

WHAT IS MONOCULAR ELEVATION DEFICIENCY (MED)?

Monocular elevation deficiency (MED), also known as double elevator palsy, is when one eye can't move upwards [See figure 1]. You may also hear the name “congenital innervation dysgenesis syndrome” to describe this eye problem. There are different ways that MED can look. The eye with the problem can look lower than the other eye or look like it's looking down when the other eye is looking straight. Other people with MED only show their problem when they are trying to look up and the eye with the problem looks “stuck.”



Fig. 1: Person with monocular elevation deficiency/double elevator palsy of their left eye being asked to look up. See how the right eye goes upward but the left eye with MED does not.

WHAT IS THE CAUSE OF MED?

Not being able to move the eye up is caused by a problem with the muscles on the outside of the eye that help it move. Weakness of one or both muscles that help move the eye up can cause MED. These muscles are called the superior rectus and the inferior oblique. Tightness of the muscle that moves the eye down can also cause MED. The inferior rectus muscle moves the eye downward and, if it is tight, will keep the eye from moving up. Sometimes, MED can be a mix of the two causes.

Often, when we do special tests of the eyes and the brain (like a CT scan or MRI), the muscles of the eyes look normal. The eye movement problem comes from bad connections between the brain and the eyes.



IS MED HEREDITARY AND DOES IT RUN IN FAMILIES?

MED is rare, and doctors are still learning about it. It can be present from birth (congenital) or it can show up later in life at any age (acquired). Some studies show that MED runs in families, but no gene has been found to cause it.

DO PEOPLE WITH MED HAVE A DROOPY EYELID (PTOSIS)?

Yes. The eyelid on the same eye that can't look up, can't lift up and looks droopy ([ptosis](#)) 25-75% of the time. The rest of the time, the eyelid is not really droopy but looks like it is (called pseudoptosis), because the eye with MED is lower than the other eye.

DO PEOPLE WITH MED HAVE “JAW WINKING”?

Up to 50% of patients with MED and a droopy eyelid also have a problem called Marcus Gunn jaw-winking. This is when the eyelid on the droopy side appears to go up and down (wink) when chewing, sucking or talking.

IS MED LINKED WITH OTHER DISEASES OR DEVELOPMENTAL PROBLEMS?

No. Other medical problems can happen in people with MED but they are not linked to the MED.

WHAT TREATMENTS ARE THERE FOR MED?

Some people with MED might be monitored if the eye movement problem is not causing vision problems or head tilting.

If monocular elevation deficiency causes an abnormal head position, eye muscle surgery or [glasses](#) with prisms can help. Surgery is usually done on the eye that can't look up, but sometimes surgery is needed in the other eye.

If MED causes vision problems like lazy eye or [amblyopia](#) (when the eye can't see well even with the best glasses), treatment with patching is sometimes needed. Patching does not help the eye move but can make the vision better.



DO EYE EXERCISES OR VISION THERAPY HELP WITH MED?

No.

More technical and scientific information on MED can be found:

- https://eyewiki.org/Monocular_Elevation_Deficit

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