

## **The Impact of Gut and Skin Microbiota on Acne Vulgaris: Exploring Probiotics and Prebiotics as Preventative Measures and Possible Treatments**

### **Abstract:**

Acne vulgaris is a prevalent skin condition that can have significant psychosocial impacts, prompting the need to identify effective preventative measures and treatments. Growing interest and research in the microbiota have unveiled the complex role of the skin and gut microbiota in acne pathogenesis. This literature review discusses the mechanism linking skin microbiota to acne, emphasizing the role of the dysbiosis of *Cutibacterium acnes* and its role in inflammation. Additionally, this paper highlights the gut-skin axis and how the dysregulation of the gut microbiota can influence the overall health and appearance of the skin. This review also aims to evaluate the efficacy of microbial interventions as a preventative and possible treatments for acne vulgaris. Topical probiotics *Lactobacillus plantarum* and *Enterococcus faecalis* have shown promise in reducing inflammation and acne lesions. When consumed orally, the prebiotic Lactoferrin and probiotics containing *Lactobacillus* and *Bifidobacterium* strains were identified to be effective in promoting anti-inflammatory responses and reducing sebum production, directly inhibiting the progression of acne vulgaris. The potential of microbial interventions to provide safer alternatives for acne treatment and improve the overall skin health is promising, offering new insights into acne treatment and prevention.