

EDITORIAL

Health Behaviors, Wellness, and Multiple Sclerosis Amid COVID-19



Why focus on multiple sclerosis (MS) and wellness during the coronavirus disease 2019 (COVID-19) pandemic? People with MS have considerable experience coping with the uncertainty that goes along with having a highly variable, progressive disease. The COVID-19 pandemic presents new uncertainties that likely challenge the coping resources of persons with MS and cause disruptions in lifestyle habits and choices that affect wellness. Anxiety, depression, loneliness, and sedentary behavior are common in MS and now may be exacerbated by the physical distancing necessitated by the pandemic. In this context, the promotion of wellness through health behaviors has never been more important, and rehabilitation providers play a critical role in promoting wellness in the population with MS, across the life span, during this pandemic. Although derived from the MS literature, the following evidence-based physical, nutritional, and emotional wellness recommendations are relevant to not only people with MS but also to other rehabilitation populations who are adversely affected by the decreased physical and social activity, uncertainty, economic hardship, and other lifestyle restrictions common to this time.

Physical Wellness

There is convincing evidence that exercise and physical activity can improve walking, balance, fatigue, depression, and quality of life in people with MS.¹ There are also benefits in MS for cognition, anxiety, and pain.^{2,3} Vascular comorbidities are common and have a major effect in MS,⁴ and may even worsen the severity of COVID-19. Evidence from the general population indicates that exercise and physical activity reduce the prevalence and severity of conditions.^{5,6} These benefits may be applicable in MS,⁷ and possibly affect disability progression in MS.⁸

We recommend that health care providers reinforce the importance of sitting less and moving more on a daily basis by engaging in lifestyle physical activity and/or exercise amid the pandemic and after.^{9,10} This may include simple modifications such as multiple short bouts of ambulatory and wheelchair-based physical activity in or outside the home throughout the day. Specific exercise training guidelines indicate that persons with MS should undertake 2-3 d/wk of aerobic exercise (10-30min at a moderate intensity) and 2-3 d/wk of resistance exercise (1-3 sets of between 8 and 15 repetition maximum).¹¹ Providers should highlight, with all patients, the importance of engaging in physical activity or exercise, maintaining a current routine, and consulting with professionals before making substantial or risky changes.

Physical activity has many benefits, including on psychological and physical health, such that maintaining and/or increasing physical activity among people with MS could have substantial benefits during the COVID-19 pandemic. For more specific guidelines, we refer you to resources available from the National Multiple Sclerosis Society on physical activity and exercise for people living with MS.

Nutritional Wellness

There is emerging evidence for the value of maintaining a healthy diet in both adult and pediatric MS. Higher scores on a healthy diet index (ie, higher consumption of fruits and vegetables, lower consumption of red meats and fats) have been associated with less depression, lower levels of disability, and higher patient-reported quality of life in MS.¹²⁻¹⁴ However, 70% of Americans eat the Standard American Diet, and that includes people with MS. The Standard American Diet is a diet low in fruit and vegetable consumption and high in saturated fat, sodium, and refined sugar. Such a diet is associated with an increased risk of hypertension, cardiovascular disease, type 2 diabetes and obesity.^{14,15} Obesity, diabetes, and severe cardiovascular disease have been identified as risk factors for serious illness from COVID-19.¹⁶ In MS, lower levels of vascular comorbidities that include cardiovascular disease, diabetes, hypertension, hypercholesterolemia, and peripheral vascular disease have been shown to extend the ability to walk without assistance by approximately 6 years.¹⁷

We recommend that providers keep in mind that there is not sufficient scientific evidence for recommending a specific diet in MS. What providers can do is encourage their patients with MS to maintain simple healthy diet habits that include: (1) make at least half your plate at meals fruits and vegetables (excluding starchy vegetables); (2) choose healthy fats that include olive oil and grapeseed oil as well as fish and poultry that are lower in saturated fat; (3) add whole foods; and (4) read food labels; any food that has less than 5 ingredients is less likely to have excess sodium and refined sugar. Key advice during this COVID-19 pandemic is to start with a small change rather than a diet overhaul by phasing in healthy foods and healthy eating habits while reducing the less healthy ones. We recommend that providers remind their patients that diet is important in MS because it affects MS disability, emotional wellness, and quality of life. For many, the COVID-19 pandemic has been a time of uncertainty and powerlessness; having control over diet is empowering and offers the opportunity

for experimenting with home meal preparation and increased time for family meal sharing and conversation.

Emotional Wellness

Emotional wellness plays an influential role in the overall health of people living with MS and other chronic conditions. Depressive disorders, affecting 1 in 3 people with MS,¹⁸ have adverse effects on cognition, pain, fatigue, adherence to exercise and disease modifying therapies, and overall quality of life.¹⁹⁻²¹ Anxiety disorders are also more prevalent and associated with a range of negative effects on health and well-being.²¹ Conversely, resilience, the ability to regain or maintain well-being despite experiencing adversity or chronic stressors, is common among people with MS²² and positively affects MS symptoms, function, and quality of life.²³⁻²⁵ Fortunately, robust evidence indicates that psychological interventions, including cognitive behavioral therapy, mindfulness-based interventions, stress management, self-hypnosis training, and/or self-management skills training, improve depression,^{26,27} stress,²⁸ fatigue,²⁹ pain,³⁰⁻³² and sleep.^{30,33} Many of these interventions can successfully treat multiple symptoms, such as mood, pain, and fatigue, at once,³¹ making multisymptom management feasible.

We recommend that providers assess and address patients' emotional wellness as part of standard care, both during the COVID-19 crisis and after it has passed. Because screening alone is rarely sufficient to address emotional wellness,²⁷ providers should collaborate with patients to generate a comprehensive plan for addressing psychosocial distress, symptom management, and adherence to other lifestyle recommendations. The rapid transition to and coverage for telehealth psychological services (both video and telephone) during the pandemic provides an opportunity for patients with MS to access psychological services from their homes. Telehealth is an effective mode of care for patients with MS,³⁰ and those with varying severity and symptoms can benefit from such care, including those with cognitive dysfunction.³⁴ If telehealth psychological care with a professional is not needed, preferred, or available, a range of empirically-informed online and self-help strategies are available. For example, My MS Toolkit (<https://mymstoolkit.com>) is a free, online self-management program based on an efficacious telehealth self-management intervention.³¹ Fortunately, the very behaviors and skills that can be used to improve emotional well-being in MS are skills that can help people cope with the anxiety, increased isolation, and uncertainty that many are experiencing during the COVID-19 pandemic.

There is good evidence that health behaviors can improve and sustain many components of wellness in MS. Rehabilitation providers can be powerful advocates of the benefits of physical activity, diet, and emotional wellness for MS symptom management, quality of life, and the reduction of comorbid conditions that affect both MS disability and risk of COVID-19 illness severity.

We strongly urge health care providers to share information on wellness with their patients who have MS and other chronic conditions, encouraging adoption of such behaviors. There is a pressing need for a collaborative approach for managing each person's health amid the economic and social limitations attendant

to COVID-19. Fallout from these limitations will be widespread and affect health in many ways both in the short and long term. Providers are urged to collaborate with the National Multiple Sclerosis Society and other advocacy organizations to disseminate wellness materials and resources (listed below) while providing guidance tailored to each patient's needs, abilities, means and preferences.

Supplemental material and resources:

<https://www.nationalmssociety.org/Living-Well-With-MS/Diet-Exercise-Healthy-Behaviors>

<https://www.nationalmssociety.org/Living-Well-With-MS/Emotional-Well-Being>

<https://www.nationalmssociety.org/Resources-Support/Library-Education-Programs/Brochures/Staying-Well>

<https://www.nationalmssociety.org/Programs-and-Services/Resources/Wellness-Discussion-Guide-for-People-with-MS-and-T?page=1&orderby=3&order=asc>

For information specific to COVID-19 and wellness, see <https://www.nationalmssociety.org/coronavirus-covid-19-information>

American Heart Association website recipes, helpful videos, kitchen skills, and techniques: <https://recipes.heart.org/en>

Can Do MS website with programs and services: <https://www.cando-ms.org>

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References

1. Motl RW, Sandroff BM, Kwakkel G, et al. Exercise in patients with multiple sclerosis. *Lancet Neurol* 2017;16:848-56.
2. Motl RW, Pilutti LA. The benefits of exercise training in multiple sclerosis. *Nat Rev Neurol* 2012;8:487-97.
3. Demaneuf T, Aitken Z, Karahalios A, et al. Effectiveness of exercise interventions for pain reduction in people with multiple sclerosis: a systematic review and meta-analysis of randomized controlled trials. *Arch Phys Med Rehabil* 2019;100:128-39.
4. Palladino R, Marrie RA, Majeed A, Chataway J. Evaluating the risk of macrovascular events and mortality among people with multiple sclerosis in England. *JAMA Neurol* 2020 May 4 [Epub ahead of print].

List of abbreviations:

COVID-19 coronavirus disease 2019
MS multiple sclerosis

5. Lavie CJ, Ozemek C, Carbone S, Katzmarzyk PT, Blair SN. Sedentary behavior, exercise, and cardiovascular health. *Circ Res* 2019;124:799-815.
6. Noone C, Leahy J, Morrissey EC, et al. Comparative efficacy of exercise and anti-hypertensive pharmacological interventions in reducing blood pressure in people with hypertension: a network meta-analysis. *Eur J Prev Cardiol* 2020;27:247-55.
7. Ranadive SM, Yan H, Weikert M, et al. Vascular dysfunction and physical activity in multiple sclerosis. *Med Sci Sports Exerc* 2012;44:238-43.
8. Motl RW, Dlugonski D, Pilutti L, Sandroff B, McAuley E. Premorbid physical activity predicts disability progression in relapsing-remitting multiple sclerosis. *J Neurol Sci* 2012;323:123-7.
9. Kalb R, Brown TR, Coote S, et al. Exercise and lifestyle physical activity recommendations for people with multiple sclerosis throughout the disease course. *Mult Scler* 2020 Apr 23 [Epub ahead of print].
10. Motl RW. Lifestyle physical activity in persons with multiple sclerosis: the new kid on the MS block. *Mult Scler* 2014;20:1025-9.
11. Kim Y, Lai B, Mehta T, et al. Exercise training guidelines for multiple sclerosis, stroke, and Parkinson disease: rapid review and synthesis. *Am J Phys Med Rehabil* 2019;98:613-21.
12. Fitzgerald KC, Tyry T, Salter A, et al. A survey of dietary characteristics in a large population of people with multiple sclerosis. *Mult Scler Relat Disord* 2018;22:12-8.
13. Hadgkiss EJ, Jelinek GA, Weiland TJ, Pereira NG, Marck CH, van der Meer DM. The association of diet with quality of life, disability, and relapse rate in an international sample of people with multiple sclerosis. *Nutr Neurosci* 2015;18:125-36.
14. Grotto D, Zied E. The Standard American Diet and its relationship to the health status of Americans. *Nutr Clin Pract* 2010;25:603-12.
15. Office of Disease Prevention and Health Promotion. Current eating patterns in the United States. Available at: <https://health.gov/our-work/food-nutrition/2015-2020-dietary-guidelines/guidelines/chapter-2/current-eating-patterns-in-the-united-states/>. Accessed May 8, 2020.
16. Centers for Disease Control and Prevention. Coronavirus disease 2019 (COVID-19). Available at: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/groups-at-higher-risk.html>. Accessed May 8, 2020.
17. Marrie RA, Rudick R, Horwitz R, et al. Vascular comorbidity is associated with more rapid disability progression in multiple sclerosis. *Neurology* 2010;74:1041-7.
18. Boeschoten RE, Braamse AMJ, Beekman ATF, et al. Prevalence of depression and anxiety in multiple sclerosis: a systematic review and meta-analysis. *J Neurol Sci* 2017;372:331-41.
19. Fernández-Jiménez E, Arnett PA. Impact of neurological impairment, depression, cognitive function and coping on quality of life of people with multiple sclerosis: a relative importance analysis. *Mult Scler* 2015;21:1468-72.
20. Marrie RA, Hanwell H. General health issues in multiple sclerosis: comorbidities, secondary conditions, and health behaviors. *Continuum (Minneapolis)* 2013;19:1046-57.
21. Turner AP, Alschuler KN, Hughes AJ, et al. Mental health comorbidity in MS: depression, anxiety, and bipolar disorder. *Curr Neurol Neurosci Rep* 2016;16:106.
22. Amtmann D, Bamer AM, Alschuler KN, et al. Development of a resilience item bank and short forms. *Rehabil Psychol* 2020;65:145-57.
23. Edwards KA, Alschuler KA, Ehde DM, Battalio SL, Jensen MP. Changes in resilience predict function in adults with physical disabilities: a longitudinal study. *Arch Phys Med Rehabil* 2017;98:329-36.
24. Koelmel E, Hughes AJ, Alschuler KN, Ehde DM. Resilience mediates the longitudinal relationships between social support and mental health outcomes in multiple sclerosis. *Arch Phys Med Rehabil* 2017;98:1139-48.
25. Silverman AM, Molton IR, Alschuler KN, Ehde DM, Jensen MP. Resilience predicts functional outcomes in people aging with disability: a longitudinal investigation. *Arch Phys Med Rehabil* 2015;96:1262-8.
26. Fiest KM, Walker JR, Bernstein CN, et al. Systematic review and meta-analysis of interventions for depression and anxiety in persons with multiple sclerosis. *Mult Scler Relat Disord* 2016;5:12-26.
27. Minden SL, Feinstein A, Kalb RC, et al. Evidence-based guideline: assessment and management of psychiatric disorders in individuals with MS: report of the Guideline Development Subcommittee of the American Academy of Neurology. *Neurology* 2014;82:174-81.
28. Taylor P, Dorstyn DS, Prior E. Stress management interventions for multiple sclerosis: a meta-analysis of randomized controlled trials. *J Health Psychol* 2020;25:266-79.
29. Phyto AZZ, Demaneuf T, De Livera AM, et al. The efficacy of psychological interventions for managing fatigue in people with multiple sclerosis: a systematic review and meta-analysis. *Front Neurol* 2018;9:149.
30. Turner AP, Knowles LM. Behavioral interventions in multiple sclerosis. *Fed Pract* 2020;37(Suppl 1). S31-S35.
31. Ehde DM, Elzea JL, Verrall AM, Gibbons LE, Smith AE, Amtmann D. Efficacy of a telephone-delivered self-management intervention for persons with multiple sclerosis: a randomized controlled trial with a one-year follow-up. *Arch Phys Med Rehabil* 2015;96:1945-58.
32. Simpson R, Booth J, Lawrence M, Byrne S, Mair F, Mercer S. Mindfulness based interventions in multiple sclerosis—a systematic review. *BMC Neurol* 2014;14:15.
33. Cavallera C, Rovaris M, Mendozzi L, et al. Online meditation training for people with multiple sclerosis: a randomized controlled trial. *Mult Scler* 2019;25:610-7.
34. Ehde DM, Arewasikporn A, Alschuler KN, Hughes AJ, Turner AP. Moderators of treatment outcomes after telehealth self-management and education in adults with multiple sclerosis: a secondary analysis of a randomized controlled trial. *Arch Phys Med Rehabil* 2018;99:1265-72.