

## ACNE

Acne is a very common condition that tends to run in families and usually begins during adolescence and usually subsides by the late twenties. Acne may also begin later in life and last well into middle age. Generally, it is teenagers who have the most problems with acne. The years of adolescence are full of changes. When acne is present early, effective medical intervention will greatly improve the outcome. Acne can be controlled with proper skincare and regular use of appropriate medications, but it will take patience and persistence.

### HOW ACNE BEGINS

Hairs grow out of tiny pores in the skin called follicles. Acne occurs in hair follicles and the sebaceous (oil) glands attached to the follicles. The sebaceous glands secrete a waxy, oily substance called sebum that helps keep the skin moist and supple. In addition to sebum, the follicle is lined with layers of dead skin cells. Sebaceous glands are most concentrated on the face, chest and back. This is why we usually notice acne in these locations.

Sebum usually passes through the opening of the follicle and onto the skin's surface in small, unnoticeable amounts. When acne occurs, the dead skin cells that line the pores stick together abnormally and accumulate within the follicle. This collection of sebum, dead skin cells, and bacteria is known as a comedo. A "whitehead" is a closed comedo that has a small or normal sized pore at the skin's surface. A "blackhead," or open comedo, is nearly identical to a whitehead except that the pore opening is expanded by the size of the plug. The dark color of a blackhead is not the result of dirt or other matter that has accumulated in the pore. The color is actually the result of a chemical reaction between the mixture of sebum and dead skin cells and oxygen in the air.

When a pore becomes plugged, there is further accumulation of debris in the follicle beneath the plug. Eventually, the wall of the follicle may burst from the increasing pressure of the substances building up within it. The sebum, dead skin cells and bacteria are very irritating to the tissue beneath the surface and produce redness, swelling and pain (the inflammatory papule or pimple).

### WHY ACNE DEVELOPS

#### *Inflammation*

All acne lesions, even blackheads or whiteheads, exhibit characteristics of inflammation at least microscopically. This inflammation is felt to precede all acne lesions but the cause of this inflammation remains unclear. All of the following factors probably play a role in inflammation, so measures to reduce inflammation are part of the strategies for bringing acne under control.

#### *Genetics*

The basic cause of acne is still unknown. A variety and combination of factors have been shown to contribute to the acne process. The predisposition to develop acne is often hereditary. A parent who had a severe case of acne during his or her teenage years is more likely to have children who will also have acne. Parents who had a smooth complexion tend to have children who also have acne-free skin.

## *Hormonal Changes*

During puberty, the body undergoes a great number of changes. These changes are brought on by rising levels of sex hormones in the body. Both males and females experience an increase in the levels of hormones called androgens (mainly testosterone in both sexes) that increase the size of the sebaceous glands, promote the production of sebum and contribute to acne.

## *Skin Bacteria*

Bacteria are another contributing factor. The bacteria living on the skin surface are normally “friendly” because they check the growth of more dangerous (disease-causing) microorganisms. Germs on the skin surface play little or no role in acne. It is the bacteria inside the hair follicle and sebaceous gland that are the problem. These germs are not present on the surface of the skin. Although these tiny organisms do not directly cause acne, they may have an indirect role by changing the chemical nature of sebum or by causing the follicle wall to rupture more easily.

## *Diet*

Until recently, dermatologists believed there was no connection between acne and diet. New research has provided convincing evidence that diet may, in fact, play a role in acne by increasing inflammation. It turns out that “bad carbs” are bad for acne and a reduction in “bad carbs” of 15-20% may significantly help reduce acne severity. The problem foods are those that can be said “to start out white”: foods that contain ingredients like flour, sugar, and starch. So, in the greasy hamburger, it is not the burger but the bun and the sugar in the ketchup that are the problem. It is the starch in the potato, not the grease in the french fries. Try to cut back on “bad carbs” if you have acne.

## *Drugs and Industrial Chemicals*

Acne-like conditions may infrequently result from the use of certain drugs, primarily bromides, iodides, corticosteroids, androgens and drugs used to treat epilepsy or depression. Industrial substances, including coal tar and petroleum oil, may cause some cases of acne.

## *Local Factors*

Pressure on the skin from clothing, backpacks, football shoulder pads, headbands, sport masks, and helmets can aggravate acne by friction. Similarly, the friction caused by resting of the chin or cheek on a hand while doing homework or talking on the telephone may also aggravate acne. Excessive perspiration can also result in worsening of acne in some people. All of these factors increase the risk for (a severity of) inflammation.

## *Cosmetics*

Available evidence does not show a connection between acne and the use of cosmetics. However, if your skin seems to break out when you use certain products on your skin, you should avoid them.

### *Picking or Squeezing*

Although many people think that picking or squeezing pimples will help eradicate acne, it may actually make the condition worse (more inflamed) and lead to long-lasting red marks or even scars. It is much better to leave pimples alone, no matter how tempting it may be to squeeze them.

### *Acne Myths*

While the foregoing factors may promote acne or worsen an existing acne condition, other factors that are widely believed to cause acne have no scientific basis at all. Eating chocolate, pizza, fries, nuts, buttered popcorn or other greasy foods does not lead to acne. Special “cleansing” diets, vitamin supplements and so-called “health foods” invariably prove to be useless in the treatment of acne. Sexual activity does not cause, prevent, or clear acne. Also, although good hygiene is recommended, surface dirt and oils on the skin do not cause acne. As explained previously, acne starts deep within the follicle.

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## TREATMENT

Although acne usually passes with adolescence, a variety of treatments are available to prevent the development and spread of acne pimples. Washing your skin gently with mild soap once or twice a day can help remove excess sebum and surface oils. It is important that you not scrub the skin too vigorously, since friction may damage the delicate hair follicle openings through which the sebum must flow. In fact, the friction of scrubbing the skin has been shown to increase the buildup of dead skin cells inside the hair follicle, thus leading to increased plugging of the pores. So, while cleanliness is important, it is also important that skin cleansing be performed gently and not more frequently than necessary. You cannot “wash away” acne.

For mild acne there are many over-the-counter topical preparations that may be helpful. Ingredients such as benzoyl peroxide, salicylic acid, and sulfur, induce shedding of dead skin cells and surface debris, open the pores, and allow the sebum to escape to the surface. Benzoyl peroxide is probably the most effective of these agents. It is available in creams, gels and lotions in a variety of strengths. Benzoyl peroxide helps remove comedones and kills bacteria. However, benzoyl peroxide can be irritating to the skin. Stronger is not always better when treating acne. Do not use a higher strength of benzoyl peroxide than your skin will tolerate. Also, nearly all acne therapy is aimed at the prevention of new lesions rather than making existing lesions disappear. Acne products work best when used on a regular basis on all acne prone areas in order to prevent new lesions. As pimples and comedones disappear the skin clears because new lesions do not take their place.

If over-the-counter preparations do not help, your doctor may suggest prescription medications for your condition. Tretinoin, tazarotene and adapalene are all related to vitamin A. These topical agents help remove comedones and interfere with the formation of new ones. They also help prevent pimples. These products should be used only after consultation with your physician. Topical antibiotics, such as clindamycin, are often very effective against the bacteria living within the follicle, and are commonly used to treat mild to moderate acne.

Topical therapy alone may not be enough to eradicate inflammatory acne. In cases of moderate to severe acne oral antibiotic therapy is sometimes necessary in order to achieve better penetration of medication into the hair follicle. Antibiotics help because they kill the specific bacteria involved in acne and because they also help reduce inflammation (redness, swelling and accumulation of pus) in skin lesions. There may be restrictions, such as when or with what foods or vitamins the antibiotic should be taken, and it may take several weeks of treatment before its desired effect is seen. Unfortunately, the benefits of antibiotics last only as long as you continue taking them. Unless you have “outgrown” your acne, cessation of antibiotics results in reappearance of acne lesions. The use of antibiotics in treating acne is an established and routine measure. We now have over sixty years of experience that has clearly established an excellent track record of safety and effectiveness for the use of oral antibiotics in the treatment of acne pimples, nodules, and cysts, even when used for extended periods of time.

Some females who do not respond to other therapies benefit from the use of oral contraceptives or Isotretinoin. Isotretinoin, like tretinoin, is also derived from vitamin A, but is given orally. This drug inhibits sebum production and the growth of bacteria within the hair follicle. Although very effective, Isotretinoin (Accutane) must be used under strict medical supervision because it can cause side effects that will be discussed with you if this medication becomes a reasonable option.

Injection of a diluted cortisone solution into an enlarged acne lesion or cyst is sometimes indicated. These injections speed the healing of most large pimples or acne. While a suntan may temporarily camouflage the redness of inflamed skin, the long-term harmful effects of ultraviolet radiation must be weighed against the limited, short-term benefits. Since ultraviolet radiation causes skin cancer and accelerates the aging process by causing wrinkles and age spots, dermatologists cannot endorse the use of tanning as a tool for the treatment of acne.

Other treatments are sometimes performed in a dermatologist’s office. Dermatologists or their assistants may remove comedones. Microdermabrasion treatments are often beneficial for acne because of the ability of this treatment to help remove plugs from pores. Our Versa Medi-Spa estheticians can help improve the results of medical treatment with procedures such as comedo extraction, microdermabrasion (particle or particle-free) and, possibly, a pulsed light treatment called Acleara®.

### **Summing Up**

The vast majority of those with acne experience complete, non-scarring resolution with time. Although no single treatment or combination of therapies will completely control every case of acne, a variety of topical and systemic products are available that, used regularly, can greatly improve most complexions.