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# Wellness and Multiple Sclerosis: The National MS Society Establishes a Wellness Research Working Group and Research Priorities

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## Abstract

**Background:** People with multiple sclerosis (MS) have identified “wellness” and associated behaviors as a high priority based on “social media listening” undertaken by the National MS Society (i.e. the Society).

**Objective:** The Society recently convened a group that consisted of researchers with experience in MS and wellness-related research, Society staff members, and an individual with MS for developing recommendations regarding a wellness research agenda.

**Method:** The members of the group engaged in focal reviews and discussions involving the state of science within three approaches for promoting wellness in MS, namely diet, exercise, and emotional wellness.

**Results:** That process informed a group-mediated activity for developing and prioritizing research goals for wellness in MS. This served as a background for articulating the mission and objectives of the Society’s Wellness Research Working Group.

**Conclusion:** The primary mission of the Wellness Research Working Group is the provision of scientific evidence supporting the application of lifestyle, behavioral, and psychosocial approaches for promoting optimal health of mind, body, and spirit (i.e. wellness) in people with MS as well as managing the disease and its consequences.

**Keywords:** Wellness, diet, depression, exercise

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There is increasing interest in wellness and approaches for its optimization among people with multiple sclerosis (MS).<sup>1</sup> Wellness is “an active process through which people become aware of, and make choices toward, a more successful existence” (<http://www.nationalwellness.org/?page=AboutWellness>). The pursuit of wellness is consistent with the concept of patient activation, wherein patients take a primary responsibility for the proactive application of self-directed approaches and behaviors for wellness. This is important for optimizing health-related quality of life (QOL), a multi-dimensional outcome including physical, mental, and social functioning.

People with MS have identified “wellness” and associated behaviors (i.e. diet, exercise, and emotional wellness) as a high priority based on “social media listening” undertaken by the National MS Society (NMSS; that is, the Society).<sup>1</sup> Social media listening is a marketing and public relations process for

identifying topics being discussed on the Internet (e.g. blogs, message boards, social networks), and the massive amounts of unstructured data can be processed through “smart algorithms” into structured data that can be analyzed with data-mining techniques. People with MS are seeking information on approaches for living well more frequently than information on pharmacological approaches for managing the disease.<sup>1</sup> The most frequently mentioned approaches for promoting wellness in MS involve diet, exercise, and emotional wellness.

This growing interest resulted in the Society convening a group of people with MS, healthcare professionals, researchers, and Society staff for a 2-day meeting on wellness in MS. This meeting occurred in Dallas, TX in November 2014 and addressed the following objectives:

- Reviewing the current knowledge on diet, exercise, and emotional wellness in MS;

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- Identifying gaps in the knowledge for informing the Society's research agenda;
- Suggesting educational resources and support programs that meet the needs of people living with MS.

The outcomes of that meeting were summarized in a paper<sup>1</sup> and served as the initial basis for a Wellness Research Working Group and wellness research priorities.

The Society convened a second group (i.e. Delphi Panel) for a 2-day meeting in Washington, DC in October 2015. The group consisted mostly of researchers with experience in MS and wellness-related research who could develop recommendations regarding a wellness research agenda; there further were Society staff members as well as an individual with MS who were part of the group. The group was charged with six goals/outcomes:

- Develop recommendations/advice on a research agenda and priorities for wellness;
- Identify desired outcomes from a focused research effort on wellness;
- Develop an understanding of the scope of wellness for a research agenda;
- Establish a common foundation of current knowledge in wellness research;
- Define priorities for wellness research;
- Identify a plan for achieving wellness research goals.

Those goals/outcomes represented the “bricks and mortar” for the future direction of the Wellness Research Working Group, and this paper describes two main objectives of the meeting. The first objective involved focal reviews with discussions involving the state of science within three approaches for promoting wellness in MS, namely diet, exercise, and emotional wellness. The second objective involved a group-mediated activity for developing and prioritizing research goals in those three areas. This paper provides an overview of the focal reviews and discussions regarding the three approaches for wellness and then provides an overview of the activity and outcomes for prioritizing future research. This serves as a background for articulating the mission and objectives of the Society's Wellness Research Working Group.

**Focal reviews—diet, exercise, and emotional wellness**

The three areas selected for focal review were diet, exercise, and emotional wellness based on the interest of those with MS and/or the amount of research that

supports these approaches in MS.<sup>1</sup> We do recognize that there are other important areas of wellness in MS, even though these are not discussed. The reviews were undertaken by content experts and focused on the current state of knowledge; these were not prospectively performed systematic or scoping reviews, but rather focused on evidence already compiled in Cochrane and systematic reviews as well as meta-analyses. The reviews were followed with reactions and discussions by secondary, content experts and then group discussions for informing the priority-setting activity.

*Diet*

The review and discussion of diet in MS were undertaken by Ellen Mowry and Lynne Shinto, respectively. Other experts in diet who provided insights into the discussion were Ilana Katz-Sand and Patrizia Casaccia. The state of knowledge is relatively weak regarding dietary interventions and MS. No studies, to date, have truly met Class I evidence (i.e. well-designed, randomized controlled trials (RCTs)). One Cochrane Review<sup>2</sup> evaluated studies of polyunsaturated fatty acids in people with MS and noted that all the studies had varying degrees for potential bias and concluded, “the available data are insufficient to assess the real benefit or harm that might result from PUFA supplementation.” A prior Cochrane Review of vitamin D supplementation in MS suggested that the only published pilot study to date had a high risk of bias.<sup>3</sup> There was no research on good nutrition or balanced diets and MS, and this is important as diets focusing on food restriction require substantial control and may not be necessary in chronic disease. This underscores the limited information available from high-quality RCTs supporting general or specific dietary interventions in people with MS.

*Exercise*

The review and discussion of exercise in MS were undertaken by Robert Motl and Alexander Ng, respectively. Other experts in this area included Bo Fernhall and Kevin McCully who both provided major insights into the discussion. The state of knowledge regarding exercise and its benefits in MS was synthesized based on a discussion of systematic reviews and meta-analyses. The summary evidence indicated that exercise training yielded improvements in aerobic capacity and muscular fitness,<sup>4</sup> symptoms of fatigue<sup>5</sup> and depression,<sup>6</sup> ambulation<sup>7</sup> and balance,<sup>8</sup> and QOL.<sup>9</sup> There was further discussion of evidence that exercise is associated with a reduced rate of relapse and disease progression in MS,<sup>10</sup> and may yield benefits for comorbidity, cognition, health-related QOL, and participation.<sup>11,12</sup> Such knowledge must be

contextualized based on the low rate of physical activity in MS,<sup>13</sup> and this problem is being addressed, in part, through the application of behavior science<sup>14</sup> and development of prescriptive guidelines.<sup>15</sup>

### *Emotional wellness*

The review and discussion of emotional wellness in MS were led by Dawn Ehde and Amy Sullivan. Other experts in this area included Nancy Chiaravalloti and Malachy Bishop who provided insights into the discussion. Meta-analytic and population-based studies have established that depressive disorders, including major depressive disorder, and other psychiatric disorders are highly prevalent among people with MS.<sup>16</sup> Studies have further documented that depression remains under-diagnosed and under-treated, despite the availability of effective screening tools<sup>17</sup> and a range of potentially effective pharmacotherapy, physical activity, and cognitive behavioral treatments.<sup>18</sup> There is some preliminary evidence for stress management, mindfulness-based interventions, and other cognitive behavioral interventions for improving emotional wellness and decreasing stress and other symptoms that interfere with emotional wellness in MS. For example, non-pharmacologic interventions such as cognitive behavioral therapy (CBT) and stress reduction have resulted in improvements in emotional distress, QOL, fatigue, and the reduced occurrence of new brain lesions.<sup>19–22</sup> There is limited research focusing on positive psychology in MS (i.e. positive affect and other positive psychology constructs such as resilience). Positive and negative affect are not mutually exclusive nor opposite ends of a continuum, but rather can co-occur. There is evidence that positive affect can buffer distress and improve outcomes such as QOL<sup>23</sup> and as such is an important target of study in MS.

### **Prioritization activity and results**

The Wellness Research Working Group engaged in a process of priority setting that was directed by members of the Society staff. The goal was to identify the primary research questions that should become the focus of funding priorities for the Society. The priorities and resulting research questions are synthesized and displayed in Tables 1 and 2.

The meeting organizers (Nicholas LaRocca, Kathy Costello, and Kathy Smith) developed a list of research topics/questions for diet, exercise, and emotional wellness based on the presentations and discussions that took place during the meeting. The topics/questions were then listed on large paper displays and reviewed by the group for accuracy and completeness. Once final synthesis was achieved, workshop

participants were handed sets of color-coded stickers (one set per overall research area); the colors were rank-ordered with an associated score (red=4, green=3, yellow=2, and blue=1) and higher scores represented higher priority. The attendees engaged in a voting process whereby each attendee identified and ranked the research priorities using the stickers (i.e. 1, 2, 3, and 4). Kathy Smith then summarized the results for identifying the priority research questions for diet, exercise, and emotional wellness, and Nicholas LaRocca generated rankings for all of the research questions. The rank ordering of the top research questions identified for diet, exercise, and emotional wellness are provided in Table 1.

The results of the Prioritization exercise highlighted several Research priorities that the Wellness Research Working Group should work on and promote over the next 5–10 years; these are provided in Table 2. The group members are not in a position to conduct all of the studies, but rather the group members will seek to ensure that these priorities are shared and that the Society's research programs are aligned with the priorities. We believe that maintaining a Wellness Research Working Group will be key in driving the priorities forward.

### **Conclusion: mission and objectives of the NMSS Wellness Research Working Group**

The Wellness Research Working Group developed as a result of this meeting. The Group included all parties who attended the meeting and was expanded through discussion and identification of other content experts. This group was then charged with creating a mission, and this mission was the result of multiple conference calls, an initial draft created by the lead author, and then refinement based on the group participants.

The primary mission of the Wellness Research Working Group is the provision of scientific evidence supporting the application of lifestyle, behavioral, and psychosocial approaches for promoting optimal health of mind, body, and spirit (i.e. wellness) in people living with MS as well as managing the disease and its consequences. This mission involves providing evidence accumulated from high-quality research studies (i.e. Class I evidence) indicating that people with MS can take directive actions toward personally managing health, well-being, and MS itself through behaviors such as diet, exercise, and mindfulness (i.e. wellness approaches). This further involves informing the MS community about the adoption and utilization of wellness approaches and programs that can promote and sustain health and well-being with MS, including strategies to promote adherence to programs and approaches.

**Table 1.** Priority topics for Wellness Research in Multiple Sclerosis.

Topic	Priority score <sup>a</sup>	Score based on no. of dots
<i>Emotional wellness</i>		
Resilience	72	19
Positive psychology	40	15
Managing stress	30	13
Family/caregiver	26	16
Adherence studies	27	12
Mechanistic studies	3	3
Problem solving	2	2
<i>Diet/nutrition</i>		
Small efficacy trials	69	19
Specific diets (anti-inflammatory, anti-comorbidity, etc.)	42	18
Adherence studies	40	18
Mechanistic studies	27	12
Nutrient biomarkers	14	9
Microbiota	8	4
<i>Exercise/physical activity</i>		
Does physical activity have disease-modifying effects?	57	17
Effective behavioral interventions for physical activity change	39	14
What is the optimal physical activity prescription for people with MS	38	15
How do we translate physical activity research into clinical practice	20	10
What are the benefits of physical activity among people with MS	20	7
Variables that explain participation in physical activity	7	6
Impact of MS characteristics on exercise benefit	6	5
Family/caregiver	3	2
Adherence studies	5	2
What are the safety issues with physical activity in people with MS	4	1
What is the role of sedentary behavior in people with MS	1	1
Mechanistic studies	0	0
What is the optimal measurement of physical activity in people with MS	0	0
MS: multiple sclerosis.		
<sup>a</sup> Priority score=(no. of red dots×4)+(no. of green dots×3)+(no. of yellow dots×2)+(no. of blue dots×1).		

The Wellness Research Working Group has the following main objectives:

- Generate, and facilitate/promote the generation of, high-quality evidence supporting the basis of wellness approaches for disease modification, managing symptoms, and improving function and QOL in MS;
- Maximize the effectiveness of wellness research, by translating generated evidence into clinical practice (dissemination/implementation) and advising the Society on how to incorporate the evidence into wellness programs.
- Promoting and supporting high-quality research pertaining to Wellness for people living with MS;
- Using findings from wellness research to inform the Society and clinicians in development of evidence-based programs for promoting adoption and maintenance of lifestyles, behaviors, and psychosocial approaches for promoting wellness in MS;
- Cultivating the next generation of scientists who will engage in wellness research in MS;
- Attracting scientists outside and inside the field of MS research to become more interested in wellness research in MS;
- Developing guidelines and best practices for conducting research on wellness in MS;

The Wellness Research Working Group will achieve these objectives by:



**Table 2.** Priority questions for wellness research in MS.

Based on the priority-setting exercise, the prioritized wellness topics were framed in terms of research questions, arranged in priority order. Here are the research questions, divided into the three main areas of *emotional wellness*, *diet and nutrition*, and *exercise and physical activity*. The priority-setting exercise did not include an attempt to prioritize across the three main areas.

<i>Emotional wellness</i>	<ul style="list-style-type: none"> <li>• To what extent does resilience affect emotional health and/or the course of the disease?               <ul style="list-style-type: none"> <li>○ What are the optimal ways to promote the development and maintenance of resilience?</li> <li>○ What are the mechanisms underlying the effects of resilience?</li> </ul> </li> <li>• To what extent does positive psychology affect emotional health and/or the course of the disease?               <ul style="list-style-type: none"> <li>○ What are the optimal ways to promote the development and maintenance of positive psychology?</li> <li>○ What are the mechanisms underlying the effects of positive psychology?</li> </ul> </li> <li>• To what extent does stress management affect emotional health and/or the course of the disease?               <ul style="list-style-type: none"> <li>○ What are the optimal ways to promote the development and maintenance of stress management?</li> <li>○ What are the mechanisms underlying the effects of stress management?</li> </ul> </li> <li>• What are the optimal methods for promoting emotional health among family members and/or care partners?</li> <li>• To what extent does problem solving affect emotional health and/or the course of the disease?               <ul style="list-style-type: none"> <li>○ What are the optimal ways to promote the development and maintenance of problem solving?</li> <li>○ What are the mechanisms underlying the effects of problem solving?</li> </ul> </li> </ul>
<i>Diet and nutrition</i>	<ul style="list-style-type: none"> <li>• Using small (Phase II) efficacy trials, to what extent do specific comprehensive diets (e.g. Swank and Paleo), balanced diets, good nutrition, and/or specific nutrients or combinations of nutrients affect physical health (comorbidities and secondary conditions) and/or the course of the disease?               <ul style="list-style-type: none"> <li>○ What are the optimal ways to promote the adoption and maintenance of specific dietary regimes?</li> <li>○ What are the mechanisms underlying the effects of dietary interventions?</li> </ul> </li> <li>• What are the most valid and reliable nutrient biomarkers to utilize in studies of diet?</li> <li>• What role does the microbiota play in physical health generally and in the course of the disease specifically?</li> </ul>
<i>Exercise and physical activity</i>	<ul style="list-style-type: none"> <li>• To what extent does exercise/physical activity affect emotional health, physical health (comorbidities and secondary conditions) quality of life, and/or the course of the disease?               <ul style="list-style-type: none"> <li>○ What are the optimal ways to promote the development and maintenance of exercise/physical activity?</li> <li>○ What are the mechanisms underlying the effects of exercise/physical activity?</li> </ul> </li> <li>• What are the best approaches to exercise and physical activity for people with MS, including those with more advanced disease?</li> <li>• What are the best methods for achieving successful “bench to bedside” translation of findings from exercise and physical activity research?</li> <li>• What are the factors (personal, environmental, disease-related) associated with participation in and/or benefit from exercise and physical activity?</li> <li>• To what extent does exercise and physical activity affect physical and emotional health (including perceived burden of care) of family members and/or care partners?</li> <li>• What are the safety issues associated with promotion of exercise and physical activity among people with MS?</li> </ul>

MS: multiple sclerosis.

- Providing advisory input on written communications focusing on wellness provided by the Society;
- Contributing regularly to the wellness research literature.

By achieving the proposed primary objectives through the identified steps, we believe that wellness research and its application will be advanced in a meaningful way for improving the health and well-being of people living with MS. The Wellness Research Working

Group is poised to inform and empower people with MS about self-directed approaches for managing this disease and its outcomes. People with MS want this information for living the best possible life, and the Wellness Research Working Group will ensure this need is addressed through the highest quality research.

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## References

1. Dunn M, Bhargava P and Kalb R. Your patients with multiple sclerosis have set wellness as a high priority—And the National Multiple Sclerosis Society is responding. *US Neurol* 2015; 11: 80–86.
2. Farinotti M, Vacchi L, Simi S, et al. Dietary interventions for multiple sclerosis. *Cochrane Database Syst Rev* 2012; 12: CD0004192.
3. Jagannath VA, Fedorowicz Z, Asokan GV, et al. Vitamin D for the management of multiple sclerosis. *Cochrane Database Syst Rev* 2010; 12: CD008422.
4. Platta M, Pilutti LA, Ensari E, et al. The effect of exercise training on fitness in multiple sclerosis: A meta-analysis. *Arch Phys Med Rehabil* 2016; 97: 1564–1572.
5. Pilutti LA, Greenlee TA, Motl RW, et al. Effects of exercise training on fatigue in multiple sclerosis: A meta-analysis. *Psychosom Med* 2013; 75: 575–580.
6. Ensari I, Motl RW and Pilutti LA. Exercise training improves depressive symptoms in people with multiple sclerosis: Results of a meta-analysis. *J Psychosom Res* 2014; 76: 465–471.
7. Snook EM and Motl RW. Effect of exercise training on walking mobility in multiple sclerosis: A meta-analysis. *Neurorehabil Neural Repair* 2009; 23: 108–116.
8. Paltamaa J, Sjogren T, Peurala SH, et al. Effects of physiotherapy interventions on balance in multiple sclerosis: A systematic review and meta-analysis of randomized controlled trials. *J Rehabil Med* 2012; 44: 811–823.
9. Motl RW and Gosney JL. Effect of exercise training on quality of life in multiple sclerosis: A meta-analysis. *Mult Scler* 2008; 14: 129–135.
10. Pilutti LA, Platta ME, Motl RW, et al. The safety of exercise training in multiple sclerosis: A systematic review. *J Neurol Sci* 2014; 343: 3–7.
11. Latimer-Cheung AE, Pilutti LA, Hicks AL, et al. Effects of exercise training on fitness, mobility, fatigue, and health-related quality of life among adults with multiple sclerosis: A systematic review to inform guideline development. *Arch Phys Med Rehabil* 2013; 94: 1800–1828.
12. Sandroff BM, Motl RW, Scudder MR, et al. Systematic, evidence-based review of exercise, physical activity, and physical fitness effects on cognition in persons with multiple sclerosis. *Neuropsychol Rev* 2016; 26: 271–294.
13. Klaren RE, Motl RW, Dlugonski D, et al. Objectively quantified physical activity in persons with multiple sclerosis. *Arch Phys Med Rehabil* 2013; 94: 2342–2348.
14. Ellis T and Motl RW. Physical activity behavior change in persons with neurological disorders: Overview and examples from Parkinson disease and multiple sclerosis. *J Neurol Phys Ther* 2013; 37: 85–90.
15. Latimer-Cheung AE, Martin Ginis KA, Hicks AL, et al. Development of evidence-informed physical activity guidelines for adults with multiple sclerosis. *Arch Phys Med Rehabil* 2013; 94: 1829–1836.
16. Marrie RA, Reingold S, Cohen J, et al. The incidence and prevalence of psychiatric disorders in multiple sclerosis: A systematic review. *Mult Scler* 2015; 21: 305–317.
17. Amtmann D, Kim J, Chung H, et al. Comparing CESD-10, PHQ-9, and PROMIS depression instruments in individuals with multiple sclerosis. *Rehabil Psychol* 2014; 59: 220–229.
18. Minden SL, Feinstein A, Kalb RC, et al.; Guideline Development Subcommittee of the American Academy of Neurology. 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: 174–181.
19. Van Kessel K, Moss-Morris R, Willoughby E, et al. A randomized controlled trial of cognitive behavior therapy for multiple sclerosis fatigue. *Psychosom Med* 2008; 70: 205–213.
20. Mohr DC, Lovera J, Brown T, et al. A randomized trial of stress management for the prevention of new brain lesions in MS. *Neurology* 2012; 79: 412–419.
21. Artemiadis AK, Vervainioti AA, Alexopoulos EC, et al. Stress management and multiple sclerosis: A randomized controlled trial. *Arch Clin Neuropsychol* 2012; 27: 406–416.
22. Pilutti LA, Dlugonski D, Sandroff BM, et al. Randomized controlled trial of a behavioral intervention targeting symptoms and physical activity in multiple sclerosis. *Mult Scler* 2014; 20: 594–601.
23. Aspinwall LG and Tedeschi RG. The value of positive psychology for health psychology: Progress and pitfalls in examining the relation of positive phenomena to health. *Ann Behav Med* 2010; 39: 4–15.