Aging & the Skin

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Summary

Aging causes many changes in a person's skin, ranging from wrinkles and sags to increased risk of developing noncancerous or cancerous growths and lesions. Environmental factors (e.g., sun exposure), genetic makeup and poor nutrition are among the agents that cause changes to the skin as a person ages.

Throughout a person's lifetime, the skin is constantly changing. As people age, the skin begins to lose underlying fat (*subcutaneous tissue*) and the top two skin layers (*dermis* and *epidermis*) become thinner. Fine wrinkles increasingly appear, and the skin dries out and begins to lose elasticity.

The skin often appears thinner, paler and more translucent over time. "Laugh lines" may appear around the mouth, and crow's feet may appear around the eyes. As gravity takes its toll, the eyelids begin to fall, jowls form and ears grow longer. Areas that are exposed to sun may develop brown patches known as age spots.

In addition, the aging process makes people more susceptible to growths such as warts, skin tags, seborrheic keratoses (benign, gray/brown, rough-surfaced growths) and cherry angiomas (benign skin growths that appear as small, smooth, cherry-red bumps).

It is impossible to prevent all of the changes that occur to the skin as a person ages. However, older individuals can take steps to slow the pace of these changes, or to treat symptoms that result from these changes. These steps include avoiding sun exposure, using moisturizers and emollients, maintaining a healthy diet and taking advantage of medications and procedures that make the skin appear younger.

About aging and the skin

Aging has many effects on a person's skin, from wrinkles and sags to increased risk of certain skin conditions, such as skin cancer. As people age, their skin begins to change due to environmental factors, genetic makeup, nutrition and other factors.

Covering the entire outside of the body, the skin is the body's largest organ and consists of three layers: the *epidermis* (composed of skin cells,
Causes of aging-related skin changes

Sun exposure (photodamage) is the chief source of aging-related skin damage, including biotchy pigmentation, wrinkling and scaling. The more skin is exposed to the sun without protection, the greater the likelihood of developing signs of aging. A person’s skin type plays a significant role in how damage manifests. For example, people with blue eyes and light skin are much more likely to show aging skin changes than those with darker eyes and skin.

In addition, skin becomes even more vulnerable to sun damage as it ages and the number of cells containing pigment (melanocytes) begins to decrease. Because older people have a reduced inflammatory response, they are less likely to develop sunburn than younger people. However, this lack of sunburn masks the fact that older people with fewer melanocytes are actually more likely to suffer significant ultraviolet radiation damage than younger people.

Long-term exposure to the sun has been linked to many aging-related skin changes, including loss of elasticity (elastosis), skin growths (keratoacanthomas), thinning of the skin,
pigment changes (such as age spots), *actinic keratosis* (precancerous skin changes) and skin cancers. People who spend a lot of time outdoors may develop *solar elastosis* due to sun exposure, which causes the leathery appearance to become even more pronounced. Other environmental factors that may contribute to skin damage include climate, exposure to chemicals and allergies.

Genetics also play a role in the development of aging-related skin changes. A person’s tendency to develop wrinkles, for instance, may be inherited from their parents.

Additional aging-related changes that impact the appearance of the skin include:

- **Weakening of blood vessels in the skin’s middle layer (**dermis**). As these vessels become more fragile, bruising, bleeding under the skin (**purpura**) and *cherry angiomas* (small red spots on the skin) may occur.

- **Thinning of the subcutaneous fat layer.** This layer of skin provides insulation and padding and absorbs some medications. As the subcutaneous layer thins, a person becomes more susceptible to skin injury and medications may work differently in the person’s system. The subcutaneous fat layer also helps the body to maintain proper body temperature. The thinning of this layer leaves the body with less natural insulation, increasing the risk of hypothermia during exposure to cold.

- **Decreased sweat glands.** Both the sweat glands and blood vessels in the skin begin to decrease. This makes it more difficult for patients to keep cool, putting them at increased risk for overheating or suffering heat stroke.

- **Drying out of the skin.** This condition – known as *xerosis* – occurs in a majority of older people and may result in itchiness (*pruritus*) and a roughness to the skin’s texture. It is particularly likely during the winter. The exact cause of this drying out is unknown, although a reduction of oil production from the sebaceous glands may be at least partially responsible. Women produce less oil after menopause, which causes dry skin and itchiness. Men experience a lesser decrease, usually after age 80.

As people age, they also become more vulnerable to diseases and disorders that may cause skin conditions. Diseases that can impact the skin include diabetes, liver disease, heart disease and *arteriosclerosis* (a blood vessel disease). Shingles (a viral infection caused by the same virus that causes chickenpox) is also more common and painful in people older than 50, although it can occur in people of any age. Other factors that may impact the skin include stress, medication reactions, obesity and lack of adequate nutrition.

**Symptoms of aging-related skin changes**

As the skin begins to slowly deteriorate during the aging process, a number of symptoms may appear. The skin often appears thinner, paler and more translucent. People may look increasingly gaunt, with hollowed cheeks and eye sockets. “Laugh lines” may appear around the mouth, and crow’s feet may appear around the eyes. Sleep lines – which are temporary marks on the face that appear after sleeping on a pillow all night – may become etched into the face.

As gravity takes its toll on the skin, the eyelids begin to fall, jowls form, the nose tip droops downward, the upper lip recedes while the lower lip protrudes and the ears grow longer. The skin dries out and begins to lose elasticity.

Areas that are exposed to sun may develop into brown patches known as age spots or liver spots. These most often appear on the face, hands, arms, back and feet of people with fair skin.

Skin is more vulnerable to injury as the *subcutaneous fat* layer breaks down and a person’s sense of touch becomes reduced (due to a decrease in the number of nerve endings in the skin). Simple rubbing or pulling of the skin can result in tearing of the skin and blood vessels are more easily broken. Even minor injuries can result in bruises, flat collections of blood (*purpuras*) or raised collections of blood (*hematomas*). Such injuries most frequently appear
Prevention of age-related skin changes

It is impossible to prevent all of the changes that occur to the skin as a person ages. However, older individuals can take steps to slow the pace of these changes, or to treat symptoms that result from these changes. Tips include:

- Avoid sun exposure. Sun damage (photodamage) is the leading cause of wear and tear to the skin ranging from wrinkles to skin cancer. For this reason, people should always wear sunscreen with a sun protection factor (SPF) of 15 or higher when outdoors, even during the winter. Protective clothing, such as wide brimmed hats, long-sleeved shirts and long pants can also help protect the body from the harmful effects of the sun. If possible, avoid exposure to the sun during the peak sun hours of 10 a.m. to 4 p.m. Avoiding sun exposure is especially important for those living in warmer climates – with every four degrees of closeness to the equator, the incidence of skin cancer doubles.

- Use moisturizers and emollients. Simple, inexpensive versions of these products can be effective in restoring moisture to dry skin. Moisturizers that contain lactic acid or urea may be more effective in relieving the severe dryness associated with aging skin. These products are intended to alleviate the actual cause of dryness rather than to just treat the symptoms.

- Maintain a healthy diet and consume adequate fluids. Poor nutrition increases the risk of skin rashes, lesions and other skin changes. Foods that are recommended for good skin health include fruits, vegetables, whole grains and “good” fat, such as that found in vegetable oil, fish and nuts. Foods containing sugar, cholesterol, and sodium should be avoided or consumed in moderation. Dehydration increases the risk of injury to skin tissues. Consuming a minimum of eight 8-ounce servings of water throughout the day can help prevent the body from dehydrating.
**Dry Skin**

*Also called:* Xerosis

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**Summary**

Dry skin is a common condition that results from a loss of moisture in the skin. It may be accompanied by itching, flaking or the appearance of fine lines.

The skin can lose moisture as a result of:

- Environmental factors (e.g., weather)
- Aging
- Chronic illness (e.g., diabetes)

Generally, dry skin can be remedied by returning moisture to the skin. This can be achieved by applying plenty of moisturizer, avoiding sun exposure and drinking lots of water (at least eight 8-ounce glasses daily), among other preventive methods. However, people with chronic or severe dry skin are advised to seek the care of a physician (typically a dermatologist) to rule out any underlying health problems.

**About dry skin**

Dry skin is a common condition that can affect people of all ages, even infants. The medical term for dry skin is *xerosis*. Dry skin has a parched look, resulting from its inability to retain moisture, and usually feels "tight" and uncomfortable, especially right after cleansing.

Skin is composed of three layers: the epidermis, dermis and subcutaneous tissue. The outer protective layer of skin is the epidermis. The middle layer is the dermis, which contains blood vessels, glands and nerve endings. The bottom layer is the subcutaneous tissue, which contains fat, nerves and blood vessels.

**The Skin’s Layers**

Dry skin results from a lack of water in the *stratum corneum*, the outer, compacted layer of cells in the epidermis. Part of the stratum corneum between the cells is composed mainly of lipids (fats), such as cholesterol and fatty acids. These lipids form a strong, protective barrier that preserves moisture in the skin. A film of natural oil (sebum) excreted by glands in the subcutaneous tissue also helps retain moisture. When this protective barrier is stripped away, the skin cells lose water, which they need to stay healthy and supple. Scientists define dry skin based on measurable changes in water and lipids in the stratum.
A healthy stratum corneum consists of about 30 percent water, which gives skin its resilience and elasticity. Most of the water is in the interior of the stratum corneum. In the outer layers, the amount of water depends on the environment. For instance, the drier the air, the drier the outermost layer of skin.

If a person experiences chronic or severe dry skin, they are advised to seek the care of a dermatologist. If dry skin is left untreated, it can lead to premature fine lines and wrinkles. Rarely, it may lead to more serious complications such as:

- Cellulitis. A potentially serious bacterial infection affecting the skin’s underlying tissues.
- Folliculitis. Inflammation of the hair follicles on the skin or scalp caused by infection.

These complications usually occur when the skin’s normal protective layer is compromised, such as with excessive scratching and/or bleeding, which can provide a way for bacteria to invade the body.

**Other symptoms related to dry skin**

Dry, rough skin may be accompanied by many other symptoms, such as:

- Skin tightness or tautness
- Loss of skin turgor
- Itching (pruritus)
- Flaking, peeling or scaling
- Fine lines or cracks
- Redness and inflammation
- Deep fissures that may bleed
- Increased thirst
- Dry hair

Patients should consult their physician if over-the-counter moisturizers fail to relieve these symptoms.

Redness, swelling, pain or warmth may indicate that a patient has developed a secondary infection from scratching their dry skin. Fluid may also ooze from infected skin. Individuals who suspect an infection should contact their physician immediately. They may require topical and/or oral antibiotics to treat the infection.

**Risk factors and causes of dry skin**

Various environmental factors can lead to a loss of moisture in the skin, resulting in dryness and/or coarseness. These may include:

- Weather. Skin tends to become dry during winter or when temperatures and humidity levels drop. Winter and colder climates tend to make other existing skin conditions (e.g., psoriasis, eczema) worse, which may exacerbate dryness.

- Excessive sun exposure. Like all types of heat, the sun has a drying effect on the skin. Plus, the sun’s ultraviolet rays penetrate deep within the epidermis causing long-term damage, which can lead to the formation of deep wrinkles and loose, sagging skin.

- Air conditioning and/or central heating units. These appliances tend to draw moisture out of the air and out of the skin. Other moisture-depleting devices include wood burning ovens, space heaters and fireplaces.

Other factors leading to dry skin include:
Over-cleansing. Frequent showering or bathing, especially using hot water, tends to break down the lipid barriers in the skin, resulting in dryness. Also, frequent swimming, especially in heavily chlorinated pools, can lead to dry skin.

Harsh soaps and detergents (e.g., deodorant and anti-bacterial soaps). Products containing fragrances and lauryl sulfates are harsher and more irritating to the skin. Therefore, excessive use of these products can lead to a loss of moisture.

Alcohol, caffeine and drugs. Excessive alcohol and caffeine intake can deplete the body of water and lead to dry skin. Certain prescription drugs (e.g., diuretics to increase urine production) also have a drying effect.

Smoking cigarettes. Tobacco does not cause the skin to dry, but it does deprive it of oxygen, thereby leading to the formation of premature fine lines and wrinkles, which can give the skin a coarse, dry appearance.

Age. As people get older, the skin tends to become drier because the oil-producing glands (sebaceous glands) are less active. In addition, the shedding and renewal of cells in the skin’s stratum corneum – the top sublayer of the epidermis – slows down with age, resulting in a rough, dull complexion.

Gender. Even though everyone’s skin dries with age, in general men’s skin tends to retain moisture longer than women’s. Men experience a relatively small decrease in oil production until well into their 80s, whereas women’s skin tends to become much drier after menopause.

Not drinking enough water. Not drinking enough liquids can lead to dehydration, which can cause the body to lose more fluid than what is taken in. Dry skin is one of the first signs of dehydration.

Nutritional deficiencies. Deficiencies in certain fatty acids (e.g., omega-3), zinc and vitamin A can affect the moisture levels of the skin.

In addition, some underlying health conditions and skin disorders may lead to or exacerbate dry skin. These may include:

Diabetes (excessive blood sugar levels). Diabetes can damage small blood vessels and nerves, making the skin prone to dryness as well as serious complications, such as infection (e.g., cellulitis).

Hypothyroidism (underactive thyroid gland). When the thyroid produces too few hormones, it reduces the activity of the sweat and oil glands, leading to dry skin.

Ichthyosis. A group of skin disorders that result in excessively dry skin that is extremely rough and scaly in appearance. These conditions may be inherited or caused by environmental factors.

Eczema. Inflammatory skin condition characterized by lesions that appear dry, thick and scaly.
Psoriasis. A chronic skin condition resulting in the rapid buildup of rough, dry, dead skin cells that form thick scales.

Keratosis pilaris. A genetic (inherited) condition in which the hair follicle is plugged with dry skin. This results in redness and the appearance of tiny bumps on the skin, which often resemble small pimples. It typically affects the back of the upper arms, buttocks and thighs. In children, it is commonly found on the face.

Diagnosis methods for dry skin
In many cases people with dry skin do not require a formal medical diagnosis. Topical moisturizers may treat the condition. When dry skin is not relieved by home care methods, consulting a physician (often a dermatologist) may be necessary.

To determine the cause of dry skin, a physician will obtain a medical history and perform a thorough physical examination, paying careful attention to all parts of the skin. To further understand the cause of the dry skin, a physician may ask questions such as:

- When did the skin become dry, or has it always been dry?
- Are all parts of the body affected? If not, which areas are involved?
- What seems to make the dryness worse?
- Are any methods successful in alleviating the dryness?
- Are there any other symptoms?

In addition, a physician may order blood tests to rule out underlying health conditions (e.g., diabetes, hypothyroidism) that may be responsible for the dry skin. A biopsy to remove a sample from any lesions may also be performed to check for the presence of bacteria or infection (e.g., cellulitis).

Treatment and prevention methods for dry skin
If a chronic health condition, such as diabetes, is causing the dry skin, the underlying condition must be treated in order to improve the appearance of the skin. In cases where dryness results from a skin disease, such as eczema, a physician may refer the patient to a dermatologist for treatment.

In most cases, though, treatment of dry skin is simple and requires returning moisture to the skin. This can be achieved by using moisturizers and emollients, which help nourish and hydrate the skin, on a regular basis. The most effective moisturizers are ointments, followed by creams. Lotions are the least lubricating form of moisturizer.

Many moisturizers contain sunscreen, which helps protect the skin against the sun’s harmful rays. Moisturizers with a sun protection factor (SPF) of 15 or more should be applied daily to areas of the skin that are frequently exposed to the sun, including the face, ears, hands and neck.

Patients experiencing dry skin are advised to apply moisturizers as often as necessary, especially after bathing, showering or washing the face when the skin is moist. It also should be applied before exercising outdoors, in cold climates and every time the hands are washed. Individuals with severely dry skin should also apply a moisturizer before bed. Those with dry hands may benefit from applying a moisturizer to the skin at bedtime and wearing cotton gloves overnight.

In addition, people can help keep their skin hydrated and prevent dry skin by:

- Limiting bathing time. Showers and baths should be limited to 10 minutes or less, and only once a day.
- Using warm water instead of hot water.
● Avoiding harsh, drying soaps and powders. Non-deodorant soaps and nonsoap cleansers are best.

● Not scrubbing, rubbing or scratching the skin. This can lead to inflammation and in some cases infection. Skin should be gently patted dry with a towel after a shower or bath.

● Moisturizing the home if the air is dry. This can be done by using a humidifier, which helps maintain moisture in the air. Humidifiers are particularly useful during the winter months. They can be placed throughout the home, or at least in the bedroom.

● Keeping the temperature of the home low. Heat is drying to the skin. As a result, patients may benefit from keeping the temperature below 70 degrees Fahrenheit (21 degrees Celsius).

● Choosing natural fabrics (e.g., cotton, silk) that do not irritate the skin. Clothing made of rough fabrics such as wool should be avoided.

● Using detergents that do not contain fragrances or dyes and avoiding fabric softeners.

● Incorporating a well-balanced diet.

● Limiting alcohol and caffeine consumption.

● Avoiding or limiting cigarette smoking.

● Drinking plenty of water (at least eight 8-ounce glasses) every day.

● Wearing gloves when doing chores, such as washing dishes and gardening. They should also be worn in cold temperatures to minimize exposure to the elements.

● Bathing as soon as possible after spending time in a chlorinated pool or hot tub.

Patients with dry skin that is severely inflamed may require topical corticosteroids. Individuals who develop secondary infections from scratching may require topical and/or oral antibiotics to treat the infection.

**Questions for your doctor regarding dry skin**

Preparing questions in advance can help patients to have more meaningful discussions with their physicians regarding their conditions. Patients may wish to ask their doctor the following questions regarding dry skin:

1. Should I be worried about my dry skin?

2. What may be causing me to have dry skin?

3. What are my treatment options?

4. Can I treat dry skin at home?

5. Are any of my current medications causing the dry skin?

6. How can I prevent dry skin?

7. How often should I moisturize my skin?

8. Can you recommend soaps and lotions for my skin type?
9. What changes can I make in my diet to improve the condition of my skin?

10. Are my children more likely to have dry skin because I have the condition?