

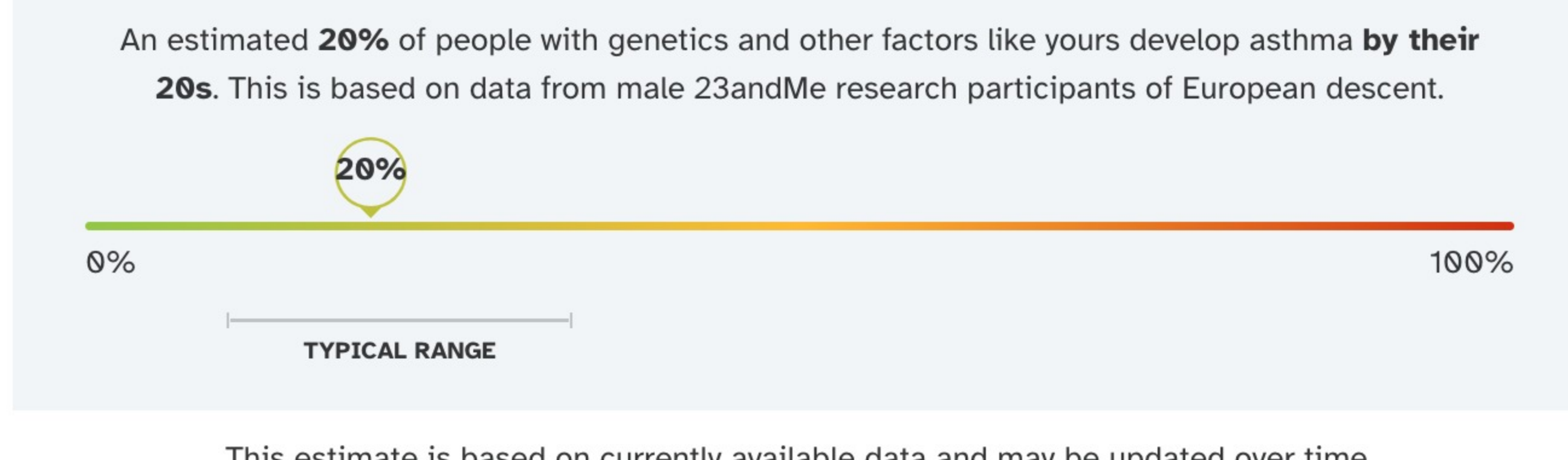
Asthma

POWERED BY 23ANDME RESEARCH

Asthma is a chronic lung condition characterized by shortness of breath, wheezing, and coughing. Symptoms of asthma may come and go, and certain triggers can cause them to worsen or flare up suddenly in episodes called asthma attacks.



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



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

This genetic result is only one part of your story

Genetic factors can help explain the likelihood of developing asthma. But this genetic result doesn't mean that you definitely will or won't have asthma. That's because genetic factors not covered by this test as well as non-genetic factors like environment can also contribute to the overall likelihood of developing asthma.

That's why, **if you have already been diagnosed with asthma** by a healthcare professional, this genetic result does not change that. It is important to work with your healthcare provider and continue any management plan that is recommended.

Factors that impact overall likelihood



● Factors included in this result (certain genetic factors, birth sex, and ethnicity)
● Other factors

Ways to take action

For people with asthma, experts agree that healthy lifestyle habits can help reduce the severity of symptoms and frequency of asthma attacks.

- Identify and avoid symptom triggers.
- Learn to recognize the warning signs of an asthma attack and create a plan for action. Catching an asthma attack early can prevent severe symptoms.
- Stay up to date on vaccinations. Infections like the flu increase the chance of asthma attacks.
- Avoid smoking and second-hand smoke.

For people with asthma that is triggered by allergies, reducing exposure to allergens can help lower the chances of experiencing asthma symptoms. To reduce exposure, safely remove allergens like dust and mold from the home and use HEPA filter air purifiers and vacuum cleaners. For those who are allergic to dust mites, using impermeable pillow and mattress covers can also help.

Talk to a healthcare professional if you have any concerns about asthma or, if you have asthma, for help creating a management plan. In addition to lifestyle modifications, quick-relief inhalers and other medications can help manage symptoms.

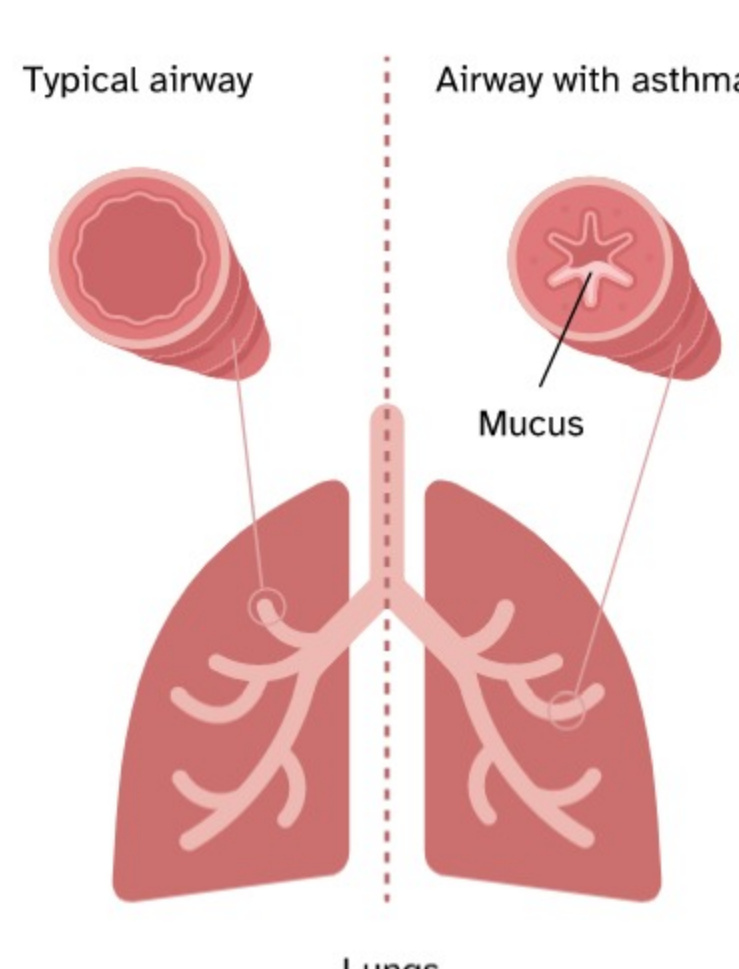
[Learn more from the National Heart, Lung, and Blood Institute](#)



About asthma

What is asthma?

Asthma is a chronic lung condition that occurs when the immune system overreacts to an environmental trigger, causing inflammation, increased mucus production inside the airways, and tightened muscles around the airways. Most cases of asthma are diagnosed during childhood, but asthma can develop at any time.



How can asthma affect your health?

People with asthma may experience shortness of breath, tightness in the chest, coughing, or wheezing that can range in severity from mild to life-threatening. Symptoms of asthma may come and go, and certain triggers can cause them to worsen or flare up suddenly in episodes called asthma attacks. It is important for people with asthma to monitor the frequency and severity of their symptoms and regularly review their management plan with a healthcare provider. Lifestyle modifications and medications, like quick-relief inhalers and long-term asthma control medications, can help ease symptoms and reduce the frequency of asthma attacks.



Shortness of breath



Coughing/wheezing

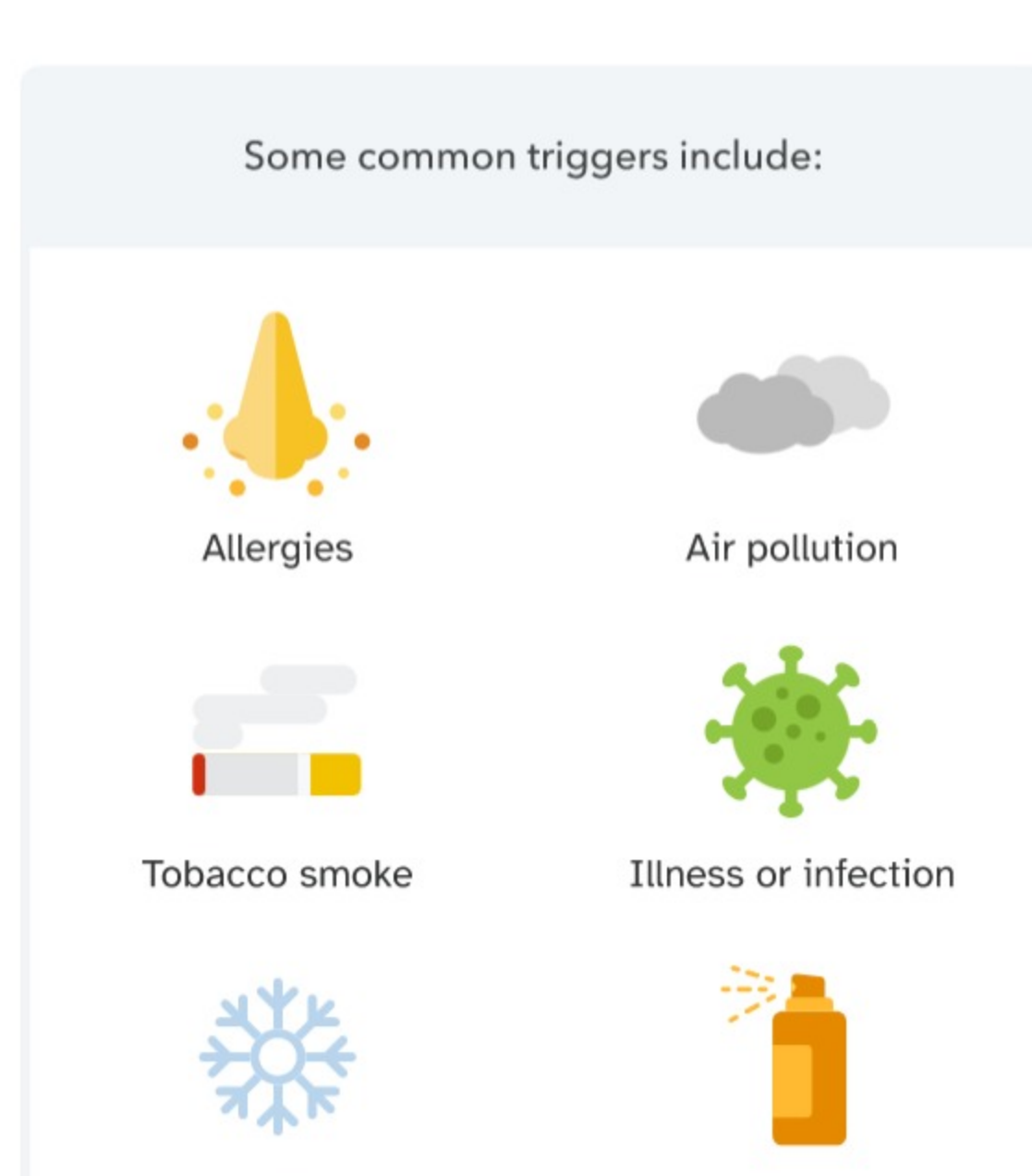


Tightness in chest

What are asthma triggers?

For people with asthma, symptoms can come and go throughout life, but certain factors (called triggers) can increase the chances of an asthma attack. Triggers can vary from person to person, but common triggers include:

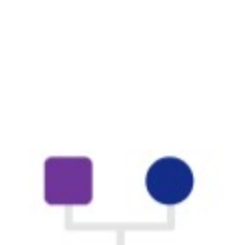
- Allergies, especially to plants, mold, dust mites, and pets
- Air pollution, such as car exhaust, factory emissions, and wildfire smoke
- Tobacco smoke
- Respiratory infections such as cold or flu
- Cold, dry air
- Chemical irritants, such as cleaning solutions, products with fragrances, and paints
- Exercise. Vigorous physical activity may be a trigger for some, but keep in mind that exercise is still important for overall health. With some planning and help from a healthcare professional, it's possible for people with asthma to exercise safely.



Other factors that can impact your chances of developing asthma

It is estimated that around 12% of people in the U.S. have asthma. Besides genetics, some factors that can increase a person's chances of developing asthma include:

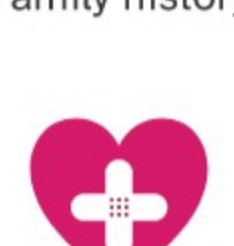
- Family history
- Age (asthma is more common during childhood)
- Certain health conditions (including allergies, eczema, and obesity)
- Ethnicity (African Americans, Puerto Ricans, and Indigenous Americans are more likely to experience asthma)
- Long-term irritant exposure, especially to smoke, pollution, and occupational chemicals



Family history



Age



Certain health conditions



Irritant exposure

Keep in mind

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



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



The likelihood of developing asthma 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 asthma.



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 24,244 genetic markers, along with the ethnicity and sex you reported in your account settings, to estimate the likelihood of developing asthma. 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.

About the result

People whose result is associated with odds of developing asthma that are at least 1.5 times higher than average are considered to have an increased likelihood. Between 8% and 17% 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 asthma. For people whose estimate is near the boundary between "typical" and "increased," 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 the 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 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 Asthma 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:

[Centers for Disease Control and Prevention. "2019 National Health Interview Survey \(NHIS\) Data." Retrieved August 22, 2022, from https://www.cdc.gov/asthma/nhis/2019/table2-1.htm.](#)

[Centers for Disease Control and Prevention. "Common Asthma Triggers." Retrieved August 22, 2022, from https://www.cdc.gov/asthma/triggers.html.](#)

[Expert Panel Working Group of the National Heart, Lung, and Blood Institute \(NHLBI\) administered and coordinated National Asthma Education and Prevention Program Coordinating Committee \(NAEPPCC\). et al. \(2020\). "2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group." J Allergy Clin Immunol. 146\(6\):1217-1270.](#)

[Hashmi MF et al. \(2022\). "Asthma." \[Accessed August 22, 2022\].](#)

[Mayo Clinic. "Asthma." Retrieved August 22, 2022, from https://www.mayoclinic.org/diseases-conditions/asthma/symptoms-causes/syc-20369653.](#)

[National Heart, Lung, and Blood Institute. "What Is Asthma?" Retrieved August 22, 2022, from https://www.nhlbi.nih.gov/health/asthma.](#)

[National Institute of Environmental Health Sciences. "Asthma." Retrieved August 22, 2022, from https://www.niehs.nih.gov/health/topics/conditions/asthma/index.cfm.](#)

[Oraka E et al. \(2013\). "Racial and ethnic disparities in current asthma and emergency department visits: findings from the National Health Interview Survey, 2001-2010." J Asthma. 50\(5\):488-96.](#)

[Thomsen SF. \(2015\). "Genetics of asthma: an introduction for the clinician." Eur Clin Respir J. 2.](#)

[United States Environmental Protection Agency. "Asthma Triggers: Gain Control." Retrieved August 22, 2022, from https://www.epa.gov/asthma/asthma-triggers-gain-control.](#)

[United States Environmental Protection Agency. "Basic Information about the Indoor Air Quality Tribal Partners Program." Retrieved August 22, 2022, from https://www.epa.gov/indoor-air-quality-iaq/basic-information-about-indoor-air-quality-tribal-partners-program.](#)



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