Genetics and Acne

Quick Overview

There are several studies findings that suggest one's genetics and acne having a connection. Although there is usually multiple factors at any one time that contribute to a person's acne. There are actions that can be taken to reduce and heal your acne.

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1.1 Introduction - Did Your Parents Have Blemished Skin?

The answer to your acne problems may be buried deep in your genes. Recent studies indicate a link between genetics and acne. There exists a genetic acne trait that may be responsible for this painful and confidence-destroying condition.

Before, we go into details. We must first realize that acne is not some eternal curse. It is, in fact, just a simple skin disorder. I know if you've got pimples right now that seems
ridiculous. But it is almost like any other hereditary conditions such as diabetes or high blood pressure.

Did your parents or grandparents have it? Chances are you could develop some acne in the future. Or, if you do already have inflamed skin, this can help you address the issue in a more informed manner.

2.1 The Results of a Study - Does Acne Come from Genetics?

There was a study carried out by The General Infirmary at Leeds' Department of Dermatology in the UK. It showed that a family history of acne may determine an individual’s vulnerability to persistent acne in their adulthood. These genetic factors can also determine as to why acne-prone follicles fail and turn into acne resistant follicles later on in life.

Though acne is generally a condition that mostly affects adolescents. It can still bother some people well into their middle ages. This study now tells us that acne has another probable contributing cause. Being some sort of inherited problem.

2.2 The Study in General

The study focused on an initial 348 people and their immediate relatives. Exactly 204 acne affected patients and their 1203 immediate relatives were compared with the relatives of 144 un-affected individuals and their 856 relatives who were not affected by acne.

2.3 The First Group

The first group, the patient group (204), those affected by acne since adolescence were observed. Then demographic information and the occurrence or non-occurrence of acne among relatives above the age of 25 were collected. And, a detailed chart on familial history were created for each of these patients.
2.4 The Second Group

As for the second group (144), the control group who were unaffected by acne. The same happened. These 144 individuals were gathered with the same matching details as the patient group. Details included age, ethnicity and social class. Identical information was also collected about the control group’s immediate relatives.

The results were interesting.

It was noticed that out of the first group of 204 patients that 203 relatives had been affected by acne from the 1203 observed. While the second group of people, the non-acne control group, only 42 relatives reported the same.

2.5 The Study's Findings

This showed that the acne affected relatives of acne patients were much higher in number compared to acne affected relatives of the control group. This indicated that genetics may play a key role in determining, whether or not, a person will be affected by acne.

However, the study does not give us information on whether a person's vulnerability to acne can be diagnosed in advance by studying his/her genetic history. But, the study has managed to narrow down the answer to a particular acne inducing gene known as 'retention hyperkeratosis'.

To put it simply.

Individuals possessing this gene are most likely to experience hyper-production of dead skin cells. And, shed them when it isn't necessary to do so. This hyper-production of dead skin cells and untimely shedding causes the pores in the skin to develop abnormally. The abnormal development of the pores leads to clogging. Ultimately, causing acne. Nevertheless, it can still be fought with the right kind of intervention.

3.1 Other Studies - Twins

There have also been other studies that show the relation between genes and acne.
For instance, a study involving 458 pairs of identical and 1099 pairs of fraternal twins showed that there was an 81% chance of acne formation in genetically shared environments. Only 19% was caused by external factors such as diet or stress.

In another study, similar sets of fraternal and identical twins were observed for sebum production. It was noticed that identical twins had similar sebum production levels. However, acne formation varied among them.

Fraternal twins varied, both, in terms of sebum production and acne formation. Indicating that sebum production and not acne itself, is responsible for acne severity.

4.1 What Can We Deduce About Genetics and Acne?

Studies such as these show us a clear link between genes and the susceptibility of an individual to acne. However, the studies do not give us a complete answer.

There are many contradictory observations that do not fall in line with these studies and provide a different perspective on things.

For instance, tribal societies and non-westerners show a lower prevalence of acne among them. But, when they move to the west, they experience severe acne conditions. An observation of dietary habits also indicated something interesting as well. Individuals who consume less sugar or low GI diets tend to suffer less from acne.

What we can deduce from this is that, though genes may predispose us to acne, they do not play a 100% role in how severe the acne is. But, it is the external environmental factors that aggravate the acne condition. For instance, a lot of your family members may practice similar dietary habits.

This, combined with your genes can cause the acne condition to become worse.

To put it simply, you are not at the end of the road just because you have the “acne gene”.
5.1 How Genes Actually Play a Role With Pimples & Zits?

Genes only do one thing and that is, they increase our chances of developing, rather than cause it completely. They alter the skin's physiology, making it more vulnerable to hormonal changes and various other factors.

For instance, genes increase the sensitivity of our skin to hormones. That is why even similar levels of androgen hormone production have a varying effect on how much acne develops in each individual.

Genes also regulate inflammatory responses to bacteria and that is why acne prone individuals, display stronger reactions to the \textit{p.acnes} bacteria. Which results in acne affected skin.

There is also a specific gene that a few people have that increases acne inflammation. The gene Toll-Like Receptor 7 (TLR7) is part of the immune system that upon sensing bacteria goes into over-drive. It dispatches more white blood cells than needed to combat the infection. In turn, increasing the inflammation, redness and soreness. When this happens, healthy skin is damaged that might not have been otherwise.

These are the same reasons why some people develop more acne than others. Even though their lifestyles might be the relatively similar.

5.2 What To Do To Prevent "Hereditary" Acne?

Genes do play a small role in increasing our chances of acne. We may not be able to prevent them completely. However, we can take measures to minimize the effects by following these simple steps:

- **Drink green tea:** Green tea has been known to block androgen receptors. Androgens are one of the hormones that causes skin damage. Eventually aggravating the acne condition. Similarly, a green tea based topical agent can minimize the production of sebum. Which is also a contributing factor to
increased acne.

• **Caffeine:** Avoid caffeine. Things like coffee and guarana (energy drinks). Caffeine stimulates the glands that produce the stressor hormones like cortisol and adrenaline. These hormones stimulate the sebaceous gland that produces too much oil that can clog pores. [Find out more here.](#)

• **Wash your face:** Keeping your face clean is important. Irrespective of how severe your acne condition is. Washing your face helps get rid of all the impurities on your skin. This includes bacteria, dead skin cells, excess sebum/oil. However, it is also not good to wash too often. Ideally, twice a day is more than enough.

The key is to use warm water and only your hands. So in the shower is perfect. Just make sure your hands are clean. I never use any products. At all! Harsh chemicals can worsen the condition. Also, avoid scrubbing your skin with a loofah or exfoliating scrub, and instead, just use your clean hands. Easy!

• **Moisturize:** Dry skin can worsen your acne condition and this is a problem with a lot of acne curing cosmetics. So use a moisturizer along with your acne cream or cleanser. Also, remember to use a noncomedogenic moisturizers because normal moisturizers might make the acne condition worse.

• **Eat right:** [Your diet has a lot to do with your acne condition.](#) Eating foods that are oily, fatty, or sugary can lead to severe acne. Avoid such foods and stick to a diet that is enriched with fruits, vegetables, probiotics. [Probiotics, especially, are very good for treating acne.](#) They get rid of acne causing bacteria and also regulate hormone production, which in turn minimizes the inflammatory reactions caused by these hormones.

• **Reduce sun exposure:** Sunlight can trigger inflammatory reactions. So reduce your exposure to the sun. In fact, certain acne medications have also been known to make your skin sensitive to sunlight. Which can be quite counterproductive for your condition. You can also try using a noncomedogenic sunscreen. That is if you are forced to go out and cannot avoid the sun.

But!

In saying this make sure you do get sun. Another cause of acne is not enough Vitamin D. About 20 minutes of direct sunlight daily on your forearms, hands, neck and face is perfect.
• **Reduce stress:** Studies show that even stress can cause acne. So, practice meditation or indulge in a relaxing activity to prevent the acne from getting worse.

### 6.1. Do Our Genes Play a Role in Our Skin?

We have seen that genes do play a role in the formation of acne. However, they do not actually cause the acne. Rather they create conditions in which acne can thrive. That doesn't mean we can't manage the acne issue. By following the instructions given above, we can reduce the severity of the acne condition.

Also, we must also accept that our acne may never go away and learn to live with it. While still doing what we can to minimize it.

I hope this article answered your questions, if you have any more be sure to post them below.

**Cheers**

**Rohan**