

UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

ACNE

WHAT IS IT?

Acne is a common skin condition caused by overactive sebaceous (oil) glands in the skin. It is most prevalent in teenagers and young adults. Acne usually resolves between ages 20 and 30, but may persist or even develop for the first time in adulthood. Acne that occurs after adolescence tends to affect females more than males. Acne can also flare before a menstrual period, especially in patients older than 30 years.

WHAT CAUSES IT?

A combination of genetics, hormonal factors, bacteria on the skin, and the body's immune response leads to the development of acne.

- ❖ External factors, like stress, oil-based skin care products, and medications, can contribute to flare-ups.
- ❖ The role of diet in the development of acne is uncertain. Some studies suggest an association between acne and milk consumption or high glycemic load diets; however, more information is needed before further recommendations can be made. At this time, there is no strong evidence that chocolate increases the risk of acne.

HOW DO ACNE LESIONS DEVELOP?

Four basic events are involved in the development of a pimple:

1. Hair follicles become blocked with normal skin cells.
2. Hormonal changes during adolescence cause sebaceous glands to enlarge and increase oil (sebum) production. The sebum mixes with the skin cells, forming a plug in the hair follicle called a comedone (pimple).
 - A closed comedone (whitehead) stays below the skin's surface.
 - An open comedone (blackhead) has an opening that exposes it to the surface of the skin; a chemical reaction with the air gives the material inside its black color.
3. The increased sebum production supports the overgrowth of *Cutibacterium acnes*, a bacterium that is a normal part of our skin flora.
4. The proliferation of *C. acnes* results in an inflammatory response that can lead to the formation of a red or tender pimple. Some people go on to develop more severe inflammatory lesions, such as pustules, nodules, and painful cysts.

HOW IS IT TREATED?

It can take time to find the right treatment regimen, so patience and persistence are essential!

- ❖ **Good skin hygiene** is a must. Basic self-care, like keeping a balanced diet, getting enough sleep, and exercising regularly, support overall immune function, which helps to control acne.
- ❖ **Over-the-counter products** can be effective treatments for mild acne. A combination of topical agents may work better than one product alone. It is best to try a new product on a small area of skin for the first 3 days due to the risk of having a rare but severe allergic reaction.
- ❖ **Prescription medications** are recommended if acne does not improve after 3 months of self-treatment or if acne is moderate to severe. Topical and oral medication options are available.

HOW SOON WILL I SEE RESULTS?

Because acne lesions take at least 8 weeks to mature, treatment should be continued for at least 2-3 months before deciding if it is effective. It will take several weeks to start noticing an improvement in your skin. You are on track if your acne is 50% improved after 2-3 months of treatment. If you get discouraged, talk with your medical provider before changing or stopping medications.

SKIN HYGIENE FOR ACNE

- ❖ **Use mild skin-care products that are water-based or noncomedogenic.**
Noncomedogenic products are less likely to block skin pores. Avoid oil-based products, which can worsen acne.
- ❖ **Use a gentle noncomedogenic skin cleanser** rather than soaps or scrubs.
 - Wash your face no more than twice a day with warm water and a cleanser.
 - Mild synthetic detergent cleansers (syndets) such as Cetaphil, Dove, Oil of Olay, and Basis are good choices. Syndets have a lower pH than soap, which decreases skin irritation and dryness. Avoid astringents and abrasive soaps/scrubs.
 - Some providers recommend using your hands (instead of a washcloth or loofah) to wash your face because it is gentler to the skin. Avoid aggressive scrubbing.
- ❖ **Use a noncomedogenic daily moisturizer** to decrease dryness that may occur with some acne treatments. It's a good idea to choose a facial moisturizer that already has sunscreen (SPF 15 or 30) in it. Examples include Cetaphil, Neutrogena, Aveeno, and Oil of Olay.
- ❖ **Use sunscreen regularly.** Some acne treatments can increase your risk of sunburn. Even if you are using a daily moisturizer with sunscreen in it, you will need additional sunscreen if you plan to be outdoors for an extended period of time.
 - Choose a noncomedogenic sunscreen that is labeled "broad spectrum" and is at least SPF 30. Neutrogena, Aveeno, and Cetaphil make sunscreens specifically for the face.
 - Broad-brimmed hats, sunglasses, and lip balm with sunscreen are additional ways to protect your face and neck from the sun. Don't forget to also protect your arms, chest, and back.
- ❖ **Shampoo your hair regularly** to control oil production.
- ❖ **When shaving,** use shaving cream and a light touch with a razor, or use an electric razor.
- ❖ **Avoid picking at or popping your pimples.** This can lead to scarring and/or bacterial infections.

TOPICAL ACNE TREATMENTS

- ❖ Almost all patients will be advised to use some sort of topical treatment for their acne.
 - Mild to moderate acne usually responds well to topical treatments alone, although a combination of different topical medications is frequently used.
 - Topical treatment options include retinoids, benzoyl peroxide, and antibiotics. Many are available as combination products for ease of use.
 - Topical treatments are also available in a variety of formulations. In general, creams and lotions are better for dry skin, and solutions and gels are recommended for oily skin.
 - If using topical combination therapy, the goal is to transition to maintenance monotherapy once symptoms are well-controlled for 3-6 months. Ideally, symptoms can be maintained with a topical retinoid alone (benzoyl peroxide can be added if needed). Long-term use of topical antibiotics should be avoided due to the risk of antibiotic resistance.
- ❖ **TOPICAL RETINOIDS** are used in the initial management of most patients because they unclog pores and reduce comedone formation. They are vitamin A derivatives that promote the turnover of skin cells. Retinoids have the additional benefit of reducing dark skin that can result from inflammatory acne.
 - **Products:** Tretinoin (RetinA), adapalene (Differin), tazarotene (Tazorac), and trifarotene (Aklief) are available by prescription.
 - Differin is the only retinoid that is available over-the-counter; a higher dose Differin product is available by prescription.
 - Do not use these medications if there is a chance of pregnancy. Tazorac specifically has been shown to cause birth defects in animal studies. If you are sexually active, consider using 2 forms of birth control while on this treatment.
 - **Side effects:** During the first month of use, dry, irritated, and/or flaking skin is common.
 - Some patients notice an initial worsening of their acne during the first few weeks of use.
 - Avoid use with toners, astringents, salicylic acid, and alpha-hydroxy acid.
 - Do not wax your face while using a retinoid as it may lead to skin damage.

- **Instructions:**
 - Use retinoid medications daily at bedtime because sun exposure can decrease their effectiveness. Any red or dry skin will also be less bothersome while you are asleep.
 - After washing your face, pat it dry and use a pea-sized amount to cover your entire face. This amount may not feel like enough, but it is all you need. Using more will only irritate the skin.
 - Apply a moisturizer on top to decrease dryness if needed.
 - If skin irritation or dryness from retinoids does not improve with time,
 - Wait 30 minutes after washing your face to apply the medication (this will ensure a completely dry face).
 - Try decreasing medication use to every other night or less. Once the initial skin irritation improves, gradually increase back to nightly use.
- ❖ **BENZOYL PEROXIDE** is an over-the-counter product frequently included in treatment regimens by healthcare professionals. Benzoyl peroxide helps to reduce bacteria on the skin surface and has beneficial anti-inflammatory effects.
 - **Products:** Benzoyl peroxide ranges in concentration from 2.5% to 10%. Start with a medium strength product that is 4-5%. Change to lower or higher concentrations depending on how well your acne is responding and your level of skin irritation. Higher concentrations (like 10%) are frequently too irritating for use on the face.
 - **Side effects:** Redness and skin flaking may occur, especially with higher concentration products. Benzoyl peroxide can also bleach fabrics and hair (but not skin).
 - **Instructions:** Benzoyl peroxide products are typically used once daily.
 - These products are not meant for spot treatment. They are most effective for preventing new acne lesions, and therefore should be used on the entire face (not just problem areas).
 - Benzoyl peroxide is often used in combination with a topical antibiotic and/or a retinoid for treatment of mild to moderate inflammatory acne.
 - If you are advised to use both benzoyl peroxide and a topical retinoid, use the benzoyl peroxide product in the morning and the retinoid product at bedtime. Do not use both at the same time, as benzoyl peroxide will increase oxidation of the retinoid medication.
 - If you are prescribed a topical antibiotic, benzoyl peroxide should also be used to minimize the risk of developing antibiotic resistance.
- ❖ **TOPICAL ANTIBIOTICS** (clindamycin, erythromycin, minocycline, dapsone) are prescription medications used in the treatment of inflammatory acne (pimples with redness and swelling). They control the growth of acne bacteria and decrease inflammation.
 - **Antibiotic resistance:** When used alone, topical antibiotics may increase the development of resistant strains of *C. acnes*; therefore, most topical antibiotics should be used with benzoyl peroxide to decrease the development of resistance and improve treatment response.
 - **Products:**
 - Topical clindamycin is the preferred agent and well-tolerated. It is applied once or twice daily.
 - Topical erythromycin is an alternative, due to concerns about higher rates of *C. acnes* resistance.

ORAL MEDICATIONS

Moderate to severe inflammatory acne often requires the use of oral medications, usually in combination with topical medications. Oral treatments include antibiotics, hormonal therapies, and isotretinoin.

- ❖ **ORAL ANTIBIOTICS** help reduce bacteria and inflammation associated with inflammatory acne. They are frequently used in combination with a topical benzoyl peroxide and a topical retinoid. Use with benzoyl peroxide is important to prevent antibiotic resistance.

- Tetracyclines (doxycycline, minocycline) are the preferred oral antibiotics for acne. They do not decrease the effectiveness of birth control pills and should not be used during pregnancy.
 - Taking the lowest effective dosage for the shortest period of time decreases the risk of antibiotic resistance. Ideally, treatment with oral antibiotics should be limited to 3-4 months.
 - Oral antibiotics work faster than topical antibiotics but are also more likely to cause side effects, such as yeast infections or stomach upset.
- ❖ **ORAL HORMONAL TREATMENTS** work by decreasing androgen activity on sebaceous glands, which can overproduce sebum that clogs up pores and contributes to the overgrowth of *C. acnes*. Treatment options include birth control pills and/or spironolactone.
- **Combination birth control pills** (those containing both estrogen and progesterin) are effective treatments for females with moderate to severe acne.
 - Although all birth control pills containing estrogen should improve acne, Ortho-tricyclen, Yaz, and Estrostep are the only ones FDA-approved for the treatment of acne.
 - These medications typically take 3-6 months to work, so be patient; improvement is not immediate.
 - **Spironolactone (aldactone)** is a hormonal option often used in females who have not responded to other treatments and who wish to avoid (or cannot take) birth control.
 - It is usually taken by mouth once or twice daily and requires 3-6 months of use before improvement.
 - This medication should be avoided during pregnancy.
- ❖ **ISOTRETINOIN** is the only acne medication known to permanently alter the natural course of acne development. It is an oral Vitamin A derivative that is extremely effective in the treatment of severe cystic acne. It may also be used for less severe acne resistant to other treatments.
- This medication can only be prescribed by certified clinicians and requires close monitoring and regular blood draws.
 - Isotretinoin is known to cause birth defects, so 2 forms of birth control are required during treatment.
 - The treatment course is 20-24 weeks, though symptoms can continue to improve for up to 5 months after completing treatment.

RECOMMENDED WEBSITES

- ❖ www.aad.org
- ❖ www.niams.nih.gov