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Opinion

Moving Beyond Fear: Physical Activity and Functional Reserve in Young People with Multiple Sclerosis

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Abstract

Multiple sclerosis (MS) is one of the most common chronic neurological diseases affecting young adults worldwide. Despite growing evidence supporting the safety and benefits of physical activity, uncertainty regarding exercise remains common among people living with MS. Concerns about fatigue, symptom worsening, overheating and disease progression may contribute to reduced participation in physical activity and reinforce sedentary behaviours. This issue is particularly relevant among adolescents and young adults, who are diagnosed during a critical phase of life characterized by education, employment, social participation and identity development. In this opinion article, we discuss how misconceptions surrounding exercise continue to influence behaviours despite substantial advances in scientific knowledge. We argue that these misconceptions should not be interpreted as the consequence of inadequate medical advice or patient reluctance alone, but rather as the result of a complex interaction between historical perceptions, communication challenges and uncertainty. Particular attention is devoted to the potential value of early physical activity as an investment in future functional reserve, resilience, participation and independence. Replacing fear with evidence and fostering informed dialogue among patients, clinicians and exercise professionals should be considered an important public health objective.

Keywords: Multiple sclerosis; Physical activity; Exercise; Young adults; Functional reserve; Public health; Sedentary behaviour; Rehabilitation

Abbreviations: MS: Multiple Sclerosis; WHO: World Health Organization; AISM: Italian Multiple Sclerosis Association

Introduction

Multiple sclerosis (MS) is one of the most common chronic neurological diseases affecting young adults worldwide. According to the Atlas of MS, approximately 2.9 million people are currently living with the disease globally [1,2]. Women are affected approximately two to three times more frequently than men, and the average age at diagnosis is around 32 years [1]. Italy is considered a high-prevalence Country, with approximately 144,000 people living with MS and thousands of new diagnoses occurring every year [3]. Unlike many chronic diseases that emerge later in life, MS is frequently diagnosed between early adulthood and midlife, during a period characterized by education, career development, social participation, family planning and the construction of personal identity [1]. Preserving mobility, autonomy, participation and quality of life is therefore particularly important.

Over the last two decades, advances in disease-modifying therapies have significantly improved disease management. At the same time, increasing attention has been devoted to lifestyle-related factors capable of influencing health outcomes and wellbeing. Among these, physical activity has emerged as one of the most extensively studied non-pharmacological interventions [4]. Yet a paradox remains. While scientific evidence increasingly supports exercise as a beneficial component of MS care, uncertainty regarding what forms of physical activity is safe, appropriate and compatible with the disease continues to persist among many individuals living with MS. This uncertainty is especially relevant among young people. The years immediately following diagnosis often coincide with important personal, educational, professional and social transitions. Decisions taken during this phase may influence health behaviours and participation patterns for decades to come.

Discussion

For many years, concerns regarding fatigue, overheating, symptom exacerbation and disease progression contributed to a cautious approach toward physical activity in people living with multiple sclerosis. These concerns reflected the scientific knowledge available at the time and were motivated by the legitimate objective of protecting patients from potential harm. As knowledge evolved, however, our understanding of the relationship between exercise and MS changed substantially.

Today, major guidelines and international consensus documents consistently encourage people with MS to engage in physical activity. NICE recommends advising people with MS that regular exercise may have beneficial effects and does not have harmful effects on their MS [5]. Similarly, the National MS Society consensus recommendations state that healthcare providers should endorse and promote the benefits and safety of exercise and lifestyle physical activity for every person with MS [6]. Current evidence indicates that appropriately prescribed exercise is generally safe and beneficial across different stages of the disease [6-9]. Nevertheless, perceptions often evolve more slowly than scientific evidence. As a result, concerns that were once understandable may continue to influence attitudes and behaviours even when current research suggests a different perspective.

Importantly, the persistence of uncertainty surrounding physical activity should not be interpreted as the consequence of inadequate medical advice or a lack of interest on the part of patients. Rather, it reflects the complexity of living with a chronic neurological disease and the challenges involved in translating scientific evidence into everyday decisions. During clinical consultations, understandably, priority is often given to diagnosis, disease progression, pharmacological treatments, symptom management and monitoring. Questions related to exercise and physical activity may therefore receive less attention, not because they are considered unimportant, but because many competing issues must be addressed within limited consultation time. At the same time, patients may hesitate to discuss exercise-related goals, sports participation or training intensity. Some may fear appearing unrealistic or insufficiently aware of their condition, while others may simply assume that physical limitations are inevitable. Consequently, misconceptions may persist even in the absence of explicit misinformation.

Several misconceptions continue to influence attitudes toward physical activity in people with MS.

Perhaps the most widespread is the belief that exercise may accelerate disease progression or increase the risk of relapse. Current evidence does not support this view. Research conducted over the past two decades consistently demonstrates that exercise is generally safe when appropriately prescribed and adapted to the individual's clinical condition [6-10].

Another common misconception concerns fatigue. Since fatigue is one of the most prevalent and disabling symptoms experienced by people with MS, it may seem intuitive to interpret it as a reason to avoid physical activity. However, scientific evidence suggests the opposite. Regular exercise has been associated with improvements in fatigue, cardiorespiratory fitness, muscle strength, walking ability, balance and quality of life [7-10]. Inactivity, conversely, may contribute to physical deconditioning and further reductions in physical capacity, creating a cycle that may ultimately worsen the very symptoms individuals are attempting to avoid.

A further misconception is that only very light exercise is appropriate. Contemporary recommendations support a broad range of activities, including aerobic exercise, resistance training, balance training, flexibility exercises and adapted sports participation [6,7,9]. The goal is not athletic performance, but maintaining health, participation and independence.

Heat sensitivity remains another legitimate concern for many people living with MS. Nevertheless, temporary symptom worsening related to increased body temperature does not usually indicate disease progression or permanent neurological damage. Practical strategies such as exercising during cooler hours of the day, maintaining adequate hydration, training in climate-controlled environments and using cooling interventions when appropriate often allow individuals to remain physically active safely [6,9].

The reason to focus on young people deserves particular attention. Adolescents and young adults are likely to experience the greatest consequences of withdrawing from physical activity. Sport and movement are not merely tools for maintaining physical fitness. They contribute to social participation, emotional wellbeing, self-efficacy, identity development and quality of life.

Furthermore, today's young adults belong to generations already exposed to high levels of sedentary behaviour driven by increasing screen time, digital lifestyles and reduced opportunities for everyday movement [11]. For young people diagnosed with MS, this reality may create a double burden: the challenges associated with a chronic neurological disease and the same environmental and behavioural drivers of inactivity affecting their healthy peers.

However, there is another reason why young people deserve special attention. Early adulthood may represent a critical window of opportunity for establishing behaviours that influence health trajectories for decades to come. Young people diagnosed with MS are not only trying to preserve function today; they are also shaping the level of function they may retain decades from now. The concept

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of a “window of opportunity” is already well established in modern neurology. Increasingly, researchers are exploring whether the early phases of MS may represent a particularly important period for implementing lifestyle interventions capable of supporting long-term health and resilience. The Early Multiple Sclerosis Exercise Study investigated exercise therapy early in the disease course and explicitly framed early MS as a potential window of opportunity for supplemental neuroprotective strategies [12].

This evidence should be interpreted carefully. A supportive disease-modifying effect of exercise in MS cannot yet be concluded with certainty [10]. The current debate in the literature reflects this uncertainty: some authors argue that exercise may have disease-modifying potential, while others emphasize that evidence remains insufficient and should not be overstated [13,14]. This distinction is essential. Exercise should not be presented as an alternative to disease-modifying therapies. Rather, it should be understood as a complementary health behaviour with established symptomatic, functional and quality-of-life benefits, and possible longer-term effects that require further investigation. Although current evidence does not allow us to conclude that physical activity prevents disease progression, regular exercise contributes to maintaining physical fitness, mobility, cognitive performance and overall functional capacity [4,7-10]. In recent years, growing attention has been devoted to the concepts of brain reserve, cognitive reserve and resilience in MS [15-18]. Individuals with greater reserve appear better able to maintain cognitive and functional performance despite disease-related brain pathology [16,17].

Physical activity is only one of several factors that may contribute to reserve, but higher levels of fitness have been associated with favourable indicators of brain health and function in people with MS [15]. From this perspective, exercise should not be viewed solely as a strategy for managing current symptoms. It may also be considered an investment in future functioning. Building and maintaining strength, aerobic fitness, balance, mobility and healthy lifestyle habits early in the disease course may help individuals better cope with future neurological challenges and preserve independence for longer. This perspective shifts the discussion from exercise as a reaction to disability toward exercise as a proactive strategy for maintaining health and function throughout the disease trajectory. The message emerging from contemporary evidence is therefore simple but important: movement should be adapted, not avoided.

People living with MS who have doubts about what they can safely do should be encouraged to discuss physical activity with the healthcare professionals involved in their care. Neurologists and physiatrists remain primary clinical reference points for evaluating disease status, symptoms and functional limitations. However, other professionals can also contribute meaningfully to the promotion of safe and effective physical activity. Sports medicine physicians can assist in evaluating exercise readiness and identifying appropriate levels of activity. Professionals trained in adapted physical activity, therapeutic exercise and exercise prescription for chronic conditions can help design, supervise and progressively adjust individualized exercise programmes. A coordinated multidisciplinary pathway may help transform physical activity from a source of uncertainty into a practical and achievable component of long-term disease self-management [6].

Conclusion

Fortunately, the image of the person with multiple sclerosis as fragile, sedentary and unable to engage in meaningful physical activity increasingly belongs to the past. Scientific evidence accumulated over the last two decades has profoundly changed our understanding of the relationship between exercise and MS. Today, physical activity is recognized not as a threat, but as an important ally in preserving health, function, participation and quality of life. For young people living with MS, this message is particularly important. The years immediately following diagnosis should not be viewed solely as a period of adaptation to disease, but also as a unique opportunity to establish behaviours that may influence health and functioning for decades to come. In this perspective, physical activity is more than a tool for symptom management; it is an investment in future functional reserve, resilience, participation and independence.

The challenge now is no longer to demonstrate that exercise is possible for people with MS. The challenge is to ensure that uncertainty, fear and outdated beliefs do not become barriers to an active life. Open and informed dialogue between patients and healthcare professionals - including neurologists, physiatrists, sports medicine physicians and exercise specialists - can help transform uncertainty into awareness and awareness into action. Through this process, fear can gradually give way to informed confidence, allowing more young people with MS to fully benefit from the opportunities that physical activity can offer throughout the course of the disease. The future of physical activity in multiple sclerosis may depend less on convincing people that exercise is safe, and more on ensuring that every person diagnosed with MS understands that movement remains possible, meaningful, beneficial, and worth pursuing.

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Conflict of Interest

The author declares no conflict of interest.

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