



Justin Sacco performs an advanced balance exercise at the BFS Science Lab.

# *Justin Sacco* Getting Back on Track

How this remarkable young man overcame a serious brain injury

In the fall of 2013 Justin Sacco, an eighth grader at Mahopac Middle School, suffered a serious brain injury before football practice at his school. What happened after that is a story of how, through the help of a brilliant surgeon and modern technology, a young man has gotten his life back.

Justin's story is one of many that are happening far too often as part of the growing crisis of sports concussion among young athletes. It's

estimated that in high school alone, up to 100,000 young men and women



Justin with Dr. Nick Petrini, a member of the BFS Science Lab team that helped Justin achieve a full recovery after a traumatic brain injury.

suffer this type of traumatic brain injury (TBI) every year. The word traumatic needs to be emphasized here.

Each year, according to government-sponsored research, concussions cause more than 52,000 deaths and 275,000 hospitalizations, and approximately 1.4 million individuals total are treated at emergency rooms for TBI. What's more, the problem is getting worse. From 2002 to 2006, the number of hospitalizations for TBI

increased 19.5 percent and the number of emergency room visits increased 144 percent. Further, the risk of permanent brain damage, and death, is greater when an athlete returns to play too soon.

Medically, a repeat concussion is known as second impact syndrome. Justin's was a first-time concussion, but it was as bad as it gets. In Justin's own words, here is what happened:

"I was at the practice field before practice had started. Everyone on the team was throwing balls around. None of us had our equipment on because we were going to watch the homecoming game after practice had ended. I was having a catch with my teammate and the ball had come up short and hit the ground. While I bent down to pick it up, another teammate was sprinting toward it in order to kick it, and his knee hit my head right above my temple.

"Long story short: I was taken to our local hospital and given a CAT scan. They determined I needed to be airlifted to the Westchester Medical Center in Valhalla, New York. That's

where my hero, Dr. Avinash Mohan, performed emergency surgery to relieve the pressure and the blood on my brain.

"I wasn't supposed to walk for a few weeks, but I was determined to walk and did that in just four days! I went to Blythedale Rehab center for a few weeks after that. It was then that my father contacted Dr. Peter Gorman and Dr. Nick Petrini – and that's where the real therapy took place.

"I've never been so determined and dedicated in my life. I have the desire to not only play sports again, but be the absolute best athlete I could ever have dreamed. I'm training with Dr. Gorman and Dr. Petrini three or four days a week, doing everything from balance control to squats and light weights. All I can do to show them how appreciative I am for their dedication to my welfare is to be the absolute best that I can be."

Filling in some details, Gorman says that after Justin's surgery, the boy's father, Anthony, contacted him. "Anthony said he'd heard we were dealing with another traumatic brain injury and that he'd like to bring his son in

for an evaluation," says Gorman. "After we evaluated Justin, we were able to tell Anthony point blank that his son was going to be fine if he would follow our game plan."

That game plan was to first reestablish Justin's balance and coordination. One way they did this was by having Justin walk on a treadmill that used the OptoJump™ system. This system offers a biofeedback response that enabled Justin to see asymmetries in his walking gait cycle and immediately try to correct them – neurological training such as this is impossible to replicate with any other technology. Also, observations with only the naked eye cannot determine the exact amount of asymmetry that occurs with each gait cycle.

Correcting Justin's walking gait was just one component of his treatment. Restoring his ability to balance was another critical goal. As with assessing the walking gait, the full extent of an athlete's loss of balance is not possible to determine with the naked eye. Using a light system and sophisticated software that precisely measures how an individual maintains their balance in

Attached to a treadmill, the OptoJump™ system provides a biofeedback response that enables Justin to see asymmetries in his walking gait cycle and immediately try to correct them.



# FEATURE STORY

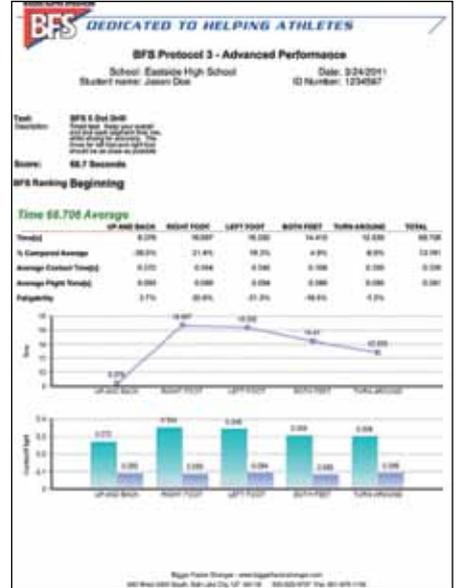
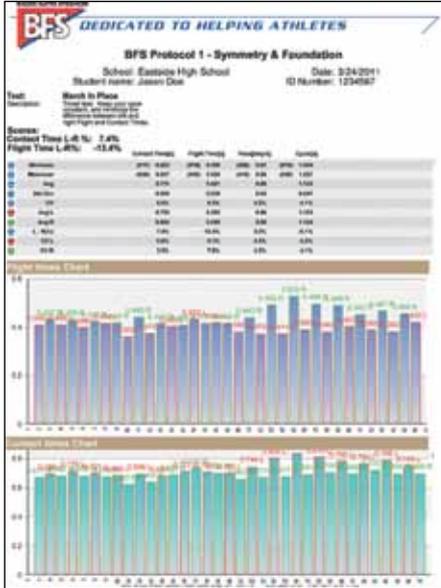
both stable and unstable conditions, the OptoJump gives therapists the information they need to administer corrective exercise protocols.

As Justin improved, strength training was introduced into his treatment, again monitored with the OptoJump system. Gorman explains that it is

important to not only strengthen Justin’s muscles but also make certain he is able to load his muscles while maintaining symmetry and balance.

Although just five months after brain surgery Justin’s neurologist cleared him to return to sports, Gorman advised again it. “What I told Justin

and his father was that we were going to wait one full year before we send him back to the playing field – one full year devoted to healing, to training, to make sure everything is fine. With this approach we believe that not only is Justin going to be Justin again, he’s going to be better than ever.” **BFS**



As Justin progresses in his training, he will be able to use the OptoJump to help him achieve his full physical potential. Shown here is Canadian strength coach Paul Gagné using the OptoJump with Canada’s Justine Dufour-Lapointe, 2014 Olympic Champion in women’s moguls skiing. Also shown are some of the sophisticated bio-analysis reports the OptoJump can provide athletes and coaches.