THE BRAIN HEALTH MAGAZINE

BALANCE TRAINING
IS BRAIN TRAINING

BENEFITS OF
BIKING

TECHNOLOGY:
Keeping Us ***CONNECTED***
and ***INFORMED***

THE BALANCE ISSUE

Living Your Best Life After Brain Injury | July/Aug 2020

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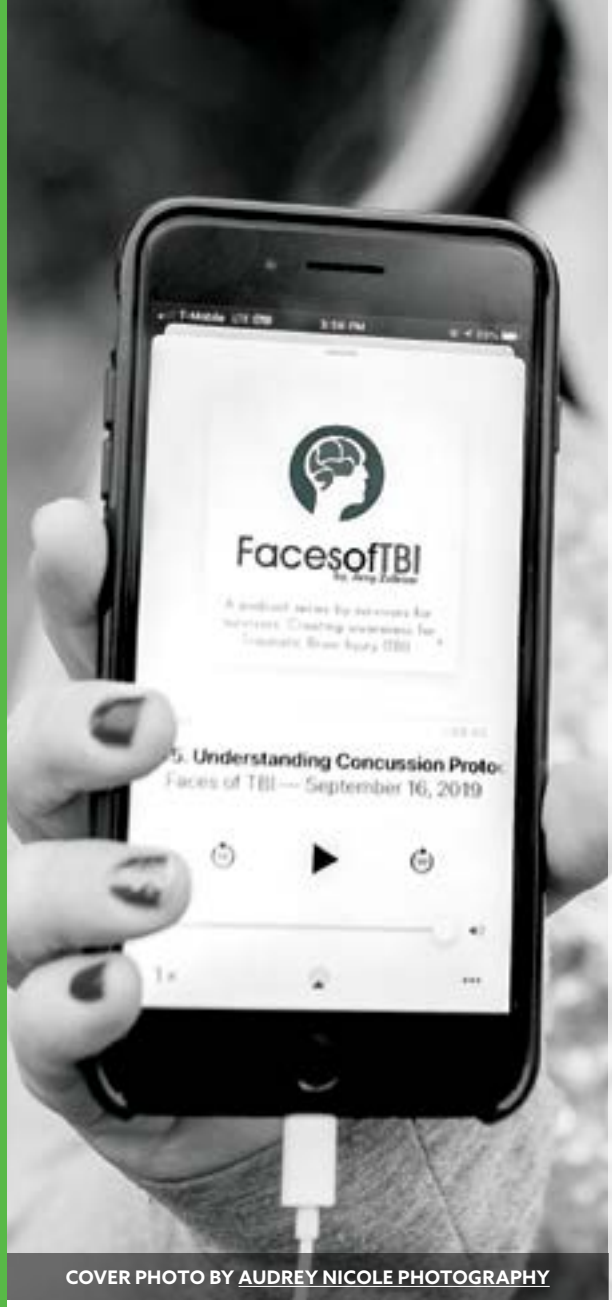

COVER PHOTO BY AUDREY NICOLE PHOTOGRAPHY

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FROM THE EDITOR

PROPRIO
... what?

Amy Zellmer, Editor-in-Chief

In this issue about balance, we are presented with different ways our balance and gait can be impacted after brain injury and the challenges that can accompany them. After my injury, I had no idea my gait was impaired. I did know, however, that my balance was way off. I would walk into doorjambs and bruise myself on edges of furniture that I knew were there and thought I had given myself the room to navigate.

I didn't understand how everything was connected until I found functional neurology.

Upon examination it was determined that my gait was quite impaired. Due to my dislocated sternum and other physical injuries, my entire torso and ribcage was twisted. My right leg would drag when I was tired, which I assumed was due to fatigue. It was, but not in the way I thought. My left leg was actually the culprit, and my right leg was trying to compensate for lefty's inability to keep up. My entire left side was actually impaired, including numbness in my face.

It's amazing what a functional neurologist can find by just spending time with you and observing you … for more than the average 20-minute appointment traditional doctors allow for you. My initial exam with my functional neurologist was two hours and was incredibly thorough.

I had to relearn how to walk — not that I wasn't able to walk, but I wasn't walking correctly. I was shuffling my feet instead of taking full steps. My arms weren't moving while I walked, which indicated a neurological issue. Once it was pointed out to me, I made a conscious effort to move my arms with my gait until it became natural again.

My proprioception was off — this is the awareness of the position and movement of the body and is controlled by the cerebellum.

When our proprioception is off, we may feel like we are "floating" or "rocking," like we just got off a boat.

When proprioception is impaired, our brain is constantly trying to help us figure out where we are in space (standing up straight, bent over, laying down, etc.). It is exhausting. I liken it to when your computer has 18 different applications open and you can't figure out why it's running so slow.

Functional neurology doctors take a "whole body" approach when assessing our brain injury, as the brain literally runs every function in our body. Our eyes, ears, and brain are intricately interconnected and it is important to find a doctor that understands how all the nuances work, and how they may present themselves if they are not working properly.

There is always room for improvement, no matter how far out from your injury you may be. I struggled for two-and-a-half years when I finally received the right treatment. Never lose hope, and continue to push for answers and treatments! 🎗

Peace & Glitter,

Recent studies suggest balance-specific exercises can increase brain thickness and improve markers of cognition and memory.

BALANCE TRAINING IS BRAIN TRAINING:

A Fun Strategy to Improve Brain Performance

BY JONATHAN CHUNG, DC

Patients with concussion often ask what they can do to help improve their brain health after their injury. While many are looking for a supplement, an app, or a drug to help them get their pre-injury brain back, some of the best things you can do for your brain involve standing on your own two feet.

One of the main therapies we perform on our patients after a concussion is balance training. In some cases it is essential because the patient's primary symptom is a feeling of imbalance. However, we prescribe balance training for all of our patients because we have seen what kind of impact it can have for the brain as a whole.

Recent studies have shown that 12-weeks of balance training had two remarkable effects on healthy adults. The first was that balance-trained individuals showed increased thickness in important brain regions associated with visual and spatial orientation. The second effect was that the patients also outperformed the control group in tests of memory and spatial intelligence. The results occurred without doing any training on the cognitive tests.

While these studies were done in healthy adults, the improvements in cognitive scores is something that is seen consistently in concussion patients getting vestibular therapies in functional neurology offices across the country. While some concussed patients with persistent symptoms may need the guidance and technology of a trained professional, most people can get the benefits of balance training from the comforts of their own home. You don't necessarily need a slackline, Bosu Ball, or fancy spinning chair to get the brain-health benefits of balance training.

Studies have shown similar brain benefits from yoga, tai chi, resistance training, and running. Any exercise that challenges your ability to fight gravity in a standing position will give you an element of balance training. The most important part is finding the right amount of challenge that allows you to progressively improve and get better physically.

For some people, it just means standing on two feet on a flat surface while moving their head. As you feel more stable, you can do exercises balancing on one leg, exercises on thin or unstable surfaces, and then combining these exercises with head and eye motion. The ways you can challenge yourself are only limited by your imagination.

Your brain thrives on new and interesting challenges. Balance training may present a way for you to challenge yourself with new exercises that stimulate your brain and make exercise fun.

Jonathan Chung, DC *is the founder and upper cervical chiropractor at Keystone Chiropractic and Neuroplasticity in Wellington, Florida. Learn more about their cervical vestibular rehabilitation program at* www.chiropractickeystone.com

BY KELLIE POKRIFKA

A BALANCING ACT:
The Three Systems of Balance

Issues with balance display as some of the most obvious symptoms of a brain injury. But what causes this imbalance? Many areas of our brains contribute to balance, and these areas can all be affected through the physical trauma involved in TBI.

Three main systems compromise our balance: visual, somatosensory, and vestibular.

- **Visual:** *We tend to be the most familiar with our visual system, which utilizes our eyes to gather information from the outside world.*
- **Somatosensory:** *The somatosensory system gathers information from our joints, skin, muscles, and other body parts. Information from our posture is sent to the brain, letting the brain know where our bodies are located in space, which is a sense known as proprioception.*
- **Vestibular:** *The vestibular system involves our inner ear and provides our brains with information on movement, both of ourselves and of the outside world. The brain gathers all of this feedback from these systems and then determines how to better maintain balance.*

Unfortunately, processes can malfunction in one or all of these systems after brain injury. When one system is compromised, the other two will overcompensate, which will, in turn, lead to further issues. For example, let's say that a brain injury negatively impacted your vestibular system. When your brain suddenly is not receiving adequate signals from this system, it employs the other two systems to work even harder to make up for the slack so it can still function properly. Because of this, the visual system will overwork itself, leading to visual strain, fatigue, and headache. The musculoskeletal system will overwork itself by tightening the muscles around your head, neck, and back to help give your brain more information on where it is in space. This then leads to muscle soreness and more headaches. If the vestibular system is left untreated, the additional problems will also become chronic and more difficult to treat.

> **Determining which system(s) are affected can be quite challenging and will dictate the pathway to recovery. According to physical therapist Preeti Verma, it is most common that, following traumatic brain injury, both the visual and vestibular systems will be disrupted. However, each patient is unique, and the majority of the rehabilitation strategies for these issues are incredibly individualized.**

Ask your practitioner if they feel confident in identifying and treating issues from all three systems. If available, a Sensory Organization Adaptation Test (SOT) can help identify exactly which process is malfunctioning. During an SOT, the patient stands in a large box, harnessed in to protect against any imbalance that might lead to a fall. At different points throughout the test, both the floors and the walls of the box will move at different times. The sensors in the floor will calculate your center of balance during the motions to accurately identify which of your systems are affected. Once the systems are identified, the routes to recovery can then be addressed.

Kellie Pokrifka *is a TBI survivor and works as an intermediary between the experts and the patients with brain injuries.*

Functional Home Design *to* **Promote Balance**

BY DR. EMILY REILLY MSOTR/L, ECHM

Brain injuries often have long-lasting effects that may not be visible to those around you. Once the acute injuries have healed and medical professionals deem you're "recovered," it can be challenging to resume daily life the way it was prior to the injury. When the physical rehabilitation is over, expectations are that you will resume the life you led prior to the onset of the injury. What people may not realize are the continuous and sometimes chronic challenges faced by a person with a brain injury, including dizziness, tinnitus (ringing in the ears), light and sound sensitivity, coordination impairments, and difficulty thinking clearly. The symptoms associated with brain injury often can have a negative impact on function and mobility, causing balance impairments, and may even lead to frequent falls. Your home environment can be designed to improve your performance despite the unfavorable side effects caused by brain injury.

Home modifications, living in place, and aging-in-place are some of the latest "buzz-words." Often associated with these terms, and accessibility, are grab bars, walk-in showers, and wider doorways. There are various certifications industry professionals and tradespeople can earn to learn how to make home improvements more accessible to the end user.

> **"Your home environment can be designed to improve your performance despite the unfavorable side effects caused by brain injury."**

What many fail to realize are the benefits of a clinical skill set to optimize the relationship between an individual and their environment. Function and accessibility go beyond the basics of what has been marketed to us. Function, ease of use, and accessibility support how someone at any level, regardless of age, cognitive status, physical ability, or other physiological make-up, uses a space that is shared among many.

Although regulations, such as within the Americans with Disabilities Act and building codes, are set to uphold standards of inclusion and safety, there are instances in which some of the regulations are not applicable to a private residence, allowing flexibility and creativity to address the specific needs of an individual. Despite the fact that one user may have difficulty managing aspects within the home space, numerous options exist to improve how space and objects are used and allow everyone in the home to operate them without additional stress or strain. Incorporating aspects of universal design, as well as taking into consideration the daily routines and preferences of the home's residents, can provide creativity and highlight style aesthetics without compromising safety and independence. Utilizing design features that enhance performance will provide opportunities to minimize the negative effects of balance impairments.

> **Choosing features to minimize exacerbation of symptoms can be a key component in the optimal management of day-to-day tasks and can lessen the risk of falls, curbing medical costs associated with frequent doctor or hospital visits, and even decreasing the need for caregiver support in some instances.**

Below are the top three tips to consider when designing your space after brain injury to better manage balance issues:

Minimize Noise:

It can be easy to become distracted by external sounds, and even worse when experiencing difficulty focusing or constant tinnitus (ringing in the ears). When the brain has a difficult time processing, it may provoke symptoms. Throughout the entire home it is advisable to explore room by room and identify potential risks such as the constant tick-tock of a standard clock, the sound of the water heater turning on, the drone of the washer and dryer, and even the dishwasher. What is it like to listen to the water running from the faucets, the shower, and even the toilet flushing? Squeaky hinges on doors and cabinets, or slamming doors may cause problems. Taking time to become aware of your environment can help to identify triggers and provide the opportunity to choose replacement fixtures that minimize

noxious sounds. Additionally, there are ways to include accessories such as drapes, pillows, and various materials that absorb and distribute sound. The less ringing in your ears and the less your body has to work to process extraneous sounds, the more you can focus on mobility.

Light Things Up:

Eyesight is a primary sense used in supporting balance. Do you ever notice a difference when standing with your feet together and your eyes open compared to your eyes closed? You may feel you tend to sway a bit more when your eyes are closed. Vision and balance match very closely together. Layering light throughout the home helps to accommodate the various activities we complete throughout a day. Completing another room by room self-assessment can help to identify areas that may benefit from alternative solutions. Things to consider when assessing light are the intended use and the result. Are there shadows or glare? Does the user experience eye strain or headaches? Is depth perception impaired? Inadequate lighting may contribute to error and injury. Automatic timers, motion sensor features, and broad-spectrum options may improve performance. There are unique needs throughout the home: the kitchen will require different lighting concepts than the office or bathroom. Don't forget the exterior entryways, illuminating walkways, thresholds, and doorknobs to improve ease of use.

Elevate Your Reach:

Bending, stooping, twisting and turning are common motions we do throughout the day. Individuals suffering a brain injury may experience dizziness, nausea, ringing in the ears, headaches, and imbalance, which may be debilitating if provoked. Consider the layout and placement of the most frequently used items on a daily basis. Where are they located? What type of motions are required to retrieve or use those items? When bending and stooping or reaching overhead there may be postures that are constantly causing discomfort. To minimize unnecessary postural strain it would be advantageous to reorganize, declutter, and replace items that are not serving you in a functional way. Storage modifications including drop-down and roll-out shelves, deep drawers, adjustable height closet rods, and raised appliances are all solutions that limit dynamic postures that may exacerbate symptoms. Think about placing items within reach while seated and standing to offer a better indication of access for all members of the household as well as potential accommodations to limit unfavorable postures.

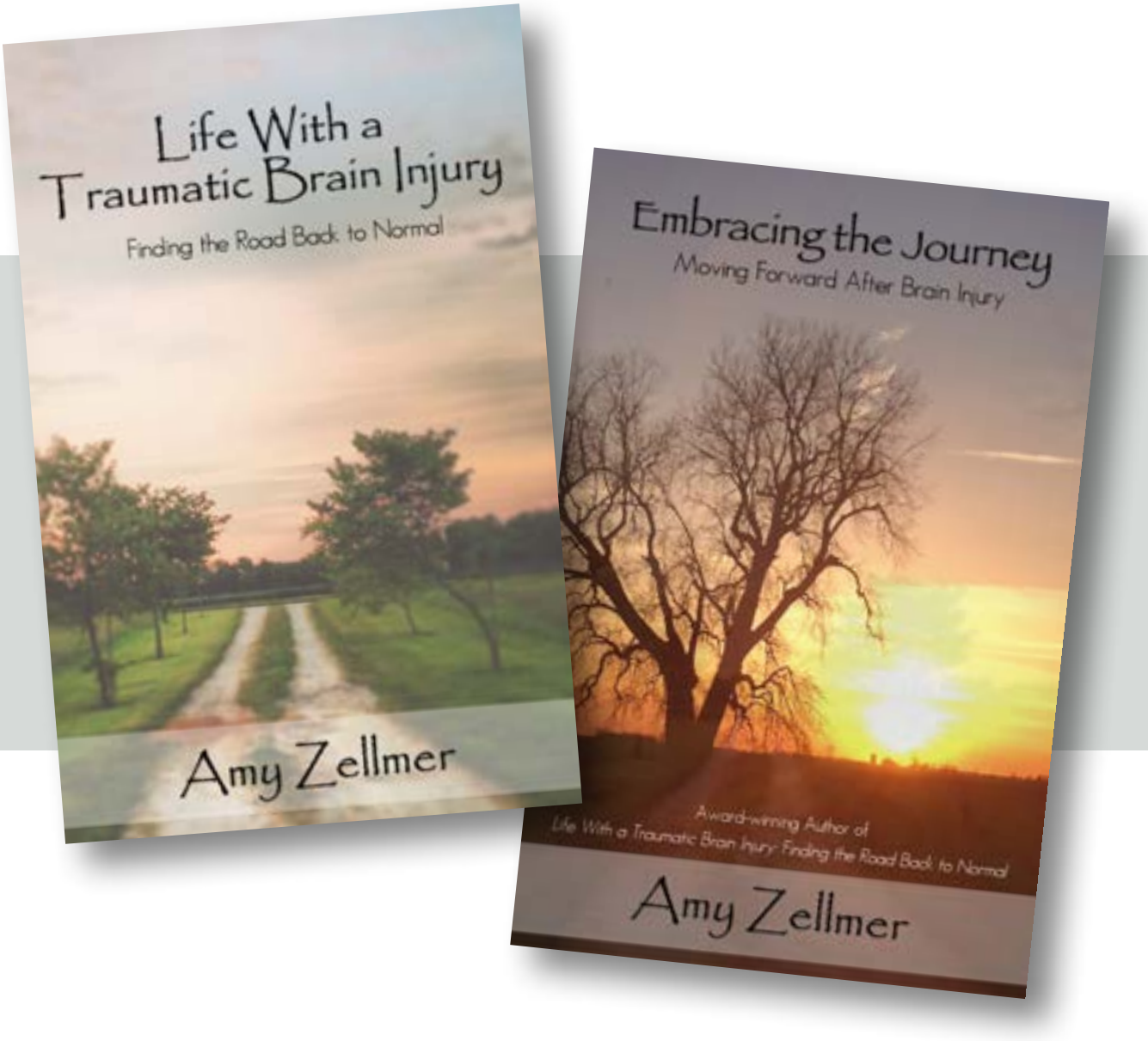
Whole-home design can take a great deal of time and investment. It is important to hire a team that understands your personal needs beyond the aesthetics in order to optimize function. Consider an open-concept design, minimize clutter, ensure adequate lighting, use contrast colors and limit the use of patterns. Be sure to implement slip-proof flooring and incorporate a design that promotes energy conservation, safety, and independence.

"Live Your Life with Purpose!"

Dr. Emily Reilly *is the Founder/CEO of Purposefully Home. With a background in occupational therapy, home modifications, and the person/environment relationship, Dr. Reilly works with individuals and their care teams to optimize the functionality of the home environment.*
www.purposefullyhome.com

FacesofTBI
by. Amy Zellmer

Want to learn more about Amy's journey? **Purchase her books on Amazon!**



"Amy is a prime example of how powerful and life-changing combining personal experience, passion, and advocacy can be."

— **Ben Utecht**, *2006 Super Bowl Champion and Author*

GET YOUR BALANCE ON

BY KELLY HARRIGAN

TECH/TOOL CORNER

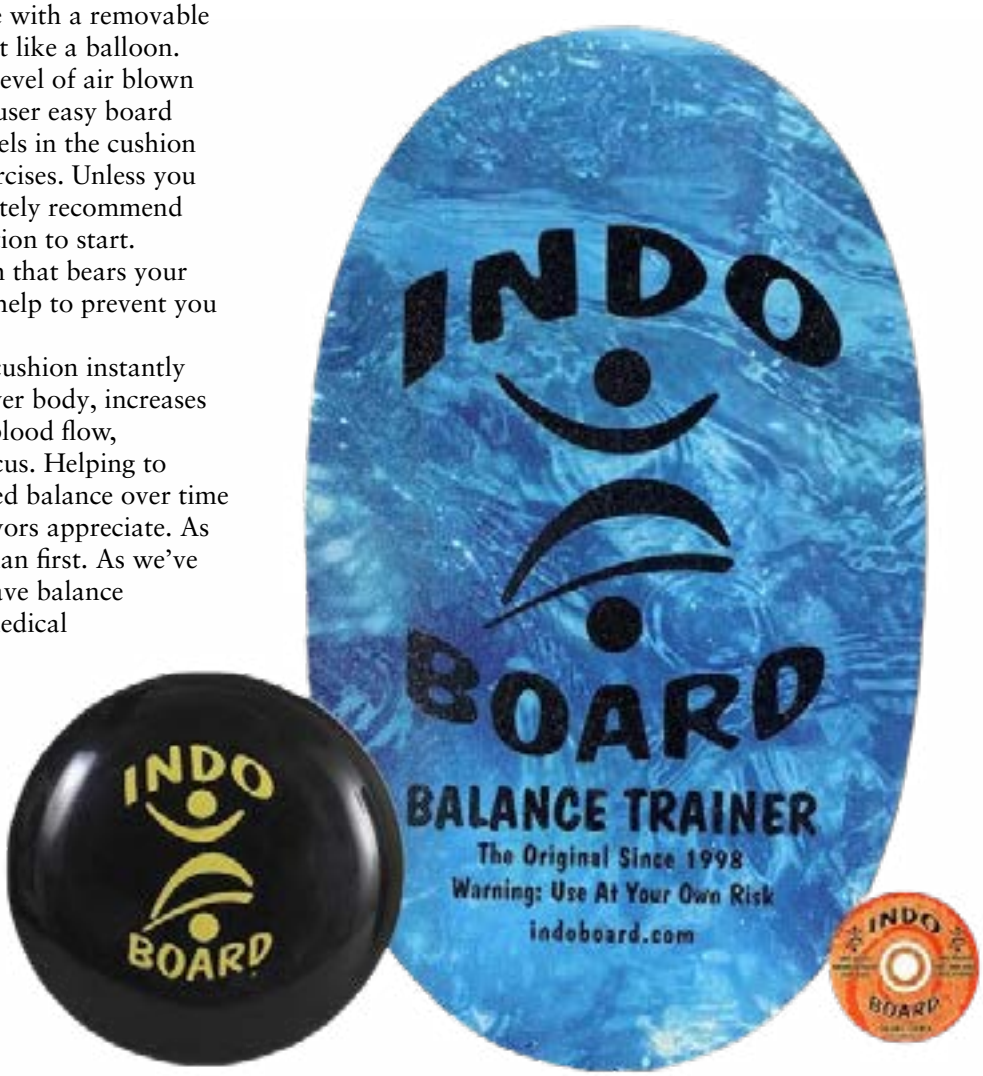
Surf's up, dude. Coming to you from the tech corner is the Indo Board and IndoFLO Cushion. Small, portable, and easy to use, it fits any size home and can give a boost to your balance and stay-at-home exercise routine. Indo Board's mission is to bring the benefits and fun of balance board training to all. Designed to use indoors, human beings of all ages and fitness levels can use the tiny tool in their therapy and balance training. Best of all, you can use this at home, every day, and not worry about someone else's germs.

The Indo Board is designed to give the user 360 degrees of stability training with a fully adjustable IndoFLO Cushion. The cushion is easily inflatable with a removable pin and allows you to blow it up, almost like a balloon. You control the inflation level with the level of air blown into it. A lower inflation level gives the user easy board stability as they start out. Higher air levels in the cushion lead to challenging range of motion exercises. Unless you are a pro surfer, which I am not, I definitely recommend starting out at a super-low level of inflation to start. Position it near a grab bar or heavy item that bears your weight. Holding onto the grab bar will help to prevent you falling. Because TBI . . .

Using the Indo Board and IndoFLO cushion instantly pushes you to engage your core and lower body, increases your heart rate, and leads to increased blood flow, improved posture, and better mental focus. Helping to create a strong core will lead to improved balance over time and prevent falls—something TBI survivors appreciate. As always, please consult with your physician first. As we've discussed in previous issues, you may have balance issues due to vision, cervical, or other medical issues, which may need to be addressed first. Many trainers, therapists, and doctors are currently offering virtual sessions and could offer some tips to help with your current exercise regimen. In addition to what comes with your kit, check out Indo Board's website at www.indoboard.com for more ideas.

The company has quite a few package options and designs to suit your taste and budget. The Original Flo Deck and Cushion set seen in the photo is $134.95 and features a non-slip, 30" by 18" oval deck surface. No pump or tools are required which is a huge bonus. Balance on the Sparkling Water design and dream you're paddle boarding in the Caribbean, or grab the Rabbit Hole design if the mood (and humor) fits. Be safe at home, play some tunes, and get your balance on.

Kelly Harrigan *is a single mum, veteran, TBI survivor with a girl child and a frenchie, oolong tea in hand and humor on hand, who lives in Annapolis, Maryland.*



How **TECHNOLOGY** is Keeping Us ***CONNECTED*** and ***INFORMED***

PHOTOS BY AUDREY NICOLE PHOTOGRAPHY
STORY BY AMY ZELLMER

The past few months have flown by while we have been living in a pandemic. I found that after the first two months in lockdown, we all seemed to have adapted to our "new normal" of living in a world of quarantine and chaos.

Those of us who have been living with a brain injury for any amount of time adapted to the isolation a bit easier than the rest of the world; however, it was still stressful — as it was a different kind of isolation. It's different to self-isolate on your own terms rather than being told you have to stay home because of the pandemic.

But we are masters of change, as we have had to learn to adapt and reinvent ourselves a time or two during our recovery from a brain injury. While we don't like change any more than the next person, we have a sort of resilience that helps us ebb and flow.

Technology has given us the ability to connect with one another in a way that was once impossible. Using tech, we are able to keep connected and informed from all over the world. With the click of a mouse we can surf the web for information and resources.

While the internet can be overwhelming, especially if you have visual or processing problems, a vast wealth of information is available to us unlike ever before.

I have spent the past five years providing resources to help other survivors, caregivers, and loved ones find the proper treatments sooner, rather than later. It took me two-and-a-half years to find Functional Neurology, which was life changing. I want others to have the opportunity to find providers who actually know how to help, without wasting time and money visiting doctors who tell them things like "There's nothing we can do," "You just have to give it more time," or "It's all in your head; I think you're just depressed."

I am sure many of you are nodding your head right now because you have heard those phrases. Even doctors with "neuro" in their title sometimes miss the basic understanding of concussions and brain injuries.

During this strange and stressful time I made the decision to deliver more content to my community who were craving information (or perhaps, a distraction).

AMY'S TBI TRIBE

Shortly after I published my first viral article on Huffington Post in 2015, I created Amy's TBI Tribe on Facebook. It is a private group that has grown to 10,000 members made up of survivors, caregivers, loved ones, and professionals.

Some of the original members of the group have become my real-life friends, and many others have developed friendships among themselves outside of the group. It has been so rewarding watching the group grow into a community where members feel safe to ask questions and share resources.

While there may be an occasional "bad apple" in the group, I am quick to remove bullies, antagonists, trolls, and those who may just not be able to "filter" their words and actions in an online group setting. The group may not be everyone's cup of tea, and that's ok . . . it's why I have created multiple outlets to get information to survivors.

PODCAST

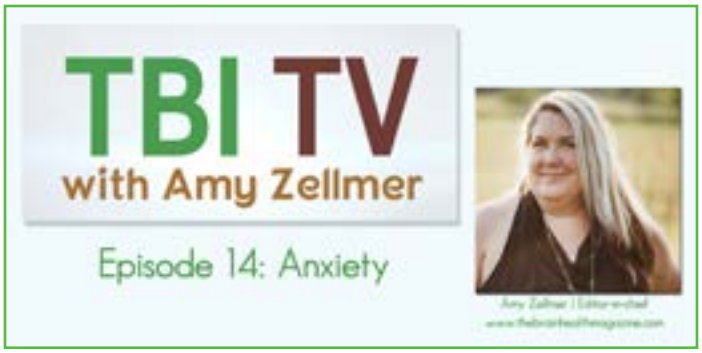
I started the "Faces of TBI" podcast series in 2015, about 18 months after my traumatic brain injury. I had been podcasting in my "previous" life, since about 2008, so it was a skill I already had (and didn't "lose" after my TBI).

I began with a handful of guests who were my new friends in the brain injury world. I wasn't at all consistent with producing them, but it was a start. Quickly I began noticing the download numbers grow and knew that I was creating a needed resource for the TBI community.

My guests have included survivors, authors, doctors, professional athletes, caregivers, and everything in between. With over 160 recorded episodes, there are hours of listening for your road trip or commuting pleasure.

Throughout the pandemic, I've seen my download numbers skyrocket. I took it as a cue from my listeners to increase my podcast production from once a week to two or three times a week.

**subscribe on your favorite streaming platorm, or listen at* www.facesoftbi.com/podcast-series



TBI TV

In 2017 I began TBI TV on YouTube as another way to deliver content to our community. I realized that while some survivors prefer reading, and others prefer audio, still others prefer video.

TBI TV is designed to be very short videos (I shoot for under 10 minutes) about a specific symptom or topic that I continually see come up in our group. In addition to the video, users can turn on closed-captioning (CC) to help them interpret the content in real time.

**subscribe to my channel at* www.youtube.com/facesoftbi

#NOTINVISIBLE

In January 2019 I began a two-year campaign in an effort to raise awareness about this invisible injury that affects over 3.5 million Americans each year.

I have traveled the country photographing survivors and sharing bullet points of their stories on social media to show that brain injury can happen to anyone, anywhere, anytime and it doesn't discriminate based on sex, age, ethnicity, or income status.

While the pandemic may have thrown a wrench into my 2020 travel plans, I will reschedule events and extend the campaign another year to reach as many people as possible.

**learn more at* www.facesoftbi.com/notinvisible

DIGITAL MAGAZINE

You already know I created The Brain Health Magazine! In 2019 I awoke one morning with the idea to start a magazine — I had absolutely no idea what I was doing, but knew I would figure it out!

I surrounded myself with talented people who are able to help me make each and every issue of this magazine a success. While print subscriptions are currently only available in the US, the digital version is available anywhere there is internet access!!

**subscribe at* www.thebrainhealthmagazine.com/subscribe

ZOOM MEETUPS

When the pandemic hit I noticed a lot of anxiety and stress in my FB group and realized many people were missing human interaction and their monthly support group meetings. I decided to take matters into my own hands and created a series of Zoom meetups . . . an online video meeting.

The first meetup had over 100 members online. With Zoom I have the ability to put people into smaller breakout rooms so they can chat more easily with each other. I had amazing feedback about how much everyone enjoyed it, so I did a few more and hope to continue them even after things go back to "normal."

TBI BINGO

Because the Zoom meetups are so successful, I wanted to try BINGO via Zoom.

With over 50 members on each session, we had a fantastic time!! In BINGO I read TBI trivia questions. The answers are on attendees' virtual BINGO cards. Winners receive prizes that I supply and ship to them.

It's a lot of fun for everyone, including me. I was even invited to host another group's BINGO when they learned about my version of virtual TBI BINGO!

BALANCE AND PROPRIOCEPTION

BY SHARIK PECK, PT

SPONSOR SPOTLIGHT

Once again, I was standing on top of a skyscraper with that all too familiar nausea kicking me in the stomach. I knew I had to climb out onto the ledge and get across the plank that connected the two buildings. Partway across, sweating profusely and my heart pounding, I froze. Feeling the scream rise from deep within I was surprised I could not hear my own scream. Suddenly I felt myself falling and had no power to stop. Awakening with a start, I felt the sweat roll over me, and my heart felt like it would burst. The nightmare had happened again.

Nightmares with a theme of falling from a building, a cliff, or down a hole, sometimes while trying to save someone, sometimes while trying to get away from someone, were a regular occurrence for several years after my traumatic brain injury. Another frequent companion was the startle that would often jerk me awake while I was beginning to fall asleep. According to research published through the National Institutes of Health, sleep disturbances affect between 30-70% of people after a TBI.

Years of studying the human nervous system and treating thousands of patients helped me understand why I had those recurring night terrors after my TBI, and why they finally stopped. You see, working on your own sense of balance and proprioception (knowing where all parts of the body are at all times) will help your brain recover from the effects of a TBI, and it's one of the best things anyone can do to diminish the potential of developing Alzheimer's and dementia.

One of the first exercises I have my balance-impaired clients perform is standing on one leg. This simple exercise has been used to reduce injuries in the NFL by as much as 77%! In a study involving receivers and ball carriers in the NFL, standing on one leg for five minutes each day in the pre-season, and for five minutes on each leg two times each week during the regular season, had a profound effect on their injury rate. We also know from research that practicing balance exercises will enhance the brain's healing potential, creating new neurons to help the nervous system improve its efficiency to protect you.

The question my clients frequently ask is if they can hold onto something while practicing their balance. The answer is that the proprioception system is not needed when you are holding on or stabilizing your body, So, when it is safe to stand without holding onto something with your hands, or leaning against something to steady your body, let go to give those balance and proprioception systems a workout. Often I will have a client practice standing somewhere, like in front of a couch, so losing their balance will not end in injury.

Another great help is scraping your toes, feet, and legs to wake up the sensors that help with balance. This technique comes from ancient Eastern medicine where the scraping is found to help the nervous system heal by waking up the connections to that area.

Last, one of our favorite techniques to help retrain balance comes when strapping the Pain Tuner Pro to a leg and having our clients stand or walk about. The billions of bits of information sent through their body's joint receptors and connective tissue will give the brain a better sense of where those parts are in space. This increased communication, practiced a couple of times each week, can help the nervous system become aware of all of the connected parts and trains the balance systems.

Retraining my balance took away my night terrors and it can help you too.

Receive 30% off your Rezzimax Pain Tuner Pro with discount code TBI. *www.rezzimax.com*

Sharik Peck *is the CEO of Rezzimax, LLC. He suffered his first major TBI at the age of 17, suffering a sports-related hemorrhagic stroke. He later received a bachelor's degree in physical therapy from the University of Utah and a master's degree in counseling from Utah State University. He is passionate about pain relief and determining how the nervous system works, as well as humanitarian work to relieve suffering.*

TAI CHI

BY DR. AYLA WOLF
DAOM, L.AC.

A Whole-Brain Sensory Integration

How many people describe their lives and their internal state of mind as serene? Serenity, in the wake of a brain injury, can feel unattainable when it may be only one simple movement away. The practice of tai chi originated in China and continues to flourish around the world. One study of adults with traumatic brain injury found that tai chi increased global cognitive and executive functioning to a greater degree than the computerized cognitive training, and the improvements were still significant at the six-month follow-up.

A study by I-Wen Penn and colleagues, in a 2019 BMC Geriatrics article, studied the effects of tai chi on balance. They combined measurements taken of lower extremity muscle strength, combined with functional balance tests, the Berg Balance Scale, a timed-up-and-go (TUG) test, and functional reach testing in their analysis. The researchers found individualized tai chi training increased muscle strength of the lower limbs and improved balance in all functional parameters tested.

Tai chi can decrease joint pain from osteoarthritis and even help to regulate the autonomic nervous system and lower blood pressure. The focus of this article is its usefulness for dizziness and vertigo, specific to people with brain injuries.

The brain devotes a lot of resources to knowing exactly where it is in space. It does this through integrating multiple systems, including the visual system, the vestibular system, and the sensory system. Let's take the simple act of bending over to tie a shoe. When someone bends forward, their eyes give them visual inputs about the direction they are

Continued …

... continued from previous page.

moving in. The movement of the head, telling them they are bending forward, activates their vestibular system. Their neck muscles also tell them that their head is now in a forward position, and their knees and ankles tell the brain what position the body is in. When someone stands up, the reverse happens. When the input of any of these systems contradicts what the other systems are saying, dizziness and/or vertigo can result.

Tai chi offers a safe and gentle way to help calibrate the integration of visual, vestibular, and sensory inputs through slow, precise, controlled movement. In the brain, there are maps of the head, the neck, the body, and computational grids of the visual world that allow for accurate eye movements and appropriate visual function.

While the movements of tai chi may look simple, the resulting brain activity is quite complex, involving the use of all of the maps, and integrating the visual, vestibular, and sensory systems. For example, tai chi involves head-eye following and body-head movements. As a hand moves, the head turns to follow it, moving at the exact same speed while the eyes stay focused on the hand. This exercises gaze stability as well as postural control of the limbs, trunk, and neck. Such movements provide therapeutic rehabilitation of the nervous system, including the vestibular system, cerebellum, and parietal lobe.

"Tai chi offers a safe and gentle way to help calibrate the integration of visual, vestibular, and sensory inputs through slow, precise, controlled movement."

Tai chi also requires many cognitive elements involved in focus, concentration, motor planning, motor sequencing, and memory, all of which are highly important aspects of rehabilitation for an injured brain. It does this in a safe, non-threatening, relaxing environment. Such cognitive aspects are functions of the frontal lobe and temporal lobe, making the practice of tai chi a full-brain activity.

Dr. Amy Ayla Wolf *is a doctor of acupuncture and oriental medicine specializing in neurological disorders, concussions, and traumatic brain injuries. She is a faculty member of the Carrick Institute of Clinical Neuroscience and Rehabilitation. She teaches courses for healthcare practitioners across the country on neuroanatomy, neurophysiology, functional neurological exam techniques, and neurorehabilitation utilizing acupuncture and Chinese medicine. She also offers advanced courses on concussion recovery. Her online courses and additional resources can be accessed at* www.acupunctureneurology.com

BALANCE and *YOUR DIET*

A balance disorder can present in a variety of ways. It is often described as feeling unsteady, or like you are on the brink of falling. It can make you feel dizzy, like you are spinning, even though you are not moving at all. It may be hard to move your legs. You may have trouble walking in a smooth coordinated pattern, which is known as a gait disorder. Whatever the presentation, balance disorders can be extremely debilitating, not to mention dangerous if you are at increased risk of falling.

Doctors have different therapies they can use depending on the cause of the disorder. But can your diet also be a therapy? Can what you put in your mouth every day affect dizziness, balance, and gait?

Diet can definitely play a role in affecting the brain, which then affects your movement patterns. This occurs through the effects of different foods on the part of the brain called the cerebellum. The cerebellum is responsible for coordinating balance and posture. Damage to the cerebellum can cause ataxia, which is seen as uncoordinated movements. How this is connected to diet lies in your sensitivity to certain foods.

Gluten, a protein found in wheat, barley, rye, and oats, has been found to damage the cerebellum in sensitive individuals. This is an autoimmune condition that makes your body produce antibodies in response to gluten consumption. The antibodies can then mistakenly attack the cerebellum, leading to balance and gait disorders, known as gluten ataxia.

Gluten ataxia can cause physical changes to the brain. Magnetic resonance imaging (MRI) studies of patients with gluten ataxia show shrinkage of the cerebellum, or bright white spots that indicate damage.

Diagnosis of gluten sensitivity and autoimmunity is done via a blood test. Two different antibodies that create autoimmunity to neural tissue must be identified in patients with balance disorders. High levels of antibodies against an enzyme known as tissue Tranglutaminase-6 (tTG-6) may present with gluten ataxia. These antibodies may actually appear in serum years before the clinical onset of symptoms. Glutamate decarboxylase 65 (GAD-65) antibodies have also been found to be high in patients with gluten ataxia. GAD-65 antibodies indicate that the body may be attacking the cerebellum.

Patients with these antibodies must adhere to a strict gluten-free diet, avoiding the obvious sources such as breads, pastas, and crackers containing

BY DR. LORI JOKINEN

HEALTHY LIVING

wheat. But those who need to be strictly gluten-free must also be very particular about reading labels because sauces, dressings, and many packaged foods contain wheat, barley, or rye. Soy sauce, breaded foods, and desserts are other common sources of gluten.

> "Gluten [...] has been found to damage the cerebellum in sensitive individuals. This is an autoimmune condition that makes your body produce antibodies in response to gluten consumption. The antibodies can then mistakenly attack the cerebellum, leading to balance and gait disorders, known as gluten ataxia.

But what about other foods? Does it stop at gluten? Unfortunately, there are other foods that look similar in structure to gluten that your body may "think" are gluten. This is due to something called molecular mimicry. For example, if gluten's molecular makeup is ABCDE and the molecular makeup of dairy products is ABCDF, the similarity of the two foods, only differing by one letter, makes your body think you are eating gluten when you are not. Such foods are known as gluten cross-reactive foods.

If a patient reacts to gluten, goes gluten-free, but doesn't notice an improvement in their symptoms, it may be due to consumption of foods that are similar in structure to gluten. These foods create the same symptoms as when gluten is consumed. So even though the patient has gone gluten-free, their body is still reacting as if they are eating it. Foods that have molecular mimicry to gluten include dairy, yeast, oats, millet, rice, and corn, and can be identified with a test called Cyrex Array 4.

Studies have shown that patients with balance disorders related to gluten ataxia can have dramatic improvements just by changing their diet. Addressing the autoimmune component of gluten ataxia by working with a functional medicine provider can also provide great benefits. Consult with yours today if you continue to struggle with a balance disorder.

Dr. Lori Jokinen *is a Doctor of Chiropractic specializing in functional medicine, nutrition, sports rehabilitation, auto accident injuries, and acupuncture. She incorporates nutrition into all of her patients' care plans.*
www.functionalhealthunlimited.com

RED JASPER'S Steady Magic

BY KRISTEN BROWN

When you're feeling twisty, topsy, and turvy, the power of red jasper can bring back a sense of steadiness and calm. Whether suffering from an injury, recovering from illness, or simply juggling the many stresses of everyday work and life, there are many times we need some steady energy. Red jasper is a powerful stone with the almost magical qualities of bringing lightness and peace to otherwise overwhelming situations. Plus the deep red beauty of this stone is a visually pleasing way to add fresh energy to your space and senses.

Here are three red jasper powers that can help steady your physical, mental, and emotional bodies.

1. **Load-Lightener:** *Red jasper takes away the pressures of life with its gentle, grounding energy. Even though red is often seen as an energizing color, it's balanced out by being a bold and powerful grounding stone that can be used to bring a sense of calm to crazy situations. Keep red jasper in your pocket for ongoing chill-out energy.*

2. **Earth-Connector:** *The dense attributes of red jasper give it a solid energy that connects you to the earth from your root chakra at the base of your tailbone down through your legs and feet. It inspires your natural healing by tapping into the magic of earth energy. Take a bath with red jasper while meditating and envisioning yourself growing roots that go deep into the center of the earth.*

3. **Energy-Strengthener:** *Red jasper is a strong protector of your energy field, which can help you feel steady amidst the storm. It energizes your life force and gives you a sense of purpose tied to your deep nature. Try a visualization and intention-setting practice infusing a red jasper stone with your goals and motivations.*

Carry red jasper with you when you need the steadiness of a grounding and calming stone to lighten your load.

Kristen Brown *is a bestselling author, keynote speaker, and energy medicine practitioner who charges up her clients by syncing their body/mind/spirit for work and life growth.* www.KristenBrownPresents.com

YOGA: WARRIOR II POSE

BY AMY ZELLMER, EDITOR-IN-CHIEF

HEALTHY LIVING

Yoga is a powerful tool for recovery after brain injury. Contrary to some beliefs, everyone can do yoga — you don't need to be super flexible, have great balance, or even be able to stand up. The beauty of yoga is that every pose can be modified so that anyone can be accommodated.

An important aspect of yoga is the breath. Connecting the breath to your body and flow, and getting oxygen flowing to your brain, is what makes it so powerful for recovery. Yoga is also a time to quiet the mind, letting anxiety and distracting thoughts drift away.

Warrior II pose (Virabhadrasana) is a strengthening pose that improves physical and mental endurance. "Virabhadrasana is believed to be the stance (shape and pose) Vrabhadra took as he drew his sword to remove the head of his enemy. Stretching your upper legs and ankles while expanding your chest and shoulders makes the Warrior II pose an essential foundation for most asana-based (pose-based) yoga practices.

Some of its many benefits include acquiring balance and steadiness, stretching groin, thighs, and ankles; expanding the chest, lung, and shoulders; strengthening the shoulders and arms; increasing mental focus and concentration, and building mental stamina and endurance.

Instructions:

1. **Step your right foot to the top of your mat, and your left foot about three feet behind you. Point your right toes straight forward, and your left foot about parallel to the back of your mat. Drawn an imaginary line from your right toes to your right heel to your left arch.**
2. **Bend your right knee so it is over your right ankle. Press equally into both feet.**
3. **Square your shoulders to the left side of your mat and extend your arms out wide, parallel to the ground, palms facing down.**
4. **Keep your torso upright, shoulders over your hips.**
5. **Keep your gaze straight ahead, or turn to the fingertips of your right hand. Hold for 60 seconds. Inhale to straighten your front leg and release the pose. Repeat on the other side.**

Adjustments and modifications:

- *You can shorten the length of your stand, or bend your back knee to relieve pressure in the knees.*
- *For added support, you can place a chair under your forward thigh.*
- *Press your back heel into a wall for balance and support.*
- *Rather than turning your head, you may look straight ahead and maintain length in your neck.*
- *Place your palms face up to help soften the shoulders.*

If you are interested in learning more about yoga, check out www.loveyourbrain.com and their yoga programs throughout the U.S. at partner studios, which are completely free to brain injury survivors and caregivers.

Essential Oils
PANAWAY

BY AMY ZELLMER, EDITOR-IN-CHIEF

HEALTHY LIVING

Essential oils are complementary tools that can help you achieve a healthy lifestyle. They are easy to use, smell great, and are versatile.

All oils are not created equal. Young Living is the only brand I personally trust because I know they have complete control over their product from seed to seal. Oils sold at health food stores can be misleading. Since the FDA does not regulate them, the labels may say they are 100% therapeutic-grade oils when they are not. You must look closely at the labels. If the ingredients list anything other than the plant stated, or if the label has statements like "For external use only," "For aromatic use only," and/or "Dilute properly," the oil inside that bottle may have been cut with other oils, synthetics, or chemicals.

PanAway

With wintergreen, helichrysum, clove, and peppermint essential oils, PanAway essential oil blend has a refreshing, invigorating aroma and a cooling sensation when applied to the skin. Apply this synergistic blend after exercising or any time for its soothing, stimulating aroma. Additionally, it helps relieve muscle tension and can create an uplifting mood.

- *Combine PanAway with a carrier oil* and use it with massage after physical activity for a cool, stimulating sensation.*
- *Apply it to your neck and shoulders in the morning for an uplifting, refreshing fragrance.*
- *Apply it to the bottoms of your feet for a relaxing foot massage.*
- *Make your own bath salt by adding 10 drops of PanAway to one cup of Epsom salt. Add the mixture to warm bath water and relax in a spa-like atmosphere.*
- *Rub one drop of PanAway with four drops of carrier oil into temples for an invigorating aroma during times of stress or frustration.*

** Dilute one drop with four drops of a carrier oil such as almond, jojoba, avocado, or coconut oil. Be sure it is a food-grade oil for safest use.*

For more information on how to use essential oils, visit: www.facesoftbi.com/eo

EAT MORE VEGETABLES
to Improve Wellbeing and Brain Health

HEALTHY LIVING

BY SIERRA FAWN GUAY MS, RDN, LDN

One of the simplest, and most overlooked dietary habits that many of us can implement to improve our well-being and brain health, is to eat more vegetables. Among the diets that recognize the benefits of a vegetable-rich meal, are the Mediterranean-DASH Intervention for Neurodegenerative Delay or MIND Diet, the Mediterranean Diet, and the Dietary Approaches to Stop Hypertension or DASH Diet. The MIND Diet recommends eating one serving of leafy green vegetables and one serving of any other vegetable each day, while both the Mediterranean and DASH Diets emphasize the consumption of vegetables.

There are many reasons why vegetables are important tools for achieving and maintaining good health. Vegetables are excellent sources of water, fiber, vitamins, minerals, and phytonutrients.

- **Water:** *essential for many body functions. Did you know that water is important to help maintain cognitive function?*
- **Fiber:** *important for gut, heart, and brain health. Eating adequate fiber helps maintain good bowel regularity, and healthy cholesterol and blood sugar levels. Did you know that eating enough fiber can help you feel full for longer periods of time?*
- **Vitamins and minerals:** *essential for nearly all body functions. Did you know that eating vitamins and minerals from vegetables is more effective (and less expensive) than taking supplements?*
- **Phytonutrients:** *components of foods that provide some physiological benefit. Phytonutrients act as antioxidants, support our immune systems, and fight inflammation. Did you know that vegetables are one of the best sources of phytonutrients?*

Eating more vegetables can seem challenging at first. Here are three tips to help:

1. *Fill half of your plate with vegetables at each meal. If you are not eating from a plate, be sure to include vegetables as a side dish or as an ingredient (think pizza with a side salad, or vegetable soup).*

2. *Eat vegetables in whatever form you have access to and can afford. Fresh, frozen, and canned vegetables are all good options.*

3. *Challenge your beliefs. This tip is a personal favorite, since people often tell me that they do not like any vegetables. While this used to unnerve the dietitian in me, I have come to understand that most people who tell me this have not actually tried vegetables in years, and what most people mean is that they do not like the tasteless mush they were forced to eat many years ago as children. Below, you will find an easy-to-create recipe for roasted Brussels sprouts, which I implore you to try even if you have a distant childhood memory of hiding boiled, unseasoned, mushy Brussels sprouts in a napkin because even your dog would not eat them.*

Sierra Fawn Guay *is a registered dietitian who works with brain injury survivors in Greenville, North Carolina.*

DID YOU KNOW THAT ...

Brussels Sprouts are one of the best plant sources of omega 3 fatty acids? That means that these beautiful vegetables are especially beneficial for our brains!

Roasted Brussels Sprouts

Ingredients:

- 2 lbs Brussels sprouts, washed, ends trimmed, and cut into halves*
- 1-2 tbsp olive oil
- 5-10 cloves of garlic, peeled
- 2-3 tbsp pine nuts (optional)
- Salt and pepper to taste

Instructions:

Preheat oven to 400 degrees F. Toss Brussels sprouts and garlic cloves in olive oil and spread in single layer on baking pan. Sprinkle with salt and pepper. Shake pan every five minutes or so. Roast until Brussels sprouts have browned and edges are crispy, about 20 minutes.

Meanwhile, on the stove top, add pine nuts to shallow pan and roast over medium heat until lightly browned and aromatic, about five minutes.

Combine Brussels sprouts and garlic with pine nuts. Serve warm. **Enjoy!**

**When you cut the sprouts into halves, some leaves will fall loose. Keep those leaves and roast them. They will be extra crispy and delicious.*

TELEMEDICINE:

A Welcome "House Call" for Survivors of Brain Injury

BY ED ROTH

Technology can change the way we see things, sometimes overnight. Since COVID-19 has become an unwelcome part of our lives, doctors and patients are creating a new normal for effective treatment. In several short months, the playing field changed, thanks to telemedicine. In fact, health care analysts estimate the pandemic and ensuing stay-at-home orders accelerated the widespread implementation of telemedicine by at least a decade.

It's not a new concept; doctors have been utilizing this form of digital health care since the late 1950s, when a closed-circuit setup connected the Nebraska Psychiatric Institute and Norfolk State Hospital. In the 1960s, microwave technology was used in a partnership between the Indian Health Services and NASA, providing Papago Native Americans in Arizona and astronauts with remote care.

Fast forward to 2020. With the coronavirus pandemic in full swing, traveling to the doctor's office has become more difficult, and sometimes impossible as providers shuttered their doors to in-person patients. In an unexpected twist, those recovering from brain injuries are able to be treated without leaving home, which has become just what the doctor ordered.

For Christina Kwasnica, MD, medical director of neuro-rehabilitation and the Center of Transitional Neuro-Rehabilitation at Barrow Neurological Institute at Dignity Health in Phoenix's St. Joseph's Hospital and Medical Center, telemedicine has become an integral part of her arsenal for treating people with brain injuries. "In the past, we used telemedicine to reach remote parts of the state where specialist providers weren't always available. Patients would have to go to a nearby clinic to participate and someone there, like a nurse, would help with the examination. Now, we can see patients virtually in their homes."

Although her patients and staff miss seeing one another in person, and tech issues may emerge, the advantages outweigh the disadvantages. "I love seeing the family interactions, their pets, toys, etc.," says Dr. Kwasnica. "It also helps me to see some of the challenges we face with our patients, such as how much space they live in, and how rural their home may be."

Another benefit of telemedicine is particularly important to patients with high anxiety and/or low mobility. "They can now be seen without having to use transportation. It also allows me to see how their home therapy equipment, such as wheelchairs and walkers, is used," says Dr. Kwasnica.

Laura Johnson suffered a brain injury in 2007 while living in New York City and is currently one of Dr. Kwasnica's patients. Though she is thirteen years post-injury, she still has difficulty going to appointments. "Because of my brain injury, just driving to the doctor produces a ton of anxiety. From the traffic to the parking, and navigating the hospital campus, it can all be overwhelming. Telemedicine has taken away all that stress."

Dr. Kwasnica feels that achieving a high comfort level is essential. "It's a comfortable access point to care for many of my patients with traumatic brain injuries. It has also allowed us to encourage other online media for our patients, such as Zoom social gatherings, because they can accomplish telehealth."

With the coronavirus pandemic in full swing, traveling to the doctor's office has become more difficult, and sometimes impossible as providers shuttered their doors to in-person patients. In an unexpected twist, those recovering from brain injuries are able to be treated without leaving home, which has become just what the doctor ordered.

As an example of how a hybrid approach is effective for her, Dr. Kwasnica diagnoses all traumatic brain injury (TBI) patients in person as soon as possible after their injury.

"There's no substitute for an in-person neurological exam for initial diagnosis."

She then uses telemedicine for more frequent check-ins during early treatment of the injury, when changes in the care plan are often required.

Another enthusiastic adopter of telemedicine is Brain Injury Alliance of Arizona board member Katie Pierce, PT, DPT, a physical therapist at CoreBalance Therapy in Flagstaff. A brain injury survivor, Katie combines her personal and professional experiences to develop and deliver unique treatment plans for her patients.

Growing up in northern California, Katie always wanted to be a physical therapist. Career Day provided her first exposure to the local physical therapy clinic that allowed the high schooler to volunteer thousands of hours, and she became consumed with motivating people with movement.

After receiving her B.S. in exercise science at Willamette University, she joined a national teaching corps and taught middle school in inner city New York." However, she missed the science and soon enrolled at Northern Arizona University's nationally ranked physical therapy program.

Then she got a close-up education on brain injury. First, she wiped out on her bicycle in Flagstaff; two years later, another bike mishap involving wet streetcar tracks, this time while on a PT internship in Portland, Oregon. Both resulted in mild TBIs, and her arduous recovery required a great deal of patience and determination.

A year and a half into the process, she was able to work as a physical therapist, with part-time hours due to the remaining health challenges from her brain injuries (eight hours per week at first). Over the course of the following eight years, she tried to take on as much as possible.

In typical Katie fashion, she persevered and gradually resumed her PT career, getting back on that proverbial bike with a deeper understanding of the link between brain injury and rehabilitation. With ups and downs in her health, she searched for accurate diagnoses and treatments for the multiple secondary health challenges triggered by her 2010 TBI.

"To almost lose my dream job due to my injuries, then get it back, I'm the world's happiest person."

With her passion for neurological and vestibular rehabilitation, Katie has helped patients with an initial reluctance to telemedicine. "We had to overcome the misperception that this wasn't doable.

"Some people had fear of technology, didn't have Zoom on their phone, or were concerned about privacy. However, after the first time, they loved it . . . and I was delighted."

Katie cites several advantages, including treating people in their own environment. "One brain injury survivor patient was often falling at home. In our first telemedicine appointment, I helped him identify fall risks in his home, like the throw rugs and the protruding lip leading to the kitchen. Once we removed the barriers we could, and practiced safely navigating the others, he hasn't fallen once in the past 10 weeks since we started telemedicine."

Like Dr. Kwasnica, she favors a hybrid approach. "Sometimes there's no substitute for touch. For instance, if they're a high-fall risk, they need staff to guard them when doing upright exercises." She adds, "I think once people can come back in the clinic, it could be ideal to have one session weekly in the office, and one over telemedicine at home."

Perhaps the most surprising feature of telemedicine is how insurance companies support it. "It's Medicare and Medicaid-approved, and all but three insurance companies I know of cover it completely," Katie notes.

Roughly half of her patients are brain injury survivors who require consistency and repetition. For them, it's particularly helpful to be able to do exercises in the same location in their home, with the mat in the same area, even facing the same direction.

"Now, the moment they log on to Zoom, they have their mats in place, their weights are ready, and some have already started."

Shawnique Cotton was injured in a shooting at a Pennsylvania nightclub over thirty years ago. It left her with a spinal cord injury and a brain injury. While she is not a patient of Katie's, she can't say enough about this new approach after wrangling over transportation issues for three decades for something as simple as a prescription renewal. "Telemedicine made life easier for many of us with disabilities. I called my doctor's office at 9:47 am, they scheduled me an 11:30 am phone appointment. Fifteen minutes after we hung up I received a pharmacy alert that my prescription was ready!"

With this kind of acceptance and versatility, it's no wonder telemedicine is rapidly being heralded as the new "house call."

Ed Roth *is a Phoenix-based writer and producer. He has created content and marketing for Disney, Fox and Cox Communications, in addition to producing lifestyle television programs in Phoenix. Ed has also worked on The Oprah Winfrey Show.*

BALANCE AND GAIT CHALLENGES

Following a Traumatic Brain Injury (TBI)

BY JAMES A. HEUER, PA

Between 30% to 65% of people suffer from dizziness and lack of balance, or disequilibrium, following a traumatic brain injury (TBI). Balance is the ability to keep your body centered over your feet. One's physical strength, cognitive ability, and coordination all play a role in balance.

> "Many factors help gauge the impact a TBI has on a person's balance, including where the actual injury occurred within the brain, how serious the injury was, and any other additional injuries."

Following a TBI, many people also experience difficulties with gait, which is defined as a person's manner of walking. A common symptom, vertigo, makes you feel like your surroundings are moving, which can result in an imbalance in a person's gait.

Many factors help gauge the impact a TBI has on a person's balance, including where the actual injury occurred within the brain, how serious the injury was, and any other additional injuries. Medications used to manage pain can also cause balance problems due to the common side effects of dizziness and lightheadedness.

TBIs frequently result in injuries to the eyes, and compromised eyesight can lead to poor balance. Double vision, partial loss of vision, depth-perception problems, and /or convergence insufficiency (when your eyes don't work together) are all recognized outcomes of TBIs. In addition to ocular injuries, vestibular (inner ear) impairments can also have a great impact following a TBI. The vestibular system is the sensory system that provides the leading influence to the sense of balance and spatial direction when coordinating movement with balance.

The vestibular system is made up of tiny organs and semicircular canals inside the inner ear. The canals contain fluid and fine hair-like sensors that monitor your head's rotations. When the head moves, particles of calcium carbonate, called otoliths, pull on the hair cells, stimulating the vestibular nerve, which signals the position of the head with respect to the rest of the body. The particles, or crystals, are sensitive to gravity and linear movement. Any damage to the vestibular system from a TBI will affect your balance and gait.

After the common causes of balance impairment are initially ruled out, an array of different medical providers can assist in the diagnosis and treatment such as physiatrists, neurologists, and otolaryngologists, aka ear, nose, and throat (ENT) specialists. Two tests that are commonly used to identify balance difficulties are the Berg Balance Scale and the Dynamic Gait Index. Both exams will be used to test and keep track of the progress made in the process of regaining balance and gait.

There are multiple methods you can try to improve your balance on your own and/or under the direction of a physical therapist. You can practice walking in different conditions and different inclines, on various structures, such as grass, wood, and asphalt. Challenging yourself to walk longer distances and in different venues such as parks or shopping malls can help.

> "After the common causes of balance impairment are initially ruled out, an array of different medical providers can assist in the diagnosis and treatment such as physiatrists, neurologists, and otolaryngologists, aka ear, nose, and throat (ENT) specialists."

Every case is individual and each person's recovery is unique. Research shows that three months is the common timeframe in which people with a TBI can walk on their own, but progress and improvements can continue for years. Individual pre-existing impairments can add a significant time extension to the recovery and the degree of success in regaining one's balance and gait. The key is to remember every improvement, as small as it may seem, is progress.

James A. Heuer, PA *is a personal injury attorney helping individuals with TBI after suffering one himself. He is located in Minneapolis, Minnesota.*

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The Energy Field and **BALANCE**

BY SAM BLACK

During the healing process after a brain energy, much consideration is given to the physical symptoms and mindset of the survivor. Treatments provide relief for everything from headaches, pain, brain fog, and sleep disturbances. However, some treatments that address balancing energy, and go beyond the physical, can actually lead to disturbances with balance when the follow-up care is not followed or taken seriously.

> **"Some treatments that address balancing energy, and go beyond the physical, can actually lead to disturbances with balance when the follow-up care is not followed or taken seriously."**

Amazing progress has been made and brought into the forefront of treatment for addressing the whole body in a variety of diagnoses, including brain injury. Crainiosacral Therapy, or CST, (first practiced by Andrew Taylor Still, and later, practitioners of cranial osteopathy, most notably Dr John Upledger in the 1970s) is a light touch therapy that works with the energy and rhythm, circulating cerebrospinal fluid through extremely gentle manipulations within the body. Osteopathy also involves gentle manipulations and rocking, addressing the root causes of pain and disturbance within the musculoskeletal system of the body. Energy work, such as Reiki, Energy Healing, and Quantum Touch all work within the energy field around the body, bringing forward balance and flow, and removing blockages that prevent the natural giving and receiving of energy. All of these therapies provide symptom relief and balance healing while supporting the whole body. These alternative forms of therapy, in addition to many others within the alternative medicine community, are not always seen as valid within the Western medical community. However, they have demonstrated beneficial results for many worldwide.

> **"Energy work, such as Reiki, Energy Healing, and Quantum Touch all work within the energy field around the body, bringing forward balance and flow, and removing blockages that prevent the natural giving and receiving of energy."**

An interesting benefit, improvement of dizziness and balance, can also be a side effect when adequate rest and water intake are not adhered to following treatment. Water provides a multitude of benefits following treatment and allows the toxins that have been disrupted to be flushed out of the body. Energy and toxins become trapped in the body through inflammation, trauma, injury, and dehydration, and the combination of rebalancing the energy and increasing water intake allow this process of movement to flow. Often, upon completion of treatment, the client reports feeling "amazing." A brain injury survivor may be headache-free or able to walk steadily for the first time in

a while. During this time of "feeling great," the client can overestimate how they are doing and, rather than resting, overdo their activities, leading to an increase of symptoms, and what is described as a "hungover" feeling. Rest and water allow the healing process to work their way through the body and decrease the incidence of dizziness and balance issues for the client.

The human body contains an electromagnetic field and that energy is projected to the auric field around the body. Whether the healing platform is performed by touching the physical body or the life force energy field around the body, water is the vehicle that allows the movement and flow to occur. Healing continues after the session and is found to be more beneficial in helping the symptoms when complemented by hydration and rest during the 12 hours that follow.

Sam Black *is an International psychic medium and master coach, with a passion for helping others find the gems they have inside so they can shine them to the world! Sam is the creator of the Grounded Roots Intuitive Guidance Deck, Consciously Creating with Sam Black, and is the host of the Soul Full Connections with Sam Black podcast. Additionally, she has Level 4 Lifeforce Energy Healing.*

BENEFITS of Biking

BY SUE WILSON, MA, ATC/L, PES, CHHC

Physical activity is becoming more and more important as people start to heal from chronic symptoms of mild traumatic brain injuries. Over the last five years, research has started to show that aerobic exercise can be beneficial to the brain within 24 hours of a concussion because it enhances blood flow, which improves oxygenation to the brain. The increase in good oxygen to the brain triggers brain-friendly hormones and activates chemical reactions in the body necessary to start balancing the brain and body.

A study out of Canada demonstrated that starting aerobic exercise within 24 hours of sustaining a concussion may be protective and proactive in the healing process, instead of the constant rest often prescribed in the old way of thinking. People who suffer from chronic symptoms of a brain injury will greatly benefit from exercise to improve blood flow, and remove the old cells, and rejuvenate new healthy cells.

"People who suffer from chronic symptoms of a brain injury will greatly benefit from exercise to improve blood flow, and remove the old cells, and rejuvenate new healthy cells."

Aerobic exercise is when the body uses oxygen to sustain an exercise over a period of time. Exercises like jogging, rowing, swimming, and cycling all stimulate and strengthen the organs of the body and improve the body's utilization of oxygen.

Bicycling is one of the best exercises for people who have suffered a mild traumatic brain injury because the seated position adds support. A recumbent bike or an upright bike are both beneficial and can stabilize people who struggle with dizziness, instability, and weak lower body musculature.

There are a variety of settings in which people can engage in cycling. Some people might prefer the indoor stationary bikes for more stability and control. Stationary bikes can be found at half-priced or secondhand exercise equipment stores. However, if you like to be social when you work out, almost every health club across the country has bikes that their paid members can use, and most clubs have several cycling or spinning classes daily. The great thing about cycling classes is that you are in control of your own bike. You can bike light with no resistance, choose a hill and valley course, or push yourself to sweating.

If you are more stable on your feet and enjoy being outside, you could purchase a good bike at a secondhand store for a decent price and start finding some routes around your neighborhood. I always recommend that people drive around and look for safe trails, bike lanes or parks/lakes that are well marked for bikers. Of course, if you are outside riding your bike, a helmet is a must, no excuses.

Many people who have suffered a brain injury have an enormous fear that they might reinjure their brain and would never feel comfortable biking around their neighborhood, but they still enjoy being outside. With a bike trainer stand, your bike is placed in a durable, hi-tensile steel frame and you can pedal away, outside in your backyard during nice weather and inside in your living room during the winter months. Make sure that the front wheel riser block is included, which helps level the bike and keep the front wheel stable.

Available from several internet vendors, the Conquer Indoor Bike Trainer is perfect for riding inside. This cycling trainer uses opposing magnets to create resistance and help you maintain a smooth, efficient pedal stroke as you conquer your fitness and cycling goals.

"Bicycling is one of the best exercises for people who have suffered a mild traumatic brain injury because the seated position adds support. A recumbent bike or an upright bike are both beneficial and can stabilize people who struggle with dizziness, instability, and weak lower body musculature."

Like everything, when you start a new exercise program, start out slow and work your way into success. A good guide is to start cycling for 10-20 minutes a few days a week. If some of your symptoms return, back down and reevaluate. If you feel a new sense of energy and enhanced mood, slowly start to lengthen your workout sessions or times per week. Do not lengthen your time of exercise and days of the week at the same time. Make sure you are mindful of how you feel after biking and in the following hours. Increase your water intake and journal how you are feeling. Once you find your body's tolerance to this aerobic exercise, place your committed workout time on your calendar and schedule it like you would a conference call at work or an outing with a friend.

Sue Wilson *received her master's degree in Exercise Physiology from Minnesota State University, Mankato. She is a Certified Holistic Health Coach, a Certified Athletic Trainer, and a loving mother of two. She's on the board of directors for CTE Hope, and is dedicated to helping improve the lives of those who have been affected by concussion and brain injury.*

Life Lessons Learned *from a TBI*

BY AMY ZELLMER, EDITOR-IN-CHIEF

The past few months have been a roller coaster of emotions for many of us.

The United States began to shut down on my birthday while I was still vacationing in South Carolina. My drive home was surreal, to say the least.

As we began to understand that self-isolation was about to have a whole new meaning, we turned to technology to help us stay connected.

Just as we were beginning to see the light at the end of the tunnel and restrictions were starting to slowly lift, we were plunged down the roller coaster hill yet again, this time by the death of a Black man named George Floyd.

This one hit me hard. Minneapolis is my home — born and raised.

Systemic racism is affecting all of us, whether we realize it or not. I see it in the brain injury community — people of color are less likely to be listened to and get treatment for their injuries.

Minorities under the age of 65 and 25 are dying at 2x and 5x the rate of similar aged white folks, respectively.

Dr. Mark Heisig wrote in an Instagram post, "With overwhelming margins like that, it cannot be blamed on choice, behaviors, or factors within individual control. In America, your culture and environment are largely handed to you by birth. Same country, different skin color, different world."

The moral of the story: We need to do better. We need to acknowledge this glaring gap in the access to healthcare by people of color. We need to lift each other up, and help one another get the resources and care they deserve. The color of our skin should not have any bearing on the treatment we receive from the healthcare system. **#blacklivesmatter**

Back cover photo: *the George Floyd memorial site at 38th and Chicago in Minneapolis, Minnesota. Photo taken by my colleague, Travis Johansen.*
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Black Lives Matter
WE ARE BETTER TOGETHER