

Daily Care for Acne, Hyperpigmentation, Aging, and Sensitive Skin

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Choosing the correct daily care regimen for your patients' specific skin condition does not have to become an overwhelming task. Determining which ingredients to include can form the foundation for the successful treatment of each of the most common skin conditions. In turn, you and your patients will achieve quick and long-term success. Although each patient's skin is a unique combination of their environment, lifestyle choices, hereditary background, and current product usage, there are specific ingredients that will help minimize the appearance of the more commonly treated skin conditions: acne, hyperpigmentation, aging, and sensitive skin.

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ACNE

At least 90% of the population has suffered from the devastating effects of acne at some point in their life (Szabo & Kemeny, 2011). This chronic skin disorder presents in four grades: Grades I and II—acne simplex; Grades III and IV—acne vulgaris. Each grade is marked by the eruption of a combination of pustules, papules, comedones, or cysts. Understanding the etiology of acne is imperative to determining an appropriate daily care routine. The four main causes of this condition are increased keratinization within the follicle, increased sebum production, *Propionibacterium acnes* (*P. acnes*) bacteria proliferation, and inflammation (Mancini, Baldwin, Eichenfield, Friedlander, & Yan, 2011). To be effective, a daily care routine for patients suffering with acne should address these four main causes.

Desquamation slows in acneic skin due to increased sebum production and increased adherence of keratinocytes within the follicle wall (Hsu, Litman, & Brodell, 2011). Gentle exfoliation can help minimize impactions by encouraging the desquamation of compacted surface cells. Ingredients that have been found effective

to gently exfoliate acne include mild alpha hydroxy acids (AHAs), salicylic, azelaic and kojic acids, and creamy scrubs formulated with smooth, round beads such as polyethylene or jojoba beads (Baldo et al., 2010).

Increased sebum production must be controlled to effectively address this condition. A misguided practice often used by those suffering with acne is the over-drying of the skin. Harsh, abrasive, or overly drying products can cause an increase in sebum production and further inflammation, exacerbating the very condition being treated. Science indicates that acne patients are deficient in essential fatty acids in their surface lipids, which can also result in increased sebum production (Treloar, 2003). Oils rich in essential fatty acids, such as borage seed oil, wheat germ oil, and grape seed oil, can actually decrease sebum production, helping alleviate persistent breakouts. Jojoba oil is also a satisfactory choice for those suffering with acne as its molecular structure closely resembles that of natural sebum, minimizing overproduction (Sandha & Swami, 2009).

A critical step in treating acne is controlling the *P. acnes* bacteria. Daily use of a cleanser or spot

treatment containing benzoyl peroxide delivers oxygen into the follicle where the anaerobic *P. acnes* bacteria reside, effectively reducing their proliferation (Kircik, 2013). Salicylic acid is also effective because of its lipophilic characteristics and ability to penetrate oil-filled follicles to clear impactions (Baumann, Oresajo, Yatskayer, Dahl, & Figueras, 2013).

Controlling inflammation is key when customizing a daily care regimen for acne patients. Anti-inflammatory ingredients that work to soothe the skin and minimize irritation include bisabolol (the active component found in chamomile), aloe vera, panthenol, salicylic and azelaic acids, boldine extract, resveratrol, and epigallocatechin gallate from green tea (Strowd, 2012). Ultraviolet (UV)-induced inflammation can antagonize the skin of acne-prone patients, making sunscreen use essential. Broad-spectrum sunscreen products containing higher percentages of zinc oxide can make a profound difference in minimizing inflammation. Additional ingredients to look for in a broad-spectrum sunscreen product include milk thistle-derived silybin and caffeine for additional antioxidant protection.

HYPERPIGMENTATION

One of the more challenging conditions skin health care professionals aim to treat is hyperpigmentation. This frustrating condition can affect a wide range of patients and can be caused by myriad internal and external factors. Outstanding results are often achieved when 2 treatment considerations are addressed: daily application of melanogenesis inhibiting ingredients and proper patient education.

The melanogenesis process is a complex and often misunderstood chain of events that must be controlled at varying points.

Cutaneous inflammation is a direct cause of hyperpigmentation. The source of the inflammation can vary from overexposure to UV rays, hormonal fluctuations, or cutaneous injury, such as a burn, cut, or infection (Briganti, Camera, & Picardo, 2003). The beginning of pigment formation takes place after the initial trigger causes the release of melanocyte-stimulating hormone (Briganti et al., 2003). Once this process is set in motion, a few strategies must be executed: gentle exfoliation, encouraging cellular turnover, inhibiting the melanogenesis process, and consistent use of broad-spectrum UV protection.

Because hyperpigmentation is a direct result of inflammation, it is advisable to take a low-dose approach when exfoliating the skin. As keratinized cells are exfoliated, pigment deposition on the surface will also dissipate. Using smooth, round beads as the medium for exfoliation instead of crushed kernels or nut hulls ensures effective exfoliation without causing unnecessary trauma.

Increasing and regulating cellular turnover by implementing strategic daily care products will amplify results and take treatment outcomes to the next level. Stimulating cell renewal will aid in facilitating the removal of melanin-filled keratinocytes (Briganti et al., 2003). The family of vitamin A derivatives, also referred to as retinoids, has been used with much success because of its high level of efficacy in the regulation of cellular proliferation and turnover, bringing healthy cells to the surface at an increased rate (Halder & Richards, 2004). Pure retinol (0.5%) is often tolerated well when slowly integrated into the patient's nightly routine to regulate cellular turnover and bring dyschromias closer to the surface (PCA SKIN, 2013). Superficial blended chemical peels performed every 3 weeks will not only help remove the

pigmented lesions but also allow for improvement in skin function and cellular turnover (Dewandre & Rubin, 2006). This combination of daily care products, along with professional treatments, will provide an optimal outcome for the patient.

Inhibiting melanogenesis at multiple points is imperative for patients suffering with unwanted pigment. To discourage pigment formation, strategic integration of the following melanogenesis-inhibiting ingredients into a daily care regimen will halt the chain reaction that results in melanin deposition (PCA SKIN, 2013):

- *Hydroquinone* is synthetically produced or naturally found in wheat, berries, coffee, and tea. It inhibits the binding of copper to tyrosinase and induces melanocyte-specific cytotoxicity.
- *Retinoids* are synthetically produced. They suppress the activity of tyrosinase, decrease the amount of melanosomes, and inhibit melanosome transfer.
- *Phenylethyl resorcinol* is synthetically produced. It inhibits the conversion of tyrosinase to L-3,4-dihydroxyphenylalanine (L-DOPA).
- *Undecylenoyl phenylalanine* is synthetically produced. It prevents the synthesis of the melanocyte-stimulating hormone and, as a result, the formation of tyrosinase, melanin, and melanosome transfer.
- *Arbutin* is naturally found in wheat, pears, bearberries, blueberries, and cranberries. It suppresses the activity of tyrosinase and inhibits melanosome maturation.
- *Kojic acid* is naturally found in soy, mushrooms, and rice bran. It chelates copper bound to tyrosinase and decreases the number of melanosomes and dendrites.
- *Glycyrrhiza glabra root extract* (licorice root) suppresses the tyrosinase activity of melanocytes without cytotoxicity.

- *L-ascorbic acid* is naturally found in many botanical sources, such as citrus fruit and corn. It converts DOPAquinone back to L-DOPA, preventing melanin formation.

Once a pigment-controlling regimen has been implemented, a broad-spectrum sunscreen with a sun protection factor (SPF) of 30 or greater must be used daily to further protect the skin from harmful UV rays, which lead to increased pigmentation. Because melanogenesis inhibitors tend to reduce the melanin content in epidermal cells, there is an increased risk of UV-induced upregulation of matrix metalloproteinases and oxidative damage. Advanced sunscreen products containing broad-spectrum protection along with antioxidants, such as caffeine and silybin, provide well-rounded coverage from UV rays and other inflammatory stimulants (PCA SKIN, 2013).

AGING SKIN

Visible aging is a combination of intrinsic and extrinsic factors. Intrinsic aging refers to the physiological breakdown that naturally occurs because of the passage of time and accounts for about 15% of the aging process. Extrinsic aging accounts for 85% of the visible signs of aging and is directly related to UV exposure, lifestyle choices, chronic inflammation, and environmental offenders. Common presentations of aging skin include the following (PCA SKIN, 2013):

- sagging
- laxity
- fine lines and wrinkles
- thinning or transparent-looking skin
- dryness or dehydration
- hyperpigmentation
- epidermal thickening
- enlargement of pores
- telangiectasias
- coarsening of the skin

To effectively control the various signs of aging, a comprehensive daily care regimen should gently exfoliate and increase cell turnover, increase matrix proteins, inhibit melanogenesis, increase hydration, and protect from UV rays.

As one ages, the stratum corneum becomes compacted because of a considerable slowing in cellular turnover. Gentle exfoliation will not only help remove the excessive buildup of keratinized cells but also restore the youthful glow the patient once had in their younger years. Nightly use of a 0.5% pure retinol will provide a multitude of benefits for the patient, including a decrease in hyperkeratinization, addressing unwanted dyschromias, and synthesizing collagen production (Halder & Richards, 2004). Creamy exfoliating products containing low percentage AHAs and smooth round beads, such as polyethylene beads, provide a safe and effective means of exfoliation for the aging patient. Botanically sourced actives, such as *vigna aconitifolia* seed extract, also increase cellular turnover without added irritation.

Intrinsic aging takes a toll on the aging face, thinning the dermis while also decreasing the thickness of the epidermis (PCA SKIN, 2013). Increasing matrix proteins is a vital step in keeping a youthful appearance. Topically applied products containing AHAs, matrix-building peptides, epidermal growth factor, and vitamins trigger collagen synthesis, leading to an increase in skin firmness (Bernstein et al., 1996). Consider adding products containing rh-Oligopeptide-1, palmitoyl tripeptide-38, and hyaluronic acid to encourage healthy cell proliferation and improve the function of the extracellular matrix.

Sun exposure accounts for the majority of extrinsic aging and the resultant damage all too often appears as hyperpigmentation (Fisher, 2002). Integrat-

ing daily use of melanogenesis inhibitors such as low-percentage hydroquinone, kojic, lactic and azelaic acids, arbutin, retinol, or L-ascorbic acid will address visible pigmentation while also staving off future discolorations (NYU Langone Medical Center, 2011). Using various pigment-inhibiting ingredients with differing mechanisms of action is highly recommended, as this method will effectively target the various points of the melanogenesis process.

Dry skin is a common concern for the aging patient. Effective hydrators should combine humectant ingredients with occlusive agents. Humectants work by pulling moisture from the dermis up into the epidermis. An occlusive agent acts as a barrier, locking in that moisture. Commonly used humectant ingredients include hyaluronic acid, honey, glycerin, and sodium PCA. Effective occlusive agents include shea butter, niacinamide, silicones such as dimethicone and cyclomethicone, and titanium dioxide.

Sun protection is particularly important to manage aging skin because the majority of visible aging is due to photo damage. Regardless of skin condition, all patients should be advised to use a broad-spectrum sunscreen with an SPF of 30 or higher for adequate UV protection every day, year-round. Well-formulated sun protection products will contain antioxidants such as milk thistle-derived silybin and caffeine.

SENSITIVE SKIN

Sensitive skin is defined as a heightened intolerance to topical products or external factors and often involves impaired barrier function. To effectively treat sensitive skin conditions, one must take into account that the skin has been compromised and is no longer able to function at the capacity of healthy skin.

A comprehensive sensitive skin regimen should include products that gently exfoliate and increase cellular turnover, decrease redness and inflammation, increase hydration to control excessive dryness, and protect from UV exposure.

Gently exfoliating will help reduce excessive cell buildup without increasing irritation and inflammation. When performed on a weekly basis with mild exfoliating media, such as polyethylene beads or jojoba beads, patients will be less likely to run the risk of overexfoliating or irritating the skin. Other gentle exfoliating options include low-percentage AHAs or low-percentage retinols. Retinol can be used safely and can greatly improve the barrier function of the skin by encouraging healthy cell turnover (PCA SKIN, 2013).

Sensitive skin often presents with some degree of visible redness and inflammation, which causes the patient some discomfort. Integrating topical anti-inflammatory ingredients to help combat redness will oftentimes also improve microcapillary function by suppressing the proinflammatory mediators, vascular endothelial growth factor (VEGF) and prostaglandin E₂ (PGE₂), and inhibit the production of inflammatory cytokines (PCA SKIN, 2013).

Redness-reducing ingredients include the following:

- **Brown and red algae extract** to reduce VEGF and PGE₂.
- **Caper bud fruit extract** to inhibit the production of pro-inflammatory cytokines.

Ingredients with higher levels of omega-3 and omega-6 essential fatty acids act as potent anti-inflammatory agents (PCA SKIN, 2013). Specific support ingredients assist in calming and soothing the skin.

Anti-inflammatory and calming ingredients include the following:

- **Evening primrose oil** as a source of omega-3 gamma linolenic acid (GLA), which provides both redness-reducing and anti-inflammatory benefits.
- **Bisabolol**, which is the active component in chamomile that provides anti-inflammatory benefits.
- **Willow bark extract**, a natural analgesic related to aspirin, also acts as a soothing and calming agent.
- **Menthyl lactate** to soothe and cool irritated skin.

Because barrier function can be greatly reduced in those suffering with a sensitive skin condition, maintaining adequate epidermal moisture is imperative. To effectively hydrate the skin, a moisturizing product must contain humectant and occlusive ingredients, mentioned previously.

As with aforementioned conditions, every patient should use a broad-spectrum SPF of 30 or greater every day. When it comes to sensitive skin conditions, the barrier function is often impaired, allowing for a higher risk of UV-induced inflammation, which can worsen many of the sensitive skin conditions skin health professionals aim to treat. This increased inflammatory response can further weaken damaged capillaries and lead to increased vasodilation. Proper UV protection can help mitigate these negative outcomes.

Although the presentation of each skin condition will vary greatly from patient to patient, setting up a foundation for success with daily care will ultimately lead to healthy, beautiful skin. Recognizing the unique characteristics of each skin condition is imperative to developing a customized regimen for each patient's individual combination of skin concerns. Aim to integrate gentle exfoliation, treatment of the specific skin con-

cern, and proper hydration along with a broad-spectrum SPF of 30 or greater into each daily care regimen as a starting point for success.

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