



# The Gut-Skin Axis

A Guide to Supporting Your  
Skin Barrier from the Inside Out

  
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## This Is A Must Read

Please read this important message prior to reading this Guide. This Guide and all of its materials are for educational and informational purposes only and solely as a self-help tool for your own use. I am not providing direct medical or nutrition-therapy advice. You should not use this information to diagnose or treat any health problems or illnesses without consulting your own medical practitioner. Always seek the advice of your own medical practitioner about your specific health situation.

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W E L C O M E !

# I'm Dr Justine Kluk.

As someone who once suffered from acne, I know its physical pain, and I know the emotional pain that can come from having such a visible condition. In fact, my experience with acne motivated me to go to medical school and become a dermatologist—and today, I am a Consultant Dermatologist (the equivalent of a board-certified dermatologist for those of you in the U.S.) with a practice based in London.

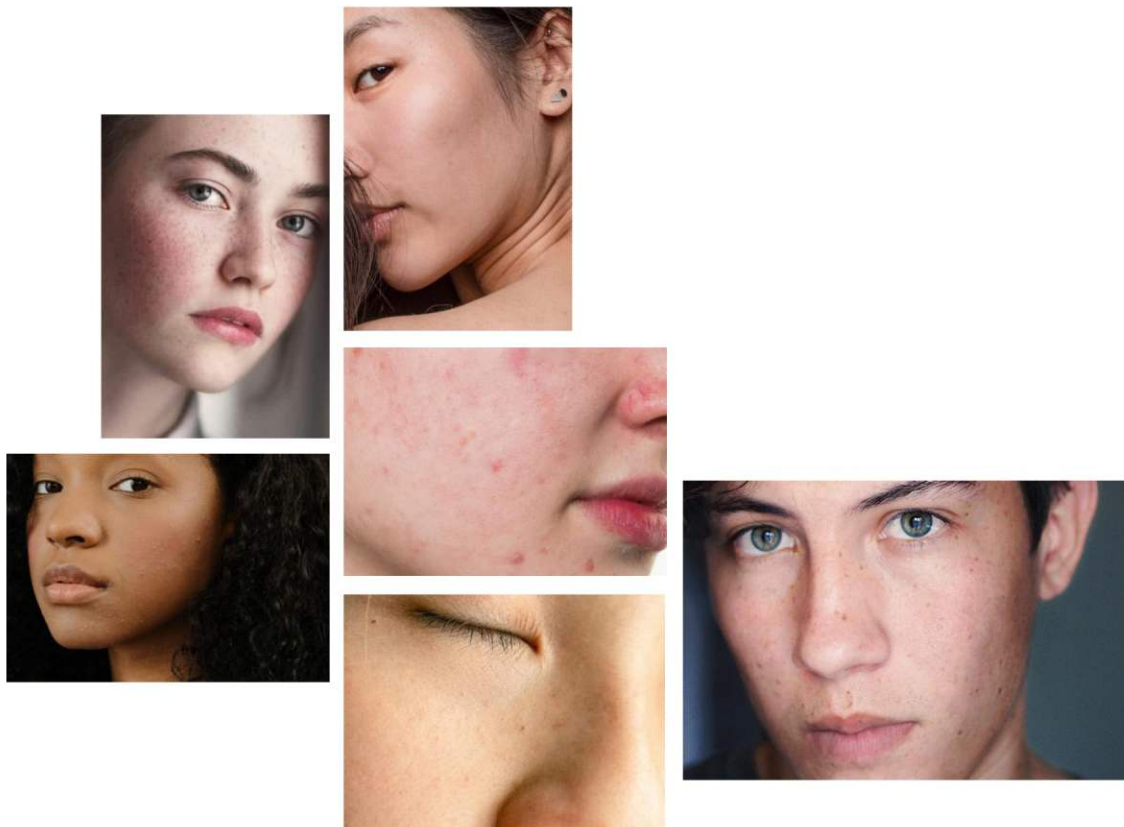
I qualified from the University of Birmingham medical school with honours in medicine and therapeutics before completing the rigorous specialisation process to become a Consultant Dermatologist.

Having been trained by some of the country's most eminent dermatologists, at leading centres such as the Royal Free Hospital and Royal London Hospital, I was selected for a prestigious fellowship in cutaneous oncology at the world-renowned St John's Institute of Dermatology.

Before setting up my own clinic, I worked as a Consultant Dermatologist in the NHS at London North West Healthcare NHS Trust and St George's Hospital, where I was responsible for teaching medical students and training future dermatologists-to-be.

My articles have been published in leading dermatology journals, such as the British Journal of Dermatology, and I have presented at national and international scientific congresses. I've also co-authored dermatology textbook chapters and I am a spokesperson for the British Association of Dermatologists.

Maintaining membership of key dermatology organisations and regularly participating in clinical and academic meetings ensure my knowledge and skills are continuously polished and perfected, and that I keep up to date with the latest research and scientific advances in dermatology. Which of course is better for you!



# What You Can Expect From This Guide

Acne is a misunderstood and often mismanaged condition. Most acne sufferers struggle with shame, and they experience frustration from conflicting information and a seeming lack of accessible and effective treatment options.

While many people think of acne as a problem for those in their teens and twenties, I have patients come to see me for first-time treatment of acne in their thirties, forties, and even fifties.

Acne can be caused by many factors; genes, hormones, stress, underlying medical conditions, and diet can all play a role. More often than not, it is the coming together of these factors that leads to the onset of acne, although the relative contribution of each factor can change over time. The key to treating acne is to first understand that we are all different, and that what works to relieve one person's acne is different from what might work for you. New scientific discoveries about the skin microbiome make it clear that we each have our own unique signature which explains why one-size-fits-all solutions often fail when it comes to acne.

In this guide, you will learn about the skin barrier and skin microbiome so that you can understand how daily habits like the skincare products you choose, the food you eat, your gut health and mental health can all impact your skin. It's also likely you'll discover that your skin has a greater impact on your overall health than you imagined, and understand how! You will learn how to develop a skincare routine that supports your unique skin needs, and how to troubleshoot if products are causing your skin to become irritated.

**Results will not come overnight—but with a consistent approach, you will see improvement.**

## *A final note before getting into the details:*

*This guide is in no way a replacement for working together with a dermatologist. I can set you on the right path toward improving your skin and knowing how to work together with a dermatologist, but nothing replaces direct medical care if you're dealing with a moderate to severe case of acne. Early input from a dermatologist can improve your skin and reduce the risk of permanent scarring.*

# Is Acne a Legitimate Health Concern?

I often hear acne dismissed as a non-serious health issue, one that you (purportedly) go through, then simply grow out of as a result of age, hormones, and the like. This is just not true. Some of my patients have been dealing with their acne for twenty years or more before they come to see me for help. Anyone who has suffered from acne will tell you that living with this condition has the potential to cause real harm, both physical and emotional.

If you are an acne sufferer (and I suspect you are, since you're reading this guide), then you certainly know acne is a true health concern.

**Acne is the eighth most prevalent disease in the world.** Not the eighth most prevalent *skin* disease—the eighth most prevalent disease, full stop.

More than 90% of teenagers experience acne of some severity, and it affects up to half of females in their twenties, a third in their thirties and quarter in their forties. About 20% of people who have acne will have permanent, irreversible scarring as a result.

Considering these statistics, acne most certainly is a legitimate health concern.

During the years my acne was most active, I tried every solution possible—but what really made the difference in the end was having a doctor who listened to me. Together, we tried different treatments until we found the right solution for me. It taught me that each person must be at the centre of his or her care. This includes thinking about our lifestyle habits, the environment around us and how it all fits together.

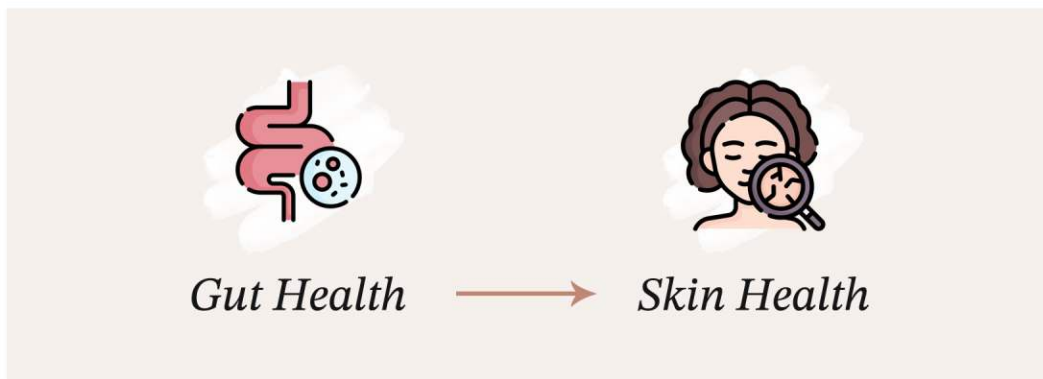


# The Healthy Skin, Healthy Gut Connection

Strategies for calming acne and achieving healthy, glowing skin start by looking at evidence-based, scientifically verified information to inform our approach and help us select the most effective treatment options.

I for one am relieved (and excited) that science is starting to provide clues about why rates of acne have been increasing in the last 10 or 20 years. What is especially fascinating is the way that inflammation in our skin may be related to our lifestyle choices and skincare habits, because this introduces new possibilities for getting acne better again.

Let me give you an example of how casting the net wider and looking at our overall health gives us greater insight into what might be affecting our skin.



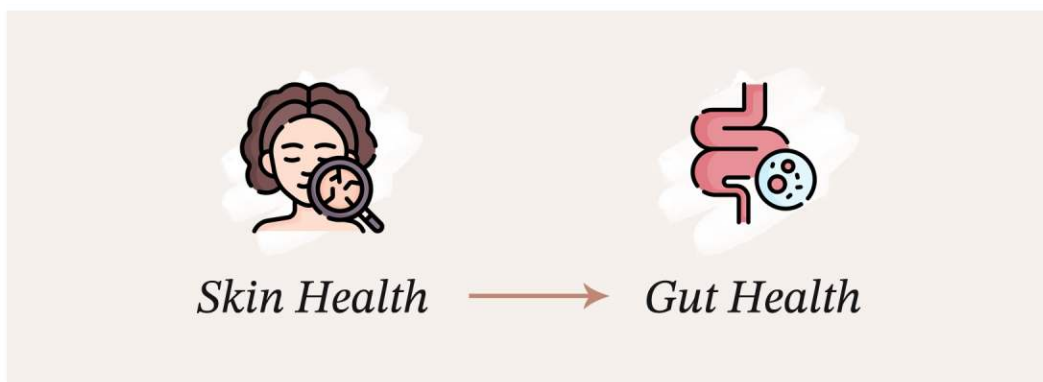
The health of our gut can very definitely influence the health of our skin and its appearance. Just as our gastrointestinal tract is home to trillions of microbes, our skin plays host to millions of microbes too. We call this community of microbes our microbiome. We now know that foods high in fibre and polyphenols (in other words, plant foods) play an important role in nourishing our gut microbes.

## **I particularly like an analogy that gut-health expert Professor Tim Spector offers:**

Our gut microbes are like mini-factories that send out certain chemical signals depending on the food we eat. These signals - neurotransmitters and hormones - have far-reaching effects throughout our bodies, and can tell our immune system whether to dial inflammation levels up or down. One of the sites impacted by these signals is our skin, so the food you eat and the state of your gut microbes can trigger inflammation in your skin leading to concerns, such as acne.

Consider the example of ulcerative colitis, a type of inflammatory bowel disease. People with this condition develop a variety of characteristic skin manifestations such as skin ulcers and erythema nodosum (a lumpy, tender, bruise-like condition on the front of the shins). The severity of gut inflammation in people with ulcerative colitis has been shown to directly correlate with the severity of these skin manifestations.

Coeliac disease (Celiac disease if you're in the US) is another example. It is an immune system-mediated disorder triggered by ingestion of gluten in the food we eat. There is a very characteristic rash that is associated with Coeliac disease called Dermatitis Herpetiformis (DH). It is an intensely itchy, blistering rash that tends to appear on elbows, arms, thighs, and the backs of legs. The treatment is to eliminate gluten from the diet, which improves gut inflammation and causes the skin rash to disappear.



If the health of our gut influences the health of our skin, can it work in the other direction? Can our skin health impact the health of our gut and perhaps even other parts of our bodies?

It most certainly can.

Skin is our biggest organ, measuring about 25 square metres because of its many folds and appendages (like our hair follicles, sweat glands, and so on). To understand how skin affects our internal health, consider this: *the function of the skin is to keep harmful things out and keep moisture in*. It is an “outer shield” protecting against external aggressors in the environment such as pollution, allergens, infections, and UV radiation. Skin is also an “inner shield” that protects us from losing too much water and becoming dehydrated.

As I mentioned earlier, the skin has its own microbiome (somewhat like the gut). In fact, we carry more than 1 million microbes per square centimetre on our skin. Because the skin has such a large surface area, each and every one of us is actually host to a pretty big community of microbes. These are mostly healthy, protective resident bacteria (a.k.a. commensal bacteria) that play a vital role in out-competing harmful microbes and keeping our skin shield (or barrier) intact.

Similar to the microbes in our gut, these little chemical factories in our skin send signals to distant parts of our body, particularly our immune system. The microbes are therefore very important to the development of a healthy immune system when we are young, as well as normal functioning of the immune system as we get older. If there is an imbalance between healthy and harmful microbes, our skin barrier can become more leaky and permeable, making us more vulnerable to infections, as well as inflammatory skin disorders like acne, atopic dermatitis (eczema), and rosacea.

Whilst we're discussing connections, another fascinating discovery is the brain-skin axis. We know that having a skin condition like acne can impact emotional health and cause low mood, anxiety and low self-esteem. Believe it or not, skin health can also be directly affected by our emotions. Many people find their acne gets worse when they are stressed (which stresses them more, and the vicious cycle continues). Psychological stress produces stress hormones which amazingly can be detected in the sweat and sebum (natural oils) released from our pores onto the surface of our skin. These stress hormones interact with microbes on the skin surface, impacting the balance between healthy and harmful varieties, and can trigger skin conditions like acne to flare up...



# How to Boost the Skin Barrier and Balance the Skin Microbiome

Now that you understand the importance of the skin barrier and skin microbiome, I'm going to demonstrate how you can take effective action to improve these.

## *Your Unique Microbial Signature*

Every single person has a unique microbial signature. Between different people, our own skincare practices, personal hygiene choices, the clothing we wear, the humidity in our environment, and our exposure to UV radiation impacts the particular microbes that choose to live on our skin. Microbes also vary depending on our age, sexual maturity, whether skin is moist or dry, hairy or smooth, and so on.

Each person has to optimise for their unique microbial signature. This is why treatments may work for one person and not another.

## ► Skin Care Practice

With an inflammatory skin condition like acne, people experience red, swollen bumps on their skin. Most people tend to over-cleanse and over-exfoliate their skin because they are trying to unblock their pores and scrub away whatever is causing the inflammation.

When you think about it, this approach doesn't make much sense, does it? When you rub your skin raw, you only make it more inflamed. We certainly do not want to add *more* inflammation to an inflammatory skin disorder!

**Be kind and gentle with your skin. That's what it needs.**

## Skin Barrier Calming Method

**01. Use gentle cream or gel cleaners for washing your face once or twice a day.** Rinse with warm (not hot!) water using clean hands. Gently pat your face dry with a soft towel.

Cleansers containing soap and many foaming cleansers can be stripping and harsh, so are usually best avoided.

**02. Moisturise skin using a product that is non-comedogenic** (which simply means non-pore blocking). *Pick a non-comedogenic sunscreen too.*

People who have other inflammatory skin disorders like eczema or psoriasis know instinctively that they should moisturise their skin regularly because it feels very dry. But people who have acne often skip moisturising, believing it will increase clogging of their pores and make their acne worse. This is not the case if you choose the right product. In fact, moisture supports the skin barrier and can help to reduce inflammation.

**03. Exercise caution with certain skin care tools and devices.** You may have seen people using cleansing tools that vibrate, rotate or brush the skin, skin rollers, steamers and microneedling devices. I encourage you to be cautious with instruments or devices like this, as they can upset the skin microbiome and increase inflammation.

**04. Don't try too many new products at once.** If you're struggling with a skin problem like acne, it can be tempting to get your hands on everything that claims to help all at once: retinoids, salicylic acid, benzoyl peroxide, glycolic acid, niacinamide and so on. Piling these all on together can be a nightmare for the skin barrier, and very disruptive to the skin microbiome.

**05. Introduce new products gradually, one at a time.** Although they can be very effective when used correctly under expert guidance, if you've ever experimented with retinoids, acids or benzoyl peroxide for acne, you'll likely know that these can be difficult to get used to, particularly when first starting out. (The same also goes for anti-ageing solutions containing retinol or alpha hydroxy acids, like glycolic acid.) It's common to experience redness, sensitivity, dryness, and flaking when first introducing these products and many people give up before they've ever really got started because they don't have the knowledge and confidence to navigate this on their own..

Don't get me wrong! I'm definitely not saying that you shouldn't use these products. In fact, clever selection of the right products can lead to great results. What I'm saying is that the key is to go low and slow so as not to upset the microbes on your skin.

Introduce any new acne solution gradually, and start by using it 1-2 times a week in the beginning. Retinoid creams, as an example, are typically best applied in the evening (when skin will not be exposed to the sun). Once you know your skin is handling it well, you can increase application to every other night, and then eventually to every night.

When your skin has eventually had a chance to get to grips with this new product, you can begin to judge if a second active ingredient (or product category) is required or not. Just be sure to stagger the introduction of new products until your skin has adjusted.

I generally recommend giving each new product 1-3 months before adding something new.



# The Role of Nutrition on the Skin Microbiome

Because of the gut-skin connection, foods that are healthy for our gut are typically also considered healthy for our skin. Here are the foods that can promote a healthy gut microbiome *and* skin microbiome:

## ► Do Eat

1. **Plants.** Fruit, vegetables, grains, and legumes are all high in fibre and feed our gut microbes, keeping them healthy and thriving.
2. **Fermented Foods.** Sauerkraut, pickles, yoghurt, kimchi, and sourdough bread are just a few examples of fermented foods. These foods feature probiotics, adding more microbial diversity to the gut microbiome.

## ► Limit These Foods

1. **Processed foods** such as crisps, packaged snacks, breakfast cereals, and cookies can have a damaging effect on the gut microbiome and should be limited.
2. **Sugary food and drinks** are shown to aggravate acne.
3. **Refined carbohydrates** such as white bread, white rice, and white pasta can be problematic for people with acne. These can be swapped for brown or wholemeal versions.
4. **Dairy** can aggravate acne in some people, but we require more studies on this. Our blood sugar, insulin, and insulin-like growth factor 1 are some of the hormones that are activated by eating dairy. Milk seems to be a bigger problem than cheese and yoghurt, particularly skimmed milk. Milk alternatives are a good option if you suspect dairy is a problem for you.

# Do Supplements Help Skin Health?

At this time, there is no good large-scale data confirming that supplementation provides extra benefit to our skin health over and above what we can get through eating food. One exception to highlight is vitamin D. Many of us are deficient in vitamin D, particularly in autumn and winter (we make vitamin D from sun exposure) so many countries suggest supplementing vitamin D at these times of year. In this case, supplementation is appropriate and beneficial. But apart from this, without a proven deficiency, taking supplements is unlikely to meaningfully help your skin in most cases.

I sometimes see people in my clinic who are taking 10–15 different supplements to try and reduce their acne, and most times this is not necessary. In fact, taking in more than your nutritional requirements by supplementing may mean that your body has to find ways to eliminate the excess, for example in your urine. Which is wasteful when you consider how much these supplements can sometimes cost. You cannot supplement in place of good nutrition and healthy lifestyle!

The best approach tends to be a food first approach. The goal should be a diet rich in plant diversity; aim for around 30 different plants per week, including different seeds, herbs, and spices in addition to fruits and vegetables. This will benefit you more than taking expensive supplements you may not need.

