

# Precision skin report

Made for (Client's name)



Hey (Client's name)

# Welcome to your skin report!

You've embarked on your personalised skin journey and will soon be equipped with the knowledge to curate your approach to skin wellness.

Your skin report unveils the impact of your unique genetic makeup on your body's response to inflammation, its ability to manage oxidative stress as well as the sufficiency to produce proteins like collagen and elastin both involved in tissue firmness and aging.

Explore your report to understand the role diet plays in skin health, how your DNA shapes your skin's resilience and responses, and discover steps to optimize your skincare to preserve aging.

Keep reading to delve into your personalised insights.



# Helpful terms

You'll see some of the same terms come many times throughout your report. Here are some definitions you can refer back to:

## What's a gene?

A gene is a section of your DNA that contains instructions for building a specific protein. This report will focus on genes affecting your skin's rate of ageing, its susceptibility to oxidative stress and inflammation as well as the effect diet has on it.

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## What's a genotype?

Differences in our genes are what make us unique. The specific version of a gene you carry is called your genotype.

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## What do the letters ACTG mean?

The chemicals that your DNA code is made of can be represented by four letters - A, C, T and G. By looking at these letters, we can see which specific DNA code you carry.

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## Phenotype

Your phenotype is a description of your observable traits. For example, calling someone tall would be a description of their height phenotype. In the realm of skin, your predisposed level of melanin production can be an observable phenotype and will be presented in darker hair or skin colour.

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## Pigmentation

Pigmentation refers to the process or presence of colouration in biological tissues, particularly in the skin, hair, and eyes. It involves the synthesis and distribution of pigments such as melanin that impart colour to these tissues. Pigmentation serves various functions, including protection against harmful UV radiation, regulation of heat absorption, and contributing to individual traits and characteristics.

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## Refined Carbohydrates

Refined carbohydrates undergo processing that strips them of its natural fibres and nutrients, involving the removal of bran and germ layers from whole grains. This results in finer-textured, longer-shelf-life products lacking essential nutrients and dietary fibre. Common sources include white flour, white rice, sugary cereals, pastries, and processed snacks. Unlike whole-grain carbohydrates, refined ones are swiftly digested, potentially causing rapid blood sugar spikes and contributing to health issues like insulin resistance and obesity when consumed excessively.

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## Collagen

Collagen is the most abundant protein in the human body and is a major constituent of connective tissues, including skin, tendons, ligaments, cartilage, and bones, providing structural support and integrity to those tissues. Known for its robust, fibrous structure, collagen is composed of amino acids, providing crucial structural support. Its main role is imparting tensile strength and elasticity to tissues, aiding stability. In addition to its structural function, collagen participates in cell signalling and tissue repair.

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## Elastin

Elastin is a protein that is a crucial component of the extracellular matrix, providing elasticity and resilience to various tissues in the body. It is predominantly found in connective tissues within body structures such as skin, arteries, lungs, and ligaments. Elastin allows these tissues to stretch and recoil, providing flexibility and maintaining structural integrity. Elastin works in conjunction with collagen to support the mechanical properties of tissues like the skin.

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## Glycation

Glycation is a natural chemical reaction in your body where sugar molecules, such as glucose or fructose, bind to proteins, fats, or genetic material. Although this process occurs naturally, excessive amounts can be detrimental. In glycation, a sugar molecule attaches to a protein or fat, resulting in the formation of advanced glycation end products (AGEs). Particularly concerning in proteins, these AGEs can alter their structure and function by cross-linking and modifying amino acids. Such changes can impact these proteins' ability to perform specific functions. Additionally, AGEs can accumulate, especially in slowly regenerating tissues like collagen in the skin, blood vessels, and cartilage, linking them to ageing and various age-related diseases.

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With those definitions out of the way, let's move into your report!

# How do genes influence the skin's functions?

Your skin, the body's largest organ, is a crucial defensive barrier shielding vital organs from toxins, injuries, sunlight, and temperature changes. From appearance and elasticity to inflammation and ageing, the blueprint encoded in your genes plays a pivotal role in defining your skin's individuality and susceptibility to external factors such as diet, lifestyle, and sun exposure.

While genetic variants play a role, genes alone do not dictate your skin's fate. By making thoughtful adjustments to your lifestyle and diet and following an individualised skincare routine, you can exert influence over the ageing process.

Genetic variations in the enzymes that contribute to collagen production as well as in proteins like elastin that play a large role in skin elasticity, may make you more susceptible to skin sensitivity, premature ageing, and the formation of lines and wrinkles, particularly after sun exposure. Implementing certain habits like high SPF sunscreen and targeted moisturisers can enhance matrix protein synthesis, visible skin firmness, and providing a shield against environmental factors.

For pigmentation, proteins involved in melanin production dictate your skin, hair, and eye colour. Genetic factors influence the amount and distribution of melanin, impacting your skin's response to UV light.



There's a common thought that if you have dark skin, you don't need protection from the sun because your skin produces more melanin. This isn't true and even those with darker skin should ensure to wear a high, broad spectrum SPF to protect against the damaging effects of UV light.

Variations in the melatonin-related gene may make red-haired individuals with fair skin more resistant to certain opioid-based anaesthesia. This genetic difference affects how they metabolise and respond to specific drugs. It is however important to note that individual responses to anaesthesia are influenced by a mix of genetic and environmental factors.

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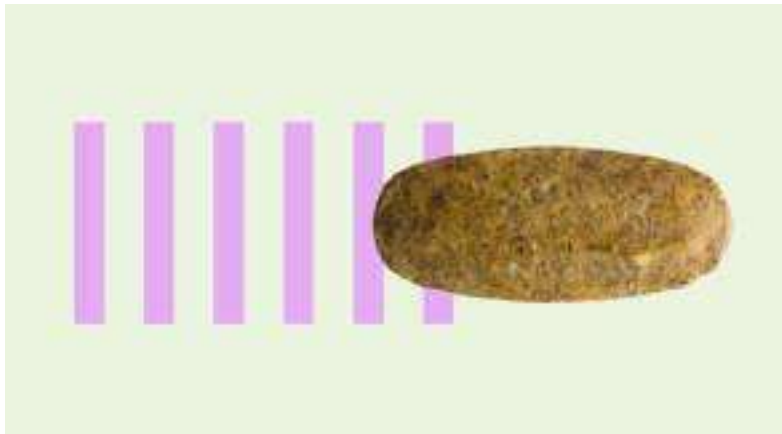
## Skin & Diet

When starting to understand the impact of diet on skin health, we encounter the normal features of cellular activity including oxidative stress, detoxification and inflammation all influenced by free radicals produced by the body's metabolic processes as well as its genetic predisposition to manage them effectively. These can wreak havoc on cell components causing uncontrolled inflammation which accelerates skin ageing.

Dietary intervention can be very effective as a protective mechanism because enzymes that neutralise free radicals are augmented by dietary antioxidants like Vitamins A, C, E, and Selenium found in fruits and vegetables like carrots, citrus fruits and bell peppers.

Additionally, refined carbohydrates can also impact skin health. The body's sensitivity to refined carbohydrates, influenced by genetic variations, impacts the amount of glucose available to cause glycation. This causes an accumulation of AGE-related damage and is proportional to dietary intake of refined carbohydrates as well as your individual genetic sensitivity. AGEs affect nearly every type of cell in the body and are thought to be a factor in accelerating ageing and reducing skin resilience.

Recognizing the impact of dietary choices and genetic factors on skin health empowers individuals to make informed decisions that contribute to both internal protection and external radiance.



# Skin Aofteinoft

Skin is "dynamic" it is constantly being broken down and rebuilt in response to external and internal stimuli (e.g. sunlight and metabolic oxidation). Internal skin ageing is determined by our genetics, whilst extrinsic skin ageing is caused by external factors such as diet and environment. Skin ageing is determined by 3 characteristics: collagen degeneration, degeneration of elastic fibres, and dehydration.



Based on your results, you have a medium rate of intrinsic skin ageing.

## What is it?

Skin ageing can be split into two causes: intrinsic and extrinsic. Whilst intrinsic ageing is determined by genetics, extrinsic ageing is determined by external factors - with up to 90% of extrinsic skin ageing thought to be caused directly by UV radiation. Skin ageing is caused by the degradation of compounds in our skin including collagen and elastin.

## How to improve

The effects of our genetic variations on our skin structure can be ameliorated by taking protective measures and understanding our genetic makeup can help us ensure we take the correct steps towards improved long-term skin health. Establishing a routine incorporating sunscreen with a high SPF and specific moisturizers may boost the synthesis of matrix proteins, improve the visible firmness of the skin, and enhance cell differentiation, creating a protective barrier against environmental factors.

## Your Skin Aofteinoft Genes

Based on your results, you have a medium rate of intrinsic skin ageing.

*For full genetic details contact us.*



We have looked at genes associated with the generation and maintenance of integral compounds found in the skin's structure, including collagen and elastin. MMP1 and MMP3 are associated with increased breakdown of collagen fibres as part of the normal skin repair process in response to damage. The COL1A1 gene is associated with collagen structure, whilst the ELN gene has been tested due to its association with skin elasticity.

## Advice for you

Here's some recommended lifestyle tips and practices based on your result



Your body breaks down skin compounds at a medium rate, so it's important to avoid tobacco smoke, including passive and if you live in a polluted urban area, try to take time away from there.



Using a good quality UV sunscreen when in sunlight will be very beneficial to you in preserving the elasticity of your skin.



It remains crucial for you to include dietary antioxidants, like those found in berries and colourful vegetables, to support your skin's elasticity over time. Astaxanthin, an antioxidant found in salmon but can also be taken as a supplement, has been shown to reduce MMP expression and can be useful for maintaining skin health.

# Sensitivity to Refined Carbohydrates & Glycation



Refined carbohydrate sensitivity can result in higher levels of glycation; a natural process in our body that happens because of sugars, like glucose or fructose. When there's too much sugar in our skin fibers, our body fires up an internal reaction. This reaction produces glycation end products (AGEs) which are detrimental in various processes important for skin health by damaging the structure of dermal collagen and elastin. Common symptoms of skin with glycation issues include premature ageing, such as wrinkling and sagging; weakened elastin and collagen; and a reduced ability for skin to quickly rehabilitate. The presence of AGEs also make the skin more vulnerable to oxidative stress, smoking and UV exposure.

**Based on your results, you have a medium genetic sensitivity to refined carbohydrates and an average risk of glycation associated with carbohydrate intake.**

## What is it?

The total state of oxidative stress on the healthy body, and the accumulation of AGE-related damage is proportional to the dietary intake of refined carbohydrates which is also affected by individual genetic sensitivity to these macromolecules. AGEs affect nearly every type of cell and molecule in the body, and are thought to be one factor in ageing and some age-related chronic diseases.

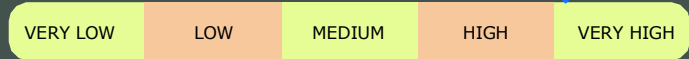
## How to improve

Some factors can cause more AGEs to form in the skin, including diets that are high in sugar, exposure to UV radiation from the sun, and external skin stressors such as smoking and pollution. Implementing efficient and individualised skincare, including more antioxidant-rich foods in your diet and smoking cessation are all ways to improve factors influencing AGE formation.

## Your Refined Carbohydrate Sensitivity Genes

Based on your results, you have a medium genetic sensitivity to refined carbohydrates and an average risk of glycation associated with carbohydrate intake.

*For full genetic details contact us.*



These genes have been tested due to their implication in refined carbohydrate sensitivity and glucose metabolism, which in turn affects the amount of AGEs produced in the body.

## Advice for you

Here's some recommended lifestyle tips and practices based on your result



You have a medium sensitivity to refined carbohydrates therefore, managing your blood sugar levels, by reducing the amount of refined sugar you consume in your diet, will help reduce glycation and its effects on your skin.



Glycation and its skin ageing effects are made worse by sun exposure. Ensure you wear broad spectrum SPF every day to help slow the signs of ageing and protect against skin cancer.



Boost your antioxidant intake by including foods such as blueberries, pomegranate and green tea in your diet to help protect skin cells from glycation.

# Pigmentation

Melanin is a substance in your body that produces hair, eye and skin pigmentation. The more melanin you produce, the darker your eyes, hair and skin will be. The amount of melanin in your body depends on a few different factors, including genetics and how much sun exposure your ancestral population had.

**Based on your results, you are likely to have lower levels of melanin, and therefore more likely to have light skin, hair and eyes.**



## What is it?

Melanin is a natural substance that determines the colour of hair, skin, and eyes in people and animals. Special cells called melanocytes make melanin. Everyone has the same number of melanocytes, but some people make more melanin than others. If these cells make just a little melanin, your hair, skin, and eyes can be very light. If your cells make more, then your hair, skin, and eyes will be darker. The amount of melanin your body makes also depends on your genes. If your parents have a certain amount of melanin, you could have the same amount and a similar skin tone. Melanin provides protection against damaging UV light, which is why it is typical for people in sunnier climates to have darker skin, however it may also reduce the amount of Vitamin D produced in response to sunlight.

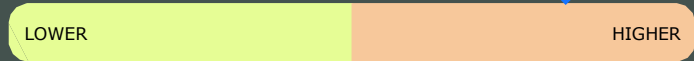
## How to improve

If you have less melanin and therefore lighter skin, it is advised to always use sufficient UV- protection to protect against sun damage. When it comes to darker skin, the higher melanin levels offer some protection, however, even those with darker skin should ensure to wear a high, broad-spectrum SPF to protect against the damaging effects of UV light.

## Your Pigmentation Genes

Based on your results, you are likely to have lower levels of melanin, and therefore more likely to have light skin, hair and eyes.

*For full genetic details contact us.*



These genes have been tested due to their involvement in the production and distribution of melanin in the body.

## Advice for you

Here's some recommended lifestyle tips and practices based on your result



You have lower melanin in the body and should therefore prioritise good quality UV protection.



Extended exposure to the sun is recognised for its potential to cause skin cancer by damaging genes that typically prevent cancerous growth. Evidence suggests significant variations in skin cancer risk based on skin type, with lighter skin being more prone to various types of skin cancer.



Applying sunscreen to your face is especially important and should be reapplied throughout the day.

# Nickel Sensitivity

Nickel allergy is a common cause of allergic contact dermatitis — an itchy rash that appears where your skin touches a usually harmless substance. Nickel allergy is often associated with earrings and other jewelry. But nickel can be found in many everyday items, such as coins, zippers, cellphones and eyeglass frames.

**Based on your results, you do not have a genetic predisposition to developing a nickel sensitivity, but the possibility cannot be entirely excluded.**



## What is it?

One of the most common contact allergens is nickel which is present in most jewellery. Continued exposure can result in itchy rashes in sensitive people, these rashes can become extremely uncomfortable and develop into painful lesions.

## How to improve

Individuals with a nickel allergy should avoid sources of nickel exposure. Things like jewellery or body piercings, watchbands, clothing fasteners, such as zippers, snaps and bra hooks, belt buckles, eyeglass frames, coins, metal tools, keys, military "dog-tag" ID, and E-cigarettes.

## Your Nickel Sensitivity Genes

Based on your results, you do not have a genetic predisposition to developing a nickel sensitivity, but the possibility cannot be entirely excluded.

*For full genetic details contact us.*

NORMAL

MEDIUM

HIGHER

TNF has been tested due to its involvement in the inflammation pathway, whilst GSTM1 and GSTT1 have been tested due to their implications in removal of toxins from the body.

## Advice for you

Here's some recommended lifestyle tips and practices based on your result



Although your genes do not lean towards a nickel sensitivity, it is still possible to present with a sensitivity. If you suspect an allergy, have it diagnosed.