

## Pain in the Neck

Sarah Burke, Peyton Manning, Sidney Crosby

Neck injuries have made the headlines in several different areas of sport over the past few months. According to the Bone and Joint Decade Task Force on Neck Pain, most people will experience neck pain at some time in their life but for the majority of those, the neck pain won't be severely limiting. It is also interesting to note that the same study reported that 50 to 85% of those people experiencing neck pain will not get complete resolution of their symptoms and will experience neck pain again within 1 to 5 years. Athletes are not immune to the travails of neck injuries and neck pain and unfortunately some can have devastating results.

### *Sarah Burke – Freestyle Skier Vertebral Artery Dissection*

Sarah Burke, the 29 year old Midland Ontario native, was a pioneer freestyle skier that gave a face and a voice to Women's Half-pipe. She had successfully lobbied to have the Half-pipe event become an Olympic event starting with the Sochi Olympics in Russia in 2014.

Unfortunately, she would not live to see the results of her hard work. On January 10, 2012, Burke was training at a sponsor's event in Park City, Utah when she hit her head during a trick, one that she had done many times previously. Burke went into cardiac arrest within minutes and had to be airlifted to hospital. The next day she

underwent surgery to repair a ruptured vertebral artery in her neck but later succumbed to her injuries. The vertebral artery is a major supplier of blood to the brain and her death was due to the lack of blood flow to the brain during her cardiac arrest. Most felt it was a freak accident and not due to any underlying extreme risk in her sport or the particular venue. It was the same Half-pipe, however, that was the scene of another serious traumatic brain injury to snowboarder Kevin Pearce. Pearce, a Vermont native, was an Olympic hopeful for the 2010 Olympics in Vancouver and oft rival to the eventual gold medallist American Shaun White. He is no longer able to compete in his event due to the injury and its sequelae.

The vertebral arteries (left and right) branch off of their respective subclavian arteries. The subclavian arteries branch off the arch of the aorta in close proximity to the carotid arteries. The vertebral arteries pass through a hole in the transverse processes of the vertebrae as they make their way to the brainstem through the large hole in the bottom of the skull (foramen magnum). The left and right vertebral arteries unite to form the basilar artery that supplies blood to the brainstem and becomes part of the Circle of Willis a complex of arteries that can supply a large area of the brain. The brainstem is a very important and primitive area of the brain that controls breathing, heartbeat and blood pressure. A reptiles' entire brain resembles our brainstem.

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## Brain Teaser

What are the next  
3 numbers in the  
following sequence?

12, 23, 35, 47,  
511, 613, 717,  
819, #, #, #

(Hint: think prime numbers)



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It is suggested that when Ms. Burke ruptured her vertebral artery that caused her to have an intracranial bleed in turn causing her cardiac arrest. The lack of blood flow and thus oxygen to her brain caused irreversible brain damage and ultimately caused her death.

***Peyton Manning  
Indianapolis Colts  
Quarterback  
Neck Fusion Surgery***



Peyton Manning, the older brother to Eli Manning (the current Superbowl MVP), holds the record for most NFL MVP awards with four. He also holds numerous NFL and Indianapolis passing records and has won the Superbowl himself in 2006. Manning missed all of the 2011 season due to a neck injury that caused him problems throwing the ball due weakness in the triceps brachii, the large muscle in the upper back of the arm.

Manning had surgery in May 2011 to hopefully correct the underlying problem in his neck that was causing this weakness but the surgery was not successful and a second surgery in September 2011 had to be undertaken. The second surgery was reportedly an anterior cervical fusion of the C6 and C7 vertebrae. The cervical spine or neck has seven vertebrae that begin under the skull and end at the first thoracic vertebrae in the upper back. The vertebrae are labelled from the top down thus the fusion occurred between the two lowest cervical vertebrae in the neck.

The surgery is called an anterior fusion because the surgeon enters the neck from the front. A small incision is made at the level of the disc between the two vertebrae and the disc is removed. This is known as a discectomy or surgical

decompression. Once the disc is removed a bone graft is placed between the two vertebrae and the patient is asked to refrain from any heavy activities in order to allow the bone graft to set and to eventually fuse the two vertebrae together as it heals. In some cases, the front of the two vertebrae is bracketed together using metal rods, screws or hooks in order to further stabilize the area. Once the fusion is healed there will be limited to no movement in the fused segment which can lead to premature arthritic changes in the spine above and below the graft. Most of the range of motion of the neck comes from the upper segments closer to the skull but Manning can expect to have some reduced motion which may be dangerous with a 300 lb. defensive lineman trying to pummel you into the ground!

The point of the surgery is the removal of the disc. If the disc has a bulge in it and the bulge is pushing on the nerve exiting the spinal canal there can be weakness in the arm. This, however, does not guarantee that the triceps weakness will be eliminated so the recovery to full strength in the shoulder is still unknown. If the surgeons found the root of the problem then hopefully Manning can return to his previous MVP level.

***Sidney Crosby – Pittsburgh  
Penguins Hockey Player  
Swelling in upper  
cervical spine/  
Concussion***



Ahh, the enigma that is concussion continues to rear its ugly head for poor Sidney Crosby. Crosby's travails have been well documented since the hit by David Steckel during the Winter Classic versus Washington in 2011.



**The  
Funnybone**

John decided to go skiing with his buddy, Keith. They loaded up John's minivan and headed north but got caught in a terrible blizzard. They pulled into a nearby farm and asked the attractive lady who answered the door if they could spend the night.

'I realize it's terrible weather out there and I have this huge house all to myself, but I'm recently widowed,' she explained. 'I'm afraid the neighbours will talk if I let you stay in my house.'

'Don't worry,' John said. 'We'll be happy to sleep in the barn. And if the weather breaks, we'll be gone at first light.' The lady agreed, and the two men found their way to the barn and settled in for the night. Come morning, the weather had cleared, and they got on their way. They enjoyed a great weekend of skiing.

But about nine months later, John got an unexpected letter from an attorney. It took him a few minutes to figure it out, but he finally determined that it was from the attorney of that attractive widow he and Keith had met on the ski weekend.

John dropped in on his friend Keith to ask a few questions.

'Keith, do you remember that good-looking widow from the farm we stayed at on our ski holiday up north about 9 months ago?' He replied he did.

'Did you happen to get up in the middle of the night, go up to the house and pay her a visit?' A little embarrassed to be found out he replied that he had.

'And did you happen to give her my name instead of telling her your name?' Keith's face turned beet red and he replied that he had. He apologized then added 'Why do you ask?'

'She just died and left me everything.'



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The Penguins star was assessed by an independent neurological spine specialist, a Dr. Robert Bray, in Los Angeles in January 2012. Dr. Bray's imaging and assessment revealed a neck injury to be the suggested cause of his symptoms and someone involved in the new assessment suggested that Crosby may have suffered a fracture to the C1 and C2 vertebrae at some point in his career. By the end of January, Crosby's scans were re-evaluated and it is suggested that there was no fracture present but there is some swelling present in his upper cervical spine and this may be causing his neurologic symptoms. His diagnosis is now a neck injury.

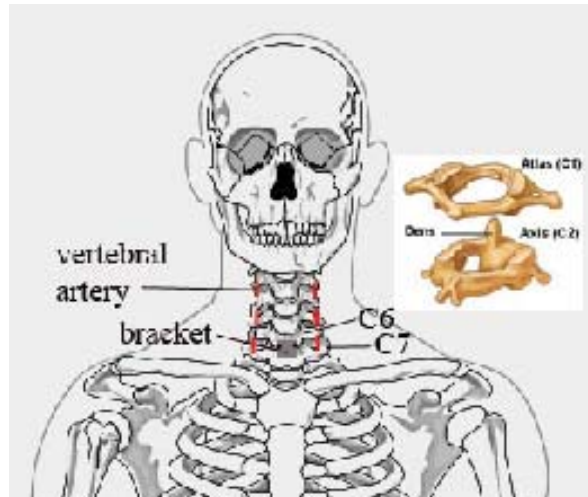
The scientific literature surrounding concussion is progressing at an exponential pace over the past 10-15 years. More money and funding are being allocated to its cause, symptoms, treatment and long term morbidity. Experts, however, agree that while the symptoms and the recognition of those symptoms are becoming ever clearer, the actual cause of concussion is still up for debate. What they can agree on is that MRI's, and CT Scans do not show any kind of actual brain trauma even though a lot of the symptoms seem to come from the brain.

But what if the cause of the concussion is actually from the upper cervical spine? The upper cervical spine is our main source of head/neck rotation and it has been well documented that rotation is a large part of the mechanism of an athlete getting a concussion. The upper cervical spine is intimately connected to our vision and hearing. Imagine in caveman days if something intent on eating us broke a branch behind us – we automatically turn our head to look for the danger and either attack it or run (fight or flight). Also, if you have ever

tried to run with a video camera you see how bumpy it actually is to do that. Our neck and eyes, however, work together so that when we run the bumpiness is gone or limited. From an evolutionary standpoint, this interconnection has allowed us to survive and evolve. It is also well documented in the literature that the neck is related to headache, balance problems, heart-like problems (cervicogenic angina) and blood pressure. All of these can be shown to relate to symptoms that the athlete

experiences as they try and return from a concussion.

So while Sidney Crosby's contributions to hockey have been extensive, his lasting legacy may be in the area of concussion and its potential cause to be from the cervical spine. Hopefully this will prompt researchers to look more closely at this area and to possibly find more athletes with swelling in their upper cervical spine.



## Mental Environmental



### Your Nose Knows (from greenlivingonline.com)

More and more studies looking at health problems are tracing them back to our homes – new, old, conventional build or green home designs – all can be causing health problems. A lot of the health problems are related to older home designs and can be due to poor plumbing, ventilation and building materials used at the time. Ironically, even eco-friendly houses can create health problems due to design flaws causing poor indoor air quality due to ventilation issues.

Your nose may be the best tester when it comes to many of these issues. Our sniffers have been shown to be pretty darn reliable when it comes to finding these problems. One example is that moist moldy smell you may experience when you enter a basement. This musty smell is likely the result of built up moisture that can create mold in the walls, floors and ceilings. It is usually the result of poor drainage and a lack of or damaged vapour barrier for those damp floors or walls. The drain and vapour barriers should be checked if your nose is telling you there's mold hiding and you may need to add a dehumidifier.

## A Link between Autism and Omega-3 Fatty Acids



Researchers in human nutrition at the University of Alabama College of Human Environmental Sciences and Knagnung-Wonju National University in Korea have recently collaborated on a study examining nutrition/diet related differences in normally developing boys and those with autism. The researchers looked at the Omega-3 versus Omega-6 fatty acid levels as well as levels of high density lipoprotein (HDL) versus low density lipoproteins (LDL). Omega-3s have been shown to be important in protecting the brains neurons, reducing inflammation and reducing obesity. HDL, also known as the good cholesterol, is important in taking cholesterol from the blood vessels and transporting them to the liver where the cholesterol is broken down. Without HDL, the cholesterol builds up in the arteries causing plaquing which causes cardiovascular disease and heart attacks. It is generally accepted that the higher the ratios of Omega-3/Omega-6 and HDL/LDL the better. There is also a relationship between the levels of Omega-3s and HDL – other studies have shown that supplementing the diet with fish omega-3s increased the levels of HDL by 8%.

Interestingly, the researchers found that the children with autism had lower levels of both Omega-3s and HDL even though their diets were comparable. This would suggest that the children with autism have some kind of impaired mechanism when it comes to fatty acid metabolism. The researchers have yet to determine if increasing blood levels of Omega-3s or HDL will reduce the symptoms of autism. Then there is the chicken or the egg argument – did autism cause the lipid metabolism disorder or did the disorder cause the autism. Either way it adds one more piece to the puzzle with regard to solving the mystery of autism.

Fatty, cold water fish such as salmon, mackerel and tuna are great sources of Omega-3s in the diet. If you are not a fan of fish, don't despair – Omega-3s can be found in flax seeds, tofu, beans and nuts. (as reported in [www.sciencedaily.com](http://www.sciencedaily.com) January 24, 2012)

### Brain Teaser Answers

923, 1029, 1131

Each of the first 11 prime numbers are preceded by its place in the sequence from 1-11

### Services

*Chiropractic  
 Massage Therapy  
 Acupuncture  
 Kinesiology  
 Sports Specialists  
 Soft Tissue Therapy  
 Naturopathic Medicine  
 Diagnostic Imaging Services*

