PRBIS BRAINSCAN

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Powell River Brain Injury Society

THE BRITISH COLUMBIA BRAIN INJURY ASSOCIATION

The wonderful people at the British Columbia Brain Injury Association are involved with some great work in helping those with brain injury.

They have been working with the standing committee on finance by creating new pathways for funding. The problem still remains, however; the provincial government agrees and Okays a funding request yet continues its reluctance with allocating any monies. With their efforts and continuous positive steps to establish strong allies in Ministries and other institutions the BCBIA continues to assist in responding to the multitude of requests they receive monthly regarding individual needs.

ANGER AND DEPRESSION

People will accept that head injury can change your thoughts and memories, but have difficulty understanding that it also changes your emotions. Your emotions don't exist in some cloud that follows behind your head. They're in your head just like everything else. Two of the more common changes in emotion are anger and depression. Someone may have been a "hot-head" or an angry individual before their accident. Since the head injury, this person's anger is multiplied 2 or 3 times. For example, a dog may pee on the carpet. This might be an angering situation for most people. But following a head injury, the anger is so extreme that the person may want to harm the dog. Anger after a head injury is quite different from "normal" anger. Anger following a head injury tends to have a "quick on" and a "quick off." Basically you can be in a good mood until some small thing irritates you and you suddenly get very angry. But this anger doesn't seem to last; you're angry for a few minutes, someone changes the topic of conversation, and you quickly stop being angry. In another variation of anger problems, some little thing sets you off and then the "whole day is ruined" (you're not mad but seem to be in a bad mood).

Many people say, following a head injury, "I cry real easily, sometimes over the dumbest things." This is especially tough for men in our society because men have been taught not to cry. I've had many male patients say to me, "I've never cried as an adult; now I'll watch some silly movie on television and have tears running down my face." Many people begin to feel that they're losing their mind because of this emotional roller coaster.

Why is this happening? We know that the middle sections of the brain are pretty primitive. Rage, fear, and sexual feelings all come from very primitive emotional areas of the brain. If you have animals at home, you'll see the same primitive emotions in them. Humans also have primitive systems in the brain that says "yes" or "DO IT". If you're mad, hit something. If you get hungry, let's eat. Don't wait, do it right now. In contrast, the front part of the brain helps plan and control behavior. The front part of our brain is involved in saying "NO". For example, your boss says something to you that gets you get really mad. Your first impulse is to hit him. The "NO" part of your brain says "Don't do that--you're going to be fired--you're going to go to jail." So the frontal lobes and the primitive parts of the brain act like a thermostat and a furnace. If the "NO" part of the system isn't working so well, the primitive functions tend to be more prominent.

This change in emotion may cause your family members and friends to start avoiding you. With family members, they're going to learn to walk around you as if on "eggshells". If it's your friends, your yelling at them will result in a lot fewer friends. They may be afraid of the changes that they see in you.

What can you do to deal with the anger problem? One very helpful approach is the Time-Out procedure. Before you get to the point where you are going to explode (throw something, break something, or punch a hole in the wall), you MUST walk away. You have to get away from the thing that's really irritating you. I ask people to walk away for a minimum of 15 minutes. Get out of the house; go for a long walk. But don't stay in the situation that's making you angry. Why 15 minutes? People will say, "I'm pretty calm after 5 minutes." But they go right back into the situation and they're instantly angry again. It takes quite a while for your emotional system to calm down. Time-Out must be at least 15 minutes. The more you do Time-Out, the more you learn to control your feelings, or hold back the flood of emotion. It's basically practice, practice, and more practice; just like learning to hit a ball with a bat. The more you try, the more likely you are to get better at it the next time. You can't just say, "Okay, I've got the principle on swinging a bat; now I'll go out and play major league baseball." You have to keep at it--so practicing "Time Out" is a good thing.

One of the problems with Time-Out is that people don't realize that they are angry until it's too late. For example, I had one patient who was waiting in a check-out lane in the store and there was a little child being a brat; picking things up, throwing them on the ground, yelling, screaming, and basically driving everybody in line crazy. The family member who was with the patient could see the anger starting to build. The jaw was tightening; the fists were clenching; the feet were tapping. The head-injured person didn't recognize the anger. This person finally "exploded" at the parent and said, "Shut your kid up!" There are cues that anger is building in us, and we've got to learn to pick them up. It may be tightening in the jaw; it may be clenching in the hands; it may be sweating more or breathing heavily. It depends on the person. I often request that family members help with Time-Out. (In fact, the family member is most often the target of the anger.)

I also have a rule for the time-out procedure: No matter who calls time-out (whether you feel it's fair or not), you've got to do it. If you're the head-injured person and someone calls time-out on you, you have to do the 15 minute Time-Out, even if you don't think you need it. You may get mad because someone's called a Time-Out procedure. You still need to do it. Family members, however, have to "play fair" with the time-out procedure--they can't chase after you with an ongoing argument (the No-Nagging rule). If you're trying to get out of the situation, family members must not run after you and say "Oh yeah, and here's another rotten thing you do." They've got to do their part by "shutting up" during Time-Out.

It helps if you have a signal for time-out. It might be like the referees in a football game, where they make a "T" with their hands. If it's in a crowd and you don't want to be obvious, you might pull on your earlobe or touch your nose. Whatever the cue that you and your family use, you've got to do it. The more you practice this technique, the more it works. The first few weeks, it may not seem like it's working. But keep at it; it will work over time.

Diffusion Tensor Imaging May Improve Diagnosis and Tracking of Mild Traumatic Brain Injuries

Investigators have found that a state-of-the-art brain imaging method may be useful for detecting and monitoring mild traumatic brain injury, a controversial diagnosis that is based largely on a patient's subjective experience.

The phrase traumatic brain injury tends to conjure the worst case scenario of a patient who suffers severe brain damage leading to severe disabilities, coma or death. However, most traumatic brain injuries are classified as mild. A mild traumatic brain injury typically involves symptoms of brain damage (such as mood changes or confusion), but no sign of damage based on a neurological exam or standard brain imaging techniques.

This definition or the lack thereof, complicates diagnosis. Some patients are told nothing is wrong with them.

The lack of objective measures for mild brain injuries also means there is no way to predict their course. "Although most patients recover completely from their injuries, approximately 5-20 percent of patients do not fully recover. We need a way to identify those patients early," said Andrew Mayer, Ph.D., a research scientist at the Mind Research Network and an adjunct assistant professor of neurology at the University of New Mexico in Albuquerque.

In a recent study, Dr. Mayer and colleagues at UNM found that diffusion tensor imaging (DTI) can be used to reliably detect and track brain abnormalities in patients with mild traumatic brain injury. The study was published in Neurology*, and was supported in part by the National Institute of Neurological Disorders and Stroke (NINDS).

DTI is a version of magnetic resonance imaging (MRI). It is most useful for visualizing the brain's white matter, which contains the fibers that connect nerve cells. DTI is more complicated than MRI in terms of data analysis, but most conventional MRI scanners are equipped to run DTI scans, Dr. Mayer said.

Dr. Mayer and his team used DTI and conventional MRI to examine the brains of 22 patients with mild traumatic brain injury and 21 control subjects. The two groups were matched for gender, education and age, and were 27 years old on average. All subjects were given neuropsychological tests to assess their ability to think, emotional state and somatic complaints (such as pain or perceived physical disability). Patients with mild traumatic brain injury were evaluated within 21 days of trauma, and each had a score of 13-15 on the Glasgow Coma Scale, a 15-point test of motor and verbal functions that is the current standard for diagnosis.

Conventional MRI did not reveal any differences between the patients with mild traumatic brain injury and the controls. In contrast, DTI revealed white matter abnormalities in the patients, and was better at discriminating patients from controls than were the neuropsychological test results.

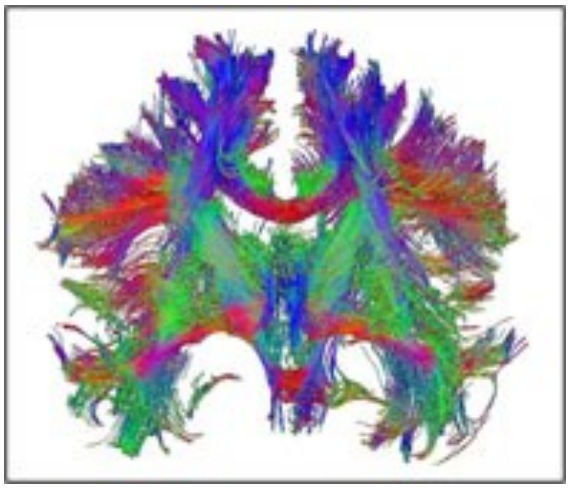
To determine if the DTI abnormalities correlated with symptoms of mild traumatic brain injury over time, the researchers asked subjects to return for a second evaluation 3-5 months later. This is a typical recovery timeframe for mild brain injuries. At the second visit, patients showed improvements on some of their neuropsychological test results and some of their DTI measures. Among the control subjects, there was no difference between DTI measures at the first and second visits.

The UNM study helps establish "DTI…as a potential biomarker of injury that may assist in classification and tracking of mild traumatic brain injury and its effects," according to a commentary by Erin Bigler, Ph.D., of Brigham Young University in Provo, Utah and the University of Utah in Salt Lake City, and Jeffrey Bazarian, M.D., M.P.H., of the University of Rochester School of Medicine in New York.**

Dr. Mayer currently has a grant from NINDS to conduct clinical studies of mild traumatic brain injury that combine DTI with other imaging techniques – such functional MRI and MR spectroscopy. A grant from NINDS funded through the American Recovery and Reinvestment Act (ARRA) will enable him to pursue similar analyses using magnetoencephalography (MEG). This is a sensitive technique for measuring the brain's electrical activity.

"We want to combine information across these imaging modalities to see if we can get a more coherent picture of mild traumatic brain injury, with more power to diagnose it and predict its course," Dr. Mayer said.

- By Daniel Stimson, Ph.D.



Brain Trauma Foods

Overview

Brain trauma, the result of a brain injury, may affect the way you feel, act, maneuver and think. According to the Brain Injury Association of America, 1.7 million people experience traumatic brain injuries annually, which may stem from falling, car accidents or assaults. Your symptoms depend on the severity of the cause and which area of your brain is affected. A healthy diet may help manage these symptoms and promote your overall health.

Fatty Fish

Fatty fish are prime suppliers of omega-3 fatty acids -- healthy fats that promote positive brain function and cardiovascular health. According to a July 2008 article in "UCLA Magazine" featuring Fernando Gómez-Pinilla, UCLA professor of neurosurgery and physiological science, omega-3 fats have been shown to minimize memory deficits in animal models of dementia and brain trauma. Fish particularly rich in omega-3 fats include salmon, albacore tuna, herring, sardines, halibut, mackerel, flounder and lake trout.

Curry Dishes

Curries are traditional Indian dishes seasoned with potent spices, including curcurmin. According to the "UCLA Magazine" report, curcumin may also help counteract brain trauma. Popular curry dishes rich in curcumin include dal tarka -- spiced lentil curry, chicken curry, vegetable curry and channa masala -- curried chickpeas. Curry dishes are available at Indian restaurants and grocery stores. You may also prepare your own

curry dishes using vegetables; a protein-source, such as tofu, fish or meat; and prepared curry powder blends, which typically contain curcurmin, or ground curcumin and other spices, such as pepper and garlic.

Fruits and Vegetables

Fruits and vegetables provide rich amounts of antioxidants -- nutrients that help prevent bodily damage caused by toxins known as free radicals. According to research published in "Stroke" in 2001, the antioxidant vitamin C may play an important role in brain trauma treatment and recovery. For the study, researchers examined the vitamin C levels in the plasma of 13 patients with intracranial hemorrhage and 15 patients with head trauma. All participants exhibited lower vitamin C plasma levels than healthy patients. Fruits and vegetables may also provide anti-inflammatory benefits and help reduce pain and swelling associated with brain trauma. Varieties particularly rich in vitamin C and other protective nutrients include berries, cherries, citrus fruits, kiwi, cantaloupe, papaya, mango, leafy greens, tomatoes, Brussels sprouts, broccoli, cabbage, bell peppers and winter squash.

Protein-Rich Foods

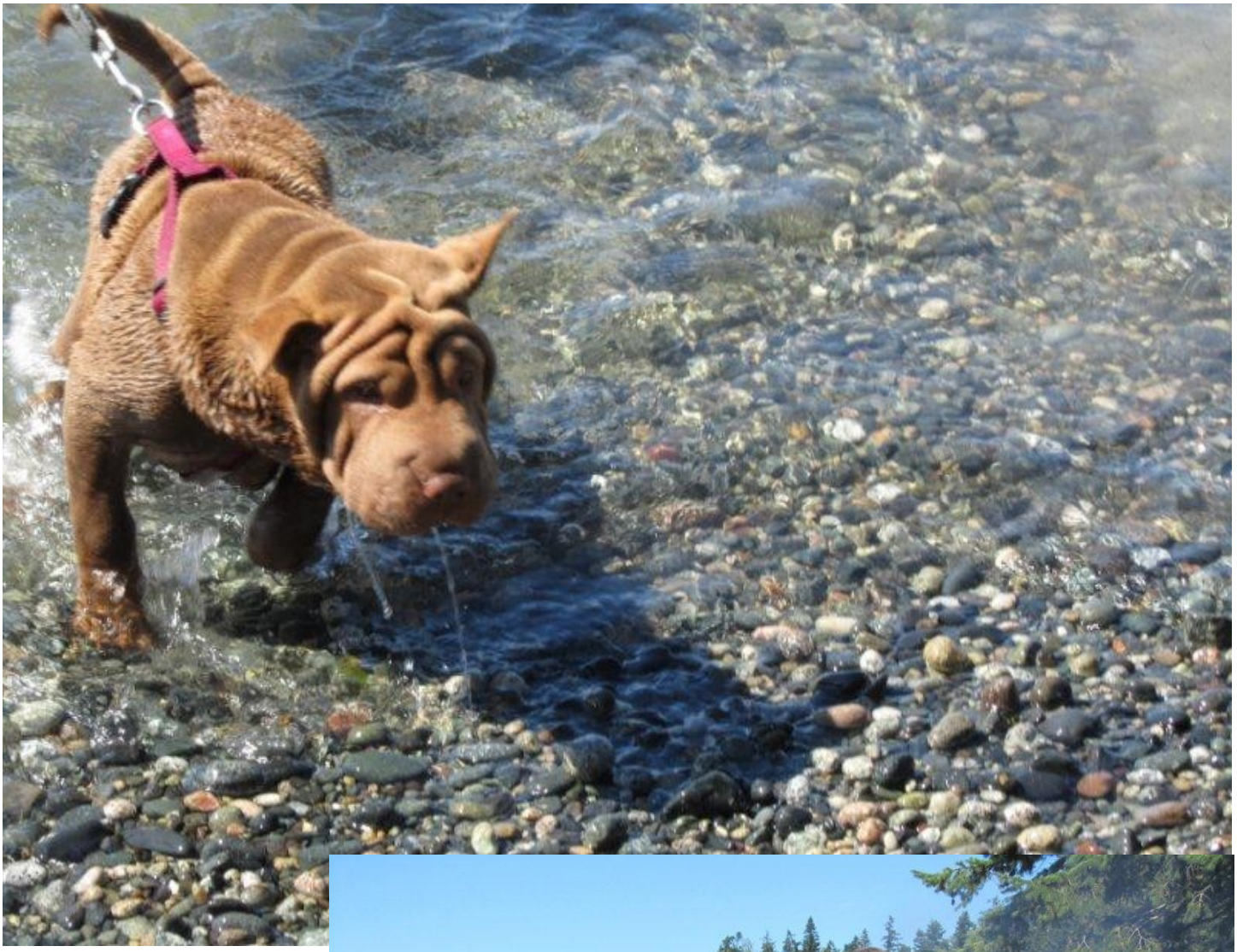
Protein provides amino acids -- the building blocks of lean tissue that play an important role in brain function. According to a report released by the University of Pennsylvania School of Medicine in December 2009, increased amino acid intake has improved and helped restore cognitive function in mice with brain injuries. To reap benefits of amino acids, incorporate high-quality, protein-rich foods, such as lean meats, seafood, low-fat dairy products and legumes, into your meals and snacks routinely. Since high-fat protein sources, such as organ meats and whole milk, contain high concentration of saturated fat, consume lean varieties most often.

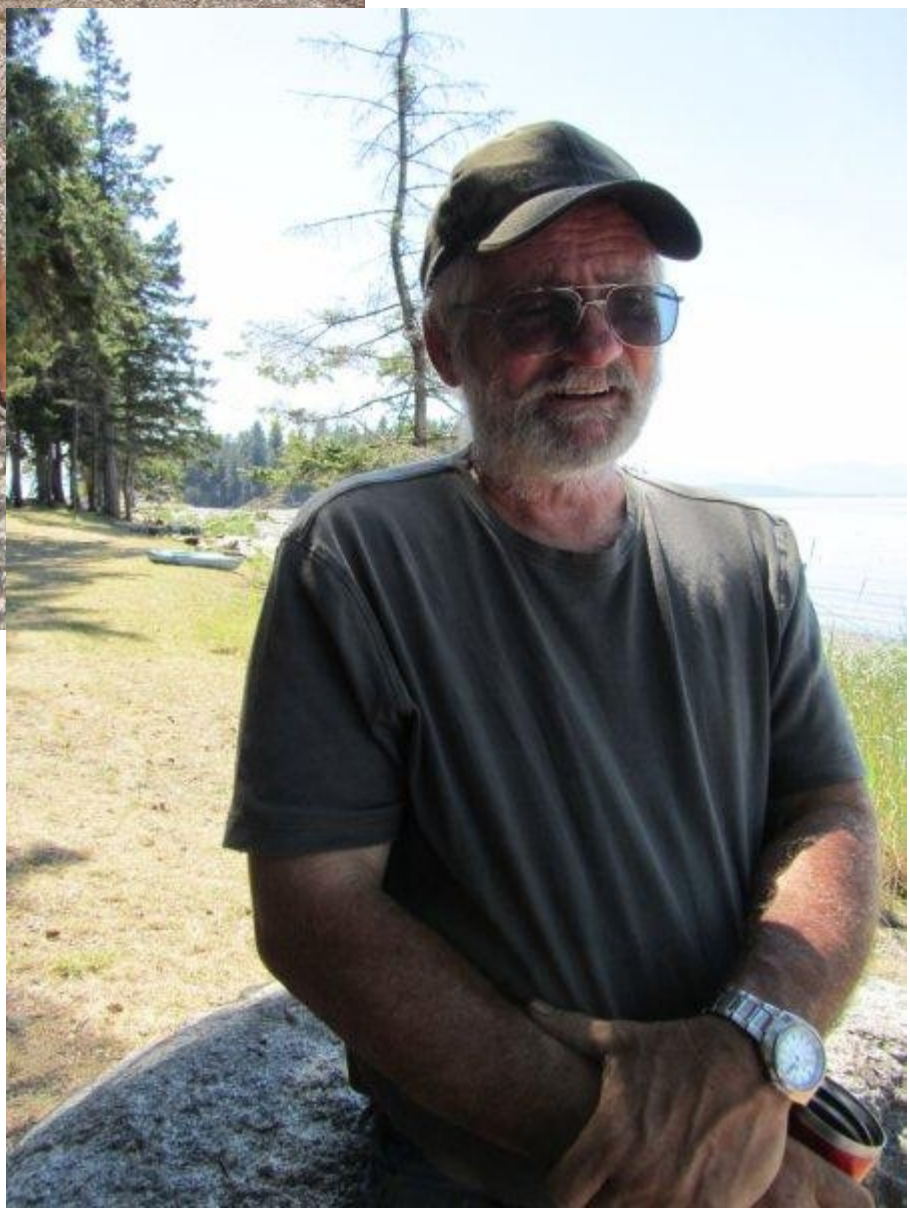
ANNUAL COMPANY PICNIC ON TEXADA ISLAND

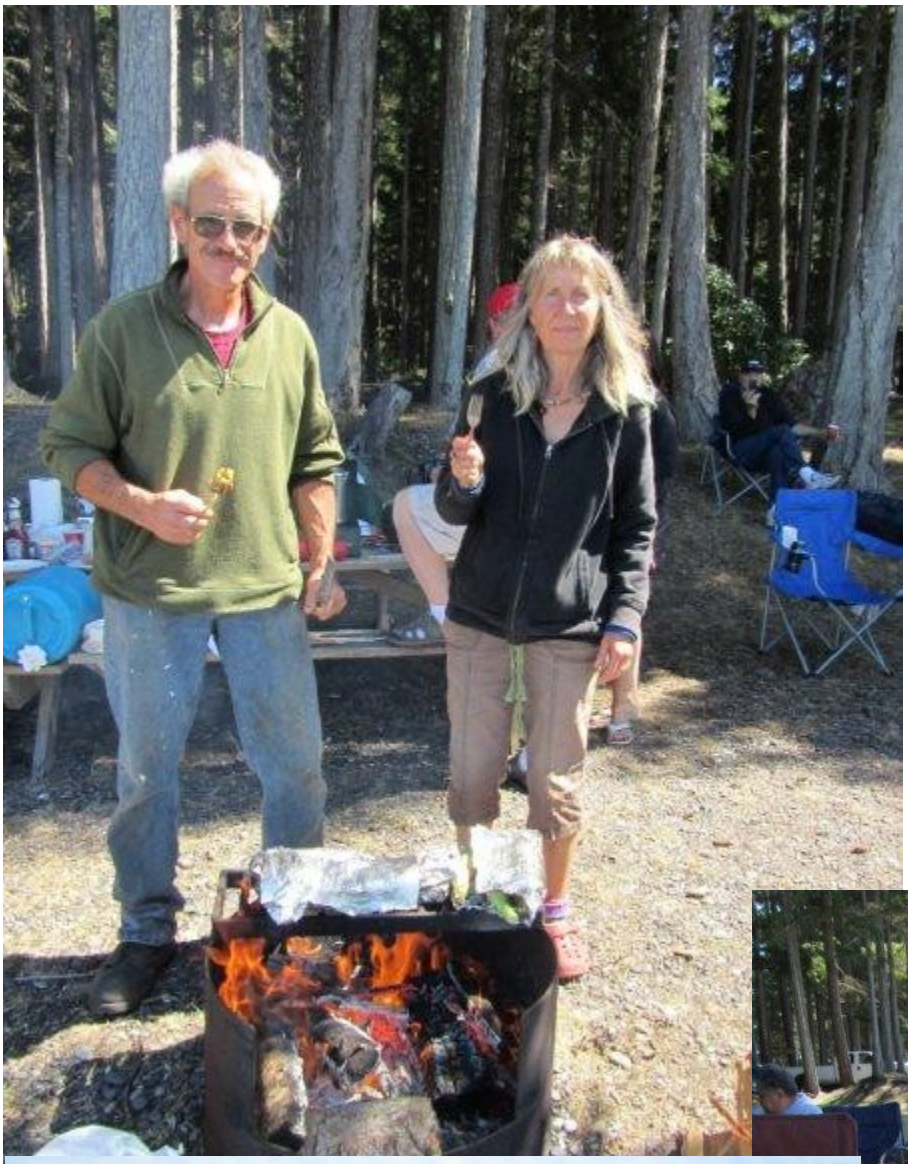
The 2011 Brainiac's and their dogs' picnic on Texada Island, Shelter Point park, was not only a success but an enjoyable, and great way to spend the day with friends. The food was excellent, the people were awesome, and the dogs were in heaven.

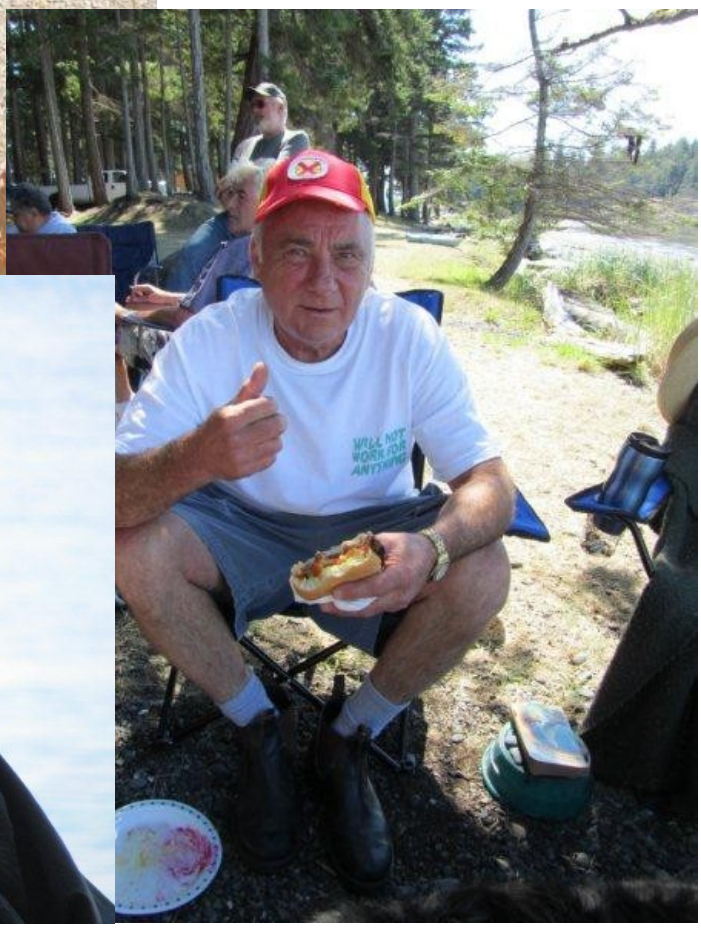
ATTENDEES THIS YEAR

DEBBIE, DONNA, LAURIE, JERRY, JEANETTE, JOSH, DANIEL, DIANA. MELISSA, AJAY, KEVIN, LAURINE, FRED, STACY, JIMMY, CINDY, HAROLD, DEWAR, RUSS, ADELL, JEFF, SANDRA, HOWARD,RICK MASON and 2 guests, RICK GRATION and his wife. And of course the dogs SOPHIE, SARGE, ROCKO,EMMA, LUCY.





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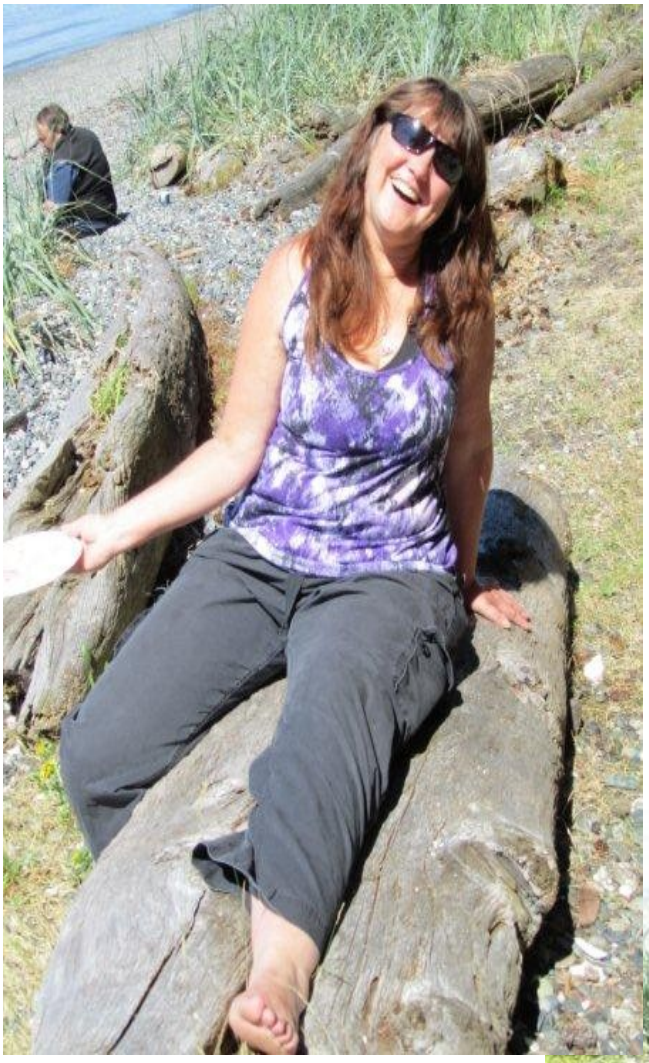


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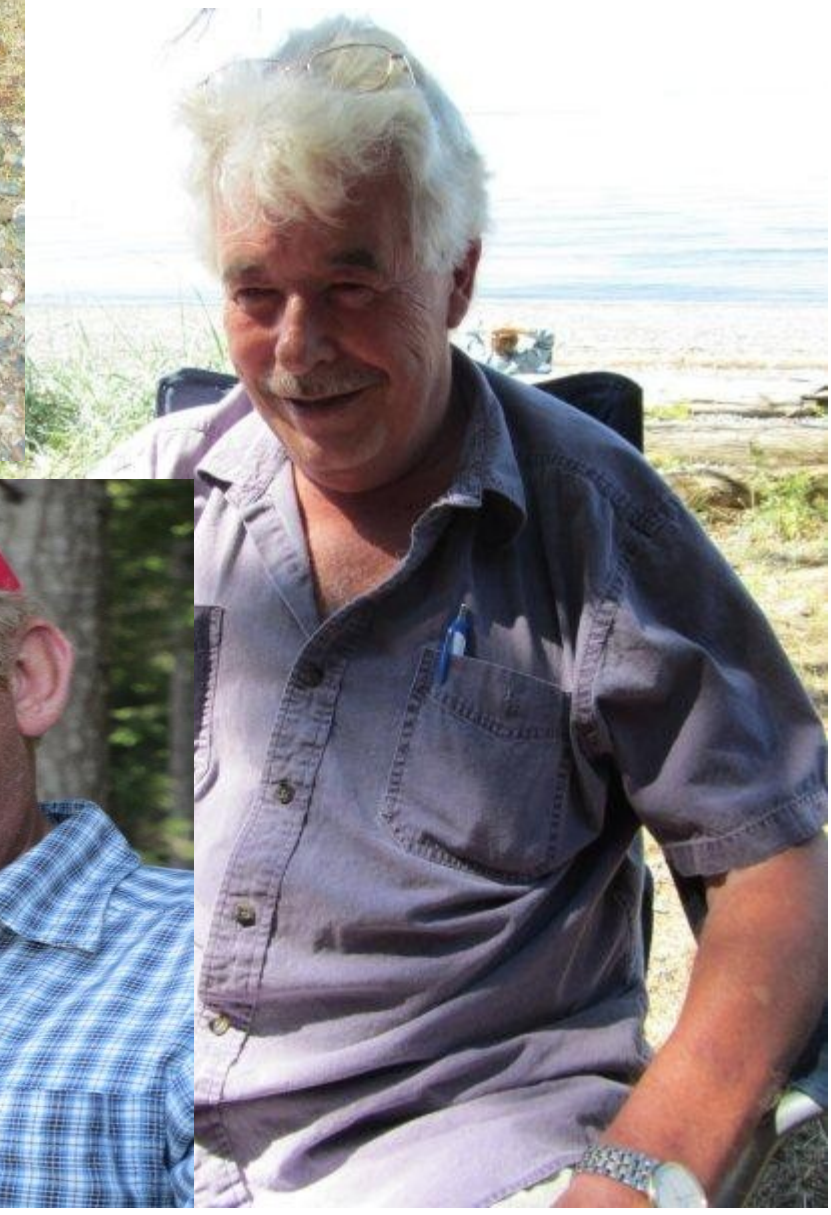
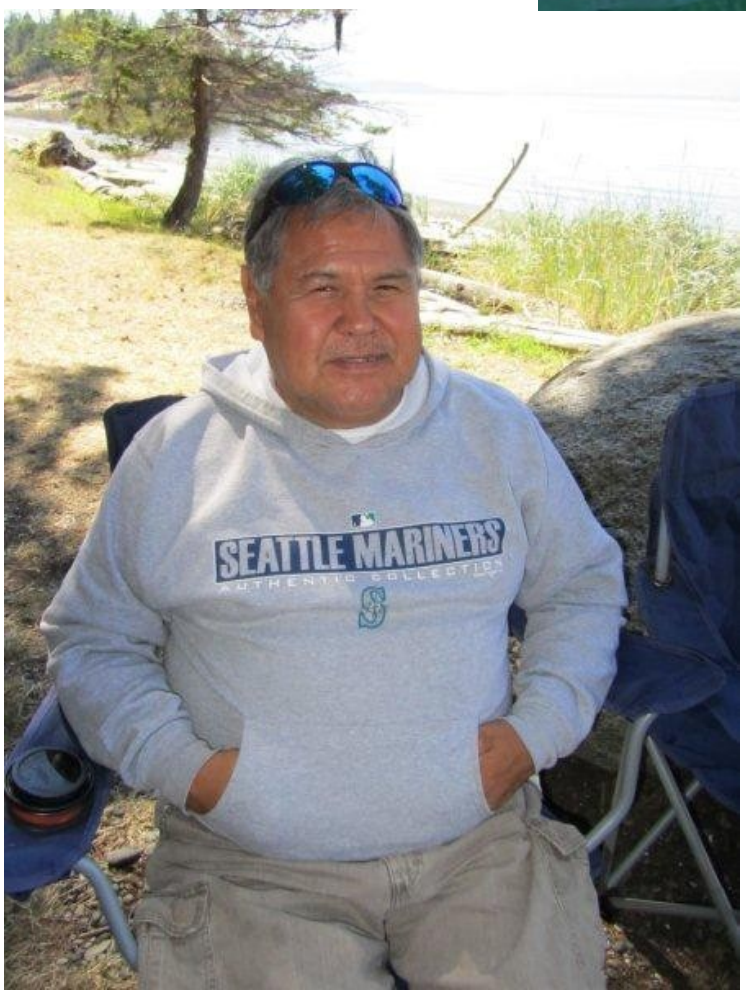



SEATTLE MARINERS

Healthy Welders May Be at Increased Risk for Early Brain Damage

New research suggests that workers exposed to welding fumes may be at risk for developing brain damage in an area of the brain also affected in Parkinson's disease. The study is published in the April 6, 2011, online issue of Neurology®, the medical journal of the American Academy of Neurology.

Fumes produced by welding contain manganese. Manganese is a chemical element that, even at low levels, has been linked to neurologic problems, including Parkinson's disease-like symptoms.

"There are over one million workers who perform welding as part of their job functions in the United States," said Brad A. Racette, MD, with Washington University School of Medicine in St. Louis and a Fellow with the American Academy of Neurology. "If a link between neurotoxic effects and these fumes were proven, it would have a substantial public health impact for the U.S. workforce and economy."

The study involved 20 welders with no symptoms of Parkinson's disease, 20 people with Parkinson's disease who were not welders and 20 people who were not welders and did not have Parkinson's. The welders were recruited from two Midwest shipyards and one metal fabrication company. All participants were given brain PET and MRI scans, motor skills tests and examined by a neurologist who specializes in movement disorders. The welders had an average of 30,000 hours of lifetime welding exposure. Their average manganese levels were found to be two times the upper limits of normal.

Scientists found that welders had an average 11.7 percent reduction in a marker of dopamine in one area of the brain on PET scans as compared to people who did not weld. Dopamine is a chemical messenger that helps nerve cells communicate and is decreased in specific brain regions in people with Parkinson's disease. The welders' motor skills test scores also showed mild movement difficulties that were about half of that found in the early Parkinson's disease patients.

"While these changes in the brain and dopamine dysfunction may be an early marker of neuron death related to welding exposure, the damage appeared to be different from those of people with full-fledged Parkinson's disease," said Racette. "MRI scans also revealed brain changes in welders that were consistent with manganese deposits in the brain."

"Although this study shows that these workers had dopamine dysfunction in the brain, the study authors could not determine whether this was specifically related to manganese," said W. R. Wayne Martin, MD, who wrote an accompanying editorial on the topic. Martin is with the University of Alberta in Edmonton, Alberta, Canada and a member of the American Academy of Neurology. "Will these individuals develop full-fledged Parkinson's disease? We can't answer that question based on the study but more research should be done to explore this possibility."

The study was supported by the Michael J. Fox Foundation, the National Institutes of Health, the American Parkinson Disease Association, Advanced Research Center at Washington University, the Great St. Louis Chapter of the ADPA, the McDonnell Center for Higher Brain Function and the Barnes-Jewish Hospital Foundation.

Lots of people with TBI have issues with sleep. They either sleep "too much" or they have trouble falling asleep and/or staying that way. I'm one of those people. After my last TBI, I was awake every morning at 3 a.m. and couldn't get back to sleep. What a miserable time that was. I have also had a lot of trouble falling asleep.

Yes, I've been struggling with sleep issues for quite some time, and if you've come across this blog in the past, chances are you've heard me talk about it. I've tried everything from homeopathic sleep aids to Benadryl to stretching to progressive relaxation to working myself ragged to forcing myself to go to bed every night at 10 p.m. It's been a continuous struggle, and I'm pretty sick of it.

Recently, I have started to do things a little differently, and it's actually helping me to feel more rested and get more sleep. I also don't walk around with dark circles under my eyes all the time, anymore. For about a year, I was looking pretty ragged at times. But now I think I've found something that works for me: breaking up my sleeping patterns with "starter naps".

Conventional wisdom (at least in my mind) says that you need 8 continuous hours of sleep each night – possibly more – to be fully functional. Studies have shown this, and people have written about it.

But I've also come across mentions (primarily not in scientific circles) about sleeping in smaller increments, and getting up in between to do other things — getting no more than 4-5 hours of sleep at a time, but sleeping more frequently.

Now, I don't think either one actually works 100% for me. The first one is almost impossible for me to do, because of my schedule and work life. The second one definitely would be a problem.

What does work for me, is lying down on the couch later in the evening, but well before when I really want to go to bed, and letting myself take a little nap for an hour or so before I actually go to bed. It probably sounds counter-intuitive, like I'm messing up my sleep schedule, but it's actually helping me get better rest.

See, when I'm over-tired, I tend to stay up later. In fact, the more tired I am, the harder it is for me to relax and fall asleep. Also, I don't much care for the idea of going off to bed at 9:30 at night. I really don't want to – I want to stay up and watch television and hang out with my spouse. And even when I do go to be early, I often wake up early, like around 3 or 4 in the morning, and then I can't get back to sleep.

So, after dinner, when we're sitting down to watch a movie, I'll watch for a while, then I'll be so tired, and I'll lie down on the couch where I can watch lying down. Pretty soon, I'll be asleep, and I'll rest for maybe an hour or two… sometimes three. When I wake up (say, around 1 a.m.), I still feel tired, and I really feel like going to bed. So, I do.

And I sleep through the night — even till 7:00-7:30 a.m. sometimes, which is new for me, after not being able to sleep past 5:30 for quite some time.

Not only do I get sleep earlier in the evening, but I still manage to get another six hours — which is what I used to get without a "starter nap".

All in all, I think I'm sleeping more than I have in the past. I'm just doing it in different bits and pieces. The important thing is to not tell myself I'm doing things "wrong". This works for me, and it's helping. So, I'm sticking with it as long as it works.

from ***the Broken Brain – Brilliant Mind blog)***

Young people who have sustained a head injury during their lifetime are more likely to engage in violent behavior, according to an eight-year study from the University of Michigan School of Public Health.

Further, the research found that young people who suffered a recent head injury (within a year of being questioned for the study) were even more likely to report violent behavior.

The report, which appears in the current issue of the journal Pediatrics, is one of the few studies to examine long-term effects of head injuries in a general population of young adults. Most other similar studies were conducted in prison populations.

There's been a recent blitz of media and research attention regarding youth, college and professional athletes who suffer head injuries and concussions while playing. This study is broader, but confirms previous findings about the connection between violence and head injuries, says lead author Sarah Stoddard, a research assistant professor at the School of Public Health.

"These are not necessarily sports-playing injuries," said Stoddard, who also is a research fellow at the U-M School of Nursing. "They could be from a car accident or from previous violent behavior, but it does support some of the sports research that's been going on with concussions."

Stoddard used data from the School of Public Health's Flint Adolescent Study, which looks at many issues regarding urban youth. Marc Zimmerman, professor of public health and chair of the U-M Department of Health Behavior and Health Education, is the principal investigator on that study.

The researchers followed a group of ninth-graders from four schools in Flint, Mich., into young adulthood. They conducted annual interviews over eight years. In years five and six, participants were asked if they had ever sustained a head injury. Those who said yes -- about 23 percent -- reported more violent behavior in year eight of the study.

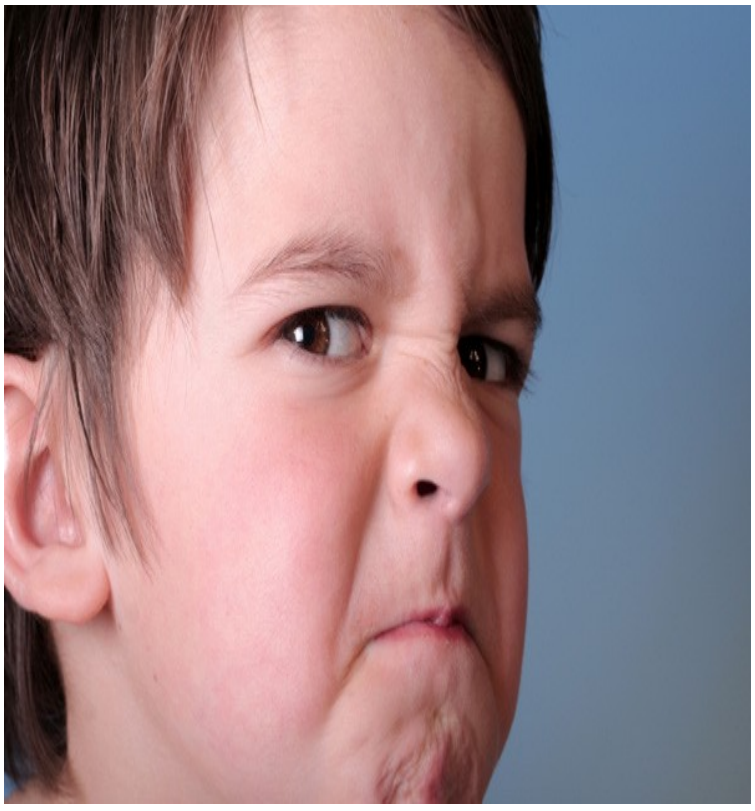
Moreover, Stoddard and Zimmerman examined the proximal relationship between a head injury and violent behavior and found that an injury reported in year seven of the study predicted violent behavior in year eight.

"We found that the link between a head injury and later violence was stronger when a head injury was more recent, even after controlling for other factors including previous violent behavior," Stoddard said.

The results also suggest that adolescents and young adults who have suffered a head injury that did not interfere with their ability to participate in an hour-long interview may still experience significant adverse developmental or behavioral effects.

The researchers defined a head injury as having been knocked unconscious or sustaining a concussion or a fractured skull.

Traumatic brain injury is a serious public health issue, they say. An estimated 1.7 million people annually sustain a TBI, and that only includes people who get medical care, so the number is likely much higher. Roughly 75 percent of head injuries are mild and many do not receive medical attention, but any TBI disrupts the function of the brain. Long-term impact can include changes in cognition, language and emotion, including irritability, impulsiveness and violence.



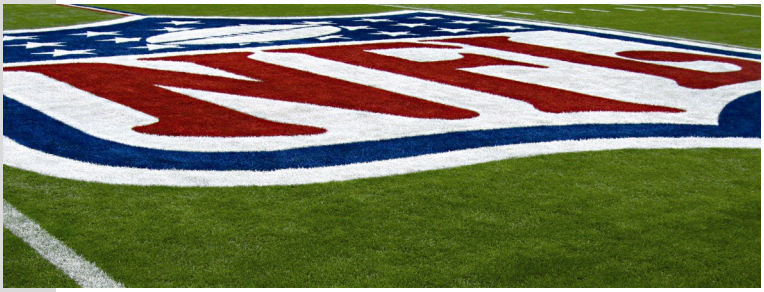
NFL Funds new Brain Injury Research

While there has been a great deal of progress in researching and understanding the consequences and causes of brain injuries, there is still much that we do not know about the long term consequences of concussions and brain injuries.

The National Football League has recognized previous studies that show that concussions and brain injuries can have serious long-term consequences, including increased risks of dementia, mental illness, and drug addiction. This week, NFL charities announced it is giving more than $1.6 million in grants to 16 institutions across the country that do medical research, including $1 million in grants to programs focusing on brain injury prevention and treatment.

Part of the grant money is headed for the University of California San Diego's research program into a new way of detecting brain injuries that a CT scan or MRI can miss. Their new technique is called Magnetoencephalography (MEG) and Diffusion Tensor Imaging. MEG scans can detect brain injuries by measuring the speed of brain waves, and slower-than-normal brain waves brain are an indicator that a brain injury has occurred.

So far, the MEG program has been funded by the Navy, the Department of Veterans Affairs and the Brain Trauma Foundation. It has focused on brain injuries suffered by military personnel. With the new funding, researchers hope to expand the study to include high school and college athletes. Researchers believe expanding the study will help improve diagnosis of brain injuries by using measurements of brain waves to calculate how much energy the brain is using, and then measuring that information against memory and behavior tests taken while brain injury victims are recovering.



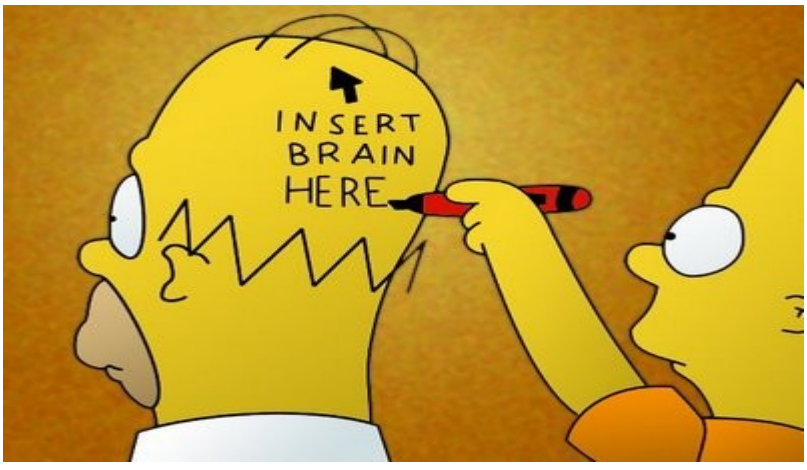
Bad Brain Joke of the month

Once upon a time there was a female brain cell which, by mistake, happened to end up in a man's head. She looked around nervously because it was all empty and quiet.

"Hello?" she cried, but no answer. "Is there anyone here?" She cried a little louder, but still no answer. Now the female brain cell started to feel alone and scared and yelled at the top of her voice,

"HELLO, IS THERE ANYONE HERE?"

Then she heard a faint voice from far, far to the south.....



THE REAL SMART CAR

Two Doctors opened offices in a small town and put up signs reading Dr Smith and Dr Jones "Psychiatry and Proctology." The town council were not too happy with the sign and so the doctors changed it to "Hysterias and Posteriors". This was not acceptable either, so in an effort to satisfy the council they changed the sign to " Schizoids and Hemorrhoids". The town didn't like that either and countered with " Catatonics and High Colonics." Thumbs down again.

By now the story appeared in the local paper and suggestions began rolling in:
"Manic-depressives and anal retentives"
"Minds and Behinds"
"Lost souls and Assholes"
"Analysis & Anal Cysts"
"Nuts & Butts"
"Freaks & Cheeks"
"Loons & Moons

None of these satisfied one or the other side, but they finally settled on

"Dr Smith & Dr Jones, Odds & Ends".

News From Melissa's Jewelry World

Hi!! This month I have been working on a new project making blood and snow glob vials. For the blood vials I filled up the glass vial with red food coloring and water. I was excited

to see how it turned out. The snow globe like vials have been fun to do filling each one with glitter and other small objects and seeing how each one is different.

I am looking forward to making each vial into a necklace.

Weird. There seems to be very little written on this page.

To be continued...on page 40

The pituitary gland and TBI

The pituitary gland is a tiny part of the brain. It's about the size and weight of a small grape, and it lives smack in the center of the brain. It dangles from the hypothalamus on a short, cord-like structure called the infundibulum, and snuggles nicely into a little bony depression in the skull called the sella turcica (translation, Turkish saddle).

And yet, for it's size, this little gland is in charge of some pretty important hormones. For instance, the front part of the pituitary gland is in charge of releasing thyroid and adrenal hormones such as TSH and ACTH, sex hormones such as FSH and LH (important for fertility), and the mammary hormone PRL (important for lactation). The front part is also in charge of growth hormone (GH), which is critical for the body to grow and develop properly. Melatonin, which is critical for sleep cycles, is another important hormone related to the front of the pituitary gland. The back part of the pituitary gland releases hormones important to kidney function (ADH) and to childbirth (oxytocin).

In short, if you mess this little gland up, you're going to experience a wide range of unpleasant problems.

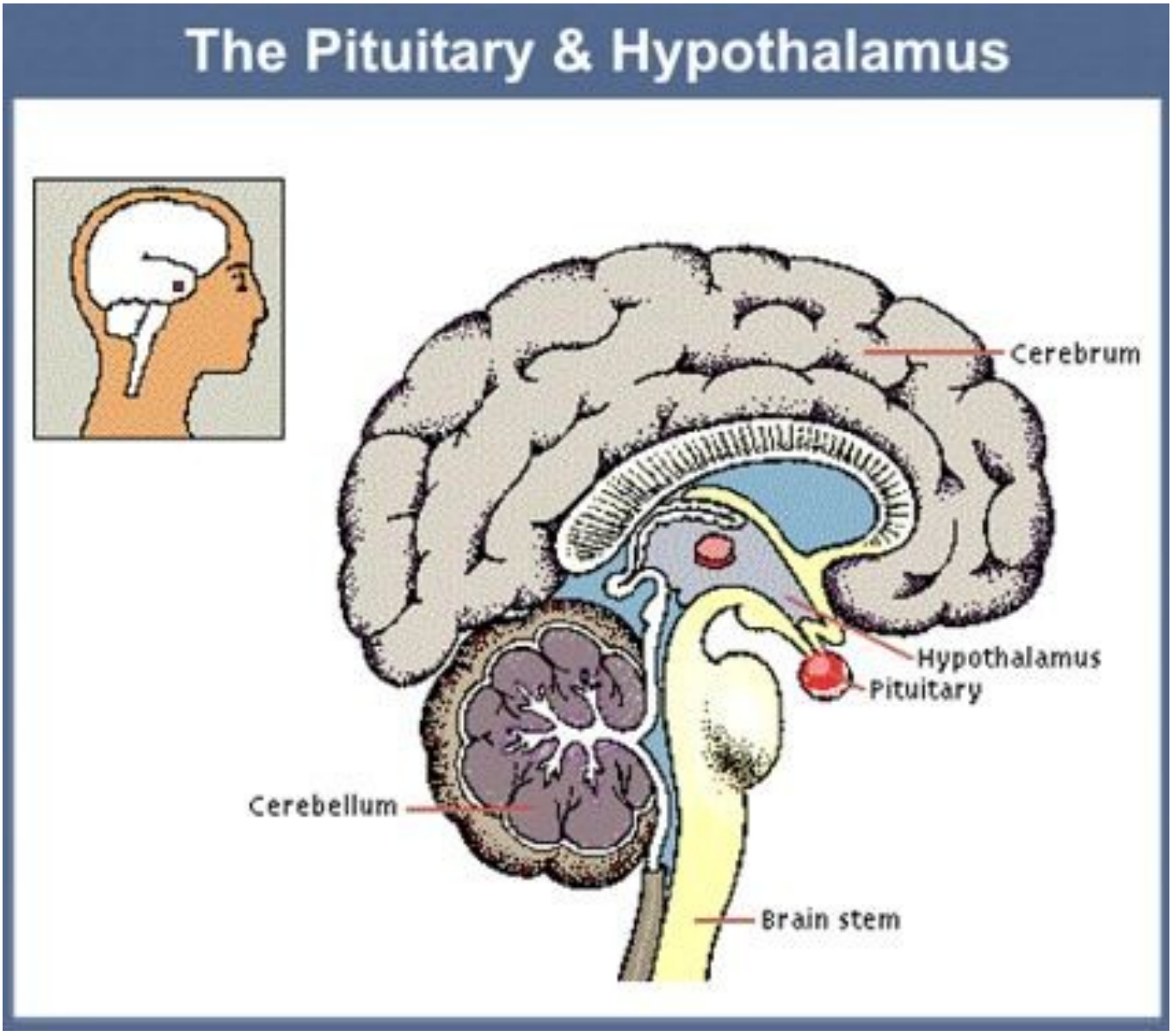
We now recognize that traumatic brain injury patients have a high incidence of pituitary dysfunction. Think about the structure of the pituitary gland and how it's protected by the skull. The pituitary gland may seem well-protected at first glance, but put it through the test of even a minor brain injury and you begin to see problems. The infundibulum, that little cord-like stalk, can be sheared just as the thick cords of axons can be sheared in a diffuse axonal injury. The pituitary gland itself can be trapped and compressed by the sella turcica structure it sits in, producing swelling and herniation.

Recent research has been describing unexpectedly high numbers of chronic hormone problems in TBI related to pituitary gland (and hypothalamus, since they are connected) damage. Although many patients show multiple pituitary hormone deficiencies, common problems include growth hormone dysfunction, diabetes, hypogonadism, and also sleep problems. Pituitary damage is related to negative

outcomes such as difficulties in recovery and rehabilitation, worsened neurological symptoms, mental illness, and death (Jeong, 2009; Krahulik, 2009)

Since pituitary gland dysfunction is often overlooked in the emergency room, recent studies have indicated the need for routine pituitary screening in TBI patients (ven der Eerden, 2009). Other studies are looking into hormonal replacement therapy as potential treatment. In one study, amateur boxers responded well to growth hormone therapy (Tanriverdi, 2009) and there are other clinical trials in the works.

Although pituitary dysfunction in TBI is just now getting proper recognition, the diagnosis and treatment promises to be fairly straightforward and positive



The next tool in the campaign against concussions might be your smartphone

A concussion expert at the University of North Carolina teamed with other head-trauma researchers to develop an application for mobile devices that helps determine whether someone may have suffered a concussion.

Jason Mihalik of UNC's brain injury research center joined Justin Smith of Psychological Assessment Resources Inc. and the Children's National Medical Center in developing the program.

Smith says it's the first observer-based concussion app. After the user answers a series of questions, the app determines the likelihood of a concussion and can email information to a doctor. Mihalik said Thursday that the basis for the app's question flow comes from materials provided by the Centers for Disease Control.

The introduction of the app is just one way to speed the response to possible concussions. One of the key issues discussed during the National Sports Concussion Cooperative's daylong seminar was how to most effectively bridge the communication gap between team doctors and the team athletic trainers, who often are the first to act when players suffer concussion-like symptoms.

"The documentation (of immediate symptoms) is very important, from, 'How did they get hurt?' to the mechanism of injury through those initial signs and symptoms, to 'How did they progress over time?'" said Bill Griffin of the National Athletic Trainers' Association. "It's not only what happens at the time of the injury, but how things change."

The cooperative consists of coaches, doctors, equipment manufacturers and parents, and the group was formed in March to study concussions and brain trauma injuries in an attempt to make sports safer.

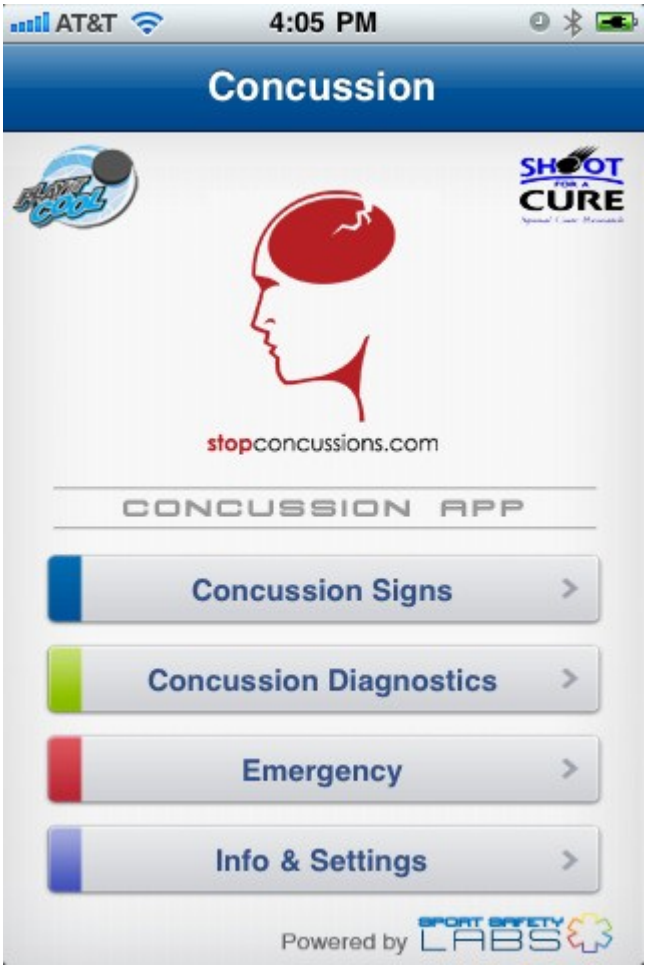
"We're trying to do more. We think there is an opportunity to do more," said Art Chou, Rawlings' vice president of research and development. "The caution that we have as manufacturers is, are we ready to draw definitive conclusions? ... There's a balance there, and I think it's up to the research community to determine whether it is ready for prime time or not, because the issue is going to be one of public perception.

"The issue is, have we confused the public? ... I would like to see more consensus from the research community that supports that, because we need more data. We need to move the needle. ... The last thing we need, I think now, as a whole football community, is going back and forth and confusing the issue any more."

Mike Oliver, the executive director of the National Operating Committee on Standards for Athletic Equipment, continued to express a longstanding desire to come up with a safety standard for youth helmets.

But he cautioned that it's dangerous to rush to a conclusion before the scientific research is complete. NOCSEA, a nonprofit corporation, formed in 1969 in response to a need for a performance test standard for helmets.

"You want to have an answer. You want to have a solution to the problem," Oliver said. "You want to be able to say ... 'We do have a solution to the problem and you can have a level of confidence (that) you will have a level of protection. ... But we can't do that until we have the science behind it."



New Understanding Of How We Remember Traumatic Events

Neuroscientists at The University of Queensland have discovered a new way to explain how emotional events can sometimes lead to disturbing long term memories.

In evolutionary terms, the brain's ability to remember a fear or trauma response has been crucial to our long term survival.

However, in the modern world, when a similar type of fear response is triggered by a traumatic event such as being in combat; being exposed to abuse or being involved a major car accident, we do not want to repeatedly re-experience the episode, in vivid detail, for the rest of our lives.

During studies of the almond-shaped part of the brain called the amygdala – a region associated with processing emotions – Queensland Brain Institute (QBI) scientists have uncovered a cellular mechanism underlying the formation of emotional memories, which occurs in the presence of a well known stress hormone.

In a scientific paper published in the Journal of Neuroscience, QBI's Dr Louise Faber and her colleagues have demonstrated how noradrenaline, the brain's equivalent of adrenaline, affects the amygdala by controlling chemical and electrical pathways in the brain responsible for memory formation.

"This is a new way of understanding how neurons form long term memories in the amygdala," Dr Faber said.

"Our strongest and most vivid human memories are usually associated with strong emotional events such as those associated with extreme fear, love and rage."

"For many of us, our deepest memories are mental snapshots taken during times of high emotional impact or involvement," she said.

"Some aspects of memory formation are incredibly robust – and the mechanism we've discovered opens another door in terms of understanding how these memories are formed."

Dr Faber said her team's discovery could help other scientists to elucidate new targets, leading to better treatments for conditions such as anxiety disorders and post-traumatic stress disorder.

Magnesium protects against neurological deficit after brain injury

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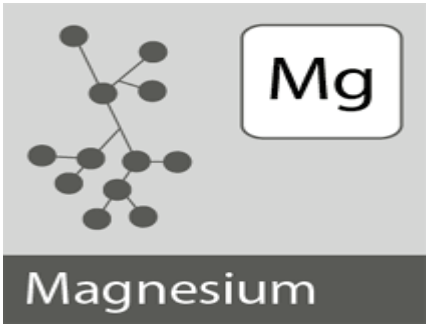
The biochemical factors that mediate secondary or delayed damage to the central nervous system (CNS) remain speculative. We have recently demonstrated that brain injury in rats causes a rapid decline in brain intracellular free magnesium (Mg2+) and total magnesium concentrations that is significantly correlated with the severity of injury. In order to further investigate the relationship between Mg2+ and brain injury, we examined the effect of Mg2+ treatment on posttraumatic neurological outcome following fluid-percussion brain injury (2.0 atm) in rats. Since administration of ATP-MgCl2 has been shown to be beneficial in a variety of models of organ ischemia, we also examined the efficacy of ATP-MgCl2 or ATP alone in the treatment of experimental brain injury. Animals treated with low (12.5 µmol) or high (125 µmol) dose MgCl2 at 30 min postinjury showed a significant dose-dependent improvement in neurological function when compared to saline-treated controls. Treatment with ATP-MgCl2 (12.5 µmol) or ATP alone (12.5 µmol) caused no significant improvement in chronic neurological outcome. MgCl2 -treated animals showed no change in postinjury mean arterial blood pressure (MAP), whereas animals treated with either ATP-MgCl2 or ATP alone showed a transient but significant fall in MAP ($P<0.01$) during the drug-infusion period. Our results suggest that postinjury treatment with MgCl2 is effective in limiting the extent of neurological dysfunction following experimental traumatic brain injury in the rat.



Neuroscientists Uncover Neural Mechanisms of Object Recognition

— Certain brain injuries can cause people to lose the ability to visually recognize objects -- for example, confusing a harmonica for a cash register.

Neuroscientists from Carnegie Mellon University and Princeton University examined the brain of a person with object agnosia, a deficit in the ability to recognize objects that does not include damage to the eyes or a general loss in intelligence, and have uncovered the neural mechanisms of object recognition. The results in the July 15th issue of the journal Neuron, describe the functional neuroanatomy of object agnosia and suggest that damage to the part of the brain critical for object recognition can have a widespread impact on remote parts of the cortex.

"One of the persisting controversies in the field of visual neuroscience concerns the regions of cortex that subserve the human ability to recognize objects as efficiently and accurately as we do, and it's been an elusive topic until now," said Marlene Behrmann, professor of psychology at CMU and an expert in using brain imaging to study the visual perception system.

To gain new insight into the neural basis of object recognition, the research team used neuroimaging and behavioral investigations to study visual and object-selective responses in the cortex of healthy controls and a participant called SM who, following selective brain damage to the right hemisphere of the brain, exhibited object agnosia.

The researchers discovered that the functional organization of the "lower" visual cortex, where the image from the retina is initially processed, was similar in SM and control subjects. However, SM exhibited decreased object-selective responses in the brain tissue in and around the brain lesion, and in more distant cortical areas that are also known to be involved in object recognition. Unexpectedly, the decrease in object-selective responses was also observed in corresponding locations of SM's structurally intact left hemisphere.

"What was perhaps the most dramatic, controversial and counter-intuitive result was that while the lesion was in the right hemisphere, and quite small, we found that the same region in the left hemisphere was also not operating normally," Behrmann said.

She added, "These results will force us in the field to step back a little and rethink the way we understand the relationship between brain and behavior. We now need to take into account that there are multiple parts of the brain that underlie object recognition, and damage to any one of those parts can essentially impair or decrease the ability to normally recognize objects."

Additionally, the researchers found that an area of the brain called the right lateral fusiform gyrus is vital for object recognition. There also appeared to be some functional reorganization in intact regions of SM's damaged right hemisphere, suggesting that neural plasticity is possible even when the brain is damaged in adulthood.

"To our knowledge, this study constitutes the most extensive functional analysis of the neural substrate underlying object agnosia and offers powerful evidence concerning the neural representations mediating object perception in normal vision," said Christina Konen, a postdoctoral fellow at Princeton and lead author of the study.

Huh. Once again, nothing on this page. Getting suspicious yet?

Message from the Harley riding, tattooed, blues singing, picnic organizing, barbeque queen leader of the brainiacs…

Hello and welcome to the September edition of the Powell River Brain Injury Society Newsletter:

I hope you have all been enjoying a safe summer and having lots of fun despite the cooler weather this year. Actually, except for the motorcycle riding in the rain part this has been a pretty good summer her in Powell River. All the festivals went on without hitch, except that the blackberries didn't ripen quick enough for their festival, and it went off perfectly well without them!

This fall we will be heading back into the elementary schools to give our fall and winter safety presentations. We are also very grateful to Save On foods and Sun FM for choosing our Society as their summer fundraising recipient. Until the end of September you can donate your points at Save On Foods and they will convert them to cash and double them as a donation to our group activities. We are also in the planning stages of our annual dance event. This year with a twist. It is the first time in 8 years that we have not had Incognito come as our blues band. This year we are very happy that Sam Hurrie and his band will be playing for our dancing enjoyment. Our theme this year is "A Medieval Feast" and we are having fun organizing and very much looking forward to the event. Kings and Queens and Knights of the Round Table with jugglers and jesters and bards galore…sword fighting and jousting and flaming arrows after dark! Woo Hoo…. here ye here ye…don't miss it!

We have more fundraising to tell you about for November, but for now…let's enjoy the crisp fall air.

So, read on and enjoy tis edition of the newsletter and take in all that was summer for us. Talk soon…Stay Safe!

Respectfully,

Debbie Dee

Executive Director

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