

Because every moment counts

DMD is a progressive disease presenting early in childhood that needs an early and accurate diagnosis^{1,5,6}

The following milestones could assist you in identifying a developmental delay in your patient:

0-6 months	6-18 months	2-3 years
<ul style="list-style-type: none"> No head control at 2 months^{1,2} Not making sounds at 4 months² Not reaching or grasping by 6 months^{1,2} Not rolling over by 6 months^{1,2} 	<ul style="list-style-type: none"> Not sitting independently at 9 months^{2,3} Not crawling by 9–15 months^{1,4} Not speaking first words by 12 months² Difficulty rising to stand by 18 months^{1,2} Not walking well by 16–18 months^{2,3,7} 	<ul style="list-style-type: none"> Gowers' sign from 2 years old⁸ Not walking smoothly at 2 years old (tip-toe walking)⁸ Not jumping at 2 years old¹ Difficulty running or climbing at 3 years old^{1,2} Not speaking in sentences at 3 years old²
Other signs and symptoms Elevated serum CK or transaminases ^{9,10} , cognitive delay ⁷ , calf hypertrophy ^{7,11} , abnormal gait ⁷ , frequent falls ^{7,11}		

CK, creatinine kinase; DMD, Duchenne muscular dystrophy.



**When you think Developmental delay...
Do a CK!^{18,19}**

A CK test should be carried out in patients with developmental delay^{12,13}

Achieving a timely and accurate diagnosis of DMD is a crucial aspect of care¹²

Positive family history with suspicion of abnormal muscle function¹²

Developmental delay, such as difficulty rising to stand, or not walking well by 18 months^{12,14–16}

Unexplained increases in transaminases¹²

PERFORM A CK TEST

Elevated CK* (>250 U/L)

Promptly refer to a neuromuscular specialist or geneticist^{12,15,17}

Normal CK*

Normal or mildly elevated CK levels do not rule out neuromuscular disease

CK, creatine kinase; DMD, Duchenne muscular dystrophy; L, litre; U, unit. *The normal CK range is generally up to 250 U/L. Absolute values may differ between laboratories.⁴

References: 1. Noritz GH, et al. Pediatrics. 2013;131:e2016–e2027. 2. Centers for Disease Control and Prevention. Developmental milestones. Available at: https://www.cdc.gov/ncbddd/actearly/pdf/checklists/all_checklists.pdf [Accessed February 2021]. 3. Lurio JG, et al. Am Fam Physician. 2015;91:38–44. 4. van Dommelen P, et al. Dev Med Child Neurol. 2020; doi: 10.1111/dmcn.14623. 5. National Task Force for Early Identification of Childhood Neuromuscular Disorders. Child Muscle Weakness. 2019. Available at: childmuscleweakness.org [Accessed February 2021]. 6. Ciafaloni E, et al. J Pediatr. 2009;155:380–385. 7. Birnkrant D, et al. Lancet Neurol. 2018;17:251–267. 8. Parsons EP, et al. Eur J Paediatr Neurol. 2004;8:145–153. 9. Ardicli D, et al. Neuropediatrics. 2019;50:41–45. 10. Counterman KJ, et al. Muscle Nerve. 2020;61:36–43. 11. Aartsma-Rus A, et al. J Pediatr. 2019;2014:305–313.e14. 12. Birnkrant DJ, et al. Lancet Neurol. 2018;17:251–267. 13. National Task Force for Early Identification of Childhood Neuromuscular Disorders. Guide for primary care providers. Available at: <https://childmuscleweakness.org/wp-content/uploads/2019/05/PrimaryCareProviderPacket.pdf> [Accessed February 2021]. 14. WHO Multicentre Growth Reference Study Group. Acta Paediatr Suppl. 2006;450:86–95. 15. National Task Force for Early Identification of Childhood Neuromuscular Disorders. Child Muscle Weakness. 2019. Available at: childmuscleweakness.org [Accessed February 2021]. 16. Lurio JG, et al. Am Fam Physician. 2015;91:38–44. 17. Aartsma-Rus A, et al. J Pediatr. 2019;2014:305–313.e14. 18. van Ruiten HJ, et al. Arch Dis Child. 2014;99:1074–1077. 19. Birnkrant DJ, et al. Lancet Neurol. 2018;17:251–267. 3. Bushby K, et al. Lancet Neurol. 2010;9:77–93..

for full information please refer to the Israeli PI as approved by MOH