Oculopharyngeal Muscular Dystrophy (OPMD)

Oculopharyngeal Muscular Dystrophy (OPMD) is a rare, slowly progressive myopathy that is characterized by weakness of the **muscles that raise the eyelids (ocular)** and the **throat muscles responsible for swallowing (pharyngeal)**. Additionally, OPMD can be associated with weakness in proximal muscles (muscles closest to the center of the body) of the legs more than the arms. It is less frequently associated with weakness in distal muscles (muscles farther from the center of the body).

OPMD is caused by a genetic **mutation in the *PABPN1* gene**, which leads to the production of a protein that forms clumps in the muscle cells.[1] OPMD affects men and women equally, and the genetic mutation can be inherited from either affected or carrier parent (autosomal dominant, the most common form) or both nonaffected parents (autosomal recessive form).[1]

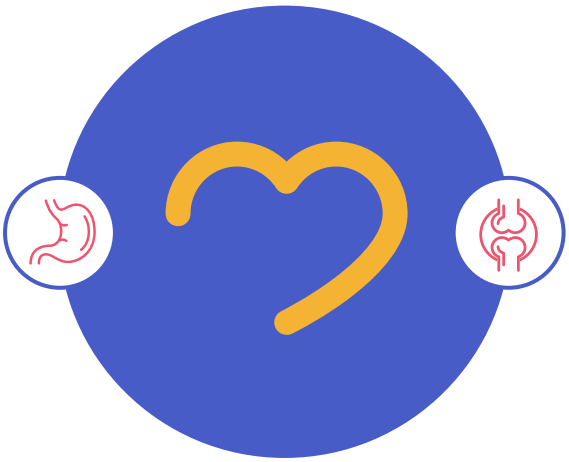
The **prevalence of the autosomal dominant form is variable** and is estimated to be 1 in 100,000 in some European countries. Because of the "founder effect," which happens when a founder of a new population carries a genetic mutation, the prevalence of OPMD is higher in French Canadians and Bukhara Jews living in Israel.[1]

Symptoms of OPMD usually do not appear until the 40s or 50s, and **weakness progresses slowly**. Difficulty swallowing (dysphagia) and droopy eyelids (ptosis) are the most common manifestations of the disease.

When the disease progresses, some people with OPMD also experience mobility difficulties. In 5% to 10% of patients, the disease follows a more severe course, with ptosis and dysphagia appearing before age 45 and disabling distal leg weakness developing before age 60.

With MDA funding, a group of scientists led by Dr. Guy Rouleau at McGill University first identified the *PABPN1* gene as the underlying cause of OPMD in 1998.[2] Subsequent studies have explored gene therapy, small molecule treatments, and cell-based approaches as potential therapies for OPMD. As of May 2025, the only therapy in clinical trials is a gene therapy (BB-301), which has shown promising results in a phase 1/2 clinical trial, with significant improvements in swallowing function.[3] This gene therapy uses a DNA-directed RNA interference approach called "silence-and-replace," which is designed to deactivate the mutated *PABPN1* gene while delivering a functional version to muscle cells to restore normal protein production.

What Are the Signs and Symptoms of OPMD?



Digestive

- Difficulty swallowing (dysphagia)
- Wet voice due to pooling saliva
- Tongue weakness

Musculoskeletal

- Droopy eyelids (ptosis)
- Muscle weakness from the hips that may move down the legs
- Limitation of upward gaze and, more rarely, horizontal gaze with double vision (diplopia)
- Weakness of the shoulders that may move down into the arms (less common)

To learn more about OPMD, visit **MDA.org** or contact the MDA Resource Center at **833-ASK-MDA1 (275-6321)** or **ResourceCenter@mdausa.org**.

What Should I Know About OPMD?

1. OPMD is characterized by weakness of the eyelid (ocular) muscles and throat (pharyngeal) muscles.

2. Symptoms of OPMD usually do not appear until the 40s or 50s, and weakness progresses slowly.

3. OPMD can be associated with proximal (near the center of the body) limb muscle weakness and, more rarely, distal (farther from the center of the body) weakness.

4. OPMD is caused by a genetic defect in the *PABPN1* gene.

5. The genetic defect can be inherited from one parent or both parents.

6. OPMD affects men and women equally.

7. Researchers have identified the genetic cause for OPMD.

How Is OPMD Treated?

No treatment currently exists to halt or reverse the effects of OPMD, but some treatments and devices can help alleviate many of the symptoms.

For dysphagia, or difficulty swallowing, a number of techniques may help, ranging from holding the head in various positions to changing the consistency of foods and liquids. Commercial thickeners may give liquids a more manageable consistency. In advanced cases, a nonsurgical procedure called throat dilation or a surgical procedure called a cricopharyngeal myotomy may be beneficial. A speech language pathologist can help determine appropriate treatments. In rare cases, a feeding tube may be necessary.

Ptosis can be treated with two types of surgeries: resectioning or shortening the eyelid muscle or using a frontalis sling, which helps the forehead muscle lift the eyelid. An oculoplastic surgeon performs both.

Other supports and therapies for OPMD may include:

- Physical therapy to help retain muscle strength and function, enhance mobility, and prevent falls
- Occupational and speech therapy to help maintain daily living skills
- Low-intensity aerobic exercise to help maintain mobility. *Any exercise regimen should be initiated under the guidance of a physician and customized to accommodate the individual's disease symptoms, age, and cardiovascular status.*

1. Trollet C, Gidaro T, Klein P, et al. Oculopharyngeal Muscular Dystrophy. 2001 Mar 8 [Updated 2014 Feb 20]. In: Adam MP, Ardinger HH, Pagon RA, et al., editors. GeneReviews® [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2020

2. Brais B, Bouchard JP, Xie YG, et al. Nature Genetics,1998; Feb;18(2):164-7. doi: 10.1038/ng0298-164.

3. Raz V, Butler-Browne G, van Engelen B, Brais B. 191st ENMC International Workshop: Recent advances in oculopharyngeal muscular dystrophy research: From bench to bedside 8-10 June 2012, Naarden, The Netherlands. Neuromuscul Disord. 2013;23(6):516-523. doi:10.1016/j.nmd.2013.03.001. https://clinicaltrials.gov/study/NCT06185673?cond=opmd&rank=6

MDA Glossary

Diplopia
Double vision

Distal muscle weakness
Weakness in muscles farthest from the center of the body, such as hands, feet, lower legs, and lower arms

Dysphagia
Difficulty swallowing

Gene mutation
A flaw in the DNA code

Muscular dystrophy
A term that refers to a number of diseases that cause progressive loss of muscle mass, resulting in weakness and sometimes loss of mobility

Ocular muscles
Muscles of the eyes

***PABPN1* gene**
The gene that leads to OPMD when mutated

Pharyngeal muscles
Muscles of the throat

Proximal muscle weakness
Weakness of the muscles near the center of the body, such as shoulders, hips, upper arms, and upper legs

Ptosis
Drooping of the eyelids