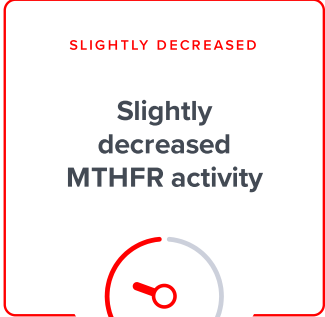


MTHFR

Gene

CATEGORIES



Client

Sonja Schmitzer 2



MTHFR

GENE

DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Our Wellness Reports analyze how your DNA influences your health. We then use this analysis to give you personalized risk estimates and recommendations.



Similarly, our Trait Reports look at how your DNA influences your traits.



Your DNA is like an instruction manual — it contains a lot of information. You can think of it as a blueprint for your body.

Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information. We then summarize your results as a risk score or display it on a gauge.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:

In total, we analyze up to 83 million genetic variants.



Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

Our recommendations come in three categories: lifestyle, diet, and supplements. The following icons tell you which category a recommendation falls into:



When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Impact shows how strongly a recommendation will affect your health in a certain area. Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



Our team of scientists also ranks each recommendation. We rank based on impact and the strength of evidence in the medical literature.

Impact

An impact score can range from 1-5. It can be assigned to a recommendation that helps with a measurable trait, such as cholesterol levels or blood pressure. In this case, the impact score will reflect how much the trait can change in a person who follows the recommendation. An impact score of 1 reflects the smallest change, while 5 reflects the largest.

An impact score can also be assigned to a recommendation that helps with stress levels, mood, or other traits that can't be measured directly. In this case, the recommendation is compared to other recommendations and standard treatments (if they exist). An impact score is assigned based on these relative comparisons.

Evidence

●●●●● 5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

●●●●● 4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

●●●●● 3 / 5

Recommendations that are considered possibly effective and have many studies supporting them.

●●●●● 2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

●●●●● 1 / 5

Recommendations that have insufficient evidence, with a single clinical trial.

●●●●● 0 / 5

No evidence in humans.

Some things to keep in mind:

- The scores/gauges use the latest scientific studies. But they are not perfect and will change as the models improve.
- Results might be more accurate for some ethnic groups than others. This depends on the studies used in each report.
- Not everyone with risk variants will develop a health condition.
- People without risk variants can also develop health conditions.
- Genetics is not the whole story. Your health is most often a combination of genetics, lifestyle, and environmental factors.
- Great news, as this means that you can often change your lifestyle to lower your risk.
- It's important to work with your doctor to better understand your risks. Our reports do not diagnose or treat any health condition. They are not a substitute for medical advice. If you're diagnosed with a certain health condition, follow your doctor's advice.

Summary

Your quick takeaway



About MTHFR

The *MTHFR* gene helps make an enzyme called methylenetetrahydrofolate reductase (MTHFR) [R].

MTHFR helps process [folate](#) (vitamin B9). Folate plays a role in [R, R, R, R]:

- DNA production
- Red blood cell production
- Normal fetus development
- Brain and heart health
- Clearing homocysteine, a protein breakdown product

Variants in the *MTHFR* gene can change how the enzyme functions. Two of the most widely studied variants reduce MTHFR enzyme activity [R, R, R, R].

However, **according to experts, *MTHFR* variants don't seem to greatly affect people's health** [R, R]. They have a small impact on folate levels, which likely doesn't affect people who get enough of this vitamin [R].

Some studies linked *MTHFR* variants with higher homocysteine levels. These studies also found links between *MTHFR* variants, higher homocysteine, and:

- Heart disease and stroke [R, R]
- Fertility and pregnancy issues [R, R, R, R, R, R]
- Mental health issues [R]
- Migraines with aura [R, R]

However, larger studies found no evidence for these links. Some even found the opposite results. In one study, *MTHFR* variants were linked to a lower risk of death from heart disease [R, R, R, R, R].

Therefore, **take your *MTHFR* results with a grain of salt**. The health impacts of these variants is still unclear.

It's always a good practice to get plenty of folate by eating lots of fresh fruits and vegetables. In the US, cereal grains are fortified with folic acid, a form of folate. The Center for Disease Control and Prevention (CDC) recommends folic acid supplements (400 micrograms) to all women trying to get pregnant [\[R, R, R\]](#).

YOUR TOP IMPORTANT GENETIC VARIANTS	
SNP	GENOTYPE
rs1801133	AA
rs1801131	TT

MTHFR Genetics

The most common *MTHFR* SNP is **rs1801133** (C677T). The 'A' variant of this SNP decreases the activity of the MTHFR enzyme. However, the effect of this variant on folate levels appears to be small. People with two 'A' variants may have only about 16% lower blood folate levels [\[R\]](#).

The 'G' variant of another SNP, **rs1801131** (A1298C), also decreases MTHFR enzyme activity, but less so than **rs1801133**. The effects of this variant may only be meaningful in people who also have two lower-activity **rs1801133** variants (AA) [\[R, R, R, R\]](#).

If you carry a lower-activity variant, make sure your diet is healthy, well-balanced, and contains plenty of folate-rich food sources. These include [\[R, R, R\]](#):

- Spinach
- Black-eyed and green peas
- Asparagus
- Lettuce
- Avocado
- Broccoli
- Citrus fruits
- Fortified rice, bread, and pasta

Some sources recommend methylfolate supplements instead of folic acid. Methylfolate supplements would in theory bypass the MTHFR enzyme, which converts folic acid to methylfolate. However, even if you have lower-activity *MTHFR* variants, experts say you can still process folic acid without any issues [\[R\]](#).

Importantly, CDC notes that folic acid is the only folate supplement proven to reduce neural tube defects. Methylfolate supplements have not been properly studied [\[R\]](#).

In addition to folate, there is some evidence that people with *MTHFR* variants may do better if they get more [riboflavin](#) (vitamin B2). This vitamin helps MTHFR work properly [\[R, R, R, R, R, R, R, R\]](#).

Good sources of riboflavin include [\[R, R\]](#):

- Eggs
- Dairy (milk, cheese, yogurt)
- Lean and organ meats
- Green vegetables
- Fortified cereals
- Mushrooms
- Almonds



PERSONALIZED TO YOUR GENES

Based on the genetic variants we looked at, you may have slightly decreased MTHFR enzyme activity.

