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# Krabbe disease

## What is Krabbe disease?

Krabbe disease is an inherited disorder characterized by progressive muscle weakness and stiffness, feeding problems, slowed mental and physical development, vision loss, and seizures. Individuals with Krabbe disease have defects in the galactocerebrosidase enzyme, which is important in the growth and maintenance of myelin, the protective covering around nerve cells. The symptoms of Krabbe disease are due to the abnormal breakdown of myelin and the build-up of toxic byproducts in the body.[1,2] Krabbe disease is also known as galactocerebrosidase deficiency and globoid cell leukodystrophy.[3]

## What are the symptoms of Krabbe disease and what treatment is available?

The symptoms of Krabbe disease vary depending on the age at onset. Approximately 85% to 90% of individuals with Krabbe disease have the infantile type with symptoms appearing in the first six months of life, including:[3]

- Irritability
- Hypersensitivity to sound, touch and sight, causing frequent crying
- Muscle stiffness (eg, clenched fists, flexed limbs)
- Developmental delays or loss of milestones
- High fevers with no evidence of infection
- Seizures
- Numbness, lack of sensation
- Vision loss
- Death usually by two years

Some affected individuals have late-onset Krabbe disease, which appears between late infancy and adulthood. The course of disease tends to be less severe. Symptoms vary—even within families—and may include weakness, problems walking, vision loss, tremors, and intellectual regression.[1,3]

There is no cure for Krabbe disease and treatment includes supportive care for symptoms. Stem cell transplantation may be considered for some individuals.[3]

Krabbe disease is available on some newborn screening panels.[4]

## How is Krabbe disease inherited?

Krabbe disease is an autosomal recessive disease caused by mutations in the *GALC* gene[1]. An individual who inherits one copy of a *GALC* mutation is a carrier and is not expected to have related health problems. An individual who inherits two disease-causing *GALC* mutations, one from each parent, is expected to be affected with Krabbe disease.

If both members of a couple are carriers, the risk for an affected child is 25% in each pregnancy; therefore, it is especially important that the reproductive partner of a carrier be offered testing.

## Who is at risk for Krabbe disease?

Krabbe disease can occur in individuals of all races and ethnicities. It occurs most commonly among Muslim Arabs and Druze communities in Israel. The incidence is estimated to be 1 in 100,000 in the US and Europe with a calculated carrier frequency of 1 in 158.[3]

Having a relative who is a carrier or who is affected can increase an individual's risk of being a carrier. Consultation with a genetics health professional may be helpful in determining carrier risk and appropriate testing.

**What does a positive test result mean?**

If a gene mutation is identified, an individual should speak to a physician or genetics health professional about the implications of the result and appropriate testing for the reproductive partner and at-risk family members.

**What does a negative test result mean?**

A negative result reduces, but does not eliminate, the possibility that an individual carries a gene mutation. The likelihood of being a carrier is also influenced by family history, medical symptoms, and other relevant test results.

**Where can I get more information?**

Hunter's Hope Foundation: http://www.huntershope.org

United Leukodystrophy Foundation: http://ulf.org/krabbe-disease

NIH Neurological Institute: http://www.ninds.nih.gov/disorders/krabbe/krabbe.htm

**References**

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