

Radiation-Induced Dermatitis

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

Radiation-induced dermatitis is a skin condition that occurs as a side effect of radiation therapy, a common treatment modality for various illnesses, including certain cancers. During radiation therapy, high-energy particles or waves, such as X-rays, gamma rays, electron beams, or protons, are used to target and destroy abnormal cells.

However, this process can also inadvertently damage surrounding healthy tissues, including the skin, leading to dermatitis. The severity of the condition varies, ranging from mild redness and itching to more severe reactions characterized by blistering, peeling, and ulceration of the skin in more extreme cases.

Management

Management and care of radiation-induced dermatitis involve a multi-faceted approach to alleviate symptoms and promote healing. Patients are advised to practice gentle skin care routines, avoiding irritants and harsh chemicals; to use topical treatments such as steroidal or non-steroidal creams designed to reduce inflammation and pain; and to keep the affected area clean and well-moisturized.

In some instances, when the dermatitis is severe, the radiation treatment schedule may be adjusted to allow the skin time to recover. Preventive measures and early interventions play a critical role in managing the condition, ensuring that patients can continue with their prescribed radiation therapy with minimal discomfort and disruption.



TYPICAL LIKELIHOOD

Typical likelihood of radiation-induced dermatitis based on 34 genetic variants we looked at

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	Topical Aloe Vera	2	Black Seed (Black Cumin)1000 mg
3	Boron3 mg	4	Topical Milk Thistle
5	Topical Gotu Kola	6	Vitamin K190 mcg
7	Avoid Excess Sunlight Exposure	8	Dietary Omega-3 Fatty Acids
9	Glutamine5 g	10	Vitamin C2000 mg
11	Vitamin E200 iu	12	Topical Calendula
13	Topical Hyaluronic Acid	14	Hyaluronic Acid120 mg
15	Cold Applications15 minutes		

1



Topical Aloe Vera

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Apply a thin layer of pure aloe vera gel extracted directly from the aloe plant or an aloe vera-based product directly to the affected area. Gently rub it in until it is absorbed. Repeat this application 2-3 times daily until the symptoms improve.

Description

Aloe vera is a plant-derived gel known for its skin-soothing and healing properties. Topical applications of aloe vera are commonly used to relieve sunburn, minor burns, and skin irritation, promoting faster healing and reducing discomfort.

[Aloe vera](#) lives in the desert, and its thick leaves store water in the form of a gel [\[R\]](#).

Topical aloe vera may help soothe burns and skin conditions [\[R\]](#).

Oral aloe vera may help with blood sugar and gut health [\[R\]](#).

How it helps

Topical *Aloe vera* may prevent and reduce the severity of radiation-induced dermatitis in cancer patients receiving radiotherapy [\[R\]](#), [\[R\]](#).

2



Black Seed (Black Cumin)

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 1000 mg of black seed (black cumin) supplement daily, preferably split into two doses of 500 mg each, one in the morning and one in the evening.

TYPICAL STARTING DOSE

1000 mg

Description

Black seed, also known as black cumin or *Nigella sativa*, has been used for its potential health benefits in traditional medicine. It is believed to have anti-inflammatory, antioxidant, and immune-boosting properties.

[Black seed](#) (black cumin) and its oil are used in cooking and traditional medicine [\[R\]](#).

People use black seed for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Asthma
- Allergies
- High blood sugar
- High blood pressure
- Joint pain

How it helps

In a study of breast cancer patients undergoing radiotherapy, those using *Nigella sativa* (N. sativa) gel experienced significantly fewer acute radiation dermatitis (ARD) occurrences compared to the placebo group. The N. sativa gel group also had a delayed onset of grade 2 and 3 toxicity, a delay in moist desquamation, and lower worst pain scores during treatment [\[R\]](#).

3



Boron

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a boron supplement of 3 to 6 mg daily, with food to enhance absorption. This dosage range is commonly recommended for general health benefits, based on nutritional studies. It's advisable to continue this regimen daily for an extended period, as long-term benefits depend on consistent supplementation.

TYPICAL STARTING DOSE

3 mg

Description

Boron is a trace mineral that plays a role in bone health, cognitive function, and hormone regulation.

Boron is a mineral in many foods, including:

- Fruits and fruit juices
- Avocados
- Potatoes
- Legumes
- Drinks (coffee, milk, cider, wine, and beer)

Scientists aren't sure if boron has any roles in the body, so they don't consider it an essential nutrient.

Some people take boron supplements to balance hormone levels, increase athletic performance, and more. However, the evidence to support these uses is weak.

How it helps

In a study involving 47 patients with invasive ductal carcinoma undergoing radiotherapy, those who received a boron-based gel had significantly lower Radiation Therapy Oncology Group (RTOG) skin scale scores compared to the placebo group by the end of the fifth week of radiotherapy (p = .024) [R].

In a double-blind parallel-group study, participants receiving a 3% sodium pentaborate pentahydrate gel (n = 181) before radiotherapy had significantly lower rates of dermatitis (p < 0.001), erythema (p < 0.001), dry desquamation (p < 0.001), and moist desquamation (p < 0.001) compared to the placebo group (n = 76) after 14 days of treatment [R].

4



Topical Milk Thistle

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Apply a milk thistle extract cream or gel to the affected area of the skin once or twice daily, depending on the product instructions. Continue this application daily for at least 4-8 weeks to observe potential benefits.

Description

Milk thistle extract, derived from the milk thistle plant, is used topically for its antioxidant properties, which can help protect the skin from environmental damage. It is often included in skincare products to promote a healthy complexion.

Milk thistle (*Silybum marianum*) is a purple flowering plant in the daisy family. Traditionally, it has been used for liver problems. Some people also eat the leaves in salads [\[R\]](#), [\[R\]](#).

The extract of milk thistle is called *silymarin* [\[R\]](#), [\[R\]](#), [\[R\]](#).

People use milk thistle to help with [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Liver problems
- Blood sugar control
- Indigestion
- Skin problems

How it helps

A study found that silymarin 1% gel significantly reduced and delayed radiodermatitis in breast cancer patients during radiotherapy, compared to placebo, over a 5-week period [\[R\]](#).

5



Topical Gotu Kola

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Apply a cream or gel containing gotu kola extract directly to the affected skin area twice daily, typically in the morning and evening. Continue this application regularly for up to 4-8 weeks to notice improvements.

Description

Gotu kola extracts, containing triterpenoids as the primary bioactive compounds, are used topically to support wound healing, reduce scars, and improve skin elasticity. This herb originates from Southeast Asia and is commonly found in skincare products.

[Gotu kola](#) or Pennywort (*Centella asiatica*) is an herb used in Tai-Chi tradition and Ayurvedic and Chinese Traditional Medicine.

Gotu kola is used as an antioxidant and anti-inflammatory. Traditional uses include:

- Wound healing [\[R\]](#)
- Improving leg circulation [\[R\]](#)

How it helps

This study evaluated the efficacy of three herbal creams and a commercial moisturizer in reducing skin reactions in 153 breast cancer patients undergoing radiotherapy. None of the treatments significantly reduced the severity or delayed the onset of dermatitis compared to no treatment, although Cucumis sativus cream aided in skin recovery post-irradiation [\[R\]](#).

6



Vitamin K1

IMPACT

0 / 5

EVIDENCE

1 / 5

How to implement

Take a vitamin K1 supplement once daily with a meal that includes fat, as fat increases its absorption. The dosage can vary depending on individual needs, but a common dose is between 90-300 micrograms. Continue this regimen daily for ongoing health benefits, particularly for bone and cardiovascular health.

TYPICAL STARTING DOSE

90 mcg

Description

Vitamin K encompasses two main forms: vitamin K1 (phylloquinone) and vitamin K2 (menaquinone). Vitamin K1 is primarily found in leafy green vegetables and plays a crucial role in blood clotting. Vitamin K2, sourced from animal products and fermented foods, is known for its potential to promote bone health and cardiovascular wellness.

How it helps

Applying cream with vitamin K1 may reduce the incidence and severity of acneiform skin rash in cancer patients treated with cetuximab and radiotherapy. However, the evidence is mixed [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

7



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

Exposing the skin to excess sunlight can worsen radiation-induced dermatitis by further damaging the skin barrier and delaying healing. Minimizing sun exposure can help protect the skin and allow it to recover from the effects of radiation therapy.

8



Dietary Omega-3 Fatty Acids

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods high in omega-3 fatty acids into your diet daily. This includes eating fish such as salmon, mackerel, and sardines at least twice a week. Alternatively, include a tablespoon of flaxseed oil or chia seeds in your daily diet.

Description

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA. **EPA and DHA are vital for mental and heart health** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

For optimal health, try to get at least **two servings of fatty fish per week**. Fish oil supplements are available for those who don't eat fish regularly [\[R\]](#).

How it helps

Dietary omega-3 fatty acids can help reduce inflammation and promote skin healing. Consuming foods rich in omega-3, like fish, can aid in managing symptoms of radiation-induced dermatitis by improving skin barrier function and reducing erythema (redness).

9



Glutamine

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 5 to 10 grams of glutamine powder, mixed with water or another beverage, daily. It can be divided into two servings, one in the morning and the other in the evening. This supplementation is generally considered safe for long-term use, but it's best to consult with a healthcare provider for personalized advice.

TYPICAL STARTING DOSE

5 g

Description

Glutamine is an amino acid that plays a role in various bodily functions, including immune support and gut health. It may help with muscle recovery and overall well-being, particularly for individuals engaging in strenuous exercise.

L-glutamine is an amino acid produced by the body. Its levels may decrease during periods of stress or illness. It is important for protein and energy production, and helps control kidney pH balance [\[R\]](#).

Some people take L-glutamine as a supplement to help with [\[R\]](#):

- Gut health
- Immunity
- Exercise recovery and muscle performance
- Brain health

How it helps

Glutamine, an amino acid, has shown potential in reducing the severity of radiation-induced dermatitis in patients undergoing radiation therapy. This is likely due to its role in supporting skin growth and repair, and its anti-inflammatory properties that can soothe damaged skin.

10



Vitamin C

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 500-2000 mg of vitamin C supplement daily. It can be taken at any time of the day, with or without food, according to personal preference or tolerance.

TYPICAL STARTING DOSE

2000 mg

Description

[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 [\[R\]](#).

Foods rich in Vitamin C include: [\[R\]](#)

- Citrus Fruits
- Peppers
- Brussel sprouts
- Kiwi
- Broccoli
- Tomato
- Cantaloupe
- Cauliflower
- Spinach

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 is known for its antioxidant properties which can help protect skin cells from radiation-induced damage. Applying vitamin C topically can promote wound healing and reduce the severity of radiation dermatitis, making it a beneficial supplement for those undergoing radiation therapy.

11



Vitamin E

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 200 IU of Vitamin E daily as a supplement, preferably with a meal that contains fat to enhance absorption.

TYPICAL STARTING DOSE

200 iu

Description

Vitamin E is a fat-soluble antioxidant found in various foods, such as nuts and seeds. It is known for its ability to protect cells from oxidative damage, support immune function, and may play a role in skin health. Vitamin E supplements are used to bolster antioxidant defenses and may be beneficial for conditions related to oxidative stress.

[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 acts as a powerful antioxidant that can help reduce skin inflammation and promote healing when applied to the skin. Its use in combination with other treatments has shown to decrease the severity of radiation-induced dermatitis, offering a protective effect against radiation damage.

12



Topical Calendula

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Apply calendula cream or ointment to the affected area of skin 2-3 times daily. Ensure the skin is clean before application and continue using until improvement is noted, which could be from a few days to a couple of weeks, depending on the condition being treated.

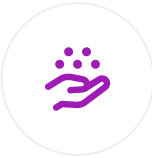
Description

Calendula is an herbal remedy known for its potential anti-inflammatory and skin-soothing properties. It's often used topically in creams and ointments to promote skin health and wound healing.

How it helps

Calendula cream has been shown to be effective in preventing and treating radiation-induced dermatitis. Its anti-inflammatory and healing properties help to soothe the skin, reduce inflammation, and promote healing of damaged skin. Clinical trials have demonstrated that Calendula cream is more effective than typical topical treatments in reducing the incidence of severe dermatitis.

13



Topical Hyaluronic Acid

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Apply a few drops of hyaluronic acid serum directly to your clean, damp skin twice a day, in the morning and before bedtime. Gently massage it into your face and neck until fully absorbed. Follow up with your regular moisturizer to seal in the hydration.

Description

Hyaluronic acid is a naturally occurring substance in the skin that is used topically to enhance skin hydration, reduce fine lines, and improve overall skin texture. It can be derived from various sources, including microbial fermentation.

Hyaluronic acid is a compound naturally found in the body. It helps the skin, eyes, connective tissues, and joints retain water [\[R\]](#), [\[R\]](#).

By doing so, hyaluronic acid can help keep the [\[R\]](#):

- Joints moving smoothly
- Skin and eyes moist
- Skin flexible

Hyaluronic acid is popular as a topical serum. It is also available as an injection, supplement, and eye drop.

How it helps

Topical Hyaluronic Acid can help retain moisture in the skin, which is crucial for healing radiation-induced dermatitis. It promotes better skin hydration and helps in repairing the skin barrier, leading to faster recovery from the damage caused by radiation therapy.

14



Hyaluronic Acid

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 120-240 mg of oral hyaluronic acid supplement daily, ideally with or after a meal to enhance absorption. Consistent use for at least one month is recommended to evaluate its effects on skin hydration and joint health.

TYPICAL STARTING DOSE

120 mg

Description

Hyaluronic acid is a natural substance that plays a key role in joint and skin health. As a supplement or topical application, it may help support joint mobility and skin hydration.

How it helps

Hyaluronic Acid can help in the treatment of radiation-induced dermatitis by maintaining hydration in the skin, promoting healing, and reducing inflammation. Studies indicate that topical application of Hyaluronic Acid to irradiated skin can lessen the severity of dermatitis, accelerate healing times, and improve skin comfort during and after radiation therapy.

15



Cold Applications

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Apply a cold pack or a bag of frozen peas wrapped in a towel to the affected area for 15-20 minutes, every 2-3 hours during the first 48 hours of experiencing pain or swelling.

TYPICAL STARTING DOSE

15 minutes

Description

Cold applications, such as ice packs, can help reduce inflammation, alleviate pain, and promote muscle recovery after injuries or intense physical activity. Applying cold can provide temporary relief from discomfort and support the body's natural healing processes.

People use cold applications to relieve pain, reduce inflammation, and more [\[R\]](#) [\[R\]](#).

Types of cold applications include [\[R\]](#) [\[R\]](#):

- Ice packs
- Ice baths
- Cryotherapy

How it helps

Applying cold compresses to the skin affected by radiation-induced dermatitis can soothe inflammation and reduce discomfort. This simple measure can help manage symptoms like itchiness and burning sensations.

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.