the first time. I recommend having a referral list including physicians, physiotherapists and chiropractors who specialize in concussion management.

Treating cervicogenic headaches

Patients often present with cervicogenic headaches resulting from undiagnosed whiplash suffered at the time of the concussion.[3] Early therapeutic intervention will reduce the risk of cervicogenic headaches developing into chronic post-concussion headaches. Left untreated, myofascial pain can produce a sensitization phenomenon in the central nervous system, resulting in chronic pain. A massage therapy treatment plan should be implemented based on patient-specific assessment findings and patient tolerance.

Manual therapy techniques applied to muscles, surrounding connective tissue, peripheral nerves and soft tissue interface can yield good therapeutic results. Muscles to keep in mind while assessing and treating athletes who have suffered a concussion include, but are not limited to, suboccipitals, upper trapezius, splenius cervicis, splenius capitis, levator scapulae, rhomboids, temporalis, occipitofrontalis, corrugator supercilii, masseter, sternocleidomastoid (SCM) and scalene muscle group.

Key points

- Major changes in the definition and management of concussions have occurred over the past decade.
- Concussions are classified as mild traumatic brain injuries and should be treated as such.
- Concussions, especially repeated concussions, are now recognized as an important public health risk.
- Baseline testing aids physicians in diagnosing a concussion and will lead to improved concussion management.
- Concussions and whiplash are often concomitant injuries, and treating whiplash symptoms can often improve outcomes in patients who suffer from post-concussion syndrome. MT

Resources for massage therapists

- Cantu R, Hyman M (2012) Concussions and Our Kids: America's leading expert on how to protect young athletes and keep sports safe. New York: Houghton Mifflin Harcourt.
- ThinkFirst Canada (www.thinkfirst.ca): Information sheets on concussion for physicians and others, and a full description of the six-step return-to-play protocol.
- Sports Concussion Assessment Tool, third edition (SCAT3), for youth 13 years and older and adults (http://links.lww.com/JSM/A30); and the new ChildSCAT3, for children 5–12 years old (http://links.lww.com/JSM/A31)
- Canadian Medical Association policy statement on head injury and sport (http://policybase.cma.ca/dbtw-wpd/Policypdf/PD11-10.pdf)
- Shifflett CM (2011) Migraine Brains and Bodies: A comprehensive guide to solving the mystery of your migraines. Berkeley: North American Books.

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2. Canadian Concussion Collaborative (CCC). http://casem-acmse.org/education/ccc/.
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