

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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The terms related to skin are cutaneous, dermatomes, and dermatology. It is about 0.5 to 3mm thick. It shows much variation in thickness in different parts of the body and slightly thicker in man as compared to woman.

The superficial part of skin is called epidermis and the deep part is called dermis. The epidermis is derived from ectoderm and consists of many layers of cells called stratified squamous keratinized epithelium. Due to a thick keratinized layer, the epidermis is extremely thick on the palm and sole to withstand wear and tear.

The epidermis has five layers which could be remembered by imagining a tree. The stratum basale (root), stratum spinosum (trunk), stratum granulosum (fruit), stratum lucidum (surrounding air), stratum corneum (surrounding cloud).

The deeper layer is called dermis which is composed of dense irregular connective tissue which also contains nerves and vessels. The dermis lies on superficial fascia (subcutaneous tissue). The dermis is mesodermal in origin consisting of collagen and elastic fibers. The dermis of animal is used for preparation of leather.

- **Colour of skin is due to melanin, melanoid, carotene present in different layers of epidermis.**
- **The hemoglobin and Oxyhaemoglobin present in skin vessels are also responsible for skin coloration.**
- **The colour of lips is red due to thin keratin (top layer of epidermis) and white at palm and sole due to thicker keratin layer present in epidermis.**

Tension lines are as a result of specific pattern of fibers in dermis which vary from place to place in different parts of the body. Skin creases are present near the joints which lie horizontally over the skin close to the joints.

The wrinkles of ageing do not correspond to the cleavage lines which may be due to muscle function (contraction) for a longer time (in years).

Skin incisions made parallel to tension lines and skin creases heal early with minimum scar formation.

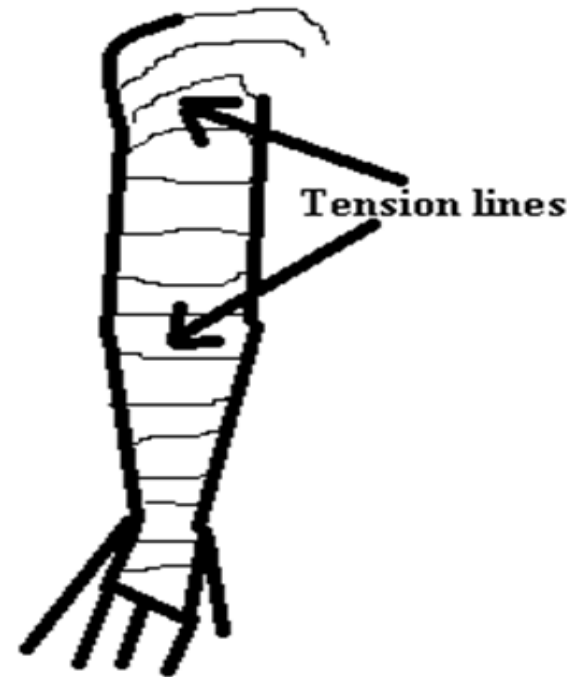
The sebaceous glands, sweat glands, nails and hairs are called skin appendages which are derived from epidermis.

- **Practical 1:**
- **1. The tension lines are due to-----**
- **2. What is its clinical importance?**
- **3. The skin creases are due to-----**
- **4. What is its clinical importance?**
- **5. Draw the tension lines of upper limb in your note book.**

Notes: Tension lines are parallel to fibers in dermis of skin. Skin wound should be parallel to tension lines. Such wounds heal rapidly with no ugly looking scar.

Skin creases are formed at site of joint. These lines are also transversely placed over the joint and wound parallel to skin crease also heals rapidly with small scar

PRACTICAL 1



Nail: The nail is formed from a nail matrix which is a sort of modified epidermis.

The nail is a keratinized plate on the tip of a finger and toe.

The proximal end of the nail is called root of the nail which is apposite to distal free border.

The nail is overlapped by folds of skin known as nail folds. The part of skin which lies under the nail is called nail bed.

The proximal part of nail bed has germinal zone which is responsible for nail growth.

The nail bed is very vascular and pale looking nails could be due to anaemia.

It takes about 100 days for a nail to complete the growth.

Hair: Hairs are the hard cylindrical structures that arise from hair follicles in the deeper part of skin, derived from invagination of epidermis. The concave lower end of hair follicle, occupied by nerves and vessels, is called hair papilla. The arrector pili muscle (smooth muscle) connects the follicle to the dermis which contract to bring hair into a more vertical position during emergency situation.

Sympathetic nerve fibers supply the arrector pili muscle. Its contraction causes the hairs to move into a more vertical position.

It may also press on sebaceous gland to extrude its secretion.

Hairs are distributed all over the body, except lips, palms, soles, glans penis and clitoris.

Hair consists of shaft (projected part) and root (embedded part). The cortex forms the main bulk of hair which is lined by medulla on the inner aspect and covered by cuticle on its outer aspect. Hair colour depends on melanin pigment and amount of air in the hair.

SEBACEOUS GLAND:

Is an oval grape like structure enclosed in connective tissue which lies in dermis of skin.

Its duct opens around the deeper part of hair which ultimately comes outside on the surface. Sebum is an oily material required for normal hair and skin which has also antibacterial properties.

Sebaceous glands are present all over the skin except palms and soles.

At the time of puberty the activities of this gland increases which can give rise to pathological conditions like acne and sebaceous cyst due to sebum obstruction.

Sweat glands:

Sweat glands, present deeper in the skin or subcutaneous tissue are widely distributed in the body except the red margins of lips, glans penis and clitoris.

It secret a watery fluid required for keeping skin moist and maintenance of normal body temperature during exercise or hot season. These are abundant in the soles and palms.

It is a coiled simple tubular gland, surrounded by myoepithelial cells which contract to discharge the secretion from gland cells.

Apocrine sweat glands are larger and present in the axillae, areolae of the breasts and groin.

They become active at puberty and their secretion can cause smell when not washed timely due to bacterial decomposition.

They are controlled by sympathetic nerve fibers and their secretion may increase during sympathetic system activation.

CLINICAL ANATOMY

Skin is the largest organ of the body which forms a protective covering on the body.

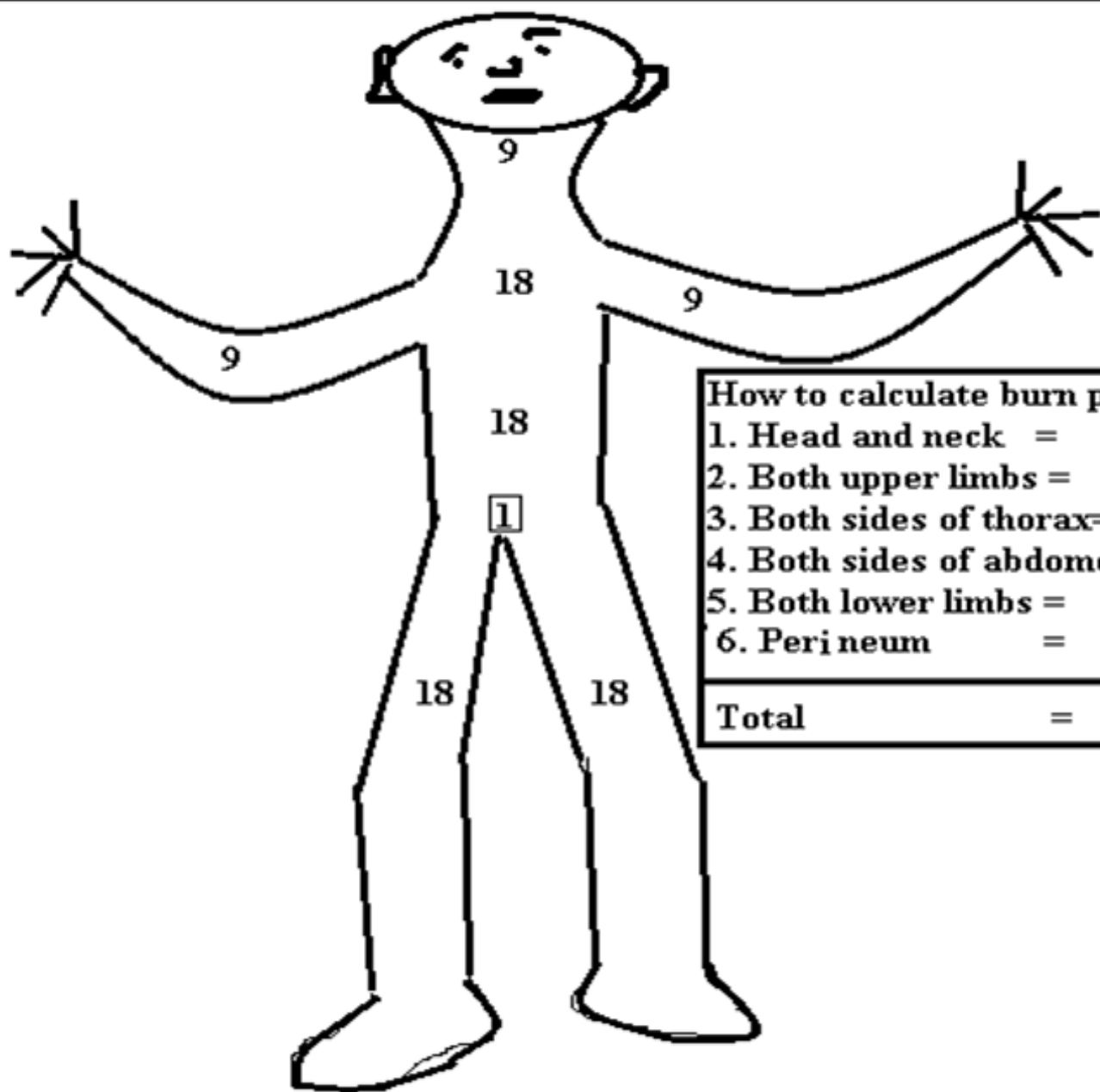
Skin has almost horizontally placed cleavage lines which should be known to surgeon for perfect repair of the wounds. Incision given parallel to these lines heals rapidly.

Antibiotic should be given after surgery or trauma to skin which helps in protection against infections by invading microorganisms.

An increase sweating is required in the region of palm and sole to increase the grip that is why sweat glands are more developed in these regions.

When 100 percent of skin is burned mortality is about 100 percent.

When 50 percent of skin is burned mortality is about 50 percent.



How to calculate burn percentage in adults		
1. Head and neck	=	09
2. Both upper limbs	= 9+9	18
3. Both sides of thorax	= 9+9	18
4. Both sides of abdomen	= 9+9	18
5. Both lower limbs	= 9 x 4	36
6. Peri neum	=	01
Total	=	100

This is important to know the percentage of burn as fluid requirement is adjusted according to percentage of burn and also to know the expected associated morbidity and mortality outcome.

Practical 2:

What is superficial burn?

What is deep burn?

Why percentage of burn is important?

Which burn heals without a scar?

Burn to all four limbs is equal to how much percent?

Hot water causes superficial burn in which the stratum basale is usually spared and skin would heal without scar. In case of deep burn the skin graft is required to avoid a larger scar tissues.

THANKS