

Acne

Acne is one of the most common conditions we treat in dermatology. It's also one of the most misunderstood. Did you know that acne has very little to do with face washing or hygiene? Instead, it's the result of our hormones interacting with our oil glands and pores.

The most common time that this interaction occurs is when we're younger (adolescence to teen years), when our hormones are elevated for obvious reasons. Another time this can occur is when adult females experience flares as a result of hormonal fluctuations throughout the month.

Complicating matters further, *genetics* affects this hormonal interaction as well. If we inherit oil glands which are particularly sensitive, they can undergo changes even when we have what are otherwise normal hormone levels!

So what exactly are the changes which result from this interaction between our hormones and oil glands?

The first hormonally-driven change occurs when the skin cells within our pores "stick" to each other and clog the pore. This is seen in what many will refer to as a "blackhead". So-called *open comedones* ("blackheads") are nothing more than a combination of skin cells and oil which, when exposed to the air, have turned dark. This is important – the dark surface of "blackheads" is not caused by dirt! This is a misconception. Again, it's simply the oil/skin cell mixture changing color because of exposure to the air.

There is another type of comedone called a *closed comedone*. Closed comedones are also the result of skin cells clumping together, but they are formed deeper within the pore. As a result, their surface isn't exposed to the air, so they don't form the characteristic dark color seen in "blackheads".

So what causes inflamed acne?

The typical acne pimple is caused by a bacteria called *P. acnes*. It's a bacteria which is actually present in everyone's skin and is unique in that it prefers a "low-oxygen" environment. If the previously-mentioned comedones are formed deep within the pore, they can limit the ability of oxygen to reach the oil glands – the very place where *P. acnes* lives. With little oxygen present, the bacteria thrives, essentially causing the infection of the oil glands that we recognize as the typical red acne pimple.

Treatment of Acne

Now that you know how acne is formed, it should be no wonder that most treatments focus on either unclogging the pores, killing bacteria, and/or decreasing the ability of hormones to influence the oil glands in the first place.

Unclogging the Pores

The two types of medications which help to unclog the pores are *retinoids* and *keratolytics*. Retinoids are medicines like over-the-counter “retinol”, and prescriptions like Tretinoin, Retin-A®, and Differin®. They work by changing the rate that skin cells are produced which can, in turn, help prevent them from clumping together. Salicylic and glycolic acids (both of which are over-the-counter) are the two most common keratolytics. They work by attempting to dissolve and exfoliate the clump of skin cells and oil which creates the comedone within the pore.

Killing Bacteria

Both topical and systemic antibiotics are used to kill the *P. acnes* bacteria. Benzoyl peroxide is the most well-known of the acne-fighting antibiotics. It can only be applied topically. It's found in a number of over-the-counter acne washes and gels, though is also incorporated into a number of prescription products as well. Its effectiveness is limited, however, and most patients seeking medical treatment of their acne find the need to also use prescription antibiotics – in either topical (lotions, creams, etc.) or systemic form (pills, capsules, etc.).

“Blocking” Hormones

Decreasing the ability of hormones to create acne-causing changes in the first place can be an effective treatment approach. For a variety of reasons, though, this treatment approach is one which is only available to female patients. Examples include oral contraceptives and a medication called Spironolactone.

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Ultimately, the treatment of acne is all about striking a balance. That is, achieving the desired results, but with a regimen that causes the least side effects and inconvenience. Your dermatologist will talk to you in greater detail about which treatment options are best-suited for your particular breakouts.