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# Muscular Dystrophy

**Also called:** MD

## What is muscular dystrophy (MD)?

Muscular dystrophy (MD) is a group of more than 30 [genetic diseases](https://medlineplus.gov/geneticdisorders.html) [https://medlineplus.gov/geneticdisorders.html] . They cause weakness of the muscles. Over time, the weakness gets worse and can cause trouble [walking](https://medlineplus.gov/walkingproblems.html) [https://medlineplus.gov/walkingproblems.html] and doing daily activities. Some types of MD can also affect other organs.

## What are the types of muscular dystrophy (MD)?

There are many different types of MD. Some of the more common types include:

- Duchenne muscular dystrophy, which is the most common childhood form. It is severe and affects boys more often than girls. The symptoms usually start between ages 3 and 6.
- Becker muscular dystrophy, which is similar to Duchenne but is less severe and gets worse more slowly. It often starts in the teenage years.
- Congenital muscular dystrophies, which are present at birth or before age 2. They can be mild or severe.
- Facioscapulohumeral muscular dystrophy, which often starts in the teenage years. At first, it affects the muscles of the face, shoulders, and upper arms.

Each of the types of MD can be different in many ways, such as:

- Who is more likely to get them
- Which muscles they affect
- When they appear, such as in infancy, childhood, middle age, or later
- What the symptoms are
- How serious the symptoms are
- How quickly they get worse
- Whether they run in families
- Whether they affect other organs

Even within the same type of MD, people can have different symptoms.

## What causes muscular dystrophy (MD)?

MD is genetic, meaning that it caused by a change in one or more genes. Gene changes are also called gene variants or mutations. The gene changes in MD affect proteins that strengthen and protect muscles.

There are different gene changes that cause each type of MD. And sometimes people who have the same type of MD can have different gene changes.

Muscular dystrophy can run in families, or you can be the first in your family to have a muscular dystrophy.

## How is muscular dystrophy (MD) diagnosed?

To find out if you or your child has MD, your health care provider may use:

- A medical and family history
- A physical exam
- Blood and urine tests, including genetic tests [<https://medlineplus.gov/genetic-testing.html>] and tests for certain enzymes that may be released by damaged muscles
- Muscle biopsies [<https://medlineplus.gov/biopsy.html>]
- Electromyography and nerve conduction studies [<https://medlineplus.gov/lab-tests/electromyography-emg-and-nerve-conduction-studies/>] to find out if muscles are responding the right way to nerve signals
- Heart testing [<https://medlineplus.gov/heart-health-tests.html>] , such as an electrocardiogram [<https://medlineplus.gov/lab-tests/electrocardiogram/>] (EKG), since some types of MD can cause heart problems [<https://medlineplus.gov/heart-diseases.html>]
- Exercise tests to measure muscle strength and breathing and detect any increased rates of certain chemicals following exercise
- Imaging tests [<https://medlineplus.gov/diagnostic-imaging.html>] such as an MRI [<https://medlineplus.gov/mriscans.html>] to look at muscle quality and bulk and measure fatty replacement of muscle tissue


## What are the treatments for muscular dystrophy (MD)?

There is no cure for muscular dystrophy. Treatment can help with the symptoms and prevent complications. It usually includes a combination of therapies, such as:



- Physical therapy to help keep muscles flexible and strong
- Occupational therapy to relearn lost motor skills and learn ways to work around weakened muscles
- Respiratory care, such as breathing exercises, oxygen therapy [<https://medlineplus.gov/oxygen-therapy.html>] , and ventilators
- Speech therapy to help with speech [<https://medlineplus.gov/speech-and-communication-disorders.html>] and swallowing [<https://medlineplus.gov/swallowing-disorders.html>] problems
- Assistive devices [<https://medlineplus.gov/assistive-devices.html>] , such as wheelchairs, splints and braces, and walkers
- Medicines to help delay damage to muscles or minimize the symptoms of MD
- Surgery to treat some of the conditions associated with MD, such as heart problems, scoliosis [<https://medlineplus.gov/scoliosis.html>] , and cataracts [<https://medlineplus.gov/cataract.html>]

*NIH: National Institute of Neurological Disorders and Stroke*

## Start Here

- About Muscular Dystrophy [<https://www.cdc.gov/muscular-dystrophy/about/>] (Centers for Disease Control and Prevention)
- Muscular Dystrophy [<https://www.mayoclinic.org/diseases-conditions/muscular-dystrophy/symptoms-causes/syc-20375388?p=1>] (Mayo Foundation for Medical Education and Research)  
Also in Spanish [<https://www.mayoclinic.org/es/diseases-conditions/muscular-dystrophy/symptoms-causes/syc-20375388?p=1>]
- Muscular Dystrophy [<https://www.ninds.nih.gov/health-information/disorders/muscular-dystrophy>]  
 (National Institute of Neurological Disorders and Stroke)
- Muscular Dystrophy (For Parents) [<https://kidshealth.org/en/parents/muscular-dystrophy.html>] (Nemours Foundation)  
Also in Spanish [<https://kidshealth.org/es/parents/muscular-dystrophy.html>]

## Diagnosis and Tests

- Creatine Kinase [<https://medlineplus.gov/lab-tests/creatine-kinase/>]  (National Library of Medicine)  
Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/creatina-cinasa/>]
- Electromyography (EMG) and Nerve Conduction Studies [<https://medlineplus.gov/lab-tests/electromyography-emg-and-nerve-conduction-studies/>]  (National Library of Medicine)  
Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/electromiografia-y-estudios-de-conduccion-nerviosa/>]

## How Is Muscular Dystrophy (MD) Diagnosed?

[<https://www.nichd.nih.gov/health/topics/musculardys/conditioninfo/diagnosed>]

 (Eunice Kennedy Shriver National Institute of Child Health and Human Development)

Also in Spanish [<https://espanol.nichd.nih.gov/salud/temas/musculardys/informacion/diagnostica>]

- Signs and Symptoms of Duchenne [<https://www.parentprojectmd.org/about-duchenne/is-it-duchenne/signs-and-symptoms/>] (Parent Project for Muscular Dystrophy Research)

## Treatments and Therapies

- Medications and Supplements (Other Than Steroids) [<https://www.parentprojectmd.org/care/care-guidelines/by-area/supplements-and-medications/>] (Parent Project for Muscular Dystrophy Research)

- What Are the Treatments for Muscular Dystrophy (MD)?

[<https://www.nichd.nih.gov/health/topics/musculardys/conditioninfo/treatment>]

 (Eunice Kennedy Shriver National Institute of Child Health and Human Development)

Also in Spanish [<https://espanol.nichd.nih.gov/salud/temas/musculardys/informacion/tratamientos>]

## Living With

- Daily Living Resources [<https://www.parentprojectmd.org/care/for-families/community-resource-center/daily-life-resources/>] (Parent Project for Muscular Dystrophy Research)

- Learning and Behavior [<https://www.parentprojectmd.org/care/care-guidelines/by-area/learning-and-behavior/>] (Parent Project for Muscular Dystrophy Research)

- Muscular Dystrophy: Other FAQs [[https://www.nichd.nih.gov/health/topics/musculardys/more\\_information/FAQs](https://www.nichd.nih.gov/health/topics/musculardys/more_information/FAQs)]

 (Eunice Kennedy Shriver National Institute of Child Health and Human Development)

Also in Spanish [<https://espanol.nichd.nih.gov/salud/temas/musculardys/masinformacion/preguntas>]

- Physical Therapy for Facioscapulohumeral Muscular Dystrophy (FSHD) [<https://www.fshdsociety.org/wp-content/uploads/2019/08/FSH-Society-PT-for-FSHD-Brochure.pdf>] (FacioScapuloHumeral Muscular Dystrophy Society) - **PDF**

## Specifics

- Becker Muscular Dystrophy (BMD) [<https://www.mda.org/disease/becker-muscular-dystrophy>] (Muscular Dystrophy Association)

- Becker Muscular Dystrophy (For Parents) [<https://kidshealth.org/en/parents/becker-md.html>] (Nemours Foundation)

Also in Spanish [<https://kidshealth.org/es/parents/becker-md.html>]

- Duchenne Muscular Dystrophy [[https://www.mda.org/sites/default/files/2020/10/MDA\\_DMD\\_Fact\\_Sheet\\_Oct\\_2020.pdf](https://www.mda.org/sites/default/files/2020/10/MDA_DMD_Fact_Sheet_Oct_2020.pdf)] (Muscular Dystrophy Association) - **PDF**

- Duchenne Muscular Dystrophy (For Parents) [<https://kidshealth.org/en/parents/duchenne-md.html>] (Nemours Foundation)

Also in Spanish [<https://kidshealth.org/es/parents/duchenne-md.html>]

- Limb-Girdle Muscular Dystrophy (LGMD) [<https://www.mda.org/disease/limb-girdle-muscular-dystrophy>]

(Muscular Dystrophy Association)

- Myotonic Muscular Dystrophy [<https://www.mda.org/disease/myotonic-dystrophy>] (Muscular Dystrophy Association)

- What Are the Types and Symptoms of Muscular Dystrophy (MD)?

[<https://www.nichd.nih.gov/health/topics/musculardys/conditioninfo/types>]

 (Eunice Kennedy Shriver National Institute of Child Health and Human Development)

Also in Spanish [<https://espanol.nichd.nih.gov/salud/temas/musculardys/informacion/tipos>]


## Genetics


- About Duchenne Muscular Dystrophy [<https://www.genome.gov/Genetic-Disorders/Duchenne-Muscular-Dystrophy>]












 (National Human Genome Research Institute)

- About Myotonic Dystrophy [<https://www.genome.gov/Genetic-Disorders/Myotonic-Dystrophy>]

 (National Human Genome Research Institute)

- CAV3-related distal myopathy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/cav3-related-distal-myopathy>]  (National Library of Medicine)



Distal myopathy 2: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/distal-myopathy-2>]  (National Library of Medicine)

- Duchenne and Becker muscular dystrophy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/duchenne-and-becker-muscular-dystrophy>]  (National Library of Medicine)
- Emery-Dreifuss muscular dystrophy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/emery-dreifuss-muscular-dystrophy>]  (National Library of Medicine)
- Fukuyama congenital muscular dystrophy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/fukuyama-congenital-muscular-dystrophy>]  (National Library of Medicine)
- Laing distal myopathy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/laing-distal-myopathy>]  (National Library of Medicine)
- LAMA2-related muscular dystrophy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/lama2-related-muscular-dystrophy>]  (National Library of Medicine)
- Limb-girdle muscular dystrophy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/limb-girdle-muscular-dystrophy>]  (National Library of Medicine)
- Myofibrillar myopathy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/myofibrillar-myopathy>]  (National Library of Medicine)
- Myotonic dystrophy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/myotonic-dystrophy>]  (National Library of Medicine)
- Oculopharyngeal muscular dystrophy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/oculopharyngeal-muscular-dystrophy>]  (National Library of Medicine)
- Rigid spine muscular dystrophy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/rigid-spine-muscular-dystrophy>]  (National Library of Medicine)
- Tibial muscular dystrophy: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/tibial-muscular-dystrophy>]  (National Library of Medicine)

## Statistics and Research

- Data Summary: Muscular Dystrophy [<https://www.cdc.gov/muscular-dystrophy/research/summary.html>] (Centers for Disease Control and Prevention)

## Clinical Trials



- ClinicalTrials.gov: Muscular Dystrophies [<https://clinicaltrials.gov/search?cond=%22Muscular+Dystrophies%22&aggFilters=status:not%20rec>]  (National Institutes of Health)
- ClinicalTrials.gov: Muscular Dystrophy, Duchenne [<https://clinicaltrials.gov/search?cond=%22Muscular+Dystrophy,+Duchenne%22&aggFilters=status:not%20rec>]  (National Institutes of Health)

## Journal Articles

References and abstracts from MEDLINE/PubMed (National Library of Medicine)

- Article: Profiles of Monocyte Subsets and Fibrosis-Related Genes in Patients with Muscular... [<https://www.ncbi.nlm.nih.gov/pubmed/40649771>]
- Article: Impaired Autophagic Flux in Skeletal Muscle of Plectin-Related Epidermolysis Bullosa Simplex... [<https://www.ncbi.nlm.nih.gov/pubmed/40641151>]
- Article: Outcomes of an oral motor and swallowing rehabilitation program in patients... [<https://www.ncbi.nlm.nih.gov/pubmed/40638490>]
- Muscular Dystrophy -- see more articles [<https://pubmed.ncbi.nlm.nih.gov/?term=%22Muscular+Dystrophies%22%5Bmajr%3Anoexp%5D+AND+humans%5Bmh%5D+AND+english%5Bla%5D+AND+%22last+1+Year%22+%5Bedat%5D+NOT+%28letter%5Bpt%5D+OR+case+reports%5Bpt%5D+OR+editorial%5Bpt%5D+OR+comment%5Bpt%5D%29+AND+free+full+text%5Bsb%5D+>]

## Find an Expert

- National Institute of Arthritis and Musculoskeletal and Skin Diseases [<https://www.niams.nih.gov/>]   
Also in Spanish [<https://www.niams.nih.gov/es/portal-en-espanol/>]
- National Institute of Neurological Disorders and Stroke [<https://www.ninds.nih.gov/>] 

## Children

- Diagnosis of Duchenne [<https://www.parentprojectmd.org/about-duchenne/is-it-duchenne/diagnosis/>]  
(Parent Project for Muscular Dystrophy Research) - **PDF**
- Everybody's Different Nobody's Perfect [[https://www.mda.org/sites/default/files/publications/EverybodysDifferent\\_full.pdf](https://www.mda.org/sites/default/files/publications/EverybodysDifferent_full.pdf)]  
(Muscular Dystrophy Association) - **PDF - In English and Spanish**

## Patient Handouts

- Becker muscular dystrophy [<https://medlineplus.gov/ency/article/000706.htm>] (Medical Encyclopedia)  
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/000706.htm>]
- Creatine phosphokinase test [<https://medlineplus.gov/ency/article/003503.htm>] (Medical Encyclopedia)  
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/003503.htm>]
- Duchenne muscular dystrophy [<https://medlineplus.gov/ency/article/000705.htm>] (Medical Encyclopedia)  
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/000705.htm>]
- Limb-girdle muscular dystrophies [<https://medlineplus.gov/ency/article/000711.htm>] (Medical Encyclopedia)  
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/000711.htm>]
- Muscular dystrophy [<https://medlineplus.gov/ency/article/001190.htm>] (Medical Encyclopedia)  
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/001190.htm>]



## MEDICAL ENCYCLOPEDIA

- Aldolase blood test [<https://medlineplus.gov/ency/article/003566.htm>]
- Becker muscular dystrophy [<https://medlineplus.gov/ency/article/000706.htm>]
- CPK isoenzymes test [<https://medlineplus.gov/ency/article/003504.htm>]
- Creatine phosphokinase test [<https://medlineplus.gov/ency/article/003503.htm>]
- Duchenne muscular dystrophy [<https://medlineplus.gov/ency/article/000705.htm>]
- Facioscapulohumeral muscular dystrophy [<https://medlineplus.gov/ency/article/000707.htm>]
- Lactate dehydrogenase test [<https://medlineplus.gov/ency/article/003471.htm>]
- LDH isoenzyme blood test [<https://medlineplus.gov/ency/article/003499.htm>]
- Limb-girdle muscular dystrophies [<https://medlineplus.gov/ency/article/000711.htm>]

Muscular dystrophy [<https://medlineplus.gov/ency/article/001190.htm>]

Myoglobin blood test [<https://medlineplus.gov/ency/article/003663.htm>]

Myoglobin urine test [<https://medlineplus.gov/ency/article/003664.htm>]

Swallowing problems [<https://medlineplus.gov/ency/patientinstructions/000065.htm>]

## National Institutes of Health

The primary NIH organization for research on *Muscular Dystrophy* is the National Institute of Neurological Disorders and Stroke [<http://www.ninds.nih.gov/>]

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