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Undergraduate

# Correlation Between Diet and Acne?

BY MEDHA MADHAV



About 85% of individuals aged 15-25 are affected by acne vulgaris.<sup>5</sup> Acne is “the occurrence of inflamed or infected sebaceous glands in the skin; in particular, a condition characterized by red pimples on the face, prevalent chiefly among teenagers,” according to the definition provided by Oxford Languages.<sup>7</sup> As implied in the mentioned age group, acne occurs in post-pubescent adults—but why would this be the case?

The main causes of acne are attributed to two factors: hormonal changes and diet. Hormonal changes are most present during the stages of puberty, the age range in which adolescents reach sexual maturity by undergoing biological changes in their body. The age range of puberty for females assigned at birth can range from 8 to 13 years old, while males assigned at birth can undergo puberty anywhere between 9 to 14 years old.<sup>2</sup> Furthermore, hormonal medications such as corticosteroids, DHEA (dehydroepiandrosterone), and androgenic steroids can cause acne as well.<sup>9</sup> The consequence of using such medications can shift an individual’s hormones out of balance

and result in acne. The reasons for taking the aforementioned medications are varying and subjective. Stress is also related to the umbrella category of hormonal changes. Though it does not directly cause acne, it boosts cortisol (the “stress hormone”) production that then drives oil production in sebaceous glands. Sebaceous glands are small oil (sebum) producing glands located throughout the dermal layer of the skin, excluding the palms and top and bottom of feet.<sup>6</sup> When cortisol promotes sebum secretion, sebum present in the skin can become imbalanced, leading to the clogging of pores and ultimately resulting in acne.<sup>9</sup>

While stress may appear to have a relatively clear relationship with the prevalence of acne, diet can play just as an important role in skin health. Research suggests a correlation between high glycemic index food consumption, such as highly processed foods, with a higher prevalence of acne.<sup>1</sup> Glycemic index indicates the degree of impact a certain carbohydrate will have on blood glucose (also known as blood sugar). Foods with a high glycemic index, when consumed, speed up the rise of a person’s

blood glucose. In essence, this means that not all carbohydrates are created equal: a food item with a glycemic index value of 70 or above is deemed of high glycemic index. Some examples of such foods include corn chips, pretzels, sweet tea and sports drinks, cheeseburgers, fried chicken, pizza, donuts, white bread, cereals (made of refined grains), mashed potatoes, and french fries, all of which are highly processed foods commonly found in U.S. society.

In contrast, foods with a glycemic index value of 50 or below are deemed of low glycemic index. These foods will raise the levels of blood sugar slower than that of high glycemic index foods. Low glycemic index foods include: vegetables, broccoli, tomatoes, lettuce, eggplants, strawberries, apples, pears, chickpeas, legumes, whole/full-fat milk, plain yogurt, cashews, peanuts, and dark chocolate with more than 70% cocoa.<sup>11</sup>

Why does choosing low glycemic index foods matter in the process of mitigating acne? As mentioned previously, when one consumes foods of high glycemic index, their blood glucose levels rise, which induces an inflammatory response in the

body. Inflammatory response can lead to excess sebum production in the skin<sup>4</sup>... leading to a possible acne breakout. With the combination of inflammation and sebum production, the resulting product is acne vulgaris.<sup>1</sup>

Studies have traced the dietary habits of varying communities. In the USA, 2258 patients consumed a low glycemic diet for the purpose of weight loss. While the study was focused on weight loss, 87% of the patients mentioned a reduction in their acne. In Australia, 143 males with acne in the age range of 15-25 consumed either their regular diets or switched to a low glycemic diet for 12 weeks. After 12 weeks, those who consumed the low glycemic diet had a significant reduction of acne than those who made no changes to their diet.<sup>1</sup> In Korea, 32 patients with acne of the age range of 20-27 years old consumed their typical diet, or a low glycemic diet over the course of 10 weeks.<sup>1</sup> Patients who consumed the low glycemic diets had less acne at the end of the 10-week period, unlike their counterparts who did not change their diet. Lastly, in Turkey, among the 86 patients who maintained food logs over a course of 7 days, those with the most serious cases of acne consumed the highest glycemic index diet.<sup>1</sup>

Another study once again showed a correlation between high glycemic index diets and acne in adults. 24452 participants with 6125 men and 18327 women completed a minimum of 3 dietary records, and 11324 individuals reported that they had a case of past or current acne. When their consumption of fatty products, sugary products, and milk increased, their acne increased as well. It was concluded that these food products do appear to have some association with acne in adults.<sup>8</sup>

However, there is another aspect to consider: the varying reactions of differing individuals to different types of food. As stated earlier, milk is a food of low glycemic index,<sup>11</sup> and is suggested as a myth causant of acne.<sup>9</sup> While there is a recurring pattern of high glycemic foods having possible correlation with acne, the study previously mentioned provides data<sup>4</sup> where milk consumption is correlated with acne severity.

It can therefore be speculated that, while more research must be conducted in order to find a clearer confirmation of these patterns, diet is subjective and correlation is

not equal to causation. Certain foods may affect a person differently than they may affect another. High glycemic index foods surely cause inflammation;<sup>3</sup> however, there are many factors that may influence acne. While high glycemic food can be consumed as part of the American diet, limiting consumption may help with the reduction of acne. They may also be consumed for special occasions with loved ones; this article does not discourage those who consume high glycemic foods to avoid such foods completely. However, if you are struggling with adult acne, these patterns are definitely

to be considered. Consume the foods you love at reasonable portions, while paying attention to how certain foods react with *your* body.



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