

Actinic Keratosis

Disease Report

REPORT CATEGORY —



CANCER

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

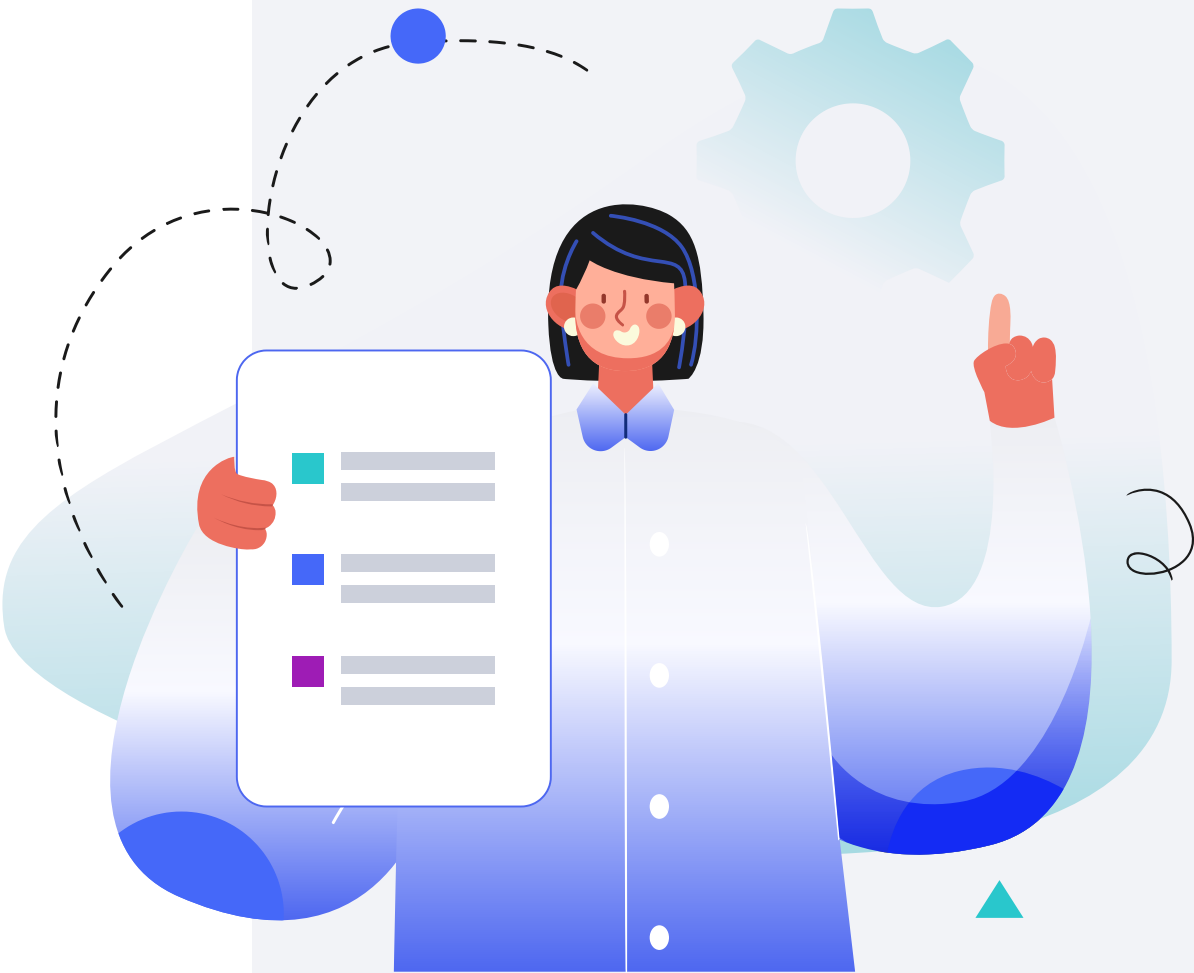
Male

HEIGHT

5ft 5" 165cm

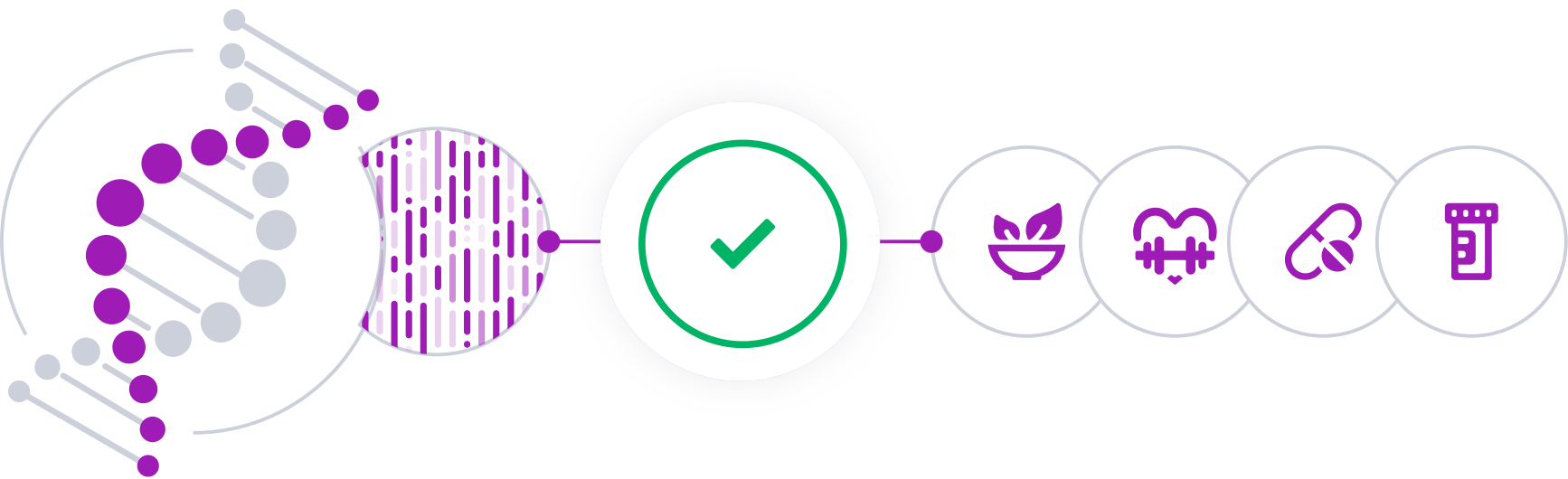
WEIGHT

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.

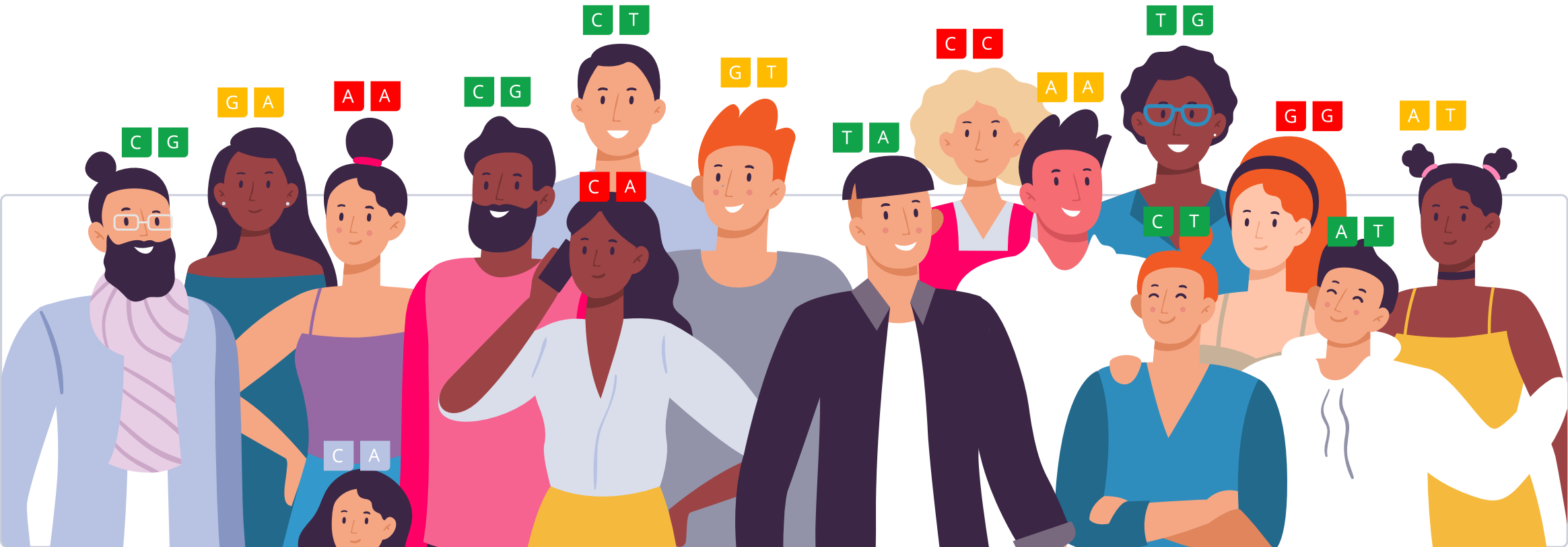


Similarly, our Trait Reports look at how your DNA influences your traits.



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

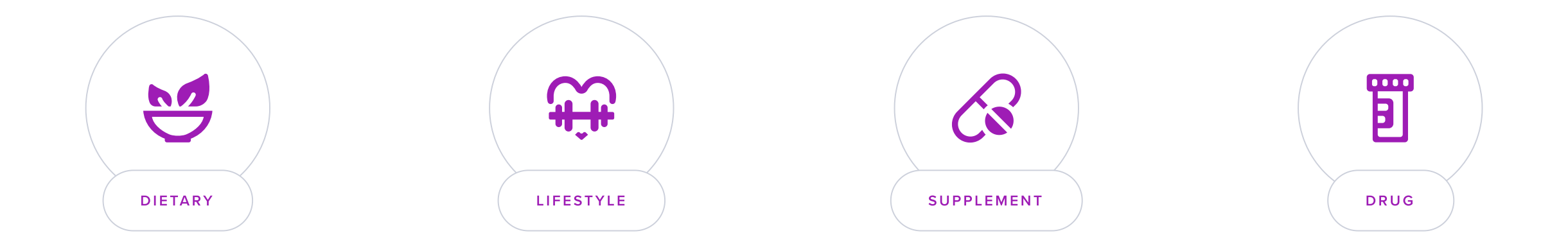
You have 2 risk alleles

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

An actinic keratosis, also known as solar keratosis, is a rough, scaly patch on the skin that develops from years of exposure to the sun. It's considered a precancerous skin condition, which means that it can sometimes lead to a skin cancer type called squamous cell carcinoma. Actinic keratoses are commonly found on areas of the body frequently exposed to sunlight, like the face, ears, neck, scalp, forearms, and back of the hands [R].

Actinic keratoses vary in appearance. They can look like a:

- Rough, dry, or scaly patch of skin, usually less than 1 inch (2.5 centimeters) in diameter
- Flat to slightly raised patch or bump on the top layer of skin
- In some cases, a hard, wartlike surface

The site may itch, burn, bleed, or crust.

Sun safety helps prevent actinic keratoses. Take these steps to protect your skin from the sun:

- Limit your time in the sun, especially between 11 AM and 4 PM
- Use a sunscreen with a SPF of at least 30
- Wear tightly woven clothing that covers your arms and legs, and a broad-brimmed hat
- Avoid tanning beds
- Check your skin regularly and report changes to your healthcare provider

Risk Factors and Management

Frequent or intense exposure to ultraviolet (UV) rays is usually the cause of actinic keratoses. People who frequently lay in the sun or on tanning beds, live in a sunny place, or work outdoors may be at increased risk.

The following factors may further increase your likelihood of developing actinic keratoses [\[R\]](#):

- Having red or blond hair and blue or light-colored eyes
- Tending to freckle or burn when exposed to sunlight
- Age older than 40
- Having a weakened immune system

While sun exposure is the primary cause of actinic keratoses, genetic factors may influence an individual's susceptibility. People with certain genetic traits, like fair skin and light hair, are more predisposed to developing actinic keratoses due to reduced melanin, which offers less protection from UV radiation.

An actinic keratosis sometimes disappears on its own but might return after more sun exposure. It's hard to tell which actinic keratoses will develop into skin cancer, so they're usually removed as a precaution. Treatment options include [\[R\]](#):

- Cryotherapy (freezing the lesion with liquid nitrogen).
- Topical removal treatments such as fluorouracil, imiquimod, or diclofenac.
- Photodynamic therapy, which uses a combination of light and a special chemical to destroy cancer cells.
- Curettage, where the lesion is scraped off.

If treated early, actinic keratoses can be cleared up or removed. If left untreated, some of these spots might progress to squamous cell carcinoma. This is a type of cancer that usually isn't life-threatening if detected and treated early.



TYPICAL LIKELIHOOD

Typical likelihood of an actinic keratosis based on 1,675 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TYR	rs1126809	AG
BNC2	rs12350739	AG
HERC2	rs12916300	TC
FOXP1	rs7638354	TA
SLC45A2	rs16891982	GG
IRF4	rs12203592	CC
SPATA2L	rs35063026	CC
ASIP	rs6059655	GG
TRPC4AP	rs2425025	AA
DEF8	rs4268748	TT
HLA-DQA2	rs4455710	CC
TRPS1	rs7832568	AA

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.

- 1

Microneedling
- 2

Avoid Excess Sunlight Exposure
- 3

Topical Retinoids

1



Microneedling

IMPACT1 / 5

EVIDENCE2 / 5

How to implement

To implement microneedling as a lifestyle recommendation for skin rejuvenation or scar treatment, use a dermaroller or microneedling device with needles of 0.2 to 1.0 mm in length, depending on the treatment area and sensitivity of your skin. Gently roll the device over the target area in a criss-cross pattern, ensuring to cover all desired areas, typically once every 2 to 4 weeks. Cleanse the skin and device before and after each use to prevent infection.

Description

Microneedling is a minimally invasive procedure that uses tiny needles to create tiny punctures in the skin. This can help to stimulate collagen production, improve skin texture, and reduce the appearance of scars.

How it helps

A meta-analysis of 5 randomized trials with 213 actinic keratosis (AK) patients found that combining microneedling (MN) with ALA-photodynamic therapy improved AK lesion clearance compared to ALA-photodynamic therapy alone. However, no significant difference was seen between MN with ALA-PDT and ALA-PDT alone for complete clearance [\[R\]](#).

In a study of 44 patients, microneedling with 5-fluorouracil (5-FU) was as effective as 5-FU alone in clearing facial actinic keratoses. Microneedling and 5% 5-FU showed fewer adverse effects and reduced AKs compared to 5% 5-FU alone [\[R\]](#).

2



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

Actinic keratosis is caused by long-term exposure to the sun’s UV rays. Avoiding excessive sunlight can help prevent the development and worsening of these skin lesions.

3



Topical Retinoids

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Apply a pea-sized amount of topical retinoid to clean, dry skin once every evening before moisturizing. Start with applications 2-3 times a week, gradually increasing to nightly use as your skin tolerates it.

Description

Retinoids are a class of vitamin A derivatives used topically for their ability to address various skin concerns, including acne, fine lines, and hyperpigmentation. They work by promoting cell turnover and collagen synthesis.

Retinoids are compounds related to [vitamin A](#). They include [\[R\]](#):

- Vitamin A (retinol)
- Natural vitamin A derivatives (retinoic acid, retinaldehyde, retinyl esters)
- Synthetic derivatives (tretinoin, isotretinoin, etretinate, tazarotene)

Retinoids control the growth of the skin and blood vessels. People apply topical retinoids to improve skin conditions such as [\[R\]](#):

- **Wrinkles**
- Acne
- Psoriasis
- Eczema
- Skin cancers

Please note: Topical synthetic retinoids are prescription drugs and should only be used if prescribed by a doctor. They can have significant side effects. Natural retinoids are much safer and available in different OTC cosmetic products.

How it helps

Topical retinoids help by promoting cell turnover and reducing the presence of abnormal skin cells, which can improve the appearance and reduce the number of actinic keratoses.

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

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.

