

## **Ageing skin**

Ageing of the skin is a gradual process that is associated with changes to the appearance, characteristics and function of the skin. A combination of genetic, lifestyle, dietary and environmental factors contribute to skin ageing.

### **Intrinsic ageing**

Intrinsic ageing, also known as the natural ageing process, is a continuous process that normally begins in our mid-20s. Within the skin, collagen production slows and elastin, the substance that enables skin to snap back into place, has a bit less spring. Dead skin cells do not shed as quickly and the turnover of new skin cells decreases between the ages of 20 and 60. While these changes usually begin in our 20s, the signs of intrinsic ageing are typically not visible for decades. Our genetic makeup controls how quickly the normal ageing process happens.

The signs of intrinsic ageing include:

- Fine wrinkles due to changes in the dermis (deep layer of skin)
- Thin and transparent skin due to thinning of the epidermis (surface layer of the skin)
- Dry skin that may itch
- Skin can become rough
- Skin becomes more fragile
- Skin becomes more easily bruised due to thinner blood vessel walls
- Chemical substances may more easily penetrate through the skin
- Skin becomes slack as the loss of the elastic tissue (elastin) in the skin causes the skin to hang loosely
- Inability to sweat sufficiently to cool the skin due to reduction in the number of sweat glands
- Greying of hair that eventually turns white (50% grey coverage by age 50)
- Hair loss occurs on the scalp in both men and women, beard and chest area in men, and axilla (underarm) and pubic area in both men and women
- Excess hair growth especially on the face in women in menopause
- Nail plate thins and nails become brittle, the half-moons disappear and ridges develop
- Growths such as benign tumours develop on the skin surface.

Changes below the skin also become evident as we age:

- Loss of fat below the skin in the cheeks, temples, chin, nose and eye area may result in loosening skin, sunken eyes and a “skeletal” appearance
- Loss of underlying fat, resulting in hollowed cheeks and eye sockets as well as noticeable loss of

firmness on the hands and neck

- Bone loss, mostly around the mouth and chin, may become evident after age 60 and cause puckering of the skin around the mouth
- Cartilage loss in the nose causes drooping of the nasal tip and accentuation of the bony structures in the nose
- Bones shrink away from the skin due to bone loss, which also causes sagging skin.

### **Extrinsic ageing**

A number of extrinsic or external factors can act individually or together on the normal ageing process to age our skin prematurely. Most premature skin ageing is caused by sun exposure. Other external factors that prematurely age our skin are repetitive facial expressions, gravity, sleeping positions, diet and smoking.

### **Photoageing**

Exposure to sunlight is the single biggest culprit in skin ageing. Sunlight accelerates ageing especially in countries such as Australia where there is a high level of ultraviolet radiation (UV) and much time is spent outdoors. Photoageing is common on areas with the highest UV exposure such as the face, chest, arms, hands and legs. With a few minutes of UV exposure each day over a number of years, changes occur in the skin, which over time can contribute, to the signs of photoageing. People with fair skin who have a history of sun exposure develop more signs of photoageing than those with dark skin. In the darkest skin, the signs of photoageing are usually limited to fine wrinkles and a mottled complexion.

Ultraviolet radiation in sunlight damages the elastin and collagen fibres in the skin and the skin sags, wrinkles, stretches and becomes blotchy. Sun damage may not show in your younger years but it will later in life.

The most obvious signs of photoageing include:

- Freckles and age spots
- Spider veins on the face and cherry angiomas
- Rough and leathery skin
- Thinning of the skin leading to easy tearing, bruises and grazes
- Wrinkles, both fine lines and coarse wrinkles
- Loose skin
- Blotchy complexion
- Yellowing of the skin with thickened bumps called “solar elastosis”
- Solar comedones (blackhead and whitehead like bumps) on the facial skin
- Actinic keratosis (thick wart-like, rough or crusty reddish patches of skin)

- Skin cancer

### **Smoking**

Cigarette smoking accelerates ageing of the skin (and body in general). Smokers are more likely to develop deeply wrinkled, leathery skin than are non-smokers. The complexion of people who have smoked for a number of years tends to develop an unhealthy yellowish sallow hue. Smoking may also increase the risk of skin cancers, both of the skin and lips and accelerate the damage caused by sun exposure. Puckering the lips while smoking also increases the wrinkles around the mouth.

### **Facial expressions**

Repetitive facial movements can lead to fine lines and wrinkles. Each time we use a facial muscle, a groove forms beneath the surface of the skin, which is why we see lines form with each facial expression. As skin ages and loses its elasticity, the skin stops springing back to its line-free state and these grooves become permanently etched on the face as fine lines and wrinkles. Lines may appear horizontally on the forehead, vertically on the skin above the root of the nose (glabella), or as small curved lines on the temples, upper cheeks and around the mouth.

### **Gravity**

Gravity constantly pulls on our bodies and changes related to gravity become more pronounced as we age. In our 50s, when the skin's elasticity declines dramatically, the effects of gravity become evident. Gravity causes the tip of the nose to droop, the ears to elongate, the eyelids to fall, jowls to form and the upper lip to disappear while the lower lip becomes more pronounced.

### **Sleeping positions**

Sleep lines result from the way the face rests on the pillow. If you sleep in the same position every night for years on end this may lead to wrinkles. These wrinkles eventually become etched on the surface of the skin and they no longer disappear when the head is not resting on the pillow. Sleeping on your abdomen with the face squashed on the pillow causes the most lines.

### **Diet**

Nutrition may contribute to skin ageing. A diet low in fresh food and water and high in processed food and sugary soft drinks can accelerate ageing of the skin. Excess consumption of alcohol can also cause ageing of the skin.

### **Skin cancer**

Ultraviolet radiation in sunlight makes ageing skin more prone to skin cancer. Skin cancer risk increases in people who are over 40, have fair skin that burns easily, light coloured eyes and blond or red hair, a history of severe sunburn, or use a solarium and/or work outdoors. There are three main types of skin cancer: basal cell carcinoma, squamous cell carcinoma and melanoma. See A-Z of skin *Basal cell carcinoma, Melanoma, Actinic (solar) keratosis, Bowmen's disease, Keratoacanthoma*

### **Specific skin problems in old age**

A number of conditions tend to occur more frequently in older age but do not occur only at this time of life.

### **Pruritus**

Itchy skin in old age may be so severe it can ruin quality of life. It may be localised to one area of the skin or be more widespread. It may be associated with dry skin (xerosis) or other skin disease such as scabies, chronic liver and renal disease, thyroid disease, anaemia, blistering disorders such as bullous pemphigoid and underlying cancer.

### **Xerosis and asteatotic eczema**

Ageing skin often feels dry (xerosis). Dryness is worse in winter and in some people can be worse on the legs giving a cracked, scaly appearance that looks like crazy paving (asteatotic eczema). Frequent washing, low humidity and central heating frequently contribute to this problem. *See A-Z of skin Xerosis*

### **Eczema**

The elderly can suffer from all types of eczema. However, certain types such as asteatotic, discoid, gravitational and seborrhoeic dermatitis are more common. *See A-Z of skin Atopic dermatitis and Seborrhoeic dermatitis.*

### **Bullous disorders**

Bullous pemphigoid is a blistering skin disease, which usually affects middle aged or elderly persons. It is an immunobullous disease, i.e. the blisters are due an immune reaction within the skin. Bullous pemphigoid results in crops of tense, fluid-filled, itchy blisters. The blisters may be filled with clear, cloudy or bloodstained fluid. They may arise from normal-looking or inflamed skin.

Bullous pemphigoid may be localised to one area or widespread on the trunk and upper arms and thighs. It may occur on skin around skin folds. In some cases, there may be blisters over the entire skin surface as well as in the mouth.

### **Psoriasis**

There is a peak in the onset of psoriasis later in life between the ages of 55 and 60. It is not as clearly associated with family history when the disease begins earlier in life. *See A-Z of skin Psoriasis*

### **Leg ulcers**

Leg ulcers are a major problem in the elderly. Many are caused by venous hypertension and arterial disease. Poor wound healing in the elderly and associated underlying medical illnesses and poor nutrition may have a role in perpetuating some leg ulcers. *See A-Z of Skin Leg veins*

### **Varicella and post-herpetic neuralgia**

Shingles (herpes zoster) is more common in old age. Shingles is a painful blistering rash caused by reactivation of varicella, the chickenpox virus. The chickenpox virus usually infects children and remains dormant in nerve cells for years until it is reactivated and travels down the nerves to the skin to produce shingles.

Post herpetic neuralgia is also more common in elderly people. It is a persistence or recurrence of pain more than a month after the onset of shingles. The pain may be continuous and burning with increased sensitivity in the affected areas or it may be a spasmodic shooting type of pain, or rarely an itchy, crawling type of pain. The overlying skin is numb or exquisitely sensitive to touch. In some cases, the skin can be extremely itchy instead of being painful.

## Benign skin tumours

Most skin growths are more common in elderly people. Benign skin growths occurring commonly in aged skin include skin tags, seborrheic keratoses, solar lentigines and prominent sebaceous glands.

- Skin tags are soft harmless lesions that appear in both men and women, as they grow older. They are skin coloured or darker and can range in size. They are most often found in skin folds (neck, armpits, and groin). They tend to be more numerous in obese persons and in those with type 2 diabetes mellitus.
- Seborrheic keratoses are very common harmless skin lesions that appear during adult life. Seborrheic keratoses are also called basal cell papillomas, senile warts or old age warts. They begin as slightly raised, skin coloured or light brown spots. They gradually thicken and take on a rough, warty surface. They slowly darken and may turn black. See *A-Z of Skin* Seborrheic keratosis
- Solar lentigines, also known as old age spots and liver spots, are caused by sun exposure. They are most common on sun-exposed areas such as the face, hands and neck.
- Sebaceous glands can become dilated and prominent on the forehead, nose and cheeks.

## Care and protection of ageing skin

Sun protection of the skin is always important, but particularly in summer. Nothing can completely reverse the sun damage done in youth. However, you can prevent the skin becoming more damaged by staying out of the sun, wearing sunscreen, sun hats and protective clothing.

- Apply sunscreen with a sun protection factor (SPF) of 30 or greater 15 to 30 minutes before sun exposure and every 2 hours thereafter, more if you are sweating or swimming.
- Select clothing, cosmetic products and contact lenses that offer UV protection.
- Wear sunglasses with total UV protection and a wide-brimmed hat to shade your face and neck.
- Avoid direct sun exposure as much as possible during peak UV radiation hours (between 10:00 am and 3:00 pm).
- **Avoid outdoor activities** during the middle of the day.
- Perform skin self-exams regularly to become familiar with existing growths and to notice any changes or new growths.
- If you notice a new lump or growth on your skin, see a dermatologist.
- Stop smoking. Smoking increases facial lines and wrinkles; it delays skin healing and is bad for your health.
- Exercise at least three times a week. Active people appear younger. It is good for the skin and for general health.
- Drink plenty of water, especially in hot weather.
- Eat a healthy diet with plenty of fruit and vegetables as these provide natural antioxidants, vitamins and minerals.

- Reduce the frequency of bathing; have short warm, not hot showers.
- Avoid soap and use soap free, fragrance-free liquid cleansers or bath oil.
- Pat skin dry with a soft towel. Do not rub.
- Moisturise. Moisturisers can be used to smooth the skin's surface, reduce flaking and scaling. Use bland emollient or moisturiser after showering while the skin is still warm. Reapply moisturiser as often as necessary throughout the day. Your dermatologist can recommend a good emollient or moisturiser to use.
- Long-term use of retinoid creams, vitamin C and E, alpha-hydroxyl acids and nicotinamide may reduce fine lines and fade irregular pigmentation.

### **Physical therapies for ageing skin**

- Botulinum toxin injections can be used to reduce dynamic frown lines and lessen deep furrows.
- Fillers made of hyaluronic acid can be used to reduce deep expression lines and wrinkles. Other fillers used less commonly are calcium hydroxyapatite (CaHa) and poly-L-lactic acid (PLLA.)
- Chemical peels (superficial, medium and deep) can be used to improve the appearance of the skin texture and even out skin colour. See *A-Z Chemical peels*
- Vascular laser treatment can reduce facial veins (telangiectasia) and facial redness. See *A-Z Vascular laser*
- Freckles (ephelides) can be improved with lasers that target pigment in the skin.
- Thread veins on the legs can be treated by injections (sclerotherapy). See *A-Z leg veins*
- Resurfacing procedures such as dermabrasion, deep peels, fractional laser and laser resurfacing remove the top layer of damaged skin. This is replaced by a new fresh layer of skin over a number of weeks. These procedures are more invasive and can leave hyperpigmentation or hypopigmentation depending on the person's skin type. They are not suitable for everyone. A discussion with your dermatologist can determine if these treatments are suitable for you.
- Cosmetic surgery is required to remove excess and redundant sagging skin, such as a face-lift to tighten jowls, neck lift for wrinkled and sagging neck skin and blepharoplasty for baggy eyelids. These procedures should be performed by a qualified plastic surgeon. Your general practitioner or dermatologist can refer you to a plastic surgeon skilled in these procedures.

In conclusion, ageing is a complex process involving intrinsic factors (genetics) and extrinsic factors (especially sun exposure). Ageing is not a disease but a normal process that happens to everyone.