

The Diet and Skin.

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Acne

- ▶ Follicular hyperproliferation
- ▶ Increased sebum production, under hormonal influence
- ▶ *Cutibacterium* (formerly *Propionibacterium*) *acnes* proliferation
- ▶ Inflammation
- ▶ Genetic, racial and ethnic factors.

- ▶ **Does diet play a role?**

Old wives tale?



Acne

- ▶ **NICE: Scenario: Management of acne vulgaris in primary care**
- ▶ "To maintain a healthy diet"

- ▶ **UpToDate: Acne vulgaris: Overview of management**
- ▶ The role of dietary changes in the treatment of acne vulgaris remains uncertain. Associations between acne vulgaris and increased milk consumption and high glycemic load diets have been reported. However, given the absence of randomized trials that confirm a beneficial effect of specific dietary changes, we refrain from recommending specific dietary changes routinely.



Acne

- ▶ **The British Association of Dermatologists**
- ▶ Diet can influence acne. High glycaemic index (GI) diets (e.g. sugar and sugary foods, white bread, potatoes, white rice etc) have been shown to cause or aggravate acne. Switching to a **low GI diet** may lead to fewer spots. There is also some evidence that consuming **milk and dairy products** may trigger acne in some people, but this hasn't been studied in as much detail yet.

Milk

- ▶ A study of 47,355 women in the Nurses' Health Study 2005 used retrospective data collection to determine diet during high school found an association between acne and intake of milk (1)
- ▶ Prevalence ratio Skim milk 1.44> Semi 1.16> Whole milk 1.12
- ▶ Positive associations for instant breakfast drink, sherbet, cream cheese, and cottage cheese.
- ▶ Other dairy foods, soda, french fries, chocolate candy, and pizza were not significantly associated with acne



Milk

- ▶ Two subsequent, large, prospective, cohort studies (one involving boys and the other involving girls) also reported an association of milk ingestion and acne
- ▶ A case-control study that used three 24-hour diet recall phone interviews to assess typical food intake in 120 teenagers (ages 14 to 19 years) with moderate facial acne and 105 teenagers without acne suggests that the association of acne with higher milk consumption may be limited to **low-fat and skim milk**. The study did not find an association between acne and consumption of full-fat milk.

Milk

- ▶ A recent meta-analysis of 14 studies, have suggested an association between acne and milk intake.
- ▶ There is uncertainty whether milkfat percentage (ie, whole, low-fat, and skim) influences the strength of this association.
- ▶ Whey protein, which represents 20% of the protein in cow's milk, has also been suggested to contribute to the development of acne, and a small case series of 5 men found that discontinuation of whey protein supplement use resulted in apparent improvement of their acne

Milk

- ▶ **Increases insulin and insulin like-growth factor 1 levels**> induce lipogenesis and proliferation of keratinocytes and sebocytes
- ▶ Insulin like-growth factor 1 **stimulates androgen synthesis and decrease production of sex hormone–binding globulin.**
- ▶ Bovine insulin like-growth factor 1 and androgens present in milk may also promote the development of acne

High glycaemic load diets

- sugar and sugary **foods**.
- sugary soft drinks.
- white bread.
- potatoes.
- white rice
- ALL ULTRA-PROCESSED FOODS



High glycaemic load diets

- ▶ A 12-week, randomized trial that compared low and high glycaemic load diets in 43 male patients with acne found a greater reduction in lesion counts with the low glycaemic load diet (5)
- ▶ However, the participants on that diet also lost more weight than those on the high glycaemic load diet, so it is possible that the results were due to changes in weight rather than the composition of the diet
- ▶ a study of 20 subjects with altered metabolic profiles, randomized to a low glycaemic diet and Metformin versus control, resulted in statistically significant improvements in both acne and metabolic parameters in the intervention group (6)

High glycaemic load diets

- ▶ However, a 2015 Cochrane review on complementary acne therapies found insufficient evidence to support a low glycaemic-load diet for the management of acne.(7)

NutriNet-Sante study.

- ▶ ongoing web based cohort launched in 2009 in France with the objective of studying the associations between nutrition and health. participants aged 18 years or older with access to the internet have been continuously recruited among the general population since May 2009 (8)
- ▶ In November 2018 an acne questionnaire was introduced. 24,000 participants
- ▶ After adjusting for potential confounders, consumption of
- ▶ **milk** (per glass: adjusted odds ratio [aOR], 1.12; 95% CI, 1.00-1.25),
- ▶ **sugary beverages** (per glass: aOR 1.18; 95% CI 1.01-1.38),
- ▶ **fatty and sugary products** (per portion: aOR 1.53; 95% CI 1.09-2.16)
- ▶ were each found to be **independently associated with current acne.**

Nutri-Net Sante study

- ▶ did not identify any association between chocolate consumption and acne in their multivariate model
- ▶ Has several strengths, large sample size, attempts to control for potential confounders, and the comprehensive assessment of dietary habits of the participants.

NutriNet Sante study

- ▶ effect sizes observed in this study were generally small (eg, ORs <1.2) and an association between diet and acne may not be clinically meaningful for many patients
- ▶ There is a need for prospective, randomized trials to evaluate the influence of diet on acne
- ▶ Still no causal association between diet and the presence of acne
- ▶ Unfortunately, associations identified in nutritional epidemiologic research are often unable to be replicated when evaluated in randomized trials

Other factors

- ▶ Data on effects of zinc, omega-3 fatty acids, antioxidants, vitamin A, and dietary fibre, on acne vulgaris are limited.
- ▶ Further studies are necessary to determine the roles of these supplements in acne vulgaris

Conclusion

- ▶ Avoiding dairy products, may have other relevant effects (eg, reduced calcium and vitamin D intake), they should be cautiously implemented.
- ▶ Given the potential overall health benefits of a healthy or low glycaemic-load diet it's a reasonable recommendation for patients looking for dietary modifications that may improve their acne.

Eczema

- ▶ Probiotics in prevention of IgE-associated eczema: A double-blind, randomized, placebo-controlled trial. 188 completed study
- ▶ oral supplementation with the probiotic Lactobacillus reuteri.
- ▶ Cumulative incidence of eczema was similar in both groups
- ▶ the treated infants had less IgE-associated eczema at 2 years of age

- ▶ Recent Meta-analysis giving Synbiotics to children over 1 confirmed a positive effect in prevention.

- ▶ Research on treatment of established eczema less promising results.
- ▶ A 2008 review of 12 trials found no differences in outcomes related to the use of probiotics and placebos, with a small increased risk of adverse effects, such as infections and bowel ischemia, among those using probiotics

American Academy of Family Physicians

- Probiotics may reduce the incidence of antibiotic-related diarrhoea.
- Probiotics may reduce the duration and severity of all-cause infectious diarrhoea.
- Probiotics may reduce the severity of pain and bloating in patients with irritable bowel syndrome.
- Probiotics may reduce the incidence of atopic dermatitis in at-risk infants.

Psoriasis

- ▶ Systematic review-Mediterranean diet and the onset and/or severity of psoriasis?
- ▶ 35 735 respondents, 3557 had psoriasis
- ▶ The Mediterranean diet may slow the progression of psoriasis, so an optimized diet should be part of the multidisciplinary management of moderate to severe psoriasis
- ▶ Further prospective observational studies and randomized clinical trials are needed

Psoriasis

- ▶ Another large systematic review of 55 studies:
- ▶ Strong evidence-weight reduction with a hypocaloric diet in overweight and obese patients
- ▶ Weak evidence-a gluten-free diet only in patients who test positive for serologic markers of gluten sensitivity
- ▶ Weak evidence-in psoriatic arthritis, we weakly recommend vitamin D supplementation and dietary weight reduction with a hypocaloric diet in overweight and obese patients

Hidradenitis supparativa

- ▶ Italian cross-sectional observational study of 63 unselected HS patients and 41 patients Controls, matched for age, sex, BMI
- ▶ 22 HS patients excluded
- ▶ Questionnaire used to assess adherence to Mediterranean diet
- ▶ Higher adherence to MD significantly associated with lower severity of HS



Mediterranean Diet

- ▶ attributed to the high content of compounds, such as antioxidants and polyphenols, found in plant foods, fruit and red wine



So dietary
advice?



Weight loss by any means



Mediterranean diet



Low Glycaemic index foods diet



Dairy; Possibly.