

TBI

Model System Updates

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Concussion in Popular Culture: Fact, Fiction, or Unknown?

By: Taylor Obata

With the release of the film “Concussion,” starring Will Smith as [Dr. Bennet Omalu](#), conversations about concussion and other types of head injury have surfaced on social media and popular news outlets. While these conversations are important to increasing head injury awareness and advocacy, they can also generate a lot of misinformation.

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Concussion in Popular Culture (continued from cover)

By: Taylor Obata



To gain a better understanding of head injuries, their causes, and how to prevent them, we invited [Leah Concannon, MD](#) of the Sports Concussion Program at Harborview to assess some of the ideas circulating in the news and on social media.

Here are Dr. Concannon's responses to six common statements:

#1—Football and other sports are too dangerous for children to play

Dr. Concannon: While football does have the highest risk for concussion in organized sports, bike riding and riding in a car are much more likely to cause a brain injury. About 85% of adolescents will recover from a concussion in less than two weeks and only a very small minority have any long term effects following concussion.

Studies on young children playing football (under 10) actually showed very little risk of any injury that required time lost from sport and in one study they didn't have any concussions in one year in that age group.

Sports are important for a multitude of reasons, including learning to work in a team environment, increasing one's sense of worth, involvement in the community, and keeping kids active (since childhood obesity is an epidemic in this country currently).

#2—Wearing a helmet prevents all concussions

Dr. Concannon: Helmets are not designed to prevent concussions. They are designed to prevent skull fractures, which they do very well. There is no currently available helmet that will prevent concussions. It is still important to have a well fitting helmet, and in football it should be 4 or 5 star rating.

Helmets should be worn at all times for football, lacrosse, and hockey, but also any bike riding, equestrian and alpine sports (downhill skiing and snowboarding).

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#3—A concussion is only serious if you lose consciousness

Dr. Concannon: Only 10% of concussions present with a loss of consciousness. A brief (less than one minute) loss of consciousness has no relevance with the severity of the concussion. It is also common for athletes to have a period of lost time around the time of the injury, even without loss of consciousness.

#4—A CT Scan or MRI is necessary to diagnose a concussion

Dr. Concannon: CT scans and MRI will be completely normal with a concussion. Concussions do not cause bleeding, bruising or swelling of the brain--if any of those are present it is a more complicated brain injury. The problem with concussion is that it is a functional problem (meaning that the cells are not functioning well), but it is not a structural problem (which is what a CT or MRI would pick up).

#5—Going to sleep after a concussion is dangerous

Dr. Concannon: We no longer recommend that parents wake up their children during the night following a concussion. We do worry about patients that seem to be increasingly lethargic, they should be evaluated in the emergency room (ER).

#6—A concussion can be life threatening

Dr. Concannon: If there is bleeding or swelling in the brain, this can certainly be life-threatening. Worrisome signs that require evaluation in the ER include:

Loss of consciousness greater than one minute; Any neurologic signs (weakness, sensation changes, changes in vision or eye movement); Increasing headache, or "the worst headache of my life;" Increasing somnolence (falling asleep even when people are talking to them); Vomiting more than once. People often worry about dilated pupils. The concerning sign is if one eye is dilated and does not respond to light.

Survivor Story

By: Erin Manhardt

Starting at the age of 8, my life was spent at the hockey rink. Countless hours were dedicated to perfecting stick handling and skating styles. Since girls hockey isn't as popular as soccer is in the United States, my weekends were spent traveling up to Canada for games.



I sustained my first concussion at age 15 when I was still playing hockey with boys. After taking a brief 3 weeks off, I returned to the ice for more action. Since the boys were bigger, faster, and stronger than I was, I began playing for a girls team thinking it would be “safer.” Seven months after my first injury, I sustained concussion number two in somewhat of a freak accident. When I rubbed up against the gate that exits the ice rink, it opened unexpectedly and down I went, hitting my head on the cement. An ambulance was called and I was taken off the ice on a stretcher. This experience was really scary and, thinking my hockey career was over at this point, I vowed to never step foot on the ice again. However, at 16, it’s hard to walk away from the sport you love.

Two months later, I returned to the ice telling myself I felt better than ever. February 21, 2009 was the day my life took a turn. It was a tight game against a rival team up in Vancouver, BC where my team was ahead 1-0 late in the 2nd period. Since girls hockey is supposed to be “no-contact,” I was not watching for the girl behind me. In disregard of the rules, she hit me from behind causing my third concussion in less than a year. At that point, I KNEW that my hockey career was over, so I lied about my symptoms and returned to the game after sitting out for only a shift. Once we got back to the States, my mom took me to the doctor where I was officially diagnosed with a concussion and told that my hockey career was over. The news was extremely hard to hear and I was in denial that my hockey career was actually over. It felt almost like a dream and that one day when the symptoms went away, I would return to the ice.

Two years later, when the headaches and other symptoms started to subside, I was rear ended on I-5 by a car going an estimated 65 mph. All of the symptoms that I had spent the past two years trying to manage instantly and exponentially worsened. I was 18 years old at the time

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and about to head off to college. My headaches returned along with severe neck pain from the whiplash. After having worked so hard to see the light at the end of the tunnel, to have all of my symptoms return in an instant was extremely frustrating.

The recovery process really taught me a lot about myself. I worked closely with Neurologists, Neuropsychologists, Physical Therapists, Massage Therapists, Acupuncturists, Naturopaths, and many other professionals throughout the rehabilitation process. I am currently 7 years post hockey and 5 years since sustaining my last concussion. I still get headaches 3-4 times a week and live in a constant state of ache throughout my entire body (mainly back and neck) from these concussions. While many parts of this journey have been frustrating, I have met many amazing people and have built my career around helping people who have had similar experiences.

Erin worked with the TBI Model System team as a summer intern while finishing up her bachelor's degree in psychology and kinesiology. Currently, Erin is working at the Brain Tumor Clinic at Seattle Children's Hospital as well as being in graduate school at Western Washington University pursuing a master's degree in Rehabilitation Counseling.



What's Your Survivor Story?

Send your story to uwubi@uw.edu and we may be able to feature it in our next newsletter!

Announcements:



BIAWA Health and Wellness Classes

BIAWA is well into their second quarter of **Brain Health and Wellness Classes**. They have received rave reviews from the first quarter of classes, and we're excited to invite you to come enjoy these **free** events. Topics include Creative Journaling, Quick & Healthy Recipes, Rebuilding Identity & Conflict Resolution and so many more. To learn more, [Download the Brain Health & Wellness Class Schedule PDF](#) or visit the [BIAWA Calendar & Events Page](#). You can sign up for classes through the calendar or call (206) 467-4800 for assistance.

Having Headaches After Your TBI?

Headache is one of the most common complaints after TBI. In fact, approximately half of individuals with TBI report experiencing headache throughout the first year after injury. Everything in life is harder with a headache.

If you are experiencing headache after your TBI, check out our studies below:

[The Headache Diary Study](#)

Study Contact: Arthur Stacey, astacey@uw.edu or by phone at 206-744-5196

The Headache Diary Study looks at how well it works to use a daily online headache diary to help describe and track headaches after a mild brain injury. Eligible subject must be within **3 months of experiencing a mild-traumatic brain injury (M-TBI)**. Participants will be asked to complete a daily headache diary that is a web-based application (“app”) for a total of 90 days.

[The TWIST Study](#)

Study Contact: Arthur Stacey, astacey@uw.edu or by phone at 206-744-5196

The TWIST Study looks at whether Sumatriptan (also known by the brand name *Imitrex*[™]) an FDA-approved medication for treatment of migraine, shows similar effectiveness for treatment of chronic post-traumatic headache. Eligible subjects must be within **3 months-5 years post TBI**. Subjects are asked to keep a headache diary while enrolled.

[The Botox Study](#)

Study Contact: Elisa McGee, emcgee@uw.edu or by phone at 206-598-9260

The Botox Study is looking at whether the use of BOTOX[®], an FDA-approved therapy for treatment of chronic migraine, shows similar effectiveness for treatment of chronic post-traumatic headache. Eligible subjects must be within **3 months to one year of a mild traumatic brain injury** with recurring migraine headaches. Subjects will receive injections of study medication every 3 months, for 9 months, and will keep a headache diary while enrolled. This study requires five visits to the UWMC Headache Clinic.

All studies are voluntary and will not affect the care you receive at the University of Washington



Helmets: New Developments on an Old Technology

By: Arthur Stacey and Erica Wasmund

New Helmet Research and Development

New helmet technology has come a long way over the years, and the University of Washington is leading the charge to improve helmets for athletes. A team of UW physicians, researchers, and engineers has developed a groundbreaking new design of football helmet, which they hope will reduce impact forces on the brain during play. The Seattle-based startup company, called [VICIS](#), was cofounded in 2013 by UW neurological surgeon [Sam Browd, MD, PhD](#) with the mission of creating an improved football helmet and reducing concussions in the sport. VICIS sees itself not as a sporting goods company, but as a technology company based in science and engineering.

VICIS recently unveiled its new helmet called the [ZERO1](#), which is different from current helmets used in football in several ways. As Dr. Browd explains, current helmets are designed to address skull fractures, but not concussions. The ZERO1's innovative design specifically addresses concussions by protecting against the different impacts that athletes may experience during play. The helmet does this through its soft, deformable outer layer instead of the rigid outer shell of current helmets. This makes the helmet work somewhat like a car's bumper – the outer shell can morph and give a little when struck, decreasing the impact before it reaches the athlete's brain.

The NFL has funded research around the country to better understand the causes and effects of concussion. VICIS was a winner of the NFL's Head Health Challenge, and their new ZERO1 helmets will be worn throughout the 2016-2017 season. Although the helmet is currently far too expensive for many youth programs to afford (\$1,500 each!) Dr. Browd hopes that it will soon be more accessible to anyone in order to improve the health and safety of all athletes.

The new VICIS helmets significantly reduce impact forces to the head. However, we still do not know if this will lead to lower concussion risk for athletes. Time will tell if these new helmets are effective in preventing concussions, we definitely hope they will be!

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Although it seems football gets all the glory and attention, helmets for all sports have taken huge leaps. What started two decades ago by five biomechanical specialists at the Royal Institute of Technology has led to numerous studies and the [Multi-Directional Impact Protection Systems \(MIPS\)](#) helmets. These helmets help reduce risk of injuries by allowing the internal foam layer to rotate a few inches around the users head and redirects the energy. Some tests show it can reduce the amount of rotational force to the brain.



MIPS are now available for equestrian riders, snow boarders, mountain climbers and pedal cyclists. In 2015 three teams in the Tour de France used Giro's MIPS helmets. While most standard helmets run \$10-\$60, the MIPS are more in the price range of \$110-\$295. Some retailers offer discounts on last year's models of MIPS helmets, which brings the price down to a traditional helmet price. Also, many fire stations offer bicycle helmets for kids and custom fittings for kids and adults.

Although technology is continually improving, it cannot prevent all injuries. Still, the data shows technology can reduce the likelihood of moderate to severe traumatic brain injuries. Having your helmet properly fitted is key to improving head injury prevention. The [Bike Helmet Safety Institute](#) provides the following helmet fit directions :

"It should fit snug, level and stable. It should be as low on the head as possible and stable enough to resist shaking or hard blows. Adjust all rings or pads to fit your head specifically. The 'Y' of the strap should meet just below your ear and the chin strap should be snug against the chin so that when you open your mouth very wide you feel the helmet pull down a little. When you look upward, the front rim should be barely visible to your eye. If you have crashed in it, dropped it hard enough to crack the foam, or the outside is just foam or cloth instead of plastic, you should replace it."

The UW TBI Model System team looks forward to further innovation from Dr. Browd and others working on improving the ability of helmets to prevent concussion and other brain injury. We encourage everyone to use a helmet when recommended, even one without the latest technology, since standard helmets still provide a much higher level of protection than not wearing a helmet.

TBI Forum Summary: Assistive Technology with Curt Johnson

By: Taylor Obata

Our latest TBI Forum, “*Duct Tape and Beyond*,” was a smashing success that provided its attendees a lot of useful information and inspiration to think creatively. The presentation given by [Curt Johnson, MS, CRC, ATP](#) was thoughtful, super-organized, and brimming with ideas for how to modify or create your own assistive technology (AT). He explained that assistive technology refers to any piece of equipment used to increase a person’s functional ability to do things.



Curt specializes in work and home site modifications and he left us all the wiser in how to accomplish what we need. He covered everything from emerging technologies, such as a brain to computer interface, to low-tech or no-tech AT, such as putting a rubber band around a drinking glass to make it easier to hold. He was especially enthusiastic about the low-tech/no-tech solutions, and spoke about his experience growing up on a rural farm in Wisconsin and owning a hardware store on Lake Chelan here in Washington. Both required him to think creatively about various inexpensive and common materials to solve problems on the farm or for his hardware customers.

The major takeaways from the forum were: think outside the box when it comes to problem solving, seek help at a local hardware store, especially from a more experienced employee or the store owner; and remember that low-tech or no-tech AT’s are not always permanent solutions, but they can be a good starting point for determining what a person’s needs are and how to meet them before investing in a piece of high-tech equipment.

Another great resource for accessing additional information is the [National Assistive Technology Research Institute](#) website where you can find additional information about benefits, civil rights, community life, education, emergency preparedness, employment, health, technology and transportation.

For information about our upcoming forums, please check our [website](#).

TBI InfoComics Update!

The TBI InfoComics Project has completed Understanding TBI! The three part series is our best comic yet, and it's been getting a lot of attention from all over the country.

You can see it at comics.tbi.washington.edu. While you're there, please take a few extra minutes to complete our survey.

We need you help spreading the word so if you know anyone who has a TBI or is a caregiver, family member, or service provider for someone with a TBI please tell them about our comics.

Thanks!

We need your help!

There are now six TBI InfoComics available online. These comics can be found at comics.tbi.washington.edu. We greatly appreciate your feedback on the comics, and have created a brief survey for you to tell us what you think. Please take the survey by clicking the blue "Info Comic Survey" button, located on the InfoComic website. You can also email questions or comments to

tbicomic@uw.edu.

A sneak peek at the latest InfoComic, Understanding TBI: Part 3, is located on the next page!

CREATING A ROUTINE

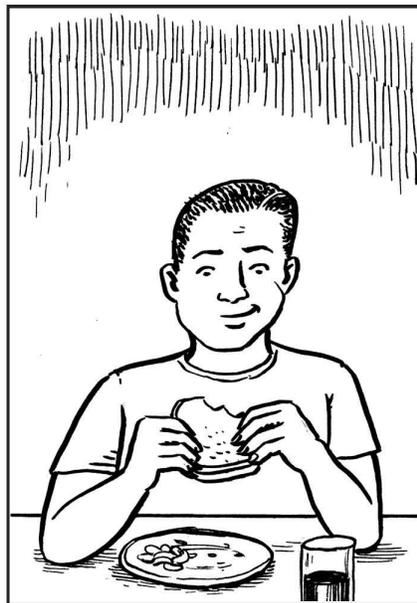
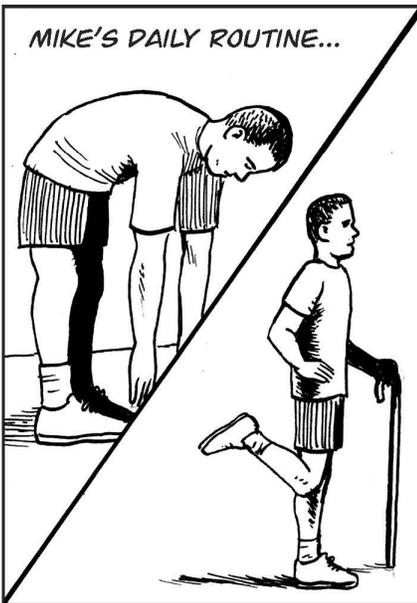
Understanding Traumatic Brain Injury: Part 3

RECAP FROM PART 2...

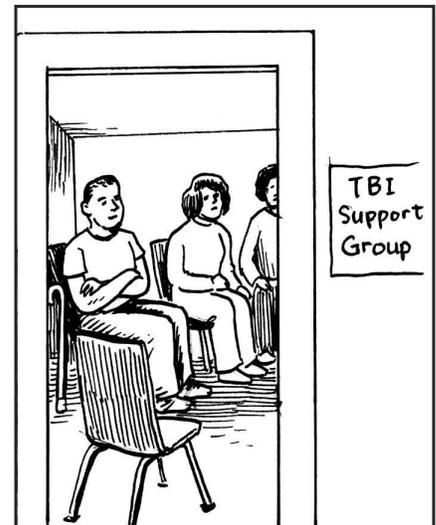
Mike is home from the hospital and his emotional changes are causing his family some stress. They're working to find ways to overcome these challenges.



ESTABLISHING AND MAINTAINING A ROUTINE CAN HELP YOU OR YOUR LOVED ONE FEEL MORE SECURE IN THEIR ENVIRONMENT



AS MIKE IS RECOVERING HE HAS LESS APPOINTMENTS. HE'S REPLACING THEM WITH THINGS THAT REINFORCE WHAT HE DID IN THERAPY.



SUPPORT GROUPS CAN BE A HELPFUL WAY TO CONNECT WITH PEOPLE WHO HAVE SIMILAR EXPERIENCES.



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Who's Who at UW



[Ny-Ying Lam, MD](#) is a board certified

physiatrist and UW acting assistant professor in the Department of Rehabilitation Medicine. Her primary clinical interests are in neurorehabilitation (brain injury and stroke), cancer rehabilitation and spasticity management. She works closely with the UW outpatient neurorehabilitation team to provide cohesive treatment plans for her brain injured

patients. She also performs rehabilitation consults at the UWMC hospital inpatient to identify patients who need inpatient rehabilitation.

Dr. Lam earned her B.S. in bioengineering at Rice University and received her M.D. from the Emory University School of Medicine. She was an internal medicine intern at the University of Maryland Medical Center and subsequently completed her residency in physical medicine and rehabilitation at Northwestern University/Rehabilitation Institute of Chicago. She has enjoyed her move to the pacific northwest because of the natural beauty of the region. She enjoys hiking, dancing and cooking.



The Washington Traumatic Brain Injury Resource Center

BIAWA is first and foremost a source of support for those affected by Brain Injury, and the Resource Center is a critical part of this.

[Brain Injury Alliance of Washington](http://www.biawa.org/): www.biawa.org/

[BIAWA Support Center](http://www.biawa.org/getsupport.php): www.biawa.org/getsupport.php



TBIMS Updates

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