

How to Avoid Concussion Cascade with Everyday Activities



Three Things That Can Trigger Metabolic Changes in the Brain Following a Concussion or Brain Injury:

1) Anxiety- Fight or Flight Response- Scan your body for anxiety and understand your triggers. Work with a therapist on a **"just right challenge"** that gradually gets you back to doing anxiety provoking things, without triggering an anxiety attack. Internal anxiety (worrying about your memory, abilities, sensory overstimulation, masking your deficits etc., all contribute to a stress response that may affect your brain health)

2) Heart Rate- Know Your Healthy Range for Recovery- Much like anxiety can increase your heart rate, so can exercise. Take the Buffalo Treadmill Test in physical therapy and determine your healthy heart rate. Going above that heart rate can trigger a metabolic stress response in your brain.

3) Cognitive Load Restrictions- While you are recovering, limit your cognitive load to 1 hour a day while you are experiencing any of the symptoms listed to the right. Cognitive load includes: looking at your phone, scrolling social media or news feeds, watching TV, reading, talking to a friend, doing computer work, and doing paperwork. Over time, as symptoms decrease, time spent doing cognitive tasks can increase. If you **"push through"** a task, and then feel like you ended up **"paying the price"** the next day, it is likely because that cognitive challenge was too much, and you ended up causing a metabolic stress response in your brain.

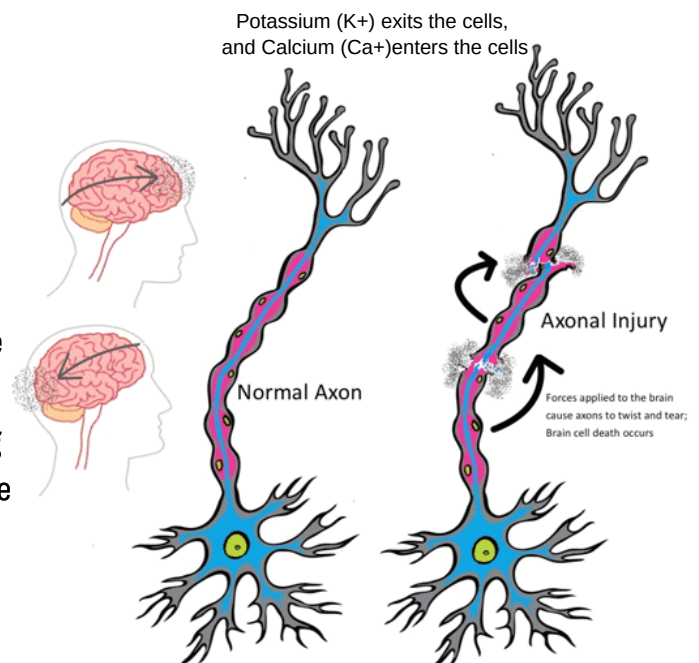
JUST RIGHT CHALLENGE

0
1
2
3
4
5
6
7
8
9
10

Monitor your symptoms. If symptoms increase by 4 levels you must STOP what you are doing and rest until you returned to baseline, in order to avoid a metabolic stress response.
Do not start a stressful activity if you are above a 6/10.

Symptoms to Monitor:

Headaches
Nausea
Dizziness
Balance problems
Mental Fog/ Fatigue
Light Sensitivity



Metabolic Stress Response:

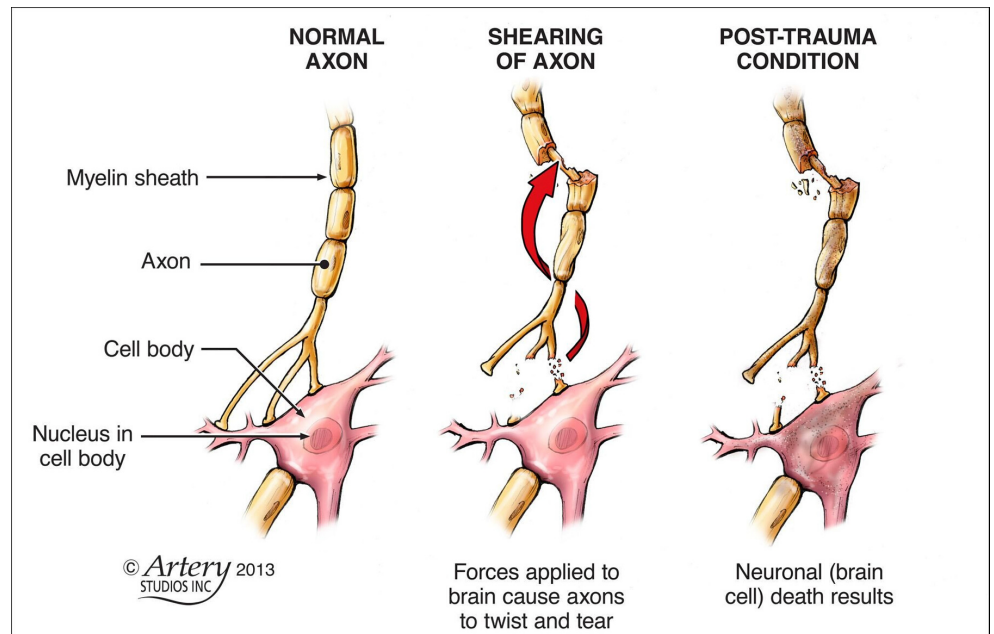
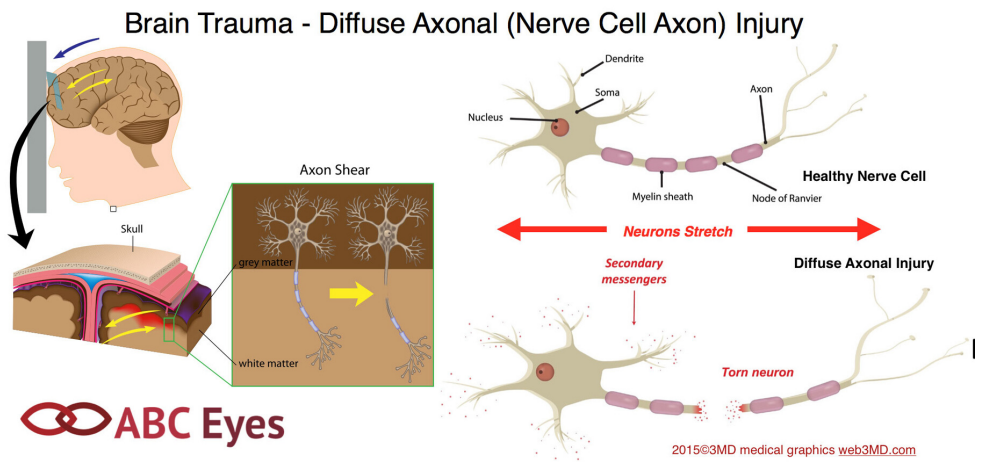
After a concussion or brain injury, the brain may respond by interpreting certain triggers (increased heart rate, cognitive challenges, and anxiety) as danger or stress, and those triggers can cause negative metabolic reactions in the brain. This is also called a concussion cascade. It's the feeling you get after a concussion that causes you to need to rest or sleep. It is the "brain fog" and low energy that follows a particularly busy or challenging day when recovering.

Some studies show that the brain, in response to the added stress, continues to release potassium, hence causing a rush of calcium to enter the brain and a metabolic chain reaction. This chain reaction interferes with the function of the neurons as well. This concept is currently being studied more now.

At Galaxy, we have found that when following a PROTOCOL that limits the amount of time spent participating in activities that may elicit a stress response may be key to the brain being able to heal.

KNOWLEDGE IS POWER.

Once you identify some of the stressors, you are better able to protect yourself and give your brain the time and space it needs to heal, while still challenging it so that it does regain function. This is a great balancing act and requires trained professionals in the field of concussion, vestibular, and brain injury rehab to help guide you on your way to recovery.



Body Scan

Rate your symptoms 1-10:

Current stress /10
Muscle Tension/pain /10
Anxiety /10
Headaches /10
Nausea /10
Body temp (hot flash) /10
Shortness of breath /10
Dizziness /10
Overwhelmed /10
Cognitive Challenge level /10
Physical Challenge level /10
Sensory Challenge level /10
(how loud, bright, etc.)

Environmental Scan

External Stressors that may be impacting how you feel:

- How you slept
- Emotional events or conversations
- Transportation/ Traffic stress
- Weather
- Nutritional intake
- Pedestrian Traffic
- Crowded areas
- Noises (sudden/ background)
- Light Sensitivity
- large space- difficult to find way in/out
- Task requires frequent decision making

Self-Advocacy Letter

To Whom It May Concern,

I do not normally disclose personal information such as this; however, it has become necessary for me to share it so that I can be productive and efficient in all that I do. I want you to be aware that I have the following symptoms: **CIRCLE ALL THAT APPLY**

- | | |
|--|--|
| ☐ Headaches | ☐ Nausea |
| ☐ Balance Problems | ☐ Visual Issues |
| ☐ Dizziness | ☐ Sensitivity to Lights |
| ☐ Sensitivity to Sound | ☐ Mentally Foggy |
| ☐ Difficulty Concentrating | ☐ Difficulty Remembering |
| ☐ Difficulty Multitasking | ☐ Difficulty Making Decisions |
| ☐ Difficulty Following Directions | ☐ Difficulty Prioritizing |
| ☐ Difficulty Word Finding | ☐ Irritability |
| ☐ Sadness | ☐ Anxiety |
| ☐ Drowsiness | |
| ☐ _____ | |
| ☐ _____ | |

Please help me by doing the following: CIRCLE ALL THAT APPLY

- ☐ Dim the lights
- ☐ Decrease noise in the room/car
- ☐ Gradually stop/start car
- ☐ Make lists/have written information that I can take with me
- ☐ Drive slow or at posted speed
- ☐ Take frequent breaks
- ☐ Provide me with one task at a time
- ☐ Reduce distractions in the environment
- ☐ Have spoken information presented slowly and with pauses
- ☐ Limit environmental scents
- ☐ Provide increased time to process information
- ☐ Provide me with limited choices to help with decisions
- ☐ Provide large print
- ☐ _____

Thank you for your consideration and understanding.

Name: _____

Name:

Emergency Contact:

Notes:

Self Monitoring and Environmental Assessment (1/2)

Subjective Comments about today that might affect me:

Sleep Well: # hours_____	Yes	Somewhat	No
Negative Social or Emotional Interaction today:	Yes	Somewhat	No
Running Late/ Rushing to get ready today?	Yes	Somewhat	No
Nutrition/ Eat Breakfast/Lunch etc?	Yes	Somewhat	No
Have you had a busy day physically?	Yes	Somewhat	No
Have you had a busy day Mentally?	Yes	Somewhat	No

External Factors about the Day:

Is weather a stressor?	Yes	Somewhat	No
Is transportation a stressor?	Yes	Somewhat	No
Is there high vehical traffic?	Yes	Somewhat	No
Is there high padestrian traffic?	Yes	Somewhat	No

Internal Factors/ How I feel Currently BEFORE ENVIRONMENTAL ACTIVITY:

Emotional Level	/10	(if you are over a 6/10, then you may want to consider t break)
Stress Level	/10	
Muscle Tension/pain	/10	
Anxiety Level	/10	
Headache	/10	
Body temp/Regulation (hot flash)	/10	
Shortness of Breath	/10	
Cognitive Fatigue	/10	
Physical Fatigue	/10	

Environmental Assessment of the Place I want/need to go to (Store, Mall, appointment):

Parking Demands of location:	/10
Orientation Demands of location	/10
(Can I get in/out easliy, know where I am)	
Physical Demands of location:	/10
Mental/ Cognitive demands of location/task:	/10
Lighting	/10
Sound/noise distractions	/10
People/crowds	/10
Decision making requirements of task:	/10

Notes:



Self Monitoring and Environmental Assessment (2/2)

Monitor your progress and Keep track of the following:

How long could I remain in the environment before my stress level increased?

What was the highest levels my stress got during the task for the following:

Emotional Level	/10
Stress Level	/10
Muscle Tension/pain	/10
Anxiety Level	/10
Headache	/10
Body temp/Regulation (hot flash)	/10
Shortness of Breath	/10
Cognitive Fatigue	/10
Physical Fatigue	/10

Can I identify things that went well?

Can I identify things I would do different?

What were the biggest triggers that affected me today?

What could I do to make this activity better next time?

Optional Tracking of Progress:

If you want to see how long you can stay in stores before you become triggered,

Or if you want to keep track of your amazing progress. Try this tracking system:

	Prior to activity	At 10 min	After 10-30 min	After 30+ min	After 60+ min
Emotional Level	/10	/10	/10	/10	/10
Stress Level	/10	/10	/10	/10	/10
Muscle Tension/pain	/10	/10	/10	/10	/10
Anxiety Level	/10	/10	/10	/10	/10
Headache	/10	/10	/10	/10	/10
Body temp/Regulation (hot flash)	/10	/10	/10	/10	/10
Shortness of Breath	/10	/10	/10	/10	/10
Cognitive Fatigue	/10	/10	/10	/10	/10
Physical Fatigue	/10	/10	/10	/10	/10

Can I identify things that went well?

Can I identify things I would do different?

What were the biggest triggers that affected me today?

What could I do to make this activity better next time?



Additional Resources

Video about Neuroplasticity:

<https://youtu.be/88OL8NdkV-s>

Cascade of Metabolic changes... according to 2012 research

(2 min video)

<https://youtu.be/KrvC2UUEJ8Y>

What Does Current Research Say? Published July 2017Basics of TBI Rehabilitation:

(6 min video)

<https://youtu.be/xvjK-4NXRsM>

Research Articles:

HEART RATE and ACTIVITY AFTER CONCUSSION

<https://www.biausa.org/public-affairs/media/how-the-standard-of-care-for-concussion-moved-from-passive-to-active-treatment>

<https://jamanetwork.com/journals/jamapediatrics/fullarticle/2723523>

