

## CENTER FOR DERMATOLOGY, COSMETIC AND LASER SUGERY, INC.

2557 Mowry Avenue, Ste 25  
Fremont, Ca 94538  
Phone: (510) 797- 4111  
Fax: (510) 797-0122

995 Montague Expy, Ste 111  
Milpitas, Ca 95035  
Phone: (408) 957-7676  
Fax: (408) 942-1342

### Patient Information on Acne

Acne is a very common condition that usually begins during adolescence and subsides by the late twenties. Sometimes, however, newborns can develop acne, although it usually passes quickly; acne may also begin later in life and last well into middle age. This skin condition tends to run in families.

Generally, it is teenagers who have the most volatile reactions to acne. The years of adolescence are full of change and insecurity, so even a mild skin eruption on the face may seem like a horrible affliction. When acne is present, early, effective therapy will greatly improve the outcome. Although acne cannot be cured, it can be controlled with proper skin care and regular use of appropriate medications. But it will take patience and persistence.

#### HOW ACNE BEGINS

Hair shafts grow out of the tiny sacs in the skin called follicles. Acne occurs in the hair follicles and the sebaceous (oil) glands attached to them. The sebaceous glands secrete waxy, oily substance called sebum that helps keep the skin moist and supple. In addition to sebum, the follicle is lined with horny cells and provides a rich environment for skin bacteria. Most sebaceous follicles are located on the face, chest and back. This is why we usually notice the condition in these locations.

Sebum usually passes through the opening of the follicle and is deposited on the skin's surface in small, unnoticeable amounts. When acne occurs, there is an overproduction of sebum, and the horny cells, for unknown reasons, stick together within the follicle and expand. This mass of sebum, horny cells, and bacteria is known as a comedo. A "whitehead," or pimple, is a comedo that has been plugged, or closed off, on the surface of the skin a "blackhead" is an open comedo. The dark color of blackhead does not result only from dirt, but is also influenced by pigment, melanin, present in the horny cells.

If the comedo remains closed, the sebum within the follicle may break through the fragile walls of the follicle. The sebum is very irritating to the tissue beneath the skin surface and causes, redness swelling, and pain.

The areas where acne develops correspond to the areas where sebaceous follicles are distributed. Acne commonly develops on the face, chest, upper back, and shoulders, although it may also appear on the buttocks and thighs.

#### WHY ACNE DEVELOPS

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The basic cause of acne is still unknown. It results from a variety and combination of factors. The predisposition to develop acne can be hereditary. Parents who had severe cases of acne during their teenage years tend to have children who will also have severe acne. Parents who had smooth complexions tend to have children who will also have acne-free skin. But this does not fully explain why acne does not start until adolescence.

Hormonal Changes. During puberty, the body undergoes a great number of changes. These changes are brought on primarily by rising levels of sex hormones in the body. Both boys and girls experience an increase in the levels of hormones called androgens that increase the size of the sebaceous glands, promote the production of sebum, and contribute to acne.

Androgens are not the only hormones that promote sebum production and influence the development of acne. Progesterone, a female hormone produced by the ovary after the egg is released, can increase acne immediately before menstruation. Oral contraceptives, which contain various amounts of progestin (synthetic progesterone), can also cause pimples or make existing acne condition worse.

Some doctors believe that teenage skin is immature and that the pores, or openings in the skin follicles, are not as wide as they will become in adulthood. Consequently, dead skin cells, which are constantly formed (even in fetal life), can plug the pores more easily, trapping the increased sebum in the follicles and producing pimples.

Skin Bacteria. Bacteria are another contributing factor to acne. The bacteria living on the skin are normally “friendly” because they check the growth of more dangerous (disease) microorganisms. But if allowed to flourish in the rich growth environment of the sebaceous follicle, they can become decidedly “unfriendly.” Although these tiny organisms do not cause infection themselves, they may play an indirect role by changing the chemical nature of sebum or by causing the follicle wall to rupture more easily to produce inflammation.

Drugs and Industrial Chemicals. Acne-like conditions may also result from the use of certain drugs, primarily bromides, iodides, corticosteroids, androgens, and drugs used to treat epilepsy. Industrial substances, including coal tar and petroleum oil, may also cause severe 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, careless resting of the chin or cheek on a hand while doing homework or talking on the telephone can also cause a breakout of acne. Excessive perspiration can also result in acne.

Cosmetics. Other causes of acne are more obvious. Cosmetics containing oils or waxy substances are prone to cause acne or aggravate a pre-existing condition. Night creams, cleansers, moisturizers, or foundations that are not specifically labeled “oil-free” should not be used by teenagers prone to acne. Products labeled or advertised as water-based should be carefully scrutinized before purchase. If the words “oil” or “wax” appears in the list of ingredients on the label, the product should not be used. Likewise, water-based sunscreens that are primarily alcohol are usually a better choice than tanning oils, creams, or lotions. Mascara, lipstick, and lip glosses are generally safe.

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Picking or Squeezing. Although many teenagers (and older people) think that picking or squeezing pimples will help eradicate acne, it may actually make the condition worse and lead severe skin infections, pitting, and scarring. It is much more prudent to leave the pimples alone, no matter how tempting it may be to squeeze them, and let them dry out by themselves.

Emotional Stress. Just as emotions can worsen other skin conditions, such as eczema and psoriasis, they can also aggravate acne. Moreover, teenagers under emotional pressure will absentmindedly pick at their pimples or repeatedly rub their chin, only aggravating the condition more.

Mythical Factors. While all these factors have been proven to promote acne or worsen an existing acne condition, other factors that are widely believed to cause acne have no scientific evidence behind them. Eating chocolate, nuts, buttered popcorn, or greasy foods will not, in itself, lead to acne, although working over a deep fat fryer in a fast-food restaurant may worsen the condition. There is some evidence to suggest that a diet high in sugars may be related to an increase incidence of acne. Sexual activity does not prevent or clear up acne, and masturbation does not cause it. Also, although good hygiene is recommended, surface dirt on the skin does not cause acne. As explained previously, acne starts deep within the follicle.

### **TREATMENT:**

Although acne usually passes with adolescence, a variety of treatments are available to prevent the development and spread of acne pimples. Prevention or early treatment of acne tends to be much more effective than trying to rid the skin of pits and scars later. For mild acne, all that may be needed is frequent, gentle cleansing. Washing your skin gently with a benzoyl peroxide or salicylic acid based cleanser once or twice a day can help remove excess sebum and surface oils. Do not scrub the skin too vigorously, especially when using abrasive soaps, since friction could damage the delicate hair follicle openings through which the sebum must flow. Also, switch to oil-free cosmetics and shampoos, and use a cover-up product to hide an occasional blackhead or blemish.

For more severe cases, there are many over-the-counter topical preparations available to fight acne. Ingredients such as benzoyl peroxide, salicylic acid, resorcinol and sulfur induce shedding of dead skin cells and surface debris, open pores and allow the sebum to escape to the surface. Benzoyl peroxide is probably the most effective of these agents. It is available in pads, creams, gels, and lotions and in a variety of strengths. Benzoyl peroxide not only induces peeling but also removes comedones, increases blood flow to the area, and suppresses bacterial growth. However, if used inappropriately, benzoyl peroxide can be severely irritating to the skin. Stronger is not necessarily better when treating acne. Do not use a higher strength of benzoyl peroxide than you need to effectively control your pimples.

If these over-the-counter preparations do not help, your doctor may prescribe a medication for your condition. Tretinoin (Retin A, Tretin-X), Adapalene, Differin, Veltin, Ziana, Epiduo, Tazarotene (Tazorac or Fabior) are topical prescription drugs that are effective in treating blackheads and whiteheads, removing comedones and interfering with the formation of new ones but should be used only after consultation with your physician. Topical antibiotics or anti inflammatories, such as benzoyl peroxide,

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erythromycin, sodium sulfacetamide, or clindamycin are particularly effective against the bacteria living within the follicle and reduce the amount of irritant free fatty acids in the hair follicle. Combinations of benzoyl peroxide and clindamycin or erythromycin can also be used and may be more effective than either agent alone (Duac, Acanya, Benzacilin, and Benzamycin). However, topical therapy may not be enough to eradicate severe inflammatory acne. Oral antibiotic therapy is sometimes necessary to clear up these affected areas since it can better penetrate to the underlying skin tissue. 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 effect are seen.

Some women and girls who do not respond to other therapies benefit from the estrogen contained in oral contraceptive pills, which decreases the size of the sebaceous glands and reduce sebum production. Isotretinoin (Accutane, Sotret) is derived from Vitamin-A and is given orally. This drug inhibits sebum production and the growth of bacteria within the hair follicle. Although very effective, Isotretinoin must be used under strict medical supervision because it can cause birth defects. It must not be used by anyone who is pregnant or who may become pregnant (i.e. women of childbearing potential) during therapy, unless they use two methods of birth control.

Some other available treatments are performed in a dermatologist's office. Dermatologists still remove comedones routinely using a loop device; when performed carefully, no scarring results from this procedure. Injections of a diluted corticosteroid into an enlarged acne pimple are a widely used therapy. These injections result in a flattened pimple that is easily camouflaged with make-up or tinted acne lotions. Light chemical peels are also often used to improve acne.

Acne scar correction can be done using dermal grafting, removal of scars, microdermabrasions, resurfacing lasers, etc. This is done **after** the acne is well controlled.

### SUMMARY

The vast majority of those with acne experience complete, non-scarring resolution with time, since this condition usually clears completely. Although no single treatment or combination of therapies will completely control significant cases of acne, a variety of topical and systemic products are available that, used regularly, can greatly improve most complexions. These preparations, for the most part, are associated with minimal risks and can make a great difference in a person's self-image, especially an adolescent's.

### MY INSTRUCTIONS ARE:

I am recommending

Special instructions