

**CASESTUDY**

## **Biodex Concussion Management Program aids in Return-to-Play Decisions**



**BIODEX**

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When 19 year old Brookdale Community College soccer player Devin Hope stepped into db Orthopedic Physical Therapy in Lincroft, NJ, last September, little did she realize her visit would help prove a point , Dr. David Bertone, PT, DPT, OCS had been trying to hammer home to his local sports communities.

“Adding a balance baseline to the preseason medical data gathered on athletes involved in contact sports is absolutely vital,” stated Bertone. “For concussion patients, it’s a real, objective component that can play a pivotal role in determining post-injury status and a safe point for return-to-play decisions.”

Hope, an aggressive defensive player, had been diagnosed with a concussion after taking a shot off her temple during a game. She displayed all the typical concussion signs including nausea, excruciating headaches and lack of appetite. Her pediatrician instructed her to refrain from physical activity and to return for a checkup when her head stopped hurting.

Hope followed the doctor's advice, but her school also had a progressive concussion management program and referred her to Bertone, who had used the Biodex BioSway to complete a baseline balance study of the college's men's and women's soccer teams before the concussion occurred.

“After several days,” explained Bertone, “Hope's headache and obvious concussion symptoms had subsided and she passed her post-concussion IMPACC test. Normally, that would be enough for return-to-play. When she came into the clinic post-injury, however, her numbers were way off in the BioSway testing. It was obvious from the data that she simply wasn't ready to get back on the field.”

### **ONE IN TEN!**

Dr. Bertone sent Hope's BioSway results to her physician to let him know the baseline data indicated she still had a vestibular system impairment resulting from the head injury. Based on this information, her return was delayed for a few more days until her sway numbers came back into alignment with the baseline readings. Today, she's playing at full speed.

“Examples like this have me convinced the Biodex Concussion Management Program and BioSway work,” continued Bertone. “Had this athlete gone back sooner, there would have been greater risk of second impact injury, and that can be devastating



Dr. David Bertone, PT, DPT, OCS

for a young athlete. Having the baseline data, and being able to compare it to real-time post-injury results in a comprehensive report, made a big difference in this case.”

According to the Center for Disease Control (CDC), 38 million boys and girls ages 5 to 18 participate in organized sports in the United States. Of those, 1 in 10 (380,000!) will sustain a sports or recreational-related concussion each year. Bertone believes that parents and coaches, as well as physicians and athletic trainers, need to be more aware of the signs and symptoms associated with concussions and what can be done to objectively determine when a child is ready for return-to-play. Both the Biodex BioSway and Biodex Concussion Management Program, he states, can help.

### **REMEMBER ERIC LINDROSS?**

Concussions are basically traumatic brain injuries caused by a strong force from a direct or indirect blow to the body or head. The brain gets jolted within the skull, affecting brain functions including motor skills and/or thinking capabilities. Every person responds differently to head trauma, notes Bertone and the rate of recovery is unique per individual. The cumulative effects of a traumatic brain injury can be devastating, as demonstrated by the early retirement of some prominent professional athletes like Troy Aikman of the NFL and NHL hockey player Eric Lindross.

***“Those at highest risk for [second impact syndrome] are athletes under the age of twenty.”***

Second impact syndrome is the most dangerous consequence of returning to play before an athlete has fully healed from concussion. The second impact can cause brain swelling and bleeding, possibly resulting in death. Those at highest risk for this syndrome are athletes under the age of 20.

“I really think we need to educate the public more about the signs and symptoms of concussion,” stated Bertone. “And I think all sports leagues should have access to a practice using a comprehensive concussion program like the Biodex Concussion Management Program along with baseline balance testing using a device like the BioSway.

***“Medical attention should be the rule, not the exception.”***



Dr. David Bertone shown testing Devin Hope on the Biodex Portable BioSway.

“According to Bertone, after an injury occurs where there is no loss of consciousness, a sideline cognitive and functional assessment can be critical in a return-to-play decision. Kids often complain of concussion symptoms but coaches and parents aren't aware of the signs, so injured athletes are rushed back too quickly. The most prudent point

*“The Biodex Concussion Management program introduces new patients to my practice, increases my brand in the community and helps improve the safety of everyone involved.”*

that parents and coaches need to understand is that kids must sit out if there is any doubt. In many leagues, there are no guidelines to follow when a player is suspected of having a head injury. The course of action is up to the parent or coach. Medical attention should be the rule, not the exception.”

Bertone acknowledges that many high schools and colleges are now establishing concussion management programs and this is a step in the right direction. But he also points out that these new programs have little impact on youth sports or club/travel teams, and few of these programs incorporate balance testing to establish baselines.

### **BIODEX BRINGS IT ALL TOGETHER**

Once a determination has been made to seek therapy for a concussion, The Biodex Concussion Management Program can be used to help with the decision to allow athletes to return to their sport. Biodex brings together cognitive and functional assessment using accepted tools and methods to afford a “single source” reference. Even for those facilities that have a concussion program already in-place, Biodex Concussion Management Program, when used in conjunction with accepted neuro-cognitive testing programs, adds the vital vestibular and objective balance assessment now considered so important in concussion assessment.

Bertone has found his local sports leagues, high schools and colleges open to the idea of incorporating baseline balance testing and a concussion management program into their

standards, and he would like to see more clinicians and physical therapists approach these groups to offer such services.

“A lot of clinicians really don't know how to incorporate balance data into a concussion program,” suggested Bertone. “They are tentative when it comes to jumping in and marketing this angle, but there is a lot of opportunity out there for those who make their presence known. Many high schools and even some colleges are doing cognitive testing without a balance component. This is something you can point out that will help the athletes, get your foot in the door - and build your practice in the long run.”

### **GRATIS IS GOOD**

Bertone offers BioSway baseline testing free to local high schools, sports leagues and colleges. Then, since he has the data on file, athletes are logically referred to him when a concussion is diagnosed. At that point, he retests the athlete on the BioSway and uses the Biodex Concussion Management Program to help evaluate the patient's condition. The results are passed along to the physician to help aid in determining an appropriate return-to-play date. Bertone has even developed a flow chart that he shares with participating schools showing what needs to be done, and when, following a concussion. The chart is based on the protocols and research used to formulate the Program and explains specific steps to take, starting from immediately post injury to several days later.

“The time invested in the baseline balance testing and marketing is really quite minimal,” points out Bertone. “The beauty of the BioSway is that it is so easily portable and it takes only three minutes to perform four tests on each athlete. I pack it up in a travel case, bring it to the school, test 20 kids at a time, and then pack up and head home. By offering this as a free service, I've gained access to more physical therapy patients. The program introduces new patients to my practice, increases my brand in the community and helps improve the safety of everyone involved. It's really a win/win scenario.”

Recently, Bertone has begun marketing to the parents of young athletes so they can have access to both the cognitive and balance testing that is not being provided below the high school level. Participants pay for this service, adding another positive element to the program from a business standpoint.

“I've been marketing specifically to sports leagues for travel and peewees with good success,” confirms Bertone, who explains to parents and league administrators that their kids are not getting the baseline services now provided in some high schools and colleges - but they are getting the same number of concussions. He stresses the importance of knowing when the time is really right for return-to-play and that, without such baseline balance testing, anyone making the return-to-play decision is doing so without objective criteria.

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“In the end,” sums up Bertone, “It's the objectivity, the quantifiable criteria, and the professionalism of having a tried and true concussion management program that helps gain the respect and trust of these groups. If you are serious about concussion management, the Biodex Concussion Management Program and Biodex BioSway are two tools that will help ensure you'll do the most good.”

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