

Double Vision

DNA Health Report

REPORT CATEGORY —



Sample Client

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Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

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.



How this works

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.

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

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



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

You have 2 risk alleles

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.

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.

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



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

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):



Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation 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, or with many studies most of which didn't find support for the recommendation.
-
- 0 / 5
- No evidence in humans.

Genotype-specific Evidence

- High-quality
- Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).
- Medium-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).
- Low-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).
- Indirect
- A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).
- In theory
- A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

Double vision, also known as diplopia, is a condition where a person sees two images of a single object. This visual disturbance can occur in one eye (monocular) or both eyes (binocular) and can be temporary or persistent.

Monocular diplopia continues when one eye is covered, and is often caused by eye conditions such as astigmatism, a cataract, or a dislocated lens. Binocular diplopia, on the other hand, disappears when one eye is closed and is frequently a result of misalignment of the eyes, or strabismus, where the eyes do not work in unison, leading to overlapping fields of vision.

Coping and Management

Double vision can have a significant impact on a person's quality of life, leading to disorientation, balance problems, and difficulty performing everyday tasks requiring hand-eye coordination. In some cases, double vision can be a symptom of a more serious underlying condition such as a neurological disorder, trauma, or systemic disease, like diabetes that can affect the nerves controlling the eye muscles.

Therefore, it is imperative to seek medical attention promptly when experiencing diplopia to diagnose the cause and receive appropriate treatment, which might include glasses with prisms, eye exercises, or even surgical intervention depending on the underlying cause.



LESS LIKELY

Less likely to have diplopia based on 989,301 genetic variants we looked at



PERCENTILE



Your risk is greater than 16% of the population and lower than 84% of the population.

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You’ll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

DOSAGE		DOSAGE	
1	Artificial Tears	1 drop	
2	Beta-Carotene	6 mg	
3	Avoid Contact Lenses		
4	Hyaluronic Acid Eye Drops	1 drop	
5	Blue-Blocking Glasses		
6	Maintain Eye Moisture		
7	Dietary Vitamin A		
8	Vitamin B12	100 mcg	
9	Riboflavin (Vitamin B2)	25 mg	

1



Artificial Tears

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Apply 1-2 drops of artificial tears into the affected eye(s) as needed for relief. Use them throughout the day whenever you experience dryness or irritation. There is no maximum duration; they can be used as long as they provide relief.

TYPICAL STARTING DOSE
1 drop

Description

Artificial tears help lubricate the eyes and maintain their moisture in people with dry eyes. They normally come in liquid form (eye drops), but gels and ointments are also available. There are two types of artificial tears: **preserved and non-preserved**.

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There are two types of artificial tears: **preserved and non-preserved** [\[R\]](#), [\[R\]](#).

How it helps

Artificial tears alleviate dryness and irritation in the eyes, which can worsen double vision by improving eye surface lubrication and comfort. This enhances visual clarity and reduces strain, potentially mitigating the symptoms associated with diplopia.

2



Beta-Carotene

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a beta-carotene supplement daily, with a dose ranging from 6 to 15 milligrams. It's best taken with a meal that includes fat to improve absorption.

TYPICAL STARTING DOSE
6 mg

Description

Beta-carotene is a pigment found in various fruits and veggies like carrots, which gives them their bright colors. When we eat these foods, our body can convert beta-carotene into vitamin A, which is essential for good vision, a strong immune system, and healthy skin. So eating plenty of beta-carotene-rich foods can help us maintain our overall well-being.

How it helps

Beta-carotene aids in vision by converting to vitamin A, essential for maintaining photoreceptor health in the eyes, which can alleviate symptoms associated with double vision. Its antioxidant properties may also protect against further eye damage.

3



Avoid Contact Lenses

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Switch to using glasses for your vision correction needs. If you must use contact lenses, such as for specific activities where glasses are not feasible, limit their use to those occasions only. Prioritize wearing glasses on a daily basis.

Description

Avoiding the use or extended use of contact lenses can reduce the risk of eye infections and improve ocular comfort by allowing the eyes to breathe and maintain their natural tear film.

Contact lenses are **small, artificial devices placed on the front surface of the eye**. They were first proposed in the **1500s** by Leonardo da Vinci and became popular in the **1940s** [\[R\]](#).

There are **different types of contact lenses** based on their [\[R\]](#):

- Material (soft, hard, rigid gas permeable)
- Wear time (daily, extended, disposable)
- Water content (low, medium, high)
- Design (single or lenticular cut)

People mainly use contact lenses to help **correct vision problems** [\[R\]](#).

How it helps

Avoiding contact lenses helps mitigate the risk of eye infections and irritation, which can exacerbate double vision (diplopia) by promoting a healthier ocular environment. This practice supports natural tear film maintenance and enhances overall eye comfort.

4



Hyaluronic Acid Eye Drops

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Place 1-2 drops of hyaluronic acid eye drops into each eye, three times a day. Blink several times after application to ensure the solution covers the entire surface of the eye. Continue this routine daily for relief of dry eye symptoms.

TYPICAL STARTING DOSE

1 drop

Description

Hyaluronic acid eye drops are used to relieve dry eyes and maintain eye moisture. They provide lubrication and may help reduce discomfort associated with dry eye syndrome.

How it helps

Hyaluronic acid eye drops enhance ocular lubrication, effectively alleviating dryness and discomfort in patients experiencing double vision. Improved moisture retention can lead to better visual clarity and comfort by minimizing the impact of eyelid irregularities on visual perception.

5



Blue-Blocking Glasses

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Wear blue-blocking glasses starting two to three hours before bedtime every night to help improve sleep quality by reducing blue light exposure from screens and indoor lighting.

Description

Blue-blocking sunglasses help reduce exposure to blue light emitted by screens and artificial lighting, potentially improving sleep quality and reducing eye strain. Wearing them in the evening can promote better circadian rhythm regulation and overall eye comfort.

How it helps

Blue-blocking glasses diminish blue light exposure, thereby reducing eye strain, which can exacerbate double vision symptoms. By promoting better visual comfort, they may indirectly alleviate discomfort associated with diplopia.

6



Maintain Eye Moisture

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Blink regularly especially while using digital devices, take frequent screen breaks every 20 minutes to look at something 20 feet away for 20 seconds, and use a humidifier in dry environments to help maintain eye moisture.

Description

Maintaining eye moisture through methods such as using lubricating eye drops can help prevent dry eye syndrome and maintain ocular comfort. Adequate eye moisture supports visual clarity and reduces the risk of eye discomfort and irritation.

The eyes have a very high water content and a unique system of water regulation. Imbalances in this system may cause dry eyes and blurry vision [\[R\]](#).

Causes of decreased eye moisture include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Exposure to dry air
- Wearing contact lenses
- Not blinking enough, especially while working on a computer or reading
- Certain health conditions and surgical procedures
- Dehydration

How it helps

Maintaining eye moisture helps alleviate dryness, which can contribute to double vision by enhancing visual clarity and reducing discomfort. This approach supports overall ocular health by ensuring adequate lubrication and preventing exacerbation of diplopia symptoms.

7



Dietary Vitamin A

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Include foods high in vitamin A in your daily diet, such as sweet potatoes, carrots, spinach, and fortified foods like milk. Aim for 700-900 micrograms (mcg) of vitamin A per day for adults, depending on your age and sex, with a slightly higher intake recommended for women who are pregnant or breastfeeding.

Description

Vitamin A is essential for maintaining healthy vision, immune function, and skin integrity. It also plays a role in cell differentiation and growth, supporting various bodily functions.

How it helps

Dietary Vitamin A supports healthy retinal function and improves visual acuity, which may assist in managing double vision by optimizing overall visual processing and eye health.

8



Vitamin B12

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a 50 mcg vitamin B12 supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

100 mcg

Description

Vitamin B12 is a water-soluble vitamin primarily found in animal-based foods like meat, fish, and dairy products. It plays a crucial role in maintaining healthy nerve cells, DNA synthesis, and red blood cell formation. Vitamin B12 deficiency can lead to anemia, neurological issues, and fatigue.

[Vitamin B12](#) is important for [\[R\]](#), [\[R\]](#):

- Building DNA
- Nervous system function
- Energy production

You can get vitamin B12 from [\[R\]](#):

- Animal products (meat, fish, eggs, and dairy)
- Fortified foods
- Supplements

Adults should be getting **2.4 micrograms** of vitamin B12 every day [\[R\]](#).

How it helps

Vitamin B12 is crucial for nerve health and the proper functioning of the nervous system, including the optic nerves that are essential for vision. A deficiency in Vitamin B12 can lead to nerve damage, which may manifest as double vision among other symptoms. Supplementing with Vitamin B12 may help prevent or treat double vision associated with nerve damage by supporting nerve repair and maintenance.

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Riboflavin (Vitamin B2)

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a riboflavin (vitamin B2) supplement daily, with a dose ranging from 5mg to 400mg, depending on the specific health concern or advice from a healthcare provider. Swallow the supplement with water, preferably with a meal to enhance absorption. This regimen can be continued long-term or as directed by a healthcare professional.

TYPICAL STARTING DOSE

25 mg

Description

Riboflavin is a water-soluble B vitamin found in various foods like dairy products, leafy greens, and lean meats. It plays a crucial role in energy production, metabolism, building red blood cells, and maintaining healthy skin and eyes.

[Vitamin B2](#) helps our cells create energy. It’s also known as riboflavin [\[R\]](#), [\[R\]](#).

This vitamin is important for [\[R\]](#), [\[R\]](#):

- Brain, liver, and gut health
- Building red blood cells

Riboflavin deficiency is rare in the US. People with gut, eating, or hormonal disorders may be at a higher risk. Alcohol abuse and certain medications can also deplete this vitamin [\[R\]](#), [\[R\]](#).

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

- Eggs
- Dairy
- Lean and organ meats
- Green vegetables
- Fortified cereals

How it helps

Riboflavin, also known as Vitamin B2, is essential for energy production and the metabolism of fats and drugs. It plays a critical role in maintaining the health of the optic nerve. When the body is deficient in Riboflavin, it can lead to issues such as eye fatigue and possibly contribute to double vision. Supplementing with Riboflavin has been shown to alleviate symptoms of eye strain and support overall eye health, potentially easing double vision caused by nutritional deficiencies.

Next Steps

Remember, your genes only tell one important part of your health story!

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

Your lab results

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.