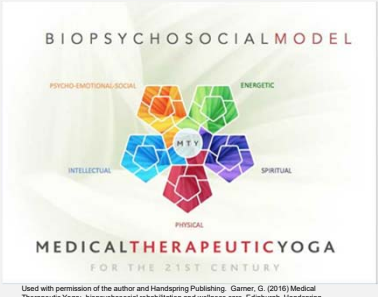
MEDICAL THERAPEUTIC YOGA FOR MULTIPLE SCLEROSIS

WHY YOGA?



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OBJECTIVES

- Participants will be able to:
  - choose 2-3 important factors to consider when designing and planning a group medical therapeutic yogic intervention for individuals with MS.
  - identify appropriate yoga based exercises for a group format while applying relevant MS literature.
  - educate a person with MS on what yoga is and how it could benefit or harm their plan of care.
  - utilize evidence informed techniques from a yogic perspective within their clinical practice with individuals with MS that will include the breath, the core, the voice, and journaling.
  - develop a plan of how they can seek partnership with local community resources to create a sustainable long term community based program if desired

WHY YOGA?

- Costs of Disease Modifying Therapies in Medicaid System with 23% discount (annual)
  - Betaseron ($49,146)
  - Avonex ($49,837)
  - Copaxone ($47,253)
  - Rebif ($53,032)
  - Tysabri ($51,306)
- These drugs are needed but could an evidence informed yoga program help decrease other healthcare related expenses?

Hartung, D.M., Bourdette, D.N., Ahmed, S.M., Whitham, R.H. (2015) The cost of multiple sclerosis drugs in the US and the pharmaceutical industry. Too big to fail?, Neurology, 84(21), 2185-2192. doi:10.1212/WNL.0000000000001608

Yoga

Mind the Gap

WHY NOT YOGA?

- People with MS have unique co-morbidities
  - Heat sensitivity
  - Increased rates of osteoporosis (Gupta, S., et al., 2014) (Sinaki, M., 2013)
  - Balance/gait deviations
  - Fatigue
  - Cognitive deficits
  - Dizziness/oculomotor problems
- Do most community based teachers have enough training to work with unique populations?

Gupta, S., Ahsan, I., Mahfooz, N., et al. (2014) Osteoporosis and multiple sclerosis: risk factors, pathophysiology, and therapeutic interventions, CNS Drugs, 28, 731-742.
Sinaki, M. (2013) Yoga Spinal Flexion Positions and Vertebral Compression Fracture in Osteopenia or Osteoporosis of the Spine, Case Series: Yoga, Spinal Flexion Poses, and Osteopenia, Pain Practice, 13, 68-75.

Rehabilitation and Multiple Sclerosis

- General exercise as well as more specific exercise (balance type) are both moderately correlated with improved balance (Gunn, H., et al., 2015)
- Cohen, et al., demonstrated that yoga can be provide beneficial effects across many spectrums of care (FTSTS, MDRT, SF-36, T25Ft Walk, MFIS, PASAT-3 - to name a few)

Gunn, H., Markevics, S., Haas, B., Marsden, J., Freeman, J. (2015) Systematic Review: The Effectivenss of Interventions to Reduce Falls and Improve Balance in Adults with Multiple Sclerosis, Archives of Physical Medicine and Rehabilitation, 96, 1898-912.
Cohen, E.T., Kietrys, D., Fogerite, S.G., silva, M., Logan, K., Barone, D.A., Parrott, J.S.(2017) Feasibility and Impact of an 8-Week Integrative Yoga Program in People with Moderate Multiple Sclerosis-Related Disability, International Journal of MS Care, 19(1), 30-39.

Why not yoga?

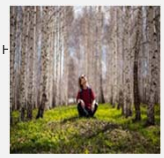
Nutrition and Multiple Sclerosis

- Plant based diets with high fiber, calorie restriction, and exercise help decrease inflammation
- Diets high in fried foods, animal fats, sugar increase inflammation
- Higher rates of MS tend to occur in places with high socioeconomic status and decreased sunlight exposure
  - Migrating to these areas increases risk well (Riccio, P., Rossano, R., 2015)

Riccio, P., Rossano, R. (2015) Nutrition Facts in Multiple Sclerosis, ASN Neuro, 7(1). https://dx.doi.org/10.1177%2F1759091414568185

THE NECESSITIES OF A PROGRAM

- Impairment/function based (standing/balance/seated poses)
- Avoids passive stretching and flexion/rotation based exercises
- Taught in a cool room
- Focus on stability first, mobility second
- Breath, core, voice focused
- Journaling to promote self efficacy, behavior change, and salient H
- Interdisciplinary
- Education on MS
- Education on nutrition would be great



Respiration, The Core, & The Voice

- People with MS often develop weakness in inspiratory/expiratory musculature
  - Severity is correlated with the degree of impairment (Tzelepis, G.E., McCool, F.D., 2015)
- Voice lessons/singing is a commonly used technique to aid in improving phonation, respiratory control, and core strength in people with numerous neurological impairments
  - With MS, the verdict is still out (Goldenberg, R.B., 2018)

Tzelepis, G.E., McCool, F.D. (2015) Respiratory Dysfunction in Multiple Sclerosis, Respiratory Medicine, 109(6), 671-9.
Goldenberg, R.B.(2018) Singing Lessons for Respiratory Health: A Literature Review, Journal of Voice, 32(1), 85-94.

Treatment of Multiple Sclerosis

- **Medication – standard protocol**
  - ***Acute: steroids for flare ups***
    - Glucocorticoids - strong anti-inflammatory and immunosuppressive qualities,
    - purpose of hastening recovery from the exacerbation
    - Acute side effects include insomnia, extreme emotional fluctuations, fluid retention, weight gain,cardiac arrhythmia, hypertension, hyperglycemia, increased susceptibility to infection
  - ***Chronic: immunosuppressants/immunomodulators to reduce symptoms and likelihood of flare ups***
    - rely on the assumption that MS is an autoimmune disease that is attacking the body's nervous system.
    - leave the patient more susceptible to other infections

Physical Activity and Multiple Sclerosis

- Despite Evident that physical activity aids in symptom management, the MS population is highly inactive
  - Less active than other chronic disease populations
- Why??

Goal: Increase physical activity in MS patients → increases overall quality of life

- Physical limitations reduce quality of life in MS patients
  - increased activity → increased physical functioning → increased quality of life

Physical Activity and Multiple Sclerosis

Physical activity (PA) – increasingly becoming a recommendation as a supplemental treatment

- Symptom management
  - Physical and Cognitive
- Reduction of the length and duration of flare-ups
- Increases Quality of life

Self-Efficacy and Multiple Sclerosis

- Behavior Change - ***Social Cognitive Theory (SCT)***
  - **Self-efficacy** - situation specific self-confidence
  - Outcome expectations (goals)

Motivation for physical activity participation directly related to SCT in MS patients

- Self-efficacy increases through:
  - experience - successful execution of activity
  - modeling - seeing peers successfully executing activity
  - social persuasion - encouragement from others
  - physiological cues - what the individual's body is telling them

Increasing Self-efficacy increases long-term adherence

Physical Activity and Multiple Sclerosis

- ACSM
  - 30 minutes of PA most days with both aerobic and strength workouts included
- National MS Society
  - **minimum dose of PA required** to improve fitness, increase mobility, improve QOL, and decrease fatigue
    - 30 minutes of moderate intensity aerobic exercise twice per week
    - strength training for all the major muscle groups at least twice per week.

Self-Determined Motivation

Self-determination Theory (SDT) of motivation

- We must satisfy basic needs for:
  - Competency
  - Autonomy
  - Relatedness
- Satisfying these needs creates self- determined motivation (internalization)
  - More internalized = more likely to continue behavior

Combining Theories into Practice

- Research supports SDT and SCT as predictors of physical activity behavior in people with MS
- Combining these two approaches increases long-term adherence
  - self-efficacy AND self-determined motivation

The aim of MTY was to use the most effective behavioral model to increase participation and consequently directly and indirectly influence quality of life.

Reality of TTM of behavior change

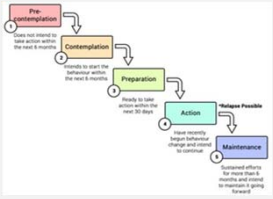
Most participants are in
- preparation
- action
- maintenance (some)

Behavior Change - Transtheoretical Model

Integrates SCT (self-efficacy) and SCT (self-determined motivation) into practice

Behavior change is not a quick process - ***gradual progression*** through a series of stages that are defined by **intention** and **action**

- **precontemplation**
- **contemplation**
- **preparation**
- **action**
- **maintenance**



TTM Strategies

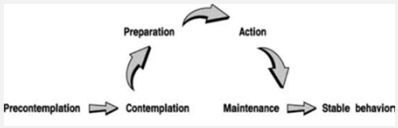
Table 1. Stages of change and key strategies for support[1]

Stage of change	Description	Key strategies
Precontemplation	No interest in making a change	Provide information regarding the effects of the behavior or condition. Allow the patient to express his/her emotions
Contemplation	Recognizes a need to change; however, is undecided and is anxious about the outcome	Discuss barriers to change and emphasize the expected benefits. Increase the patient's confidence by pointing out his abilities
Preparation	Committed to take action and may have already made small steps	Help the patient set specific goals and develop an action plan. Suggest the patient tell others about his/her decision
Action	Modifies behavior appropriately and is committed to changing	Provide specific tips and techniques to help meet the patient's goal. Provide training and suggest social support
Maintenance	Performs new behavior and works to prevent relapse	Discuss possible roadblocks to success and suggest realistic solutions. Provide encouragement and support
Relapse	Returns to old behavior	Remind the patient he is not a failure. Emphasize the progress made thus far and encourage a re-commitment to the goal

Goals and strategies

Proposed TTM of behavior change

In theory, the transtheoretical model of behavior change works like this:



Preventing return to inactivity

- Expect & plan for PA relapses (return to inactivity)
  - Realize lapses are inevitable & normal
  - Be flexible and adaptable
- Identify/plan for high-risk situations
  - Weather
  - Vacation (e.g., alternate activity)
  - MS Flare-up
- Develop coping strategies → Yoga!!!
  - relaxation training
  - time management
- Don't view as catastrophic
  - Self-talk –you're not a total failure
  - Avoid abstinence violation effect –complete collapse, giving up

Putting it all together

Consider the stage of change in order to:

- Effectively develop cognitive and behavioral strategies for participation
  - build self-efficacy
  - incorporate work/rest/recovery structure that meets individual needs
- Understand why we are implementing specific activities
- Help Participants move to long-term healthy behavior

Choosing Yoga Poses

- Incorporate breath/transverse abdominis/pelvic floor into each position
- Incorporate hip, shoulder, and chin lock into poses for added stability/safety
- Standing poses or seated version of weight bearing poses that involve increasing muscle strength and endurance
- Choose poses that avoid spinal flexion/rotation
- Encourage safety with use of wall or chairs for external support for individuals with balance difficulty

Our Intervention

Pre-test/Post-test

- MiniBESTest
- Timed 25 ft walk
- Modified Fatigue Impact Scale
- 9 hole peg test
- Static Balance Testing (SLS, Sharp Rhomberg)
- Markus Self-Efficacy for Physical Activity Scale (MSES)
- The Behavioral Regulation in Exercise Questionnaire – Version 2 (BREQ-2)
- The Quality of Life (QoL) survey
- Patient Determined Disease Step (PDDS)
- Godin Leisure-time Physical Activity Questionnaire

Five 1.5 hour sessions that include education, behavior modification/journaling, yoga, breath, and meditation

Results

Significant difference pre/post:

- MiniBESTest $t(13) = 3.163$; $p < .01$
- MFIS $t(13) = 2.179$; $p < .05$
- Self-efficacy $t(11) = 3.40$; $p < .01$
- Self-determined motivation $t(11) = 2.29$, $p = .050$
- Quality of Life
  - physical $t(12) = 2.642$, $p < .05$
  - social $t(12) = 2.33$, $p < .05$

Promising Trends:

- Dual Tasking $t(13) = 2.03$; $p = .063$

Salience Through Journaling

- Encourage individuals to develop goals that are meaningful
- Encourage individuals to assess behavior that is enhancing well being and modify behavior when possible
- Participants develop HEP that they feel will be challenging, safe, meaningful, and realistic

Mini Lab

- Practice hip, shoulder, and chin lock
- TATD breath
- Voicing

Garner, G. (2016) Medical Therapeutic Yoga: Biopsychosocial Rehabilitation and Wellness Care, Edinburgh, Handspring Publishing.

Community Program Development

- Try partnering with a local non-profit (YWCA) or community based facility (YMCA)
- Apply for a small grant that allows you to pay for renting space and for any equipment you need to supply to participants
- Expect roadblocks but persevere!

In Summary

- Yoga offers healthcare providers an interdisciplinary biopsychosocial framework
- It can support training of community based yoga teachers for long term support
- The interventions must be customized to people with MS and at a minimum evidence informed
- Standardized testing pre and post intervention needs to be completed so that effective research can be performed