

Sun Sensitivity

DNA Health Report

REPORT CATEGORY —



SKIN & BEAUTY

Sample Client

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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.

Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg



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

Sun sensitivity, or photosensitivity, is an extreme sensitivity to ultraviolet (UV) rays from the sun and other light sources. People with sun sensitivity may develop a sunburn or rash after only a short time in the sun.

Common manifestations of sun sensitivity include:

- Redness or burning sensation after minimal sun exposure.
- Itchy or scaly skin rash after sun exposure.
- Blisters or hives.
- Dark patches or discoloration on the skin.
- Exacerbation of an existing skin condition due to sun exposure.

Risk Factors and Genetics

Factors and conditions that might increase the risk or cause sun sensitivity include:

- Specific medications, including certain antibiotics, antifungals, antihistamines, and diuretics.
- Medical conditions like lupus, porphyria, or polymorphous light eruption.
- Cosmetic and skincare products that contain alpha hydroxy acids, retinoids, or certain essential oils.
- Certain chemicals, like those used in fragrances or industrial products.
- Prior use of certain plants (like limes, celery, or parsley) that can make the skin more sensitive to sunlight.
- Genetics

Specific gene variants can increase the risk of sunburn or the development of sun-sensitive skin conditions. Additionally, genetically determined skin types, which vary in their melanin content, can influence how easily someone burns or tans in the sun. Fair-skinned individuals, often with light hair and eyes, are generally more sensitive to the sun's UV radiation.



Likely typical sun sensitivity based on 23 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLC45A2	rs6451047	CC
RXFP3	rs35404	AA
SLC45A2	rs3797201	GG
SLC45A2	rs10080040	AA
SLC45A2	rs16891982	GG
SLC45A2	rs35412	GG
SLC45A2	rs35406	AA
RXFP3	rs2331343	TT
RXFP3	rs34280294	GG
RXFP3	rs13177787	CC
ADAMTS12	rs2591719	GG
RXFP3	rs7713279	TT
C1QTNF3	rs3776546	TT
ADAMTS12	rs11742467	AA
RXFP3	rs7729545	AA
KATNAL1	rs9508664	AG
HERC2	rs12913832	GA
ADAMTS12	rs114803348	AC
ADAMTS12	rs1833923	AC
TYR	rs1126809	AG
ADAMTS12	rs1423300	GA
IRF4	rs12203592	CC
OCA2	rs1800407	CC

The number of "risk" variants in this table doesn't necessarily reflect your overall result.

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	Beta-Carotene	6 mg	2	Antioxidant Supplements	
3	Dietary Beta-Carotene		4	Avoid Excess Sunlight Exposure	
5	Dietary Vitamin E		6	Topical Green Tea	
7	Topical Niacinamide		8	Polypodium leucotomos	240 mg
9	Dietary Vitamin C				

1



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

A meta-analysis of 7 human supplementation studies found that beta-carotene can protect against sunburn. The protective effect increases with longer supplementation. At least 10 weeks were needed for noticeable protection and additional months of supplementation enhanced this effect [\[R\]](#).

2



Antioxidant Supplements

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take an antioxidant supplement daily with a meal to enhance absorption. The specific dose may vary depending on the type of antioxidant (e.g., vitamin C, vitamin E, selenium), but a common multivitamin or antioxidant blend can be used as directed on the product label. Consult with a healthcare provider for personalized advice and dosage.

Description

Antioxidant supplements are dietary supplements that provide concentrated doses of antioxidants, such as vitamins C and E or coenzyme Q10, to help combat oxidative stress and reduce the risk of chronic diseases.

Our cells sometimes produce molecules called **reactive oxygen species (ROS)** [\[R\]](#).

High levels of ROS can cause [oxidative stress](#) and damage our cells. Oxidative stress plays a role in many health conditions, including [\[R\]](#):

- High blood sugar
- Type 2 diabetes
- Heart disease

Antioxidants are substances that help combat ROS [\[R\]](#).

Some common antioxidants include [vitamin C](#) and [vitamin E](#). You can get most antioxidants from fresh fruits and vegetables. **Antioxidants are also available as supplements** [\[R\]](#), [\[R\]](#).

How it helps

Antioxidant supplements can help protect against oxidative stress caused by UV exposure. These supplements contain compounds that neutralize free radicals, reduce inflammation, and may provide a protective effect against sun damage.

3



Dietary Beta-Carotene

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods rich in beta-carotene into your diet daily. These include carrots, sweet potatoes, spinach, kale, and cantaloupe. Aim for at least one serving of these vegetables or fruits at each meal to ensure an adequate intake of beta-carotene.

Description

Beta-carotene is a type of dietary antioxidant and a precursor to vitamin A. It supports healthy vision, skin, and immune function, and may reduce the risk of certain diseases.

[Beta-carotene](#) is a plant-derived golden-yellow carotenoid pigment. In addition to its antioxidant activity, **beta-carotene is converted to vitamin A in the body**. Beta-carotene **contributes about 30-35% of the dietary intake of this vitamin** in western countries. In developing countries, it represents the most abundant, and sometimes the sole source of vitamin A [\[R, R, R\]](#)

Good sources of beta-carotene include [\[R, R, R\]](#):

- Fruits (apricots, peaches, persimmons, melons, citrus, tomatoes, etc.)
- Green vegetables (spinach, broccoli, parsley, collard greens)
- Orange tuber vegetables (carrots, sweet potatoes)

How it helps

Beta-carotene can help reduce photosensitivity and sunburn by acting as a natural sun protector. It is converted into vitamin A, which is vital for skin health.

4

Avoid Excess Sunlight Exposure

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Limit direct sun exposure to early morning or late afternoon hours, ideally before 10 a.m. or after 4 p.m., when UV rays are less intense. Wear protective clothing, such as long-sleeved shirts, pants, and wide-brimmed hats, along with sunglasses that block UVA and UVB rays. Apply a broad-spectrum sunscreen with at least SPF 30 to all exposed skin, reapplying every two hours or immediately after swimming or sweating.

Description

Avoiding excessive sunlight exposure and practicing sun safety measures, such as wearing sunscreen and protective clothing, helps reduce the risk of skin damage, including sunburn and skin cancer. It supports long-term skin health and minimizes the harmful effects of UV radiation.

[Sunlight](#) or bright light during the day can benefit your body and mind. It may [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Boost your mood
- Boost your performance and energy
- Improve sleep quality

Experts recommend getting **at least 5-15 minutes of midday sun, 2-3 times per week**. People with darker skin and those living at high latitudes may need longer periods of sun exposure [\[R\]](#), [\[R\]](#).

However, **excessive sun exposure may lead to sunburn, skin aging, and skin cancer**, so make sure to find the right balance [\[R\]](#), [\[R\]](#).

How it helps

Avoiding excess sunlight exposure helps reduce direct ultraviolet (UV) radiation, which can trigger and worsen sun sensitivity or photodermatosis. This helps to prevent skin damage and minimize sunburn risk.

5



Dietary Vitamin E

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods high in Vitamin E into your daily diet. This includes almonds, hazelnuts, sunflower seeds, and green leafy vegetables such as spinach and broccoli. Aim for a daily intake of 15mg of Vitamin E from your diet, which is roughly a handful of almonds (about 23 almonds) or 2 tablespoons of sunflower seeds.

Description

Dietary vitamin E is a fat-soluble antioxidant vitamin found in nuts, seeds, and vegetable oils. It helps protect cells from oxidative damage and supports immune function.

[Vitamin E](#) is an antioxidant important for the immune system and for heart health [\[R\]](#).

Plant-based foods have the most vitamin E. These include [\[R\]](#):

- Wheat germ
- Sunflower seeds
- Almonds
- Plant oils

Adults need about **15 mg** of vitamin E per day [\[R\]](#).

How it helps

Vitamin E is an antioxidant that helps protect the skin from UV damage and reduces inflammation. It supports overall skin health and repair.

6

Topical Green Tea

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Apply a green tea extract cream or lotion to the affected area of the skin once or twice daily, depending on the specific product instructions. Ensure the skin is clean and dry before application.

Description

Green tea extracts, rich in catechins and antioxidants, are used topically for their potential to protect the skin from UV damage, reduce inflammation, and address conditions like acne. Green tea is sourced from the leaves of the *Camellia sinensis* plant.

[Green tea](#) is made from the same plant as black tea (*Camellia sinensis*). However, the leaves and buds are processed differently [\[R\]](#).

Green tea contains **catechins**. These are antioxidants that help reduce [oxidative stress](#) and inflammation [\[R\]](#).

EGCG is the main catechin found in green tea. It may help reduce inflammation and support healthy skin [\[R\]](#).

How it helps

Green tea contains polyphenols, which have antioxidant properties that can protect the skin from UV damage and reduce inflammation.

7



Topical Niacinamide

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Apply a topical niacinamide product, containing 2-5% niacinamide, to clean, dry skin once or twice daily. For best results, use consistently as part of your morning and/or evening skincare routine.

Description

Niacinamide, a form of vitamin B3, is used topically for its ability to improve skin texture, reduce redness, and minimize the appearance of pores. It is a versatile skincare ingredient suitable for various skin types and conditions.

[Niacinamide](#) is a form of [vitamin B3](#) (niacin). Vitamin B3 supports your nerves, skin, gut, and more [\[R\]](#).

Niacinamide can be applied to the skin to potentially help with [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Acne
- Wrinkles
- Dark patches

How it helps

Niacinamide helps improve the skin's barrier function and reduces inflammation, providing protection against UV-induced damage.

8



Polypodium leucotomos

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take an oral supplement of Polypodium Leucotomos extract, typically available in capsule form, at a dosage of 240 to 480 mg daily. This can be consumed either once daily or divided into two doses taken with meals. Continue this regimen daily for skin protection and other potential benefits.

TYPICAL STARTING DOSE
240 mg

Description

Polypodium leucotomos, commonly known as the calaguala fern, is a plant native to Central and South America. where it has a long history of traditional use by indigenous peoples. Its polypodium and phenolic compounds have been utilized in skin care supplements for the past several decades.

Polypodium leucotomos is a species of fern native to South America. Extracts made from the root stalks are used to help with skin conditions [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

Polypodium leucotomos is a fern extract that has shown to provide some protection against sunburn and UV radiation. It works by enhancing the skin’s natural defenses against UV damage and reducing inflammation.

9



Dietary Vitamin C

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods rich in Vitamin C into your daily diet, such as oranges, strawberries, red peppers, kale, and broccoli. Aim to consume 5 servings of fruits and vegetables per day to meet the recommended dietary allowance of Vitamin C, which is 90 mg for adult men and 75 mg for adult women.

Description

Vitamin C is an antioxidant that supports the immune system, collagen production, and wound healing. It also enhances iron absorption from plant-based foods and contributes to overall health.

[Vitamin C](#) is an essential nutrient. This means that our bodies can’t produce it on their own, so we have to get it from food or supplements [\[R\]](#).

Vitamin C has antioxidant properties. It supports immunity, heart health, and wound healing [\[R\]](#), [\[R\]](#).

Vitamin C deficiency is called *scurvy*. In the past, many sailors suffered from it [\[R\]](#).

How it helps

Vitamin C supports skin health by helping in collagen synthesis and protecting against UV-induced damage. It also acts as an antioxidant.

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.