

Acne

acne is an inflammatory skin condition characterized by clogged pores, blackheads, and pimples. The oil glands, or sebaceous glands, are connected to hair follicles and release a substance known as sebum that lubricates hair and skin. Usually, sebum travels up the hair follicle and out onto your skin. But when the sebaceous glands produce too much oil and combine with dead skin cells, the follicles become blocked and inflamed. The nose, forehead, cheeks, chin, back, and trunk are the areas acne most often affects. Between 17 - 45 million people have acne, making it the most common skin disease in the United States. While it tends to last longer in women, men are more likely to get acne and tend to have more severe cases. Acne is most common in adolescents, and it generally disappears by age 30. Although it is not a serious health threat, severe acne can be painful and may cause permanent scarring, which can be upsetting for people who suffer from the condition.

Signs and Symptoms

There are several types of acne lesions:

- Closed comedone (whitehead) -- a clogged follicle. Whiteheads usually appear on the skin as small, round, white bumps.
- Open comedone (blackhead) -- a plugged follicle that opens and turns dark at the surface of the skin. Blackheads do not indicate the presence of dirt.
- Papules -- inflamed lesions that appear as small, pink bumps on the skin.
- Pustules (pimples) -- inflamed pus-filled lesions that are red at the base.
- Cysts and nodules -- large, inflamed, pus-filled lesions deep under the skin that can cause pain and scarring.

Lesions can cause scars ranging from small, depressed pits to large elevated blemishes, depending on the severity of the acne and the person's skin type.

What Causes It?

Acne is caused by the combination of too much sebum and a buildup of dead skin cells, but no one knows what trigger the overproduction of sebum. During adolescence, rising hormone levels are thought to be a factor. The increased sebum blocks hair follicles, and small bacteria-filled cysts called comedones form. If these comedones do not rupture, they develop into whiteheads or blackheads. When comedones rupture, the inflammation can spread into the surrounding area. Papules, pustules, cysts, and nodules are types of inflammatory lesions.

Risk Factors

The following may cause or worsen acne:

- Family history of acne
- Using oily cosmetic or hair products containing vegetable or animal fats
- Hormonal changes common during adolescence, pregnancy, or menstruation (acne tends to flare up 2 - 7 days before menstruation begins)
- Certain medications such as corticosteroids, androgens, oral contraceptives, lithium, halogens, isoniazid, phenytoin, phenobarbital, and high levels of iodine (such as from kelp)
- Sweating and friction on your skin, caused by headbands, back packs, bicycle helmets, or tight collars
- Squeezing and picking comedones

What to Expect at Your Provider's Office

Acne is rarely a serious health problem, and general practitioners and internists can treat most people with mild-to-moderate forms of acne. People with more severe cases are often referred to a dermatologist. Your doctor will take a complete medical history that includes questions about skin care, cosmetic use, and diet; factors that trigger flare-ups; medication use; and prior treatment. Your doctor will also examine your face, chest, back, and other areas for blemishes, lesions, and scars.

Treatment Options

Treatments for acne involves lessening sebum production, helping the skin shed dead cells so they don't build up, and preventing bacteria from accumulating. The following self-care techniques may be helpful:

- Wash skin once or twice a day with a mild cleanser. Washing more frequently, scrubbing skin, or using facial masks can make acne worse.
- Use oil-free skin care products and cosmetics. Look for products that say "water-based" or "non-comedogenic."
- Try over-the-counter lotions containing benzoyl peroxide or salicylic acid.
- People with mild cases of acne may improve symptoms with herbs, Ayurveda, or homeopathy. Expect to use medications or complementary and alternative remedies for at least 6 - 8 weeks before seeing a noticeable improvement in symptoms.

Drug Therapies

Topical

Your doctor may also prescribe topical medications to treat acne. The most commonly used include:

- Retinoids (tretinoin or Retin-A, adapalene or Differin, and tazarotene or Tazorac) -- are medications derived from vitamin A that work by unclogging pores and reducing inflammation. Side effects may include redness, peeling, and photosensitivity (high risk of sunburn). Most retinoids are applied at night and should not be applied at the same time as benzoyl peroxide (with the exception of adapalene). Pregnant women should not use topical retinoids during pregnancy.
- Antibiotics -- work by killing bacteria and reducing inflammation. Topical antibiotics such as clindamycin or erythromycin are available in prescription form and may be used to treat mild-to-moderate acne.
- Benzoyl peroxide -- Benzoyl peroxide is also available in prescription form.

Your doctor may recommend a combination of topical medications, such as benzoyl peroxide and clindamycin.

Oral

Your doctor may prescribe oral (taken by mouth) antibiotics either alone or in addition to topical medications for moderate-to-severe acne. For those with severe, inflammatory acne that does not improve with other medications, an oral retinoid called isotretinoin may be prescribed.

- Antibiotics -- work by killing bacteria and reducing inflammation. Commonly prescribed oral antibiotics include doxycycline, minocycline, and tetracycline. Antibiotics taken by mouth should not be used during pregnancy or by children under 9.
- Isotretinoin (Accutane) -- doctors aren't sure exactly how isotretinoin works, although it may reduce the production of sebum. It is usually prescribed for people with severe, inflammatory acne that does not improve with other medications. Isotretinoin is taken twice a day for 20 weeks. It causes severe birth defects and must not be used by pregnant women or those who may become pregnant. In fact, in the U.S. women who take isotretinoin are required to undergo regular pregnancy tests and take some form of prescription birth control.

Some women may be prescribed birth control pills that seem to reduce acne.

Surgery and Other Procedures

Surgery or other procedures can help improve the appearance of skin scarred by acne. Chemical peeling (where a chemical solution is applied to the skin that causes it to blister and eventually peel off) can reduce minor scars, while dermabrasion (a procedure that uses a rapidly rotating brush to remove the top layers of skin) can help more severe scarring. Laser resurfacing uses pulses of light to remove the top layer of skin and reduce scarring.

Complementary and Alternative Therapies

Nutrition

Although some people with acne report that certain drinks and foods (particularly nuts) make their symptoms worse, there is no scientific evidence that any food (even chocolate) affects acne. It is possible that food allergies may play a role in adult acne, and people may want to avoid foods that appear to aggravate their symptoms. Some doctors may suggest a low glycemic diet, which helps keep blood sugar stable and under control.

- Zinc (30 mg two times per day for a month, then 30 mg per day) -- Several studies indicate that the mineral zinc may reduce the effects of acne. However, high doses of zinc can cause anemia, vomiting, and immune system suppression. It also interacts with tetracycline, which is often prescribed for acne. For these reasons, talk to your doctor before taking zinc.
- Niacinamide (as a 4% topical gel) -- One study found that applying a 4% niacinamide gel to the skin two times per day for two months significantly improved acne symptoms. However, the study lacked a placebo, so it is hard to tell exactly how effective niacinamide might be.
- L-carnitine -- Researchers in Greece showed that, among a large group of people, mild side effects from isotretinoin (dry skin, chapped lips, dry eyes, and nosebleeds caused by dry nose) improved when taking L-carnitine compared to those who took a placebo.
- Vitamin A -- has many of the same properties as the retinoid drugs, but often with fewer side effects. Few studies have been done on vitamin A and acne, however. Too much vitamin A can be toxic, so talk to your doctor to determine the right dose for you, and only take higher doses of vitamin A under a doctor's supervision. Do not take extra vitamin A if you are pregnant or have liver disease.

Herbs

Tea tree oil (*Melaleuca alternifolia*, 5% gel) -- Applied topically, tea tree oil may help reduce bacteria on the skin, lessening inflammation and improving symptoms. One study compared the effectiveness of tea tree oil gel with benzoyl peroxide lotion in 119 people with mild-to-moderate acne. People in both groups improved, and the people using tea tree oil reported less side effects (including stinging, itching, burning, and dryness) than those using benzoyl peroxide.

Guggul (*Commiphora mukul*, dose equivalent to 25 mg guggulsterones or about 500 mg of guggul two times per day) -- In one study, taking guggul orally had the same effect as taking tetracycline. Guggul should not be taken by pregnant or nursing women. Guggul may have estrogen-like effects, and should not be taken by anyone with a history or family history of hormone-related cancers, including prostate cancer and breast or ovarian cancer. In addition, the herb may interact with anticoagulants (blood-thinning medications), tamoxifen, and birth control pills containing estrogen, as well as herbs that have estrogen-like effects (such as black cohosh, licorice, soy, and others). People who take these herbs or drugs should not take guggul.

Ayurvedic medicine -- Ayurvedic medicine may help improve symptoms, although further studies are needed. In one study, a combination of ginger (*Zingiber officinale*), *Holarrhena antidysenterica*, and *Embelia ribes* reduced the number of inflammatory and non-inflammatory lesions. In another study, combined oral and topical use of *Aloe barbadensis*, *Azadirachta indica*, turmeric (*Curcuma longa*), *Hemidesmus indicus*, *Terminalia chebula*, *Terminalia arjuna*, and ashwagandha (*Withania somnifera*) also reduced the number of lesions.

Homeopathy

There have been few studies examining the effectiveness of specific homeopathic remedies. Professional homeopaths, however, may recommend one or more of the following treatments for acne based on their knowledge and clinical experience. Before prescribing a remedy, homeopaths take into account a person's constitutional type. In homeopathic terms, a person's constitution is his or her physical, emotional, and intellectual makeup. An experienced homeopath assesses all of these factors when determining the most appropriate remedy for a particular individual.

- *Belladonna* -- for people who experience flushes of heat to the face or who have inflamed pustular acne that improves with cold applications
- *Calendula* -- for skin conditions involving pustules or blisters
- *Hepar sulphur* -- for painful, pus-filled acne
- *Kali bromatum* -- for deep acne, especially on the forehead, in persons who are chilled and nervous
- *Silicea* -- for pustules or pit-forming acne

Other Considerations

Pregnancy

Pregnant women should avoid all retinoids (those either taken by mouth or applied to the skin), isotretinoin, and the antibiotics tetracycline, minocycline, and doxycycline because they can be harmful to the fetus. The antibiotic erythromycin (in both forms applied to the skin and taken by mouth) is safe to use during pregnancy.

Prognosis and Complications

Acne is not a serious health threat, but severe acne can be painful, emotionally upsetting, and may cause permanent scarring. Squeezing lesions can rupture comedones and cause inflammation. Infants with acne have an increased risk of developing acne in adolescence. Symptoms generally diminish after adolescence and disappear by age 30. However, the incidence of adult acne, especially in women, seems to be increasing and is not unusual in women in their 30s and 40s.

Supporting Research

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