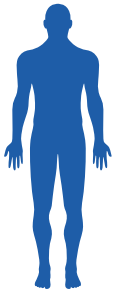
5-TIMES SIT-TO-STAND (5xSTS): A COMPREHENSIVE, MULTI-SYSTEM MEASURE OF FUNCTION IN DM1

Dyne Medical Central

DM1 IS A MULTI-SYSTEM NEUROMUSCULAR DISEASE WITH BROAD FUNCTIONAL IMPACT[a1,2]



Skeletal muscle: Muscle weakness, myotonia, balance issues, muscle pain, atrophy[3]

CNS: Cognitive, emotional and behavioral/personality impact, sleep, fatigue, excessive daytime sleepiness[2,4]

Cardiac: Conduction disturbances, arrythmia, cardiomyopathy, sudden death[1,5,6]

Respiratory: Diaphragm weakness, shortness of breath, respiratory failure[1,3,5]

Gastrointestinal: Dysphagia, constipation, heartburn, regurgitation[1,5]

Endocrine: Thyroid disorders, diabetes, male hypogonadism, vitamin D deficiency[1]

Ocular: Cataracts, ptosis[1]

ESTABLISHING A FRAMEWORK FOR PRIMARY ENDPOINT SELECTION IN LATE-STAGE DM1 CLINICAL TRIALS

Considerations for clinical endpoint selection in DM1

- Reliable
- Responsive
- Functionally meaningful
- Applicable to activities of daily living

5xSTS MAY PROVIDE A POTENTIAL MEASURE FOR FUNCTIONAL IMPROVEMENT IN DM1

5xSTS is a comprehensive measure of multiple functional attributes[7]

- Lower extremity function
- Trunk muscle engagement
- Balance/postural control
- Functional mobility

5xSTS assesses fall risk[7]

8x↑ **fall frequency** in DM1 vs healthy controls[8]

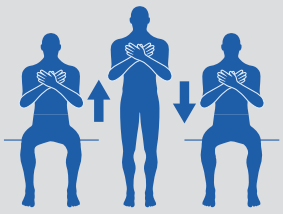
~40% of falls **result in ≥1 injury**, including **fractures**[8,9]

5xSTS requires engagement of trunk muscles[7]

Fat infiltration of trunk muscles **in DM1**[10] ▶ ↓ Muscle strength[10], Mobility and balance[10,11], Respiratory function[10]

5xSTS measures ability to perform activities of daily living[7]

Individuals with myotonic dystrophy show impairment in 5xSTS vs healthy controls, with the test ranking among the top 5 muscle tests for distinguishing between the two groups[b12]



The 5xSTS test measures the total amount of time taken to move from sitting to standing 5 times, without using arms or assistive devices[13]

THE 5xSTS TEST MAY PROVIDE A COMPREHENSIVE MEASURE OF FUNCTIONAL IMPROVEMENT IN DM1 CLINICAL TRIALS

Footnotes: [a]Image does not represent an exhaustive list of symptoms; [b]Study included 58 individuals with myotonic dystrophy (49 with DM1, 9 with myotonic dystrophy type 2 [DM2]). Image adapted from Cicirelli G & D'Orazio T, 2022, licensed under a CC-BY 4.0 Creative Commons license.

Abbreviations: 5xSTS, 5-times sit-to-stand; CNS, central nervous system; DM1, myotonic dystrophy type 1.

References: 1. Gutiérrez Gutiérrez G, et al. *Neurología (Engl Ed)*. 2020;35:185–206; 2. Meola G & Sansone V. *Muscle Nerve*. 2007;36:294–306; 3. Hagerman KA, et al. *Muscle Nerve*. 2019;59:457–64; 4. Hamilton MJ, et al. *Neuromuscul Disord*. 2022;32:377–389; 5. Ho G, et al. *World J Clin Pediatr*. 2015;4:66–80; 6. Thornton CA. *Neurol Clin*. 2014;32:705–19; 7. Muñoz-Bermejo L, et al. *Biology (Basel)*. 2021;10:510; 8. Berends J, et al. *Neuromuscul Disord*. 2019;29:758–65; 9. Jiménez-Moreno AC, et al. *Neuromuscul Disord*. 2018;28:229–35; 10. Solbakken G, et al. *BMC Neurol*. 2019;19:135; 11. Solbakken G, et al. *Acta Neurol Scand*. 2016;134:467–73; 12. Ruth PS, et al. *NEJM AI*. 2025;2:10.1056/aioa2401137; 13. Cicirelli G & D'Orazio T. *Appl Sci*. 2023;13:278.