

The role of Vitamin A in skin diseases

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What is vitamin A?

- [Vitamin A](#) is an essential nutrient that supports skin, eye, and reproductive health, as well as immune function.
- Preformed vitamin A, or retinoids, is found in animal products like meat, poultry, and dairy. Provitamin A, or carotenoids, is found in plant products like fruits and vegetables.
- Your liver converts both types to retinol. Then, it's either stored in your liver or transported by the lymphatic system to cells throughout your body.

History

Avitaminosis A generally accompanies states of severe malnutrition, such as kwashiorkor and marasmus, and may be suspected in individuals with an unusual susceptibility to infectious diseases, such as measles. Bitot spots, dry eyes, and night blindness strongly point to vitamin A deficiency.

Topical application

Your skin is retinoid-responsive, which means it can readily absorb vitamin A when you apply it topically. This can help improve your skin health, including helping with conditions like acne.

plays a role in:

- vision
- reproduction
- immune system function
- function of organs like your heart, lungs, and kidneys
- skin health, including [acne](#)

Sign and symptom

- Impaired vision, particularly at night: Because of the essential role of vitamin A in photoreceptor function, night blindness is the earliest and most common symptom of its deficiency.
- Xerophthalmia: VAD may produce xerophthalmia. Its ocular manifestations include conjunctival and corneal xerosis (drying), keratomalacia (corneal necrosis/ulceration), nyctalopia (night blindness), and Bitot spots (conjunctival lesions).^[3] Maternal night blindness is common during pregnancy in poor countries. Maternal night blindness during pregnancy has been associated with low birthweight, morbidity, and poor growth in South India.^[25]
- Photophobia
- Erythema
- Dry, thickened skin (toad skin)

Diagnostics

- The diagnosis should be suspected in children who are malnourished or in patients with predisposing factors for its development. Note the following:
- Serum vitamin A levels: The biochemical definition of vitamin A deficiency (VAD) is a plasma level of 35 $\mu\text{mol/dL}$ or less. Several techniques are available, but high-pressure liquid chromatography is the most reliable. An important factor is that, with protein deficiency, serum vitamin A levels may be decreased despite good vitamin A intake and adequate vitamin A stores.
- Total and holo retinol-binding protein (RBP) test: These tests (complex of vitamin A and RBP) for serum RBP tend to correlate with measures of serum vitamin A. These levels can also be decreased in the presence of protein

Treatment

- Also see A person with xerophthalmia requires immediate treatment if corneal destruction, blindness, and even death are to be avoided.
- Oral administration of vitamin A 200,000 IU at presentation, the following day, and a third dose a week later is recommended. Children younger than 1 year should receive one-half the standard dose, and infants younger than 6 months should receive a quarter of the standard dose.
- Children with marasmus or kwashiorkor need further nutritional supplementation and monitoring with additional doses of vitamin A at monthly intervals until they are clinically improved.
- Concurrent illness (eg, malaria, intestinal parasites, dehydration, tuberculosis) must be treated.

Improving the appearance of wrinkles and sagging

- vitamin A, in other words — work to reduce the appearance of fine lines and [wrinkles](#) by stimulating [collagen production](#).
- Retinoids like retinol can also improve skin elasticity and sagging by helping remove damaged elastin fibers and promoting angiogenesis, or the formation of new blood vessels.

Reducing hyperpigmentation and other sun damage

- A diet high in carotenoids, such as [beta carotene](#), can help prevent cell damage, skin aging, and skin diseases.
- Carotenoids can also [help protect Trusted Source](#) your skin from environmental factors like pollution and UV radiation, which can also affect skin health and appearance.
- Retinoids promote skin cell turnover. So, they can help improve [hyperpigmentation](#), age spots, and [sunspots](#), plus lead to a more [even skin tone](#) overall.

Helping address acne

- Retinoids can help exfoliate skin on the surface, removing dirt, oil, and dead skin cells from pores to prevent pimples.
- They also penetrate the skin's surface to stimulate collagen and elastin production, which can help reduce the appearance of pores and acne scarring.

Helping treat psoriasis and other skin conditions

- Both topical and oral prescription [medications used to treat psoriasis](#) contain vitamin A.
- Topical retinoid reduces the formation of raised skin patches and the formation of cytokines and interleukins that cause inflammation.
- A healthcare professional might also prescribe [oral acitretin](#), another retinoid, to treat severe, refractory psoriasis.
- Bexarotene (Targretin), a vitamin A-based drug, is also used to treat [cutaneous T-cell lymphoma](#), a type of cancer that can cause skin changes like rashes, dryness, itching, and thickness.

Vitamin A supplements

- Most people get all the vitamin A they need through their diet, but if you're considering vitamin A supplements, you have a few options, including:
- [multivitamins](#), most of which contain some vitamin A
- beta carotene (provitamin A)
- retinyl acetate or retinyl palmitate (preformed vitamin A)
- a combination of provitamin A and preformed vitamin A

you want to try topical vitamin A

- your options include:
- creams, serums, and oils designed to help reduce the appearance of wrinkles
- moisturizers
- sunscreen
- [over-the-counter \(OTC\) acne products](#)
- prescription acne treatment

Topical retinoids S.E

- Products containing retinoids may not be good options if you have:
 - [rosacea](#)
 - [eczema](#)
 - skin [allergies](#)
 - [dry skin](#)
 - [hormonal acne](#)
 - moderate or severe [acne scarring](#)
- Potential [side effects of topical retinoids](#) include:
 - skin dryness, redness, itching, and [scaling](#)
 - increased [sensitivity to UV light](#) (real and artificial)
 - [eczema flare-ups](#)

Oral vitamin A

- Most people get enough vitamin A from their diet. Getting too much preformed vitamin A from supplements or certain medications can cause serious side effects, including:
 - [headaches](#)
 - [blurred vision](#)
 - [nausea](#)
 - [dizziness](#)
 - liver damage
 - [birth defects](#)
 - [coma](#)

- Thank you