



Exploring Cognitive Issues Experienced by COVID “Long Haulers”




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AGENDA

- COVID vs Long COVID
 - Current Research into Long COVID
 - Concept of “Brain Fog”
 - Its all about Executive Dysfunction
 - Strategies/ Instructional Techniques
- 



COVID: Context

- ▶ Physical
 - ▶ Cognitive and Emotional
 - ▶ Percentages
 - ▶ Demographics
- 



Long COVID: Context



Physical



Cognitive:

Brain Fog

Frontal Lobe Dysfunction



Research

▶ Virus is gone , but “the music lingers”: Echkircher

Physical symptoms

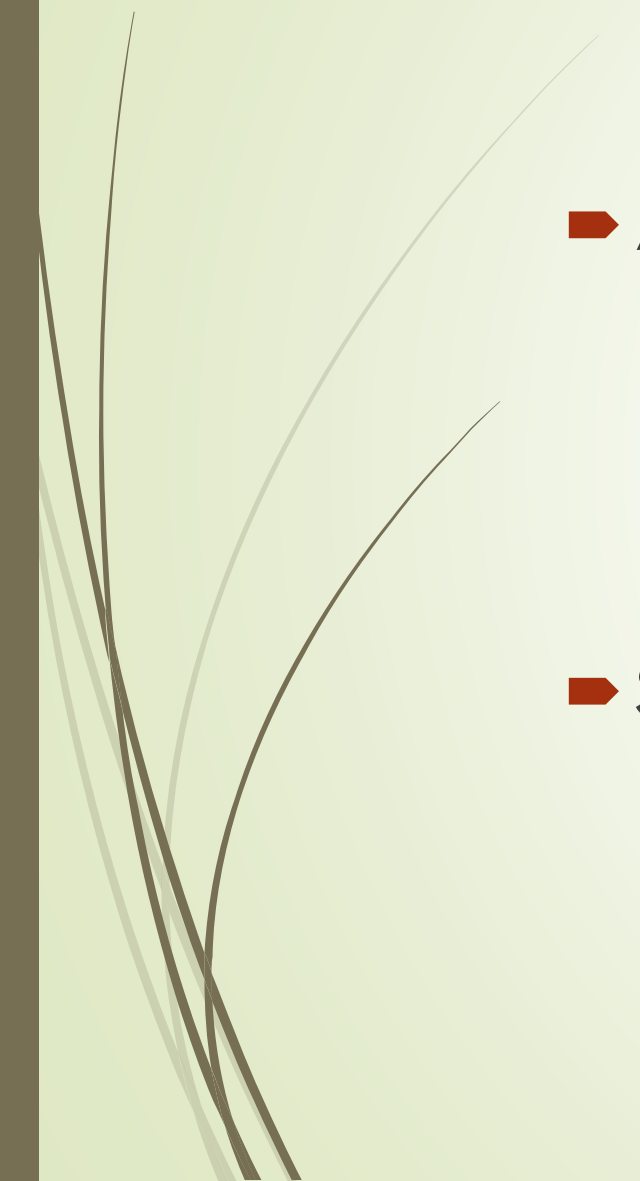
Cognitive symptoms

Emotional symptoms

**** Neurological Injury****



Research cont.

- ▶ Autoimmune Response: Song
 - Body Attacks Itself
 - Cerebrospinal fluid
 - Symptom Cascade
 - ▶ Severity of Illness vs Later Symptoms ?
 - Hospitalization
 - Require Oxygen
- 



BRAIN FOG: Marker of Long COVID



Symptoms:

Physical
Cognitive



Demographics





Executive Function Deficit [EFD]

- ▶ Symptoms become Functional Limitations: Adams
 - Decision Making
 - Concentration/ Focus
 - Higher Language Skills
- ▶ Mimics effects of Sleep Disturbance:
 - Word finding
 - Loss of Continuity of Activities
- ▶ 8.5 drop in IQ



Depression and Anxiety

- ▶ Not precursor to these Functional Limitations
- ▶ Long COVID can bring about these Symptoms
- ▶ No previous psychiatric symptoms
18% higher acquisition than other viruses



On Going Research

- **Will Brian Fog Lift**

[1 Billion Dollars from NIH]

- **Will Long COVID be a Pathway to:
Dementia**

Neurodegenerative Diseases





FUNDAMENTAL STRATEGIES

Structuring the Environment:

Clarity of Visual Field

Pre and Post Process

Use “Plain Language”

Chunk Content and Instruction



INSTRUCTIONAL TECHNIQUES

- ▶ Step mastery techniques
- ▶ Allow extensive practice time
- ▶ Use kinesthetic learning structure
- ▶ Give timed assessments/tasks:
Demonstrates Mastery




INSTRUCTIONAL TECHNIQUES [cont]

- Use every day life examples when introducing new concepts
- Use discussion to solidify information
- Announce transitions to new topics
- Talk ,Show, Act it Out allows all learners to absorb information:
Universal Design
- Alternate experiential and reflective learning opportunities



INSTRUCTIONAL TECHNIQUES [con't]

- ▶ Use variety of visual materials:
Print, Picture, Charts
 - ▶ Use “objects” to reinforce concepts:
Kinesthetic Learning
 - ▶ Use multimodal language strategies:
Listening, Paraphrasing, Note Taking etc.
- 



CREATING OPPORTUNITY TO “LEARN” TASK ANALYSIS TECHNIQUE

- Define the Task
- Set up Concrete, Specific Steps
- Order the Steps
- Consider the Consequences
- Look for Alternatives
- Make Decisions



ACCOMMODATIONS: ADA Approved

- Extra time vs Broken time
- Compensatory Strategies:
tape recording, calculators, computer aided instruction
- “Uncluttered” instructions
- Proofread documents:
word for word BACKWARDS [also works for math]
- Mnemonics / Music



ACCOMODATIONS: ADA Approved [con't]

- ▶ Visual Aids:
overheads, power point, film flip charts etc.
- ▶ Auditory Aids:
Taping in person's voice
- ▶ Use color to aid visual learning
- ▶ "Memory Cards" for multistep tasks, math skills



Long COVID

ASSUMPTIONS

KNOWN

- Here to stay
- Create changes in students and employees ability to perform

UNKNOWN

- Will these changes be permanent?
- How will we help?
- Are we up to the challenge?



We have always found a Way

To **Help** the less fortunate

To **Build** more diverse education opportunities

To **Create** more ways to contribute to our work force

It is what we do!

Why would we stop NOW??



THANK YOU!

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