

Treating post-concussion syndrome

UB researchers pioneer new method that lets athletes maintain conditioning

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Contributing Editor

Sports medicine specialists in UB's Sports Medicine Institute have developed a new method for treating athletes who sustain post-concussion syndrome that, unlike the conventional approach, allows athletes to maintain conditioning while recovering gradually from the injury.

For unknown reasons, 5-10 percent of people who experience a concussion have symptoms that persist beyond six weeks. These people are diagnosed with post-concussion syndrome (PCS). Previously, there has been no treatment for the condition with proven success.

"The most common approach by physicians is to recommend no exercise and prescribe antidepressants," said Barry Willer, professor of psychiatry and rehabilitation sciences. Willer is lead author on the paper describing the new method, published in the September issue of *Current Treatment Options in Neurology*.

"Most people with PCS have symptoms of depression," said Willer, "so antidepressant treatment makes sense. However, antidepressants do little more than relieve some of the depression symptoms. We were interested in a treatment that didn't just treat the symptoms, but actually improved the patient's brain function."



Barry Willer has developed a new method for treating post-concussion syndrome.
PHOTO: FRANK MILLER

The researchers call their new treatment "regulated exercise." The approach consists of determining the ideal exercise program for each athlete based on a number of individual physiological indicators at baseline.

Patients are tested every two to three weeks with specialized equipment at the sports medicine clinic to determine their progress, and a new program is developed based on those results.

Willer and co-author John Leddy, clinical associate professor of orthopaedics and rehabilitation sciences, indicated it is too early to call the treatment a cure, but they are optimistic about the results so far.

The researchers described the treatment method in mid-September at the 2006 Brain Injury Conference of the Americas in Miami, where the response was very favorable, according to Willer.

"Professionals at the meeting were delighted that our approach to treatment of post-concussion syndrome doesn't involve any medications and is very cost-efficient. We were surprised to learn that we are among only a few investigators interested in people with symptoms that won't go away.

"There is no other known treatment specifically for PCS, which we define as persistent symptoms of concussion past the time they should have cleared, usually around three weeks," said Willer. "As far as we can determine, there is only one other group in North America that is using regulated exercise as part of the treatment for PCS."

Willer and Leddy have used regulated exercise successfully with people who were as much as six months post-concussion. Their regimen is based on the hypothesis that the regulatory system responsible for maintaining cerebral blood flow, which may be dysfunctional in people with a concussion, can be restored to normal by controlled, graded symptom-free exercise.

"The treatment program is well-tolerated by patients," Willer said. "Just being able to

exercise often reduces the depressive symptoms. But it's imperative that the patient not go beyond the exercise limits.

"After the first three weeks of regulated exercise, we reassess the patient to see if there has been any change in physiology. The exercise program then is realigned successively to respond to the changes. In our experience thus far, symptoms disappear within several months for at least some of the patients," he said.

The specialists have worked with a small number of patients to date. They have included a UB soccer player who has returned to play and now is one of the team's leading scorers. Another young athlete was able to return to cross-country running and attend school full-time.

Willer, Leddy and other UB faculty members will present a half-day seminar on their treatment for concussion and post-concussion syndrome and the science behind it from 7:30 a.m. to noon Oct. 28 in Butler Auditorium in Farber Hall, South Campus.

The seminar, aimed primarily at physicians, also will be open to the public. Interested persons should contact the Office of Continuing Medical Education at 829-2378 or harber@buffalo.edu for more information.