In November 2004, a group of international experts assembled for the 2nd International Conference on Concussion in Sport. This conference revised and updated the recommendations from the 1st International Symposium on Concussion in Sport held in Vienna in 2001. The recommendations from the most recent conference were published in the March 2005 issue of The Clinical Journal of Sport Medicine and provide user friendly guidelines on the diagnosis, management and return to play of athletes suffering from sports related concussions. The salient findings of the conference include:

1. Development of the Sport Concussion Assessment Tool (SCAT) - This is a single page standardized tool meant for doctors, physiotherapists and athletic trainers that can be used for the assessment of sports concussion as well as for patient education. It is distillation of a number of previously existing tools and has been included in this package.

2. Concussion Grading Scales - The Vienna Symposium recommended that grading scales be abandoned in favour of combined measures of recovery to determine severity of injury and individually guided return to play decisions.

3. Categories of Concussion - For management purposes and ease of understanding, the Prague Group categorized concussions as either simple or complex.
   a. Simple Concussion - The most common form of concussion that progressively resolves without complication in 7-10 days. In such cases, apart from limiting physical activity while symptomatic, no further intervention is required and these cases can be handled by primary care physicians or by certified athletic trainers working under medical supervision.
   b. Complex Concussion - Encompasses cases where there are persistent symptoms (including persistent symptom recurrence with exertion), postconcussive sequelae (i.e. concussive convulsions, loss of consciousness > 1 minute) or prolonged cognitive impairment. This may also include athletes who suffer multiple concussions or in whom repeated concussions occur with less impact force. It is recommended that athletes in this group be managed in a multi-disciplinary manner by physicians with specific expertise in the management of concussive injuries such as a sports medicine doctor with experience in concussion, sports neurologist or neurosurgeon.

4. Neuroimaging - As concussion is a functional disturbance of the brain rather than a structural injury, structural neuroimaging is usually normal. CT or MRI scanning may be indicated if there is a suspicion of an intra-cerebral structural lesion as in cases of a prolonged disturbance of conscious state, focal neurological deficit or worsening symptoms.

5. Cognitive Rest - Activities that require concentration and attention may exacerbate the symptoms of concussion and delay recovery. Therefore, athletes suffering from concussion should limit both physical exertion as well as mental activities. Children aged 5-18 years should limit scholastic activities while symptomatic.

6. Neuropsychological Testing - The Prague Conference recommended that neuropsychological testing remain one of the cornerstones of evaluation in complex concussions. While neuropsychological testing contributes to the understanding of the injury and management of the athlete, it should not be the sole basis of management decisions concerning return to play. The Conference underscored the benefit of baseline pre-injury testing and serial follow-up. In addition, testing should not be done when an individual is symptomatic as testing while symptomatic adds nothing to the return to play decision.

The Saskatchewan Perspective

Obtaining the services of a neuropsychologist for formal neuropsychological testing can be difficult, costly and out of reach for most small recreational/highschool teams. However, there are some alternatives. For example, Cogsport (www.cogsport.com) offers a web based testing service with pre-competition testing and serial follow-ups following injury for $40.00 per individual. There are group rates for athletic teams.

A basic, low tech neuropsychological test is the Digital Symbol Substitution Test (DSST). The patient attempts to substitute a given symbol for assorted numerals as many times as possible over a 90 second period. The score is the total number of correct substitutions and is compared to a baseline total, which is the score at the beginning of the season, when asymptomatic. A DSST score of four to five points lower than baseline should alert the physician to continuing neuropsychological deficits and post concussion symptoms. A copy of the DSST is included in this package.