Hypermobile Ehlers-Danlos syndrome (hEDS) (previously called EDS, hypermobile type or Type III EDS) is a genetic condition that affects connective tissue. Connective tissue is a type of tissue that helps to hold everything together, like a glue for your body. hEDS is characterized by generalized joint hypermobility and associated complications such as joint pain and dislocations. People who have hEDS may also have:

- soft/velvety skin
- unexplained stretch marks (also called striae)
- easy bruising
- recurrent hernias
- osteoarthritis
- chronic pain
- chronic fatigue
- mild aortic root dilation (stretching of the main blood vessel that carries blood from the heart to the body)
- mitral valve prolapse
- symptoms related to dysautonomia (such as neurally mediated hypotension (NMH) or postural orthostatic tachycardia syndrome (POTS))
- varying gastrointestinal/digestive difficulties

In general, people who have hEDS have skin that may appear more transparent, hyperextensible (stretchy), and fragile than normal. There may also be some abnormal scarring, but this typically less common than in other types of Ehlers-Danlos syndrome. Other forms of EDS can also have issues with the soft tissue around their internal organs, but that is not usually seen with hEDS.

Individuals who have hEDS may notice a progression of some physical symptoms as they get older. What can start out as being extra flexible or hypermobile often leads to decreased mobility along with pain, fatigue, and other related complications.

hEDS can range in severity, and there can be variability within a family. Individuals may have few or no symptoms while others may have more severe and early-onset health issues.

Causes

The exact underlying genetic cause for many individuals with hEDS is unknown. Most cases of hEDS appear to follow an autosomal dominant inheritance pattern, meaning that any children of someone who has hEDS also have a 50% chance to have hEDS. This also means that most people with hEDS have a parent that is also affected. hEDS has traditionally been

under-diagnosed, so it is very possible that there could be other members of a family who have hEDS that have just not been diagnosed. Other factors (such as gender, age, activities) may also impact whether someone with hEDS has symptoms and how severe those symptoms are.

Some individuals with hEDS have been reported to have pathogenic variants in the TNXB gene. However, this is rare and it is unknown how pathogenic variants in this gene lead to the symptoms seen in hEDS. It is likely that there are other genes that contribute to hEDS in some families that have just not yet been discovered. hEDS is thought to affect approximately 1 in 5000 to 1 in 20,000. Because the signs and symptoms in individuals with hEDS are variable, it is possible that hEDS is much more common but that it is just not being diagnosed.

Diagnosing Hypermobile Ehlers-Danlos syndrome

Genetic testing is currently very rarely helpful to establish a diagnosis of hEDS, so medical providers use other pieces of information, such as a physical exam and family history, to help establish the diagnosis. There are two different sets of criteria that currently exist for medical providers to evaluate whether or not someone has hEDS: the Villefranche criteria for EDS hypermobile type, and the Beighton criteria for joint hypermobility syndrome (JHS). There is much overlap between the Villefranch and Beighton criteria, and what age you are when the evaluation takes place may determine if you meet the criteria or not.

In 2017 the International EDS Consortium published criteria for the diagnosis for hEDS. For someone to have a diagnosis of hEDS, they need to have:

- Generalized joint hypermobility
- At least two of the following:
    - Other signs or symptoms of a connective tissue disorder (soft or velvety skin, stretchy skin, dilation of the aorta, etc)
    - A positive family history of one or more first-degree relatives (parents, siblings, children) that meet the current criteria for hEDS
    - Musculoskeletal (the muscles and skeleton together) concerns (chronic limb pain, chronic widespread pain, frequent joint dislocations without trauma)
- Exclusion of other connective tissue disorders

This complex assessment can generally be made by a medical provider that is familiar with hEDS.

Medical Management for Hypermobile Ehlers-Danlos syndrome

Treatment for hEDS can sometimes vary depending on the individual person and their specific health concerns, and should be discussed with a medical provider who is familiar with hEDS. Medical management can include physical therapy, pain management through exercises or medication, and vitamins or supplements to help strengthen the bones. It is also usually recommended that individuals with hEDS avoid high-impact activity that can increase the risk for dislocations, chronic pain, and osteoarthritis. Imaging of the heart, called an echocardiogram may also be recommended if there is suspicion of dilation of the aorta, and individuals with hEDS may also see a gastroenterologist if they are experiencing digestive issues.

Click here to learn more about scheduling a genetic counseling appointment for questions about pediatric or adult genetic conditions.

Resources

Ehlers-Danlos Society

Joint Hypermobility Handbook- A Guide for the Issues Management of Ehlers-Danlos Syndrome Hypermobility Type and the Hypermobility Syndrome, a book by Brad Tinkle