



TBI

Model System Updates

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Nutrition and Brain Health

By: Taylor Obata

Good nutrition is an important topic for anyone looking to improve or maintain their health, regardless of whether they have experienced a traumatic brain injury. For those who have experienced a TBI, good nutrition can be an easily attainable way to improve their recovery outcomes.

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Nutrition and Brain Health (continued from cover)

By: Taylor Obata

Since early fall is a time of abundantly available produce here in Washington, we decided to do a newsletter focused on nutrition in order to help our readers take advantage of the harvest season.

Sara Lynch MS, RD is an Ambulatory Care Dietician who works in the Comprehensive Outpatient Rehabilitation Program (CORP) at Harborview Medical Center. She has given multiple presentations on nutrition and brain health, and is highly regarded for her knowledge in this topic. I reached out to Sara to learn about what she recommends to patients who want to improve their brain health. Here's a summary of what she told me as well as some additional information about which foods can be found in the Northwest region, especially during the late summer and early fall.



For a long time, it was common to hear that fat was bad, and we should all lower the fat in our diets ([Staff, 2006](#)). In the last few years, there has been a change in the conversation. Now most dietitians recommend eating more of some types of fat, and less of others. The “good” fats are those found in foods like salmon and tuna which are rich in Omega-3 Fatty Acids. Research has shown a strong connection between increasing Omega-3s in the diet and slowing cognitive decline, treating mental illness, decreasing cardiovascular risk, and improving eye health. The fats we should limit are saturated, such as those in cheese and beef, as well as trans fats, which are found in cookies and other baked goods, and in fried fast foods like French fries. The FDA requires companies to list these on nutrition labels, so be sure to check when choosing foods at the store ([FDA, 2015](#)).

Some good sources of Omega-3 Fatty Acids are fatty fish such as: salmon, tuna, mackerel, sardines, herring, and trout. Salmon is the iconic Northwest fish, and summer is a great time to find fresh salmon at the grocery store or from local seafood suppliers. Mackerel and rainbow trout are also great options for locally sourced fatty fish. Some other sources of healthy fatty acids are: walnuts, flaxseed, soybeans, and canola.

Another tip from Sara is to eat dark, leafy greens. These include: spinach, kale, Swiss chard, dark lettuce such as romaine, and arugula. Many varieties of leafy greens grow well in the



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Northwest region since they prefer cooler summers and tolerate shade well. Locally produced leafy greens can be found for many months out of the year ([Miles et al., 2013](#)). One reason leafy greens are great to eat is because they are rich in Vitamin E. Sara recommends eating food sources of vitamin E, rather than taking supplements. Other sources are: nuts, whole grains, vegetable oils (canola, olive, and peanut oils), and seeds.



A key to a healthy diet that you may have heard before is balance. Make sure that you have a balance of protein, good fats, and complex carbohydrates in your meals. Ideally, you should consume 5-9 servings of fruits and vegetables a day. Fruits that are high in antioxidants are especially good for your brain and include: blueberries (highest), blackberries, black plum, raspberries, strawberries, navel oranges, sweet cherries, and red grapes. Many of these fruits grow well in the Northwest, and Washington State is the top producer of sweet cherries in the United States ([Marzolo, 2015](#)). The freshest fruits in late summer/early fall will be: blackberries, blueberries, and plums ([Watson, 2016](#)).

TIPS TO EAT HEALTHY AND AFFORDABLE! SEE PAGE 8 FOR HELPFUL RESOURCES.

Here are some final tips from Sara that can be followed anywhere at any time of the year:

- ♦ The brain is 80-85% water, so stay well hydrated with water and avoid sweetened beverages;
- ♦ Control your blood sugar;
- ♦ Try and lose excess weight;
- ♦ Build exercise into your routine;
- ♦ Control your blood pressure;
- ♦ Stay mentally active;
- ♦ Get your rest!

Thanks to Sara for her guidance and expertise!



Survivor Perspectives: How Does Eating Change After a TBI?

Interview with Joseph Skokan Jr.

Joseph sustained a TBI in May of this year. These are his answers to questions written by TBIMS Staff.

Have you experienced any changes in smell and taste since your TBI?

I haven't noticed any changes directly except my tongue is slightly numb due to nerve issues, and I do not taste with the same level or intensity that I remember. Some of my best experiences included food, which I've tried to recreate just a bit, and the burger that I loved isn't quite as exciting.

Have you tried cooking since your TBI? If so, are there specific challenges you've noticed?

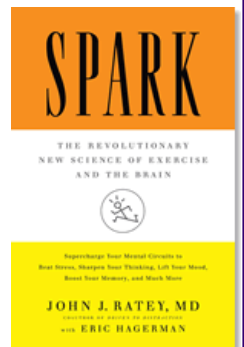
I have tried cooking, and I'm physically challenged. Part of my injuries included breaking my back in two locations. Getting this to heal has left me with little stamina to stand in one place which is required. Additionally I now have double-vision when I look down. My TBI has really slowed me down. This of course impacts cooking! I can work around these issues by really cutting down on how much of the meal I prepare, setting expectations with eaters, and using the part of my vision that doesn't produce double-vision.

Does meeting your nutritional needs have a noticeable impact on symptoms you associate with your TBI?

I am very aware of the food that I eat. Before the TBI I was addicted to sugar, and now I can easily go a whole day without thanks to the strict diet instituted by a feeding tube. I notice when I consume more vegetables that I feel full but not heavy. After the TBI I've tried to stick with a diet heavy with vegetables and light on the foods which cause high cholesterol.

Since exercise is an important part of your path to recovery, how important is having a healthy diet to allowing you to exercise?

The exercise component is an important aspect of my recovery because it makes me feel good, and I've been inspired by a good book called [Spark](#). The basis of the book is that the brain is more like a muscle than a static organ and exercise is key to improving the brain. To that change, I make sure that a healthy diet is part of every day including snacks. Switching my snacking from cookies, candy, and other sweets was not easy. But not having that stuff around really forces the issue. Costco and Trader Joe's allow bulk buying of nuts, which is a great source of healthy fats. Getting my heart rate to 65% of my maximum for a least a minute seems to do the trick, really improved my cognition. And without the sugar, I no longer have the craving, so my day isn't driven by food or meals like it used to be.



Do you use any tools or applications to help you keep track of your diet?

My biggest tool is having only healthy food around and not buying anything that I shouldn't eat. This forces me to eat healthy and break the habits and patterns that I've depended on for so long. As far as a real tool on my phone I use the Microsoft Band and Health application to track my sleep and My Fitness Pal to track calories.

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Interview with Bradford Bill

Brad sustained a TBI in January of 1997. These are his words.

How did your TBI impact how and what you eat?

I do remember when I was living with my sister after I got out rehab and group home. She helped me prepare recipes that I could make on my own for the family. It was good practice for living on my own, survival skills. The only problem with that is that I NEVER have lived on my own really! I moved in with my wife straight out of living with my sisters.

I was always on tube feeds since my coma and then I had such swallowing issues that I had to be on thickened liquids and chopped foods. When I was freed of all the precautions I would eat carefully, but once in a while I would aspirate on thin liquids such as soup or water or a hot beverage.

So, in a nutshell nutrition did impact my recovery. It helped my cognition by reading recipes (making mistakes when I didn't read the whole recipe and forgetting to add something.) Now a days my wife cooks most of the meals. Once in a while I try and find a dish on Pinterest that looks good, (and I think my kids will like) I'll make it. Usually, it turns out too salty (or something odd). I'll always eat it though, even if my family doesn't!



What's Your Survivor Story?

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

Announcements:

Art Exhibit: Breaking the Silence

The exhibit featured work by 35 artists with TBI and is Co-Sponsored by the Brain Injury Alliance of Washington (BIAWA). The show runs through **September 30th**.

Where: University of Washington School of Social Work Gallery
4101 15th Ave NE, Seattle, WA 98105

Gallery Hours: Mon—Fri, 9AM—7PM

Website: [2016 Brain Injury Art Show](#)

Looking to get involved in TBI Research?

We have multiple studies that are currently recruiting participants. The first two studies are for individuals that are experiencing new or worse headaches since their injury. The last is for current TBIMS participants.

If you are interested in participating in research, check out our studies below:

The TWIST Study

Study Contact: Taylor Obata, tobata@uw.edu or by phone at 206-685-8354

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

The LE-TBI Study

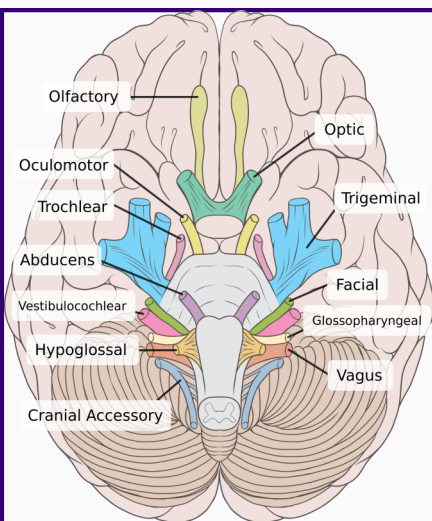
Study Contact: Leslie Kempthorne, ette@uw.edu or by phone at 206-543-0219

The Late Effects of TBI or LE-TBI Study aims to learn more about the long-term effects of TBI in the general population. This study is for individuals who are already enrolled in the TBI Model System Study, are over 40 years of age, and at least 1 year out from their injury. You must be able to undergo an MRI and be willing to have a brain tissue sample donated in the event of your passing during the course of the study. Please give us a call for more information.



Smell and Taste Changes After TBI

By: Taylor Obata



Many people experience changes in their smelling and tasting abilities after a TBI. A change in one's ability to smell is most likely the cause of any taste changes. While the severity of the changes can vary from person to person, even a small change in smell or taste can be upsetting and requires some amount of adjustment. For some it may even mean a loss of employment, if their job depends on an intact sense of smell, or increased danger from environmental hazards such as gas leaks, fires, or spoiled food ([Schofield, Moore, and Gardner, 2014](#)).

Smell and taste disorders are treated by an otolaryngologist, also known as an ENT. Many people who experience some loss of smell after a brain injury are unaware of the change, so it is important for clinicians and patients to look for signs of smell loss. Based on available evidence, spontaneous recovery can occur up to a year or more after a brain injury in up to 30% of patients with post-traumatic smell impairment. Post-traumatic taste impairment that is not caused by loss of smell is much rarer, and is more likely to improve spontaneously when it is present. For those currently experiencing a loss of smell and/or taste, it may be beneficial to receive counseling on how to safely cope with that change ([Reiter & Costanzo, 2012](#)).

UW Medicine Clinical Care

Otolaryngology Head and Neck Surgery

Locations: Harborview Medical Center, University of Washington Medical Center,
and Eastside Specialty Center

**Make an Appointment: 1.877.520.5000 or
206.520.5000**

[Website](#)

Resources for Accessing Healthy Foods

Assembled by Taylor Obata

Healthy foods like salmon and fresh produce can sometimes be expensive to buy, especially on a regular basis. Here are some great resources for and alternatives to buying at the grocery store:

1. **[King County Fresh Bucks](#)**: For people currently receiving SNAP/EBT (food stamps), King County has a great program that will match every \$2 you spend at a participating Farmer's Market with an additional \$2, up to \$10 . This applies at each Farmer's Market visit. That means you can get \$20 worth of produce for \$10 worth of SNAP/EBT benefits. See how it works [here](#). If you live outside of King County, check [here](#) for other participating markets in Washington.



2. **Grow your own food**: Even if you live in an apartment, you have the potential to grow your own food. Plants can be grown on a balcony or by a sunny window. For those in urban areas, Seattle Public Utilities has a great [guide](#) for growing food in the city. For those in Seattle specifically, Seattle Tilth has a program called "Just Garden" that provides low-income residents with everything they need to start their own small home garden. Read more about it [here](#).

3. **[WithinReach](#)**: For all Washington residents, there is a great resource called WithinReach that seeks to connect families to the resources they need to be healthy. This organization can help you navigate what food assistance or other healthcare resources are available to you.



4. **Go Fishing**: Ever wanted to try fishing, but weren't sure where to go or what the rules were? Washington State has a tremendous resource for you! [Fish Washington](#) is a comprehensive resource page for fishing in Washington. This site lists fishing areas by category and county, and each location, such as Green Lake in Seattle, lists the fish available and information on when and how to catch them. If you need help finding specific information, call the Fishing Hotline at **360-902-2500**. If you want to fish but need special equipment, check out the [options](#) from this provider of adaptive fishing and other outdoor recreation gear.

5. **Check out Alternative Stores**: Some stores specialize in selling fresh produce and often sell it for cheaper than major grocery chains.

Healthy Recipes

Recipes Recommended by Sara Lynch

Here are a couple recipes recommended by Sara Lynch, MS, RD. The first one is simple dish that is prepared ahead of time for breakfast or a snack. The second is a little more complicated and takes advantage of seasonal summer ingredients. You can find more healthy recipes from HMC Patient Nutrition and Dining [here](#).

Overnight Oats and Chia Seeds

Servings: 1

Time: 10 minutes

Ingredients:

1 cup oats (old fashioned oats work best)

1 – 1½ cups milk or milk alternative

2 Tablespoon Chia Seeds

1 teaspoon cinnamon (can add more if desired, or try pumpkin pie spice!)

1 Tablespoon (or more) of dried fruit (currants, dried cranberry, blueberry, raisin)



Instructions:

1. Add oats, chia seeds, cinnamon and fruit (and any other additions) to the jar/container, cover with lid.
2. Shake the contents to mix them.
3. Add milk to the jar and recover with lid. Shake again to mix milk with the ingredients. Make sure the chia seeds aren't clumping.
4. Let sit overnight in the fridge, then enjoy!

Charlotte Neilson, MS, RD, CD.

(Photo from, and recipe interpreted from theyummylife.com)

Summer Salad

Servings: 8-10

Time: 30 minutes

Ingredients:

1 pound tender green beans, blanched, ends trimmed

1 pound yellow wax bean, blanched, ends trimmed

1/2 pound sugar snap peas, strings removed, blanched

6 large ripe tomatoes, halved lengthwise then cut into very thin wedges

2 large shallots, slivered

1 ½ cups whole fresh basil leaves, rinsed, patted dry and slivered

Salt and Pepper to taste



For Dressing:

2 small cloves of garlic, minced

½ teaspoon Kosher salt

¼ cup red-wine vinegar

1 Tablespoon Dijon-style mustard

½ teaspoon sugar

Coarse black pepper to taste

½ cup extra-virgin olive oil

Instructions:

1. Prepare vinaigrette: Mix ingredients in a jar and mix well
2. Prepare Salad: Place salad ingredients in bowl and toss well
3. Just before serving, combine salad and vinaigrette

Katie Farver, RDN, CD

(interpreted from Parade Magazine, 2005)



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Who's Who at UW

Melissa Mayes, MSW works with the TBI Model System team as a Research Assistant on a variety of studies. For the past four years, she primarily conducts telephone interviews with TBI survivors for the TBI Model System study, but has involvement with Headache Studies and the Understanding Causes of Death Study.

Melissa speaks fluent Spanish and helps make the study more accessible to Spanish speakers. Melissa graduated with a Masters in Social Work from the University of North Carolina at Chapel Hill. Outside of work, Melissa enjoys travel, cooking, fitness, and spending time with her husband and husky dog.



TBI Resource: Seattle BrainWorks

SBW is a program of PROVAIL, an organization that supports people with disabilities in King and Snohomish Counties in Washington State. SBW is a community-based program providing ongoing peer-based support to people who have experienced a traumatic brain injury.

Contact: Nicole Fullerton, 206.457.4841 or nicolef@provail.org (email is best!)



Seattle BrainWorks
a program of PROVAIL

The Washington Traumatic Brain Injury Resource Center

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

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

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



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