

What is familial Mediterranean fever?

Familial Mediterranean fever is an inherited autoinflammatory disease characterized by episodes of recurrent fever and pain in the abdomen, chest, and joints. Symptoms are attributed to decreased levels of a protein called pyrin (also known as marenostin), which is involved in the body's immune response by helping to regulate inflammation. Familial Mediterranean fever is also known as familial paroxysmal polyserositis.^{1,2}

What are the symptoms of familial Mediterranean fever and what treatment is available?

Familial Mediterranean fever is a disease with a range of clinical symptoms and variable age of onset. Symptoms of familial Mediterranean fever begin in childhood or adolescence in approximately 80% of patients.³ Severity of disease may vary, even within families.¹ There are two types of familial Mediterranean fever:

Familial Mediterranean fever type 1 includes:¹

- Recurrent episodes of fever with or without skin rashes, typically lasting 24-48 hours
- Recurrent episodes of painful inflammation of the chest, abdomen, and joints, typically lasting 24-48 hours
- Amyloidosis (a buildup of protein deposits in the body's organs and tissues) leading to life-threatening kidney failure in severe cases

Familial Mediterranean fever type 2 includes:¹

- Amyloidosis as the first clinical manifestation of disease in an otherwise asymptomatic individual¹

Currently, there is no known cure for familial Mediterranean fever. A medication called colchicine has been successful in preventing episodes of fever and inflammation in individuals with specific genetic mutations. Colchicine may also prevent amyloidosis even when it is not successful in preventing episodes. For individuals with kidney failure due to amyloidosis, kidney transplantation may be needed. With early and regular treatment, most individuals with familial Mediterranean fever are able to live a normal life span.¹

How is familial Mediterranean fever inherited?

Familial Mediterranean fever is an autosomal recessive disease caused by mutations in the *MEFV* gene.¹ An individual who inherits one copy of an *MEFV* gene mutation is a carrier and is typically not expected to have related health problems. A subset of individuals with only one identified mutation may have symptoms, but the cause of symptoms remains unclear.¹ An individual who inherits two mutations in the *MEFV* gene, one from each parent, is expected to be affected with familial Mediterranean fever.

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 Familial Mediterranean Fever?

Familial Mediterranean fever can occur in individuals of all races and ethnicities, but is most common in individuals of Mediterranean descent, particularly those of Arabic, Armenian, Turkish, North African Jewish, and Ashkenazi Jewish ancestry.³

Carrier frequency in select ethnic groups

Population	Carrier Frequency
Turkish ⁴	~1 in 5
Arabic ³	~1 in 5
Armenian ⁵	~1 in 5
North African Jewish ⁶	~1 in 7
Ashkenazi Jewish ⁷	~1 in 81*

* The carrier frequency in healthy Ashkenazi Jewish individuals has been reported to be as high as 1/5;¹ however, based on the observed incidence of disease, the carrier frequency is 1 in 81.⁷

Having a relative who is a carrier or is affected can increase an individual's risk to be 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?

Genetics Home Reference: <https://ghr.nlm.nih.gov/condition/familial-mediterranean-fever>

Chicago Center for Jewish Genetic Disorders: <https://www.jewishgenetics.org/cjg/default.aspx>

Mayo Clinic: <http://www.mayoclinic.org/diseases-conditions/familial-mediterranean-fever/basics/definition/con-20025734>

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