An Approach to Evaluation and Treatment for Patients with Persistent Cognitive Symptoms Resulting from Post-Acute COVID-19 Syndrome

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Speaker Disclosure
Ilana Feld, MS, CCC-SLP

Relevant Financial Relationships:

- salaried employee at Pi Beta Phi Rehabilitation Institute at Vanderbilt University Medical Center

Relevant Non-Financial Relationships:

- member of the Tennessee Association of Audiology and Speech-Language Pathology (TAASLP)
- member of the American Speech-Language-Hearing Association (ASHA)

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Relevant Non-Financial Relationships:

- volunteers as Continuing Education Administrator for the Academy of Neurological Communication Disorders and Sciences (ANCDS)
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- member of the American Speech-Language-Hearing Association (ASHA)

We’d like to extend a special thank you to Katrina Thomas (SLPA) for her outstanding contributions to this project!

Learner Outcomes

- Describe patterns of symptoms reported by individuals presenting to outpatient speech therapy for cognitive changes post-COVID-19 infection.

- Describe evaluation and treatment techniques and tools for this patient population.

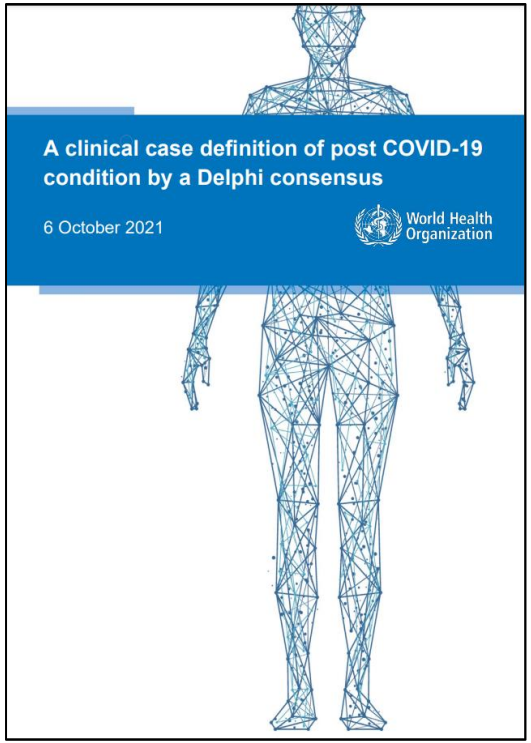
- Consider factors that contribute to outcomes among individuals with Post-Acute COVID-19 Syndrome

Post-Acute COVID-19 Syndrome/ Long COVID Basics

Terminology

- Long COVID
- Long-Term COVID-19 effects
- Long-haulers' Syndrome/Disease
- Chronic COVID-19
- Ongoing COVID-19
- Persistent COVID-19 symptoms
- Post-COVID Syndrome
- **Post-Acute Sequelae of COVID-19 (PASC)**

WHO definition of Post-COVID Condition



"Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset of COVID-19 with **symptoms that last for at least 2 months** and cannot be explained by an alternative diagnosis. Common symptoms include **fatigue, shortness of breath, cognitive dysfunction** but also which generally have an impact on everyday functioning. Symptoms may be **new onset, following initial recovery from an acute COVID-19 episode**, or **persist** from the initial illness. Symptoms may also **fluctuate or relapse over time**. A separate definition may be applicable for children."

WHO, 2021

Novel Coronavirus is not truly novel for SLPs or the medical field as whole.

- Respiratory illnesses
  - Obstructive sleep apnea
  - Chronic obstructive pulmonary disease
  - Acute Respiratory Distress Syndrome
- Encephalopathies
- Critical illness/delirium
  - Post-Intensive Care Syndrome
- Other pandemics
- mTBI

Bailey et al., 2021

Prevalence of Long COVID

- Highly variable across research studies, generally accepted that between 10 and 30% of individuals with COVID-19 will experience “Long COVID”

Prevalence of Long COVID

- Participants

  4,182 participants with COVID-19 (self-reported) from the UK, Sweden, and USA (4,223,955 individuals registered on the app)

- Methods

  Patients completed checklist of symptoms daily via mobile application (did not include cognitive symptoms)

- Results
  - Prevalence of “long COVID”:

    13.3% had symptoms 28 days or more later (“long COVID”), 2.3% had symptoms for 12 weeks or longer

Sudre et al., 2021

Possible Mechanisms for Neurological Symptoms

1) Respiratory distress

- Associated intermittent or chronic hypoxia
- Alters neurotransmitter function
- Associated with domain general cognitive deficits in COPD and attention and executive function

2) Hypercoagulability

- Can lead to stroke and/or microvascular changes in the brain

3) Direct invasion of brain tissue through the nasal cavity

4) Breakdown of the blood-brain barrier

- Due to hyper-immune system activity

Ramage, 2020

Long COVID Symptoms

Long COVID Symptoms

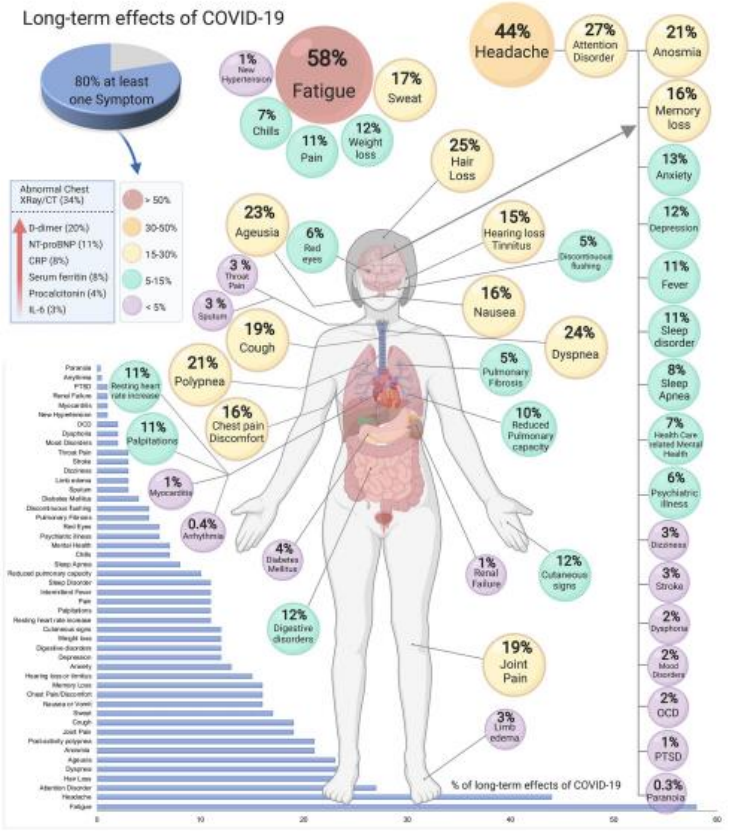
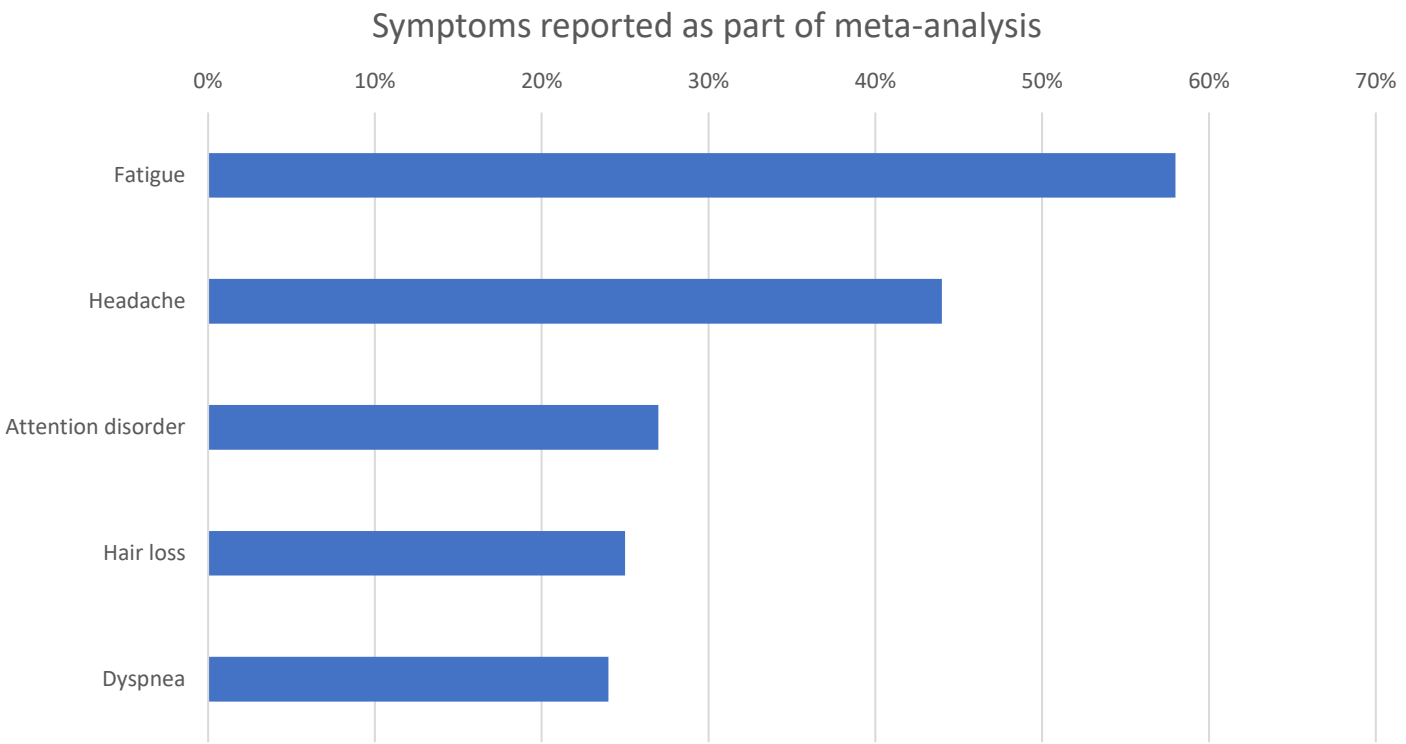


Figure 2. Long-term effects of coronavirus disease 2019 (COVID-19). The meta-analysis of the studies included an estimate for one symptom or more reported that 80% of the patients with COVID-19 have long-term symptoms. *CRP* C-reactive protein, *CT* computed tomography, *IL-6* Interleukin-6, *NT-proBNP* (NT)-pro hormone BNP, *OCD* Obsessive Compulsive Disorder, *PTSD* Post-traumatic stress disorder. This figure was created using Biorender.com.

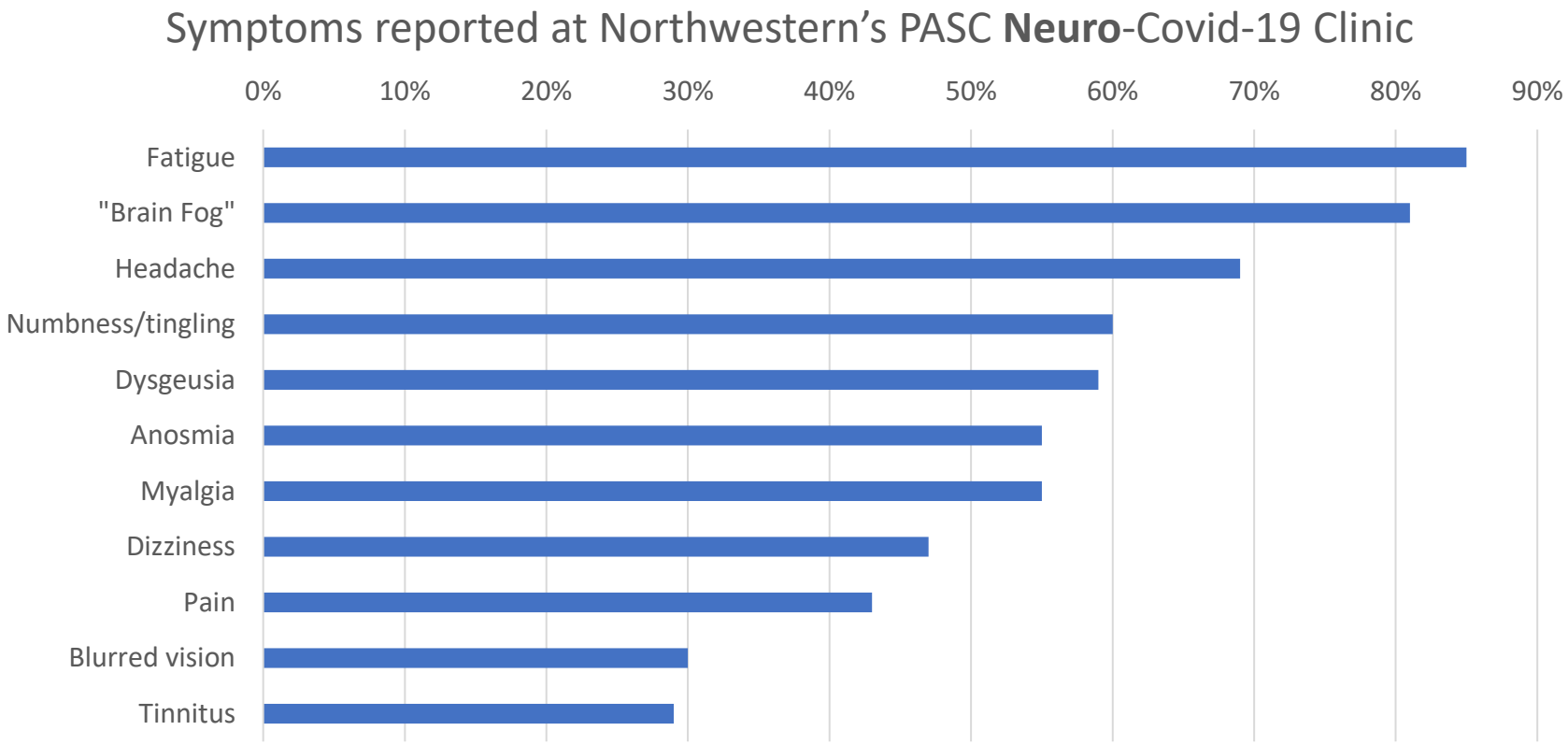
Lopez-Leon et al., 2021

Long COVID Symptoms



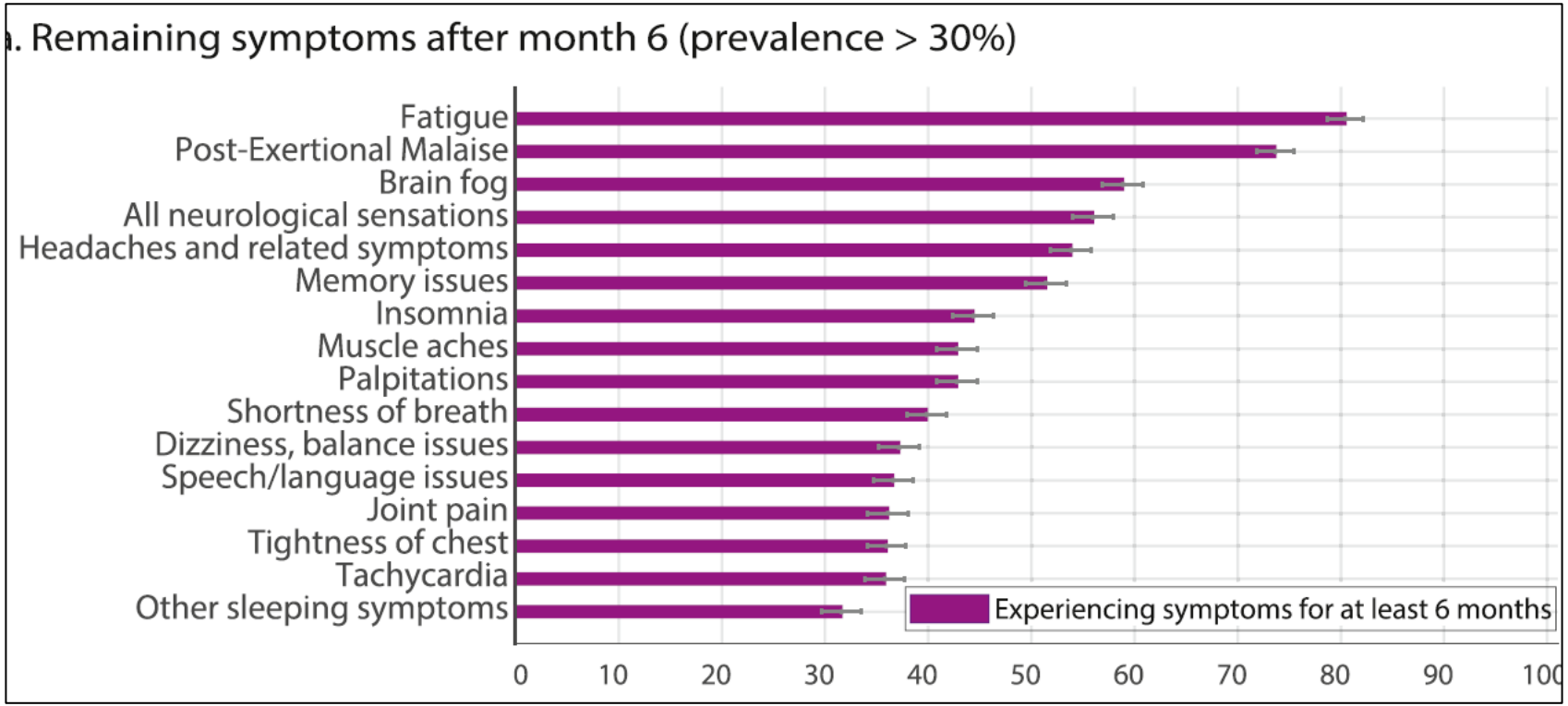
Lopez-Leon et al., 2021

Long COVID Symptoms



Graham et al., 2021

Long COVID Symptoms



Davis et al., 2021

Contributors/Predictors of Long COVID

- Age, number of symptoms in the first week, and sex (more frequent in women). More frequently in individuals with higher BMI.

Sudre et al., 2021

- Comorbidities: Depression/anxiety (42%--as compared with 21.4% of US adults), autoimmune disease (16%), insomnia (16%), lung disease (16%), and headache (14%).

Graham et al., 2021

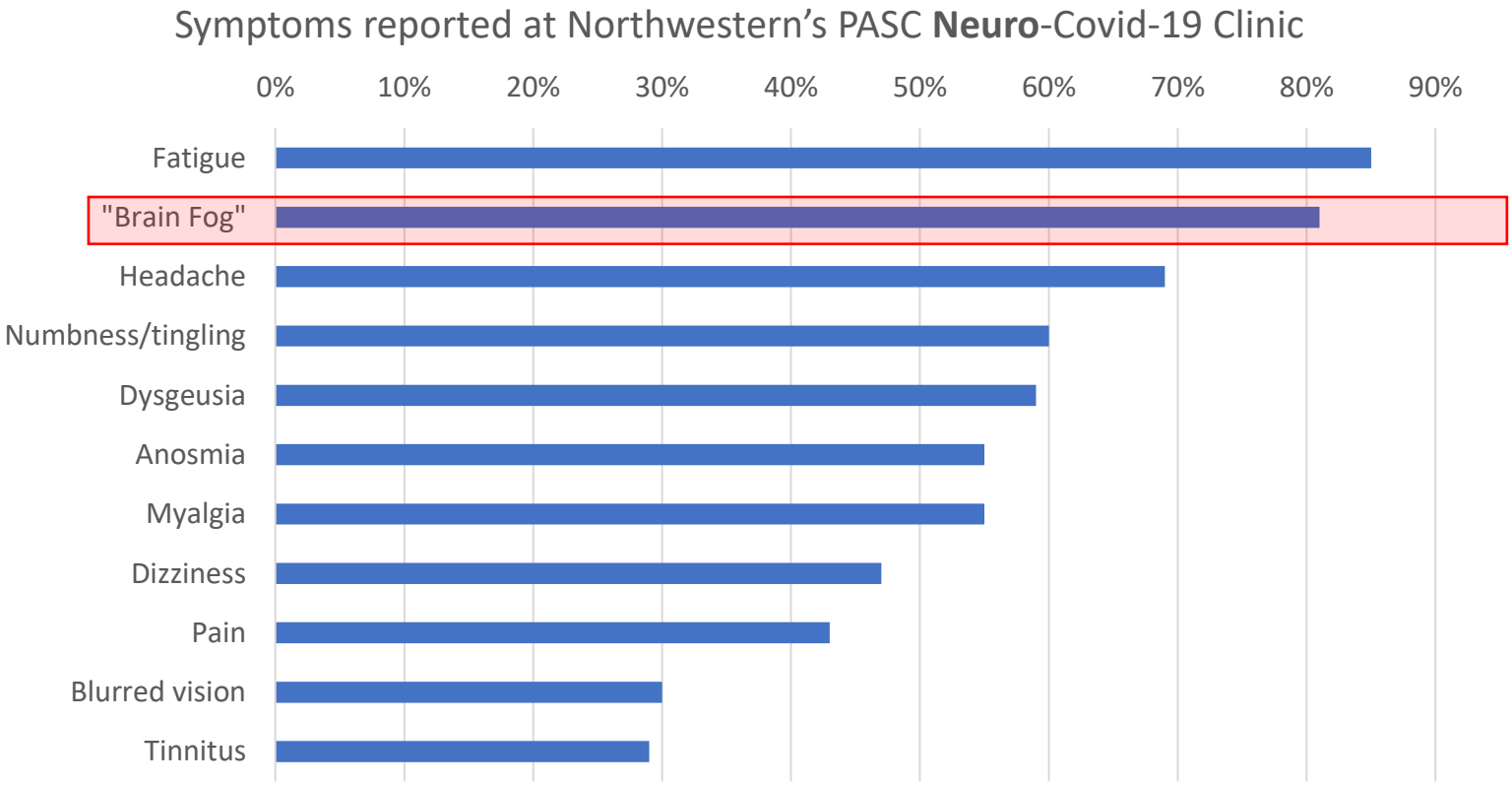
Long COVID
Cognitive Symptoms

Long COVID Cognitive Symptoms

- “Brain fog”
- Memory deficits
- Attention deficits
- Word finding difficulty

Video: “Mayo Clinic Q&A podcast: "Brain fog" is a lingering condition for many COVID-19 long-haulers” https://www.youtube.com/watch?v=zzjNlL2SdUU

Long COVID Cognitive Symptoms



Graham et al., 2021

Long COVID Cognitive Symptoms

- PROMIS indicated moderate dysfunction in cognition and fatigue quality of life, and mild-to-moderate cognitive dysfunction, measured by NIH toolbox

- PROMIS fatigue (but *not* cognitive) quality of life T-scores were moderately correlated with performance on the NIH toolbox (for working memory, executive function, and processing speed).

- 32% demonstrated memory deficit (4-item recall) and 27% demonstrated attention deficit (serial 7s)

Graham et al., 2021

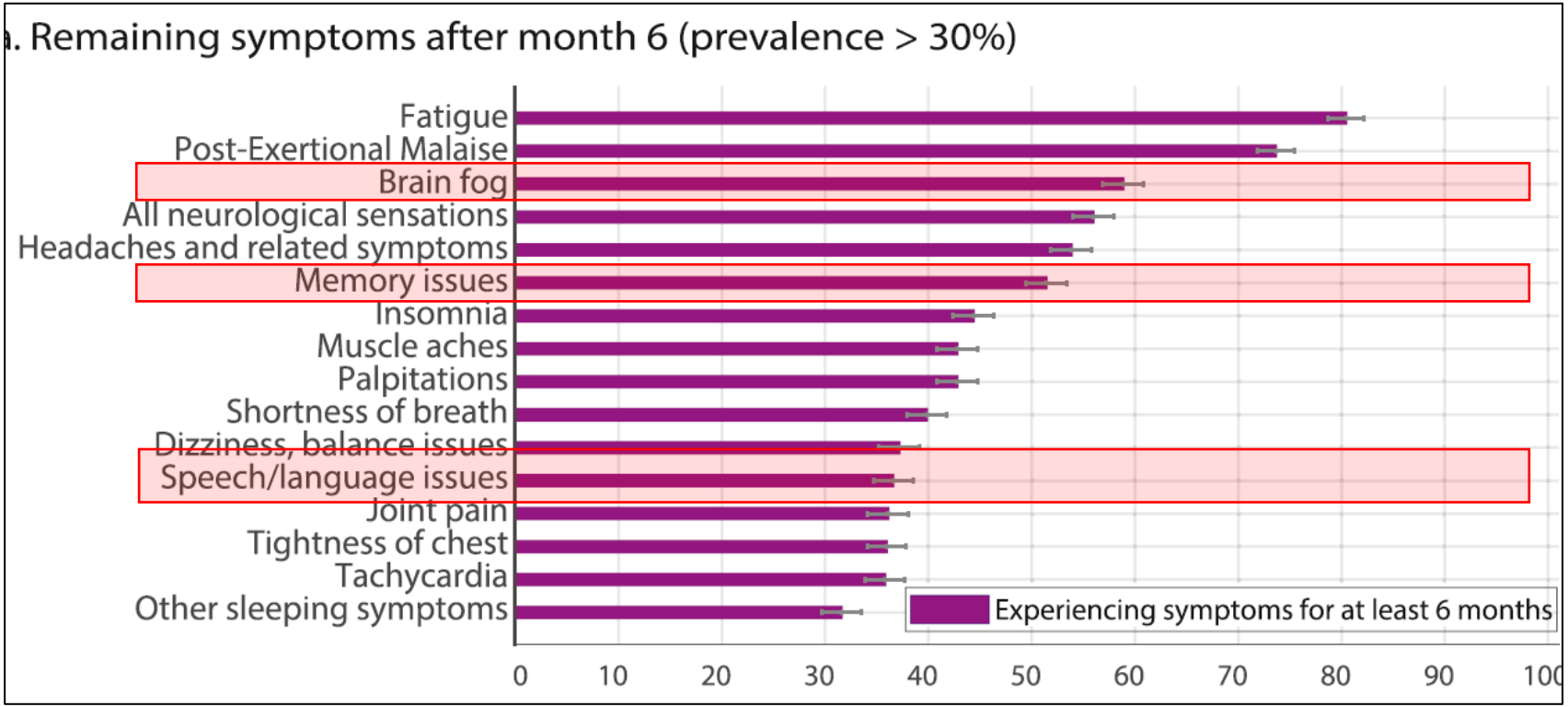
Long COVID Cognitive Symptoms

- No statistical differences in mean scores on all neuropsych tests or mean number of “impaired" DASS-21 questionnaires.

- However, a scores on the questionnaire for anxiety and depression (DASS-21 scores) were significantly higher in COVID-19 HCW compared with non COVID-19 HCW.
  - Also, DASS-21 scores significantly influenced the majority of the neuropsychological test scores.

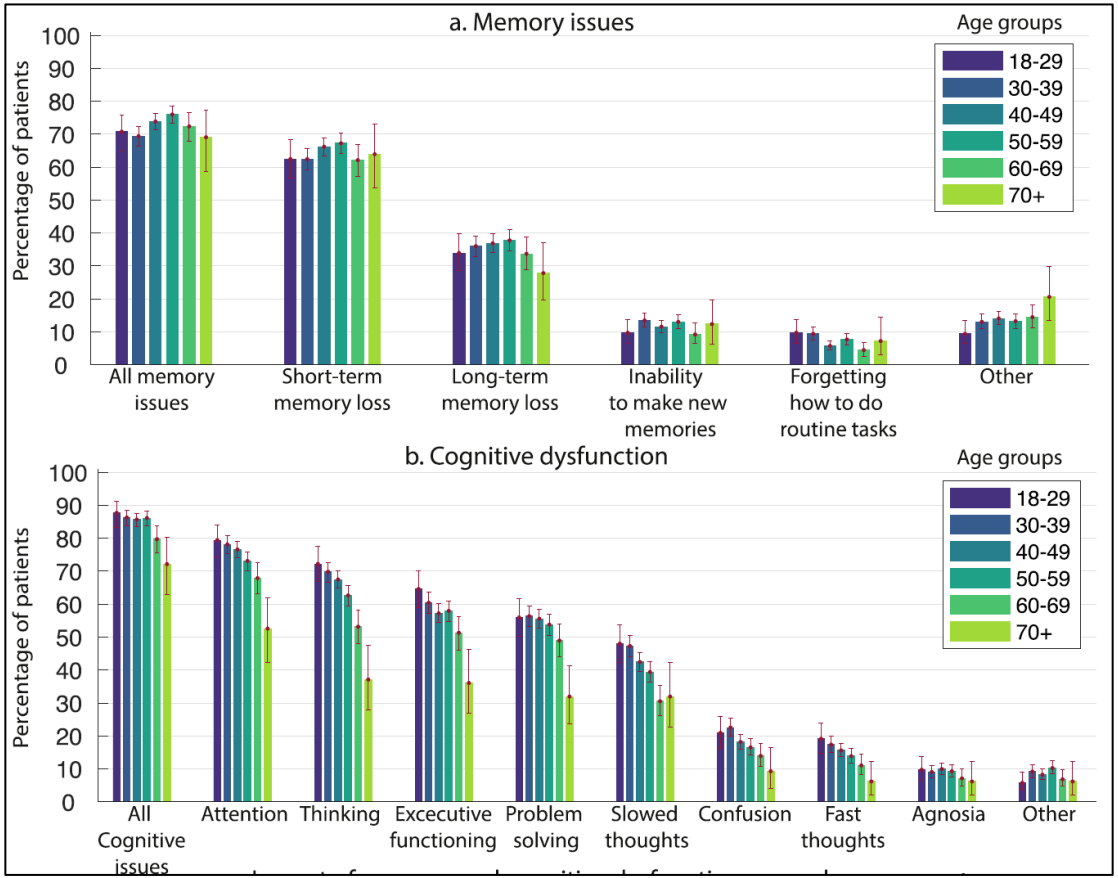
Mattioli et al., 2021

Long COVID Cognitive Symptoms



Davis et al., 2021

Long COVID Cognitive Symptoms



Davis et al., 2021

VUMC Adult Post-Acute COVID Clinic (APACC)

VUMC Adult Post-Acute COVID Clinic (APACC)

WKRN – August 14, 2021

VUMC Adult Post-Acute COVID Clinic (APACC)

- Internal medicine physicians lead the clinic
- Includes 13 specialties:
  - Pulmonology
  - Benign Hematology
  - Cardiology
  - Clinical Pharmacology
  - ENT
  - Infectious Disease
  - Neurology
  - Ophthalmology
  - PM&R
  - Psychiatry
  - Dayani Center (Physical Therapy)
  - Pi Beta Phi Rehabilitation Institute (Speech Therapy)
  - Post-COVID Cognitive Skills Support Group

- If MOCA score is normal or minimally abnormal, send to PBPRI (speech therapy) for cognitive rehab.
- If MOCA scores are significantly abnormal, send to neurology.

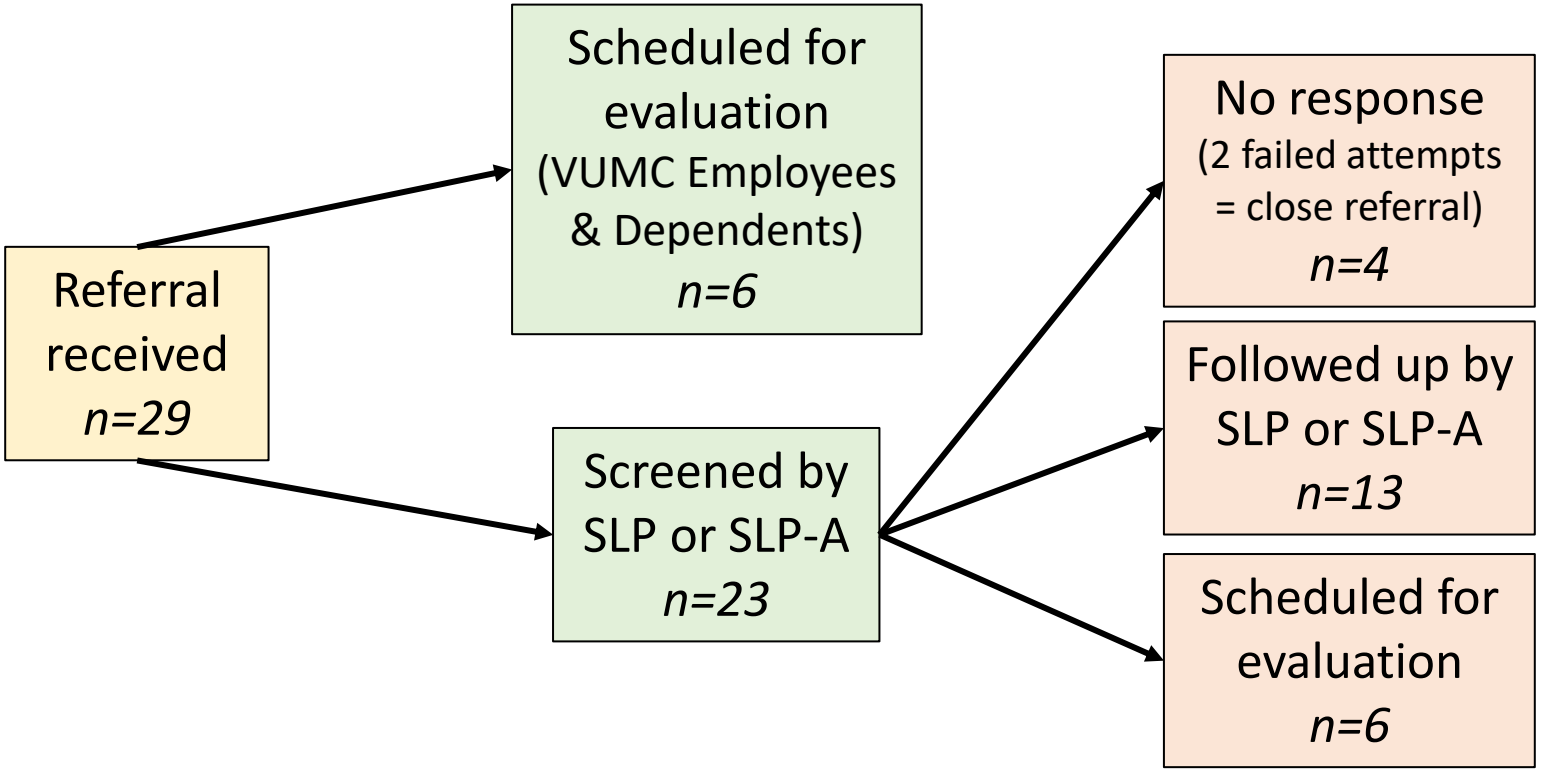
Our Patients at Pi Beta Phi Rehab

Referral Sources

- VUMC Adult Post-Acute COVID Clinic (APACC) internists
- Primary care providers
- Neurologists
- Infectious disease physicians
- Physical therapists*
- Neuropsychologists*

**Request SLP eval & treat order through patient's primary COVID provider*

PBPRI Screening & Admissions Process



Patient Demographics

- 22 females, 7 males
- Average age = 45-years-old
  - Range = 19-64
- Contracted COVID-19 between March 2020 and March 2021
  - 27 patients contracted COVID-19 in 2020
- Those included in the sample were NOT hospitalized due to COVID-19

Work Status at Time of Referral

Employment Status	Number of Patients
Returned full-time	18
Returned with reduced schedule or duties	4
Unable to return to work	6
Retired	1

Premorbid Symptoms

Symptom	Premorbid?		
	Yes	No	Unknown
Depression	17	6	5
Anxiety	17	7	5
Headaches/Migraines	11	11	7
Sleep disturbance	11	12	6
Attention issues	6	17	6

Current Symptoms

Symptom	Current/Since having COVID?		
	Yes	No	Unknown
Fatigue	29	0	0
Anxiety	27	2	0
Sleep disturbance	25	1	3
Memory issues	24	0	5
Depression	22	8	1
Word finding difficulty	22	1	6
Attention issues	21	6	2
Headaches/Migraines	20	7	2
Altered smell/taste	18	6	5

Post-COVID Symptom Rating Scale

Symptom	Average Rating	Range
Difficulty concentrating	8.14	6-10
Memory difficulty	7.96	6-10
Fatigue	7.36	4-10
Exercise intolerance	6.50	2-10
Joint pain	6.43	3-10
Muscle or body aches	6.36	3-10
Anxiety	6.11	1-10
Difficulty sleeping	5.07	3-8
Headache	4.79	1-10
Dizziness	4.71	2-10
Shortness of breath	4.75	1-10
Chest pain	2.89	1-7
Cough	1.79	1-5
Total Score	73.04/130	47-107

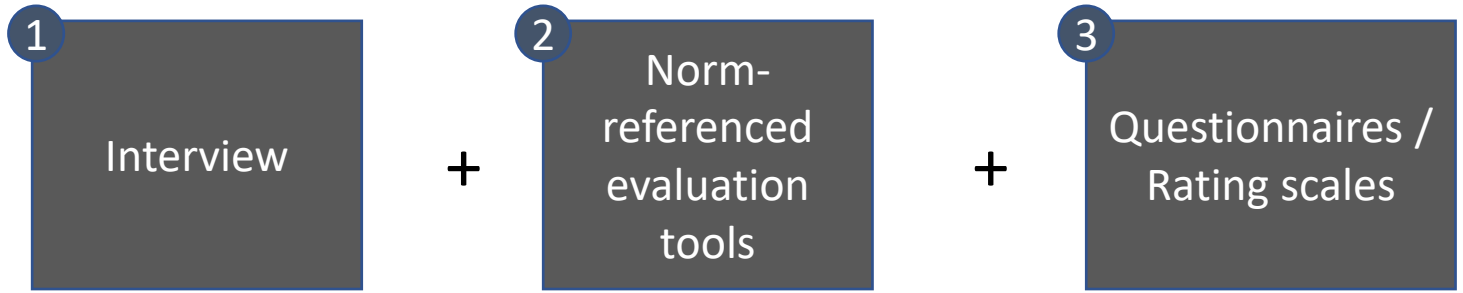
14 patients
-2 consult only
-2 eval only
-10 eval & treat

Complementary Therapy

Intervention	Number of Patients
Physical Therapy	16 (+7 referred, did not attend)
Individual psychotherapy	5
COVID-19 Cognitive Skills Support Group	4+ (7 referred, unknown if attended)
Occupational Therapy	1

Evaluation Process

Evaluation Process



1 Interview: MOST important component

- Previous and current functioning in household, social and leisure, community, academic, and work activities
- Understanding of their diagnosis and symptoms
- Self-described strengths and difficulties
- GOALS

Examples of open-ended questions:

"What brings you here?"

"How can I help you?"

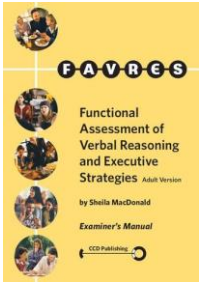
"Tell me about what your day looked like before COVID."

"What changes have you noticed since your illness began?"

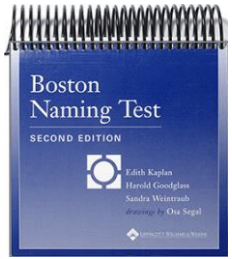
2 Norm-Referenced Tests

Repeatable Battery for the Assessment of Neuropsychological Status

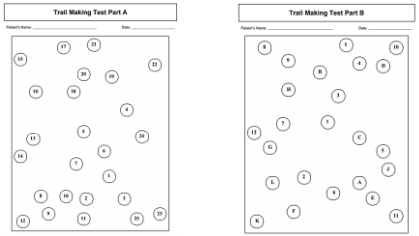
Functional Assessment of Verbal Reasoning and Executive Strategies



Boston Naming Test



Trail Making Test A & B



3 Questionnaires/Rating scales

Symptoms

Post-COVID-19 Symptom Scale

Date of last known COVID-19 diagnosis: | At least 1 mo. post?

SYMPTOM	Never									Always
Fatigue	1	2	3	4	5	6	7	8	9	10
Muscle or body aches	1	2	3	4	5	6	7	8	9	10
Shortness of breath or difficulty breathing	1	2	3	4	5	6	7	8	9	10
Difficulty concentrating or focusing	1	2	3	4	5	6	7	8	9	10
Inability to exercise or be active	1	2	3	4	5	6	7	8	9	10
Headache	1	2	3	4	5	6	7	8	9	10
Difficulty sleeping	1	2	3	4	5	6	7	8	9	10
Anxiety	1	2	3	4	5	6	7	8	9	10
Memory problems	1	2	3	4	5	6	7	8	9	10
Dizziness	1	2	3	4	5	6	7	8	9	10
Persistent chest pain/pressure	1	2	3	4	5	6	7	8	9	10
Cough	1	2	3	4	5	6	7	8	9	10
Joint pain	1	2	3	4	5	6	7	8	9	10
Other symptom:	1	2	3	4	5	6	7	8	9	10
Other symptom:	1	2	3	4	5	6	7	8	9	10
GRAND TOTAL OF ALL SYMPTOMS:										

Memory

Multifactorial Memory Questionnaire

Multifactorial Memory Questionnaire

Memory Mistakes

Name: _____ Date: _____

Below is a list of common memory mistakes that people make. Decide how often you have done each one in the *last two weeks*. Then, check the box next to the appropriate response.

1. Forget to pay a bill on time.

☐ All the Time ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

2. Misplace something you use daily, like your keys or glasses.

☐ All the Time ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

3. Have trouble remembering a telephone number you just looked up.

☐ All the Time ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

4. Not recall the name of someone you just met.

☐ All the Time ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

5. Leave something behind when you meant to bring it with you.

☐ All the Time ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

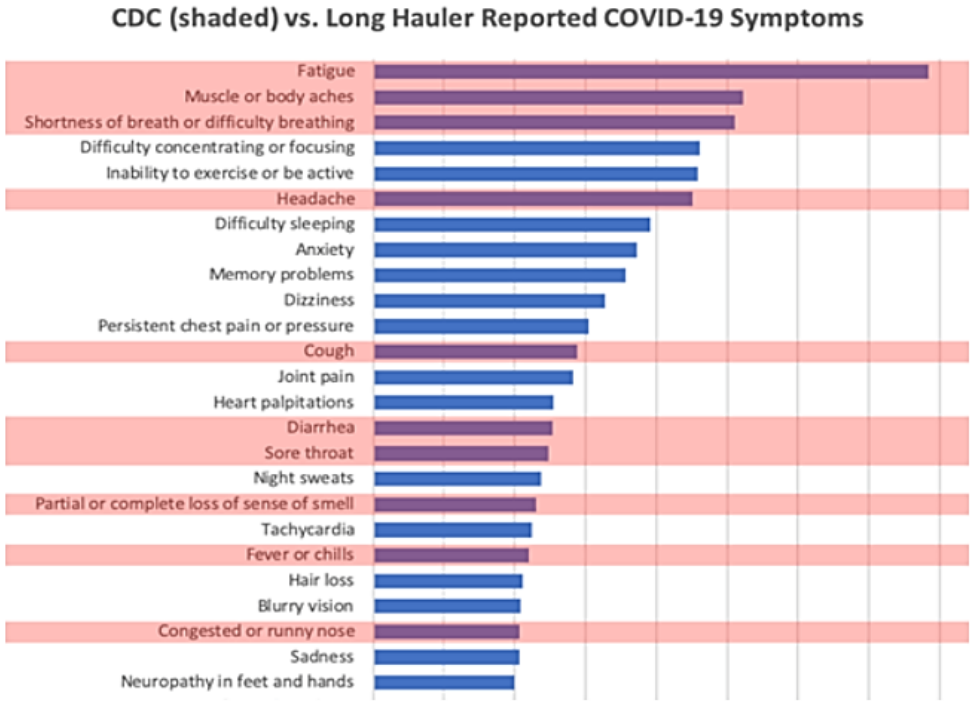
Troyer & Rich, 1996

Post-COVID Symptom Scale Development

Diana Zicklin Berrent created a poll.
Admin · 4d ·

💥**URGENT POLL**: If you consider yourself a **Long Hauler** please let us know **which symptoms you have experienced / are experiencing. THANK YOU!!!**

We are helping develop a study to help Long Haulers so the more responses we get the better! All info will be completely anonymized - we are just looking for frequency of symptoms reported and if we are missing any 💪🔥💪



Lambert & Survivor Corps, 2020

Patient name: Age:
Patient MR#:
Date:
Contact:

COVID-19 Long Hauler Symptom Rating Scale

Directions:
Describe your symptoms on a scale of 1-10 over the past week, in which 1 is Never and 10 is Always.

Date of last known COVID-19 diagnosis:	At least 1 mo. post?

SYMPTOM	Never									Always
Fatigue	1	2	3	4	5	6	7	8	9	10
Muscle or body aches	1	2	3	4	5	6	7	8	9	10
Shortness of breath or difficulty breathing	1	2	3	4	5	6	7	8	9	10
Difficulty concentrating or focusing	1	2	3	4	5	6	7	8	9	10
Inability to exercise or be active	1	2	3	4	5	6	7	8	9	10
Headache	1	2	3	4	5	6	7	8	9	10
Difficulty sleeping	1	2	3	4	5	6	7	8	9	10
Anxiety	1	2	3	4	5	6	7	8	9	10
Memory problems	1	2	3	4	5	6	7	8	9	10
Dizziness	1	2	3	4	5	6	7	8	9	10
Persistent chest pain/pressure	1	2	3	4	5	6	7	8	9	10
Cough	1	2	3	4	5	6	7	8	9	10
Joint pain	1	2	3	4	5	6	7	8	9	10
Other symptom:	1	2	3	4	5	6	7	8	9	10
Other symptom:	1	2	3	4	5	6	7	8	9	10

GRAND TOTAL OF ALL SYMPTOMS:

Treatment Process

Cognitive Rehabilitation

"[Cognitive rehabilitation] is not solving the underlying problems but helping them develop tricks and techniques to manage things that they're having trouble with."

-Dr. Serena Spudich

Reddy, 2021

Treatment Types/Approaches

1. **Personalized education**

2. **Training cognitive strategies**
   - **General – e.g., for memory**
   - **Personalized—e.g., for test-taking**

3. **Selection and training of assistive technology for cognition**

4. **Environmental management**

5. Direct training of cognitive processes

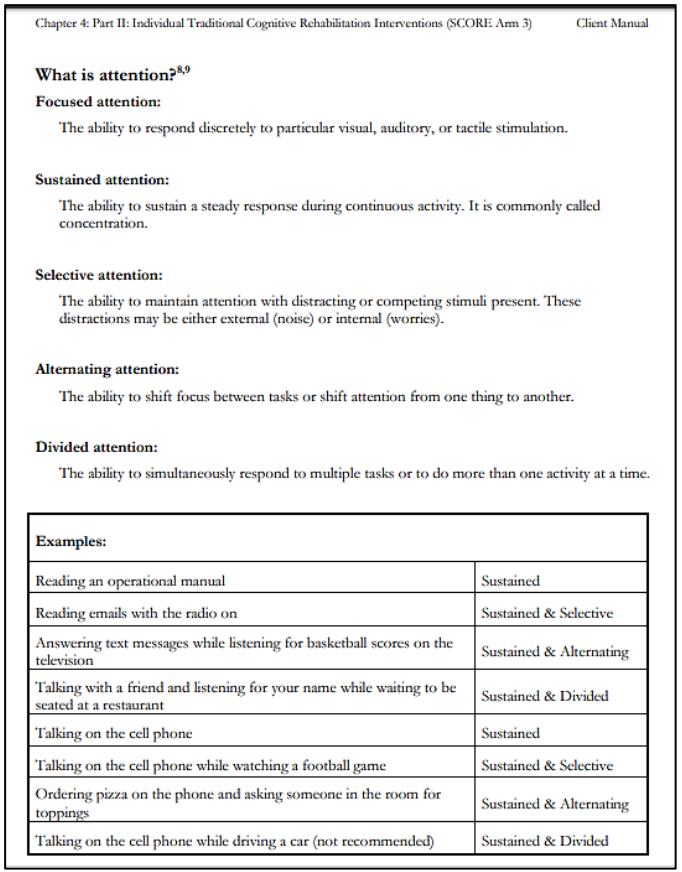
Working group to develop a clinician's guide to cognitive rehabilitation in mTBI: Application for military service members and veterans, 2016

Personalized Education

- Create positive expectations (may be an essential element)
- Increase awareness (in turn increasing use of strategies, self-advocacy)
- “Normalize” or validate observations
- Empowerment
- Sample topics:
  - Persisting symptoms of long COVID
  - Expectations for recovery
  - Types of attention, memory, executive functioning

Comper et al., 2005

Education: Books & Workbooks



Chapter 4: Part II: Individual Traditional Cognitive Rehabilitation Interventions (SCORE Arm 3) Client Manual

What is attention?[8,9]

Focused attention:

The ability to respond discretely to particular visual, auditory, or tactile stimulation.

Sustained attention:

The ability to sustain a steady response during continuous activity. It is commonly called concentration.

Selective attention:

The ability to maintain attention with distracting or competing stimuli present. These distractions may be either external (noise) or internal (worries).

Alternating attention:

The ability to shift focus between tasks or shift attention from one thing to another.

Divided attention:

The ability to simultaneously respond to multiple tasks or to do more than one activity at a time.

Examples:	
Reading an operational manual	Sustained
Reading emails with the radio on	Sustained & Selective
Answering text messages while listening for basketball scores on the television	Sustained & Alternating
Talking with a friend and listening for your name while waiting to be seated at a restaurant	Sustained & Divided
Talking on the cell phone	Sustained
Talking on the cell phone while watching a football game	Sustained & Selective
Ordering pizza on the phone and asking someone in the room for toppings	Sustained & Alternating
Talking on the cell phone while driving a car (not recommended)	Sustained & Divided

Defense & Veterans
Brain Injury Center:

https://www.va.gov/covidtraining/docs/mTBICPGFullCPG50821816.pdf

Working group to develop a clinician's guide to cognitive rehabilitation in mTBI: Application for military service members and veterans, 2016

Education: PBPRI Materials

Types of Attention

- Focused
- Sustained
- Selective
- Divided
- Alternating

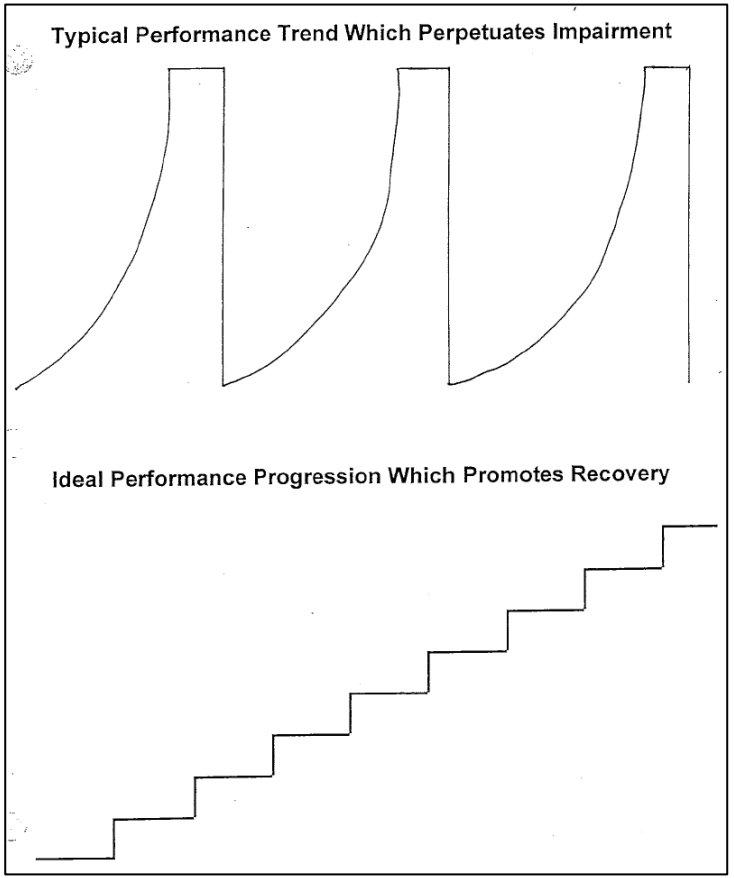
Alternating Attention

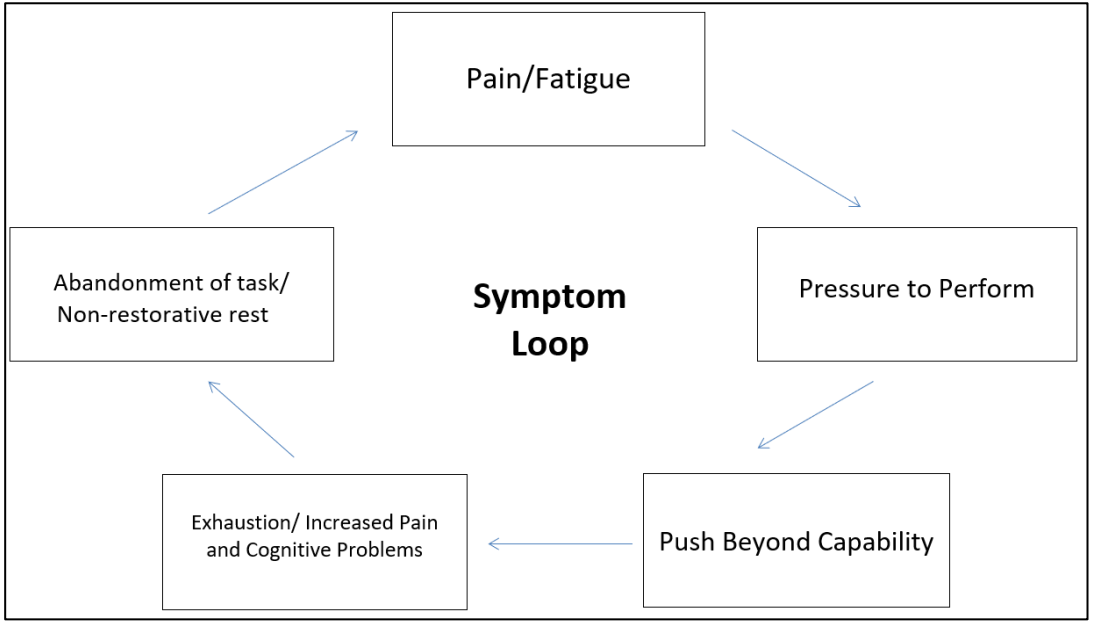
-The ability to switch your focus back and forth between tasks

Examples:

- Cooking spaghetti on the stovetop while periodically checking on a cake baking in the oven
- Working on a project and answering intermittent phone calls
- Alternating between helping a child with a school project and completing your own work

Education “Plus”





Education “Plus”

Date: ____ /____ / ____

Daily Journaling Exercise

1. What activities did I do today?

2. What went well?

3. What strategies/tools did I use that made me successful in these activities?

4. What didn’t go well?

5. What strategies/tools could I have used that would have improved my performance during these activities?

Cognitive Training

- **Strategies*** + Activities
  - **Attention***
  - **Executive functioning***
  - **Memory***
  - Reading
  - Writing
  - Verbal expression

****Practice standard for mTBI***

Cicerone et al., 2019

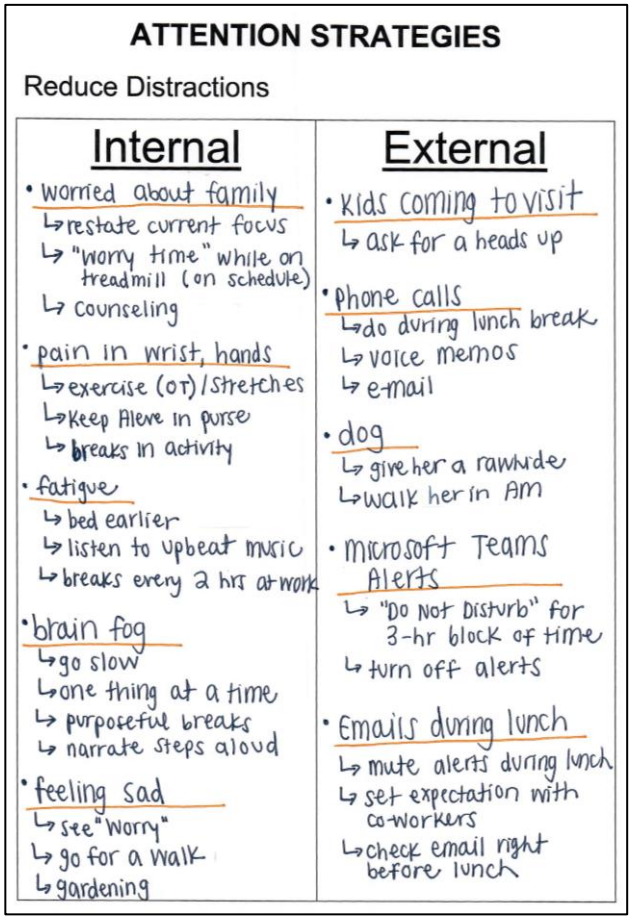
Cognitive Training: Books & Workbooks

Optimizing attention: environmental strategies	
Reduce external distractions	• Turn off the music or television, or use ear plugs • Minimize visual clutter
Modify your surroundings	• Find a quiet area • Rearrange furniture, close curtains • Ensure adequate lighting • Set desk/chair height to comfortable position at work • Set room temperature on the cool side to help keep you alert
Set alarms	• Set alarms as reminders for pending tasks to decrease the distraction of watching the clock
Modify times	• Use your individual best time, such as morning or afternoon, to focus on a task requiring attention to detail • Allow yourself time when changing tasks • When changing tasks, verbalize what you are currently doing • If you know you will be interrupted, work on a very familiar mundane task
Take breaks	• If you notice you are becoming distracted, take a short break and then return to the task at hand • Use the "High Priority/Low Priority" strategies for organization • Break tasks into smaller steps; mark off on a checklist after each task is completed
Focus on one task	• You may perform inadequately if juggling too many tasks at once
Avoid interruptions	• Use "Do Not Disturb" signs • Gather supplies before starting activity (pen, paper) • Turn off phone ringer
Be an active communication partner	• Ask questions during conversations to ensure clear understanding • Repeat information from conversations (paraphrase)
Improve sleep	• Sleep deprivation causes difficulty with paying attention
Decrease stress	• Internal distracters focus attention away from the task at hand
Exercise	• A healthier body helps your thinking skills
Use of sensory input to increase concentration	• Chew gum • Squeeze stress ball for hand • Tap a pencil or your foot
Use an idea log	• Designate a notebook or use voice recorder on smart phone
White noise	• Background music or fans may help block out surrounding distractions
Set a designated location	• Use the same location to keep key items in one place (cell phone and charging station, wallet, hat and key hangers)
Handling Interruptions	
Sticky notes	• Use sticky notes as place holders for tasks; note where you stopped and what action is pending, what you did last and what you will do next • When reading, use as place markers • Use visual cues: take lunch, grab keys, lock door, take medications
Phone calls	• Allow phone calls to go to voice mail and answer later

Defense Health Agency's
TBI Center of Excellence:

https://health.mil/Reference-Center/Publications/2020/08/04/SCORE-Chapter-4-Part-II

Cognitive Training: PBPRI Materials



ATTENTION STRATEGIES

Reduce Distractions

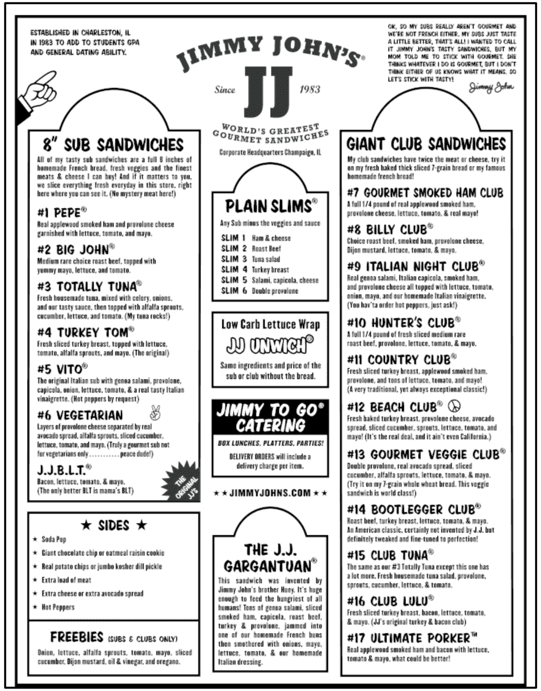
Internal	External
• worried about family ↳ restate current focus ↳ "worry time" while on treadmill (on schedule) ↳ counseling	• kids coming to visit ↳ ask for a heads up
• pain in wrist, hands ↳ exercise (OT)/stretches ↳ keep Aleve in purse ↳ breaks in activity	• phone calls ↳ do during lunch break ↳ voice memos ↳ e-mail
• fatigue ↳ bed earlier ↳ listen to upbeat music ↳ breaks every 2 hrs at work	• dog ↳ give her a rawhide ↳ walk her in AM
• brain fog ↳ go slow ↳ one thing at a time ↳ purposeful breaks ↳ narrate steps aloud	• Microsoft Teams Alerts ↳ "Do Not Disturb" for 3-hr block of time ↳ turn off alerts
• feeling sad ↳ see "worry" ↳ go for a walk ↳ gardening	• Emails during lunch ↳ mute alerts during lunch ↳ set expectation with co-workers ↳ check email right before lunch

- Focus on *ONE* task at a time (self-talk)
- Set realistic goals and pace yourself
- Double check your work and surroundings
- Use a line guide/print blocker to read
- Repeat/confirm new information
- Work during optimal hours
- Stay organized

Cognitive Training Exercises:

Personalize & perform in context

- <u>Memory</u>: “Study” Jimmy John’s sandwiches
- <u>Attention</u>: Check addresses and orders
- <u>Executive Function</u>: Build a study schedule for an upcoming exam
- <u>Verbal Expression</u>: Roleplay an interview


ESTABLISHED IN CHARLESTON, IL IN 1983 TO ADD TO STUDENTS GPA AND GENERAL DATING ABILITY.

JIMMY JOHN'S®

Since JJ 1983

WORLD'S GREATEST GOURMET SANDWICHES

Corporate Headquarters Champaign, IL

OK, SO MY SUBS REALLY AREN'T GOURMET AND WE'RE NOT FRENCH EITHER. MY SUBS JUST TASTE A LITTLE BETTER, THAT'S ALL! I WANTED TO CALL IT JIMMY JOHN'S TASTY SANDWICHES, BUT MY MOM TOLD ME TO STICK WITH GOURMET. SHE THINKS WHATEVER I DO IS GOURMET, BUT I DON'T THINK EITHER OF US KNOWS WHAT IT MEANS. SO LET'S STICK WITH TASTY!

Jimmy John

8" SUB SANDWICHES

All of my tasty sub sandwiches are a full 8 inches of homemade French bread, fresh veggies and the finest meats & cheese I can buy! And if it matters to you, we slice everything fresh everyday in this store, right here where you can see it. (No mystery meat here!)

#1 PEPE®
Real applewood smoked ham and provolone cheese garnished with lettuce, tomato, and mayo.

#2 BIG JOHN®
Medium rare choice roast beef, topped with yummy mayo, lettuce, and tomato.

#3 TOTALLY TUNA®
Fresh housemade tuna, mixed with celery, onions, and our tasty sauce, then topped with alfalfa sprouts, cucumber, lettuce, and tomato. (My tuna rocks!)

#4 TURKEY TOM®
Fresh sliced turkey breast, topped with lettuce, tomato, alfalfa sprouts, and mayo. (The original)

#5 VITO®
The original Italian sub with genoa salami, provolone, capicola, onion, lettuce, tomato, & a real tasty Italian vinaigrette. (Hot peppers by request)

#6 VEGETARIAN
Layers of provolone cheese separated by real avocado spread, alfalfa sprouts, sliced cucumber, lettuce, tomato, and mayo. (Truly a gourmet sub not for vegetarians only .... peace dude!)

J.J.B.L.T.®
Bacon, lettuce, tomato, & mayo. (The only better BLT is mama's BLT)

THE ORIGINAL JJ'S

★ SIDES ★
★ Soda Pop
★ Giant chocolate chip or oatmeal raisin cookie
★ Real potato chips or jumbo kosher dill pickle
★ Extra load of meat
★ Extra cheese or extra avocado spread
★ Hot Peppers

FREEBIES (SUBS & CLUBS ONLY)
Onion, lettuce, alfalfa sprouts, tomato, mayo, sliced cucumber, Dijon mustard, oil & vinegar, and oregano.

PLAIN SLIMS®
Any Sub minus the veggies and sauce
SLIM 1 Ham & cheese
SLIM 2 Roast Beef
SLIM 3 Tuna salad
SLIM 4 Turkey breast
SLIM 5 Salami, capicola, cheese
SLIM 6 Double provolone

Low Carb Lettuce Wrap
JJ UNWICH®
Same ingredients and price of the sub or club without the bread.

JIMMY TO GO® CATERING
BOX LUNCHES, PLATTERS, PARTIES!
DELIVERY ORDERS will include a delivery charge per item.

★ ★ JIMMYJOHNS.COM ★ ★

THE J.J. GARGANTUAN®
This sandwich was invented by Jimmy John's brother Huey. It's huge enough to feed the hungriest of all humans! Tons of genoa salami, sliced smoked ham, capicola, roast beef, turkey & provolone, jammed into one of our homemade French buns then smothered with onions, mayo, lettuce, tomato, & our homemade Italian dressing.

GIANT CLUB SANDWICHES

My club sandwiches have twice the meat or cheese, try it on my fresh baked thick sliced 7-grain bread or my famous homemade french bread!

#7 GOURMET SMOKED HAM CLUB
A full 1/4 pound of real applewood smoked ham, provolone cheese, lettuce, tomato, & real mayo!

#8 BILLY CLUB®
Choice roast beef, smoked ham, provolone cheese, Dijon mustard, lettuce, tomato, & mayo.

#9 ITALIAN NIGHT CLUB®
Real genoa salami, Italian capicola, smoked ham, and provolone cheese all topped with lettuce, tomato, onion, mayo, and our homemade Italian vinaigrette. (You hav'ta order hot peppers, just ask!)

#10 HUNTER'S CLUB®
A full 1/4 pound of fresh sliced medium rare roast beef, provolone, lettuce, tomato, & mayo.

#11 COUNTRY CLUB®
Fresh sliced turkey breast, applewood smoked ham, provolone, and tons of lettuce, tomato, and mayo! (A very traditional, yet always exceptional classic!)

#12 BEACH CLUB®
Fresh baked turkey breast, provolone cheese, avocado spread, sliced cucumber, sprouts, lettuce, tomato, and mayo! (It's the real deal, and it ain't even California.)

#13 GOURMET VEGGIE CLUB®
Double provolone, real avocado spread, sliced cucumber, alfalfa sprouts, lettuce, tomato, & mayo. (Try it on my 7-grain whole wheat bread. This veggie sandwich is world class!)

#14 BOOTLEGGER CLUB®
Roast beef, turkey breast, lettuce, tomato, & mayo. An American classic, certainly not invented by J.J. but definitely tweaked and fine-tuned to perfection!

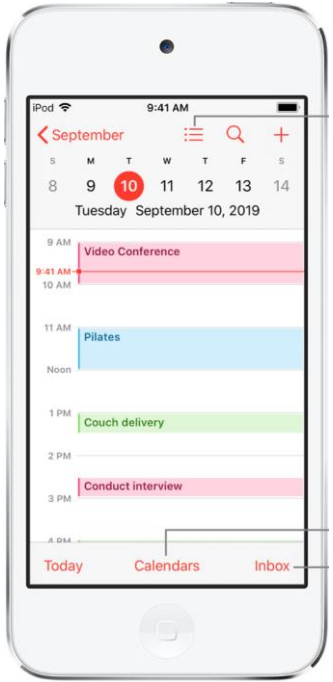
#15 CLUB TUNA®
The same as our #3 Totally Tuna except this one has a lot more. Fresh housemade tuna salad, provolone, sprouts, cucumber, lettuce, & tomato.

#16 CLUB LULU®
Fresh sliced turkey breast, bacon, lettuce, tomato, & mayo. (JJ's original turkey & bacon club)

#17 ULTIMATE PORKER™
Real applewood smoked ham and bacon with lettuce, tomato & mayo, what could be better!

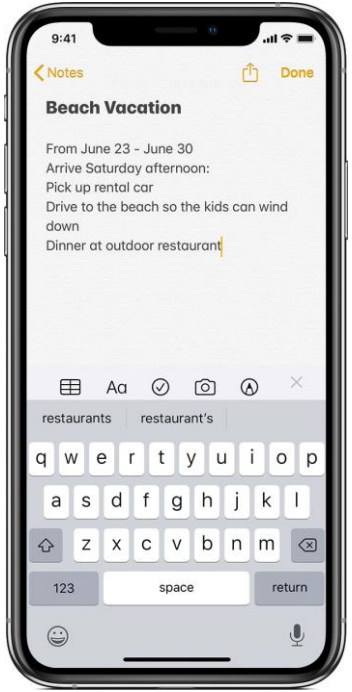
Assistive Technology: iPhone Apps

Calendar

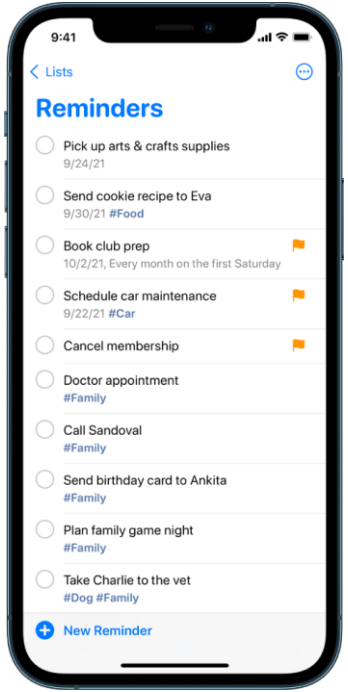


Alarms

Notes



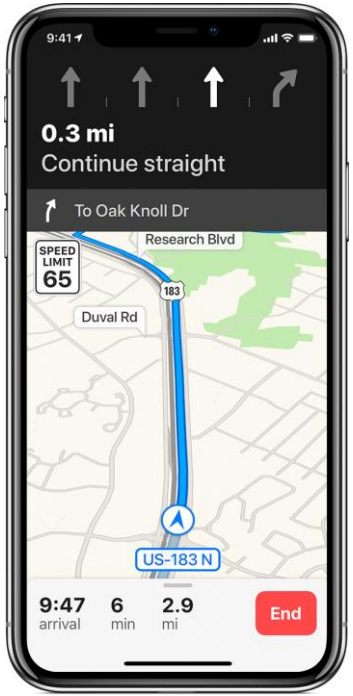
Reminders



Timers

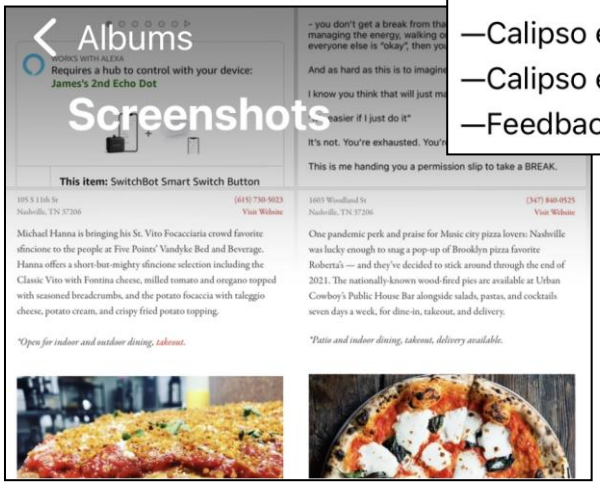
Assistive Technology: iPhone Apps

Apple Maps

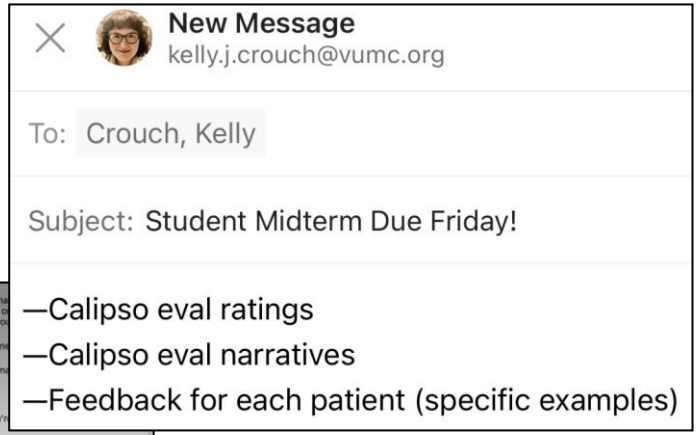


Voice Memo

Photos



E-mail to self



Assistive Technology: iPhone Shortcuts

Example Shortcuts:

- When I arrive at Publix on Hwy 70S, open my grocery list in the Notes app.
- From 7:30 AM until 5:00 PM, turn on Do Not Disturb but allow James, Jesse, and Dad's calls/texts to come through.

Assistive Technology: More Apps

To Do Lists	Calendars	Miscellaneous
Microsoft To Do	Google Calendar	Pocket -saves articles, links, & videos to view later
Tick Tick	Outlook Calendar	LastPass -password manager
Any.do	TimeTree	Outliner -outlines a complex task
Todoist	aCalendar	Evernote -note-taking by writing, pics, audio, etc.
Google Keep	Business Calendar 2	IFTTT -creates shortcuts (e.g., if there is an upcoming event on my Google Calendar, then text me a reminder with the event name, time, and address.)

Assistive Technology: Supporting Learning

Setting a Reminder Using Siri/Voice Commands

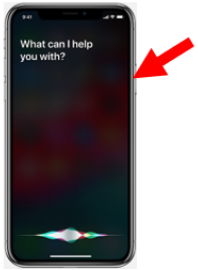
1. Mentally prepare your command: **"Remind me to [task] [when]."**

   EXAMPLES:
   - Remind me to make an appointment with neurology today at 3 PM.
   - Remind me to call Susie tonight at 6 PM.
   - Remind me to check My Health every day at 8 AM.

2. Say, "Hey, Siri!"
   (Wait to say your command until the beep!)

   OR

   Hold down the button on the right side of your iPhone for 2-3 seconds until you see the black screen that says, "What can I help you with?"

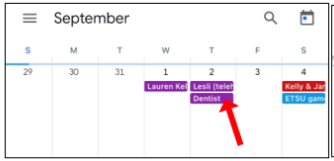


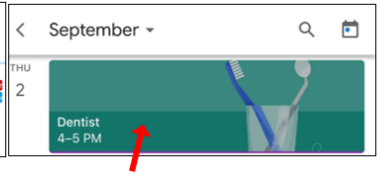
3. Say your command: **"Remind me to [task] [when]."**

4. Double-check your reminder to make sure the title, date, and time are correct.
   - If it is correct, press swipe up on the screen to exit.
   - If it is incorrect, tap on the reminder to make edits.

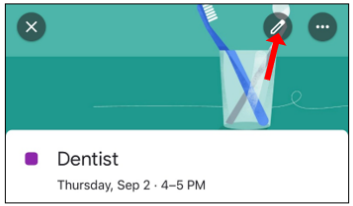
Editing Google Calendar Events

1) Tap on the event you wish to edit
   (Note: You might have to tap a couple of times to get there.)

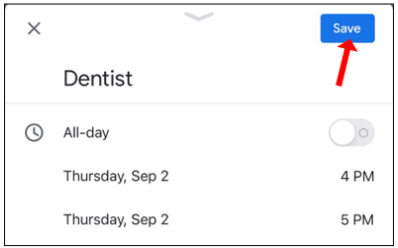




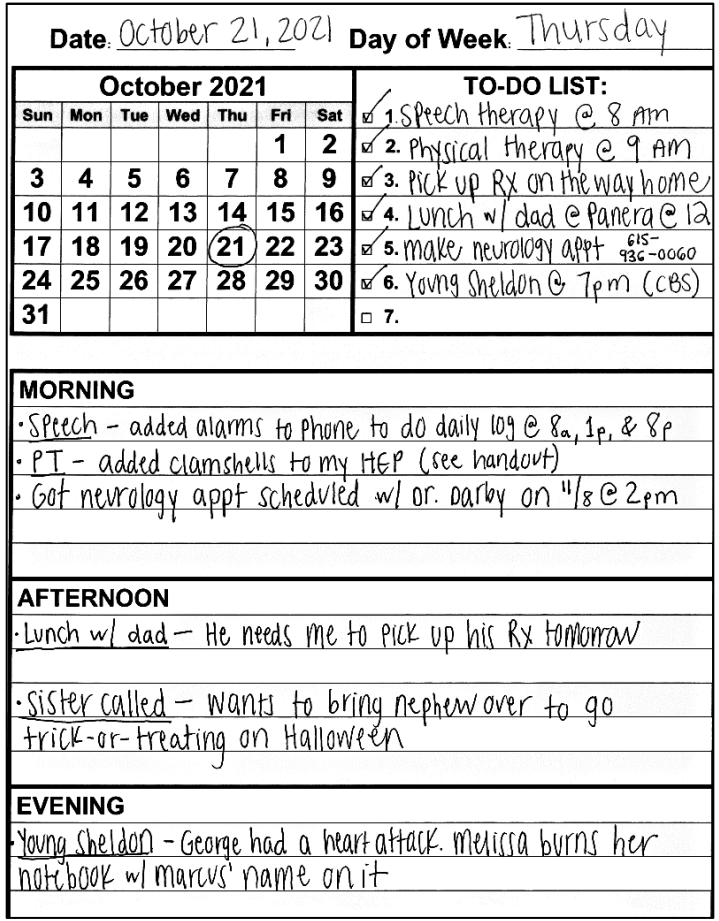
2) Once you're "in" the event, tap on the pencil icon to pull up the editing menu.



3) Make your desired edits, and tap save when finished.



Assistive Technology: Pen & Paper Tools



Date: October 21, 2021 **Day of Week:** Thursday

October 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

TO-DO LIST:

- ☑ 1. Speech therapy @ 8 am
- ☑ 2. Physical therapy @ 9 AM
- ☑ 3. Pick up Rx on the way home
- ☑ 4. Lunch w/ dad @ Panera @ 12
- ☑ 5. make neurology appt 615-936-0060
- ☑ 6. Young Sheldon @ 7pm (CBS)
- ☐ 7.

MORNING

- Speech - added alarms to phone to do daily log @ 8a, 1p, & 8p
- PT - added clamshells to my HEP (see handout)
- Got neurology appt scheduled w/ Dr. Darby on 11/8 @ 2pm

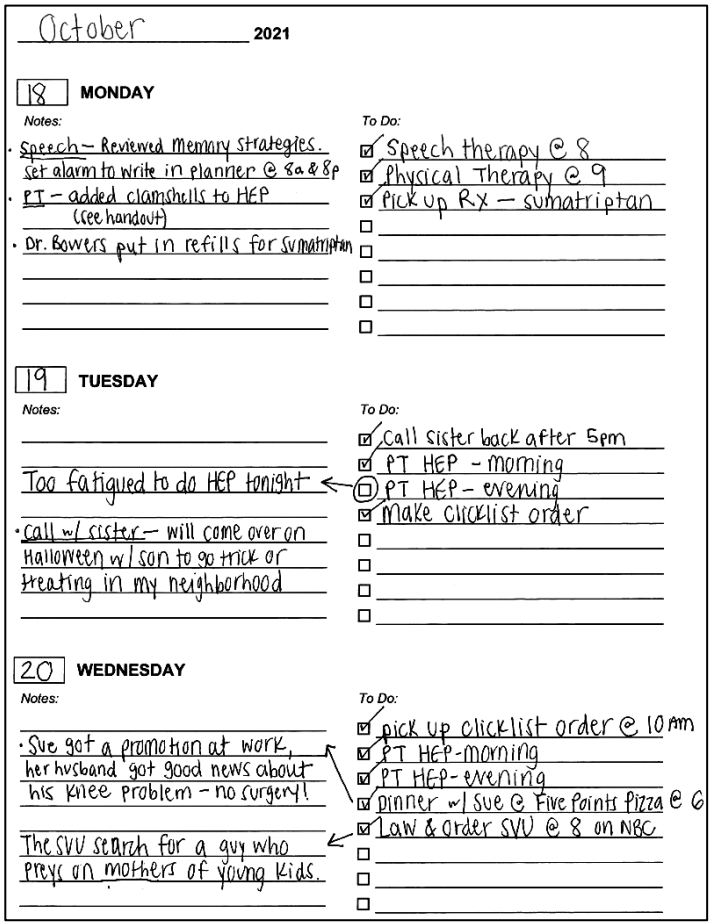
AFTERNOON

- Lunch w/ dad - He needs me to pick up his Rx tomorrow
- Sister called - wants to bring nephew over to go trick-or-treating on Halloween

EVENING

- Young Sheldon - George had a heart attack. Melissa burns her notebook w/ Marcus' name on it

Assistive Technology: Pen & Paper Tools



October 2021

18 MONDAY

Notes:
- Speech – Reviewed Memory strategies. Set alarm to write in planner @ 8a & 8p
- PT – added clamshells to HEP (see handout)
- Dr. Bowers put in refills for sumatriptan

To Do:
- ☑ Speech therapy @ 8
- ☑ Physical Therapy @ 9
- ☑ Pick up Rx – sumatriptan

19 TUESDAY

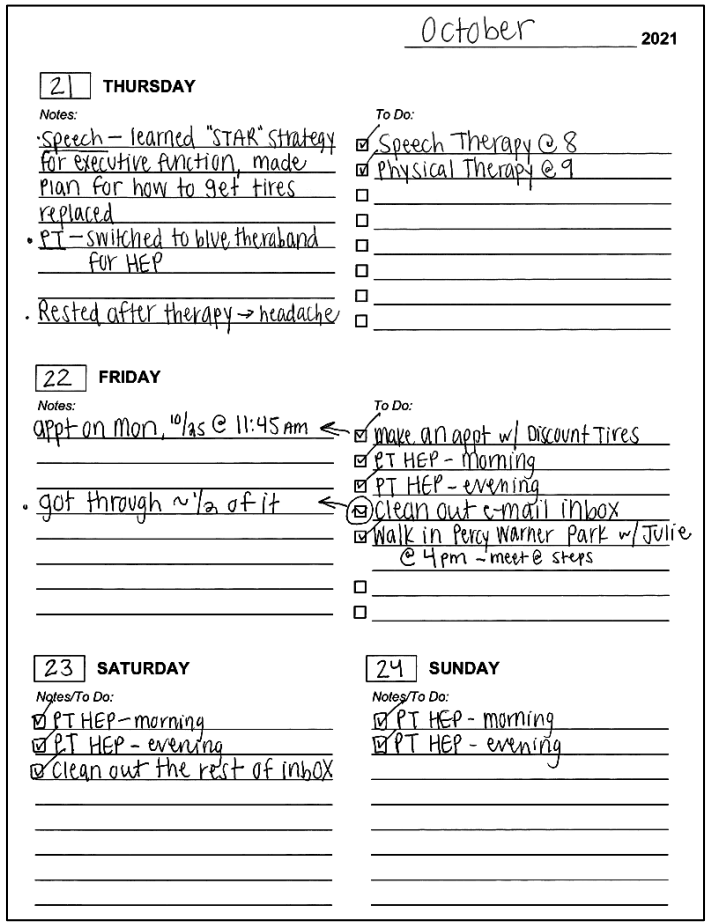
Notes:
- Too fatigued to do HEP tonight
- call w/ sister – will come over on Halloween w/ son to go trick or treating in my neighborhood

To Do:
- ☑ Call sister back after 5pm
- ☑ PT HEP - morning
- ☐ PT HEP - evening
- ☑ Make checklist order

20 WEDNESDAY

Notes:
- Sue got a promotion at work, her husband got good news about his knee problem - no surgery!
- The SVU search for a guy who preys on mothers of young kids.

To Do:
- ☑ pick up checklist order @ 10 am
- ☑ PT HEP-morning
- ☑ PT HEP-evening
- ☑ dinner w/ Sue @ Five Points Pizza @ 6
- ☑ Law & Order SVU @ 8 on NBC



October 2021

21 THURSDAY

Notes:
- Speech – learned "STAR" strategy for executive function, made plan for how to get tires replaced
- PT – switched to blue theraband for HEP
- Rested after therapy → headache

To Do:
- ☑ Speech Therapy @ 8
- ☑ Physical Therapy @ 9

22 FRIDAY

Notes:
- appt on Mon, 10/25 @ 11:45 am
- got through ~1/2 of it

To Do:
- ☑ make an appt w/ Discount Tires
- ☑ PT HEP - morning
- ☑ PT HEP - evening
- ☒ clean out e-mail inbox
- ☑ Walk in Percy Warner Park w/ Julie @ 4pm - meet @ steps

23 SATURDAY

Notes/To Do:
- ☑ PT HEP - morning
- ☑ PT HEP - evening
- ☑ clean out the rest of inbox

24 SUNDAY

Notes/To Do:
- ☑ PT HEP - morning
- ☑ PT HEP - evening

Assistive Technology: Pen & Paper Tools

L&D Rm _____ Name: _____	L&D Rm _____ Name: _____
☐ IV Chart/Remove	☐ IV Chart/Remove
☐ Req doc	☐ Req doc
☐ Pain assessment Q2 hours	☐ Pain assessment Q2 hours
☐ 8 AM	☐ 8 AM
☐ 10 AM	☐ 10 AM
☐ 12 PM	☐ 12 PM
☐ 2 PM	☐ 2 PM
☐ 4 PM	☐ 4 PM
☐ 6 PM	☐ 6 PM
☐ Temperature check Q2 hours	☐ Temperature check Q2 hours
☐ 8 AM	☐ 8 AM
☐ 10 AM	☐ 10 AM
☐ 12 PM	☐ 12 PM
☐ 2 PM	☐ 2 PM
☐ 4 PM	☐ 4 PM
☐ 6 PM	☐ 6 PM
☐ C-S wound	☐ C-S wound
☐ Foley	☐ Foley
☐ IV Intake	☐ IV Intake
☐ Urine output	☐ Urine output
☐ Education	☐ Education
☐ Tracing	☐ Tracing
☐ _____	☐ _____

Environmental Management

- Employment*
- School*
- Home

Accommodations for Work

- Allow employee to bring phone into workspace.
- Reduced hours per week (# of hours & days, length of time before reevaluation)
- Provide weekly meetings with employee to provide feedback
- Provide written feedback
- Provide written instructions
- Provide reminders for meetings
- Provide written minutes for meetings
- Limit interruptions in employees' work environment
- Provide extra time for projects
- Provide opportunities for training "refreshers"
- Provide speech-to-text software (e.g., "Dragon")
- Allow more frequent breaks

Facilitators & Barriers to Progress

Facilitators	Barriers
• Supportive loved ones • Flexible work settings • Medical literacy • Premorbid healthy lifestyle	• Insurance limitations • Access to care • Inflexible work schedules • Misinformation among loved ones, practitioners, employers, etc. • Psychological disorders • Financial strain • Other life stressors

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Q&A + Discussion

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