POWER OF PROVIDERS

Peer to Peer knowledge sharing webinar series

Washington State Department of HEALTH

Continuing Medical Education

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the Federation of State Medical Boards, Washington Medical Commission and the Washington State Department of Health. The Federation of State Medical Boards is accredited by the ACCME to provide continuing medical education for physicians.

The Federation of State Medical Boards designates this live activity for a maximum of 1.0 *AMA PRA Category 1 Credit*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Continuing Education

- This nursing continuing professional development activity was approved by Montana Nurses Association, an accredited approver with distinction by the American Nurses Credentialing Center's Commission on Accreditation. Upon successful completion of this activity, 1.0 contact hours will be awarded.

- This program has been granted prior approval by the American Association of Medical Assistants (AAMA) for 1.0 administrative continuing education unit.

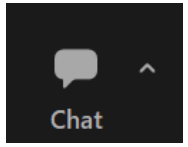
Disclosures

There are no relevant financial relationships with ineligible companies for those involved with the ability to control the content of this activity.

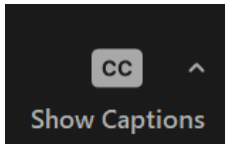
Obtaining Continuing Education

- Continuing education is available for nurses, and medical assistants
- Successful completion of this continuing education activity includes the following:
  - Attending the entire live webinar or watching the webinar recording
  - Complete the evaluation after the live webinar or webinar recording
  - **On the evaluation, please check Yes if you're interested in contact hours and please specify which type of continuing education you wish to obtain**
- **Please note:** CE certificates are NOT generated after evaluation completion—CE certificates will be sent by DOH within a few weeks after evaluation completion
- Expiration date is 3/8/2024.

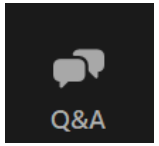
Zoom Housekeeping



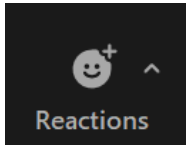
- Team shares information here
- Use for audience participation



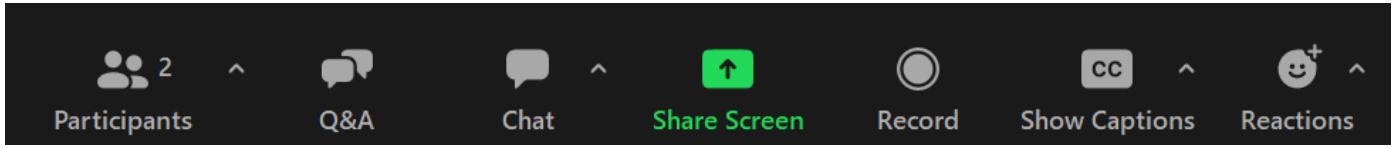
- Click to enable automatic closed captions



- Submit questions to presenter and team



- Click top-right arrow to hide participant reactions



About the Power of Providers Initiative

- Support and equip health care providers to serve as trusted sources of COVID-19 vaccine information for their patients and their communities
- Respond to member requests for resources
- Work together to increase vaccine rates across the state

Provider Commitment: SAVE

SEEK: Seek your patients' COVID-19 vaccine status

ASK/EDUCATE: If your patient isn't vaccinated, ask them about the vaccine and offer education if they are unsure

VACCINATE: Provide patient with a COVID-19 vaccine or a referral to a location that provides them

EMPOWER: Empower patients to share their vaccine status with their community

Who can join POP?

Current Membership

- 4,500+ individuals
- 400 health care organizations
- 90 different health care roles
- Over 20 partnering health care associations

Any health care provider who engages with the people they serve about COVID-19 vaccinations is eligible—the ability to educate and refer is as important as administering the vaccine!

Visit our website to learn more at doh.wa.gov/joinpop. Fill out the member signup form to join the initiative.

Current Resources

POP Shop

- Webpage to order free patient handouts, posters, discussion guides, other materials

doh.wa.gov/form/pop-shop

Biweekly e-newsletter

- New resources, timely and relevant updates for members
- Featuring POP member stories in Provider Spotlights

POP en Español

- Updates, links, fact sheets, other resources for providers serving Spanish-speaking populations

doh.wa.gov/popesp

Current Opportunities

Provider Advisory Group

- Multi-disciplinary group of POP members who inform and help guide our work

Peer-to-Peer webinars

- Learn about topics related to COVID vaccine from speakers who work in health care
- To learn about upcoming topics, register, and view recordings, visit doh.wa.gov/pop

Member engagement

- POP staff are available and engaged in conversations with providers across the state to learn about your experiences, challenges, and feedback for DOH

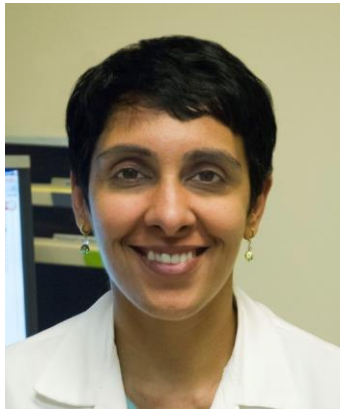
Peer-to-Peer Webinars

- Health care providers share expertise and knowledge with one another
- DOH provides meeting space only, not content

Long COVID series:

- Feb 16: Post-COVID-19 Conditions: Expanding Our Understanding of Long-term Sequelae of COVID-19 – **Dr Eric Chow**
- March 29: Unmasking Long COVID: Insights and Updates from University of Washington Clinical Research – **Dr Helen Chu**

Today's Presenters



Dr. Anita Chopra

- Internal medicine M.D. focusing on geriatrics at UW Medicine Shoreline
- Chair: Primary Care Council, American College of Physicians
- Co-chair: ACP International Medical Graduate Council
- Member: Healthcare Equity EDI Committee, UW Medicine

Dr. Janna Friedly

- Professor and Vice Chair, Clinical Affairs in Rehabilitation Medicine at UW
- Executive Director, Outpatient Rehabilitation Clinics at Harborview MC
- Clinical expertise in treating patients with chronic pain
- Extensive research experience in health services and study design

Thank you for joining us and being part of the Power of Providers!

powerofproviders@doh.wa.gov
https://doh.wa.gov/pop/
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Washington State Department of HEALTH

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Post COVID-19 Conditions: Diagnosis and Management Options

Janna Friedly, MD, MPH
Professor and Chair
Department of Rehabilitation Medicine,
University of Washington
Executive Director, UW Post-COVID
Rehabilitation and Recovery Clinic

Anita Chopra, MD,FACP
Clinical Assistant Professor
UW Post-Covid
Rehabilitation and Recovery clinic
Founder and Medical Director,
Northwest Health and Wellness

UW Medicine

ACKNOWLEDGMENTS

The University of Washington acknowledges the Coast Salish peoples of this land, the land which touches the shared waters of all tribes and bands within the Suquamish, Tulalip and Muckleshoot nations.

https://www.realrentduwamish.org/land-acknowledgement.html

Disclosures

No financial disclosures related to this talk

Related grant funding:

AHRQ

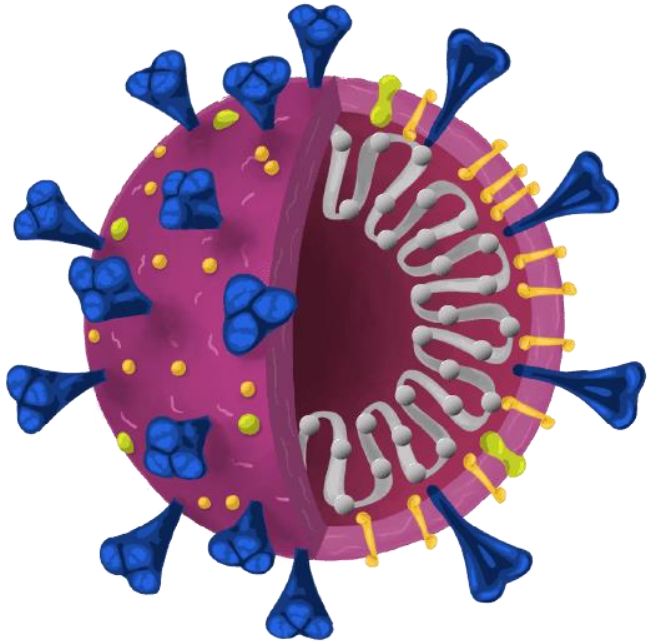
objectives

- By reviewing the most common clinical presentations, patterns and their pathophysiology, participants will be able to recognize clinical presentations of Post-COVID-19 conditions
  - Participants will be able to describe the diagnostic techniques most commonly utilized to diagnose Post-COVID-19 conditions
  - Participants will be able to identify available treatment management options for Post-COVID-19 conditions, including integrative medicine options
  - Participants will be able to identify and illustrate ongoing research and treatment management options on the horizon

UPDATED EVIDENCE

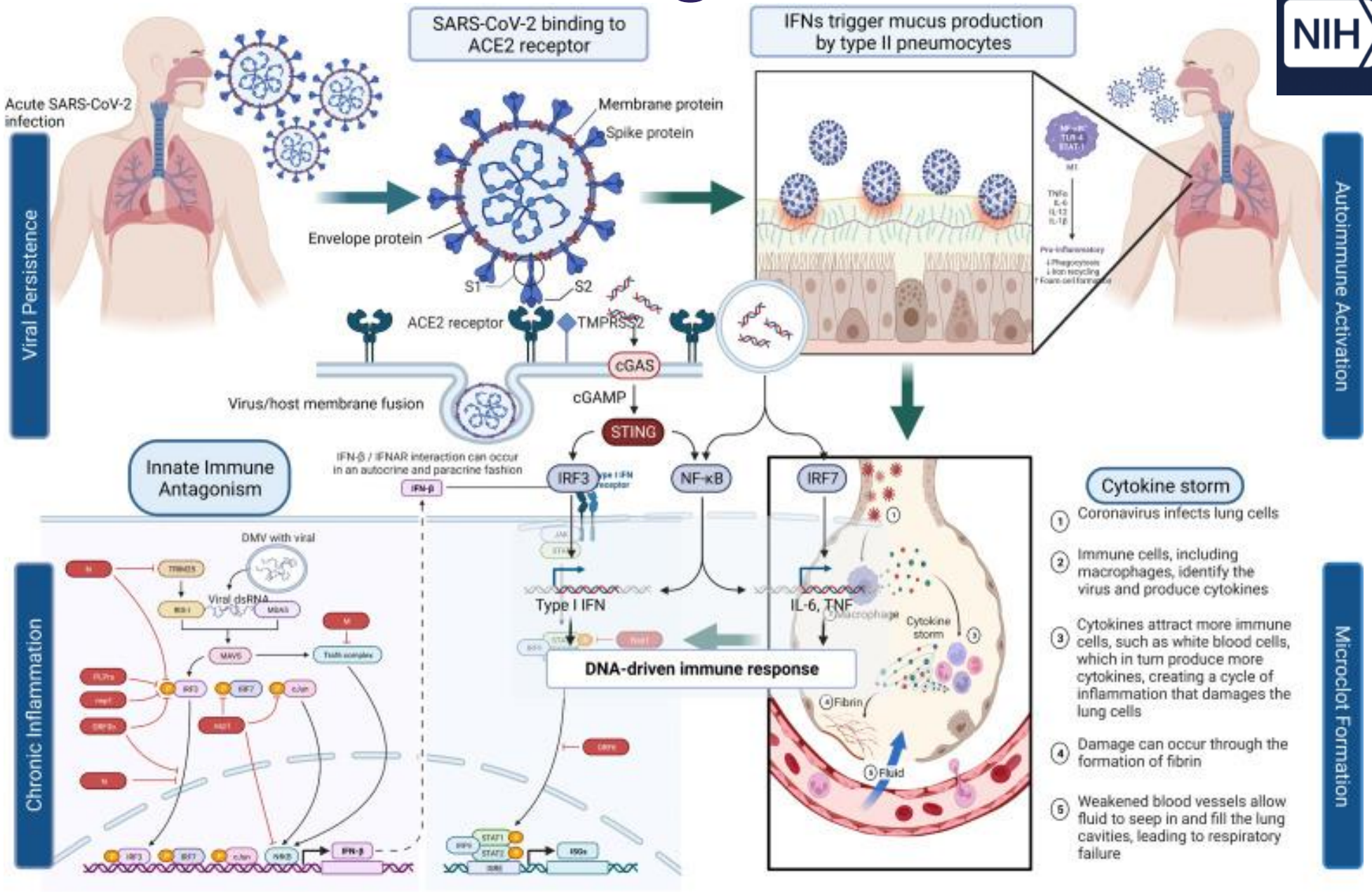
1. Explore the latest research on pathophysiology of Long COVID.

2. Discuss management strategies for Long COVID.



What Causes Long COVID?

RECOVER
Researching COVID to Enhance Recovery
NIH National Institutes of Health
Researching COVID to Enhance Recovery

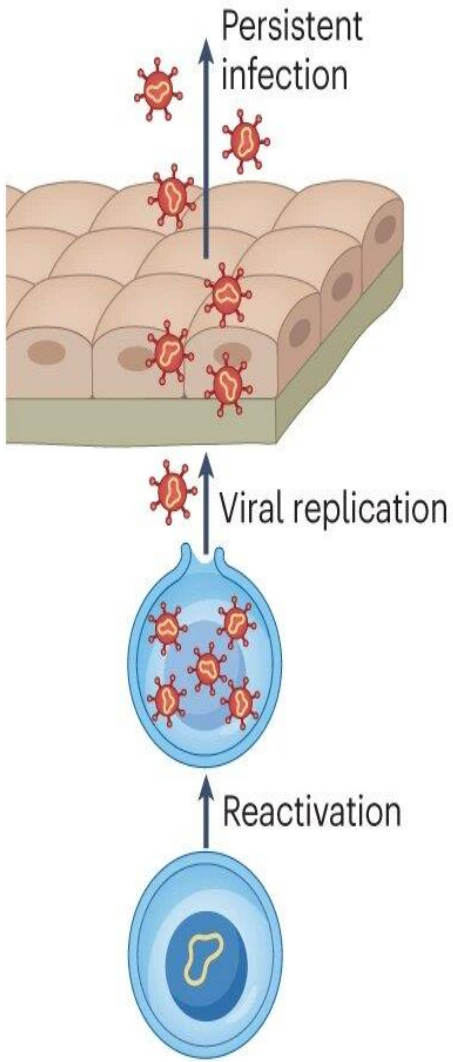


Sherif ZA 2023

RECOVER Mechanistic Pathway Task Force

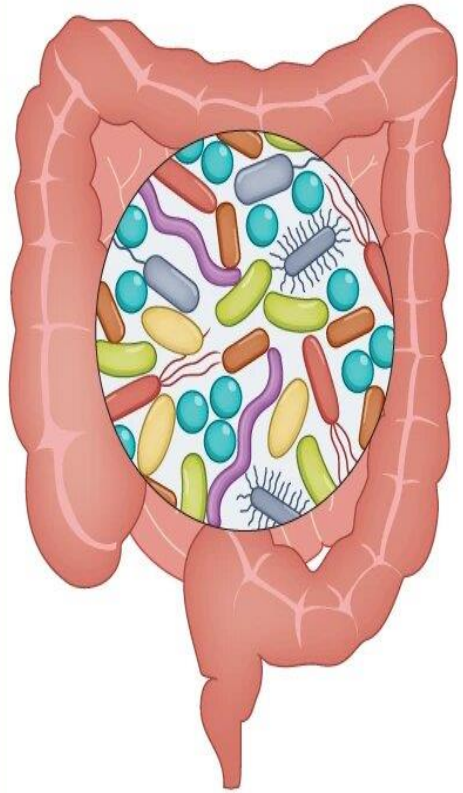
UW Medicine

Immune dysregulation



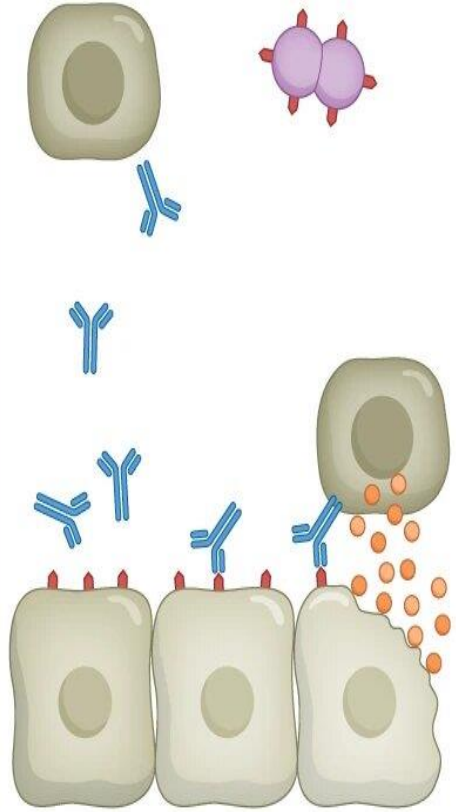
Immune dysregulation, with or without reactivation of underlying pathogens, including herpesviruses such as EBV and HHV-6

Microbiota dysbiosis



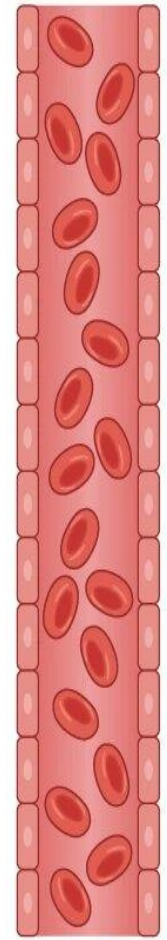
Impacts of SARS-CoV-2 on the microbiota and virome (including SARS-CoV-2 persistence)

Autoimmunity and immune priming



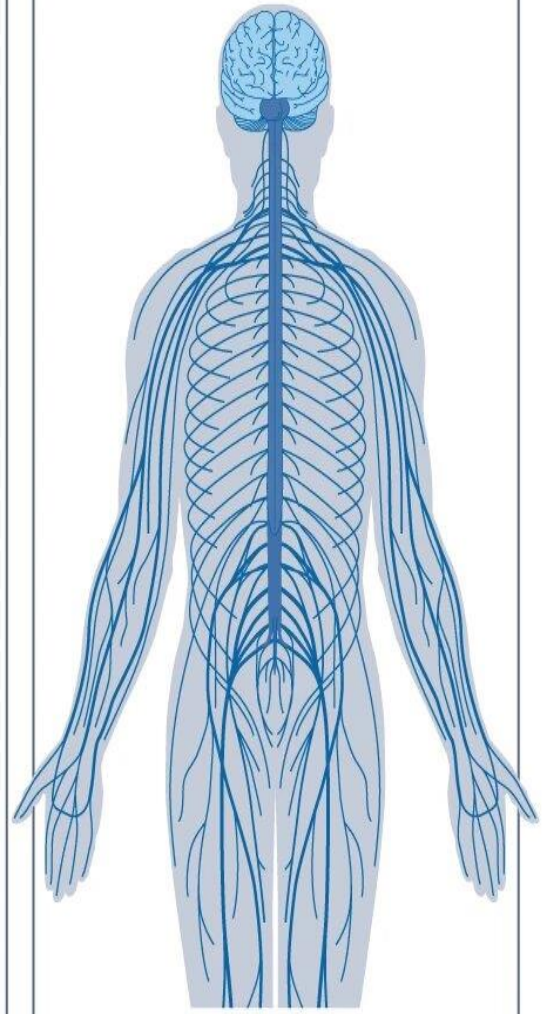
Autoimmunity and primed immune cells from molecular mimicry

Blood clotting and endothelial abnormalities



Microvascular blood clotting with endothelial dysfunction

Dysfunctional neurological signalling

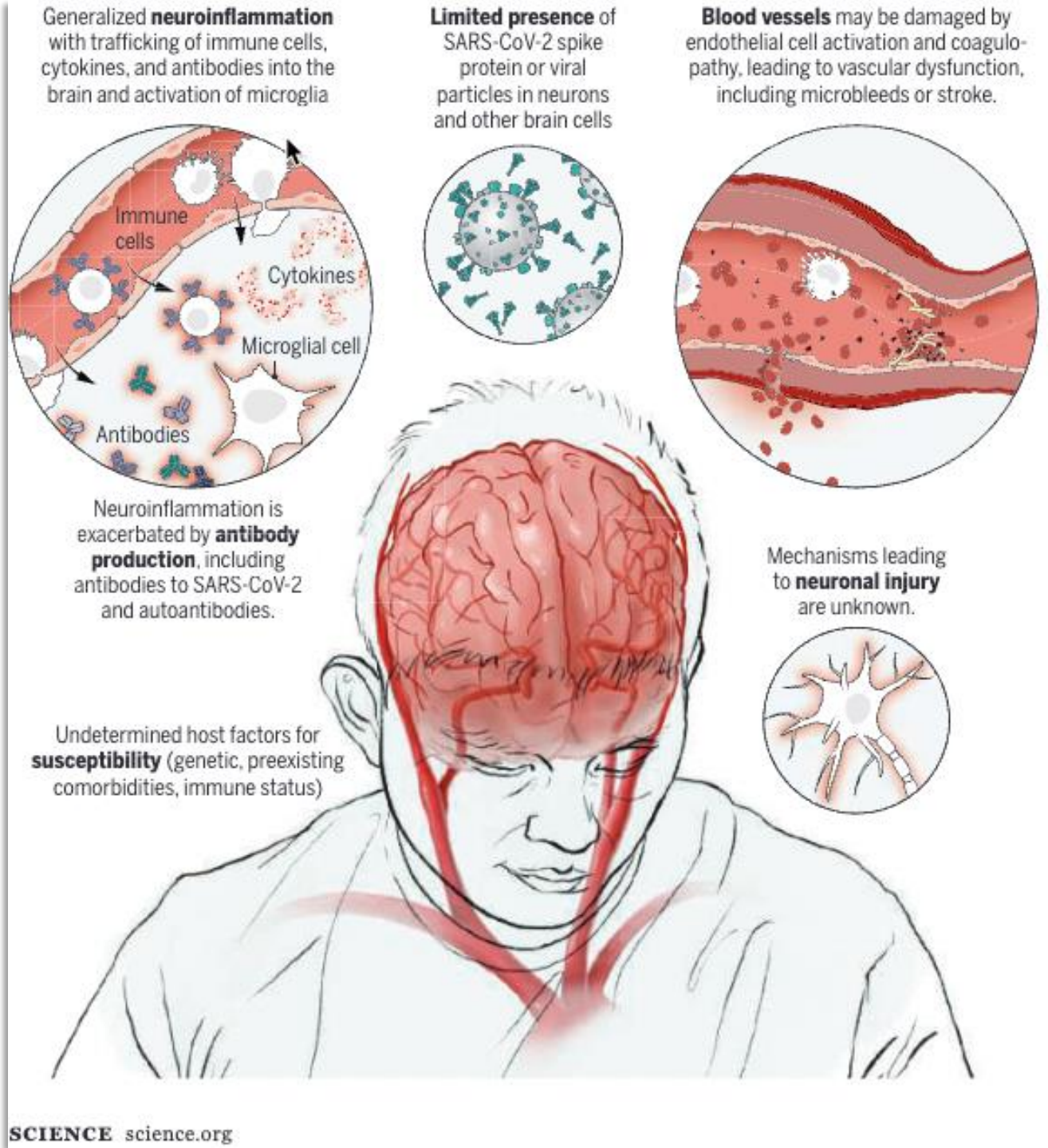


Dysfunctional signalling in the brainstem and/or vagus nerve

Neuro Inflammation

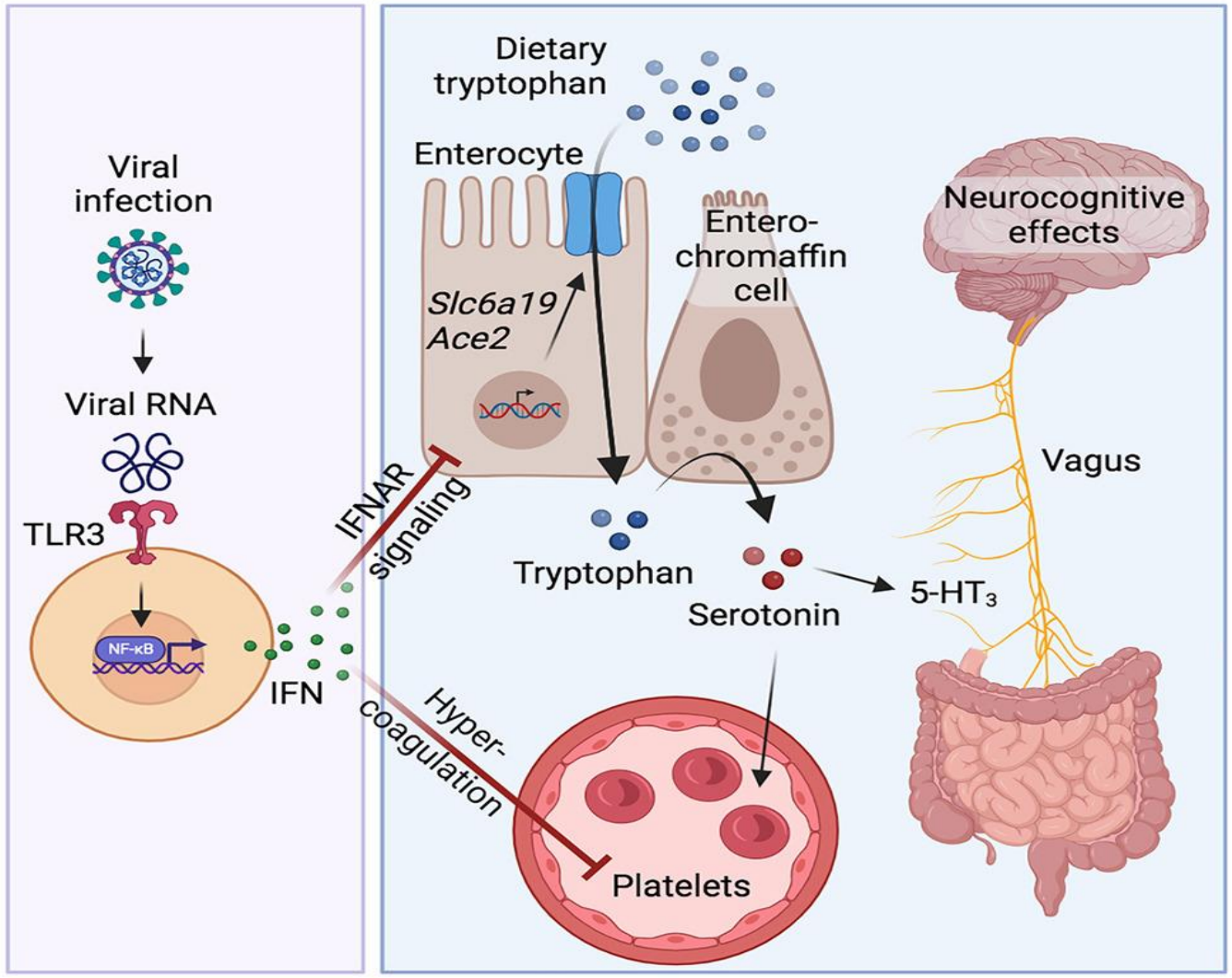
CSF and brain tissue suggest immune activation and inflammation in CNS

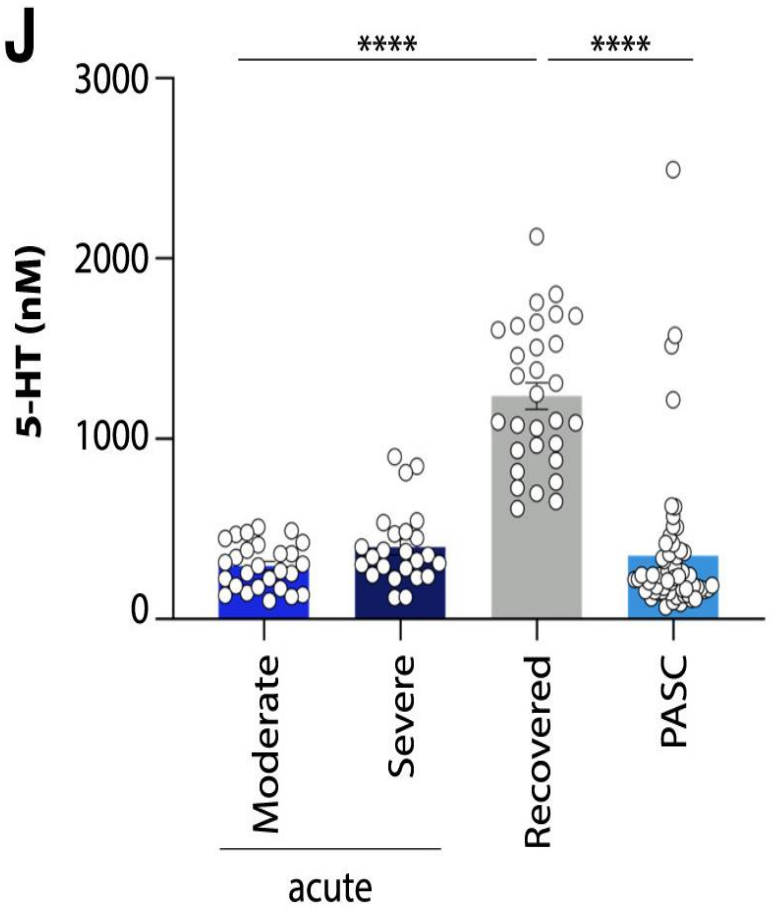
- Upregulation of cytokines in CNS
- Inappropriate activation of microglia and astrocytes



Spudich S, Nath A. Science. 2022;375(6578):267-269.
Xu E, Xie Y, Al-Aly Z.. Nat Med. Published online September 22, 2022:1-10.

Serotonin reduction in post-acute sequelae of viral infection

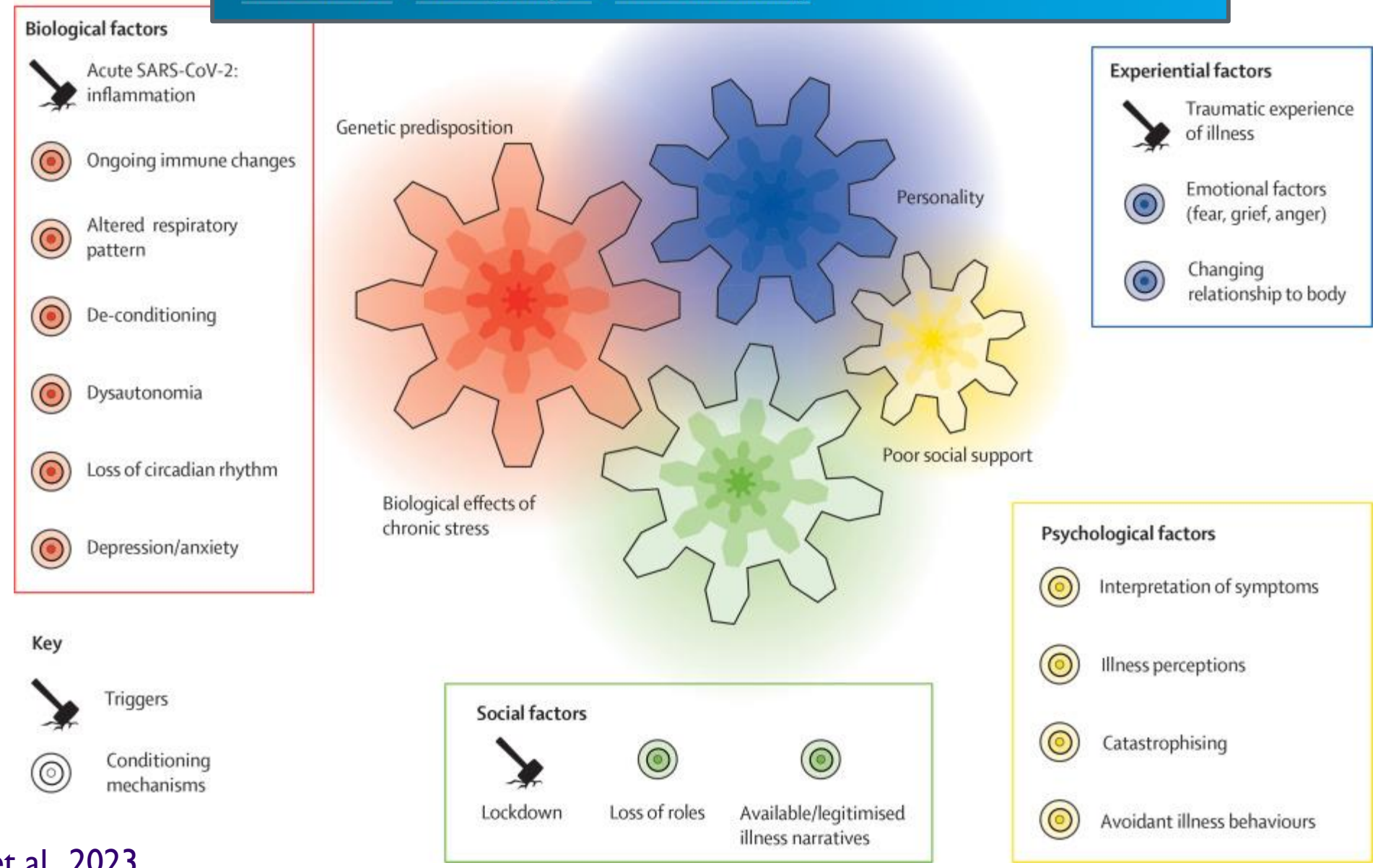




2023 1864851-4867.e20DOI: (10.1016/j.cell.2023.09.013)

A new paradigm is needed to explain long COVID

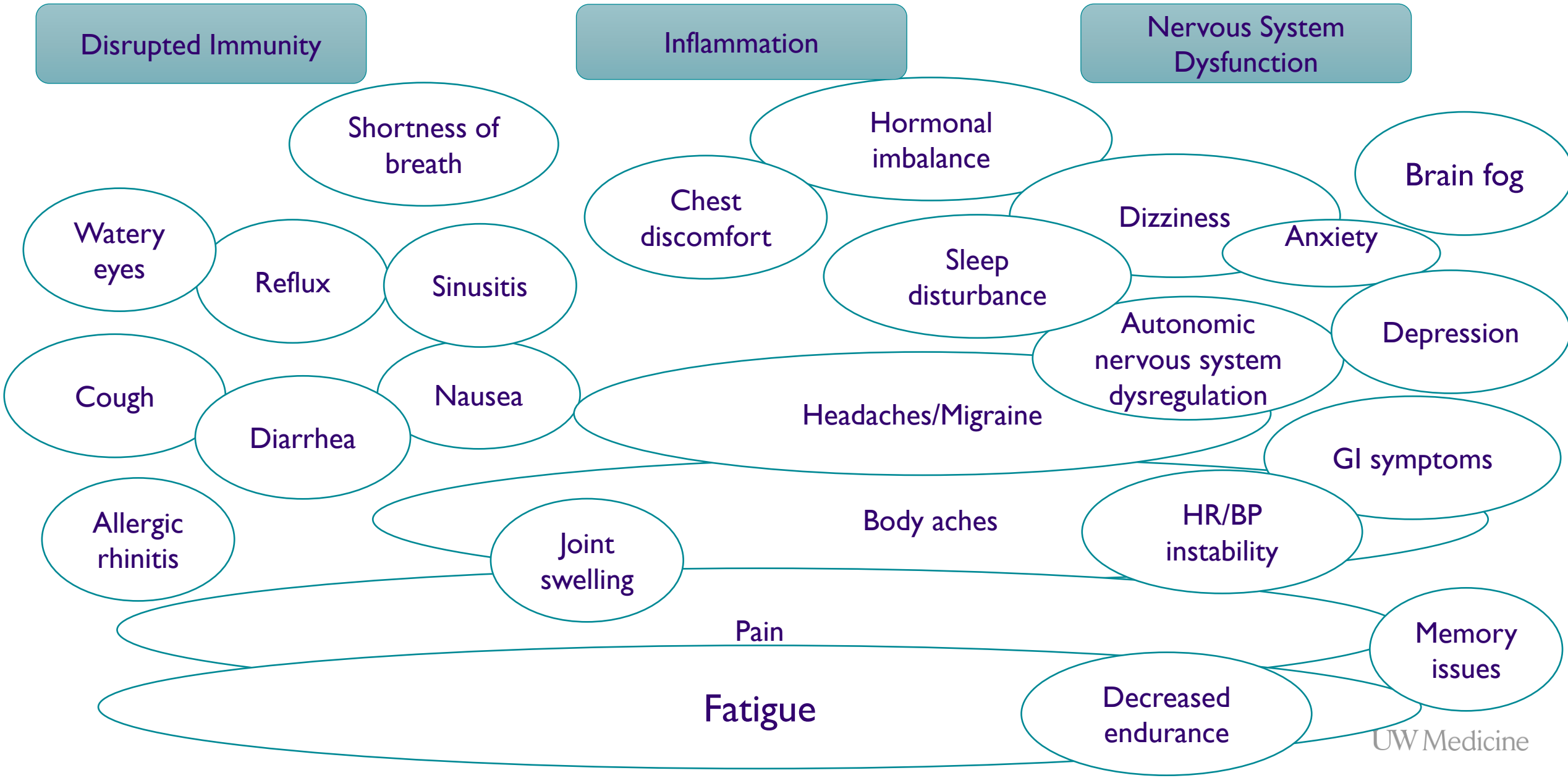
Chloe Saunders • Søren Sperling ✉ • Elisabeth Bendstrup



Saunders et al., 2023

UW Medicine

Post-Acute Sequelae of COVID (PASC) Symptoms

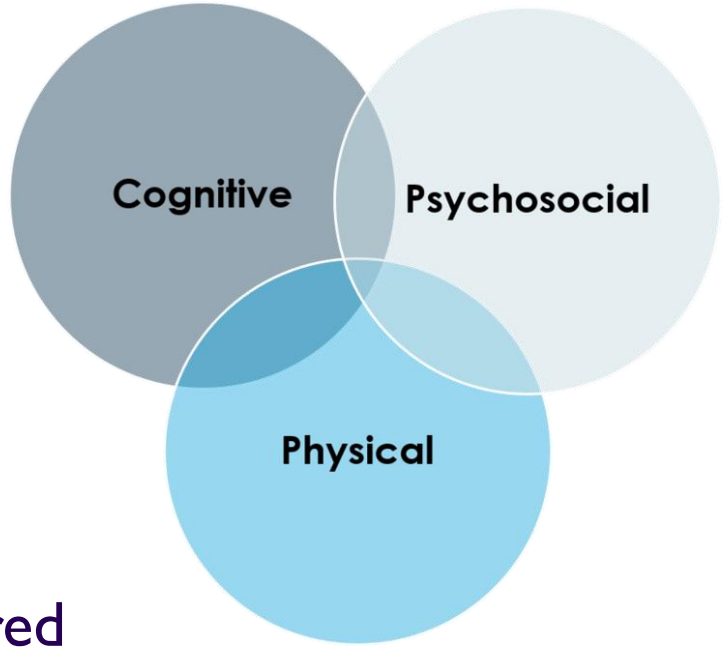


UPDATED EVIDENCE

1. Explore the latest research on pathophysiology of Long COVID.

2. Discuss management strategies for Long COVID.

Can Long COVID be treated?



No universal treatment of post-COVID symptoms (yet!)

- Patients present very differently, so treatment must be tailored

- In general, holistic rehabilitation approaches that combine breathing exercises, physical activity/exercise, self-management and behavioral health strategies are more promising than any single medication

Ongoing Treatment Studies: clinicaltrials.gov

Curcumin/Boswellia/Serrata/Ascorbic Acid
Monoclonal Ab tx
Paxlovid
Homeopathic tx
Prospekta
Lyt-100 - Deupirfenidone
TENS
tDCS
Vitamin C drops
Inspiratory muscle Training
Physical Training
Cardiopulmonary rehab
AXA1125 – oral amino acid mixture
CBDRA60 – cannabidiol/Gigartina red algae
COVI-MS – stem cell tx
ExoFlo – stem cell infusion
Enhanced external counterpulsation
Vagus nerve stimulation
Low Dose Naltrexone

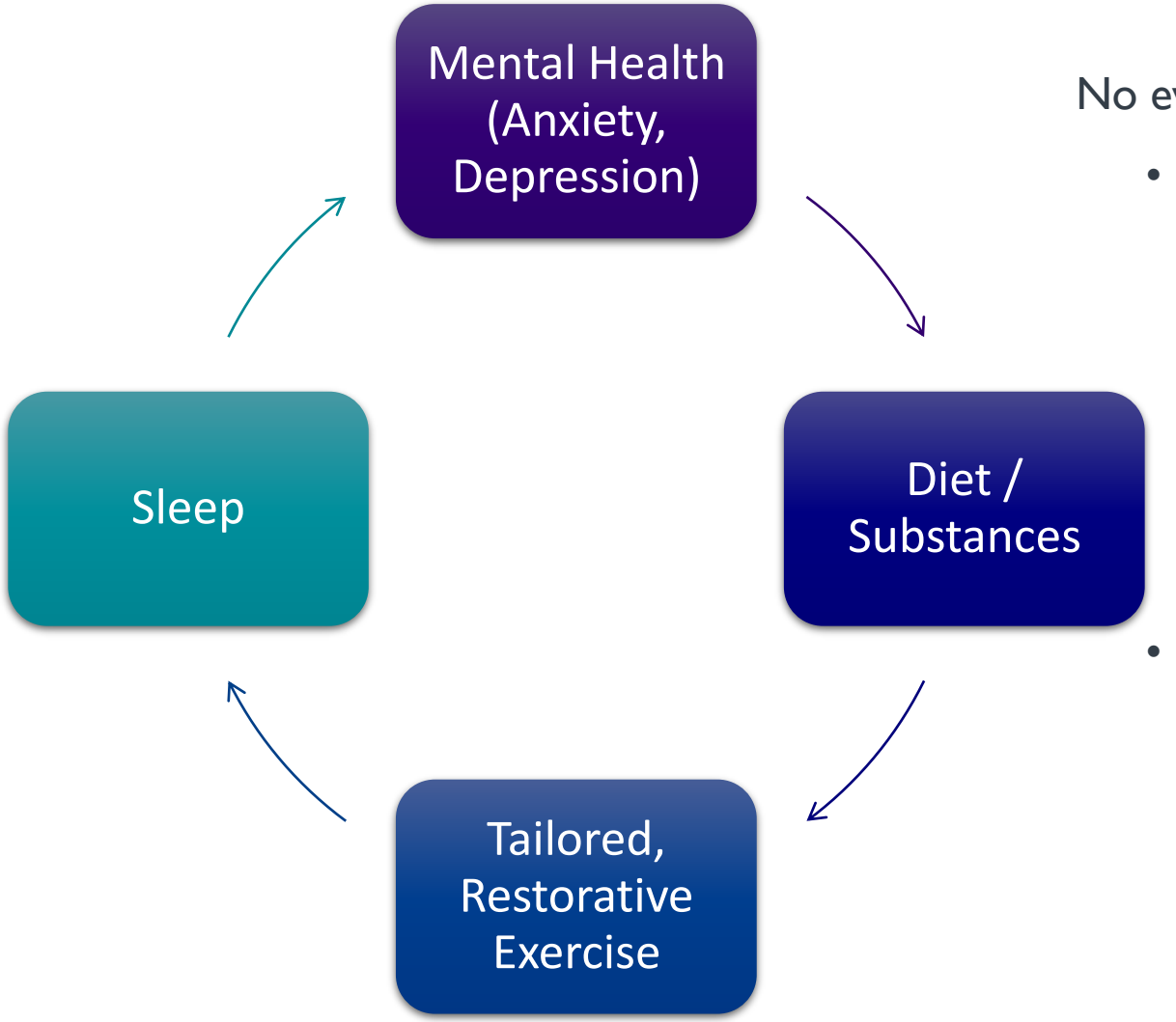
S-1226 – bronchodilator and synthetic surfactant
BREATHE – virtual self management
Mobile app for rehab
Mindfulness
HEARTLOC: HR variability biofeedback
Metoprolol
Vortioxetine – antidepressant
Omega 3 supplement
Lithium
Chiropractic care
Nicotinamide Riboside
Health behavior coaching
Qigong
Nitrite supplement
SingStrong
Mindfulness
Acupuncture
Exercise with blood flow restriction, cooling, high dose oxygen+ infrared therapy

<u>UW Research:</u>
RSLV-132 – RNA immune modulator
Project ECHO vs MDR clinic
Rehab psychology group sessions
Acupuncture

PASC Holistic Treatment Approach

Sleep a major contributor to fatigue (~45% of patients report insomnia)

- Assessment: PROMIS Sleep, STOP-Bang
- Sleep hygiene
- Consider short-term pharmacotherapy
  - Melatonin, Trazodone first line
  - Cognitive behavioral therapy for insomnia (CBT-I) if available



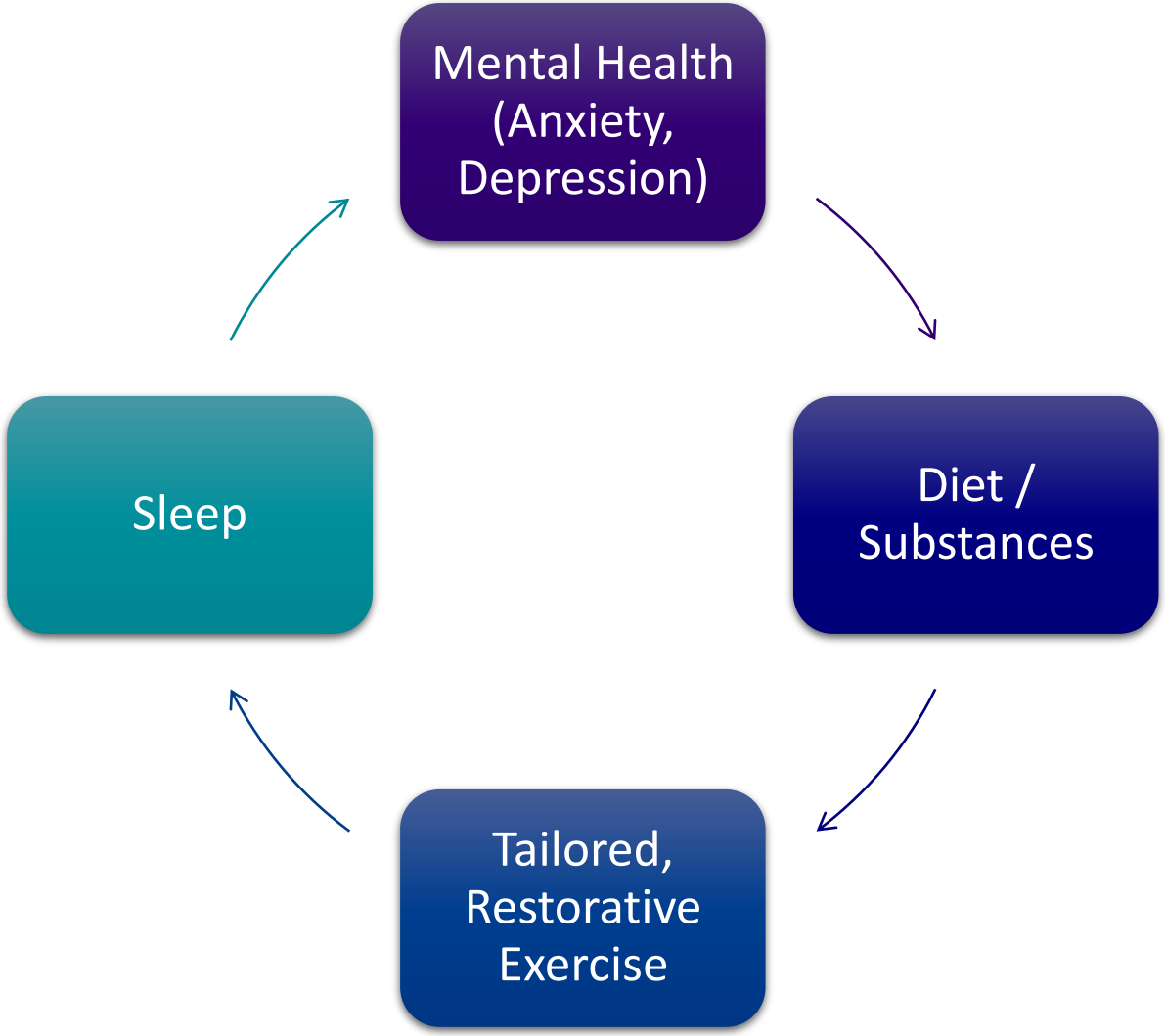
No evidence re: ideal diet

- Anti-inflammatory
  - Few processed foods
  - Fewer calories from animal fats
  - Liberal fruits, vegetables and high-quality oils
  - Low in sugar / processed flour / "energy drinks"
  - Drink enough water
- Substances (Significant sleep and mental health impacts)
  - Low or no alcohol
  - Avoid caffeine after noon, limit overall intake
  - Address other substance dependence

Avoid PEM, caution with POTS and ME/CFS symptoms

SPECIFIC MANAGEMENT OPTIONS

Diet and Supplements



How I approach diet and supplements (evolving):

Best to get nutrients through diet

2.5–3 L/day of fluids to avoid dehydration

- Monounsaturated fatty acids
- Tocopherols
- Polyphenols

- Vitamins, mineral, and phytochemicals with antioxidant and anti-inflammatory properties
- Soluble and fermentable fibre

- Carbohydrate with low-glycemic index
- Soluble and fermentable fibre

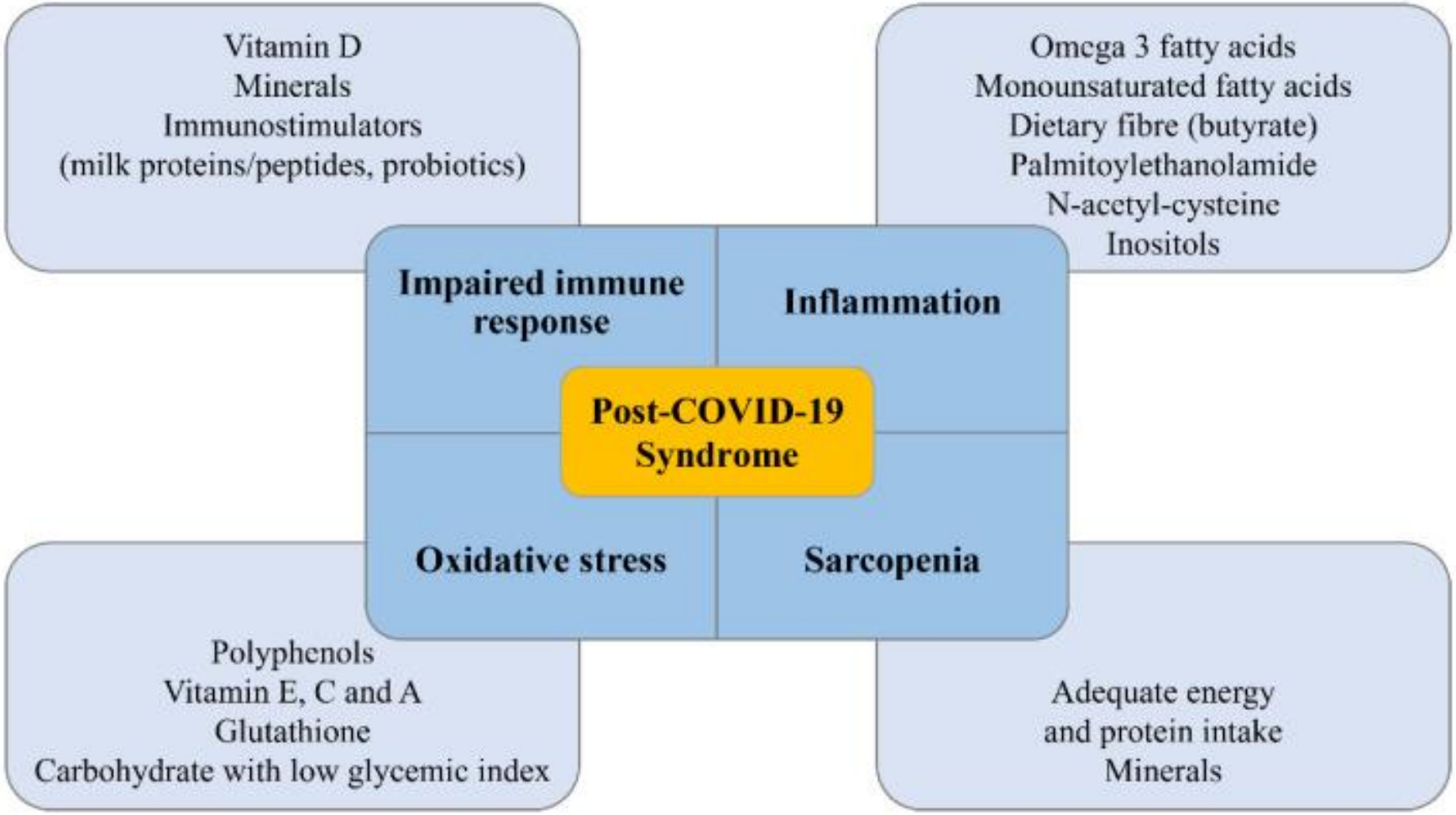
- Protein with high biological value
- Omega 3 fatty acids (fish)

Malnourished or defied patients:

- Supplements with minerals and vitamins (in particular vitamin D)
- Nutraceuticals with antioxidant and anti-inflammatory activities (quercetin, resveratrol, catechins, glutathione, inositol, or combinations)
- Immuno-boosters (milk peptides and probiotics)

Supplements

Many theoretical reasons why a variety of supplements may be helpful in long COVID.



Bottom line: no clinical trial data to guide which are most effective and how to take them for biggest effect

Barrea L, Grant WB, Frias-Toral E, Vetrani C, Verde L, de Alteriis G, Docimo A, Savastano S, Colao A, Muscogiuri G. Dietary Recommendations for Post-COVID-19 Syndrome. Nutrients. 2022 Mar 20;14(6):1305. doi: 10.3390/nu14061305.

Supplements

If diet is restricted/poor, will check for vitamin deficiencies (if not already supplementing)
If fatigue, Vit D and iron levels
If neurologic symptoms, Vit B12

If $$ is not limited:

Coenzyme Q10 and NADH: reduces fatigue in ME/CFS

Castro-Marrero J, et al. Effect of Dietary Coenzyme Q10 Plus NADH Supplementation on Fatigue Perception and Health-Related Quality of Life in Individuals with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome: A Prospective, Randomized, Double-Blind, Placebo-Controlled Trial. Nutrients. 2021 Jul 30;13(8):2658.

Tumeric/curcumin: anti inflammatory

Mixed results in specific conditions, but likely helpful in inflammatory conditions including with cognitive decline

Vitamin D: reduces risk of autoimmune conditions/anti-inflammatory

Dong Y, et al. Effects of Vitamin $D_3$and Marine Omega-3 Fatty Acids Supplementation on Biomarkers of Systemic Inflammation: 4-Year Findings from the VITAL Randomized Trial. Nutrients. 2022 Dec 14;14(24):5307.

Probiotics: anti inflammatory

Many studies on inflammatory GI conditions, depression, cognitive impairment, other symptoms

SPECIFIC MANAGEMENT OPTIONS

Autonomic nervous system dysregulation: dysautonomia

PASC Consensus Guidance Statements

PM&R | WILEY

Clinical Guidance | Free Access

Multi-disciplinary collaborative consensus guidance statement on the assessment and treatment of autonomic dysfunction in patients with post-acute sequelae of SARS-CoV-2 infection (PASC)

Svetlana Blitshteyn MD, Jonathan H. Whiteson MD, Benjamin Abramoff MD, MS, Alba Azola MD, Matthew N. Bartels MD, MPH ... See all authors

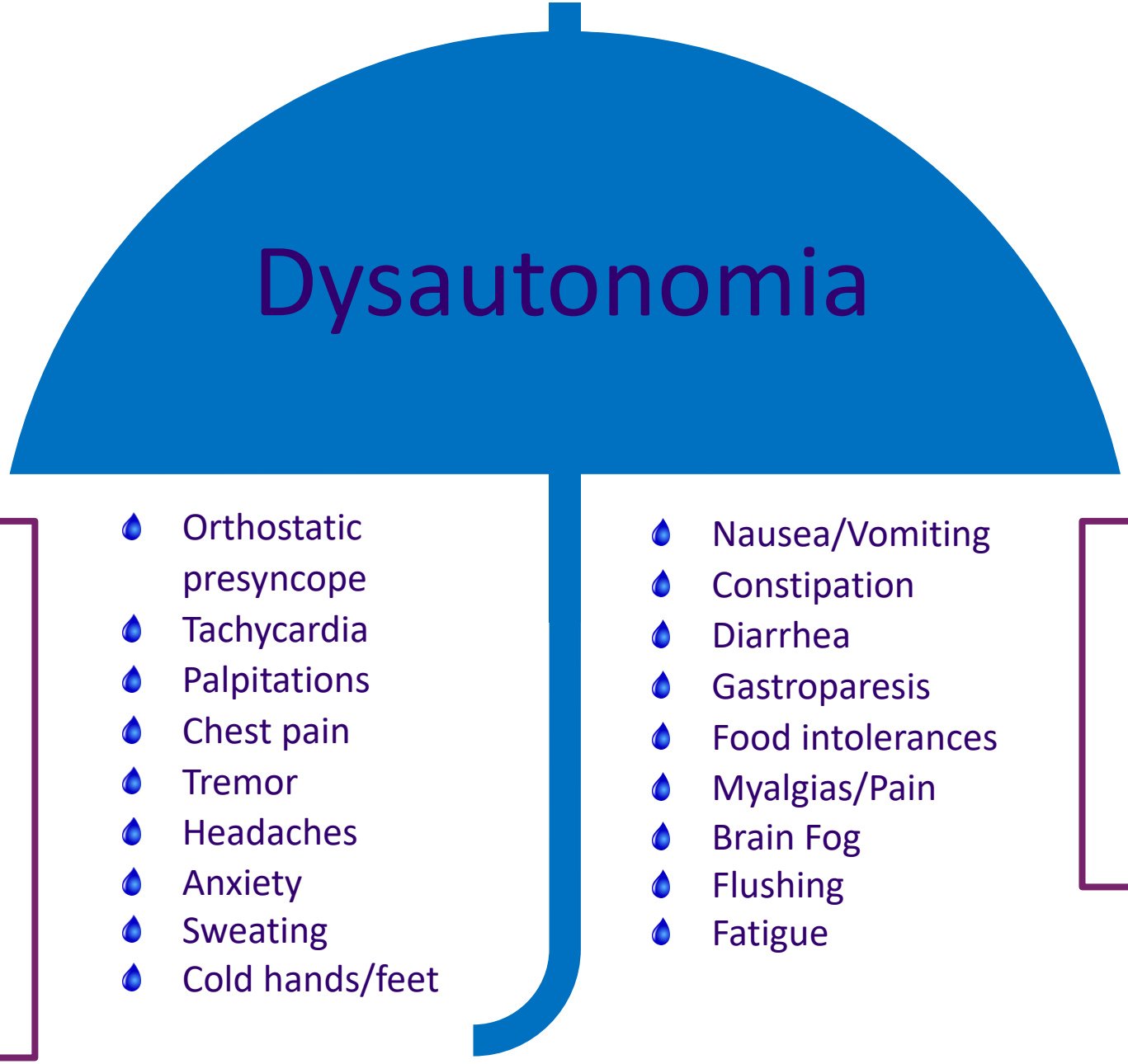
First published: 28 September 2022 | https://doi.org/10.1002/pmrj.12894

Funding information: American Academy of Physical Medicine and Rehabilitation

April 2021-June 2023

- Methodology
- Fatigue
- Cognitive Symptoms
- Breathing Discomfort
- Cardiovascular Complications
- Clinic Infrastructure
- Children and Adolescents
- Autonomic dysregulation
- Neurologic symptoms

Upcoming:
Mental health considerations



Triggers

Prolonged Standing
Warm environments
Upright exercise
Large Meals
Some medications
Alcohol
Stress

- Orthostatic presyncope
- Tachycardia
- Palpitations
- Chest pain
- Tremor
- Headaches
- Anxiety
- Sweating
- Cold hands/feet

- Nausea/Vomiting
- Constipation
- Diarrhea
- Gastroparesis
- Food intolerances
- Myalgias/Pain
- Brain Fog
- Flushing
- Fatigue

Exclude

Anemia
Thyroid Disorders
Adrenal Insufficiency
Medication effects

Postural Orthostatic Tachycardia Syndrome (POTS): Diagnosis

Method	Description	Criteria	Advantage/disadvantage
Orthostatic Vital Signs	Measure VS's lying, and then standing after 2 and 5 minutes	Increase in heart rate of ≥30 beats per minute (bpm) or ≥40 in children/adolescents; no drop in SBP >20 mmHg or DBP >10 mmHg	Easy to do. Sufficient for dx
NASA Lean test	Measure vital signs with standing, with feet 20 cm from wall over ten minutes	Same as above, symptoms of lightheadedness	More sensitive, but more time consuming.
Autonomic Testing: Tilt table test (Gold Standard)	Pt is placed on table, gradually becoming more supine, VSs are measured. Catecholamines may be measured as well, and sweat activity (QSART)	Reproduction of symptoms, change in vital signs, increased sweating	Gold standard, but limited availability, available only through specialists

Orthostatic Vital Signs: The NASA 10-minute Lean Test

	Blood Pressure (B/P)		Heart Rate	Pulse Pressure (SBP-DBP)	Comments
	Systolic	Diastolic			
Supine 1 minute					
Supine 2 minute					
Standing 1 minute					
Standing 2 minute					
Standing 3 minute					
Standing 4 minute					
Standing 5 minute					
Standing 6 minute					
Standing 7 minute					
Standing 8 minute					
Standing 9 minute					
Standing 10 minute					
Additional Comments:					

Instructions When Withholding Pharmacological and Behavioral Treatments

All should be confirmed per provider and adjusted as appropriate

•Limit water/fluid intake to 1000 mL for 24 hours prior to test. The patient should not be dehydrated or overhydrated. If thirsty, they can drink water PRN.

•Limit ADDITIONAL sodium intake for 48 hours before.

•Do not wear compression socks or clothing.

•Wear a short-sleeved shirt or tank top.

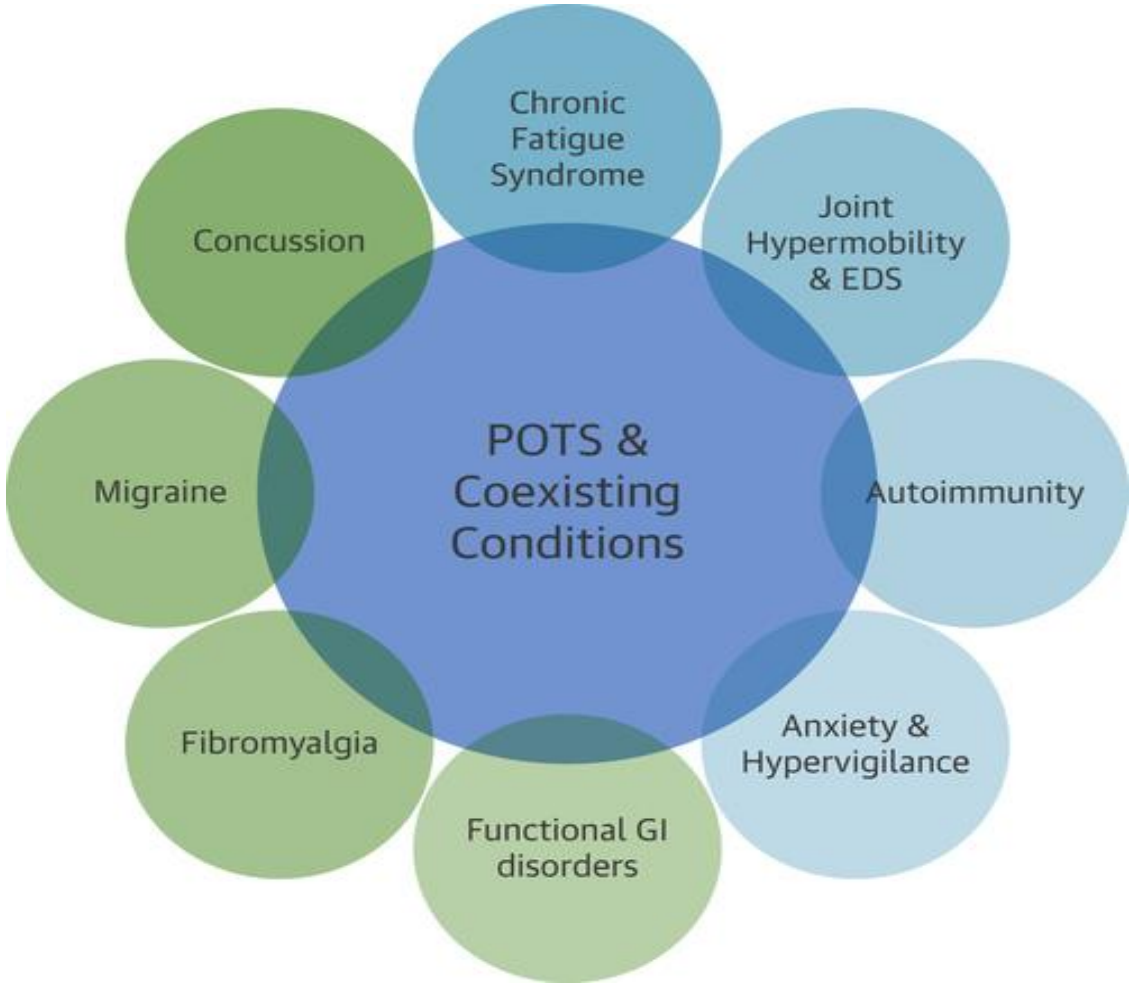
•Withhold medications, supplements, and substances that might affect blood pressure or HR. Adjust timing according to drug half-life and patient safety. Examples:

- midodrine or Northera
- fludrocortisone
- beta blockers such as propranolol, metoprolol or atenolol
- stimulants such as methylphenidate, dexadrine or caffeine
- tricyclic antidepressants (TCA)-- amitriptyline, doxepin or cyclobenzaprine
- Serotonin Norepinephrine Reuptake Inhibitors (SNRI) e.g. Cymbalta or duloxetine
- tizanidine

https://batemanhornecenter.org/wp-content/uploads/2016/09/NASA-LeanTest-Instructions-April-2018.pdf

UW Medicine

Postural Orthostatic Tachycardia Syndrome



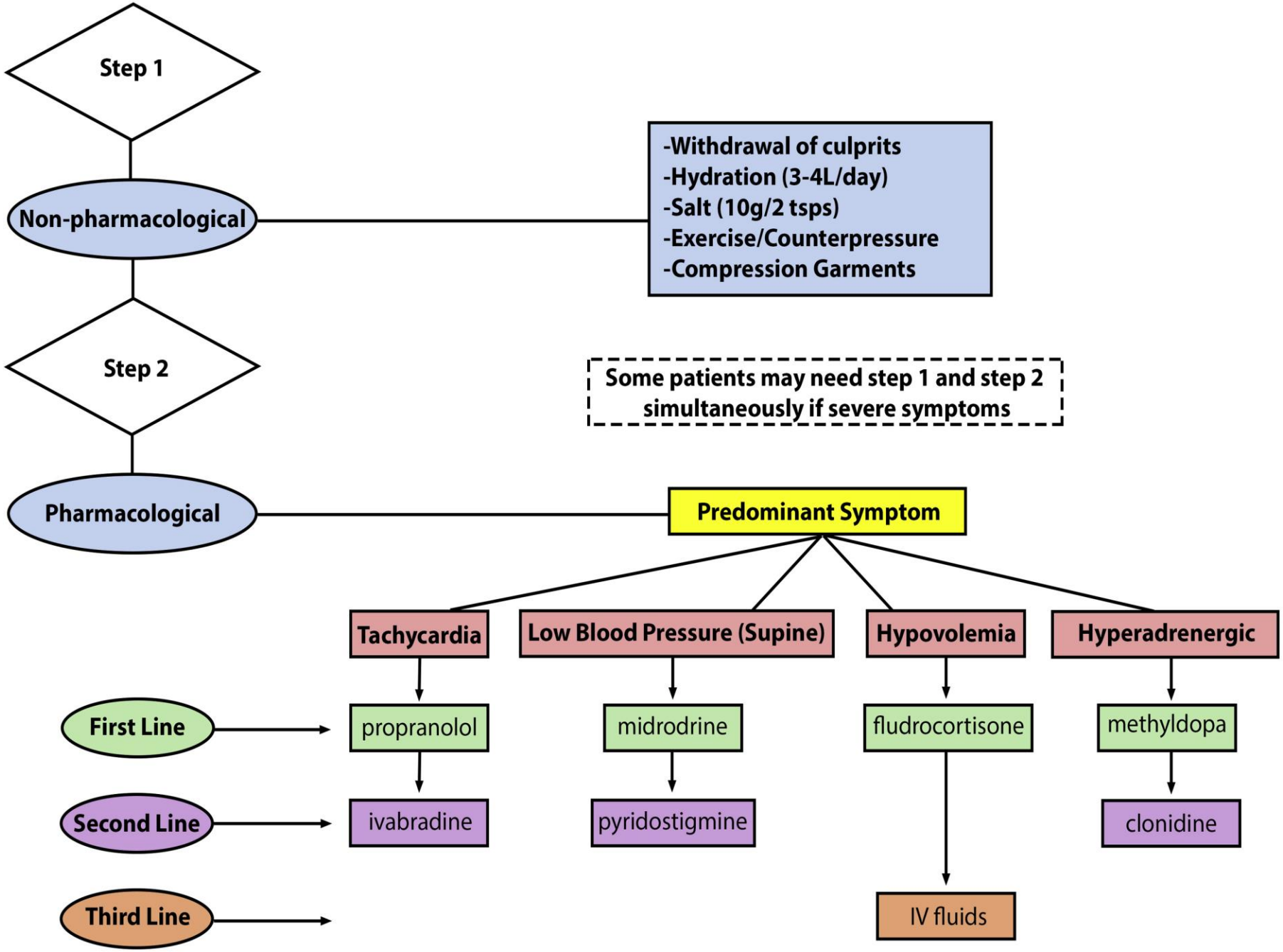
Caution with labeling people post COVID with "POTS" and entering the "downward spiral" of decreasing activity, deconditioning and worsening symptoms.

HR and BP instability after COVID tend to improve and often resolve with time.

Meredith Bryarly et al. J Am Coll Cardiol 2019; 73:1207-1228.

Canadian Journal of Cardiology 2020 36357-372)DOI: (10.1016/j.cjca.2019.12.024

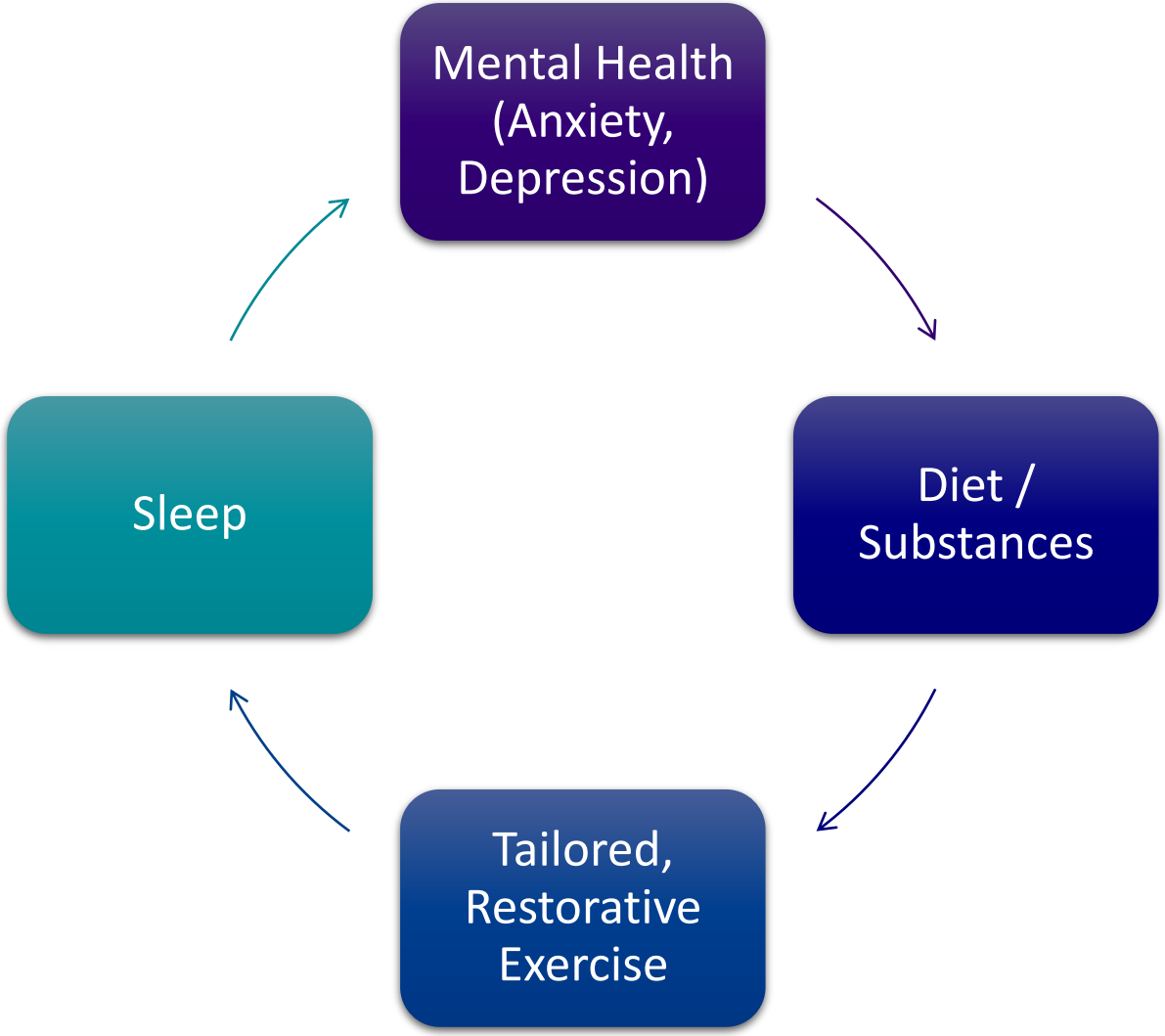
Orthostatic Tachycardia Treatment Algorithm



Bateman Horne Center
Various resources for providers and patients
https://batemanhornecenter.org/providers/long-covid/

SPECIFIC MANAGEMENT OPTIONS

Activity and Exercise



Treatments shown in clinical trials to be effective

- Breathing exercises (McNarry MA 2022; Palau P 2022 – InsCOVID trial)
- Tailored multicomponent exercise program (Jimeno-Almazán A 2022 RECOVE trial)
- Pulmonary rehab (Vallier JM 2023 – in home or supervised)
- Telerehabilitation self-management apps (Samper-Pardo M 2023 ReCOVery app: PE, health literacy, & self-efficacy, Philip KEJ 2023)

PEM and Exercise/Activity Recommendations

High intensity aerobic & graded exercise therapy can make symptoms WORSE.

Avoid overexertion, as this exacerbates ME/CFS and can hinder improvement

Interval or time-based activity: The patient remains active only for the amount of time that doesn't trigger symptoms, then rests, and then re-engages in being active for a similar interval, continuing in this way with a goal to increase the interval over time

Wear a pedometer to monitor steps: Patients determine how many average daily steps they take over the course of a good week without flares or relapse and then keep their daily step counts in that range, with a goal to take at least 1000 steps daily to prevent deconditioning

Monitor heart rate: Patients determine the maximum heart rate they can tolerate without triggering or exacerbating symptoms and then avoid exceeding that heart rate, except for short periods.

Often this is 120 or less (much lower than typical exercise programs that are 80% Max HR).

PASC Fatigue Treatment: The Four Ps
Energy conservation

Pacing: Avoid the push and crash cycle common in post-COVID recovery.

Prioritizing: Focus and decide on which activities need to get done and which activities can be postponed to avoid overexertion and crashing.

Positioning: Modify activities to make them easier to perform.

Planning: Plan the day or week to avoid overexertion (energy windows).

Pacing

Ask

Review

Brainstorm

- **Ask patients to keep a daily diary** for 1-2 weeks of symptoms and the activities they engage in, including type, intensity, frequency, and duration. Such a diary can help recognize energy limits and the links between activities and episodes of PEM (e.g., walking a short distance one day and then experiencing PEM hours or days later).
- **Review the diary** with the patients and ask whether they see any patterns. For example, a patient may find reading for 30 minutes is fine but reading for an hour continuously leads to PEM. Thus, this patient's energy limit for reading is 30 minutes.
- **Brainstorm techniques with patients to adjust the activity** to avoid or minimize PEM. For example, patients could set a timer for 30 minutes to stop reading, switch to audiobooks occasionally, read during the time they have most energy, or schedule a time to rest after reading for 1 hour.

https://www.cdc.gov/me-cfs/

SPECIFIC MANAGEMENT OPTIONS

Medication Options:

SSRIs

LDN

Role of SSRIs in preventing and treating long COVID

Reducing severity of acute COVID-19: 1 RCT of fluvoxamine in acute COVID. 100 mg bid x 10-14 days – reduced morbidity and mortality
(Lenze, JAMA, 2020 and TOGETHER trial, Lancet Global Health, 2021)

Mechanism: anti-inflammatory? Increasing serotonin levels?
Most potent Sigma 1 receptor (S1R) agonist among ten different antidepressants tested
(Ishima, Eur J Pharmacol, 2014)

? Preventing COVID-19: Risk of COVID-19 decreased among people taking antidepressants versus not in a psychiatric facility (OR) = 0.33, 95% CI 0.15-0.70, adjusted $P < 0.05$
Lower risk of infection and fluoxetine use ($P = 0.023$), as well as trazodone use ($P = 0.001$)
(Clelland, BJ Psych Open, 2021)

Naltrexone

- Naltrexone hydrochloride: FDA approved 1984. Treatment of alcohol and opioid dependence

  (50 mg tablet, 1-2/day).

- Naltrexone/bupropion (Contrave): FDA approved 2014. Chronic weight management.

  (8 mg/90mg, 1-4/day)

- Low dose naltrexone: Widespread off-label use for many neuroinflammatory and other chronic inflammatory disorders, but especially chronic pain conditions.
  - "Ultra low dose" = microgram dosing
  - "Very low dose" = 0.1-0.5 mg daily
  - "Low dose" = 4.5-10 mg daily
  - "Moderate dose" = 10-25 mg daily
  - "High dose" = 50mg or more

LDN most commonly rx'd as 3-9 mg

WWW.LDNRESEARCHTRUST.ORG

The use of low-dose naltrexone (LDN) as a novel anti-inflammatory treatment for chronic pain. Younger J, Parkitny L, McLain D. Clin Rheumatol. 2014 Apr;33(4):451-9. doi: 10.1007/s10067-014-2517-2. Epub 2014 Feb 15. Review.

Use of low-dose naltrexone in the management of chronic pain conditions: a systematic review. Hatfield E, Phillips K, Swidan S, et al. J Am Dent Assoc. 2020;151(12):891–902.e1. doi: 10.1016/j.adaj.2020.08.019. (chronic pelvic pain, complex regional pain syndrome, FM, and interstitial cystitis)

Naltrexone

Naltrexone: an opioid receptor antagonist, metabolized in the liver (CYP450—none), excreted in urine, found in stool. T½ 4-5 hr (active metabolite 13-14 h).

A 50:50 racemic mixture of both levo and dextro isomers.

Low dose naltrexone behaves somewhat differently than high [full] dose.

- Dextro-naltrexone acts as a Toll-Like Receptor antagonist. TLR-4 receptors are on microglial cells, other macrophages, and mast cells. Once activated, such cells produce inflammatory and excitatory factors that can cause sickness behaviors such as fatigue, pain sensitivity, sleep disruption, cognitive changes, mood disorders, and general malaise.

- Levo-naltrexone is an opioid receptor antagonist, but more strongly at higher doses. LDN binds to receptors for 30-60 min. Blockade lasts 4-6 hours. Upregulates endogenous opioid production and opioid receptors. Increases endorphins favorable to the immune system.

Efficacy of Low-Dose Naltrexone and Predictors of Treatment Success or Discontinuation in Fibromyalgia and Other Chronic Pain Conditions: A Fourteen-Year, Enterprise-Wide Retrospective Analysis C. Noelle Driver and Ryan S. D'Souza* Biomedicines. 2023 Apr; 11(4): 1087. Published online 2023 Apr 3 . doi: 10.3390/biomedicines11041087.

Low-Dose Naltrexone for Chronic Pain: Update and Systemic Review. Kim P.S., Fishman M.A. Curr. Pain Headache Rep. 2020;24:64. doi: 10.1007/s11916-020-00898-0

LDN in a Long COVID cohort

- Prospective single center interventional pre-post cohort study in Ireland
- LDN 1 mg qd x 1 mo, increasing by 1 mg/mo, up to 3 mg
- **At 2-3 mo, improvement in 6 of 7 parameters measures (p <0.001):** recovery from COVID-19, limitation in activities of daily living, energy levels, pain levels, levels of concentration, sleep disturbance, NO CHANGE in mood scores

- 52 Long COVID patients (40 female)
  - 30% were HCW
- Median age 43 (33-49)
- Acute COVID: 27% admitted and 73% had outpatient management
- Median length of illness 333 days (171-396)
- 38/52 actually took the LDN (73%)
  - 2 stopped due to SE (GI, sleep, fatigue)
- 36 (69.2%) completed the 2-month questionnaire

Safety and efficacy of low dose naltrexone in a long covid cohort; an interventional pre-post study. O'Kelly B, Vidal L, McHugh T, et al. Brain Behav Immun Health. 2022 Oct;24:100485. Doi: 10.1016/j.bbih.2022.100485. Epub 2022 Jul 3. PMID: 35814187 Free PMC article

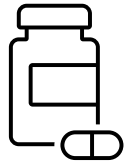
Ongoing RCT of LDN for Post-COVID Fatigue

- Double-blind, randomized, placebo-controlled trial.
- Study duration: 16 weeks. Dose increasing weekly from 1 mg, 2 mg, 3 mg, to 4.5 mg
- N=160 Male and female. 18-70 years. Acute COVID-19 in 3-6 months prior
- Primary outcome: Change in the Fatigue Severity Scale (FSS)
- Secondary outcomes (partial list):
  - Pain Severity VAS
  - Symptom severity PQSymp-12
  - Average steps/day, maximum hand grip, sit and stand test
  - Self reported Qualify of Life. EuroQol-5
- Exploratory outcomes: Cytokines, CK, reverse T3, cortisol, ACTH, POTS/OH, sleep, depression, anxiety
- Enrollment 5/2023 and study end 5/2024

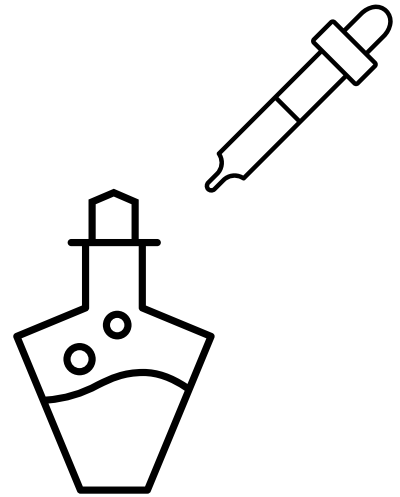
Principal Investigator: Luis Nacul, MD, PhD, BC Women's Hospital + Health Centre/ Univ of British Columbia

LDN challenges and barriers

- Naltrexone is generic. Little financial gain for prominent U.S. pharmaceutical companies to fund Phase III trials
- Naltrexone 50 mg tabs are affordable because insurance will pay.



- Compounded LOW DOSE naltrexone can be more expensive because insurance often won't cover compounded drugs.
- LDN can be found for $25-30/mo online (some pharmacies charge up to $130/mo).
- Naltrexone is stable dissolved in distilled water and refrigerated for up to 2-3 weeks.
- Mix a 50 mg naltrexone tablet in 50 ml of distilled water to make a 1 mg/ml solution



NPR Article about low dose naltrexone:

Https://www.npr.org/sections/health-shots/2019/09/23/741783834/in-tiny-doses-an-addiction-medication-moonlights-as-a-treatment-for-chronic-pain

Https://www.practicalpainmanagement.com/treatments/pharmacological/non-opioids/use-low-dose-naltrexone-management-chronic-pain

Things I've learned about treating patients with Long COVID

No two people have the same symptoms or same course

There is no single treatment for long COVID….yet

We do have many effective treatment strategies already – patients are getting better. There is hope!

COVID-19 lights everything on fire – there are many associated psychosocial stressors and consequences of COVID

Patients feel relieved when they find a doctor who understands long COVID – but access to long COVID specialty clinics is poor and support for multidisciplinary clinics is inadequate to manage the high volume of cases.

Agency for Healthcare Research and Quality

HHS Awards $45 Million in Grants to Expand Access to Care for People with Long COVID

Press Release Date: September 20, 2023

Funding will help implement and evaluate models for delivering comprehensive, coordinated, person-centered care to people with Long COVID.

9 grants awarded ($5 million over 5 years) to support existing multidisciplinary Long COVID clinics across the country to expand access to comprehensive, coordinated, and person-centered care for people with Long COVID, particularly underserved, rural, vulnerable, and minority populations that are disproportionately impacted by the effects of Long COVID.

AHRQ LONG COVID GRANT: UW INVESTIGATIVE TEAM

Janna Friedly MD, MPH (co-PI), Rehabilitation Medicine

Jessica Bender, MD, MPH (co-PI), General Internal Medicine

Nikki Gentile, MD, PhD (Co-PI), Family Medicine

Leo Morales, MD, MPH (Co-I), General Internal Medicine

Anita Chopra, MD (Co-I), General Internal Medicine

Julie Hodapp, MD (Co-I), Rehabilitation Medicine

Payal Patel, MD (Co-I), Neurology

Rachel Geyer, MPH (Co-I), Family Medicine

Lindsey Knowles, PhD (Co-I), Rehabilitation Medicine

Tracy Herring, PhD (Co-I), Rehabilitation Medicine

Ongoing (Live) CME Programs

Project ECHO utilizes case-based learning with short lectures to enable healthcare professionals to learn from one another through real-life case reviews and discussion.

Below are two ECHOs that offer live CME and address post-viral syndromes, long COVID, ME/CFS, and related comorbid conditions.

HEALTH UNIVERSITY OF UTAH · Project ECHO · Bateman Horne Center RESEARCH | CLINICAL CARE | EDUCATION

Long COVID & Post-Viral Syndrome

Bateman Horne Center has partnered with the University of Utah Health to conduct a Long COVID and Post-Viral Syndromes ECHO.

Applying what is known from other post-viral syndromes, such as ME/CFS, early and informed interventions ensure disease manageability and improved patient outcomes.

This program is reserved for healthcare professionals only. Recorded lectures have been made available to the public (below), and may also be accessed on BHC's YouTube Provider Education Playlist.

Sign up and see the agenda through 2022.

Submit a patient case for review and receive expert recommendations from our mentor panel!

View Recordings Here

CDC · Family Health Centers of San Diego · University of Colorado Anschutz Medical Campus · UW Medicine School of Medicine · NM Health Sciences · Project ECHO

Long COVID & Fatiguing Illness Recovery Program

Family Health Centers of San Diego, Project ECHO, University of Washington and University of Colorado have collaborated to provide a CDC-funded monthly learning session. The aim of the webinar-style program is to rapidly disseminate post-acute Sequelae of COVID-19 and Myalgic Encephalomyelitis/Chronic Fatigue Syndrome findings and emerging best practices

Assessment & Management of PASC

Many of the following resources reflect guidance on how to approach the assessment and care management of ME/CFS, which will assist in supporting patients with other post-viral syndromes such as long-COVID.

- CDC Interim Guidance: Evaluating & Caring for Patients with Post-COVID Conditions
- AAPM&R: Long COVID (PASC) Guidance
- AAPM&R: Assessment & Treatment of Fatigue in PASC
- AAPM&R: Assessment and treatment of cardiovascular complications in PASC

Utilizing the diagnostic & treatment blueprint for ME/CFS to inform PASC management

- Mayo Clinic Proceedings: ME/CFS: Essentials of Diagnosis and Management
- US ME/CFS Clinician Coalition: Testing Recommendations for Suspected ME/CFS
- US ME/CFS Clinician Coalition: ME/CFS Treatment Recommendations
- BHC: Assessing & Managing Aspects of ME/CFS
- Frontiers: Will COVID-19 Lead to Myalgic Encephalomyelitis/Chronic Fatigue Syndrome
- Doctors With M.E. Putting it into Practice: What NICE ME/CFS means for GPs
- Post COVID-19 Fatigue, Post/Long COVID-19 Syndromes & Post-COVID ME/CFS

Specific Guidance

- Orthostatic Intolerance (basics, symptoms, interventions)
- Assessing Orthostatic Intolerance: 10-Minute NASA Lean Test (provider instructions)
- Mast cell activation syndrome (MCAS): video, slides, handout
- Post-Exertional Malaise (PEM)

Translate

Other forums for dissemination:

Project ECHO

Popular websites

Press releases

Media events

batemanhornecenter.org

Additional Opportunity to Get Involved

Long COVID/Post COVID Interest Group at the WA ACP

- sharing management tools
- offering case discussions/provider education
- exchanging experiences from our clinical practices

Why should I sign up?

How do I sign up?

- achoprag@uw.edu
- Sign up sheet at the ACP table

UW Post COVID Rehabilitation and Recovery Clinic at Harborview Medical Center

Contact information:

Janna Friedly, MD, MPH

friedlyj@uw.edu

UW Medicine

- DOH 120-075 To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email civil.rights@doh.wa.gov

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