

Hair Care Products Used by Women of African Descent: Review of Ingredients

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PRACTICE POINTS

- Dermatologists must be aware of common hair and scalp beliefs, misconceptions, care, and product use to ensure culturally competent patient interactions and treatment.
- Common ingredients in popular hair care products used by African Americans include sulfates, cationic surfactants and polymers, silicone, oils, and parabens.

Consumers of African descent use an array of hair-grooming products. They are attracted to products that promote moisture and minimize breakage because their hair is prone to dryness and fragility. Herein, we discuss popular hair care products used by African Americans as well as their ingredients, including sulfates, surfactants, silicones, oils, and parabens. Knowledge of popular hair and scalp products and their ingredients, indications for use, adverse effects, and misconceptions can assist dermatologists in delivering culturally competent care. In addition to being proficient in the diagnosis and treatment of hair and scalp disorders in this population, dermatologists must be aware of common hair and scalp products.

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In the African American and African communities, information regarding the care and treatment of hair and skin often is obtained from relatives as well as Internet

videos and bloggers.¹ Moreover, fewer than half of African American women surveyed believe that their physician understands African American hair.² In addition to proficiency in the diagnosis and treatment of hair and scalp disorders in this population, dermatologists must be aware of common hair and scalp beliefs, misconceptions, care, and product use to ensure culturally competent interactions and treatment.

When a patient of African descent refers to their hair as “natural,” he/she is referring to its texture compared with hair that is chemically treated with straighteners (ie, “relaxed” or “permed” hair). Natural hair refers to hair that has not been altered with chemical treatments that permanently break and re-form disulfide bonds of the hair.¹ In 2003, it was estimated that 80% of African American women treated their hair with a chemical relaxer.³ However, this preference has changed over the last decade, with a larger percentage of African American women choosing to wear a natural hairstyle.⁴

Regardless of preferred hairstyle, a multitude of products can be used to obtain and maintain the particular style. According to US Food and Drug Administration regulations, a product’s ingredients must appear on an information panel in descending order of predominance. Additionally, products must be accurately labeled without misleading information. However, one study found that hair care products commonly used by African American women contain mixtures of endocrine-disrupting

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chemicals, and 84% of detected chemicals are not listed on the label.⁵

Properties of Hair Care Products

Women of African descent use hair grooming products for cleansing and moisturizing the hair and scalp, detangling, and styling. Products to achieve these goals comprise shampoos, leave-in and rinse-out conditioners, creams, pomades, oils, and gels. In August 2018 we performed a Google search of the most popular hair care products used for natural hair and chemically relaxed African American hair. Key terms used in our search included *popular natural hair products*, *best natural hair products*, *top natural hair products*, *products for permed hair*, *shampoos for permed hair*, *conditioner for permed hair*, *popular detanglers for African American hair*, *popular products for natural hair*, *detanglers used for permed hair*, *gels for relaxed hair*, *moisturizers for relaxed hair*, *gels for natural hair*, and *popular moisturizers for African American hair*. We reviewed all websites generated by the search and compared the most popular brands, compiled a list of products, and reviewed them for availability in 2 beauty supply stores in Philadelphia,

Pennsylvania; 1 Walmart in Hershey, Pennsylvania; and 1 Walmart in Willow Grove, Pennsylvania. Of the 80 products identified, we selected 57 products to be reviewed for ingredients based on which ones were most commonly seen in search results. Table 1 highlights several randomly chosen popular hair care products used by African American women to familiarize dermatologists with specific products and manufacturers.

Tightly coiled hair, common among women of African descent, is considered fragile because of decreased water content and tensile strength.⁶ Fragility is exacerbated by manipulation during styling, excessive heat, and harsh shampoos that strip the hair of moisture, as well as chemical treatments that lead to protein deficiency.^{4,6,7} Because tightly coiled hair is naturally dry and fragile, women of African descent have a particular preference for products that reduce hair dryness and breakage, which has led to the popularity of sulfate-free shampoos that minimize loss of moisture in hair; moisturizers, oils, and conditioners also are used to enhance moisture retention in hair. Conditioners also provide protein substances that can help strengthen hair.⁴

TABLE 1. Popular Hair Grooming Products Used by African American Women

Brands Used More Commonly for Natural Hair	Brands Used More Commonly for Chemically Treated Hair
<p>Shampoos Carol's Daughter Black Vanilla Moisture & Shine Sulfate-Free Shampoo (L'Oreal) OGX Nourishing Coconut Milk Shampoo (Vogue International, LLC; acquired by Johnson & Johnson) Pantene Pro-V Truly Relaxed Hair Moisturizing Shampoo (Procter & Gamble)</p> <p>Leave-in Conditioners Mielle Pomegranate & Honey Leave-In Conditioner (Mielle) Miss Jessie's Leave-In Condish (Miss Jessie's, LLC)</p> <p>Conditioners The Mane Choice Green Tea & Carrot Conditioning Mask (The Mane Choice) Pantene Gold Series Repairing Mask (Procter & Gamble)</p> <p>Detanglers Kinky-Curly Knot Today (Kinky-Curly Hair Products, LLC) SheaMoisture Raw Shea Butter Extra-Moisture Detangler (Sundial Brands, LLC)</p> <p>Gel Eco Styler (Ecoco)</p> <p>Moisturizers Carol's Daughter Mimosa Black Vanilla Moisture & Shine Hair Smoothie (L'Oreal) SheaMoisture Coconut & Hibiscus Curl Enhancing Smoothie (Sundial Brands LLC)</p>	<p>Shampoos ApHogee Deep Moisture Shampoo (KAB Brands) Pantene Pro-V Gold Series Shampoo (Procter & Gamble) Pantene Pro-V Truly Relaxed Moisturizing Shampoo (Procter & Gamble)</p> <p>Leave-in Conditioners Neutrogena Triple Moisture Silk Touch Leave-in Conditioner (Johnson & Johnson) Creme of Nature Argan Oil Strength & Shine Leave-In Conditioner (Creme of Nature)</p> <p>Conditioners Herbal Essences Hello Hydration Moisturizing Conditioner (Clairol) Pantene Pro-V Truly Relaxed Hair Moisturizing Conditioner (Procter & Gamble)</p> <p>Detanglers Kinky-Curly Knot Today (Kinky-Curly Hair Products, LLC) John Frieda Frizz Ease Daily Nourishment Leave-In Conditioner (Kao Corporation)</p> <p>Gel ampro Pro Styl Protein Styling Gel (ampro Industries, Inc)</p> <p>Moisturizers Mizani Coconut Souffle Light Moisturizing Hairdress (L'Oreal USA) ApHogee Balancing Moisturizer (KAB Brands)</p>

Consumers' concerns about the inclusion of potentially harmful ingredients have resulted in reformulation of many products. Our review of products demonstrated that natural hair consumers used fewer products containing silicones, parabens, and sulfates, compared to consumers with chemically relaxed hair. Another tool used by manufacturers to address these concerns is the inclusion of an additional label to distinguish the product as sulfate free, silicone free, paraben free, petroleum free, or a combination of these terms. Although many patients believe that there are "good" and "bad" products, they should be made aware that there are pros and cons of ingredients frequently found in hair-grooming products. Popular ingredients in hair care products include sulfates, cationic surfactants and cationic polymers, silicone, oils, and parabens.

Sulfates—Sulfates are anion detergents in shampoo that remove sebum from the scalp and hair. The number of sulfates in a shampoo positively correlates to cleansing strength.¹ However, sulfates can cause excessive sebum removal and lead to hair that is hard, rough, dull, and prone to tangle and breakage.⁶ Sulfates also dissolve oil on the hair, causing additional dryness and breakage.⁷

There are a variety of sulfate compounds with different sebum-removal capabilities. Lauryl sulfates are commonly used in shampoos for oily hair. Tightly coiled hair that has been overly cleansed with these ingredients can become exceedingly dry and unmanageable, which explains why products with lauryl sulfates are avoided. Table 1 includes only 1 product containing lauryl sulfate (Pantene Pro-V Gold Series Shampoo). Patients using a lauryl sulfate-containing shampoo can select a product that also contains a conditioning agent in the formulation.⁶ Alternatively, sulfate-free shampoos that contain surfactants with less detergency can be used.⁸ There are no published studies of the cleansing ability of sulfate-free shampoos or their effects on hair shaft fragility.⁹

At the opposite end of the spectrum is sodium laureth sulfate, commonly used as a primary detergent in shampoos designed for normal to dry hair.¹⁰ Sodium laureth sulfate, which provides excellent cleansing and leaves the hair better moisturized and manageable compared to lauryl sulfates,¹⁰ is a common ingredient in the products in Table 1 (ApHogee Deep Moisture Shampoo, Pantene Pro-V Gold Series Shampoo, and Pantene Pro-V Truly Relaxed Moisturizing Shampoo).

An ingredient that might be confused for a sulfate is behentrimonium methosulfate, a cationic quaternary ammonium salt that is not used to cleanse the hair, unlike sodium lauryl sulfate and sodium laureth sulfate, but serves as an antistatic conditioning agent to keep hair moisturized and frizz free.¹¹ Behentrimonium methosulfate is found in conditioners and detanglers in Table 1 (The Mane Choice Green Tea & Carrot Conditioning Mask, Kinky-Curly Knot Today, Miss Jessie's Leave-In Condish, SheaMoisture Raw Shea

Butter Extra-Moisture Detangler, Mielle Pomegranate & Honey Leave-In Conditioner). Patients should be informed that behentrimonium methosulfate is not water soluble, which suggests that it can lead to buildup of residue.

Cationic Surfactants and Cationic Polymers—Cationic surfactants and cationic polymers are found in many hair products and improve manageability by softening and detangling hair.^{6,10} Hair consists of negatively charged keratin proteins⁷ that electrostatically attract the positively charged polar group of cationic surfactants and cationic polymers. These surfactants and polymers then adhere to and normalize hair surface charges, resulting in improved texture and reduced friction between strands.⁶ For African American patients with natural hair, cationic surfactants and polymers help to maintain curl patterns and assist in detangling.⁶ Polyquaternium is a cationic polymer that is found in several products in Table 1 (Carol's Daughter Black Vanilla Moisture & Shine Sulfate-Free Shampoo, OGX Nourishing Coconut Milk Shampoo, ApHogee Deep Moisture Shampoo, Pantene Pro-V Gold Series Shampoo, Neutrogena Triple Moisture Silk Touch Leave-In Conditioner, Creme of Nature Argan Oil Strength & Shine Leave-in Conditioner, and John Frieda Frizz Ease Daily Nourishment Leave-In Conditioner).

The surfactants triethanolamine and tetrasodium ethylenediaminetetraacetic acid (EDTA) are ingredients in some styling gels and have been reported as potential carcinogens.¹² However, there are inadequate human or animal data to support the carcinogenicity of either ingredient at this time. Of note, tetrasodium EDTA has been reported to increase the penetration of other chemicals through the skin, which might lead to toxicity.¹²

Silicone—Silicone agents can be found in a variety of hair care products, including shampoos, detanglers, hair conditioners, leave-in conditioners, and moisturizers. Of the 22 products listed in Table 1, silicones are found in 14 products. Common silicones include dimethicone, amodimethicone, cyclopentasiloxane, and dimethiconol. Silicones form hydrophobic films that create smoothness and shine.^{6,8} Silicone-containing products help reduce frizz and provide protection against breakage and heat damage in chemically relaxed hair.^{6,7} For patients with natural hair, silicones aid in hair detangling.

Frequent use of silicone products can result in residue buildup due to the insolubility of silicone in water. Preventatively, some products include water-soluble silicones with the same benefits, such as silicones with the prefixes PPG- or PEG-, laurylmethicone copolyol, and dimethicone copolyol.⁷ Dimethicone copolyol was found in 1 of our reviewed products (OGX Nourishing Coconut Milk Shampoo); 10 products in Table 1 contain ingredients with the prefixes PPG- or PEG-. Several products in our review contain both water-soluble and water-insoluble silicones (eg, Creme of Nature Argan Oil Strength & Shine Leave-In Conditioner).

Oils—Oils in hair care products prevent hair breakage by coating the hair shaft and sealing in moisture. There are various types of oils in hair care products. Essential oils are volatile liquid-aroma substances derived most commonly from plants through dry or steam distillation or by other mechanical processes.¹³ Essential oils are used to seal and moisturize the hair and often are used to produce fragrance in hair products.⁶ Examples of essential oils that are ingredients in cosmetics include tea tree

oil (TTO), peppermint oil, rosemary oil, and thyme oil. Vegetable oils can be used to dilute essential oils because essential oils can irritate skin.¹⁴

Tea tree oil is an essential oil obtained through steam distillation of the leaves of the coastal tree *Melaleuca alternifolia*. The molecule terpinen-4-ol is a major component of TTO thought to exhibit antiseptic and anti-inflammatory properties.¹⁵ Pazyar et al¹⁶ reviewed several studies that propose the use of TTO to treat acne vulgaris,

TABLE 2. Hair Care Products: Recommendations for Women of African Descent

Recommended Products for Natural Hair	Recommended Products for Chemically Treated Hair
<p>Shampoos</p> <p>SheaMoisture Coconut & Hibiscus Curl & Shine Shampoo (Sundial Brands LLC)</p> <p>Carol's Daughter Black Vanilla Moisture & Shine Sulfate-Free Shampoo (L'Oreal)</p> <p>Mielle Babassu Oil Conditioning Sulfate-Free Shampoo (Mielle)</p> <p>OGX Nourishing Coconut Milk Shampoo (Vogue International, LLC; acquired by Johnson & Johnson)</p>	<p>Shampoos</p> <p>CHI Silk Infusion (CHI)</p> <p>Mizani Strength Fusion Post-Chemical Treatment (Mizani)</p>
<p>Leave-in Conditioners</p> <p>Cantu Shea Butter Leave-In Conditioning Repair Cream (Cantu)</p> <p>Mielle Pomegranate & Honey Leave-In Conditioner (Mielle)</p> <p>Creme of Nature Argan Oil 7-N-1 Leave-in Treatment (Creme of Nature)</p> <p>Garnier Hair Care Triple Nutrition Curl Moisture Leave-In Conditioner (Garnier)</p> <p>African Pride Shea Miracle Conditioner Leave-In Conditioner (African Pride)</p> <p>Miss Jessie's Leave-In Condish (Miss Jessie's, LLC)</p>	<p>Leave-in Conditioner</p> <p>Creme of Nature Argan Oil Strength & Shine Leave-In Conditioner (Creme of Nature)</p>
<p>Conditioners</p> <p>Pantene Gold Series Repairing Mask (Procter & Gamble)</p> <p>The Mane Choice Green Tea & Carrot Conditioning Mask (The Mane Choice)</p>	<p>Conditioner</p> <p>Herbal Essences Hello Hydration Moisturizing Conditioner (Clairol)</p>
<p>Detanglers</p> <p>Kinky-Curly Knot Today (Kinky-Curly Hair Products, LLC)</p> <p>Creme of Nature Detangling & Conditioning Conditioner (Creme of Nature)</p> <p>SheaMoisture Raw Shea Butter Extra-Moisture Detangler (Sundial Brands, LLC)</p> <p>Taliah Waajid Curls, Waves, & Naturals The Great Detangler (Taliah Waajid Brand)</p>	<p>Detanglers</p> <p>Kinky-Curly Knot Today (Kinky-Curly Hair Products, LLC)</p> <p>Creme of Nature Detangling & Conditioning Conditioner (Creme of Nature)</p> <p>SheaMoisture Raw Shea Butter Extra-Moisture Detangler (Sundial Brands LLC)</p> <p>Taliah Waajid Curls, Waves, & Naturals The Great Detangler (Taliah Waajid Brand)</p>
<p>Gels</p> <p>EDEN Body Works Natural Curl Defining Crème (EDEN Body Works)</p> <p>The Mane Choice Crystal Orchid Biotin Infused Styling Gel (The Mane Choice)</p> <p>Ouidad Advanced Climate Control Heat & Humidity Gel (Ouidad Inc)</p>	<p>Gel</p> <p>göt2b Ultra Glued Invincible Styling Gel (göt2b)</p>
<p>Moisturizers</p> <p>SheaMoisture Coconut & Hibiscus Curl Enhancing Smoothie (Sundial Brands LLC)</p> <p>Carol's Daughter Mimosa Hair Honey Shine Pomade (L'Oreal)</p>	<p>Moisturizers</p> <p>Elasta QP Olive Oil & Mango Butter Moisturizer Intensive Treatment (Elasta QP)</p> <p>Mizani Coconut Souffle Light Moisturizing Hairdress (Mizani)</p>

seborrheic dermatitis, and chronic gingivitis. Although this herbal oil seemingly has many possible dermatologic applications, dermatologists should be aware that reports have linked TTO to allergic contact dermatitis due to 1,8-cineole, another constituent of TTO.¹⁷ Tea tree oil is an ingredient in several of the hair care products that we reviewed. With growing patient interest in the benefits of TTO, further research is necessary to establish guidelines on its use for seborrheic dermatitis.

Castor oil is a vegetable oil pressed from the seeds of the castor oil plant. Its primary fatty acid group—ricinoleic acid—along with certain salts and esters function primarily as skin-conditioning agents, emulsion stabilizers, and surfactants in cosmetic products.¹⁸ Jamaican black castor oil is a popular moisturizing oil in the African American natural hair community. It differs in color from standard castor oil because of the manner in which the oil is processed. Anecdotally, it is sometimes advertised as a hair growth serum; some patients admit to applying Jamaican black castor oil on the scalp as self-treatment of alopecia. The basis for such claims might stem from research showing that ricinoleic acid exhibits anti-inflammatory and analgesic properties in some mice and guinea pig models with repeated topical application.¹⁷ Scientific evidence does not, however, support claims that castor oil or Jamaican black castor oil can treat alopecia.

Mineral oils have a lubricant base and are refined from petroleum crude oils. The composition of crude oil varies; to remove impurities, it must undergo treatment with different degrees of refinement. When products are highly treated, the result is a substantially decreased level of impurities.¹⁹ Although they are beneficial in coating the hair shaft and preventing hair damage, consumers tend to avoid products containing mineral oil because of its carcinogenic potential if untreated or mildly treated.²⁰

Although cosmetics with mineral oils are highly treated, a study showed that mineral oil is the largest contaminant in the human body, with cosmetics being a possible source.²¹ Studies also have revealed that mineral oils do not prevent hair breakage compared to other oils, such as essential oils and coconut oil.^{22,23} Many consumers therefore choose to avoid mineral oil because alternative oils exist that are beneficial in preventing hair damage but do not present carcinogenic risk. An example of a mineral oil-free product in Table 1 is Mizani Coconut Souffle Light Moisturizing Hairdress. Only 8 of the 57 products we reviewed did not contain oil, including the following 5 included in Table 1: Carol's Daughter Black Vanilla Moisture & Shine Sulfate-Free Shampoo, Miss Jessie's Leave-In Condish, Kinky-Curly Knot Today (although this product did have behentrimonium made from rapeseed oil), Herbal Essences Hello Hydration Moisturizing Conditioner, and ampro Pro Styl Protein Styling Gel.

Parabens—Parabens are preservatives used to prevent growth of pathogens in and prevent decomposition of cosmetic products. Parabens have attracted a lot of criticism because of their possible link to breast

cancer.²⁴ In vitro and in vivo studies of parabens have demonstrated weak estrogenic activity that increased proportionally with increased length and branching of alkyl side chains. In vivo animal studies demonstrated weak estrogenic activity—100,000-fold less potent than 17 β -estradiol.²⁵ Ongoing research examines the relationship between the estrogenic properties of parabens, endocrine disruption, and cancer in human breast epithelial cells.^{5,24} The Cosmetic Ingredient Review and the US Food and Drug Administration uphold that parabens are safe to use in cosmetics.²⁶ Several products that include parabens are listed in Table 1 (ApHogee Deep Moisture Shampoo, Neutrogena Triple Moisture Silk Touch Leave-In Conditioner, John Frieda Frizz Ease Daily Nourishment Leave-In Conditioner, and ampro Pro Styl Protein Styling Gel).

Our Recommendations

Table 2 (although not exhaustive) includes the authors' recommendations of hair care products for individuals of African descent. Dermatologists should discuss the pros and cons of the use of products with ingredients that have controversial health effects, namely parabens, triethanolamine, tetrasodium EDTA, and mineral oils. Our recommendations do not include products that contain the prior ingredients. For many women of African descent, their hair type and therefore product use changes with the season, health of their hair, and normal changes to hair throughout their lifetime. There is no magic product for all: Each patient has specific individual styling preferences and a distinctive hair type. Decisions about which products to use can be guided with the assistance of a dermatologist but will ultimately be left up to the patient.

Conclusion

Given the array of hair and scalp care products, it is helpful for dermatologists to become familiar with several of the most popular ingredients and commonly used products. It might be helpful to ask patients which products they use and which ones have been effective for their unique hair concerns. Thus, you become armed with a catalogue of product recommendations for your patients.

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