DRY SKIN MANAGEMENT

Background: Dry skin or xerosis is a common skin problem which is usually worse during winter when the environmental humidity is low. If left untreated, dry skin often leads to itching, which can be bothersome and interfere with sleep or other daily activities.

Causes of Dry Skin: The skin is the largest organ of the body and provides a barrier to keep out environmental toxins and retain water and nutrients. Human skin contains three layers: epidermis, dermis, and hypodermis. All three layers of the skin require adequate hydration to protect the underlying structures. The stratum corneum, the outermost layer of the epidermis, consists of dead skin cells embedded in a mixture of natural oils (lipids) produced by underlying living skin cells. The oil in the stratum corneum helps keep water from escaping and serves as a protective barrier of the skin. The stratum corneum usually consists of 30% water; however, the percentage is highly dependent on environmental humidity. Dry skin results when there is not enough water in the stratum corneum to keep skin soft, pliable, and smooth. When the water content of the stratum corneum falls below 10%, scaling and cracking appear exposing underlying living cells to irritating substances and bacteria.

Dry skin occurs when the protective oils in the stratum corneum are lost and the water that is normally in the skin is allowed to escape. Some of the causes of dry skin include excessive exposure to soapy water, harsh chemicals or microorganisms, low environmental temperature, low humidity, normal aging process, and certain types of skin disorders (e.g., atopic dermatitis, psoriasis, seborrheic dermatitis, etc).

Management of Dry Skin: **Patients frequently ask <u>how to relieve dry skin</u>...especially during the winter with cold, dry weather outside...and hot, dry heating inside.**

Simple ways to prevent and treat dry skin include turning down the thermostat and using a humidifier.

Short, lukewarm baths or showers and a moisturizing cleanser. Hot water can wash away natural oils and soap can be drying...limit soap mainly to underarms and the genital area.

Apply a moisturizer three or four times daily...especially right after a shower or handwashing...to help hold in some moisture from the water.

Selecting a moisturizer comes down to patient preference.

Try a lighter lotion such as *Cetaphil* for people who live in humid areas...and more occlusive products such as *Eucerin* original formula for those in very dry conditions.

Try it for a week. If there's no improvement, recommend switching to a more occlusive product.

Your grandmother's favorite remedy...petrolatum jelly (*Vaseline*)...is still a good, inexpensive choice. For very dry hands, apply it at night and wearing cotton gloves or socks on the hands.

The mainstay of dry skin management is retaining moisture and avoiding irritants. Use proper bathing techniques and liberal use of moisturizers. Although it seems counter intuitive, water (especially hot water) has a drying effect on the skin since it washes off the oils that maintain skin moisture. Take short baths or showers (no more than ten minutes) only once a day. Lukewarm water should be used because hot water is more effective in washing oils away and can stimulate histamine release in the skin, leading to itching, swelling, and dryness. Soap should be used minimally and only when needed. Use soap only in areas where it's needed (e.g., under the arms, the groin and genitals, and feet). Mild unscented cleansers (e.g, *Dove*, *Basis*, *Cetaphil* cleansing bar, etc) are preferred. Avoid adding bath oil to bath water which can make the bath tub slippery and potentially cause falls.

After bathing or showering, gently pat, rather than rub, the skin partially dry. Apply a moisturizer within three minutes of getting out to seal the water in the skin before it evaporates. Moisturizers should be reapplied liberally throughout the day when possible especially to those areas prone to dryness (hands, arms, legs) and when itchy.

Use fragrance-free/dye-free detergents and avoid fabric softeners and dryer sheets. Consider using a humidifier in low humidity environments and choose clothing made of fabrics that allow the skin to breathe (e.g., cotton, silk). Drink plenty of water daily and avoid caffeine, spices, and alcohol, as these can contribute to dehydration.

Dry skin can cause itching which may be relieved with the use of moisturizer. If itching due to dry skin is not relieved by moisturizers, apply cool compresses to the area. Over-the-counter hydrocortisone 1% cream or ointment can also be used to reduce inflammation and itching. Topical hydrocortisone should be applied sparingly to the affected area three times a day. Limit use of topical corticosteroids to one to two weeks because prolonged use can cause skin thinning. Other anti-itching

agents that can be considered include counter irritants (e.g., camphor and menthol). Be cautious using topical antihistamines (e.g., diphenhydramine) and topical anesthetics (e.g. benzocaine, lidocaine) as they may cause allergic dermatitis.

Choosing a Moisturizer: The goals include repairing the skin barrier, retaining or increasing hydration, reducing transepidermal water loss, restoring the lipid barrier's ability to maintain hydration, and maintaining skin integrity and appearance. An ideal moisturizer would achieve these goals by acting as an emollient, an occlusive, and a humectant.

Emollients are generally lipids and oils that hydrate, soften, and smooth the skin. Examples of emollients include silicone derivatives (e.g., dimethicone, cyclomethicone), isostearyl alcohol, castor oil, glyceryl stearate, jojoba oil, propylene glycol, collagen, elastin, keratin, shea butter, etc.

Occlusives provide a hydrophobic barrier over the skin to help reduce transepidermal water loss. They work best when applied to slightly dampened skin. Occlusive agents commonly found in moisturizers include stearic acid, cetyl alcohol, mineral oil, paraffin, petrolatum, silicone derivatives, lecithin, propylene, glycol, beeswax, lanolin, etc. Petroleum jelly is the most effective occlusive, followed by lanolin, mineral oils, and silicone derivatives. Most occlusives leave a greasy feel on the skin and some are potentially allergenic (e.g., lanolin).

Humectants work by drawing water from the dermis into the epidermis, and in humid conditions, they also help the stratum corneum absorb water from the external environement. Many humectants also have emollient properties. Commonly used humectants include glycerin, hyaluronic acid, panthenol, propylene glycol, sodium pyrrolidone carboxylic acid, urea, alpha-hydroxy acids (e.g., lactic acid, glycolic acid, and tartaric acid), etc. Although alpha-hydroxy acids are humectants, they are primarily used as a keratolytic agent in moisturizers to help shedding and softening of dry, dead skin. Alpha-hydroxy acids can sometimes cause stinging and make skin more sun-sensitive. Advise patients to apply sunscreen over the alpha-hydroxy acid containing moisturizer if sun exposure is anticipated. Some humectants can increase transepidermal water loss by enhancing water absorption from the dermis into the epidermis, where it can be lost into the environment. Because of the potential for increasing transepidermal water loss, humectants are almost always combined with an occlusive agent.

Most moisturizing formulations contain a combination of emollients, occlusives, and humectants. There are four basic classes of body moisturizers: ointments, oils, creams and lotions.

Ointment moisturizers (e.g., *Aquaphor*, *Vaseline* petroleum jelly, etc) are mainly occlusives. They are the most effective in trapping moisture in the skin, but they are greasy. The greasy feel can be minimized by applying a small amount and rubbing it into the skin. They are suitable for severely dry skin. For people with very dry hands, recommend applying at night and wearing cotton gloves. **Oil moisturizers** (e.g., baby oil, bath oil, etc) are less greasy but still effective. **Cream moisturizers** (e.g., *Cetaphil Moisturizing Cream*, *Eucerin Original Cream*, etc) are usually white and disappear when rubbed into the skin without leaving a greasy feel. **Lotion moisturizers** are suspensions of oily chemicals in alcohol and water. They are generally the least greasy. However, because of their alcohol content, they can be somewhat drying when used repeatedly compared to ointments and creams.

Consider climate when selecting a moisturizer. Light lotions such as *Cetaphil Moisturizing Lotion* for humid areas and heavier creams or ointments (*Aquaphor*, *Eucerin Original Cream*, etc) for very dry conditions. Also consider the site of application when choosing a moisturizer. Moisturizers formulated for the face are generally nongreasy and noncomedogenic (won't clog pores). Some facial moisturizers also contain sunscreen. Dry hands and feet can often benefit from heavier creams or ointments. In general, the more occlusive the moisturizer, the more effective it is in retaining water in the skin. Some experts advise switching to a more occlusive agent if dry skin is not relieved after a week of moisturizing treatment. Regardless of formulation, moisturizers should be used three or more times a day in order to be fully effective. For dry hands, an occlusive agent may need to be applied after each hand washing and throughout the day.

Conclusion: Dry skin is a common condition that, in most cases, can be self-managed with lifestyle modification and moisturizers. The choice of moisturizer should be based on the severity of dry skin and personal preference. See your primary care provider if dry skin does not improve after two weeks of self management. Doctor referral is also necessary if excessive itching or scaling is present or if the skin appears inflamed (red), swollen, or is oozing.

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