



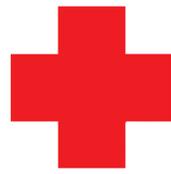
# Traumatic Brain Injury: Educational Materials



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## IMPORTANT:

If you are experiencing a medical emergency, please call 911 or present to your nearest emergency room for evaluation and treatment.



You should go to the nearest emergency room if the following conditions are present:

- ANY periods of loss of consciousness
- Unable to wake up
- Experiencing double vision or loss of sight
- A weakness or burning in your arms or legs
- A severe headache or one that progressively gets worse
- Any kind of seizure or convulsion
- Bad nausea or excessive vomiting
- Unsteadiness while walking or standing
- Any bruising around your eyes or ears
- Slurred speech
- If you become confused or exhibit odd behavior



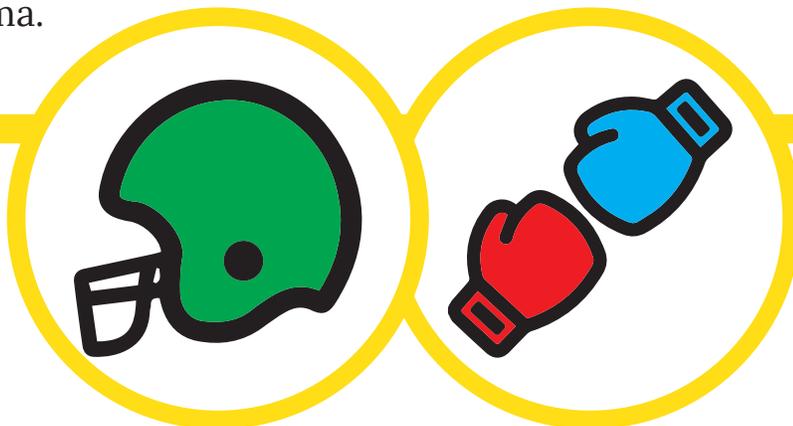
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# Please Protect Yourself From Re-Injury!

One of the most important things for you to keep in mind is for you to do everything you can to prevent a re-injury! Second Impact Syndrome (SIS) occurs when two traumatic brain injuries (concussions) happen in a relatively short period of time AND the second concussion is inflicted BEFORE the first one has fully healed. This can cause rapid and severe swelling, and the brain may lose its ability to self-regulate pressure and blood volume. As the brain swells, it can press against the skull resulting in decreased blood flow. When the blood flow is disrupted, it can cause severe disability or even death.

The vast majority of these SIS cases involve athletes that participate in high impact sports. However, the need to protect yourself even if you are not involved in these activities is still vitally important. The most important way to prevent SIS is for you to avoid any activity which might put you at risk before your Traumatic Brain Injury (TBI) is fully healed.

We have learned so much in recent years regarding the dangers of TBIs from professional football players and boxers. For example, numerous studies of professional boxers have shown that repeated brain injury can lead to a condition known as chronic traumatic encephalopathy (CTE), termed “Dementia Pugilistica.” This is a neurodegenerative disease with symptoms including behavioral problems, mood problems, and difficulty thinking. As the disease gets worse, it can often result in dementia. Another study of retired professional football players demonstrated a three time increase of depression in players that had a history of three or more TBIs. Recent research of NFL players found that 87 out of 91 ex-professional players tested positive for brain disease (CTE) linked to head trauma.



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# It is important for us to reiterate your “Things To Do”

## as well as your “Things To Avoid!”

### THINGS TO DO:

- **REST:** Get plenty of rest but don't lay in bed all day! You are to avoid any kind of over strenuous activity. Practice LOW ENERGY output.
- **SLEEP:** Get a good night's sleep. Take 1 or 2 short naps throughout the day, if necessary. Too many naps or those that are too long can reduce your ability to sleep at night. It is important to get at least 8 hours of sleep each night. The darker the room, the better sleep you will get.
- **DIET:** Proper diet and nutrition will play an important role in your recovery.
- **HYDRATE:** Drink lots of water! Did you know that approximately 60% of your body is made up of water? Your brain and heart are 73% water. If you are dehydrated, it can cause many problems including headaches, organ issues, joint problems, and much more. The better your hydration, the more your body can flush out the harmful toxins that have accumulated in your brain since your injury.
- **UNPLUG:** Fight the urge to go online and look at your smartphone, iPad, laptop, or computer screen. Also, put down the video games. Take a break from looking at a computer screen or monitor or television. Give your brain a break!
- **FOLLOW:** Please follow the condition specific directions that you are given and be a compliant patient.



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# Things to Avoid if you have had a concussion:

- Avoid any kind of activity that might result in another traumatic brain injury!
- Avoid the use of alcohol. Alcohol will make your condition and symptoms worse.
- Avoid the use of caffeine. Sometimes patients will want to use caffeine to eliminate their cognitive fatigue or “brain fog” that often comes with a TBI. However, you should proceed with caution. Caffeine in small amounts may be safe after a TBI, but excessive caffeine consumption could slow down the recovery process. It is important to understand that caffeine is a vaso-constrictor, which means it constricts the blood vessels in the brain reducing blood flow. Without enough cerebral blood flow, the brain cannot get the vital nutrients it needs to repair itself.
- Avoid the use of stimulants or energy drinks.
- Avoid junk food. Instead, consume healthy, energy rich foods. These include blueberries, bananas, broccoli, fatty fish, and nuts.
- Avoid stressful circumstances and over-stimulation of the mind.
- Avoid being on the computer or smartphone.
- Avoid prolonged conversations on the phone.
- Avoid being on social media sites.
- Avoid the excessive intake of sugar, carbohydrates and dairy products.
- Avoid the use of Ibuprofen or Tylenol unless recommended by a doctor familiar with your condition.



# Dietary Recommendations:



Your diet can play an important role in the healing process for your TBI. What you put into your body will not only affect your health, but it can be an integral part of minimizing your symptoms and facilitating a quicker recovery. We have created these post-TBI recommendations to help you understand more about what your body needs, and what you should avoid. Please understand: healthy eating will not make your TBI symptoms go away, but it will give your injured brain a better shot at recovery and will provide it with the fuel it needs to function as best it can.

Your brain has some important nutritional requirements that must be met:

- Water
- Protein
- Lipids (fats)
- Carbohydrates
- Vitamins and minerals
- And sodium

Your body will benefit from proper nutrition as you should experience an increase in your energy levels, your mood should improve, and you should reap short and long term health gains.



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# The following will provide you more information on each of these nutritional requirements.



## Water:

This is the MOST important recommendation. It is easy to get dehydrated, especially in warm temperatures. Water helps your body digest foods and absorb other nutrients. Consuming water will also help your body to regulate your temperature better and increase circulation.

How do you calculate the amount of water your body needs?

Take your body weight.  
Divide by 2.

That is the approximate total of how much water you need to drink each day. But keep in mind, if you are in warmer temperatures and in an environment where you sweat more, you will need to increase your water consumption.

For example:            Body Weight:            160 pounds

Divide by 2

-----  
Your goal:            80 ounces of water

Now if you have pre-existing medical conditions, you should check with your health care provider and ask what they would recommend your daily water intake should be. Some of our patients may need to drink less water throughout the day.



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# Nutritional Requirements



## Protein:

Protein will help you maintain your muscle mass, your strength, and it will help you have a “fuller” feeling in your stomach. Some of the best sources of protein are meat, fish, eggs, beans, nuts and seeds. These protein sources will provide your brain with the essential amino acids it needs for proper functioning.

Meats could include:

- Chicken
- Turkey
- Lean beef
- Fish

Other beneficial proteins include:

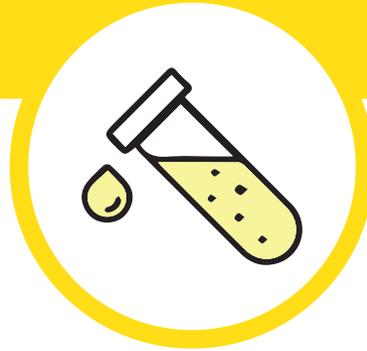
- Eggs
- Greek Yogurt
- Cottage Cheese
- Almonds
- Oats
- Lentils
- Chickpeas



If you are a vegan, it is so important to make sure you get enough protein from nuts and legumes. If you are eating meat, be careful with your preparation. Avoid fried foods.



# Nutritional Requirements



## Lipids:

These are HEALTHY fats that your body needs. Olive oil is high in monounsaturated fats and is a healthy way for you to prepare grilled foods.

Here are ten foods that are high in fat that you should consider incorporating into your diet:

- (1) Greek Yogurt
- (2) Fatty fish, like salmon or mackerel
- (3) Avocados
- (4) Cheese
- (5) Dark Chocolate
- (6) Whole eggs
- (7) Nuts, like almonds, walnuts and macadamia
- (8) Chia seeds
- (9) Extra Virgin Olive Oil (EVOO)
- (10) Coconuts (and Coconut Oil)



# Nutritional Requirements

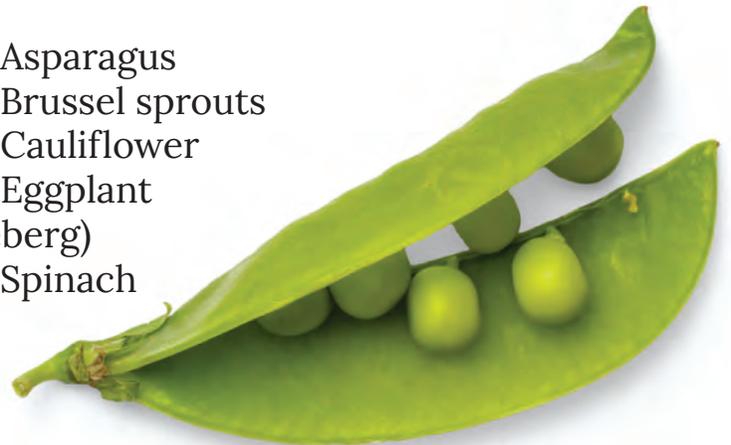


## Vegetables:

Vegetables are a great source of vitamins, fiber, and potassium. They are naturally low in calories, fat, and cholesterol. And the natural fiber can help reduce blood cholesterol and promotes better, regular bowel function.

Here is a list of recommended vegetables:

Artichoke	Arugula	Asparagus
Beets	Broccoli	Brussel sprouts
Cabbage	Carrots	Cauliflower
Celery	Collards	Eggplant
Lettuce (such as Romaine and Iceberg)	Peas	Spinach
Onions	Turnips	
Sweet Potatoes		



## For example:

You could put together a salad with a mix of Romaine Lettuce, Iceberg Lettuce, and Arugula. Cut up some Avocado, add some chopped almonds or walnuts, maybe some dried cranberries, and drizzle with Olive Oil. You can add a protein to the salad like some grilled chicken, steak or fish.



# Nutritional Requirements



## Fruits:

Fruits are also a great source of vitamins and antioxidants. It is recommended that you avoid fruit juices because of their high sugar content. A better choice would be raw fruit as these are naturally low in fat and calories.

Here is a list of recommended fruits:

- (1) Banana
- (2) Berries
- (3) Grapes
- (4) Grapefruit
- (5) Melons, like cantaloupe, honeydew or watermelon
- (6) Oranges
- (7) Pears
- (8) Pineapple
- (9) Tomato



# Nutritional Requirements



## Dairy:

Dairy products can be a great source of calcium and vitamin D, but make sure you select one that is low fat.



## Whole Grains vs. Refined Grains:

Whole grains should be chosen over refined grains. Whole grains are high in fiber and help promote cardio-vascular health.

Refined grains are milled, a process which removes part of the grain. Also removed in the process are some of the fiber, iron and vitamins.

Here is a list of whole grains:

- (1) Barley
- (2) Buckwheat
- (3) Corn
- (4) Oats
- (5) Quinoa
- (6) Rice, including wild rice
- (7) Sorghum
- (8) Wheat



# Here are some foods/items to AVOID:

- Table sugar
- Artificial sweetener
- Caffeine - including coffee, tea, and soft drinks
- Alcohol
- Fried foods
- NO smoking!!!
- Donuts and high calorie pastries



And consult with your physician before taking any vitamins or supplements.

## **Bottom line:**

Think of the food that you are putting in your body as fuel. The cleaner the fuel, the better your body will run. Improving your diet should help in a lot of ways the brain fog, fatigue, and memory problems you may be experiencing. Healthy eating will not make all of your symptoms go away, but it will give your brain the best chance for recovery and proper functioning.

