Editor Comments

Author Responded

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Remove intro line. Additonally, why site a website here? Go to a source.

Removed intro heading and provided different references to support current DMD treatment advancements in updated introduction paragraph.

Are these not FDA approved? I would also try and connect a problem. What is the inherent problem with the FDA treatments?

Thank you for this helpful observation. The updated introduction now briefly summarizes the currently available FDA-approved and emerging therapies for Duchenne muscular dystrophy (DMD)—including corticosteroids, exon-skipping agents, and gene-transfer approaches—and acknowledges that, while several of these treatments have received regulatory approval, their long-term clinical effectiveness and accessibility remain limited. The inherent problem is that even with FDA approval, these pharmacologic and gene-based treatments primarily target the underlying genetic defect but do not fully prevent the progressive loss of muscle function, contractures, or secondary complications that affect daily life. Moreover, variability in treatment response, cost, and limited functional outcome data highlight the need for complementary, non-pharmacologic approaches. Therefore, the revised introduction emphasizes the ongoing importance of physical activity as an essential adjunct to medical management. Physical activity provides a consistent means of maintaining musculoskeletal health, supporting respiratory and cardiac function, and enhancing quality of life across all stages of care. If additional elaboration on the specific FDA-approved therapies or their outcome limitations is preferred, we would be glad to include further detail.

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Something within the introduction should discuss the common age of onset

From there, what is the standard progression?

Thank you for this suggestion. The updated introduction now specifies that Duchenne muscular dystrophy (DMD) is typically diagnosed between 4 and 5 years of age, often within approximately two years of the onset of initial symptoms such as delayed motor milestones or frequent falls. While the average age of diagnosis has improved, increased awareness and genetic testing have also contributed to earlier identification. Treatments have also improved DMD life expectancy. Because disease progression varies considerably due to underlying genetic mutations and therapeutic interventions, a universal trajectory is difficult to define.

However, the general pattern involves progressive weakness that begins proximally (hips and shoulders) and advances distally, eventually affecting respiratory and cardiac muscles. This variability in onset and rate of decline underscores the need for an adaptable, stage-based framework to guide clinical and physical activity recommendations. The Stage-Based Physical Activity Overview section reinforces this need by emphasizing individualized approaches to physical activity. The section then expands on this concept, presenting activity recommendations as a progressive continuum that aligns with the typical proximal-to-distal pattern of weakness. In this way, the article provides a structured yet flexible guide for adapting physical activity as functional ability changes over time.

Can you provide slightly more objective guidance? What is enjoyable activities? How long? What is low intensity exercise? Do we have HR guidelines for overexertion?

Are all of these guidelines? Some appear to be symptoms

Thank you for these important suggestions. While I chose not to include an additional table since a similar evidence-based framework is already published by the Muscular Dystrophy Association (MDA), the revised General Physical Activity Considerations section has been expanded to include more objective and clinically applicable guidance in paragraph form. This section now defines physical activity as an adaptive continuum tailored to the individual's musculoskeletal health, functional capacity, and fatigue threshold, emphasizing the need for multidisciplinary oversight. The revision clarifies that "enjoyable" and "low-intensity" activities are those that are fun, comfortable, and sustainable, characterized by smooth, controlled movements that promote circulation and flexibility while minimizing strain. Objective indicators for monitoring include observable signs of overexertion (fatigue beyond rest, muscle cramping or pain, dark urine, or poor sleep) and cardiorespiratory distress (excessive sweating, chest pain, shortness of breath), which align with published DMD care considerations. In contrast to conventional exercise prescription models based on duration, heart rate, or intensity thresholds, the DMD population requires a safety-first approach, where avoiding fatigue, eccentric loading, and overexertion takes precedence over meeting numeric activity goals. This revised section therefore provides clinically relevant, observable criteria for safe activity participation without relying on inappropriate quantitative metrics.

Is this the bullets listed above?

Thank you for this question. The information summarized in Table 1 is distinct from the general physical activity considerations presented earlier. Table 1 outlines the stage-based framework for physical activity throughout the progression of DMD, summarizing goals, therapeutic activities, and supportive interventions for each phase of care. The earlier "bulleted" or paragraph-style general considerations serve as overarching principles, such as fatigue management, avoidance of eccentric loading, and multidisciplinary coordination, that apply across all stages. To clarify this relationship, the paragraph leading into Table 1 has

been refined to indicate that the table serves as a concise summary of all stages, while the subsequent text provides detailed explanations of each stage's physical activity recommendations. Note Table 1 is provided at the end of this article submission.

How is this assessed? Briefly explain what their gross motor milestones are

Thank you for this helpful suggestion. The phrase "gross motor milestones" has been clarified to describe typical early motor abilities and how they may present in DMD. The revised paragraph now notes these milestones include sitting, crawling, walking (approximately 18 months on average), running, climbing stairs, and jumping. It also briefly describes early signs of DMD, such as a waddling gait, frequent falls, and use of the Gower maneuver to rise from the floor while maintaining the focus on normal childhood play and early intervention through gentle, age-appropriate activities.

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Why list the guidelines if you do not connect to how they change on a stage-by-stage basis?

Thank you for this important observation. The guidelines presented earlier in the manuscript serve as overarching principles, such as fatigue management, avoidance of eccentric loading, and the importance of multidisciplinary coordination, that apply consistently throughout all stages of Duchenne muscular dystrophy (DMD). The Stage-Based DMD Physical Activity Overview and the accompanying Table 1 translate these universal principles into specific goals, therapeutic activities, and precautions for each phase of disease progression. To clarify this connection, the text emphasizes that while the principles remain constant, their application evolves as weakness progresses from proximal to distal muscle groups. Each stage builds upon the previous one, activities are additive and adapted based on functional capacity, safety, and comfort. As mobility declines, physical activity transitions from active play and walking to supported standing, seated participation, and assisted range of motion while maintaining the same core goals of flexibility, independence, and enjoyment. This is also addressed in the note at the bottom of Table 1.