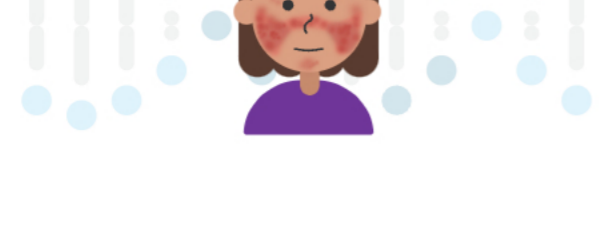


Lupus

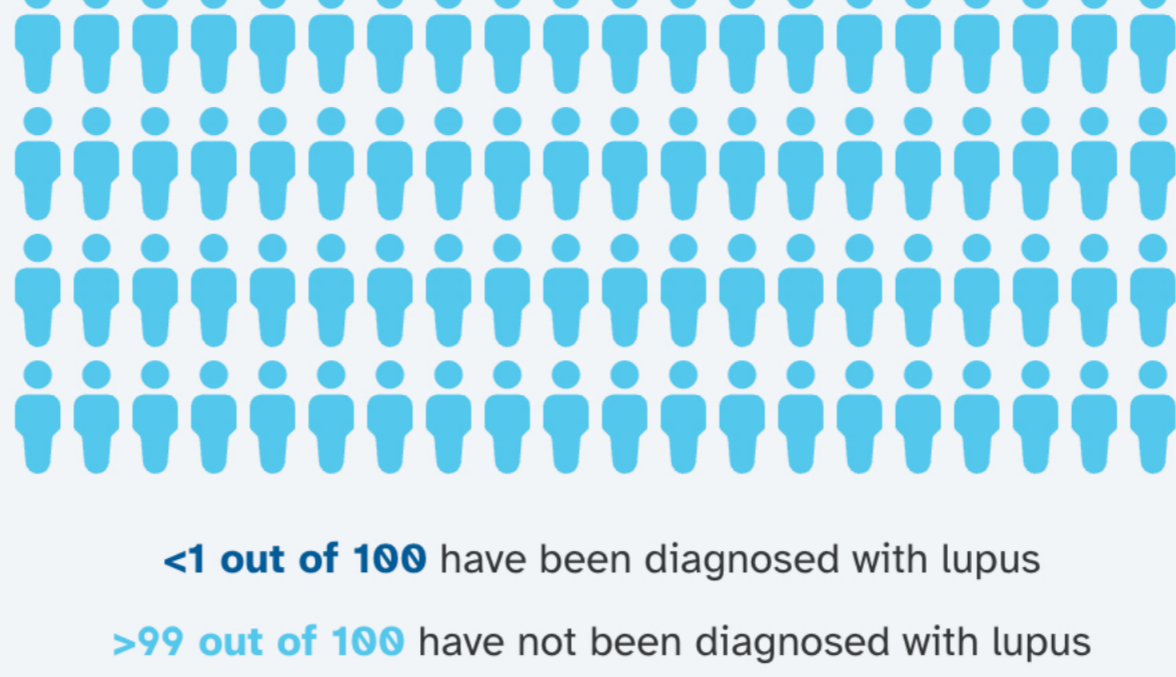
POWERED BY 23ANDME RESEARCH

Lupus is a group of autoimmune conditions that can occur in several forms, ranging from a small rash to severe disease that can affect multiple organs in the body. Symptoms typically come and go throughout life in flares, but if left untreated, lupus can have serious health consequences.



Jamie, your genetic result is associated with a **typical likelihood** of developing lupus.

An estimated **0.8 out of 100** people with genetics and other factors like yours develop lupus **by their 50s**. This is within what is considered typical, which can be anywhere from 0.2 to 2.5 out of 100 people. These values were estimated using data from female 23andMe research participants of European descent.



<1 out of 100 have been diagnosed with lupus

>99 out of 100 have not been diagnosed with lupus

This estimate is based on currently available data and may be updated over time.

Ways to take action

For those who have been diagnosed with lupus, medication is often the first line of treatment. However, experts agree that healthy lifestyle habits can be an important part of reducing the frequency and severity of lupus flares and lower the chances of developing other health complications.

- Avoid exposure to cigarette smoke as much as possible, including secondhand smoke. If you smoke, get help to quit if needed.
- Be sun smart. UV light can trigger flares, so it's important to wear sunscreen and protective clothing (including a hat and long sleeves) while outside.
- Get plenty of rest. Many people with lupus experience fatigue that can be challenging to manage, but strategies like planning time to rest, tackling important tasks first, and preparing meals in advance can help.
- Stay active. A combination of low-impact aerobic and strengthening exercises can help maintain muscle strength, promote heart health, and preserve bone density.
- Explore strategies to reduce stress, like yoga or meditation.
- Eat a heart-healthy diet that includes lots of fruits, vegetables, and whole grains.



Lupus can be challenging to face alone, so support from family, friends, and counselors can be an important part of managing lupus. If you have concerns about lupus, talk to a healthcare professional.

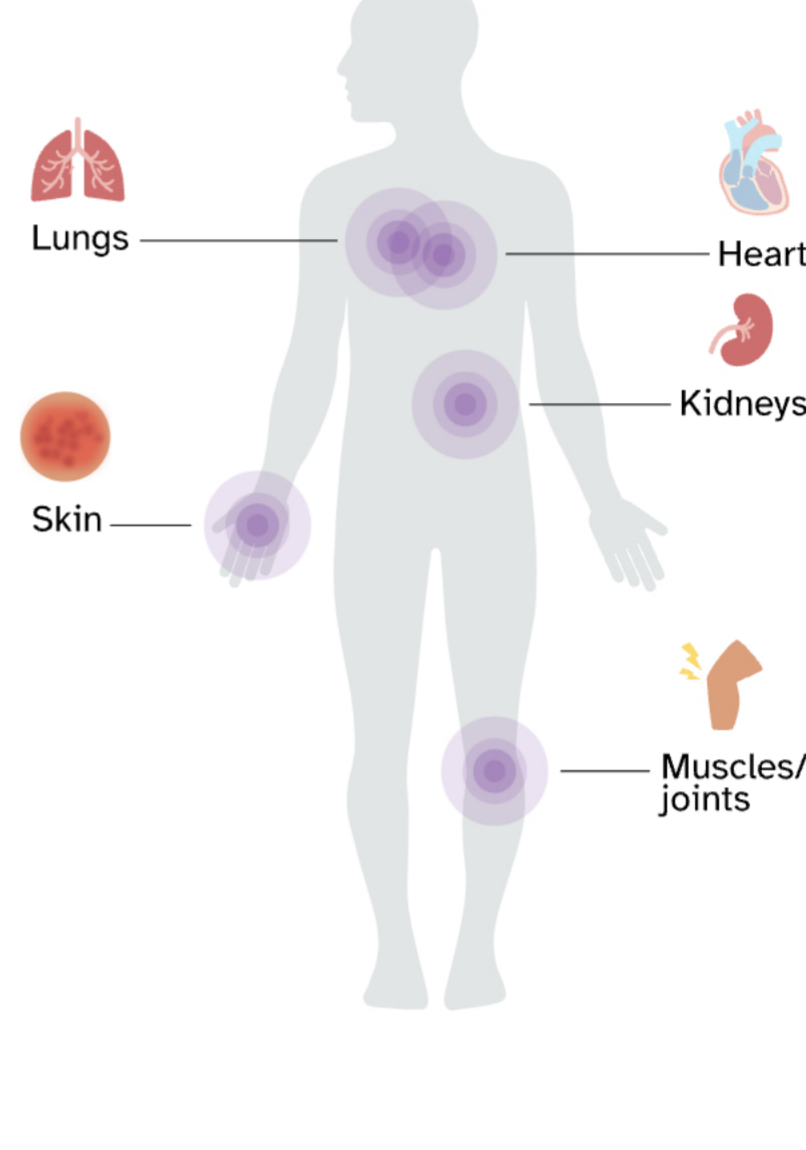
[Learn more from the Centers for Disease Control and Prevention](#)

About lupus

What is lupus?

Lupus is a group of chronic autoimmune conditions that can affect many parts of the body, such as the joints, skin, lungs, kidneys, and heart. There are several types of lupus, but the most common type - called systemic lupus erythematosus (SLE) - can range from a small rash to severe disease that can affect multiple organs in the body. Symptoms and disease severity can vary widely from person to person and change over time, which can make recognizing and diagnosing lupus a challenge. Some common symptoms include fatigue, muscle and joint pain, fever, skin lesions, and a butterfly-shaped rash on the face. Although the cause of lupus is not fully understood, scientists think that the immune system becomes overly active due to a combination of genetics and environmental factors, resulting in damage to the body.

Organs affected by lupus can include:



What can trigger lupus flares?

For people who have lupus, symptoms can come and go throughout life, but certain factors (called triggers) can increase the chances of flares. Some common triggers include:

- Sun or UV light exposure
- Certain medications (including certain antibiotics like sulfa-drugs or tetracycline)
- Illness or infection
- Injury
- Emotional or physical stress
- Exhaustion

Triggers and warning signs of a flare can vary from person to person. Learning personal triggers and warning signs can help to get treatment quickly and prevent severe flares. For people with lupus, it's important to talk to a healthcare professional for help creating a management plan.

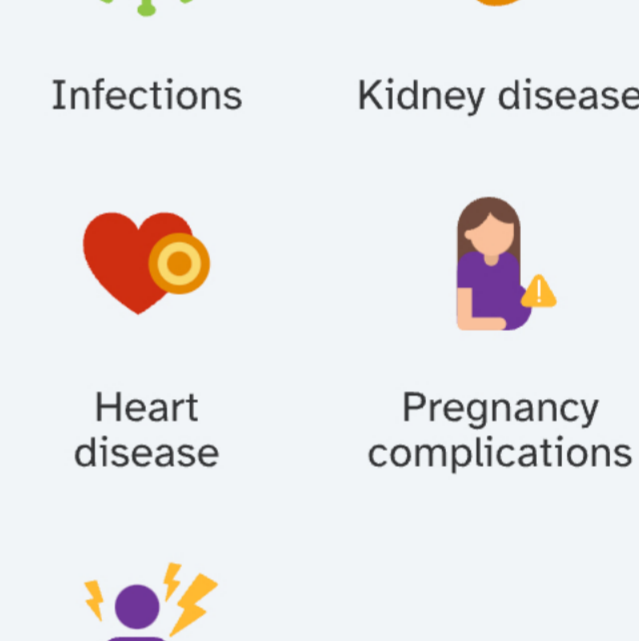
Some common triggers include:



How can lupus impact your health?

Lupus can increase the risk for many other health conditions, such as infections, kidney disease, heart disease, and pregnancy complications. But treatment for lupus can help manage these health impacts, in addition to reducing symptoms and flares. If you have concerns about lupus, talk to a healthcare professional. You may be referred to a specialist like a rheumatologist (a doctor who treats muscle-, joint-, and autoimmune-related conditions) or a dermatologist.

In addition, individuals with lupus may experience mental health conditions like anxiety and depression. Counseling and/or support groups can be an important part of some lupus management plans.



Mental health conditions

Other factors that can impact your chances of developing lupus

Besides genetics, some factors that can increase a person's chances of developing lupus include:

- Sex assigned at birth (about 9 out of 10 people with lupus are female, but lupus may be more severe in males)
- Ethnicity (lupus tends to be more common and severe among people of African, Asian, Hispanic/Latino, Indigenous American, and Pacific Island descent)
- Age (lupus is generally more common as people get older. For people who menstruate, lupus is often diagnosed prior to menopause.)
- Family history
- Currently taking certain medications (including some used to treat heart disease, thyroid disease, high blood pressure, and mental health conditions)



Sex

Ethnicity

Age

Family history

Certain medications

Keep in mind

This report **does not diagnose lupus**. **Consult with a healthcare professional** if you are concerned about whether you may have lupus, have a personal or family history of lupus, or before making any major lifestyle changes.



If you have already been diagnosed with lupus by a healthcare professional, it is important to **continue any management plan** that is recommended.



The likelihood of developing lupus also depends on **other factors**, including lifestyle, age, and family history.



This report **does not account for every possible genetic variant** that could affect your likelihood of developing lupus and it does not include rare variants that have a large impact on the likelihood of developing this condition.



This report is based on a genetic model **created using data from 23andMe research participants**. It has not been clinically validated and should not be used to make medical decisions.

How we got your result ^

Methods

This report is based on a statistical model that takes into account your genetic results at more than 1,900 markers, along with the ethnicity and birth sex you reported in your account settings, to estimate the likelihood of developing any type of lupus. We used data from 23andMe research participants to calculate this estimate. Results and estimates may be updated over time as the model or scientific understanding about this condition improves. Note that this report does not include rare genetic variants that have a large impact on the likelihood of developing lupus.

About the result

People whose result is associated with odds of developing lupus that are at least 1.5 times higher than average are considered to have an increased likelihood. Between 4% and 20% of individuals receive an "increased likelihood" result, depending on ethnicity. These results are based on many genetic markers, and random test error at one or more of these markers can lead to a small margin of error in your estimated likelihood of developing lupus. For people whose estimates are near the boundary between typical and increased likelihood, this margin of error may introduce some uncertainty about whether their estimated likelihood is considered "typical" or "increased." Your genetic result is associated with a typical likelihood. Based on the available genetic markers used to calculate your result, there is a less than 1% chance your genetic likelihood estimate could fall on the other side of the boundary and be in the range that is considered increased.

Scientific validity across ethnicities

We verified that the model meets our scientific standards for individuals of East/Southeast Asian, European, Hispanic/Latino, Northern African/Central & Western Asian (Middle Eastern), South Asian, and Sub-Saharan African/African American descent.

How we may use ethnicity and birth sex to customize this result

- If you indicated in your account settings that you are of East/Southeast Asian, European, Hispanic/Latino, Northern African/Central & Western Asian (Middle Eastern), South Asian, or Sub-Saharan African/African American descent, your result is tailored based on data from individuals of that ancestry.
- If you indicated in your account settings that you are predominantly of both Hispanic/Latino and another ancestry, your result will be based on data from individuals of Hispanic/Latino descent.
- If you indicated in your account settings that you are predominantly of both Sub-Saharan African/African American and European descent, your result will be based on individuals of Sub-Saharan African/African American descent.
- If there is not enough data from individuals of your ethnicity or combination of ethnicities at this time, your result may be based on data from individuals of European descent because the most data is available for this population.
- Your Lupus result also takes into account the birth sex you indicated in your account settings.

See our [white paper](#) to learn more about the science behind this report.

Read More:

[Barber MRW et al. \(2021\). "Global epidemiology of systemic lupus erythematosus." Nat Rev Rheumatol. 17\(9\):515-532.](#)

[Centers for Disease Control and Prevention. "Managing Lupus." Retrieved March 6, 2023, from https://www.cdc.gov/lupus/basics/managing.htm."](#)

[Chen J et al. \(2022\). "Life factors acting on systemic lupus erythematosus." Front Immunol. 13:986239."](#)

[Fanouriakis A et al. \(2021\). "Update on the diagnosis and management of systemic lupus erythematosus." Ann Rheum Dis. 30\(1\):14-25."](#)

[Fava A et al. \(2019\). "Systemic lupus erythematosus: Diagnosis and clinical management." J Autoimmun. 96:1-13."](#)

[Justiz Vaillant AA et al. \(2023\). "Systemic Lupus Erythematosus." \[Accessed Mar 6, 2023\]."](#)

[Lupus Foundation of America. "National Resource Center on Lupus." Retrieved March 6, 2023, from https://www.lupus.org/resources."](#)

[Mayo Clinic. "Lupus." Retrieved March 6, 2023, from https://www.mayoclinic.org/diseases-conditions/lupus/symptoms-causes/syc-20365789."](#)

[Pons-Estel GJ et al. \(2010\). "Understanding the epidemiology and progression of systemic lupus erythematosus." Semin Arthritis Rheum. 39\(4\):257-68."](#)

[Stojan G et al. \(2018\). "Epidemiology of systemic lupus erythematosus: an update." Curr Opin Rheumatol. 30\(2\):144-150."](#)