NEUROFATIGUE: The Tired Brain and How to Manage It

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Hello!

What is a neuropsychologist?

- I study brain-behavior relationships. I’m looking at how the brain works and how this impacts how a person acts in life – cognitively, emotionally, socially, etc.

- I work at a rehabilitation center with people who have had a brain injury.

- I conduct assessments with people. I look for patterns in their scores, observe how they handle tests, and listen to what they say has changed since their brain injury.

- I do treatment. My goal is to help people manage their symptoms to feel better and to improve cognitive functioning.

- Brain injury recovery is done best with a team approach.
Fatigue

Fatigue is defined as “a subjective lack of physical and/or mental energy that is perceived by the individual or caregiver to interfere with usual and desired activities”

Feeling tired, not having enough energy
Not being able to do as much as you want because of how you feel
Fatigue and brain injury

By the numbers:

- One of the most reported and long-lasting symptoms following brain injury
- Fatigue after traumatic brain injury (TBI): 21-73%
- Even 6 months after concussion, 34% reported significant fatigue (relative to only 12% of people with minor injuries not involving the brain)
- Fatigue after stroke: at least 40% identified fatigue and considered it one of the worst problems after stroke, even up to 2 years post-stroke
Fatigue and brain injury

Type of brain injury does not predict the amount of fatigue a person will experience:

- With TBI – no correlation between fatigue, severity of the injury, or age of the individual

- With stroke – infarct type, location, size, and severity of resultant impairment were not predictors of fatigue
Types of tired

Different types of fatigue:

- Physical
- Stress
- Emotional
- Cognitive
Physical Fatigue

- Related to physical exertion, activity, exercise
- Muscles get tired or sore
- Lack of energy
- Decreased physical performance

**How to recover:**

- Rest your body
- Stretch
- Nap
- Hydrate
- Heating pad on sore muscles
Physical Fatigue

“'I’m really dragging.”

“I’m pooped!”

“I need to lie down.”
Stress Fatigue

- Results from chronic stress
- The body’s resources become depleted over time, causing exhaustion
- Bodily systems impacted (e.g., weakened immune system)
- More susceptible to disease

**How to recover:**

- Reduce stress level
- Relaxing hobbies
- Meditation, yoga
- Exercise
- Remove or reduce the stressor, if possible
Stress Fatigue

“*I’m so stressed out.*”

“*I feel fried.*”

“*So much is going on right now.*”
Emotional Fatigue

- Results from highly emotional events or emotional reactions (e.g., loss of a loved one, worry about work, problems in a relationship, dealing with a crisis)
- Depression, anxiety
- Irritable, senses feel dulled, less interest or enjoyment in things, cry easily, upset stomach, detached, trouble sleeping, hopelessness, not motivated, emotionally “drained”

**How to recover:**
- *Talk to a therapist*
- *Meditation, yoga*
- *Exercise*
- *Deep breathing*
- *Self-care*
- *Medication, if indicated*
Emotional Fatigue

“I just can’t get motivated.”

“I feel like I could scream!”

“I just want to be left alone.”

“I don’t even know where to start.”
Cognitive Fatigue (Neurofatigue)

- Mental tiredness or exhaustion resulting from prolonged cognitive activity or sensory overstimulation

- *After brain injury:*
  - The brain feels tired quicker than before
  - The brain can become overtired after even small loads of activity
  - It takes a longer amount of time to “bounce back”
  - Fatigue can persist even after a person recovers from other symptoms of the brain injury
Neurofatigue

“I can’t think straight.”

“My brain feels foggy.”

“I don’t feel right.”

“It’s like I’m in a haze.”
Neurofatigue: What it ISN’T

It’s NOT:

◦ Doing too little
◦ Lack of stimulation
◦ Laziness
Neurofatigue: What it IS

- A sense of the brain not working the way it normally does
- Decreased productivity and/or efficiency
- People say:
  - “My brain doesn’t work”
  - “I can’t think right”
  - “I don’t feel like myself”
  - “I can’t function”
- Can vary from person to person
A different kind of tired…

- Can happen after even small activities that used to be easier
  - “But I used to be able to do this just fine without getting tired!”

- Can happen after activities that are usually pleasant and enjoyable, such as reading a good book, listening to music, watching a movie, dining out, talking with friends

- Can last hours or even days

- Can fluctuate depending on the day and the activities

- Can appear rapidly*
NEUROFATIGUE

Battery Power

Connectivity
NEUROFATIGUE
# Neurofatigue: Symptoms

<table>
<thead>
<tr>
<th>Cognitive (thinking)</th>
<th>Physical/Sensory</th>
<th>Emotional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can’t focus/concentrate</td>
<td>Feeling exhausted</td>
<td>Irritable</td>
</tr>
<tr>
<td>More forgetful</td>
<td>Sleep problems</td>
<td>Getting snappy with others</td>
</tr>
<tr>
<td>Making silly mistakes</td>
<td>Headaches get worse</td>
<td>Crying easily</td>
</tr>
<tr>
<td>Can’t do mental math</td>
<td>More sensitive to lights and noise</td>
<td>Feeling sad</td>
</tr>
<tr>
<td>Can’t make decisions</td>
<td>Tripping, more clumsy</td>
<td>Feeling more stressed</td>
</tr>
<tr>
<td>Can’t multitask</td>
<td>Eye strain</td>
<td>Mind is “darting”</td>
</tr>
<tr>
<td>Can’t find the right word</td>
<td>Dizziness</td>
<td>“Downward spiral”</td>
</tr>
<tr>
<td>Low initiative</td>
<td>Body “feels like lead”</td>
<td>Easily annoyed</td>
</tr>
<tr>
<td>Thinking slower</td>
<td></td>
<td>“I just want to scream!”</td>
</tr>
</tbody>
</table>
Neurofatigue: Triggers

- Sensory stimulation (bright lights, loud noises)
- Overstimulating areas (parties, crowds, restaurants, stores)
- Focusing for a long period of time
- Multitasking
- Conversations with more than one person
- Work and school
- Too much screen time
- Driving
- Doing challenging tasks
- Working long hours without a break
- A busy day
What causes it?

- Exact cause is not known
- There are theories about what causes neurofatigue
  - Damage to brain cells that disrupts communication between neurons
  - Neuroinflammation
  - Altered biochemical pathways
- Changes occurring on a cellular level
- Overall, mental activities require resources and energy, but after injury the brain has less of these and so it functions less efficiently
How do we measure neurofatigue?

- **With scales and surveys**
  - “Do you become very fatigued during or after activities where you have to pay attention or sustain mental effort?”
  - “Do you become mentally fatigued from things such as reading, watching TV, or taking part in a conversation with several people?”

- **What you say**
  - You’re the expert on you!

- **Making observations during activities or testing**
  - Slowing down during a prolonged task
  - Making more errors near the end of a task
  - Symptoms starting to increase (e.g., tired eyes, headache)
How to treat it?

- No “cure” for neurofatigue and no set timeframe for recovery
- For some, neurofatigue will gradually improve over time
- Focus is on MANAGING the symptoms with tools and strategies
- Treatment is done through:
  - Awareness: Enhancing awareness of triggers and symptoms
  - Acquisition: Learning strategies that help
  - Application: Using strategies to change your behavior and manage fatigue
  - Self-monitoring: Noticing how you feel
Medications

- Methylphenidate:
  - Dopamine agonist – increases dopamine levels in the brain
  - Can combat fatigue and enhance cognitive functioning in TBI population
  - Positive effects on information processing speed and some effect on working memory and attention in individuals with TBI

- Other medications can help treat underlying issues
  - Medications and/or melatonin to improve sleep patterns and daytime alertness
  - Stimulants to treat daytime sleepiness or insomnia
  - Caution: some medications are contraindicated because even though they help with sleep they can negatively impact cognitive functions

→ Be sure to talk to your prescribing doctor about your history of brain injury
Managing neurofatigue

*Management* of symptoms is accepting that you have the fatigue for right now and taking active steps to take care of yourself –

- Help yourself feel better in the moment
- Reduce the severity of neurofatigue
- Shorten the time it takes to recover
- Find new ways to keep living your life and feeling the best you can
Awareness

- Acknowledge that how your brain functions has changed, and it needs more support to help it function at its best.
- The goal is to understand what signs and symptoms tell you that you’re getting fatigued.
- Study what your neurofatigue “looks like” by asking yourself:
  - What changes when you become fatigued?
  - How does your body feel when you’re fatigued?
  - What is your thinking like when you’re fatigued?
  - Emotionally, how do you feel when you’re fatigued?
  - How do you behave when you’re fatigued?
  - What activities, environments, or tasks make you feel more fatigued?
Strategies

- Strategies are tools and tricks to help manage fatigue
- Strategies can be used in the moment but are best used before you feel tired
- You can learn these with the help of a treatment provider, through peer support from others who have had a brain injury, or with the help of friends and family
Take a break!

- Be proactive and *anticipate* need for rest –
  - Schedule planned breaks ahead of time
  - Take a break BEFORE you’re tired
  - Take breaks as you go to avoid “hitting a wall”
  - Helps your mental energy can last longer
  - Improves efficiency
Take a break!

- Rest does not always mean sleep and it’s not “doing nothing”
  - When you have neurofatigue, taking a break to rest your brain is a conscious decision you make to help yourself feel and function better
  - Sometimes it’s doing nothing, sometimes it’s doing something different

- Sometimes you will need short breaks (even just 5 minutes!) and other times you will need longer breaks

- Don’t push your limits
<table>
<thead>
<tr>
<th>Strategies: In the moment</th>
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<tbody>
<tr>
<td><strong>Do a non-cognitive task:</strong> switch to a task that requires less mental effort</td>
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<tr>
<td>Breathing exercises</td>
</tr>
<tr>
<td>Visual rest break: switch away from screen time</td>
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<tr>
<td>Take a hot bath/shower</td>
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<tr>
<td>Meditate</td>
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<tr>
<td>Take a short nap</td>
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<tr>
<td>Listen to soothing music</td>
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<tr>
<td>Reduce stimulation: turn down lights and noises, go some place quiet</td>
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<tr>
<td>Watch a favorite TV show</td>
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<tr>
<td>Play a game on your phone</td>
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<tr>
<td>Physical activity – take a walk, stretch, yoga, tai chi</td>
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<tr>
<td>Take time to play with a pet, child, or friend</td>
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Strategies: *Plan ahead*

| Plan your day so you can switch between tasks that require more and less mental energy |
| Plan visual rest breaks (use a timer on your phone as a reminder) |
| Use a planner or calendar to anticipate energy needed for the week |
| Take lunch breaks (don’t eat lunch at your desk!) |
| Maintain healthy sleep habits |
| Stay hydrated and eat regular, healthy meals |
| Meditation (daily is best!) |
| Practice regular physical activity – walking, yoga, tai chi |
| Break tasks into smaller chunks (don’t be afraid to delegate!) |
| Write it down (keep a journal, write notes to remind you) |
| Schedule enjoyable activities |
| Maintain wellness – follow-up with doctors and counselors |
Self-monitoring

- Neurofatigue feels like it hits “out of nowhere,” but there are signs that it is coming – We just need to listen!
- “Listen” to your brain by monitoring how you feel
- Pay attention to warning signs that you are getting fatigued
- Consider making a scale for yourself so you can check in with yourself throughout the day
  (a cognitive energy scale)
NEUROFATIGUE

How much fuel do you have?

How far do you have to drive?
Remembering strategies

- Set reminders: set alarms in your phone that remind you to take a break, meditate, or check in with yourself
- Set a timer before you start an activity to cue you to rest
- Write notes to yourself
- Get help from friends or family
  - Educate your friends/family about neurofatigue and your symptoms
  - Talk about how you want a reminder communicated
  - Be open to feedback – sometimes others (friends, families, treatment providers) notice signs of your neurofatigue that you weren’t aware of yet
When is it something else?

- When associated with loss of interest, decreased motivation, feelings of hopelessness, anhedonia (loss of pleasure), we need to consider mood and depression
  
  \[
  \text{talk to your medical provider, see a psychotherapist, see a psychiatrist}
  \]

- Ruling out medical issues that can cause fatigue (anemia, a thyroid problem, endocrine issue, diabetes, etc.)
  
  \[
  \text{talk to your medical provider, undergo testing to rule-out an underlying biological cause of fatigue}
  \]

- Ruling out sleep disorders (insomnia, disrupted sleep cycle, etc.)
  
  \[
  \text{talk to your medical provider, get a sleep study, address sleep hygiene with a therapist}
  \]
Summary

- Neurofatigue following brain injury is real, you are not alone
- Neurofatigue impacts each person differently
- You need to understand and monitor your symptoms
- Use strategies and TAKE REST BREAKS
- Be proactive with strategy use
- It takes time and energy to manage neurofatigue, but it will help!
- Ask for help when you need it
- Be gentle and patient with yourself
QUESTIONS?

Thank you for listening!
Founded in 1981 by family members and friends of persons with brain injury, the Brain Injury Alliance of New Jersey is a statewide nonprofit organization dedicated to supporting and advocating for individuals affected by brain injury and raising public awareness through education and prevention.
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