The pathophysiological effects of sport-related concussion have been well-documented in the literature, but the emotional and psychological effects of a concussion may not be sufficiently addressed by athletic trainers and therapists (ATs). An appreciation of the socio-emotional concussion sequela, such as feelings of helplessness and social isolation, can enhance the care that is provided.

The most widely accepted definition of a concussion is a traumatically-induced alteration in mental status, which may or may not involve a loss of consciousness. A concussion is considered a traumatic brain injury (TBI) and is associated with a complex pathophysiologic response. Confusion and/or memory loss are hallmark symptoms of a concussion, but initial symptoms are determined by the brain structures that are affected. The word “concussion” is derived from the Latin term “concutere,” which means “to shake violently.” An imbalance between sympathetic and parasympathetic neural activity can result in disruption of neurometabolic homeostasis, which can be manifested by maladaptive social responses such as frustration, anger, and sadness.

Sport-related concussions have gained widespread attention as a major public health issue that affects 1.6 to 3.8 million individuals annually in the U.S. and which cost an estimated $80 billion each year. A primary care sports medicine physician in Bergen County, New Jersey has estimated that he treats approximately 1800 concussion patients every year, which represents an average of 35 concussion patients per week (personal communication with T. Bottiglieri, MD, February 2012).

A study sponsored by U.S. Lacrosse and The Sports Science and Safety Committee found that the sport-related concussion incidence rate among high school athletes has increased from 0.11 per 1000 athlete exposures in 1998 to 0.49 per 1000 athlete exposures in 2008, (Figure 1). This 4.6-fold increase from 1998 to 2008 represents an average yearly increase of 16.5%. Proposed explanations for the increased incidence rate include (a) better clinical recognition by better-trained concussion specialists, sports medicine practitioners, and neuropsychologists; (b) more aggressive play; and (c) heightened player athleticism (i.e., more speed derived from better conditioning results in greater energy transfer to the brain). Collegiate athletes are bigger and stronger than high school athletes, which some suggest plays a role in concussion risk.
Athletes who have sustained a concussion have elevated risk for a second concussion, which can result in additional symptoms, increased symptom severity, prolonged recovery of normal function, and the possibility for occurrence of second-impact syndrome. The concussed athlete may experience a variety of psychological symptoms that can negatively affect daily function. Long-term effects may include depression, anxiety, psychosocial problems, physical and cognitive disturbances, and chronic traumatic encephalopathy (CTE).

A concussed athlete who has a history of depression, anxiety, or other psychological problems, or one who continues to participate in contact sports or challenging cognitive activities prior to full recovery, may develop post-concussion syndrome (PCS). PCS is characterized by symptoms that persist for more than 4 weeks, but it can last for months, years, an individual’s lifetime, and it can be manifested by anger, rage, fear, confusion, and isolation.

Several factors can contribute a difficult psychological experience for a concussed athlete. Because there is no well-established therapy for acceleration of concussion recovery, the concussed athlete often lacks a clearly defined treatment plan. Due to the lack of readily observable injury effects, concussions have been referred to as the “hidden epidemic.” The inability of team physicians and ATs to accurately estimate the duration of symptoms, predict the exact nature of the symptoms that may be experienced, or provide definitive instructions for effective management can leave the athlete in a state of confusion, isolation, and helplessness.

Because the brain trauma induced by a concussion rarely produces bleeding or bruising that can be identified by standard diagnostic imaging methods (e.g., CT scan, MRI, or radiographs), tangible evidence that a brain injury has been experienced is not available. Coaches, teammates, and even parents may question the legitimacy of the injury, and the concussed athlete may feel pressure to resume sport participation. Athletes who return to participation prior to full recovery may play with less focus, intensity, confidence, and physical comfort. Tentative play or frustration with inability to perform “normally” can limit the ability to focus on performance, which can increase risk for another injury.

ATs are typically focused on the physical aspects of injury rehabilitation, but psychological factors clearly play an important role in injury recovery. Psychosocial support, encouragement, and assurance that return to competition is safe is important for a confident return to full participation. An athlete engaged in post-concussion rehabilitation must focus on development of coping and relaxation skills, which can counteract feelings of helplessness and social isolation. ATs can teach athletes such psychological skills and can help reduce anxiety by providing information about symptoms.

ATs can play an extremely important role in concussion recovery. Research evidence clearly demonstrates that teaching relaxation and mental skills can reduce the incidence and duration of post-concussion symptoms. Athletes who have adverse emotional responses to concussion symptoms may experience a prolonged recovery that is associated with muscle tension, anxiety, changes in heart rate, and sleep disturbances.

Day-to-day interactions with athletes make ATs an important source of social support for injured athletes. Being available for conversation, showing concern by asking open-ended questions, and simply serving as a nonjudgmental and stable source of social support helps concussed athletes maintain confidence while removed from sport participation. Meaningful conversation is facilitated when the injured athlete doesn’t feel that he or she is labeled as concussed. The use
of body language (i.e., making eye contact, nodding one’s head appropriately in response to the athlete’s words, and mirroring the posture of the athlete) and reflective listening (i.e., focus on understanding the athlete’s concerns and summarizing his or her views in response – “It seems to me that you’re saying I might be feeling . . .”, “I get the impression that . . .”) will promote trust. ATs can introduce a concussed athlete who is feeling socially isolated from friends and teammates to other athletes who have previously undergone post-concussion rehabilitation, which can be highly beneficial. Hearing that “it gets better” from those who have had the experience will promote optimism and reduce anxiety.

Imagery, cognitive restructuring, and goal setting are mental skills that ATs can help a concussed athlete to develop. Imagery scripts (particularly relaxation or healing scripts) may have therapeutic benefit. Feelings of helplessness or anxiety may be overcome through cognitive restructuring, which can promote feelings of relaxation, relief, and empowerment. Cognitive restructuring involves focus on the “right” things (i.e., compliance with instructions that promote recovery) and reduced mental concentration on distressing physical symptoms and/or thoughts that create anxiety. Setting goals for completion of scheduled coping imagery routines can provide the athlete with a sense of control, and the provision of positive feedback for accomplishment of specific goals can help to sustain motivation over a long rehabilitation period.

**Summary**

Basic counseling skills can facilitate post-concussion recovery. ATs should recognize that sport psychology concepts are important for the identification and successful management of socio-emotional difficulties that a concussed athlete may face, such as social isolation and a sense of helplessness.

**References**


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