

Successfully Addressing Acne by Treating Its Root Causes

by Ahmed Abdullah, M.D., FICS, FACS

Of all the skin conditions that lead consumers to seek treatment, acne is, by far, the most common. A chronic, inflammatory disease of the pilosebaceous units (hair follicles and their sebaceous gland) of the face, neck, shoulders, and upper trunk; acne affects between 40 and 50 million people in the U.S. alone. It is estimated that 75 to 85 percent of adolescents and young adults are affected by the condition; for 3 to 12 percent of the population, it persists into middle age.

Beyond the potential for cosmetic scarring, acne may also result in scars of the emotional variety. Acne sufferers often experience depression and anxiety, embarrassment and social inhibition. In fact, a recent survey of British teenagers found that 39 percent of those with acne avoided going to school due to embarrassment and 32 percent said acne stopped them from making friends. It is therefore obvious that treatment of acne is not just important from a cosmetic perspective; it is often key to the overall well-being of the individual. Given the difficulty that many individuals have in self-treating their acne, the knowledge, guidance, and expertise of the aesthetic practitioner becomes priceless.



Today, countless products and therapies exist to treat acne. And no wonder – acne is big business. According to GlobalData research, “the global acne market was worth 2.8 billion in 2009 and is estimated to reach revenues of \$3.02 billion by 2016.” The largest sector of the acne market is topical treatments – both prescription and over-the-counter. But, of the products and brands that comprise it, few succeed at eliminating acne. This is because, they often exist to address acne symptoms rather than the multiple causes of the disease. Unless each of these factors is addressed, acne symptoms will reoccur. So, how do you know if the professional products you offer your clients are formulated for success? We will start by taking a step back and reviewing the causes of acne.

The Four Main Causes of Acne

For those who suffer from acne, the skin’s natural rhythm of oil production and sloughing of dead skin cells is not in balance, as it is for those with healthy skin. Four principle factors have been identified:

- **Follicular keratinization:** Acne sufferers tend to have abnormally “sticky” skin cells. Because of this, dead skin cells do not slough or shed as they should and, instead, plug the hair follicle. This leads to a build-up of oil.
- **Excess sebum production:** Many acne sufferers have overactive sebaceous glands. This causes the production of greater quantities of sebum than is common.
- **Colonization of Propionibacterium acnes (P. acnes):** The skin environment of some individuals tends to

be more hospitable to *P. acnes*, the bacteria that cause acne lesions.

- **Inflammation:** Each of the three scenarios above may cause inflammation. When inflammation occurs, the acne condition worsens and may lead to scarring.

While these factors can individually contribute to the development of acne, most often, they work together. The most common scenario is this: The overactive production of oil and presence of abnormally “sticky” cells cause the hair follicle to plug, thus promoting the growth of *P. acnes*. The obstructed follicle, engorged with sebum and dead skin cells, becomes visible at the surface of the skin in the form of a white papule (whitehead). If the follicle continues to dilate, the plug becomes further exposed and, due to the oxidation of its contents, the papule appears a dark color (blackhead). At this point, the follicle becomes the ideal environment for bacteria. As the bacteria release proteins (enzymes), inflammation occurs as characterized by a reddened appearance at the skin’s surface. The sebum is then converted to free fatty acids that attract white blood cells to the area and further the inflammation. This is when pustules begin to form.

Beyond the four direct causes of acne, a variety of factors may act as secondary causes, including hormonal changes (e.g. puberty, menstrual cycle, pregnancy); a family history of acne; repeated, localized skin friction (e.g. a tight collar); below normal levels of vitamin A; certain medications; and certain occupational exposures (e.g. working in a greasy environment).

Effective Ingredients in Acne Treatment

While the effectiveness of skin care products is generally subjective when clients evaluate them against common skin concerns, such as dryness, fine lines, or blotchiness; clients have a more objective yardstick for success when it comes to acne. If the products that you recommend eliminate their acne symptoms and keep them away, long after in-office procedures, they will rate their experience with you a success. Therefore, when evaluating acne product formulations, be on the lookout for ingredients proven to address the four causes of acne. What follows are some of the over-the-counter substances, including some homeopathic ingredients that are beneficial in the fight against acne. While none of them address all four causes of acne alone, ingredients such as these may be combined in a single formulation or within product families to offer a complete solution to not only control symptoms, but to also help regulate the factors that cause the disease.

Ingredients to Address Follicular Keratinization

- **Retinyl Propionate:** Retinoids, a form of vitamin A, have long been used successfully in acne treatments. In fact, tretinoin, an acid form of vitamin A, is one of the most prescribed acne remedies today. In over-the-counter skin care products, retinol, the alcohol form of vitamin A, is often used. However, in some individuals it is irritating to the skin.
- **Retinyl propionate:** A storage form of vitamin A that concentrates in the epidermis, is less irritating. And, it has been found to be beneficial in improving acne. For example, a recent study intended to show retinyl propionate's effects on photoaged skin instead demonstrated a near complete reduction in acne among the study participants who suffered from the disease.
- **Glycolic Acid:** Glycolic acid is the smallest, molecularly, of all the alpha hydroxy acids and can, therefore, penetrate easily between cells to loosen dead skin, remove cell build-up inside the hair follicle and open clogged pores, comedones, and other impactions in oily areas. Continued use helps keep dead skin cells from accumulating on the follicle wall, thus preventing inflammatory acne lesions. A recent study showed products with glycolic acid significantly reduced comedones, papules, pustules, and reduced the size of follicular pores while rejuvenating skin texture.
- **Salicylic Acid:** Salicylic acid, a beta hydroxy acid, works as a keratolytic agent. By opening clogged pores, salicylic acid helps to re-establish the normal skin cell replacement cycle. Comparative studies of salicylic acid have shown it to be superior to benzoyl peroxide in reducing the total number of acne lesions. Salicylic acid is further beneficial in the treatment of acne due to its antimicrobial and antiseptic properties.

Ingredients to Address Excess Sebum Production

- **Zinc Pyrithione:** An antibacterial and antifungal agent developed in the 1930s, zinc pyrithione works to stop the growth of certain bacterium on the skin, including P. acnes. Due to its ability to regulate sebum secretion, it is beneficial in the treatment of acne and is further used to treat scalp disorders, such as dandruff, psoriasis, and seborrheic dermatitis.
- **Sulfur:** One of only a handful of over-the-counter acne treatments to secure FDA approval, sulfur is among the oldest medicines still in use. In the treatment of acne, it reduces oil gland activity and dissolves the skin's surface

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layer of dry, dead cells. Additionally, it inhibits the growth of *P. acnes*. Among the research related to sulfur's use in the treatment of acne, one study demonstrated that sulfur lotion reduced acne symptoms by 83 percent after 12 weeks of treatment.

- **Niacinamide:** Also known as vitamin B3, niacinamide decreases triglyceride production in the sebaceous glands. Studies have backed up its ability to reduce sebum excretion rate and casual sebum levels. Additionally, niacinamide acts as a potent anti-inflammatory.

Ingredients to Address Colonization of *P. Acnes*

- **Benzoyl peroxide:** A potent antiseptic and oxidating agent, benzoyl peroxide is one of the most commonly used ingredients in the treatment of acne. It is effective at eliminating *P. acnes* and reduces the quantity of comedones. An added bonus – benzoyl peroxide does not promote antibacterial resistance, as can happen with the use of prescription antibiotics.
- **Eucalyptus Oil:** The most versatile essential oil found in nature, eucalyptus oil has been used for sinus relief, sore throats, as a topical antiseptic for skin injuries, and as an inhalant for asthma and other respiratory conditions. It is proven effective in the treatment of acne due to its antiseptic properties; it inhibits the growth of *P. acnes*.
- **Tea Tree Oil:** Extracted from the leaves of the Australian *Melaleuca Alternifolia* tree, topical application of tea tree oil helps to reduce bacteria on the skin, lessens

inflammation, and generally improves the symptoms of acne. In fact, a study comparing tea tree oil to the use of benzoyl peroxide demonstrated improvements among patients in both groups, while those using tea tree oil reported fewer side effects (stinging, itching, burning and dryness).

Ingredients to Address Inflammation

- **Aloe vera:** A plethora of research exists to demonstrate aloe vera's potent anti-inflammatory abilities. Of the more than 200 active components in aloe, it contains salicylic acid and sterols, both of which work to inhibit inflammation. Aloe also has antimicrobial properties and is, therefore, beneficial in helping control *P. acnes*.
- **Arnica:** Commonly referred to as "Leopard's Bane," the arnica flower has been used in homeopathic medicine for hundreds of years. Arnica features anti-inflammatory and antibacterial properties, and aids in the healing of topical skin wounds.
- **Bisabolol:** A colorless viscous oil derived from chamomile, bisabolol has anti-inflammatory properties and is effective in reducing the potential for scar formation caused by acne.

Further Factors to Encourage Results

Of course, the appropriate recommended at-home treatment depends greatly upon the severity of acne symptoms. Regardless of the formulation, those with advanced symptoms, such as cysts, require referral to a physician for prescribed medicines, such as antibiotics or steroids.

Acne is a chronic problem and, as such, controlling it requires patience. For many, this process takes months or even years. It is, therefore, essential that clients be given realistic expectations for the management of their acne. Beyond that point, I like to address the following with my acne patients:

- While diet is not a direct cause of acne, poor nutrition can exacerbate acne conditions. It is beneficial for clients to fill the bulk of their diet with fresh fruits, vegetables, whole grains, and beans, as these foods are good sources of antioxidants. Additionally, it may be helpful to avoid foods with high glycemic levels, such as white bread and potatoes, as they cause a rapid surge in blood sugar, which may lead to the development of acne.
- Avoid the use of all other acne treatments beyond those that have been recommended by your skin care professional. Most acne sufferers have a surplus of over-

the-counter acne treatment products at home. Therefore, it is important to ensure they discontinue the use of anything outside the regimen you have outlined so the current protocol can be effectively evaluated. Additionally, many drugstore acne treatments contain abrasive ingredients that could cause inflammation, thereby exacerbating acne conditions.

- Utilize only noncomedogenic makeup. Again, makeup is not a direct cause of acne but certain products may exacerbate the conditions that do cause acne.
- Do not try to “pop” acne lesions. Extractions must be left to the skin care professional to avoid further inflammation and the spread of acne symptoms.

Given the prevalence of acne in our society, offering a full menu of services to treat the condition and its effects, including acne facials, microdermabrasion, laser/light therapy, and chemical peels makes good business sense. By carrying a professional acne line that extends the benefits of those treatments and is effective at controlling the factors that cause acne, you can maximize profits. To ensure the line you are carrying is one that will successfully treat the four causes of

acne, it is necessary to take the time to research the ingredients used in the product formulations. After all, to fulfill the role of trusted advisor to your acne clients’ concerns, it is essential that you have full confidence in the products you recommend. 



Dr. Ahmed Abdullah, a board-certified plastic and cosmetic surgeon, is CEO and co-founder of TreSkinRX. A recognized expert on the restorative and medicinal effects of aloe vera, he has authored several published studies, including “Effects of Aloe Vera on Gap Junctional Intracellular Communication and Proliferation of

Human Diabetic and Non-Diabetic Skin Fibroblasts” (2003) and “Effects of Aloe Vera on Expression of Fibroblast Growth Factor Receptor 2 IIIc mRNA in Human Diabetic and Non-Diabetic Skin Fibroblasts” (2009). He is a member of the International Aloe Science Council (IASC) based in Dallas, Texas, and has served on its board of directors. Abdullah is also a clinical associate professor in plastic surgery at the University of North Dakota School of Medicine in Grand Forks, N.D. He owns and practices at Plastic Surgery Institute PC.

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