Kidney Stones

POWERED BY 23ANDME RESEARCH

Kidney stones are solid, pebble-like masses that form in the kidneys due to high levels of certain minerals in the urine. People with small kidney stones may not experience symptoms, while those with larger stones may have blood in their urine or experience pain. If not properly managed, serious cases of kidney stones can lead to infections and loss of kidney function.

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

An estimated **25%** of males with genetic results like yours develop kidney stones **by their 70s**. This is based on data from 23andMe research participants of European descent.

However, some variants used to calculate your result could not be determined. This means your genetic likelihood could be slightly higher or lower than the estimate shown and **could fall in the range that is considered increased**. Learn more **here.**

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

Ways to take action

Your overall likelihood of developing kidney stones also depends on other factors, including lifestyle. Experts agree that healthy lifestyle habits can help lower the chances of developing kidney stones.

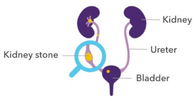
- Stay hydrated by drinking plenty of water
- Maintain a healthy weight
- Limit consumption of meat and sodium
- Eat plenty of fruits and vegetables
- Make sure your diet contains the right amount of calcium

Learn more from the National Kidney Foundation

About kidney stones

What are kidney stones?

Kidney stones are solid, pebble-like masses that form in the kidneys due to high levels of certain minerals in the urine. Kidney stones are classified into different types based on their mineral makeup. Levels of certain minerals can become elevated due to genetics and other factors like diet, certain health conditions, or infections. When these minerals reach a high concentration, they precipitate out of the urine and form solid clusters, called stones. If the stones become large enough, they can get stuck in the kidney itself or farther along the urinary tract, such as in the ureter or bladder.



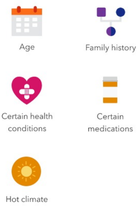
How can kidney stones impact your health?

Kidney stones vary in size and shape and can have varying health impacts. Small stones are often passed in urine without problem, but large stones can get stuck in the urinary tract, block the flow of urine, and cause intense pain. Some people with kidney stones may also have blood in their urine or experience nausea, vomiting, or fever. For people who have had kidney stones, lifestyle modifications and other treatments, including medications, can help prevent the formation of future stones. If not properly managed, serious cases of kidney stones can lead to infections and loss of kidney function. Kidney stones are also associated with an increased risk for high blood pressure and chronic kidney disease.

Other factors that can impact your chances of developing kidney stones

It is estimated that around 10% of the general U.S. population have had kidney stones. Besides genetics, weight, and lifestyle, some factors that can increase a person's chances of developing kidney stones include:

- Age (kidney stones become more common as people get older)
- Family history
- Certain health conditions (such as high blood pressure, diabetes, and gout)
- Currently taking certain medications or supplements
- Living in hot climates (but staying hydrated can help)



Keep in mind

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

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

The likelihood of developing kidney stones 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 kidney stones.

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 20,330 genetic markers, along with the ethnicity and sex you reported in your account settings, to estimate the likelihood of developing kidney stones. 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 kidney stones.

About the result

People whose result is associated with odds of developing kidney stones that are at least 1.5 times higher than average are considered to have an increased likelihood. Between 12% and 23% 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 kidney stones. 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 10% 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 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 Kidney Stones result also takes into account the sex you indicated in your account settings.

See our **white paper** to learn more about the science behind this report.

Read More:

Chen Z et al. (2019). "Prevalence of kidney stones in the USA: The National Health and Nutrition Evaluation Survey." J Clinical Urology. 12(4):296-302.

Ferraro PM et al. (2020). "Risk of Kidney Stones: Influence of Dietary Factors, Dietary Patterns, and Vegetarian-Vegan Diets." Nutrients. 12(3).

Fontenelle LF et al. (2019). "Kidney Stones: Treatment and Prevention." Am Fam Physician. 99(8):490-496.

Khan SR et al. (2016). "Kidney stones." Nat Rev Dis Primers. 2:16008.

Mayo Clinic. "Kidney stones." Retrieved October 22, 2020, from https://www.mayoclinic.org/diseases-conditions/kidney-stones/symptoms-causes/syc-20355755.

National Kidney Foundation. "Kidney Stones." Retrieved October 22, 2020, from https://www.kidney.org/atoz/content/kidneystones.

Pearle MS et al. (2014). "Medical management of kidney stones: AUA guideline." J Urol. 192(2):316-24.