

Wellness Beyond Traditional Care

CAN DO
MULTIPLE SCLEROSIS

WEBINAR 
WEDNESDAYS

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UPCOMING PROGRAMS

Tuesday, August 18
NEWLY DIAGNOSED MEETUP
Managing Your MS in Real Life

Thursday, August 20
JUMPSTART
Enhancing Your MS Care With an
Integrative Medicine Approach

Thursday, September 3
BLACK COMMUNITY MEETUP
Getting the Support You Need



CANDO-MS.ORG

Coaching Programs

Connect with a group of people to give and receive support.



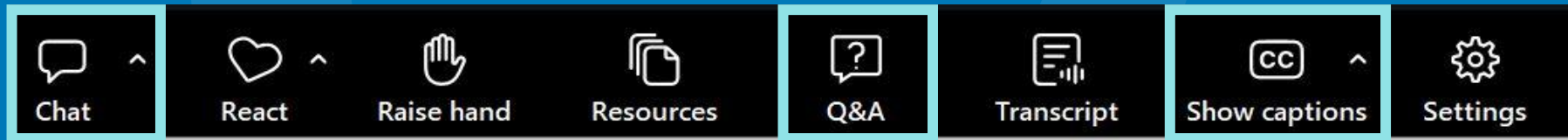
Register and Learn More at
CanDo-MS.org/Coaching

Everyday Energy: Managing Fatigue With MS

Series Starting 9/15
12:00-1:15pm ET | Zoom

How to Ask Questions During the Webinar

Type in your questions
using the Questions Box



Provide comments and engage
with the speakers and audience
using the **Chat Box**

Closed captioning

YOUR SPEAKER



Dr. Scott D Newsome, DO

Neurologist

Maryland

LEARNING OBJECTIVES



1

Learn the principles of integrative medicine

2

Become familiar with key components of integrative medicine

3

Learn how your MS care can be enhanced by an integrative approach



Living Well With MS: A Whole-Person Approach to Care

Scott Newsome, DO, MSCS, FAAN, FANA

Professor of Neurology

Director, Johns Hopkins Stiff Person Syndrome Center of Excellence

Director, Neurosciences Consultation and Infusion Center

Director, Johns Hopkins Neuroimmunology and Neurological Infectious Disease Fellowship Program

Co-Director, Multiple Sclerosis Experimental Therapeutics Program

Member, Miller-Coulson Academy of Clinical Excellence

Johns Hopkins University School of Medicine

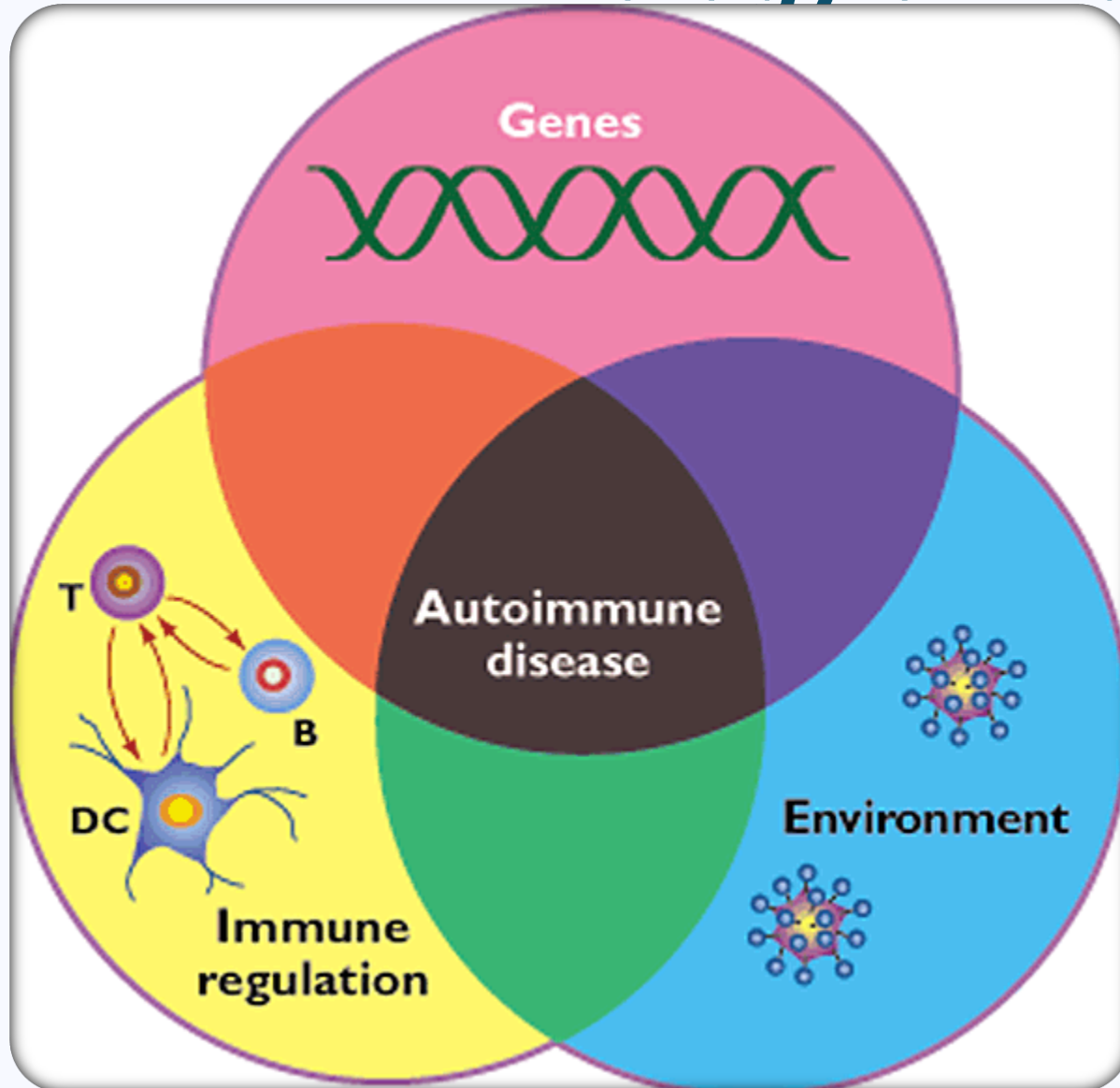
Overview

- Cause(s) of multiple sclerosis (MS)
- What is integrative medicine?
- Pillars of MS treatment
- Importance of healthy living
- Summary

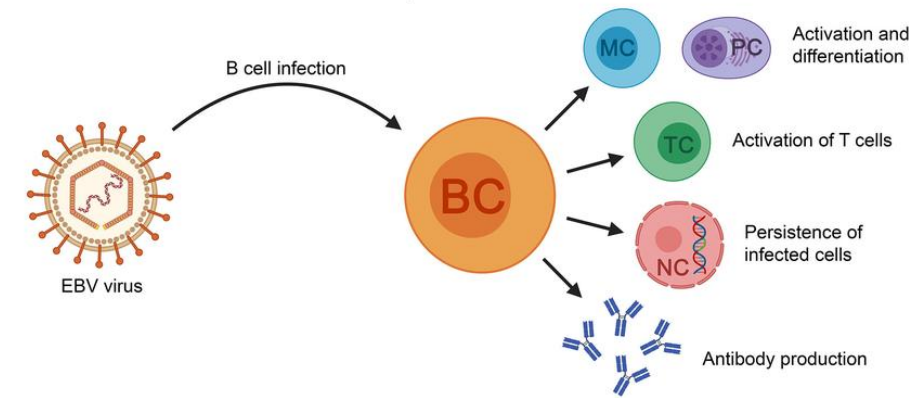


Cause(s) of Multiple Sclerosis

Etiology of Multiple Sclerosis



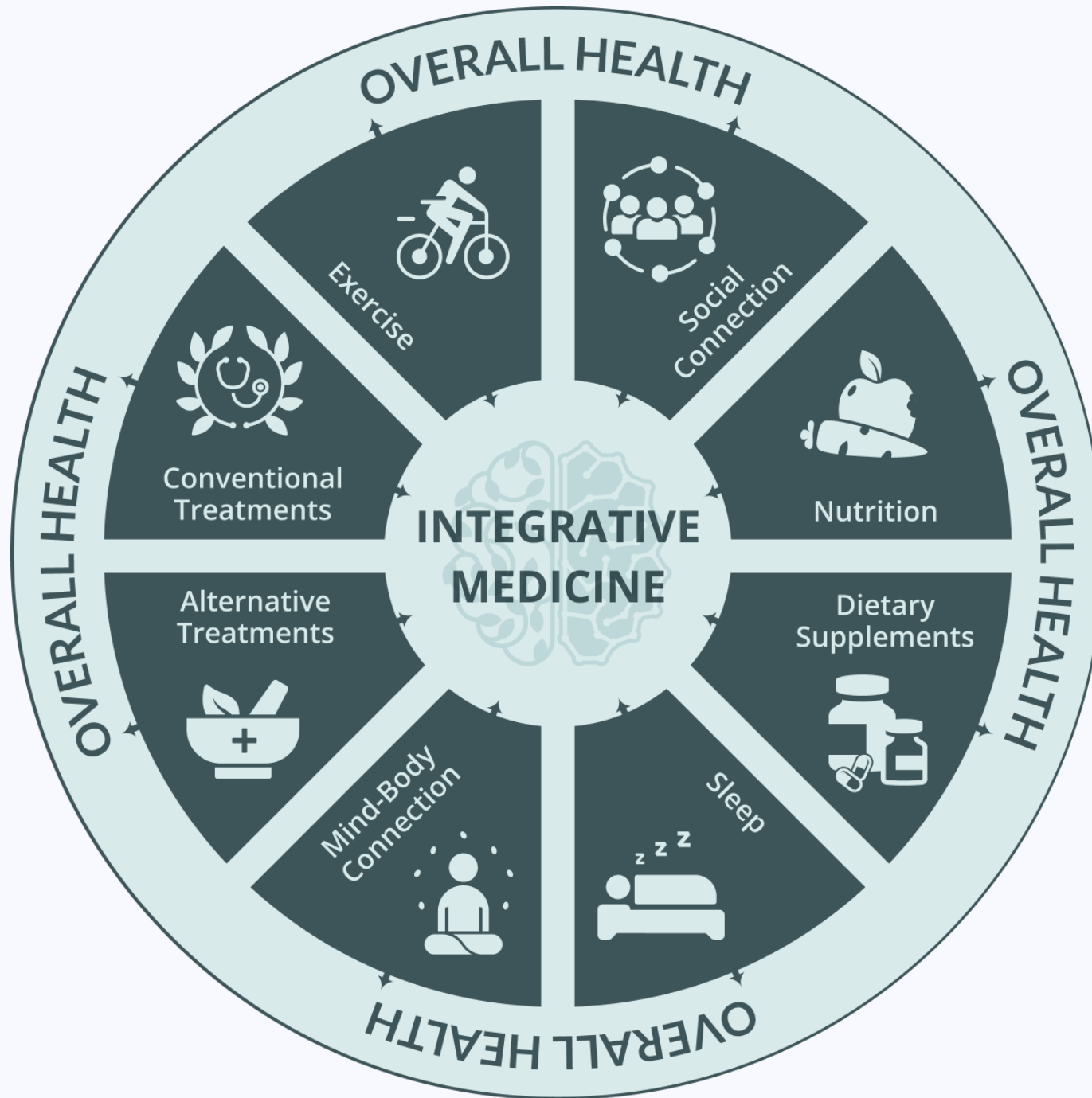
The effect of EBV on B cells in multiple sclerosis



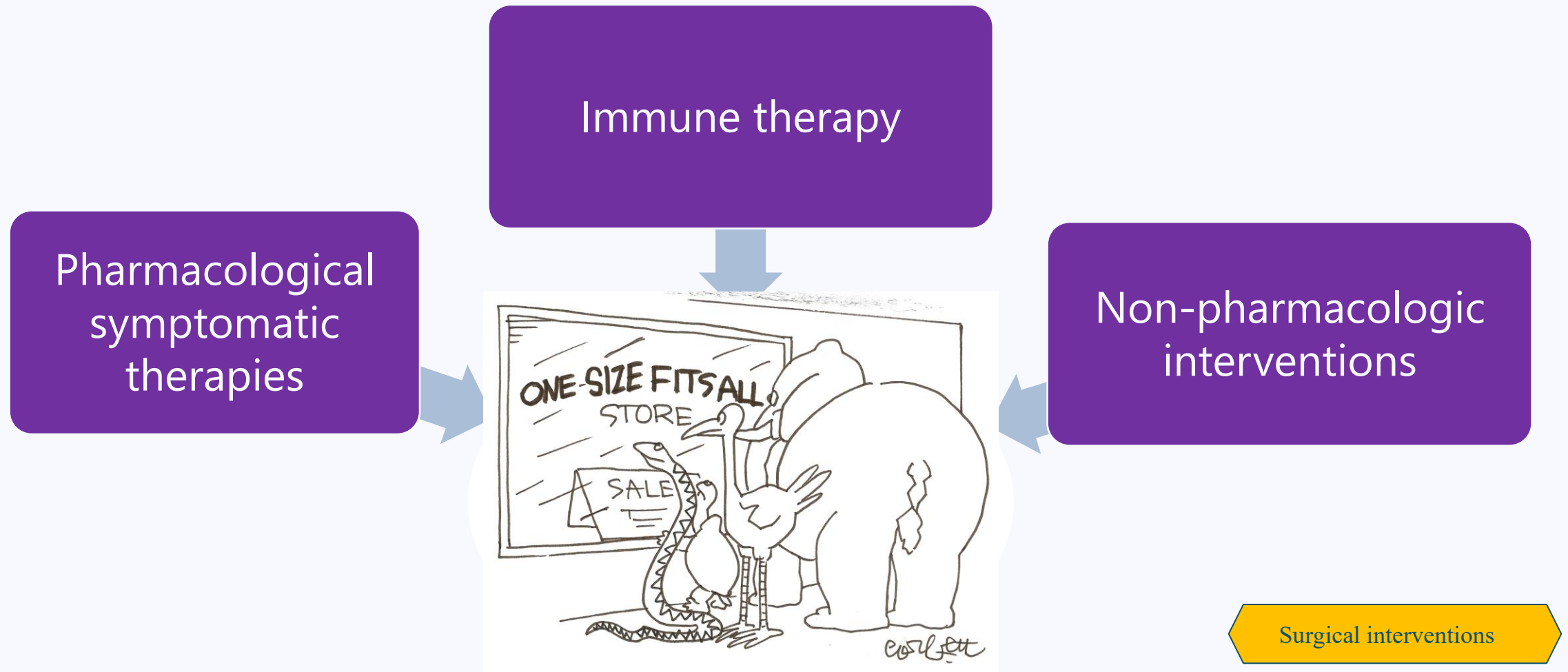
- Viruses (EBV)
- Vitamin D
- Latitude
- Smoking
- Diet
- Gut Microbiome
- Obesity



What is Integrative Medicine?



Treatment considerations in MS

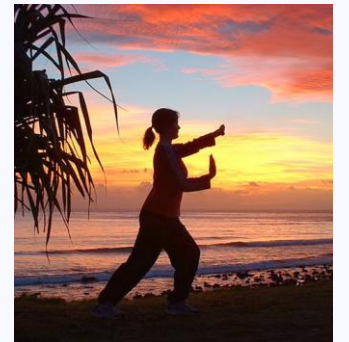


Non-pharmacologic therapy

- Physical therapy/stretching
- Cooling techniques
- Massage: deep tissue myofascial techniques
- Ultrasound therapy
- Electrical stimulation
- Aqua-therapy (85 degrees or less)
- Osteopathic/chiropractic manipulation
- Psychotherapy/behavioral therapy
- Talk therapy



- Acupuncture/Acupressure
- Yoga
- Qigong, Tai Chi
- Assistive devices
- Occupational therapy
- Many others.....



More supplements...more problems ?

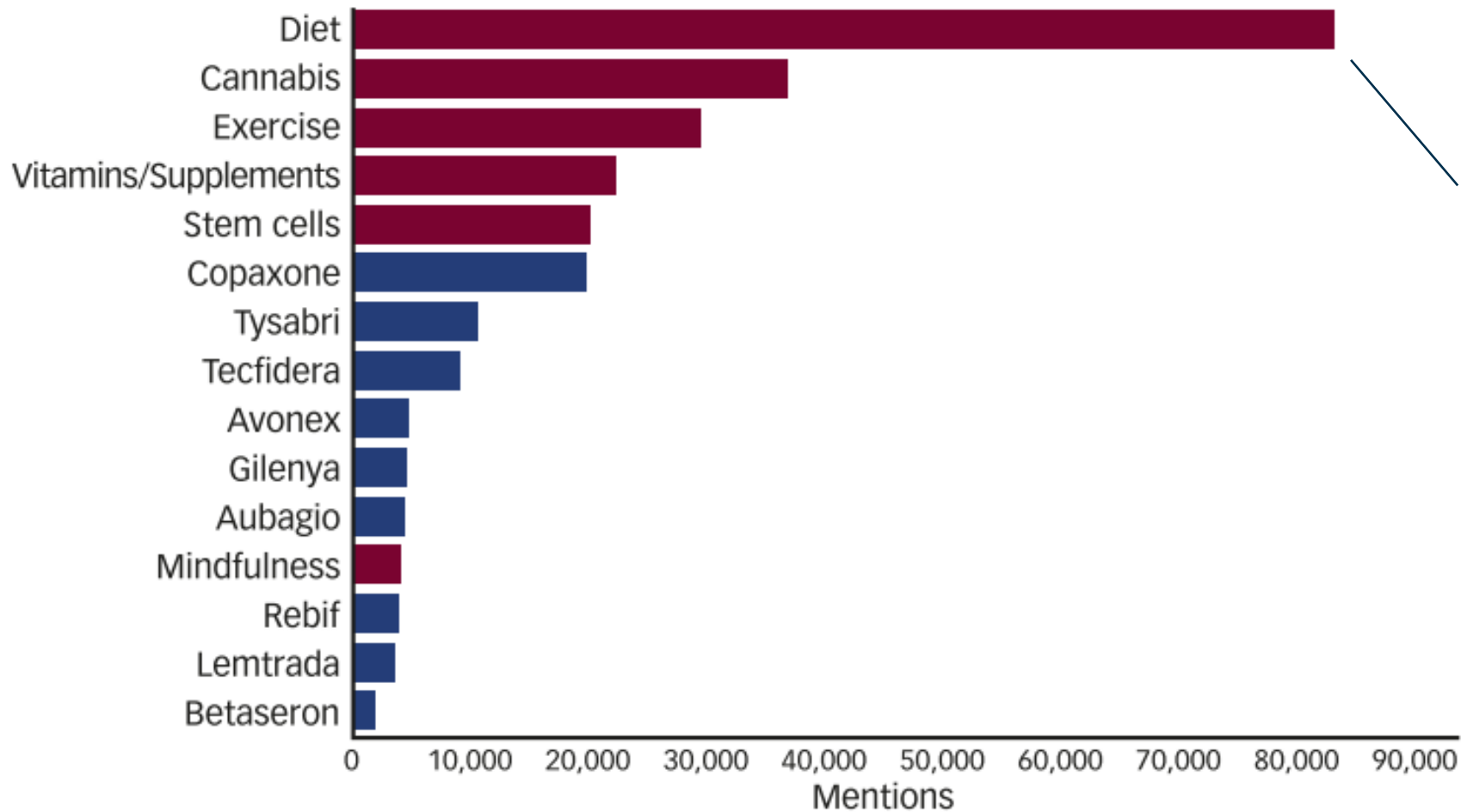


<https://www.economist.com/science-and-technology/2023/04/26/too-many-people-take-too-many-pills>

Importance of Healthy Living



People with MS are interested in dieting



Surveys observe ~50% of people with MS report making dietary modifications.¹⁻⁵

- 1) 49% of n=6990 Fitzgerald 2018
- 2) 59% of n=1913 Yadav 2006
- 3) 42% of n=1014 Silbermann 2020
- 4) 58% of n=1108 Nag 2021
- 5) 49% of n=952 Simpson-Yap 2021

Where do I start and what diet is the best?

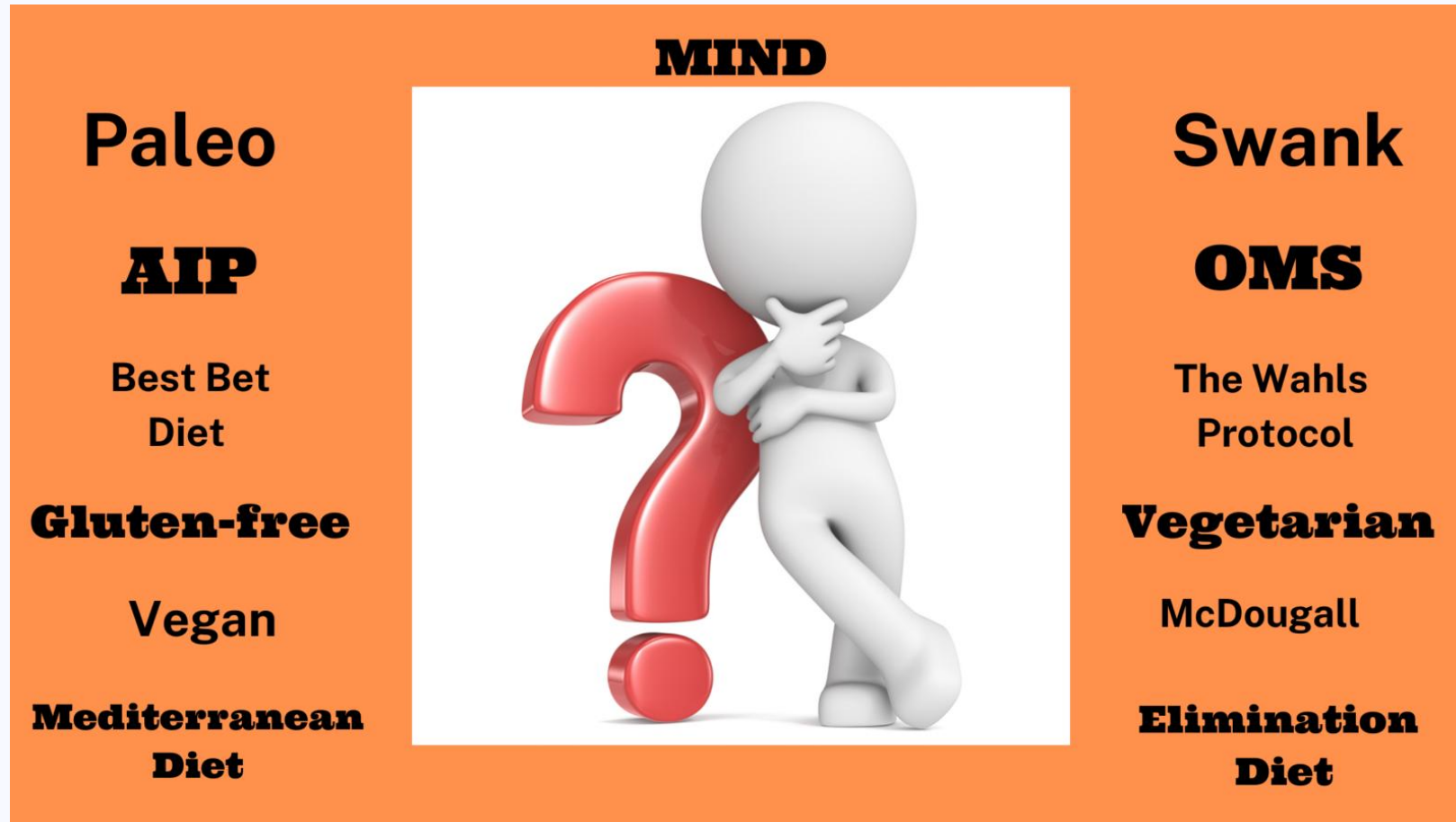
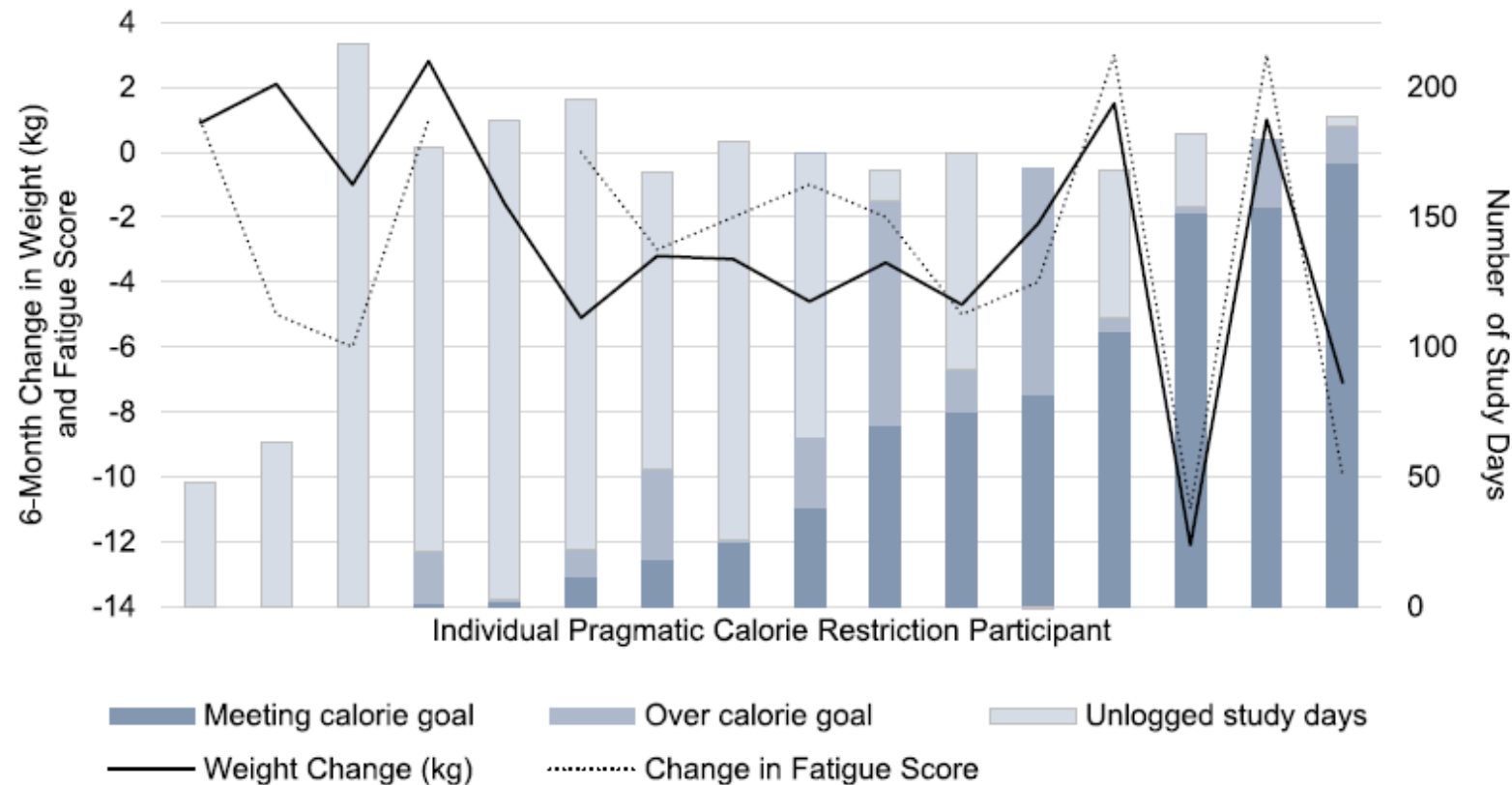


Photo credit: <https://mswellnessproject.com/i-have-ms-what-should-i-eat/>

Fasting mimicking diets may help



- Calorie restriction (daily or intermittently) or time-restricted feeding: 70 completed the studies
- Participants who logged more days meeting their individual calorie goal tended to lose more weight
- Improvement in PROMISMS-Fatigue score was significantly correlated with weight loss Roman SN, et al. *Mult Scler Relat Disord* 2020.



“Our body is like an ATM....you need to accumulate a good reserve and balance to avoid running out of money!”

EXERCISE GUIDELINES

- The National MS Society (NMSS) convened clinical and research experts to:
 - Reach consensus on optimal exercise and lifestyle physical activity recommendations across the disability spectrum (EDSS 0–9.0)
 - Identify and address barriers/facilitators for participation
- Exercise: aerobic, resistance, flexibility, neuromotor retraining
 - Higher EDSS levels included breathing exercises (spirometer) and functional electrical stimulation (FES)
- Lifestyle physical activity: work, household, leisure
 - Higher EDSS levels included ADLs and functional movement of any kind

BENEFITS OF EXERCISE

- Past-> exercise may be harmful
- Now-> embrace exercise
 - =>15 weeks of aerobic training
 - Substantial increase of max aerobic capacity
 - Decrease skinfold thickness and triglyceride levels
 - Favorable changes in max isometric force measurements
 - Profound positive impact on factors related to QOL

EXERCISE GUIDELINES

- **Early evaluation** by a PT, OT, exercise or sport scientist **experienced in MS** is recommended to establish an individualized exercise and/or lifestyle physical activity plan
- Taking into account comorbidities and symptoms fluctuations; 150 minutes or more of exercise/activity per week
- Referral to specialists (or re-refer) if disability increases or when mobility is impacted to ensure safe and appropriate exercise prescription

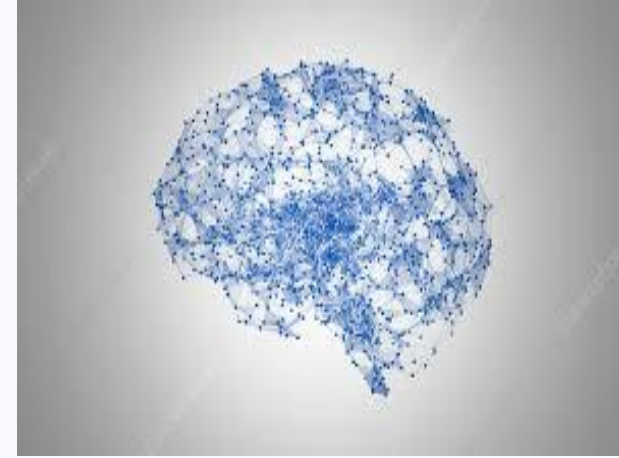
EXERCISE AND BIOMARKERS

- Review of Influence of Exercise Training on MS Biomarkers Related to the CNS (2019)
 - BBB function biomarkers
 - Brain connectivity
 - Neurotrophic factors
 - Imaging

Negaresh R, Motl RW, Zimmer P, Mokhtarzade M, Baker JS. Effects of exercise training on multiple sclerosis biomarkers of central nervous system and disease status: a systematic review of intervention studies. *Eur J of Neuro*. 2019; 26: 711 -721

BRAIN CONNECTIVITY

- Several studies have investigated brain connectivity response to exercise training
 - Improvement in synapse efficiency between neurons through co-activation of brain areas associated with fatigue (i.e. caudate) in MS
 - Reinforcement of thalamus-cortex network
 - Leads to improvements in cognitive fatigue and cognitive processing speed
 - Improvement in the viscoelastic properties of the hippocampus

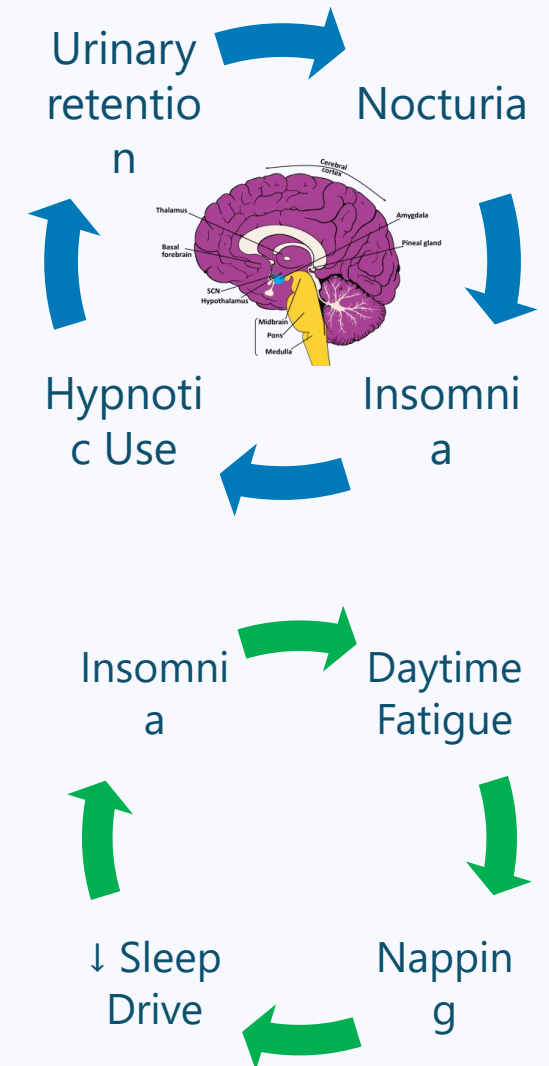


A microscopic image of neurons, showing cell bodies and branching processes, rendered in a blue color scheme. Two thick, horizontal orange bars are superimposed on the image, one above and one below the central text.

Sleep and Fatigue in MS

Sleep Disorders are Common in MS

- 2–3x more common in MS vs general population
 - Insomnia
 - Sleep-related breathing disorders (SRBD)
 - Restless legs syndrome (RLS)
 - Periodic limb movement disorder (PLMD)
- Also, higher rates of
 - Narcolepsy
 - REM sleep behavior disorder (RBD)

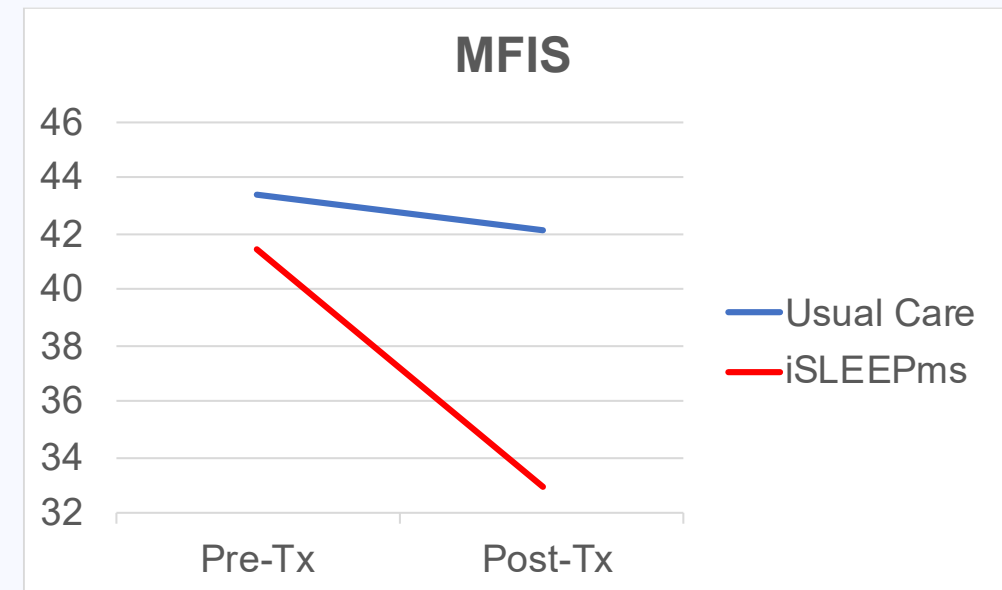
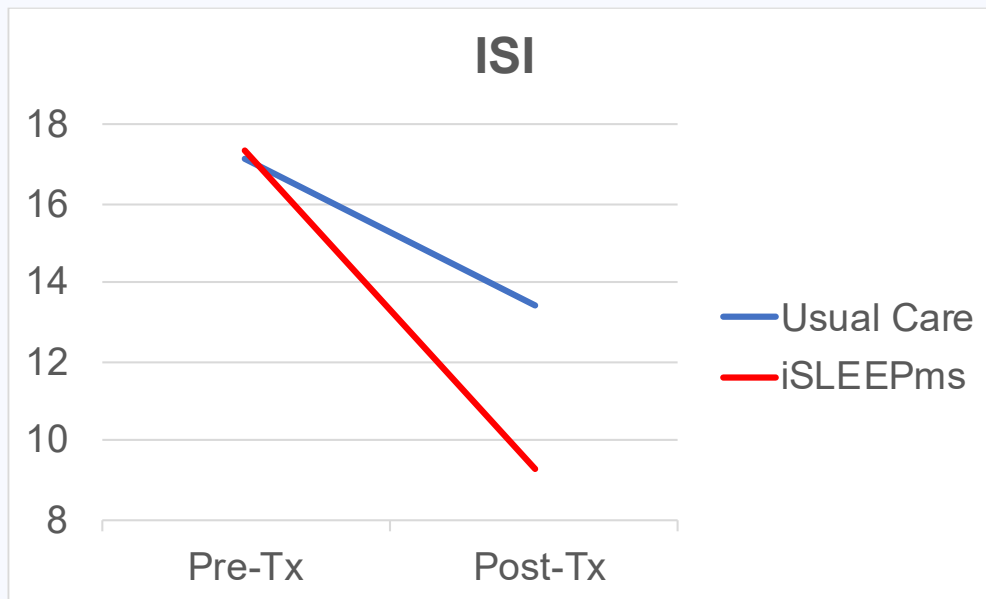


Multifactorial causes of fatigue and sleep disturbances

- MS Symptoms
 - Nocturia
 - Spasticity
 - Pain
 - Depression
 - Anxiety
 - Fatigue
- Medications/Supplements
 - Corticosteroids
 - Stimulants
 - Sedatives
 - Opioids
 - Anticholinergics
 - Benzodiazepines
 - Muscle relaxants
 - Melatonin
 - OTC sleep aids

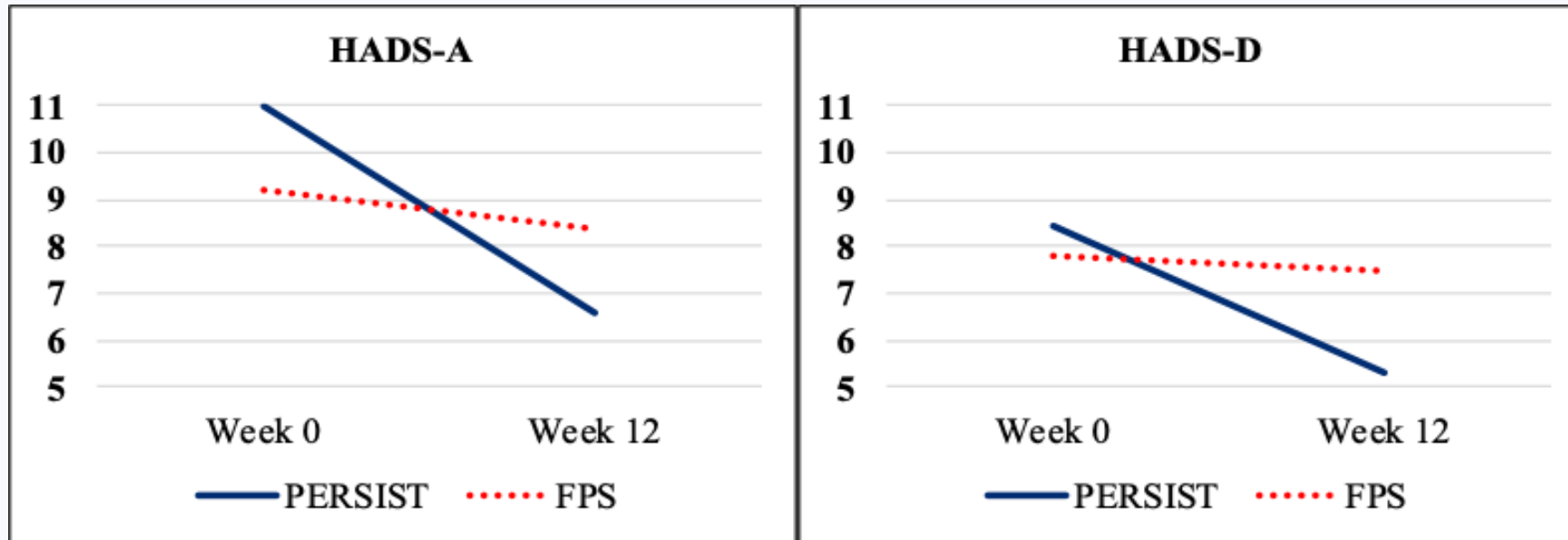
Sleep, Wellbeing, and Rehabilitation in Multiple Sclerosis

- Recent research highlights from our MS Rehabilitation Program
 - Cognitive Behavioral Therapy for Insomnia (CBT-I): A pilot RCT from our group showed 4 sessions of remotely-delivered CBT-I (by zoom) reduced insomnia severity and impact of fatigue on daily functioning compared to usual care. (NIH/NICHD: K23HD086154, PI: Hughes)



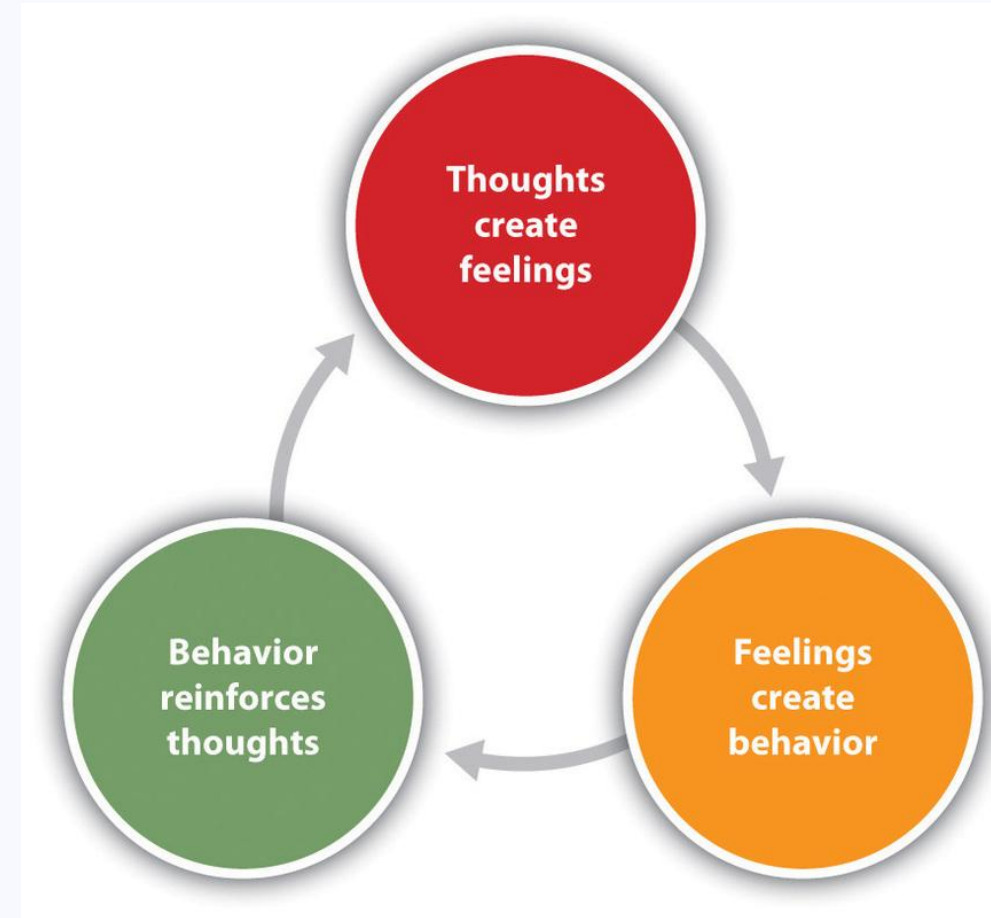
Sleep, Wellbeing, and Rehabilitation in Multiple Sclerosis

- Recent research highlights from our MS Rehabilitation Program
 - Dialectical Behavioral Therapy (DBT) Skills Training for MS Patients and Support Partners: A pilot RCT showed 12 sessions of remotely-delivered group-based DBT skills training (via zoom) reduced anxiety and depression symptoms compared to traditional peer support. (NMSS, PP-1804-30860, PI: Hughes)



Behavioral Interventions

- Cognitive Behavioral Therapy for Insomnia (CBT-I)
 - based on the 3 P model
 - addresses the pathways between thoughts, feelings, and behaviors (perpetuating factors)
 - is time-sensitive, present-focused (2-12 sessions)
 - emphasizes skill development
 - has been shown to improve sleep and reduce fatigue, depression, and cognitive symptoms
 - is first-line treatment for insomnia



Take Charge of My Multiple Sclerosis Study

47% had a clinically meaningful change in pain intensity

- 1:1, 45-60 min sessions
- Chronic pain, fatigue, and/or depression
- Delivered by a PhD or MSW trained in MS & self-management



Archives of Physical Medicine and Rehabilitation

journal homepage: www.archives-pmr.org

Archives of Physical Medicine and Rehabilitation 2015;96:1945-58



ORIGINAL RESEARCH

Efficacy of a Telephone-Delivered Self-Management Intervention for Persons With Multiple Sclerosis: A Randomized Controlled Trial With a One-Year Follow-Up



Dawn M. Ehde, PhD,^a Jamie L. Elzea, MPH, MSW,^a Aimee M. Verrall, MPH,^a Laura E. Gibbons, PhD,^b Amanda E. Smith, BS,^a Dagmar Amtmann, PhD^a

From the ^aDepartments of Rehabilitation Medicine and ^bGeneral Internal Medicine, School of Medicine, University of Washington, Seattle, WA.

Abstract

Objective: To evaluate the efficacy of a telephone-delivered self-management intervention for fatigue, pain, and depression in adults with multiple sclerosis (MS).

Design: Single-center, randomized (1:1), single-blind (outcome assessors), parallel-group trial with a primary endpoint of posttreatment (9–11 wk postrandomization) and long-term follow-up at 6 and 12 months.

Setting: Telephone-delivered across the United States.

Participants: Adults with MS (N = 163) with fatigue, chronic pain, and/or moderate depressive symptoms (age range, 25–76y).

Interventions: Eight-week individual telephone-delivered self-management intervention (T-SM) (n = 75) versus an 8-week individual telephone-delivered MS education intervention (T-ED) (n = 88).

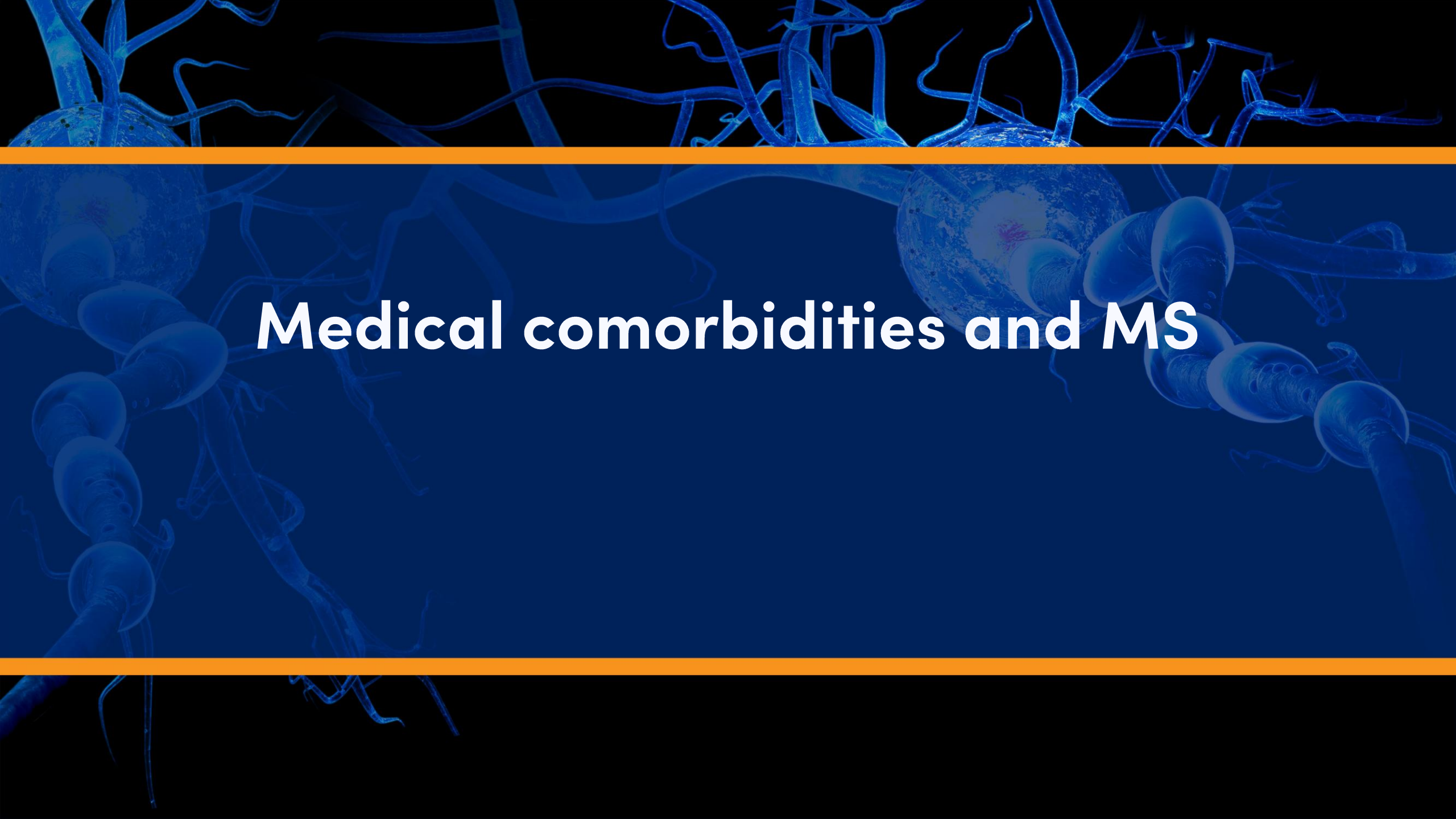
Main Outcome Measures: The primary outcome was the proportion who achieved a $\geq 50\%$ decrease in 1 or more symptoms—fatigue impact, pain interference, and/or depression severity. Secondary outcomes included continuous measures of pain, fatigue impact, depression, self-efficacy, activation, health-related quality of life, resilience, and affect.

Results: For our primary outcome, 58% of those in the T-SM group and 46% of those in the T-ED group had a $\geq 50\%$ reduction in 1 or more symptoms; this difference was not statistically significant (odds ratio, 1.50; 95% confidence interval, .77–2.93; $P = .238$). Participants in both groups significantly improved from baseline to posttreatment in primary and secondary outcome measures ($P < .05$). T-SM participants reported significantly higher treatment satisfaction and therapeutic alliance and greater improvements in activation, positive affect, and social roles. Improvements were generally maintained at 6 and 12 months.

Conclusions: Both interventions resulted in short- and long-term, clinically meaningful benefits. The study demonstrated that the telephone is an effective method for engaging participants in care and extending the reach of rehabilitation for individuals with MS.

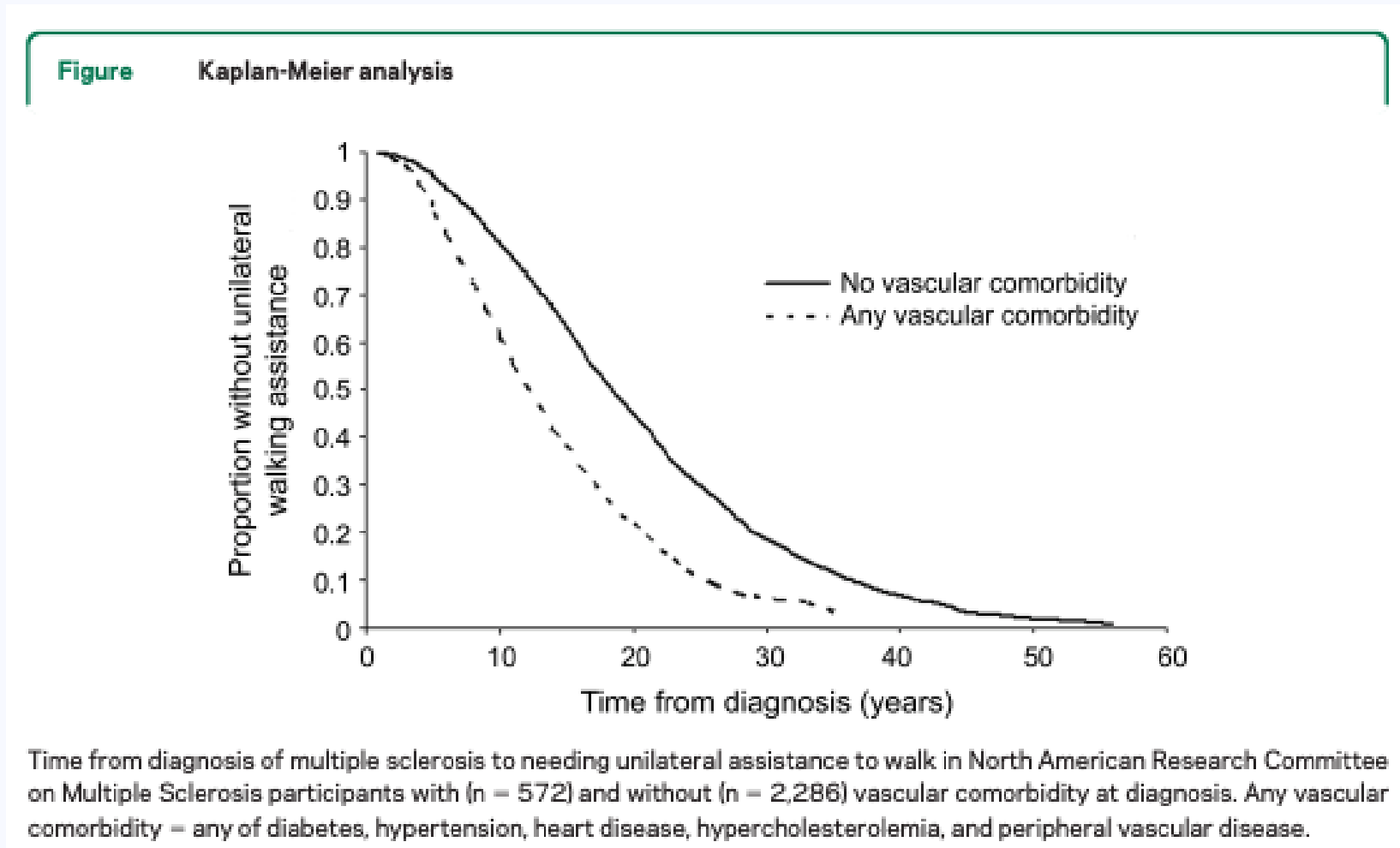
Archives of Physical Medicine and Rehabilitation 2015;96:1945-58

© 2015 by the American Congress of Rehabilitation Medicine

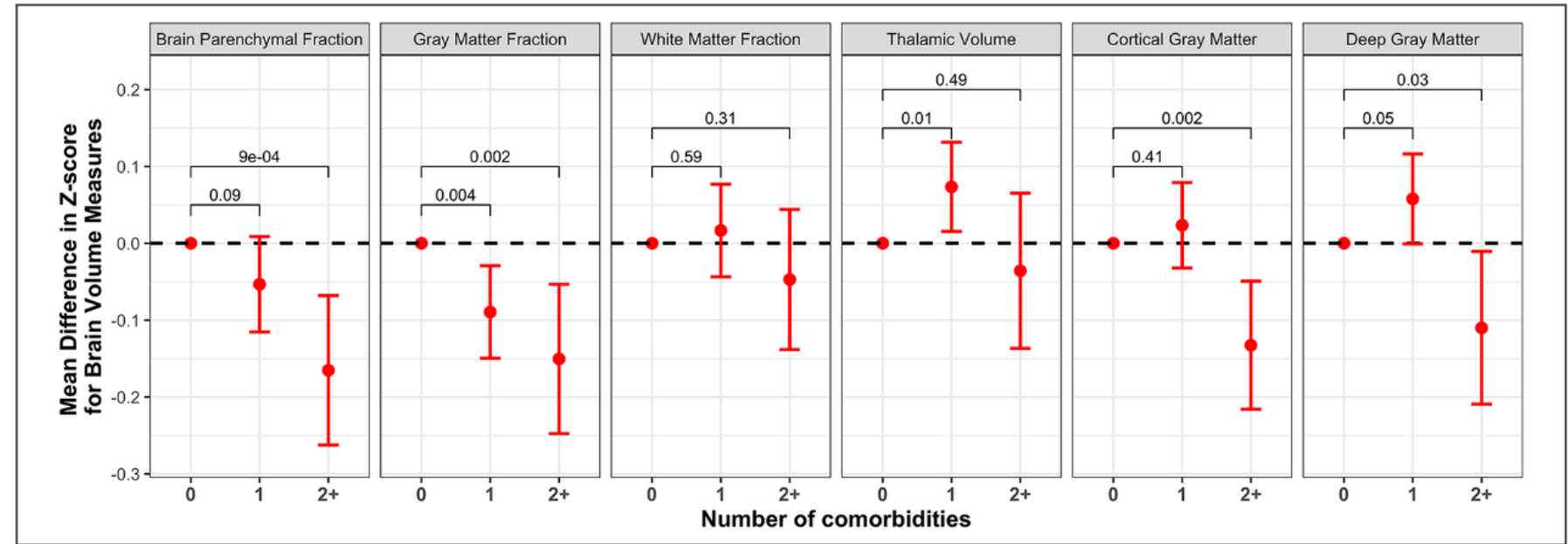
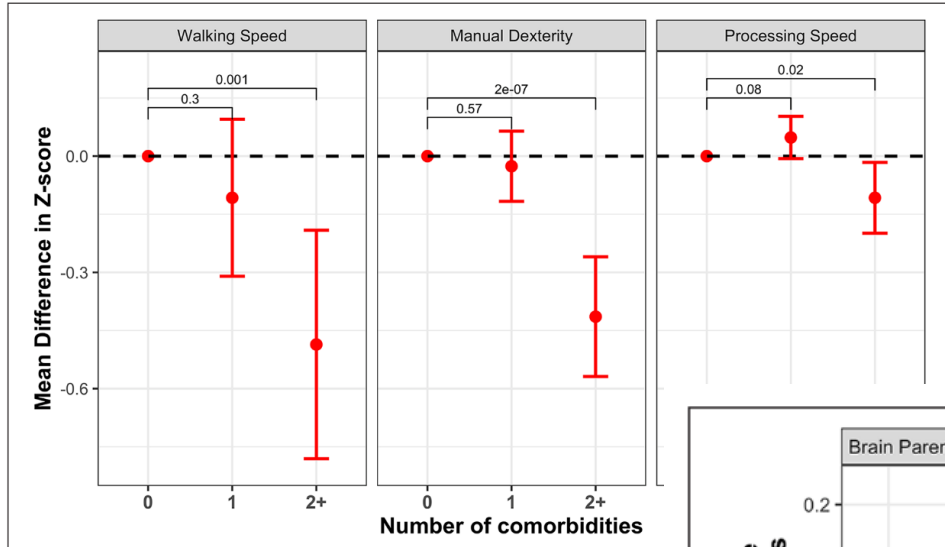


Medical comorbidities and MS

Vascular comorbidities are associated with early gait disability in MS



Vascular comorbidities are associated with lower brain volume and higher functional disability



Obesity and related diseases affect the brain, including in people with MS

- **Obesity linked with:**

- Greater shrinkage, or atrophy, of brain over time (on MRI)*
- Greater loss of nerve layers in back of the eye

Mowry EM, et al. Neurol 2018.
Filippatou A, et al. Mult Scler 2020.

Brain on right shows
shrinkage



- **Having 2 or more of diabetes, high cholesterol, high blood pressure:**

- Worse functioning on clinical tests
- Greater brain shrinkage/atrophy

Fitzgerald KC et al. Mult Scler 2021.
Fitzgerald KC et al. ECTRIMS 2022.

Glucagon-like peptide-1 receptor agonists (GLP1-RA) for preventing and treating progressive MS?

- Class of medications already approved for treatment of obesity and/or type 2 diabetes: major benefit for heart disease (and related illnesses)
- One of these medications reduced brain shrinkage (and improved memory) in a trial in people with Alzheimer's disease
 - Interesting because diabetes increases Alzheimer's risk (similar to increasing disability risk in MS)

Edison P et al., presented at Alzheimer's Association International Conference, Philadelphia, PA, June 2024

- NLY01: longer-acting GLP-1 medication
- In a mouse model of MS in our lab, NLY01 reduced death of nerve cells

Gharagozloo et al., Neurotherapeutics 2021

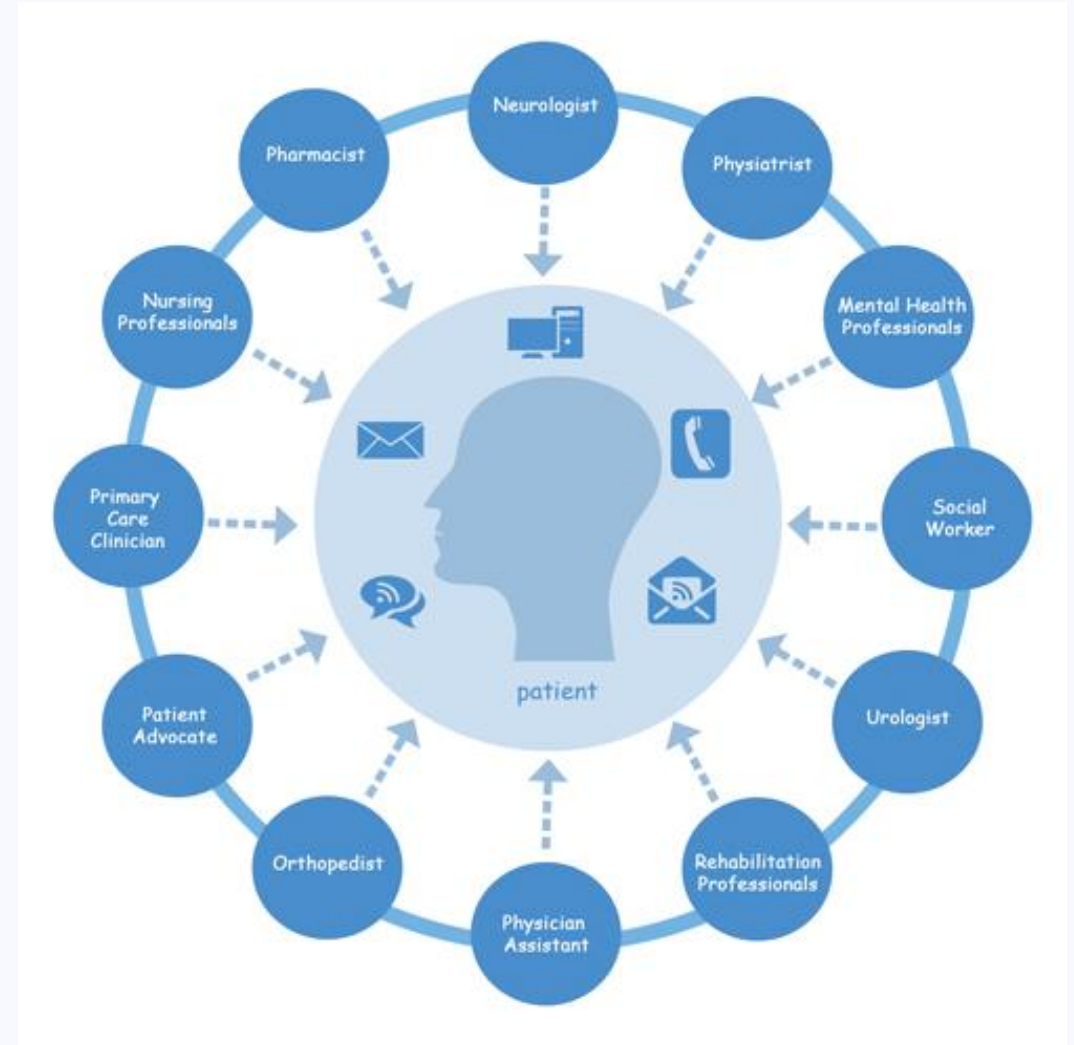
Targeting Agonists of GLP-1 receptor for MS (TAG-MS)

- **Lead Investigator:** Dr. Ellen Mowry
- **Other JHU Faculty Investigators:** Dr. Kate Fitzgerald, Dr. Blake Dewey
- **Funding:** International Progressive MS Alliance; MS4MS
- **120 participants, randomized by flip of coin to NLY01 or matching placebo**
 - 2-year study
 - All participants will receive counseling about healthy lifestyle
 - Partnering sites: Mt. Sinai and Columbia University MS Centers
- **Primary outcome:** Brain shrinkage/atrophy
- **Other outcomes:** new MRI biomarkers of the health of the brain metabolism, wrist-worn activity trackers; serum neurofilament light chain (sNfL) and other biomarkers; clinical and participant-reported disability and quality of life

Integrative & Interdisciplinary Care: A Team Approach

►►► Box 2-Integrative Care for MS in Seven Steps

- Step 1: Disease-modifying medications
- Step 2: Integrative symptom management
- Step 3: Physical activity
- Step 4: Diet, dietary supplements, and weight management
- Step 5: Personal and social well-being
- Step 6: Tobacco and alcohol use
- Step 7: Prevention and management of comorbidities



Q+A



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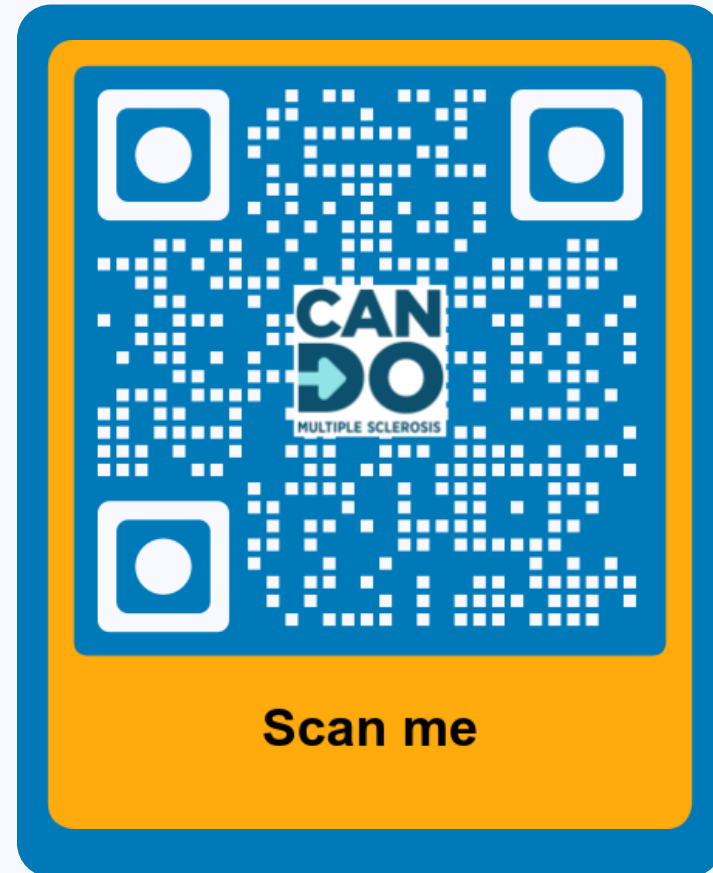


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Next Month:

Exploring Nutrition's Impact on MS

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