

an on-line
reference by
Dr. John
Gray,
provided by
the P&G
Skin Care
Research
Center.
For more
beauty
science,
please visit
www.pg.com

The 3 skin layers: epidermis, dermis, subcutaneous fat

The skin is made up of three distinct layers.

The top layer is called the **epidermis**. (The word *epidermis*, and the name of the other main skin layer, the *dermis*, both come from the name used by the ancient Greeks for the skin, *derma*. From this we also get the word *dermatologist*, meaning a doctor who specialises in skin problems.)

The epidermis is translucent. That is, it allows light to pass partially through it, rather as frosted glass does. The epidermis does not contain any blood vessels but gets its oxygen and nutrients from the deeper layers of the skin.

At the bottom of the epidermis is a very thin membrane, called the **basement membrane**, which attaches the epidermis firmly, though not rigidly, to the layer below.

The second layer lies deeper and is called the **dermis**. It contains blood vessels, nerves, hair roots and sweat glands.

Below the dermis lies a layer of fat, the **subcutaneous fat**. The depth of this layer differs from one person to another. It contains larger blood vessels and nerves, and is made up of clumps of fat-filled cells called **adipose cells**.

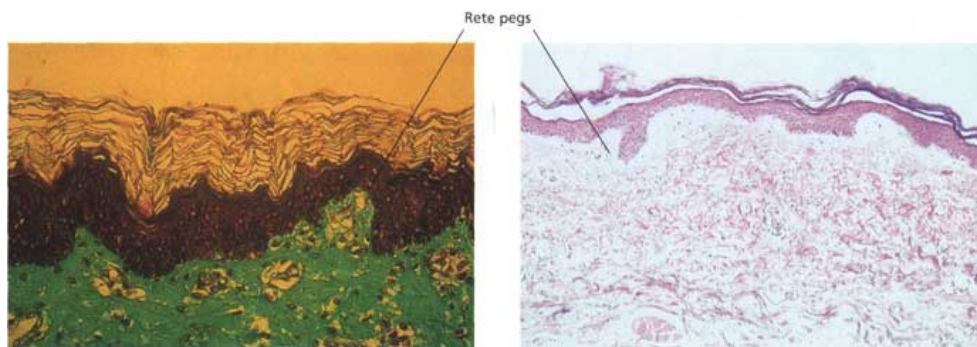
The subcutaneous fat lies on the muscles and bones, to which the whole skin structure is attached by connective tissues. The attachment is quite loose, so the skin can move fairly freely. If the subcutaneous tissues fill up with too much fat the

areas of attachment become more obvious and the skin cannot move as easily -this is what gives rise to the notorious **cellulite** (see pages [32](#) and [34](#)).

The junction between the epidermis and the dermis is not straight but undulates like rolling hills - more markedly so in some areas of the body than others. A series of finger-like structures called **rete pegs** project up from the dermis, and similar structures project down from the epidermis. These projections increase the area of contact between the layers of skin, and help to prevent the epidermis from being sheared off. They are not present in the skins of unborn babies but rapidly develop after birth, and are very noticeable in a young person's skin when it is examined under the microscope. As skin ages they get smaller and flatter.

Networks of tiny blood vessels run through the rete pegs, bringing food, vitamins and oxygen to the epidermis. In pale people these vessels can be seen through the epidermis, particularly if the veins widen (so-called 'broken veins'). If the blood carries plenty of oxygen it will be pink and the skin will tend to have a rosy color. If the blood is running sluggishly and has lost most of its oxygen the skin will look bluer. These blood vessels respond to temperature changes. They open up in hot weather, bringing lots of red blood cells - and hence a pink flush -to the skin, and close down in the cold; this is why cold skin often looks blue.

(continued on next page)



(Left) One of the rete pegs that project into the dermis; (right) as we get older the rete pegs get smaller and flatter - this means the epidermis is more easily sloughed off in old age.

[Table of Contents](#)

[Previous Chapter](#)

[Previous page](#)

[Next page](#)

[Next Chapter](#)

[Index](#)

This information provided by the ^(P&G) [Olay](#), [Noxzema](#) family of skin care products:

© Procter & Gamble Haircare Research Centre 1997
[Privacy Statement](#) [Legal Information](#)