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## The Influence of Veganism on Acne

Paula Sánchez Niño<sup>1</sup>, Ramon Grimalt<sup>1\*</sup>

<sup>1</sup>Facultat de Medicina i Ciències de la Salut, UIC-Barcelona, Universitat Internacional de Catalunya, Sant Cugat del Vallès, Barcelona, Spain

**\*Corresponding Author:** Ramon Grimalt, Facultat de Medicina i Ciències de la Salut, UIC-Barcelona, Universitat Internacional de Catalunya, Sant Cugat del Vallès, Barcelona, Spain; E-mail: [rgrimalt@uic.es](mailto:rgrimalt@uic.es)

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### Abstract

**Background:** There is an historical controversy regarding the relation of acne and diet. Despite being veganism a current topic, no studies have been yet conducted to assess whether following a vegan diet has a positive or negative effect on acne.

**Objectives:** To assess veganism and acne's relationship.

**Methods** Cochrane Library and PubMed database were used to search scientific literature.

**Results:** Studies showed a link between milk consumption and acne. Additionally, high glycemic diets were shown to increase acne's appearance. Some studies suggest that a low intake of vegetables can worsen acne.

**Conclusion:** There is no scientific evidence assessing whether a vegan diet can affect acne's appearance on adolescent population.

### Keywords

Veganism; Acne; Adolescents; Milk; High Glycemic Index; Inflammatory Cascade

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## Introduction

Acne is a very prevalent dermatosis affecting 50-95% adolescents aged 12-18 years and it is well known for its emotional and social adverse effects among this population [1]. In like manner, veganism is also increasing its prevalence in Western countries, especially among adolescent population [2]. However, despite being veganism a current topic, no studies have been yet conducted to assess whether following a vegan diet has a positive or negative effect on acne. To address this under-researched topic, the currently available literature concerning acne and nutrition will be reviewed and then discuss its implications for future research regarding veganism effects on acne.

## Materials and Methods

A systematic search of journal articles was conducted using Cochrane Library and PubMed database. Keywords inserted were “acne” and “diet” in the timeframe 2016-2021. For assessing milk’s composition, Springer Link publisher platform was used and keywords inserted were “dairy” and “chemistry”.

## Results

### Evidence between Milk Consumption and Acne

Milk is a complex multiple-constituted fluid including water, lipids, carbohydrates, proteins, salts and other molecules [3]. Evidence shows milk insulinotropic aminoacids having an increase in Insulin-Like Growth Factor 1 (IGF-1), widely known for its mitogenic and apoptosis inhibitory function. Its activation results in the upregulation of the Phosphoinositide-3-kinase (PI3K)/Akt pathway and therefore, activation of Forkhead box transcription factor (Fox) O1, responsible for regulating acne-related genes. As a whole, the aminoacids promote the activation of mTORC-1. Consequently, the activation of this complex promotes cell proliferation, a factor involved in the progression of acne by stimulating sebaceous glands [4,5].

### Acne Linked to High Glycemic Index Diet

Studies suggest that low glycemic index diets produce clinical improvement in all types of acne. On the other hand, fruit juices have been found to be risk factors for the appearance of

acne. High glycemic index diets are associated to hyperglycemia and hyperinsulinemia, resulting in an IGF-1 increase and followed by the cascade mechanism [6].

## Brief Approaches between Fruit and Vegetable Consumption and Acne

Some of the studies reviewed indicate the possible protective effect on acne underlying the intake of fruits and vegetables at a frequency of 3 days a week, due to their anti-inflammatory and antioxidant properties. Likewise, several studies suggest that a low consumption of vegetables might be related to acne development. However, no randomized placebo-controlled studies have been yet conducted to assess vegetables possible positive effect on acne [6].

## Discussion

It is clear that in the pathogenesis of acne there is a relation with the increase of IGF-1 due to the subsequent activation of the inflammatory cascade [4,5]. Milk and milk-derived products or diets containing a high glycemic index act as promoters of this cascade and consequently have a negative impact on acne [6]. However, there is not enough scientific evidence on the role that vegetables may have on acne's development. Some studies have made slight approximations, but there is still a gap in the effect that vegan diets may have on acne. The increase in the prevalence of veganism in adolescents suggests studying carefully what effects it may have on acne and to what extent it can be used as a preventive factor or even as an adjuvant therapy. Future research should conduct randomized studies to assess what effect veganism may have on acne.

## Conflict of Interest

The authors declare that they have no conflict of interest in this paper.

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