

INTERVIEW WITH AN EXPERT

Dr. Craig Rubenstein had the opportunity to conduct this interview with brain specialist (and martial artist)

Dr. Frederick R. Carrick.



Frederick Robert Carrick,

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Hello Dr. Carrick, Thank you so much for agreeing to this interview and taking time out of your busy teaching, treating and lecturing schedule to talk to our readers about concussion. I have to say.... you are one of my biggest heroes in healthcare.

Could you please give us your background relating to your expertise in the treatment of concussion and other traumatic brain injuries?

I have had a specialty practice of functional neurology for 35 years and have a special interest in traumatic brain injury. My background is central to Chiropractic applications with several Fellowships in a variety of Brain Specialties and a PhD specialty in the neurophysiological aspects of learning. I have been fortunate to have had extensive experience in this clinical area and have a very vibrant clinical team that has resulted in patients being referred to me from around the globe. We attend professional athletes, Olympians, National and Collegiate level athletes from many countries.

I also understand that you have been involved in the martial arts for many years. Could you tell us about that.?

I have a 3rd degree black belt in Shotokan Karate. The martial arts have been central to my life since I was a young man, allowing me to understand movement and motor control at a level that I might not have appreciated from clinical studies alone. The dedication and discipline of training has certainly transferred to other aspects of my personal and professional life.

What is your definition of a concussion and what is actually going on in the brain?

A concussion is a traumatic brain injury that changes the way your brain works. Most concussions result in a temporary loss of function and usually people will have headaches and problems with concentration. We find that balance and coordination are usually impaired and people might have problems remembering things. Memory, balance and coordination. Concussions don't usually result in brain damage that we can see, so the CT scans and MRI tests are usually normal. But, the function, or how the brain communicates with itself and the rest of the body is impaired. We do have changes in the brain that are difficult to see with our diagnostic instruments but now we have some pretty sophisticated tests that will allow us to know the functional state of the brain. We are able to measure function fairly accurately and establish a baseline of testing that allows us to realize if our treatments are going to make a difference. Martial artists understand function better than most athletes. Speed, accuracy, balance and coordination are all brain functions that can be changed with training. Our treatment of concussions is really training the brain to do things better and restoring function. Usually we get our patients better than they were before their concussions.

Since the traditional medical community has no specific tests such as MRI's for concussion, how do you personally diagnose and understand what is happening in a patient with a concussion?

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We do utilize MRI and other specialized imaging tests in association with sophisticated tests of memory, verbal and auditory testing similar to the types of tests other specialists use in concussion. But we go further with functional testing of the brain that includes measurements of the speed and accuracy of eye movements. These are really windows of brain function and now we have the technology to measure them exactly. We also measure balance and the center of pressure of the person's whole body when they do a variety of things to stress their brains. For example, we have people do math and see if their center of pressure or stability changes. We have one of the best concussion labs in the world and it takes us several hours to complete the testing that allows us to help people. The development of advanced computerization of diagnostic testing allows us to do better job now than we ever could have done in the past and we hope to be able to learn and develop more in the future.

Please describe the diagnostic procedures and treatment that you offer those suffering from a concussion and is there a different approach to an acute concussion vs. chronic concussive symptoms or post concussion syndrome?

We marry standard testing to advanced functional testing. We establish baselines of brain function and compare that to normals and use the baseline as a measurement of change. We will know immediately if our patients are improving, getting worse or having no change. We can then change our approaches to do the best for the brain injured patient. Our therapies are very robust. For instance, we don't stop our treatments in the Brain Center, we put our hockey players on the ice, football players on the field, baseball players on the diamond, martial artists on the matt and have practical back to sport training that involves the sport specifically as well as other cross training necessary to improve performance.

Most of our readers are probably familiar with the NHL superstar Sidney Crosby's concussions and how he was unable to play for quite some time. Is it possible for you to shed some light on the treatment that he received by you that helped him return to play?

I really can't comment on the health status of any of our patients. We keep things confidential and this is so very important regardless of whether our patient is a champion boxer, MMA fighter, football player, hockey player or any

other athlete. We attend a very large number of celebrity patients and it is so very important to us to maintain the dignity of confidentiality for all of humankind.

As you are aware, the traditional medical treatment for concussion is simply rest and wait and to give medication for symptoms such as painkillers for headaches, anti nausea medications for nausea etc. From your perspective, do each of the symptoms that someone is experiencing typically relate to a particular dysfunction in the brain and is it possible to target that dysfunctional area with specific forms of treatment to be more curative than just lessening symptoms?

Rest is important in acute concussions and most people will be better in a few weeks. People who have concussion symptoms or impairment that lasts longer than a month typically have a more severe head injury and continued rest will not usually get them better. The entire medical community is working hard to develop novel treatments for brain injuries and we are leaders in this area. Certainly we identify the areas of the brain that are injured and

develop treatments specifically for those areas. Our programs of treatment are not generic, they are not the same for each athlete, they are very specific and individual. No 2 patients will get the same type of treatment for their brain injuries. People are special and very different with different needs. They have different brains before their injuries and different needs. We always want to decrease the symptoms of a concussion but our primary goal is to fix the brain, ensure that it is safe to get back to play and to live a long and prosperous life after the sport. Professional and Olympic athletes are typically young men and women. They have a relatively short career on top compared to the number of years that they will be on the planet. Our treatment addresses the integrity of their brain function beyond the sport. We want them to be able to think, embrace a vibrant future and be able to live and experience a wonderfully rich life.

Who do you feel is the most appropriate doctor to see for concussion treatment and how can someone find that type of doctor?

People should choose a doctor who specializes in brain injuries and who has a great track record of treatment. Not all specialists are the same and people who injure their

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brains might end up at the wrong place. We need to partner with a doctor who will tell us if he or she is not the best person to treat us. We need to have humble physicians who are not too proud to refer us to others if things are not going well. My practice is limited to severe brain injuries and therefore I am biased as to who I would see if I have a head injury. All athletes should plan on knowing who is the best in their area before they injure themselves. If we know in advance who is the best person to go to then we are far ahead if we have an unfortunate injury or accident. Athletes are more likely to injure themselves than non athletes. Contact sports are associated with head injuries and those of us that love our sport must have a plan in the case of an injury. The Carrick Institute maintains a list of doctors from around the world that we refer patients to. It is really an important part of our training to get baseline brain testing when our brains are working well. Then if we have an injury the doctors will know exactly the extent of the injury because he/she will have something to compare to. We are seeing so many of the pros coming to us for baseline testing and sports enhancement therapies without head injuries.

There has been a lot of research lately on the negative effects of sub concussive blows on brain function. Since the majority of our readers are martial artists, the role of sub concussive blows is a very important topic. What are your thoughts on the type of damage caused by repetitive impacts that are not intense enough to cause a concussion and is there anything you would suggest martial artists do to protect themselves or lessen the damage caused by these sub concussive impacts?

Martial artists are at a greater risk of head injuries than other athletes that are exposed to receptive hits to the head. It is the reality of our sport and something that we have to understand so that we might improve our skills while decreasing risks. We know that sub concussive blows can add up and we have a lot of evidence gained from the examination of brains of boxers and others who have had careers in the sport. Simply put, we should not be hitting each other in the head during training and head gear really does not protect our brains as we thought in the past. Continual blows to the head do result in permanent changes in the brain that we call chronic traumatic encephalopathy. This is real and it is an unfortunate reality. We need to respect the heads of our

opponents and they need to respect ours. This is certainly not the way I was trained but it is something that our leaders in martial arts need to consider. We need to change our sport and evolve into a safer and more secure life long representation that is of benefit to society at large. Change is difficult but we have a responsibility to embrace change now that we know more. We will still have head injuries in martial arts but if we can do our best to reduce them then everybody wins. Martial arts can be safe, fun, effective and a leader in current responsible applications.

I love the martial arts and have some of my fondest memories of my life while training and competing.

Is there a role for Neurofeedback in the treatment of concussion, and if so, can you describe what Neurofeedback is?

Certainly neurofeedback has a role in the treatment of concussion and a variety of other brain injuries. We use it daily but not as a stand alone treatment. We find great benefit when we combine these therapies with other applications. Not every patient benefits from neurofeedback but many will. We measure brain waves when we use Neurofeedback to give a virtual feedback to the doctor and patient that allows us to teach the patient to self regulate their brain function. We use combinations of sound, body and visual stimulation and train the patient to change their brain waves and brain activity.

Thank you so much for sharing your knowledge with our readers. Do you have any parting words?

I love the martial arts and I have some of my fondest memories of my life while training and competing and really learning to understand myself and others through this sport. As a specialist in brain injuries I see the worst of things with some terrible compromise of human life. I believe strongly that people benefit in so many ways from a structured and save exposure to quality martial arts training. For instance, Parkinson's disease patients benefit greatly from learning Tai Chi exercise which appear to protect the brain. I am involved in developing a variety of sports strategies that include game changes to reduce head injuries. I also am very excited to see that my 3 grandsons are training in Karate.

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