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Excela Health sports medicine specialist James Masterson, DO uses new balance evaluation equipment to determine athlete's fitness for play.

CONCUSSION MANAGEMENT AIDED BY NEW BALANCE ASSESSMENT TOOLS

GREENSBURG, PA, October 19, 2012 ... Student athletes often juggle multiple activities in their busy lives – school, homework, practices and other extracurricular events. But when an athlete suffers a concussion, the sense of balance is compromised, along with the body's natural balance system.

James Masterson, DO, sports medicine specialist with Excela Health Orthopedics, can test athletes' balance related to concussion injury using the NeuroCom Forceplate Balance System VSR Sport in his Greensburg office.

This diagnostic tool as well as other portable assessment and training equipment was made possible with funding from the Latrobe Area Charitable Foundation and the Westmoreland/Frick Hospital Foundation.

The new device measures patients' balance systems and compares the results to other assessments from their peer age group to identify injury or track recovery. According to Dr. Masterson, the equipment helps clinicians recognize balance irregularities and monitor progress which is "one area that is often overlooked in concussion management; concussions don't just damage your ability to think, but they damage your balance as well."

Concussion management is one component of Dr. Masterson's comprehensive sports medicine practice. He also treats strains, sprains, overuse injuries, sports related medical conditions such as exercise induced asthma, eating disorders, skin disorders, and sports syncope, and non-operative orthopedics including evaluation and treatment of non-operative musculoskeletal conditions as a part of sports medicine. He also provides pre-participation evaluation and clearance. All are important to assuring safe play, but concussion management represents a significant portion of Dr. Masterson's focus, because head injury can have long-lasting implications.

To complete the basic balance test using the new technology, the patient steps upon a firm surface that looks much like a large scale. The machine runs a test on the balance with the patient's eyes open, and then with the patient's eyes closed. Finally, the patient stands on a thick piece of foam placed on top of the scale while the machine remeasures the balance, once with eyes open and again with eyes closed.

The machine also uses the Balance Error Scoring System (BESS) to assess patients' concussion damage. The BESS system was developed by Latrobe native and former Pittsburgh Steelers' trainer Kevin Guskiewicz. The system involves patients standing upon a firm surface with their eyes closed and hands on their hips as they stand on one leg and then stand with feet heel-to-toe. The patient then repeats the system on a foam surface. BESS is usually recorded by a person with a stopwatch and a score sheet, but the balance machine scores the patients more accurately.

Once patients finish the balance assessment, a printable scorecard is available with graphs of the results and an analysis of their balance scores compared to the average scores within their age group.

Concussion awareness has grown over the last few years as national sports leagues like the NFL and NHL take more precautions and issue strict game regulations related to concussed players. "We see more athletes because of an increased awareness right now," Dr. Masterson said. Athletic trainers within the school systems also help to track concussion injuries and send students to Dr. Masterson for assessment and treatment. "The athletic trainers are the ones there; they often see the injury, athletes confide in them how they're really feeling. The trainers know the athletes and can identify when they're not acting right. They can send concussed athletes to us, and when we send them back, the trainers help to monitor athletes' progress." Concussions don't just happen to athletes; Dr. Masterson sees many patients from all sorts of activities and situations including cheerleaders, band members and victims of car accidents and bad falls. "I once treated a kid who was asleep, and a shelf fell on top of his head," Dr. Masterson recalled.

Even with improvements in safety equipment such as helmets and mouthpieces, concussions are not easy to prevent. "There is no perfect answer to preventing concussions. Even with protective equipment, the brain still moves in the skull," Dr. Masterson said.

When a blow to the head occurs, hundreds of billions of brain cells jiggle, axons and neurons stretch and compress, and chemical changes occur. Dr. Masterson lists symptoms of a concussion as dizziness, headaches, trouble concentrating, feeling foggy, and general malaise. Individuals who have experienced a blow to the head and some of these symptoms should consider seeking treatment from a concussion expert.

Treatment for concussions includes resting the brain for the first three weeks. If a student athlete suffers a concussion, the physician discusses accommodations with the school so that the student can adequately treat his or her injury. Resting the brain also includes avoiding video games and texting; "most kids hate that last one," Dr. Masterson said. The patients also take a break from their activity or sport in order to recover.

Beyond the three week rest period, the patient goes through therapy and may be prescribed medication. The balance machine is used to monitor progress through the recovery period through retesting. According to Dr. Masterson, a vast majority of student athletes are back to their normal life within three to six weeks. "The hope is that the athlete's brain is healed enough to prevent a repeated concussion which happens when the brain is still vulnerable," Dr. Masterson says. "Repeated damage can result in long term effects for the athlete."

To aid in concussion identification and management, Dr. Masterson recommends having a baseline impact test before joining a sport or physical activity. "If a mom is starting her kids in soccer, she should request that her kids have it done. I also think that schools should require them for sports and activities."

To learn more about Excela Health's sports medicine program, visit www.excelahealth.org