SKIN

IN-DEPTH REVIEW

American Academy of Dermatology Acne Guidelines of Care versus Modern Skincare Trends

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ABSTRACT

Acne vulgaris remains one of the most prevalent dermatologic conditions worldwide, yet its management has become increasingly influenced by pop culture trends and consumer marketing. This review critically compares the American Academy of Dermatology (AAD) guidelines for acne treatment with the most popular skincare practices of the 2020s, including natural remedies, light therapy, and multi-step routines popularized through platforms like TikTok and Instagram. By examining the scientific evidence supporting AAD-recommended treatments, such as topical retinoids, benzoyl peroxide, and systemic therapies, and contrasting them with trending regimens that often lack clinical validation, this paper explores the widening gap between expert guidance and real-world consumer behavior. While some overlaps exist, many viral skincare trends risk overuse, irritation, or delay in effective treatment. Ultimately, this comparison underscores the need for improved dermatologic literacy among consumers and advocates for greater collaboration between dermatologists and online content creators. By bridging the divide between evidence-based care and popular culture, the dermatology community can help patients make safer, more informed decisions in managing acne.

INTRODUCTION

Acne treatment has evolved significantly over the years, with dermatological guidelines and consumer skincare trends often taking different approaches to management. The American Academy of Dermatology (AAD) provides evidence-based guidelines emphasizing proven treatments to optimize efficacy while minimizing side effects. In contrast, skincare trends of the 2020s have introduced a variety of alternative approaches, including "clean beauty," Korean skincare routines, acne patches, and natural remedies such as tea tree oil and CBD-based treatments. While these trends often prioritize gentler, holistic, and sustainable skincare, they may not always align with clinical recommendations. This paper examines the similarities and differences between the AAD guidelines and contemporary skincare trends, exploring the balance between scientific evidence and consumer-driven preferences in acne treatment.

METHODS

Data for this review were collected from PubMed and Google Scholar. Literature was selected based on its relevance to the evidence supporting or refuting the use of each individual ingredient for acne treatment. Priority was given to representative studies, recent systematic reviews, and influential clinical trials. Articles were included if they directly evaluated the efficacy or mechanism of action of the ingredients in question, particularly in the context of acne management. Studies were excluded if they lacked a clear focus on acne-related outcomes or did not provide primary or secondary data. As this project involved comparing the AAD guidelines to commonly used ingredients, we aimed to maintain an evidence-based approach in our literature selection.

RESULTS

AAD Guidelines[1]

The updated AAD guidelines for acne treatment provide evidence-based recommendations for topical and systemic therapies, emphasizing individualized patient care. These guidelines highlight the efficacy of benzoyl peroxide, retinoids, antibiotics, hormonal therapies, and isotretinoin while addressing considerations such as antibiotic stewardship and minimizing side effects.

The AAD strongly recommends benzoyl peroxide, topical retinoids, and topical antibiotics for treating acne. Depending on the severity and type of acne lesions, these agents can be used individually or in combination. Benzoyl peroxide is effective due to its antibacterial properties, while topical retinoids help follicular epithelial desquamation. Topical antibiotics are utilized for their anti-inflammatory effects and to reduce Propionibacterium acnes colonization.

Systemic treatments are recommended for patients with moderate to severe acne or those who do not respond to topical therapies. Oral doxycycline is an effective systemic antibiotic option. Additionally, oral isotretinoin is strongly recommended for severe cases, particularly when there is a risk of scarring, significant psychosocial impact, or failure of standard treatments. Isotretinoin targets multiple pathogenic factors of acne, including sebum production, follicular keratinization, and bacterial proliferation.

The guidelines also discuss the role of hormonal therapies, such as oral contraceptives and anti-androgens, in female patients with acne, especially when a suspected hormonal component is present. Furthermore, oral corticosteroids are mentioned for severe inflammatory acne, particularly as a temporary measure while initiating other systemic treatments.

These updated guidelines emphasize an individualized approach to acne management to optimize treatment efficacy while minimizing adverse effects and improving patient outcomes and quality of life.

2020s Skincare Trends

Clean Beauty

In the 2020s, the "clean beauty" movement has emerged as a dominant trend in the skincare industry, driven by Millennial and Generation Z consumers' increasing focus on health, environmental sustainability, and ethicality. Clean beauty emphasizes transparency in ingredient sourcing, the

avoidance of potentially harmful chemicals, and sustainability in production processes.[2] Consumers in this demographic are drawn to products that claim to be "non-toxic," "natural," or "organic," though these terms are often loosely regulated. The trend also includes a preference for cruelty-free and environmentally friendly practices, reflecting broader societal concerns about climate change and animal welfare.

Clean beauty extends beyond ingredient transparency to encompass minimalist formulations prioritizing efficacy and safety.[3] This has led to a rise in single-ingredient products and a focus on gentle, barrier-supportive ingredients such as ceramides, hyaluronic acid, and niacinamide. Clean beauty advocates may avoid AAD-approved ingredients due to concerns about irritation or perceived chemical risks. This divergence highlights a tension between consumer preferences for "clean" formulations and the dermatological community's reliance on clinical evidence to guide acne treatment.

Korean Skincare

Korean skincare approaches acne treatment through a comprehensive regimen emphasizing gentle care, hydration, and natural ingredients. A foundational practice is double cleansing, which involves using an oil-based cleanser followed by a water-based one to thoroughly remove impurities without stripping the skin's natural moisture.[4] This method helps prevent clogged pores, a common contributor to acne. Exfoliation is another key component, utilizing mild exfoliants like salicylic acid and polyhydroxy acids to remove dead skin cells and promote cell turnover, reducing the likelihood of breakouts.[5] Hydration plays a role, as well-moisturized skin maintains a healthy barrier function, reducing irritation and inflammation associated with acne.

The AAD treatments are effective but can lead to side effects such as dryness, irritation, or increased sensitivity. Korean skincare focuses on gentle, hydrating, and natural formulations, and offers an alternative or complementary approach, particularly for individuals seeking to minimize potential side effects associated with conventional treatments. Integrating both methodologies may provide a balanced strategy for managing acne, catering to the skin's need for effective treatment and gentle care.

Acne Patches

The rise of acne patches in the 2020s represents a significant shift in how consumers address acne treatment, blending convenience, aesthetics, and innovative technology. Acne patches, particularly hydrocolloid-based ones, have gained immense popularity as an over-the-counter solution for managing pimples. These patches not only serve as a barrier to prevent picking and infection but also help absorb excess sebum and reduce inflammation. More advanced formulations, such as microneedle acne patches composed of materials like magnesium, have been explored for their potential to deliver active ingredients more effectively. Magnesium microneedle patches have been shown to improve acne lesions through localized, controlled delivery of therapeutic agents, which reduces systemic side effects.[6]

Acne patches align with the AAD guidelines, as many incorporate ingredients that are cornerstone treatments for acne. For instance, patches infused with salicylic acid, a keratolytic agent endorsed by the AAD for its ability to exfoliate and unclog pores, provide a targeted and effective option for mild acne.[7] Additionally, benzoyl peroxide, another AAD-recommended ingredient, is increasingly featured in newer patch designs

to combat Cutibacterium acnes and reduce inflammation.[8] Research supports the efficacy of these patches as a supplementary approach to acne management, with hydrocolloid patches demonstrating the ability to reduce lesion size and redness by creating a moist healing environment and protecting lesions from external irritants.[9] By combining innovative delivery systems with evidence-backed ingredients, acne patches bridge consumer-driven trends with dermatologically sound treatments, making them a valuable addition to modern acne care.

Tea Tree Oil

Tea tree oil has become one of the latest trends in acne treatment, particularly among individuals seeking natural, plant-based alternatives. Tea tree oil is derived from the leaves of the Melaleuca alternifolia plant. It is celebrated for its antibacterial and anti-inflammatory properties which help to reduce acne-causing bacteria and calm inflamed lesions.[10] New research is showing that tea tree oil can effectively reduce inflammatory acne lesions, such as papules and pustules, and a 5% tea tree oil gel has been shown to perform comparably to a 5% benzoyl peroxide lotion with even fewer reported side effects like dryness and irritation.[10] This has made it a favorable option for individuals prioritizing a more gentle, holistic skincare regimen.

Despite its growing popularity, tea tree oil in acne treatment deviates from the AAD guidelines. While the AAD recognizes the role of anti-inflammatory agents in treating acne, tea tree oil is not specifically mentioned due to the lack of large-scale clinical trials to support its efficacy and safety compared to the standard therapies. This discrepancy emphasizes the challenge of balancing the buyer's demand for more natural products with the need for proven, reliable treatments in clinical practice.

Sulfur-Based Spot Treatments

Sulfur-based spot treatments have been a long-standing acne remedy, with historical use dating back to ancient civilizations. In modern dermatology, sulfur is recognized for its antibacterial and keratolytic properties, making it a popular ingredient in acne treatments. A recent study evaluated a 10% sulfur acne drying lotion formulated with 4% niacinamide, finding that it significantly reduced lesion erythema and size within one to three days of use.[11] Subjects also reported improved pimple appearance as early as one-hour post-application, indicating rapid efficacy in addressing inflammatory acne lesions. Additionally, sulfur is often combined with sodium sulfacetamide, an anti-inflammatory agent, to enhance its therapeutic effects. These formulations are especially beneficial for individuals with acne-prone skin that is also sensitive or affected by conditions such as rosacea or seborrheic dermatitis.[12] The drying properties of sulfur help absorb excess oil, reducing the environment favorable for acne development while minimizing irritation compared to harsher treatments.

Compared to the AAD guidelines for acne treatment, sulfur is not prominently featured as a primary recommendation. While sulfur-based treatments are widely available and frequently used in over-the-counter formulations, they are not explicitly endorsed as a first-line therapy within the guidelines. Instead, sulfur may be considered an adjunctive or alternative treatment, particularly for individuals seeking gentler options or experiencing sensitivity to mainstream acne medications. The lack of strong evidence supporting sulfur's efficacy relative to AAD-endorsed treatments may

contribute to its exclusion from formal recommendations. Nonetheless, the rapid action and tolerability of sulfur-based formulations make them a viable option for targeted acne treatment, especially for those looking to manage occasional breakouts with minimal irritation.

CBD-Based Skincare

CBD-based acne treatments are gaining popularity due to their anti-inflammatory, antibacterial, and oil-regulating properties. New research suggests that CBD helps to reduce different inflammatory cytokines like TNFα and IL-1β, which play a role in acne development. It also inhibits Cutibacterium acnes, the bacteria responsible for breakouts, while reducing sebum production, which can help to control excess oil. Additionally, CBD becomes an even stronger candidate for acne treatment when combined with plant extracts like Centella Asiatica and silymarin, which are known for their soothing and anti-inflammatory effects. Early clinical studies indicate that CBD-infused products can significantly reduce acne lesions, particularly inflammatory ones, making them a promising option for natural, well-tolerated alternatives.[13]

CBD-based treatments represent a shift towards having a more natural, skin-friendly approach to acne care. While conventional acne treatments like retinoids, benzoyl peroxide, and antibiotics are effective, they often cause dryness, irritation, and even antibiotic resistance, making them difficult for some people to tolerate.[14] CBD products, however, work by calming inflammation, fighting bacteria, and balancing oil production, but with fewer side effects and better skin tolerance. While traditional treatments remain the gold standard due to extensive research, the growing interest in CBD and herbal alternatives shows that more people are looking for effective solutions that are easier on the skin and sustainable for long-term use.

Probiotic Skincare

Probiotic skincare is a growing trend that uses live microorganisms in topical products and supplements to improve the skin's health by balancing its microbiome. Probiotics can potentially reduce *Propionibacterium acnes* growth and inflammation through different antibacterial proteins and immunomodulatory effects.[15] Studies have highlighted their ability to inhibit inflammatory cytokines like IL-8 and support beneficial bacteria such as *Staphylococcus epidermidis*, which naturally suppresses P. acnes overgrowth. Additionally, as antibiotic resistance continues to rise and concerns about the side effects of traditional treatments grow, probiotics can offer a promising and more natural option for managing mild to moderate acne.

Unlike the AAD guidelines, which focus on proven treatments like benzoyl peroxide, retinoids, and oral antibiotics, probiotics take a different approach to targeting the skin microbiome. While this trend aligns with the push for more natural, less harsh skincare options, probiotics do not yet have enough large-scale studies to back them as a primary treatment. They're seen as a potential add-on to traditional therapies rather than a standalone solution. As more research continues to develop, probiotics could eventually find a place in the standard of acne care but lack strong clinical-based evidence for formal recommendations.

Clay Masks

Clay masks have gained popularity as skincare treatments for individuals with oily and acne-prone skin. These masks often

contain ingredients such as kaolin and bentonite, which have strong oil-absorbing and impurity-extracting properties. A recent study assessed the efficacy of a clay mask containing these ingredients and found significant improvements in acne-related outcomes, including reductions in sebum content and acne lesion count over four weeks.[16] The study involved 75 adults with oily or combination skin, using the mask twice weekly. The results showed enhanced skin hydration, a decrease in transepidermal water loss, and improved skin evenness. The study also reported high user satisfaction, with participants perceiving effective oil control and improved skin texture. These findings support the notion that clay masks can serve as a beneficial adjunctive treatment for individuals seeking non-invasive options for managing acne and oily skin.

While the AAD guidelines do not specifically endorse clay masks as a primary treatment for acne, they do acknowledge the importance of oil control in managing breakouts. Clay masks may offer a complementary approach by helping to regulate sebum production and reduce surface impurities. Unlike clinically proven treatments such as benzoyl peroxide and retinoids, which penetrate deeper into the skin to target acne at multiple levels, clay masks primarily provide surface-level benefits by absorbing excess oil and reducing shine. However, for individuals who prefer gentler skincare solutions or wish to enhance their existing acne regimen, clay masks can be a beneficial addition to their routine.

Snail Mucin

Snail mucin has recently emerged as a prominent ingredient in skincare, praised for its hydrating, anti-inflammatory, and wound-healing properties. This secretion, rich in glycoproteins, hyaluronic acid, glycolic acid, and antimicrobial peptides, has been widely marketed as an effective treatment for acne and skin rejuvenation. Studies have indicated that snail mucin possesses antimicrobial activity against acne-causing bacteria, including *Staphylococcus aureus* and *Pseudomonas aeruginosa*, suggesting its potential to reduce acne lesions.[17] Additionally, snail mucin has been shown to promote fibroblast proliferation, stimulate collagen production, and enhance skin barrier repair, making it a sought-after ingredient in cosmetic formulations.[18] A growing body of research supports its use in improving acne scarring and post-inflammatory hyperpigmentation, contributing to its expanding market presence in skin care.

Despite this rising popularity, snail mucin does not appear in the AAD guidelines as a recommended acne treatment. Instead, it is primarily considered a skin-conditioning agent rather than a direct acne therapy. Its hydrating and wound-healing effects may benefit those with residual scarring and irritation. While anecdotal evidence and small-scale studies suggest potential benefits, the lack of rigorous, large-scale clinical trials prevents it from being classified as a first-line acne treatment.

As snail mucin gains popularity in skincare, its collection raises significant ethical concerns that directly challenge the principles of the "clean" beauty movement. Snails naturally produce mucin as a defense mechanism when under stress, typically in response to injury, dehydration, or environmental threats.[19] To stimulate this secretion on a commercial scale, many companies use methods that subject snails to harsh conditions, such as poking, agitating, or spraying them with acidic or salty

solutions, and in some cases, applying electrical stimulation.[20] These methods can cause physical harm, distress, and even death, contradicting cruelty-free claims.

Although some brands assert that their mucin is “ethically harvested” using low-stress environments, such as allowing snails to move across mesh in quiet, dark spaces, there is no universal regulatory standard to verify such practices.[21] The lack of transparency and third-party oversight leaves room for greenwashing, where “clean” or “cruelty-free” labels may be applied loosely or misleadingly.[22] This creates a fundamental tension: the clean beauty movement is rooted in values like sustainability, ethical sourcing, and animal welfare, yet the very presence of animal-derived ingredients like snail mucin, especially when harvested through stressful means, may undermine these principles.

Beef Tallow

Beef tallow, the rendered fat from cattle, has recently gained attention in the skincare community for its purported benefits in treating acne.[23] Proponents claim that its rich composition of fatty acids closely resembles the natural oils produced by human skin, potentially aiding in moisture retention and barrier repair.[24] Some anecdotal reports suggest that beef tallow can help reduce inflammation and promote clearer skin. However, it's important to note that scientific evidence supporting these claims is limited.

Given the lack of substantial clinical evidence supporting the use of beef tallow in acne treatment, dermatologists generally advise caution. They recommend adhering to proven, standardized treatments, such as the AAD guidelines, and consulting with a healthcare professional before incorporating unconventional ingredients like beef tallow into one's skincare regimen.

Cryotherapy

Local cryotherapy is gaining attention as a new treatment for acne, especially for persistent inflammatory lesions such as nodules and cysts. Cold temperatures decrease swelling, kill acne-causing bacteria, and shrink sebaceous glands. Additionally, the newer devices allow for improved control of temperature and reduce different side effects like skin discoloration and discomfort. Some studies even suggest it can speed up healing and reduce the size of lesions faster than traditional topical treatments. Because it is non-invasive and doesn’t rely on medications, cryotherapy is appealing to patients looking for alternative options. However, despite its growing popularity, its use remains limited in clinical practice due to the need for more research.[25]

Compared to the AAD guidelines, which prioritize treatments supported by large-scale clinical studies, local cryotherapy represents a more procedural and targeted approach. While it offers potential benefits for treating severe, inflammatory acne lesions, its role in standard dermatologic care remains unclear due to limited long-term research. Until more comprehensive studies confirm its safety and effectiveness, cryotherapy will likely remain an adjunct to conventional treatments rather than being the primary method for acne management.

Blue/Red Light Therapy

Blue and red light therapy has gained attention as a non-invasive treatment for acne vulgaris, utilizing light wavelengths to target different aspects of acne pathology. Blue light (415 nm) has been shown to exert antibacterial effects by inducing photodynamic destruction of *Cutibacterium acnes* (formerly known as *Propionibacterium acnes*), the bacterium associated with acne

lesions.[26] Red light (633 nm) penetrates deeper into the skin, exerting anti-inflammatory effects and promoting wound healing, which can help reduce acne-related erythema and post-inflammatory hyperpigmentation.[27] A randomized controlled trial comparing these modalities found that red light therapy led to a greater reduction in inflammatory lesions (51.5%) than blue light (26.4%). Another study showed that combination therapy using both blue and red light resulted in significant improvement, with a reduction of 77.93% in inflammatory lesions and 34.28% in non-inflammatory lesions. Additionally, light-based therapies have been found to decrease sebaceous gland activity and reduce the presence of inflammatory cytokines, suggesting a broader mechanism of action beyond bacterial reduction.[28]

Although blue and red light therapy has recently become a major skincare trend among consumers, it is not a primary recommendation in the AAD guidelines for acne treatment, as the guidelines prioritize pharmacologic interventions due to their well-documented efficacy. While light therapy has demonstrated effectiveness, inconsistencies in treatment protocols, such as differences in wavelength settings, durations, and session frequencies, present challenges to its widespread adoption. More comprehensive clinical studies are necessary to determine its optimal parameters and long-term benefits.

CONCLUSION

The comparison between AAD guidelines and 2020s skincare trends reveals a divide between clinically validated treatments and consumer-driven innovations. While the AAD guidelines prioritize treatments backed by rigorous research, emerging skincare trends often emphasize natural ingredients, barrier support, and alternative approaches that appeal to public concerns about sustainability and gentleness. Some trends, such as acne patches and light therapy, align more closely with evidence-based medicine, while others, such as beef talo and snail mucin, lack substantial clinical support. As dermatology continues to evolve, integrating patient preferences with scientifically supported treatments will be essential to providing comprehensive, personalized acne care. Bridging the gap between medical recommendations and skincare trends may lead to improved adherence, better patient outcomes, and more accessible treatment options.

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