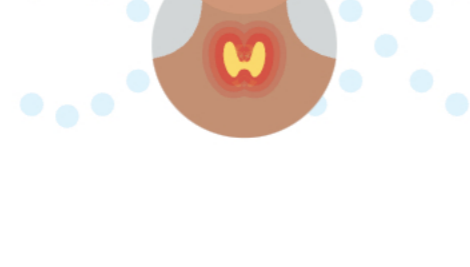


Hashimoto's Disease

POWERED BY 23ANDME RESEARCH

Hashimoto's disease (or Hashimoto's thyroiditis) is an autoimmune condition in which the immune system causes damage to the thyroid gland and a decline in thyroid hormone production. This can result in a thyroid hormone deficiency known as hypothyroidism.



Jamie, your genetic result is associated with a **typical likelihood** of developing Hashimoto's disease.

An estimated **2.8 out of 100** people with genetics and other factors like yours develop Hashimoto's disease **by their 50s**. This is within what is considered typical, which can be anywhere from 2.1 to 13 out of 100 people. These values were calculated using data from female 23andMe research participants of European descent.



3 out of 100 have been diagnosed with Hashimoto's disease by their 50s
97 out of 100 have not been diagnosed with Hashimoto's disease by their 50s

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

Ways to take action

Your overall likelihood of developing Hashimoto's disease also depends on other factors, including lifestyle. Experts agree that healthy lifestyle habits can promote immune system and thyroid health.

- Eat a balanced diet with healthy levels of vitamins and minerals.
- Maintain healthy levels of iodine in your diet. While it is important to have some iodine in your diet, consuming too many iodine-rich foods, such as seaweeds like kelp or dulse, can increase risk for thyroid problems. Learn more about dietary iodine from the [NIH Office of Dietary Supplements](#).
- Get enough vitamin D by spending time outdoors and eating vitamin D-rich foods like fortified milk or fatty fish. Talk to your doctor if you think your vitamin D levels might be too low.
- Practice good sleep habits to optimize your sleep.
- Exercise regularly.



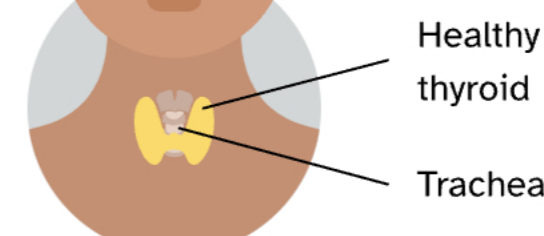
For people receiving treatment for Hashimoto's disease, diet can also be an important factor. Talk to a healthcare professional if you have concerns about the development of Hashimoto's disease or for help making a management plan.

[Learn more from the Cleveland Clinic](#)

About Hashimoto's disease

What is Hashimoto's disease?

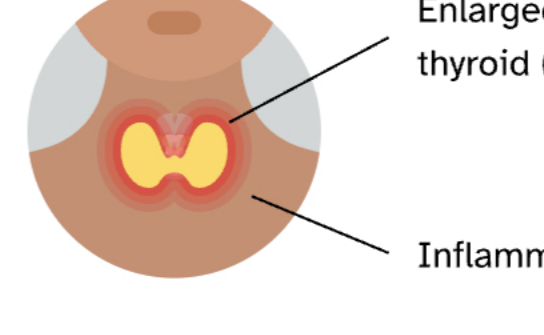
Hashimoto's disease (or Hashimoto's thyroiditis) is an autoimmune condition that affects the thyroid. The thyroid is a gland in the lower part of the neck, just in front of the trachea. The thyroid produces thyroid hormone, which regulates many functions in the body like [metabolism](#), body temperature, and heart rate. In Hashimoto's disease, the immune system causes the thyroid to become inflamed and damaged, and over time to produce less thyroid hormone (called hypothyroidism). Inflammation may cause the thyroid to noticeably swell, which is called a goiter.



Healthy thyroid

Trachea

Hashimoto's disease



Enlarged thyroid (goiter)

Inflammation

How can Hashimoto's disease impact your health?

Most symptoms of Hashimoto's disease are due to hypothyroidism, which over time can cause symptoms to progress or even change as the thyroid produces less and less thyroid hormone. In addition, symptoms can vary widely from person to person. Some common symptoms of hypothyroidism include fatigue or sluggishness, sensitivity to cold, weight gain, constipation, and muscle pain or joint stiffness. Depression can also be a symptom of Hashimoto's disease, and other symptoms like fatigue and weight gain may be frustrating and impact one's quality of life. Counseling and/or support groups can be an important part of some Hashimoto's disease management plans.

Hashimoto's disease is treated with thyroid hormone supplementation, which can help restore thyroid hormone levels, alleviate symptoms, and reduce the risk of developing health problems associated with hypothyroidism. However, if left untreated, hypothyroidism from Hashimoto's disease can be associated with several other conditions like heart disease, sexual and reproductive dysfunction, and pregnancy complications. If you have concerns about Hashimoto's disease, talk to a healthcare professional.

Other factors that can impact your chances of developing Hashimoto's disease

Hashimoto's disease is the leading cause of hypothyroidism in the United States. It is estimated that up to 5% of the U.S. population has hypothyroidism. Besides genetics, some factors that can increase a person's chances of developing Hashimoto's disease include:

- Sex (females are more likely to be diagnosed with Hashimoto's disease than males)
- Family history
- Age (Hashimoto's disease is most common in middle age)
- Certain health conditions (including celiac disease, type 1 diabetes, rheumatoid arthritis, and Addison's disease)
- Pregnancy (Hashimoto's disease may begin during or after pregnancy)
- Radiation exposure



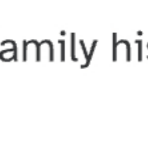
Sex



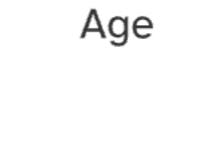
Family history



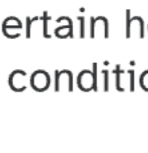
Age



Certain health conditions



Pregnancy



Radiation exposure

Keep in mind

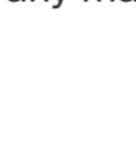
This report **does not diagnose** Hashimoto's disease. **Consult with a healthcare professional** if you are concerned about your likelihood of developing Hashimoto's disease, have a personal or family history of Hashimoto's disease, or before making any major lifestyle changes.



If you have already been diagnosed with Hashimoto's disease by a healthcare professional, it is important to **continue any treatment plans** that they prescribe, including medications and lifestyle modifications.



The likelihood of developing Hashimoto's disease 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 Hashimoto's disease, 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 11,786 genetic markers, along with the ethnicity and sex you reported in your account settings, to estimate the likelihood of developing Hashimoto's disease. 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 Hashimoto's disease.

About the result

People whose result is associated with odds of developing Hashimoto's disease that are at least 1.5 times higher than average are considered to have an increased likelihood. Between 24% and 32% 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 Hashimoto's disease. For people whose estimate is near the boundary between typical and increased likelihood, this margin of error may introduce some uncertainty about whether the 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 European, Hispanic/Latino, East/Southeast Asian, South Asian, Sub-Saharan African/African American, and Northern African/Central & Western Asian descent.

How we may use ethnicity and sex to customize this result

- If you indicated in your account settings that you are predominantly of European, Hispanic/Latino, East/Southeast Asian, South Asian, Sub-Saharan African/African American, or Northern African/Central & Western Asian (Middle Eastern) 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 data from 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 Hashimoto's Disease 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:

[Akamizu T et al. \(2000\). "Hashimoto's Thyroiditis." \[Accessed Aug 5, 2022\].](#)

[Garber JR et al. \(2012\). "Clinical practice guidelines for hypothyroidism in adults: cosponsored by the American Association of Clinical Endocrinologists and the American Thyroid Association." Thyroid. 22\(12\):1200-35.](#)

[Hu S et al. \(2017\). "Multiple Nutritional Factors and the Risk of Hashimoto's Thyroiditis." Thyroid. 27\(5\):597-610.](#)

[Kim D. \(2017\). "The Role of Vitamin D in Thyroid Diseases." Int J Mol Sci. 18\(9\).](#)

[Mayo Clinic. "Hashimoto's Disease." Retrieved August 5, 2022, from https://www.mayoclinic.org/diseases-conditions/hashimotos-disease/symptoms-causes/syc-20351855.](#)

[MedlinePlus. "Hashimoto thyroiditis." Retrieved August 5, 2022, from https://medlineplus.gov/genetics/condition/hashimoto-thyroiditis/.](#)

[Mincer DL et al. \(2022\). "Hashimoto Thyroiditis." \[Accessed Aug 5, 2022\].](#)

[National Institute for Diabetes and Digestive and Kidney Diseases. "Hashimoto's Disease." Retrieved August 5, 2022, from https://www.niddk.nih.gov/health-information/endocrine-diseases/hashimotos-disease.](#)

[Wiersinga WM. \(2016\). "Clinical Relevance of Environmental Factors in the Pathogenesis of Autoimmune Thyroid Disease." Endocrinol Metab \(Seoul\). 31\(2\):213-22.](#)