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Acne: Depression & Suicide

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The Condition

Acne or acne vulgaris is a common condition characterized by inflammatory pustules. in extreme cases it can lead to scarring.

A number of factors are believed to contribute to the problem including infection with Propionibacterium acnes, inflammation of the tissues, plugging of hair follicles as a result of overly rapid proliferation of epidermal cells, and hormone imbalances.

Traditional therapy involves the use of antibiotics, oral contraceptives for women, and Accutane or isotretinoin. The last is highly effective in many cases of severe acne, but can cause many adverse effects. One is that it can cause birth defects if a woman becomes pregnant.

One problem of antibiotic therapy is the development of antibiotic resistance among many strains of propionibacterium acnes, the bacteria implicated in acne. Another problem is that infection of the skin with pityrosporum yeasts is often mistaken for acne. Antibiotics will not control a yeast infection.

One study found that 6% of acne on 25% to 50% of the face have considered suicide and many more suffer with depression.

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Diet

Traditional medicine does not consider diet an important contributory factor in the development of acne. However, acne was unknown among Canadian Eskimos until they switched from their traditional diet of game and fish to a typical Western diet.

Limited success has been recorded with elimination or reduction of intake of refined sugar and chocolate. One 12 week study found a significant improvement in follicular sebum outflow when individuals were on a low glycemic load diet (ie. restriction of sugars and simple carbohydrates). A low glycemic diet reduced the total number of lesions, improved insulin sensitivity, and promoted weight loss.

Some individuals are also sensitive to foods which can cause or aggravate acne. Sensitivity to foods is more common in adult acne. Foods which have been implicated include milk, chocolate, oranges, tomatoes, nuts, wheat, and pork.

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Milk

Milk consumption has been implicated in acne causation. Over three-quarters of the cows which supply milk commercially are pregnant. The milk of pregnant animals contains generous quantities of progesterone and other hormones which are readily broken down into dihydrotestosterone which has been implicated in acne.

Consumption of large quantities of milk has also been shown to increase blood levels of insulin-like growth factor-1 which promotes hyperkeratinization. Keratinization is the conversion of epithelial or surface cells into a horny material like the fingernails. The hardening of the surface layer of

the skin is important since it makes us waterproof and provides a natural barrier to infection.

Hyperkeratinization is an abnormality within the hair follicle. The cells form excess keratin which interferes with the normal process of detatchment and being forced out of the hair follicle by the growing strand of hair. The hair follicle becomes blocked or capped. The oil ducts within the hair follicle become clogged. Bacteria can take advantage of this micro-environment compounding the problem with inflammation and infection.

Follicular hyperkeratosis is also called phrynoderma. This condition was once associated only with vitamin A deficiency. More recently other factors have been implicated. Deficiencies of vitamins A and E, vitamin C, B complex, and essential fatty acids have all been implicated in the causation of the phenomenon. The appearance of this sign is a good clue to general malnutrition.

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Inflammation

Researchers have suggested that inflammation plays a key role in acne. Anti-inflammatory agents that block leukotriene B4 resulted in a 70% reduction in inflammatory lesions in 3 months. Reduction in pro-inflammatory lipids directly correlated with the improvement of the acne.

Reduction in intake of arachidonic acid containing or promoting foods and inclusion of fish oils which counteract the activity of arachidonic acid may prove beneficial in acne treatment.

Blue light has been shown to have a significant anti-inflammatory effect on acne lesions.

References:

Zouboulis CC, Is Acne Vulgaris a Genuine Inflammatory Disease? *Dermatology*, 2001;203:277-279.

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Nutrition

Zinc

Severe zinc deficiency is known to cause acne. In one study 4 of 6 volunteers fed a zinc deficient diet developed acne. Zinc is usually lower in those with acne and the lower the zinc the greater tends to be the severity of the disease. Trials of zinc preparations tend to produce favorable results.

Zinc appears to inhibit the movement of white blood cells to problem areas (chemotaxis) and may thereby inhibit the inflammatory cascade which ensues. A combination of zinc and the antibiotic erythromycin has been suggested as a treatment for acne. The zinc inhibits the conversion of testosterone to dihydrotestosterone (which promotes acne). Zinc also has antibacterial activity, anti-inflammatory activity, and inhibits allergic contact dermatitis which can look very much like acne.

Supplementation with zinc for 12 weeks decreased the mean acne score of one group of patients from 100% to 15%. There was a significant decrease in the number of papules, pustules, and infiltrates in the zinc treated group.

Improvement with zinc has been seen with doses as low as 30 mg. Some forms of zinc can cause nausea, vomiting, or diarrhea. It is better to use a well absorbed form of the mineral, such as a chelated zinc, and use lower doses. Zinc can antagonize copper so zinc supplementation should generally be accompanied by some copper.

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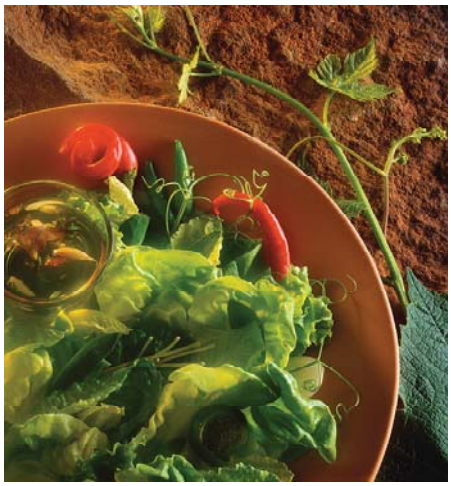
Vitamins A and E

A study of 100 subjects with recently diagnosed acne revealed that low blood levels of vitamins A and E were common. The severity of the deficiencies was also correlated with the severity of the acne.



Acne patients have also been shown to have lower levels of retinol-binding protein than those without the condition. Retinol-binding protein is the means the body uses to transport vitamin A from one location to another.

Retinoid-binding proteins have recently been shown to impact the manner in which vitamin A is used in the body. They enable movement of vitamin A from storage in the liver and also enable movement of vitamin A into cells. Zinc deficiency in rats decreases retinol-binding protein in the liver where vitamin A is stored.

One of the important roles of vitamin A is the regulation of proliferation of cells.

Vitamin E enhances the benefit of vitamin A in patients with skin conditions. It allows vitamin A to become effective at lower doses which is of great benefit since excess vitamin A can have toxic effects.

Stanley Ames demonstrated a synergism between vitamins A and E where skin conditions are involved. Rats have low blood levels of vitamin A even when given large amounts of vitamin A or vitamin A by injection if their diets are low in vitamin E. Adding vitamin E to the diet restores vitamin A to normal.

The combination of vitamins A and E together produces benefits comparable to the use of Accutane or massive doses of vitamin A. Researchers have reported good results using 100,000 IU of vitamin A and 800 IU of vitamin E. No adverse effects were reported.

This is a rather high intake of vitamin A and patients using these levels should watch for waring signs of toxicity. Women who want to get pregnant should not use these levels of vitamin A. It would be safer to try smaller doses (10,000-25,000 IU) of vitamin A in a water miscibilized form.

As a side note, a study in Sweden found that a combination of selenium (400 mcg) and vitamin E (20 IU) produced marked improvement in acne patients. The soil in the area was selenium deficient.

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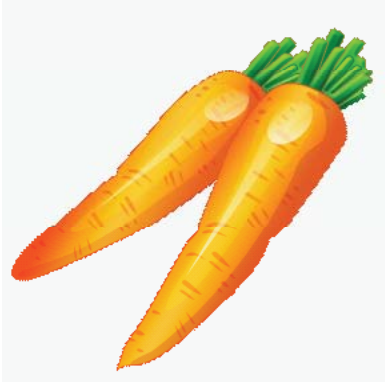
Vitamin C

Vitamin C deficiency has been reported to aggravate acne. One early study reported that 81% of 53 patients with the condition improved with 3,000 mg of vitamin C and the addition of orange juice to the diet.

It is of interest that a surgeon named Crandon put himself on a vitamin C deficient diet around 1940. After 120 days, he developed hyperkeratosis. Symptoms of scurvy appeared 40 days later. Marginal vitamin C intake may contribute to acne.



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B Complex

Several B vitamins have been suggested for acne. Vitamin B6 has been used to prevent premenstrual acne flare-ups. Oral and topical use of pantothenic acid or vitamin B5 was shown to improve acne after 8 weeks. Vitamin B3 has notable anti-inflammatory activity and deficiency is associated with serious skin conditions. B3 has been used both orally and topically. While B complex vitamins may not be a first line treatment for acne, inclusion of all the members of the B vitamin family in a multiple may prove beneficial.

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Iodine

Excess iodine intake may aggravate acne. Dairy products and fast foods can carry quite a load of iodine.

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Low Thyroid

Dr. Broda Barnes observed that low thyroid function could contribute to acne and treating acne patients with appropriate thyroid therapy improved nine out of ten patients.

The most common cause of depressed thyroid function is excessive exposure to fluoride which is a powerful iodine antagonist. Thyroid can also be depressed by bromine, chlorine compounds, mercury, and environmental toxins.

REFERENCE:

Barnes, B.O., Thyroid therapy in dermatology, *Cutis* 1971;8:581-583.

Nutritional Applications

Those with acne should avoid foods high in sugar, dairy products, and foods to which they are allergic.

Supplements which may be useful include zinc and selenium, vitamins A and E, omega-3 fatty acids, and B complex vitamins.

Thyroid problems should be addressed if they exist.

Other Treatments

Azelaic acid is a naturally occuring acid in foods. It is anti-inflammatory and has antibacterial activity against *Propionibacterium acnes* and *Staphylococcus epidermidis*. It also decreases keratin formation. Topical application as a cream has been shown to be helpful in mild-to-moderate cases of acne.

A number of herbs have been used for the treatment of acne. A skin care program such as the Nutriance Synergy Cycle is often helpful. A number of herbs like witch hazel, chamomile, and calendula have anti-inflammatory and wound healing properties. When combined with antioxidants they can have a profound effect on acne.

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