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Associations among acne vulgaris and Western diet

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Acne vulgaris is one of the most common dermatologic conditions, especially among the adolescent population.

- The pathogenesis of acne is largely multifactorial, with heredity and hormones likely contributing to one's risk of developing the chronic inflammatory skin condition.
- High prevalence rates of acne in the adolescent population cannot be attributed solely to the influence of Western diet (WD) that stimulates insulin-like growth factors (IGFs).

The purpose of this scholarly project is to determine if there is an association between the presence of acne vulgaris and the consumption of WD, and if a physiological link between the high glycemic load and dairy products that compose the typical WD exists.

- Includes current research that focuses on the pathophysiology of acne vulgaris: the breakdown of high glycemic foods and dairy products and their propensity to cause inflammatory acne.
- Anticipated to be found that consuming a WD increases IGFs leading to hyperinsulinemia, and furthermore, acne presentation by increased sebum production

More research is needed before universal associations can be established.

**Abstract**

- The purpose of this scholarly project is to explore the pathophysiology of acne vulgaris: the breakdown of high glycemic foods and dairy products and their propensity to cause inflammatory acne.
- Anticipated to be found that consuming a WD increases IGFs leading to hyperinsulinemia, and furthermore, acne presentation by increased sebum production.

More research is needed before universal associations can be established.

**Literature Review**

**Pathophysiology of Acne Vulgaris**

- Increased in the production of adrenal androgens during adolescence typically occurs, leading to increased production of sebum by sebaceous glands.
- Increased sebum, along with the accumulation of epithelial cells and keratin, obstructs the hair follicle, causing swelling of the hair follicle and formation a keratin plug; this process forms the earliest acne lesion, known as a microcomedone (Feldman, Carecica, Bartha & Hancox, 2020).
- As a keratin plug continues to grow, causes greater follicular swelling and increases the likelihood that the follicle can become colonized with Propionibacterium acnes, a normal skin flora, making it susceptible to bacterial infection.
- With the proliferation of P. acne, infiltration of inflammatory mediators are stimulated, causing a localized inflammatory response that results in a painful papule or pustule (Dynamplus, 2018).

**Associations between High Glycemic Load Diet and Acne Vulgaris**

A randomized controlled trial performed by Cerman, et al. (2016) found that diets with high-glycemic loads were positively associated with acne vulgaris for participants with present acne. Glycemic index and glycemic load levels were found to be higher (p = .022) when compared to the control group (p = 0.001). There was a positive correlation between acne severity and glycemic index values (p = .01) and insulin resistance (p = .02) between the LGL group and control group, with the LGL group showing improved insulin sensitivity and the control group showing increased insulin resistance.

**Associations between Dairy-Rich Diet and Acne Vulgaris**

A prospective cohort study of youth and lifestyle factors, titled, Growing Up Today Study (GUTS) was used by Adabemowo et al. (2018) to determine if an association between dairy and acne presentation and dietary intake among teenage boys. They concluded that a positive association between the intake of milk and acne exists, and more particularly, the highest intake of milk intake was associated with incidence of acne in adolescent boys.

LaRosa et al. (2016) conducted a case-control study to investigate the possible association between dairy consumption and acne in the teenage population. They found that the total dairy consumption in the acne group was significantly higher (p = .02) compared to the control group.

**References**


**Applicability to Clinical Practice**

Not only can the presence of acne cause physical discomfort and scarring, but also emotional distress—leading to significant psychological and emotional scarring, increasing one’s risk of depression and in some instances, suicidal ideation. Approximately 7% of patients with acne report depression or suicidal ideation. Various factors contribute to the high prevalence of acne, such as diet, is extremely applicable to primary care clinic providers (Verhoeven et al., 2008). The type of diet that is linked with Western diet, can cause a number of diseases, such as hypertension, type II diabetes, dyslipidemia, coronary artery disease, obesity, and abnormal glucose tolerance.