



yudoyu<sup>®</sup>

Where YOU begin.

Skincare DNA Analysis Training

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# DNA Basics

## What is DNA (Deoxyribonucleic Acid)?

DNA contains all the information needed to build a fully functioning human. It influences our unique characteristics and enables cellular processes.

## What are Genes?

Genes are **the recipes** for making specific proteins. Genes tell a cell **how to function** and **what traits to express**. Genetic regulators turn specific genes on and off in cells to control cell functions.

One gene might be a recipe for making more inflammatory proteins when the skin has an irritation. Another gene can be responsible for “turning on” melanin production when the skin has been exposed to sunlight.

## What are SNPs (Single Nucleotide Polymorphisms)?

SNPs are what **makes every person unique**. An SNP is a single difference in a DNA sequence that can affect how the gene functions. Humans have more than 10 million SNPs

**SNPs account for all visual differences between you and everyone on this planet!**



# DNA Basics

## What is a Genotype?

A particular sequence in a person's DNA.

## What is a Phenotype?

The individual's **visual expression of a genotype**, such as height, eye color, or blood type.

## Example:

The **genotype variation** in the MMP-1 gene can alter how this gene is expressed. The change may increase the expression of the MMP-1 protein, decreasing the amount of collagen in the skin and making the skin more prone to wrinkling (i.e., **the phenotype**).

**The DNA of any two individuals is more than 99.8% identical. However, everyone is genetically unique. The crucial difference lies in the remaining 0.2% of differences represented as SNPs.**



# Genetics vs Environment

Skin health results from interactions between **genes** and **lifestyle factors** such as diet, exercise, stress, smoking, skincare support, alcohol, and environment.

External factors act along with normal genetic aging processes to prematurely age our skin.

## Your genes determine:

- What and how nutrients are used.
- How toxins are removed from your skin.
- What happens to waste products.
- How efficiently skin processes work to protect against external factors.

## Lifestyle Influence

The aging process may speed up if you live an unhealthy lifestyle, smoke, experience high stress, or have overexposure to the sun.

**Science has proven that lifestyle changes and using a custom-targeted skincare regimen can positively impact genetic expression and compensate for genes that are not functioning at an optimum level,**



Identical twins share the same genome and usually develop the same DNA-related skin conditions. This image of twin sisters taken through a study shows **how external factors work alongside DNA** to shape skin health and appearance. The perceived age of one twin is noticeably different.

## CITATION

Christensen K, Thinggaard M, McGue M, et al. Perceived age as clinically useful biomarker of aging: cohort study. *BMJ*. 2009;339:b5262. Published 2009 Dec 10. doi:10.1136/bmj.b5262

## Proprietary Data Algorithms

DNA research has discovered **15 core genetic markers** in combinations within **five skin categories**. These combinations play a role in skin protection, premature aging, and determining future outcomes for our skin.

**Mazy Scale™** – named after the DNA scientist Stefan Mazy, visually represents your skin's genetic risk factors against our global population measurements for the skin aging process.

**Dg-Therom™** - analyzes variations creating a simple score for each skin category.

**Yudoyu quiz and multi-brand matching system** use additional criteria (such as budget, age, and skin perception) to address genetic concerns AND customers' perception of how their skin is behaving TODAY.

**Yudoyu® cross-references genetic data with quiz data to recommend a personalized and effective skincare routine.**

GLOBAL AVERAGE

YOU - MEDIUM PRIORITY

Mazy Scale™



## Validation and Course Correction

Our data is a validation tool for anyone taking the **Yudoyu® DNA Skincare Test**, especially those who do not yet show visible signs.

### Kit Registration

When a customer registers a kit, we collect additional lifestyle and trait-specific data that is added to the global database. Lifestyle data helps discover DNA connections.

### Age Trait Predictions

Information like ancestry, skin color, eye color, etc. By collecting this data, we can compare those criteria with others matched in our database.

**Someone 25 years old may not yet exhibit aging traits. Based on all the identified data, a subject with the same genetic variances can reasonably expect the same outcomes if preventative measures are not taken.**

This process continues to improve our process and help identify better preventative and reparative treatment plans, providing better outcomes.



At Age 25



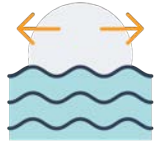
Age Trait Prediction

## 5 Yudoyu® Test Categories



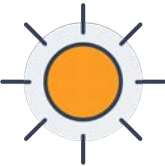
### Collagen Breakdown and Protection

Gene variations identify if the production and degradation process of collagen is in balance or if the predisposition to collagen breakdown predominates - which can result in **premature sagging** and **wrinkling of the skin**.



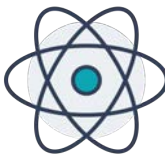
### Glycation Wrinkling

Glycation occurs when excess bodily glucose molecules link to the skin's collagen and elastin fibers forming glycated fibers between these proteins, leading to damage such as **laxity**, **cracking**, and **thinning skin**.



### Pigmentation Function

Repeated exposure to ultraviolet (UV) light from the sun accounts for nearly 90 percent of symptoms of **premature skin aging**, **skin damage**, and **skin cancer**. Genetics plays a role in determining how our skin copes under the strains of the sun.



### Antioxidant Support

Free radicals are highly reactive molecules that can damage any molecule in our body, including the cellular structures in our skin. This cellular destruction in the skin's layers can lead to a **dull**, **lifeless**, and **aged complexion**.



### Skin Sensitivity

Excessive inflammation is one of the most common culprits in **early-onset aging**. While inflammation is a helpful response in the short term, it can be very harmful if the response is chronic. Often subtle, the signs include skin sensitivity, redness, and irritation.

# Collagen Breakdown and Protection

**1-in-3 people have a genetic variation predisposing their skin to accelerated collagen breakdown.**

Collagen keeps skin **firm, plump, and wrinkle-free**. Throughout your life, collagen undergoes continuous reproduction and turnover. After about the age of 40, collagen loss accelerates, leading to a decline in the appearance of your skin.

## Genes Tested

### Collagen Breakdown

Slows the breakdown and degradation of Collagen fibers in the extracellular matrix of human tissue.

### Collagen Protection

Assists in protecting existing collagen from unnecessary degradation and normalizing skin cell functions disrupted by oxidative stress.

## Visible Signs

- Prominent nasolabial folds
- Deeper smile lines
- Skin laxity, sagging
- Hollowing under eyes
- Loss of volume
- Slower healing

## Internal Signs

- MMP-1 and collagen imbalance
- Slow down in tissue remodeling
- Ineffective wound healing
- Increased collagen degradation





# Collagen Breakdown and Protection

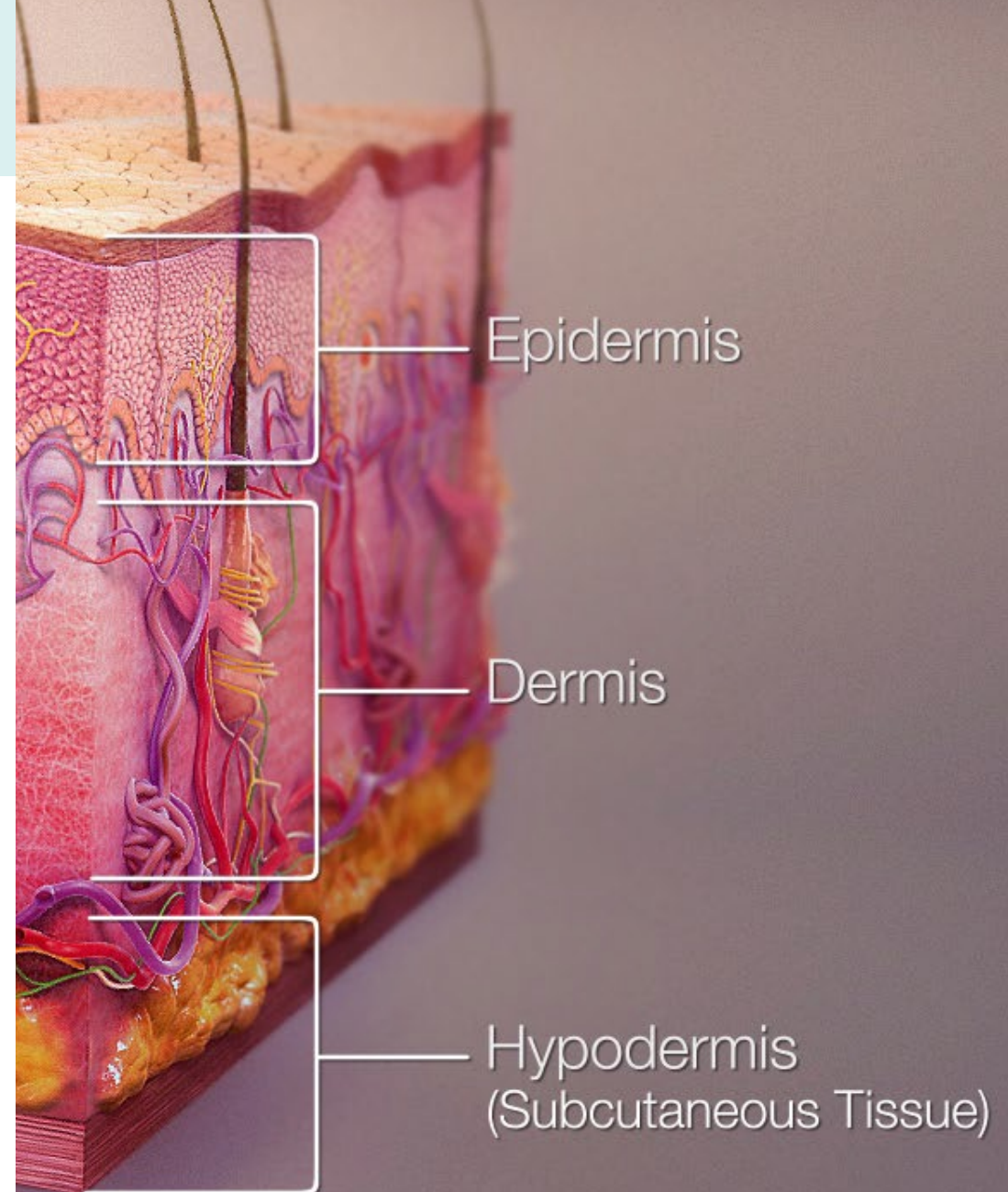
## Know the Science

Sandwiched between the epidermis and hypodermis lies the dermis containing blood vessels that nourish the skin and storage of structural proteins that keep the skin firm, plump and wrinkle-free. As we age, our bodies struggle to replenish collagen storage.

In healthy, youthful skin, the production and breakdown of collagen are in balance: damaged or redundant collagen is degraded while the deficit is replenished by ongoing creation.

Unfortunately, for 1-in-3 of us, this intricate balance gets disrupted with a gene variation that can cause an oversupply of an enzyme called Matrix Metalloproteinase-1 (MMPs) or Collagenase. The result is too little collagen is produced, and too much is degraded. The more this occurs, the more wrinkles, roughness, and sagging we tend to have. MMP levels are known to increase with age as a result of photoaging as well as natural aging.

**Representing 75% of the skin's dry weight, collagen keeps the skin firm, plump and wrinkle-free. Collagen quantity and quality play a major role in our skin's appearance.**



# Glycation Wrinkling

**1 in 2 people is genetically predisposed to reduced protection against Glycation** (binding of skin's collagen and elastin fibers, forming abnormal chemical bridges that cause tissue damage).

Glycation has been described as the caramelization of the skin from the inside out. The skin-damaging effects of glycation cause wrinkles, dryness (eczema), skin laxity, acne, and rosacea.

## Genes Tested

### Glycation Interruption

Responsible for controlling serum glucose levels, energy intake, and release. While glucose is a vital cellular fuel, If not fully metabolized, Glycation can occur.

## Visible Signs

- Upper lip and chin lines
- Vertical lines across cheeks
- Fine lines, uneven skin texture
- Rough surface area
- Leathery or crepe-looking skin
- Eye area dryness and lines

## Internal Signs

- Glucose/collagen cross-linking
- Decreased skin elasticity
- Stiffened collagen fibers
- Weak dermal-epidermal junction



# Glycation Wrinkling – EXTERNAL SOURCES



## SMOKING

Smoking elevates the level of **Advanced Glycation End-Products (AGEs)**.

AGEs are formed when tobacco leaves are dried in the presence of sugars. During inhalation, these AGEs are absorbed in the lungs. **AGEs in the skin** (measured with skin autofluorescence) **are higher in smokers** than non-smokers.



## BAKED FOOD

Have you ever wondered why some people follow a raw food diet? Apart from it being good for you, there is another good reason.

That reason is **the Maillard reaction** – or simply the browning of food. This reaction occurs when the sugar molecules inside a piece of steak, for example heat up causing the molecule to cross-link with a protein. The browning effect is the result of Advanced Glycation End Products.



## DIABETES

Diabetics are at greater risk of glycation and AGEs as they cannot effectively break down the sugars consumed from food.

Excess sugar is stored in fatty tissues for much longer than necessary, ultimately causing the sugar to travel throughout the bloodstream in higher doses, causing cross-linking in every part of the body.

# Pigmentation - MELANIN

**3 in 4 people are predisposed to irregular melanin production processors.**

Melanin is essential in protecting the skin from the sun. Its release helps absorb and break down harmful UV rays and UV-generated free radicals. The more efficiently the body produces melanin, the more your skin can withstand (to a degree) the sun's UV rays.

Genetic variations can cause the skin to become highly sensitive when exposed to sunlight. This can increase proneness to **sunburn**, cause **irreversible damage** to your skin cells, initiate **premature skin cell death**, and increase your **risk of cancer**.

## Genes Tested

### **Melanin Production**

Involved in the production of Melanin. This process is important in protecting the skin against the sun.



# Pigmentation – UV Protection

**2 in 5 people have a genetic variation that affects their skin's UV defenses.**

Exposure to ultraviolet (UV) light from the sun accounts for **90% of the symptoms of early skin aging, skin damage, and skin cancer.**

Every time your skin is exposed to UV light, skin damage occurs. The cumulative effect of repeated sun damage causes **epidermal DNA damage**, persistent **inflammation**, and **oxidative stress**, negatively affecting the health and appearance of your skin.

## Genes Tested

### Photo Defense

Breaks down free radicals produced from UVB rays (burning rays) once they have entered the skin.

### UV Repair

Repairs genetic damage caused by UVA (aging rays) exposure.

### UV Radical Protection

Repairs DNA mutations caused by 8-oxo- G radicals. This free radical is produced after sun exposure.



# Pigmentation – UV Protection

Your genes play an essential role in determining how well your skin can naturally cope under the strains of the sun.

## Visible Signs

### Pigmentation Spots

- Blemishes and freckles
- Brown spots
- Uneven skin tone

### Redness

- Broken capillaries
- Sun sensitivity
- Patches of redness

### Deep Furrows

- Upper face deep lines
- Frown, expression lines

## Internal Signs

- Increased UV radical damage
- Irregular cellular function
- Increased mitochondrial damage
- DNA structural damage
- Ineffective melanogenesis

**Consistently preventing skin damage from the sun's UV rays should be the most critical aspect of your skincare strategy.**

**Proper UV protection may help prevent photoaging and further damage and facilitate reversing some existing signs of aging.**



## Pigmentation – Increase your UV IQ

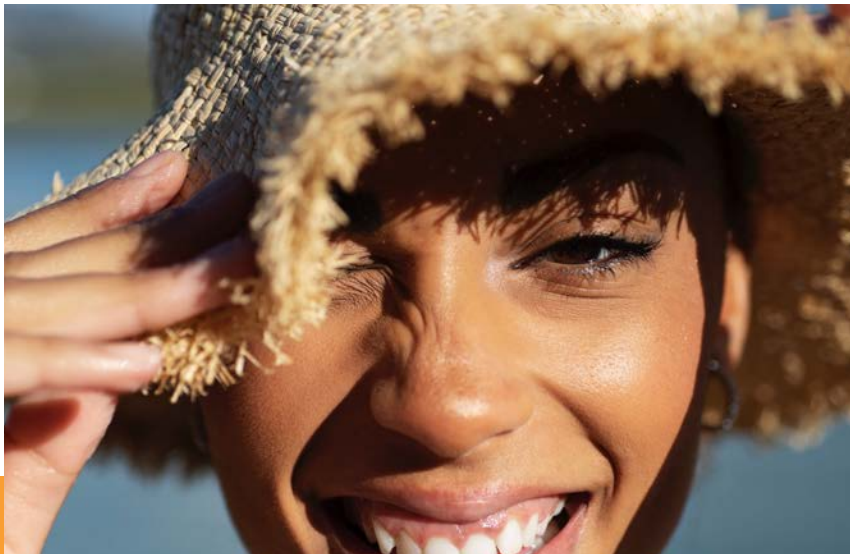


### UVA Rays

The effects of UVA rays often do not become apparent until years after the damage has already been done.

Its spectrum is strong enough to bypass the top layers of skin and damage the deeper layers known as the dermis. **These rays cause the skin to age prematurely.**

UVA rays are primarily present when the sun is at an angle, generally between 8am – 10am and 2pm – 6pm, and become magnified on cloudy or overcast days and when reflected through glass, such as when driving or near windows.



### UVB Rays

Unlike UVA rays, its spectrum isn't strong enough to travel into the deeper layers of skin therefore, most of the damage is done on the superficial layers taking the form of sunburns, peeling, swelling, pigmentation and Browning of the skin.

UVB rays are most prominent when the sun shines directly down between 10am -2pm.

# Antioxidant Support

**1 in 2 people is predisposed to reduced skin antioxidant protection.**

Superoxide Dismutase and Glutathione Peroxidase are two of the most potent antioxidants available within the human body. The higher the levels, the less prone we are to the destructive effects of free radicals.

## Genes Tested

### Superoxide Radical Defense

Protects cells from oxidative damage and converts free radicals into less harmful products.

### Glutathione Production

Detoxifies Hydrogen Peroxide compounds and minimizes further oxidative damage.

### Pollution Defense

Detoxifies environmental pollutants, allowing them to be safely broken down into water.

## Visible Signs

- Rough texture
- Uneven skin tone
- Dull and lifeless skin
- Tired looking appearance
- Excessive dryness
- Excessive oiliness

## Internal Signs

- Increased cellular destruction
- Premature cell death
- Increased mitochondrial damage
- Decreased antioxidant functioning
- Decreased pollution defense





# Antioxidant Support

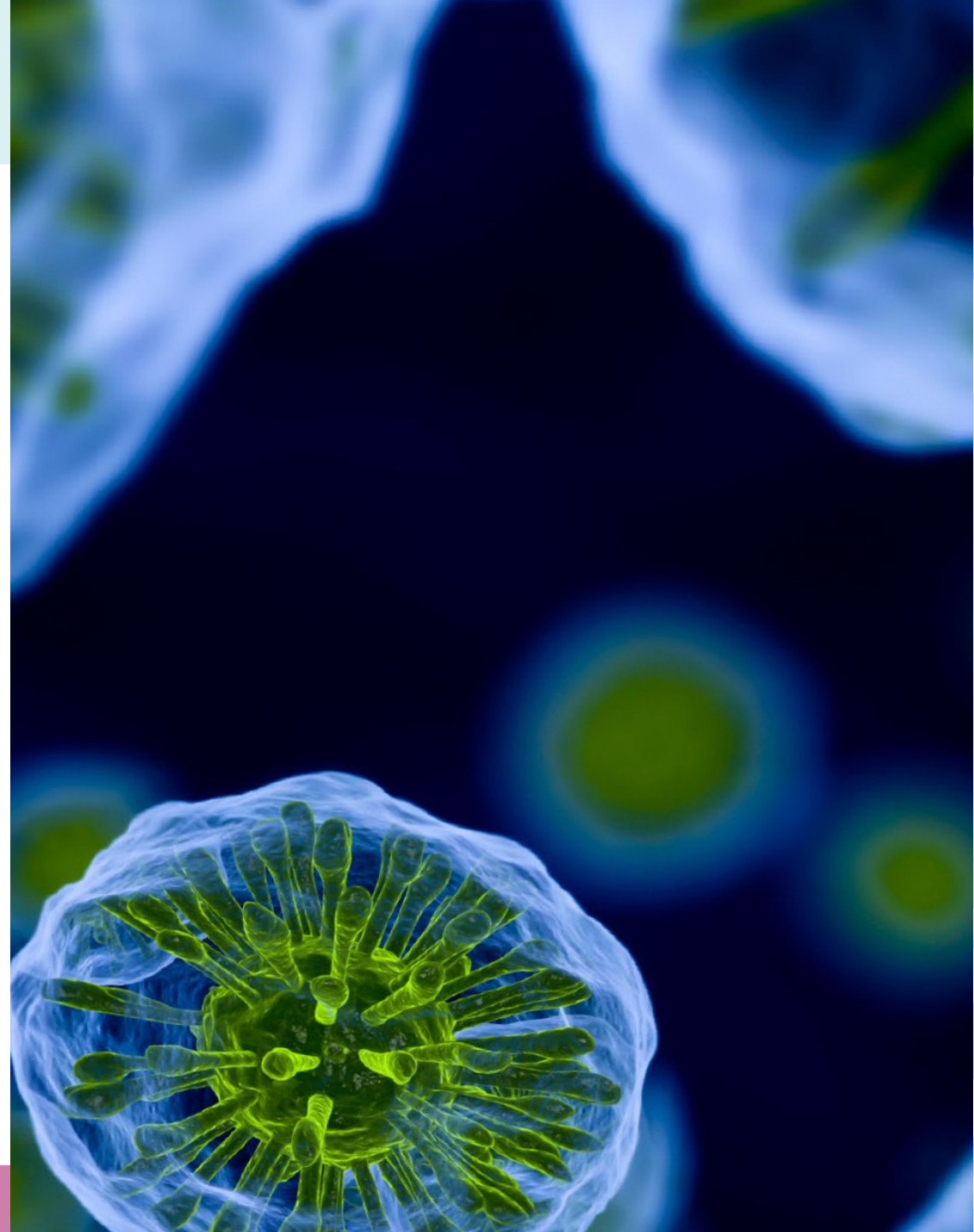
## Know the Science

Free radical oxidation causes significant damage and impairment to skin cells.

This kind of free radical damage leads to the generation of even more free radicals! It's a chain reaction that can wreak havoc in every layer of the skin - including the Hypodermis, Dermis, and the particularly vulnerable Epidermis. This sort of cellular destruction in any skin's layers can lead to a dull, lifeless, and aged complexion.

Discoloration, blotchiness, and an uneven skin texture are the tell-tale hallmarks.

**Scientists now believe that free radicals are casual factors in nearly every known disease, from heart disease, to arthritis, to cancer and cataracts. In fact, free radicals are a major culprit in the aging process itself.**



# Skin Sensitivity

**4 in 5 people have a genetic variation that may cause an overreactive inflammation response.**

Do you ever wonder why your skin becomes sensitive in the winter? Or breaks out in the heat? Or develops a rash after applying skincare? Your body's first primal defense – inflammation – may be the culprit.

## Genes Tested

### Inflammation

Helps defend skin cells against invaders.

### Xenobiotic Detox

Detoxifies alcohol and cigarette smoke to be metabolized and converted to water.

### Skin Sensitivity

Detoxifies pollution and chemicals into more water-soluble compounds which can be safely broken down.

## Visible Signs

- Dryness
- Redness, rashes, or skin bumps
- Chemical sensitivity
- Prolonged redness after skin treatments

## Internal Signs

- Irregular tissue healing
- Decreased cellular defense
- Enhanced sensitivity
- Overactive inflammatory signaling



# Skin Sensitivity

## Know the Science

Without inflammation, your skin could not protect itself or heal. It is the body's short-term immune response for healing and countering infection and invasion by foreign substances like germs, bacteria, allergens, and toxins.

Sometimes the body overcompensates and releases too many inflammatory proteins in response to an issue that requires much less. As a result, the body overreacts to everything, thinking that perfume is a virus and a skincare product is an enemy.

This type of sensitivity is a problem because the trauma caused by a constant oversupply of inflammation dramatically ages the skin. Often subtle, the signs include skin sensitivity, redness, and irritation.

**An inflammatory build-up can lead to skin irritations, sensitivity to perfumed products, active skincare ingredients, and general environmental pollution. These responses can manifest into redness, rashes, and acne.**



Contact us anytime, we are here to help you provide personalization!

Our vision is that everyone knows their unique and interesting face is beautiful.

We are passionate about healthy, happy faces. By focusing on skin wellness, confidence follows.

Yudoyu is **where you begin™** your skincare journey.

Training Questions:

Teresa Smith

Co-Founder of Yudoyu

Teresa@yudoyu.com

or hello@yudoyu.com

847-828-0079

Partnering Questions:

Ray Arias

Co-Founder of Yudoyu

Ray@yudoyu.com

or hello@yudoyu.com

(847) 340-8307



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