Pediatric multiple sclerosis: current perspectives on health behaviors

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Purpose
Pediatric onset multiple sclerosis (POMS) accounts for up to 10% of all multiple sclerosis cases, and affects approximately 10,000 children in the United States with an additional 10,000 to 15,000 children demonstrating symptoms indicative of a POMS diagnosis. Children with POMS have higher relapse rates and reach irreversible disease status an average of 10 years earlier than adults with multiple sclerosis. Health behaviors such as physical activity, diet, and sleep may have potential disease modifying effects in this group, as adults with multiple sclerosis have demonstrated similar benefits from interventions targeting health behaviors.

Methods
We identified papers by searching three electronic databases (PubMed, GoogleScholar, and CINAHL). Search terms included: pediatric multiple sclerosis OR pediatric onset multiple sclerosis OR POMS AND health behavior OR physical activity OR sleep OR diet OR nutrition OR obesity. Papers were included in this review if they were published in English, referenced nutrition, diet, obesity, sleep, exercise, or physical activity, and included pediatric-onset multiple sclerosis as a primary population.

Results
Twenty papers were identified via the literature search that addressed health-promoting behaviors in POMS, and 11, 8, and 3 papers focused on diet, activity, and sleep, respectively. Health-promoting behaviors were associated with markers of disease burden in POMS. Physical activity participation was associated with reduced relapse rate, disease burden, and sleep/rest fatigue symptoms. Nutritional factors, particularly vitamin D intake, may be associated with relapse rate. Obesity has been associated with increased risk of developing POMS. POMS is associated with better sleep hygiene, and this may benefit fatigue and quality of life.

Discussion
Children with POMS benefit from participation in health behaviors, particularly better physical activity, diet, and sleep. Although each of these health behaviors have evidence supporting the influential nature, there are no current interventions targeting promotion of these behaviors. Health behavior promotion in children with POMS represents an appropriate method of managing primary and secondary symptoms. Future interventions targeting health behavior are required to establish evidence-based strategies for treating POMS in rehabilitation settings.