



كلية المستقبل الجامعة

قسم تقنيات التخدير

Anatomy

المرحلة الاولى

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**Lecture Two : Basic
structures in the body**

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Basic structures in the body

lecture 2

The skin (figure 1.2)

The skin is divided into two parts: a superficial part called the **epidermis** and deep part called the **dermis** .

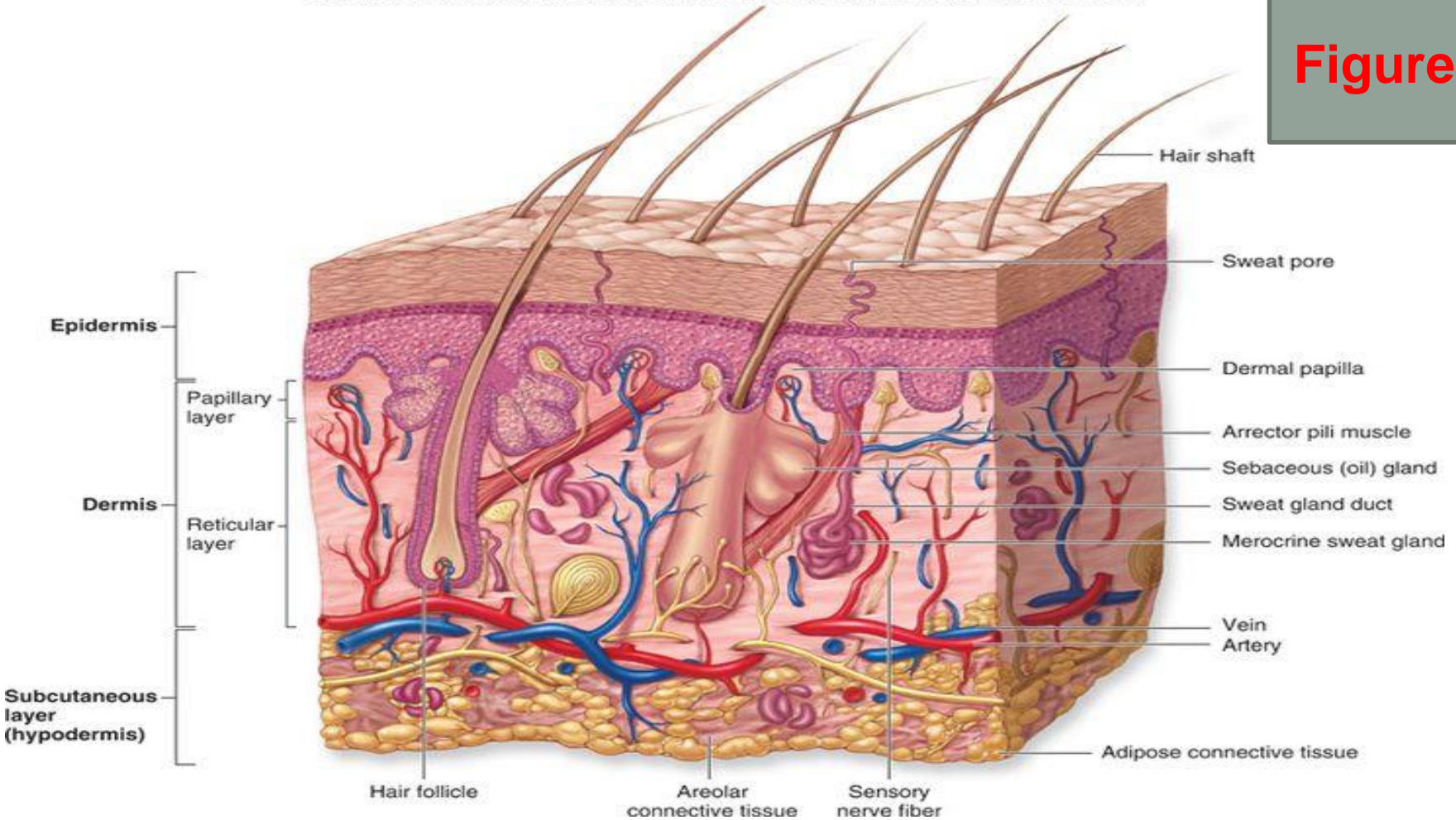
The epidermis is a stratified squamous epithelium. On the palms of the hands and the soles of the feet, the epidermis is **extremely thick**, on the anterior surface of the arm and forearm, it is thin.

The dermis is the inner layer of the skin and composed of dense connective tissue containing many **blood vessels, lymphatic, and nerves.**

Basic structures in the body

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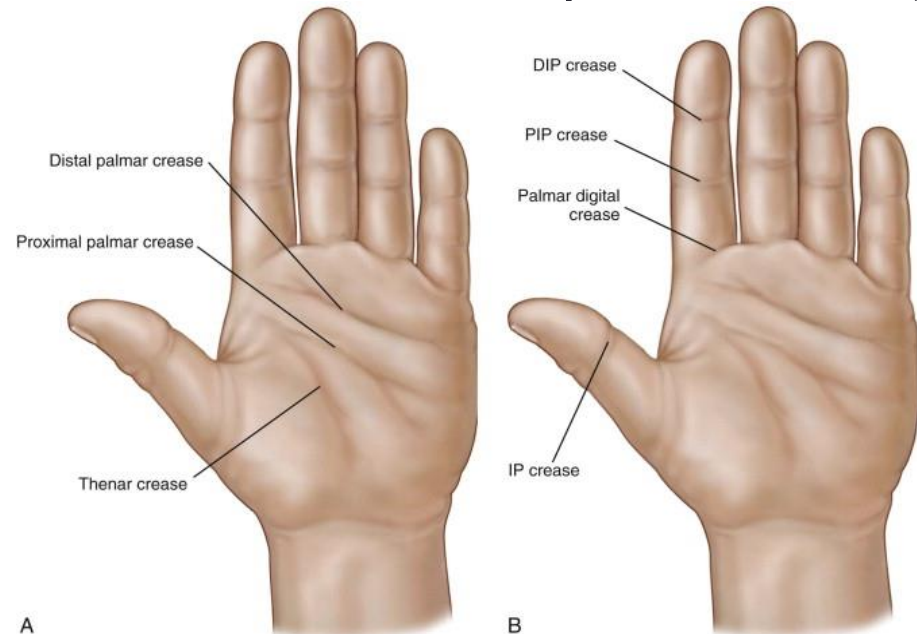
Figure 2.1



Basic structures in the body

the dermis is thinner in women than in men. The dermis is connected to the underlying deep fascia or bones by the **superficial fascia which is also known as subcutaneous tissue.**

The skin over joints always folds in the same place forming the **Skin creases.**



Basic structures in the body

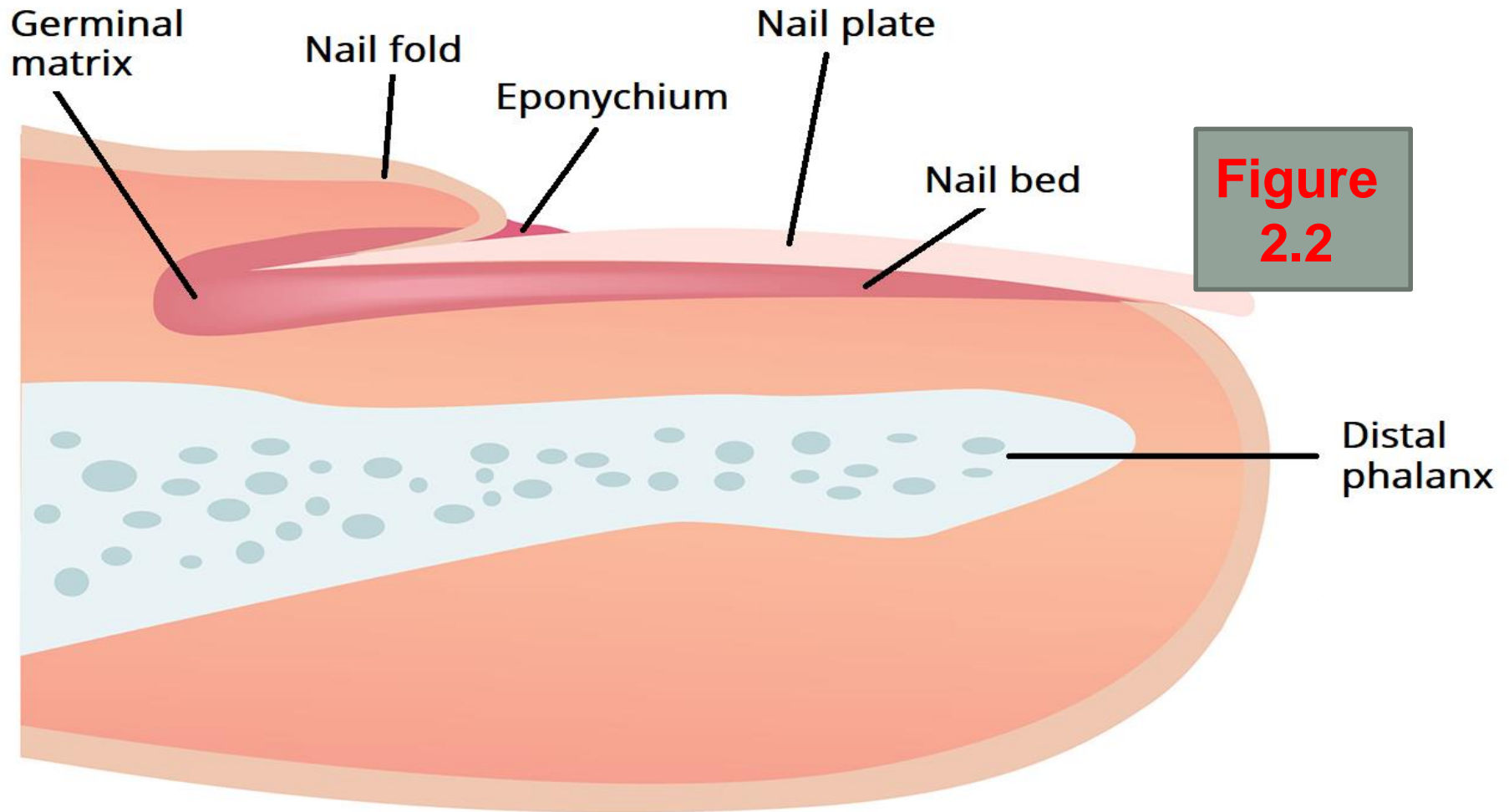
The appendages of the skin

These are structures attached to the skin and include, **the nails, hair follicles, sebaceous glands, and sweat glands.**

The nails (2.2) are keratinized plates on the dorsal surfaces of the tips of the fingers and toes. The proximal edge of the **plate is the root of the nail.**

With the exception of the distal edge of the plate, the nail is surrounded and overlapped by folds of skin known as **nail folds.** The surface of skin covered by the nail is the **nail bed.**

Basic structures in the body



Basic structures in the body

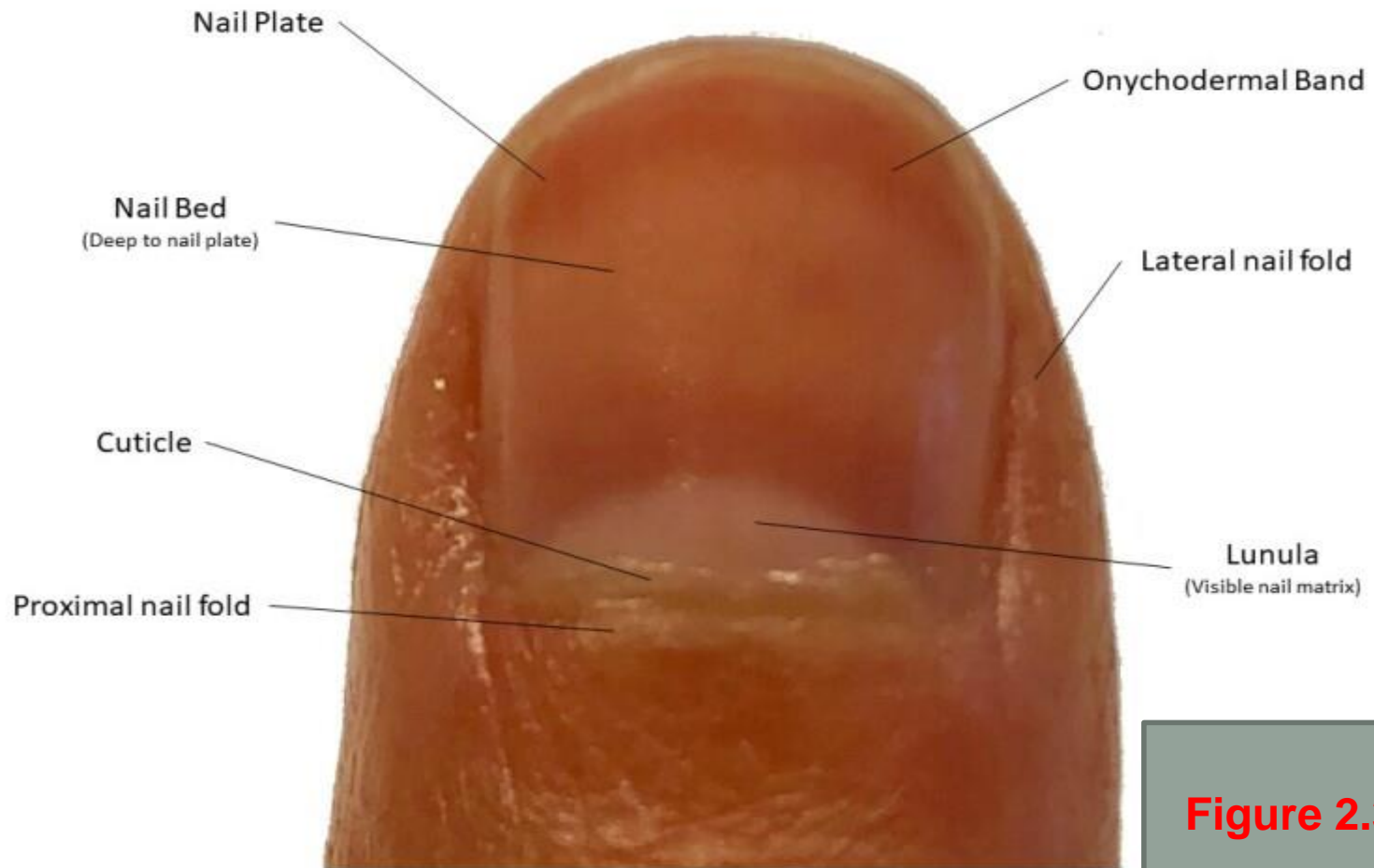


Figure 2.3

Basic structures in the body

The hair (figure 2.3).

Hairs grow out of hair **follicles**, which are invaginations of the epidermis into the dermis . The follicles lie obliquely to the skin surface, and their expanded end is called **hair bulbs, they** penetrate to the deeper part of the dermis. A band of smooth muscle called the **arrector pili** connects the undersurface of the follicle to the superficial part of the dermis.

Basic structures in the body

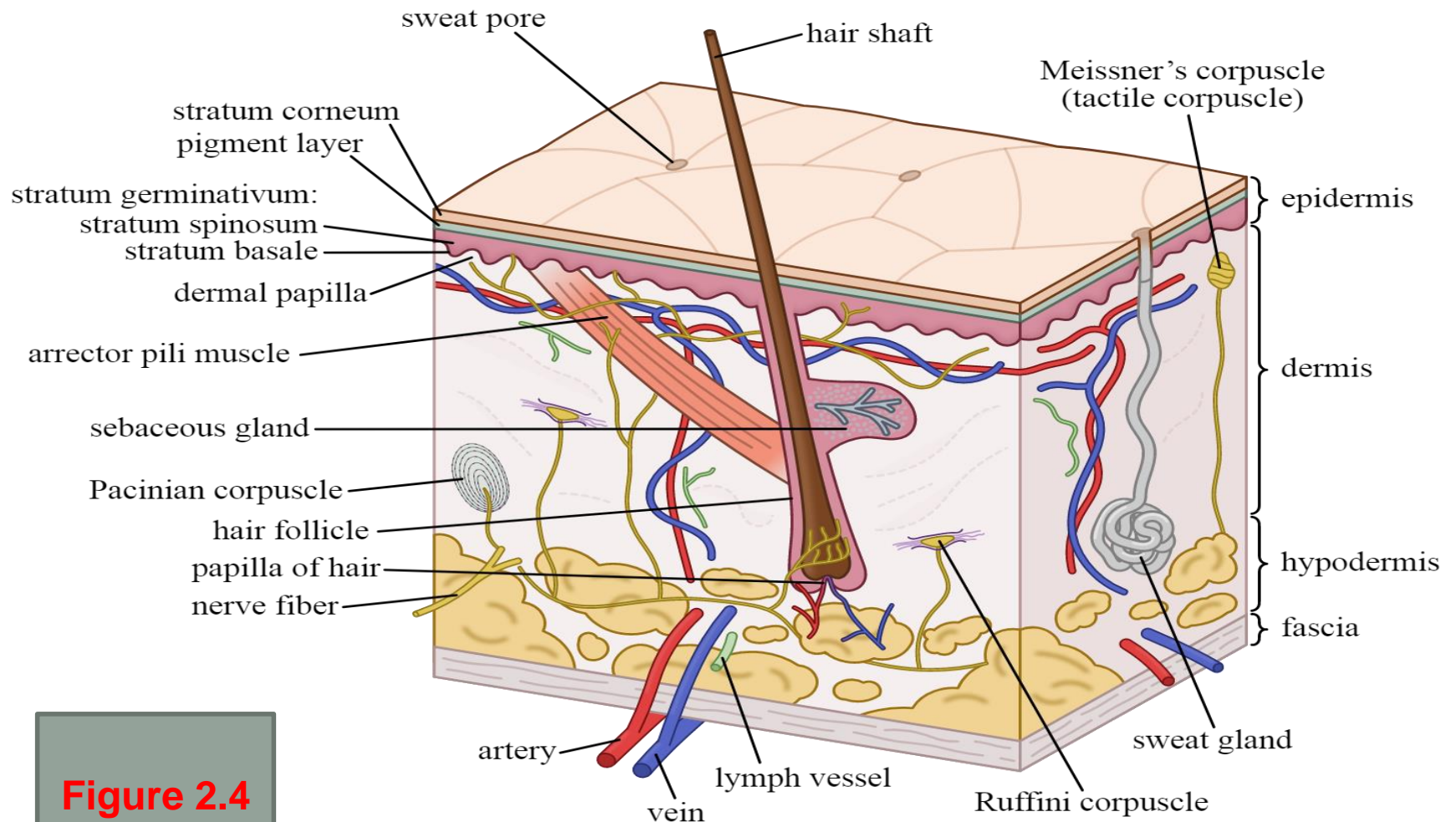


Figure 2.4

Basic structures in the body

Hairs are distributed in various numbers over the whole surface of the body, **except on the lips, the palms of the hands, the sides of the fingers, the glans penis and clitoris, the labia minora and the internal surface of the labia majora, and the soles** and sides of the feet and the sides of the toes.

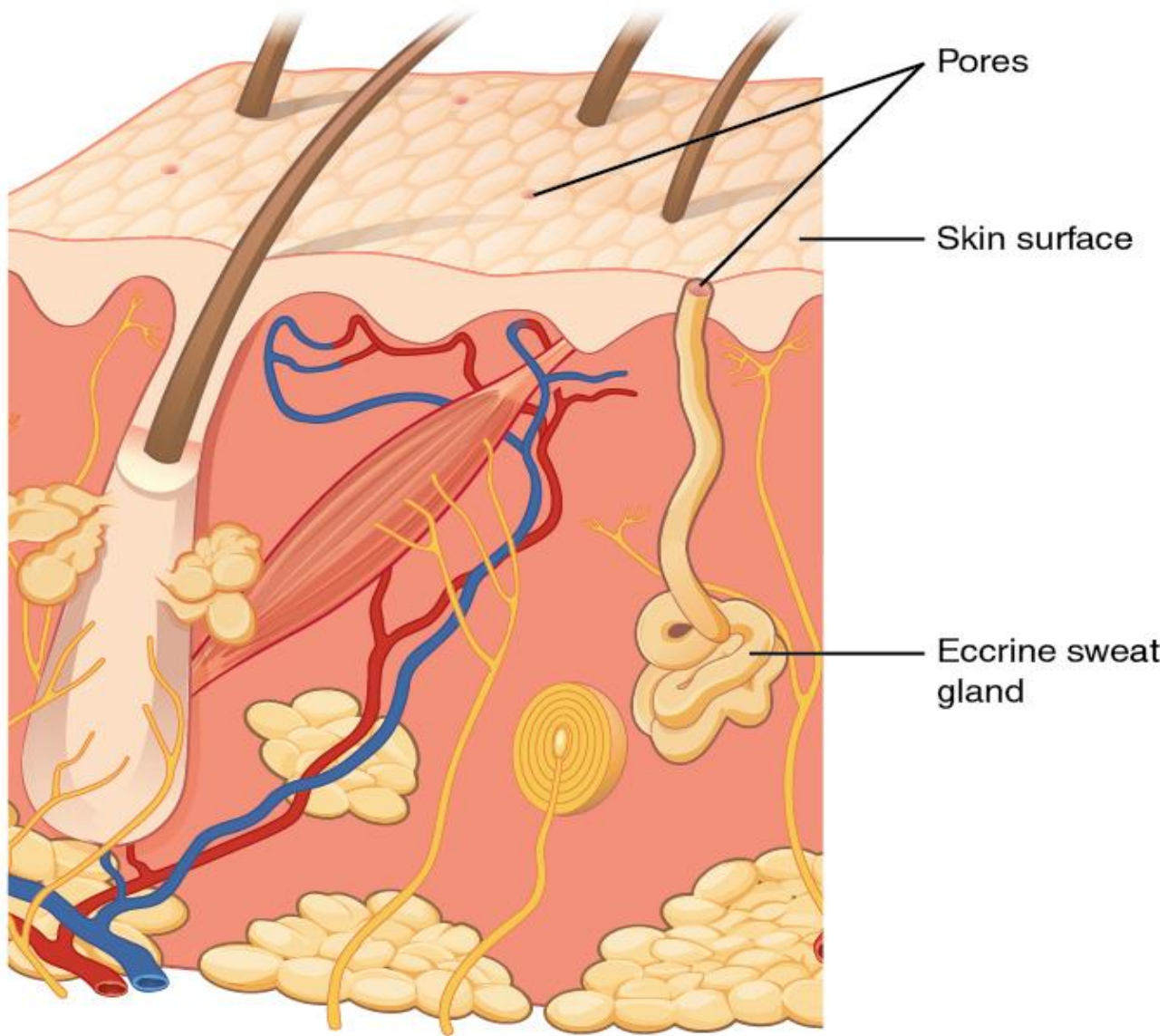
Basic structures

Sebaceous glands (figure 2.4). They are situated on the sloping undersurface of the follicles and lie within the dermis. They pour their secretion, the sebum, onto the shafts of the hairs as they pass up through the necks of the follicles.

Sebum is an oily material that helps preserve the flexibility of the emerging hair. It also oils the surface epidermis around the mouth of the follicle.

Basic structures

Sweat glands (2.6) are long, spiral, tubular glands distributed over the surface of the body, except on the red margins of the lips, the nail beds, and the glans penis and clitoris. These glands extend through the full thickness of the dermis, and their extremities may lie in the superficial fascia. The sweat glands are therefore the most deeply penetrating structures of all the epidermal appendages.



**Figure
(2.6)**

Basic structures in the body

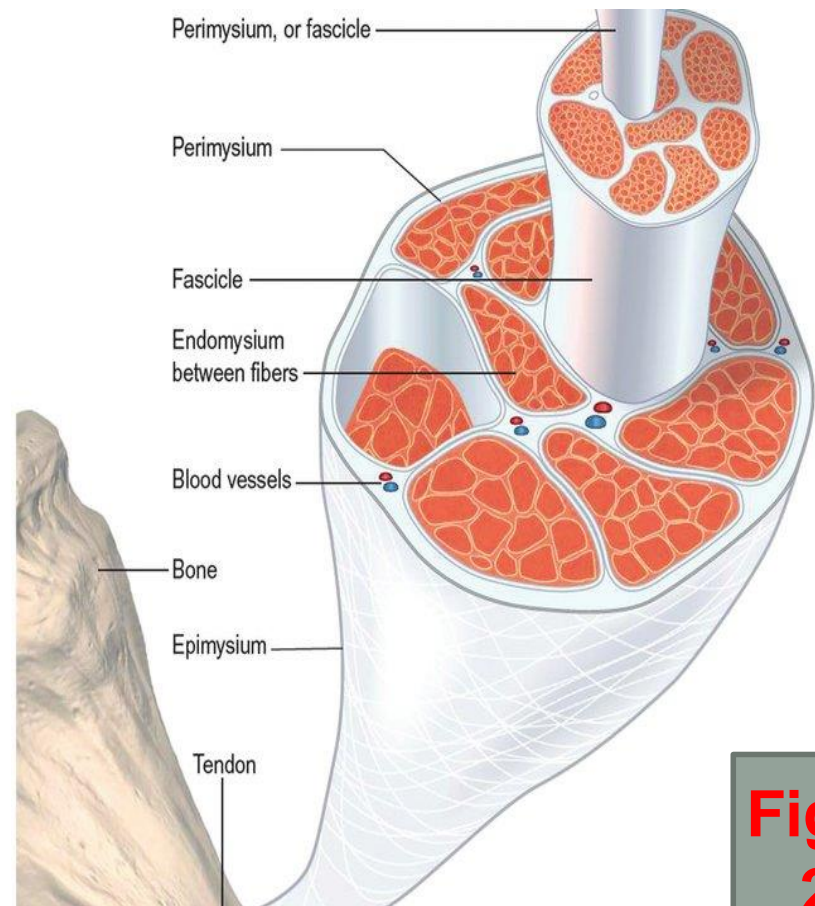
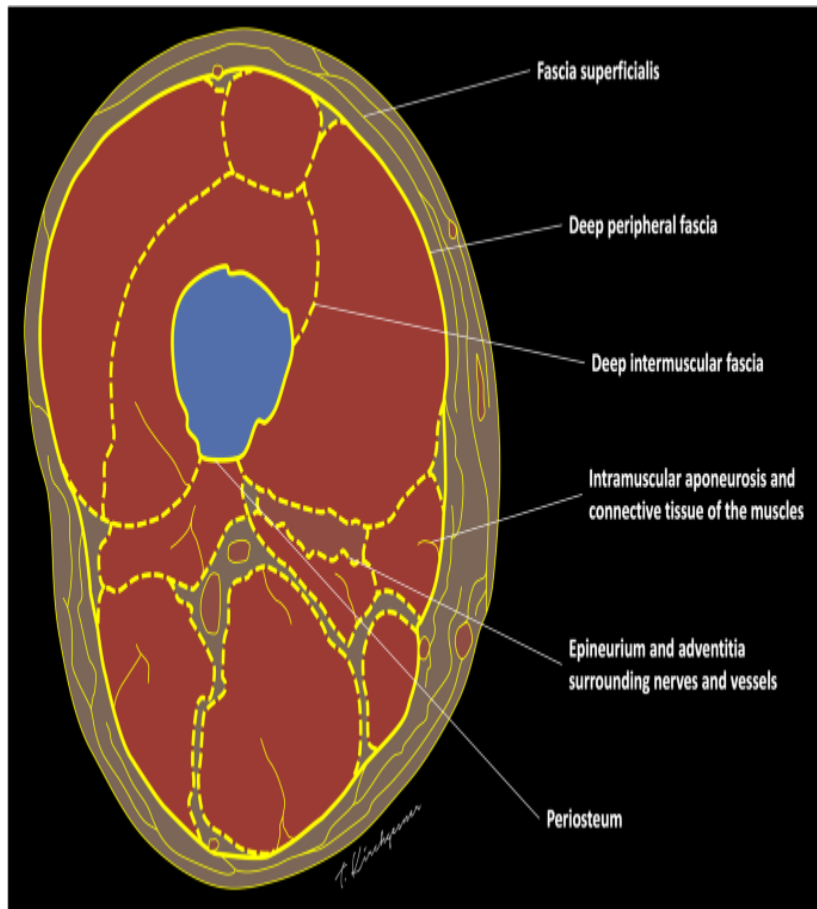
Fasciae (figure 2.7).

The fasciae is a membrane of connective tissue that invests the body organs and structures , and can be divided into two types;

superficial and deep, which lie between the skin and the underlying muscles and bones. **The superficial fascia**, or subcutaneous tissue, is a mixture of loose areolar and adipose tissue that unites the Dermis of the skin to the underlying deep fascia.

The deep fascia is a membranous layer of connective tissue that invests the muscles and other deep structures .

Basic structures in the body



**Figure
2.7**

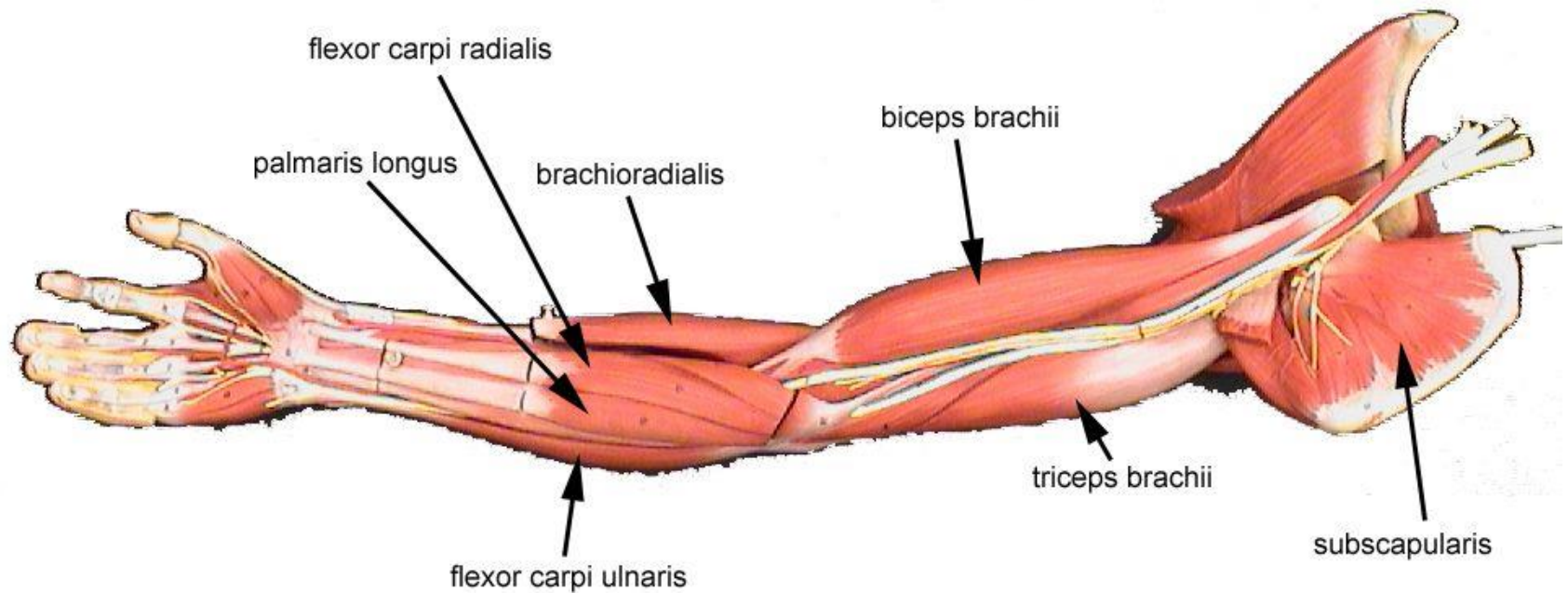
Basic structures in the body

Muscles (figure 2.8).

There are three types of muscle, **skeletal, smooth, and cardiac muscles.**

Skeletal muscles are responsible for production of the movements of the skeleton; they are sometimes called **voluntary muscles** and are made up of **striped muscle fibers**. A skeletal muscle has two or more attachments. The attachment that moves the least is referred to as the **origin**, and the one that moves the most is referred to as the **insertion**.

Basic structures in the body



**Figure
2.8**

Basic structures in the body

The fleshy part of the muscle is referred to as its **belly**, the ends of a muscle are attached to bones, cartilage, or ligaments by cords of fibrous tissue called **tendons** .

Occasionally, flattened muscles are attached by a thin but strong sheet of fibrous tissue called an **aponeurosis** .

A **raphe** is an inter digitation of the tendineous ends of fibers of flat muscles (**figure 2.9**)

Basic structures in the body

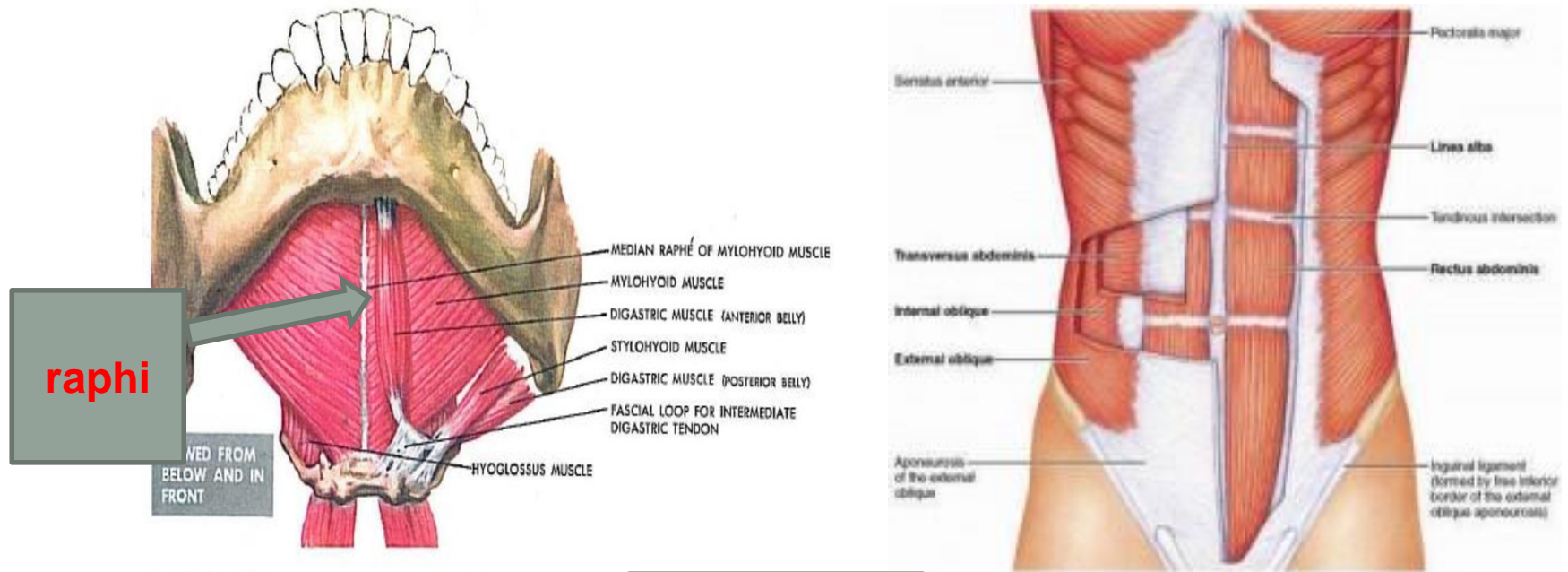
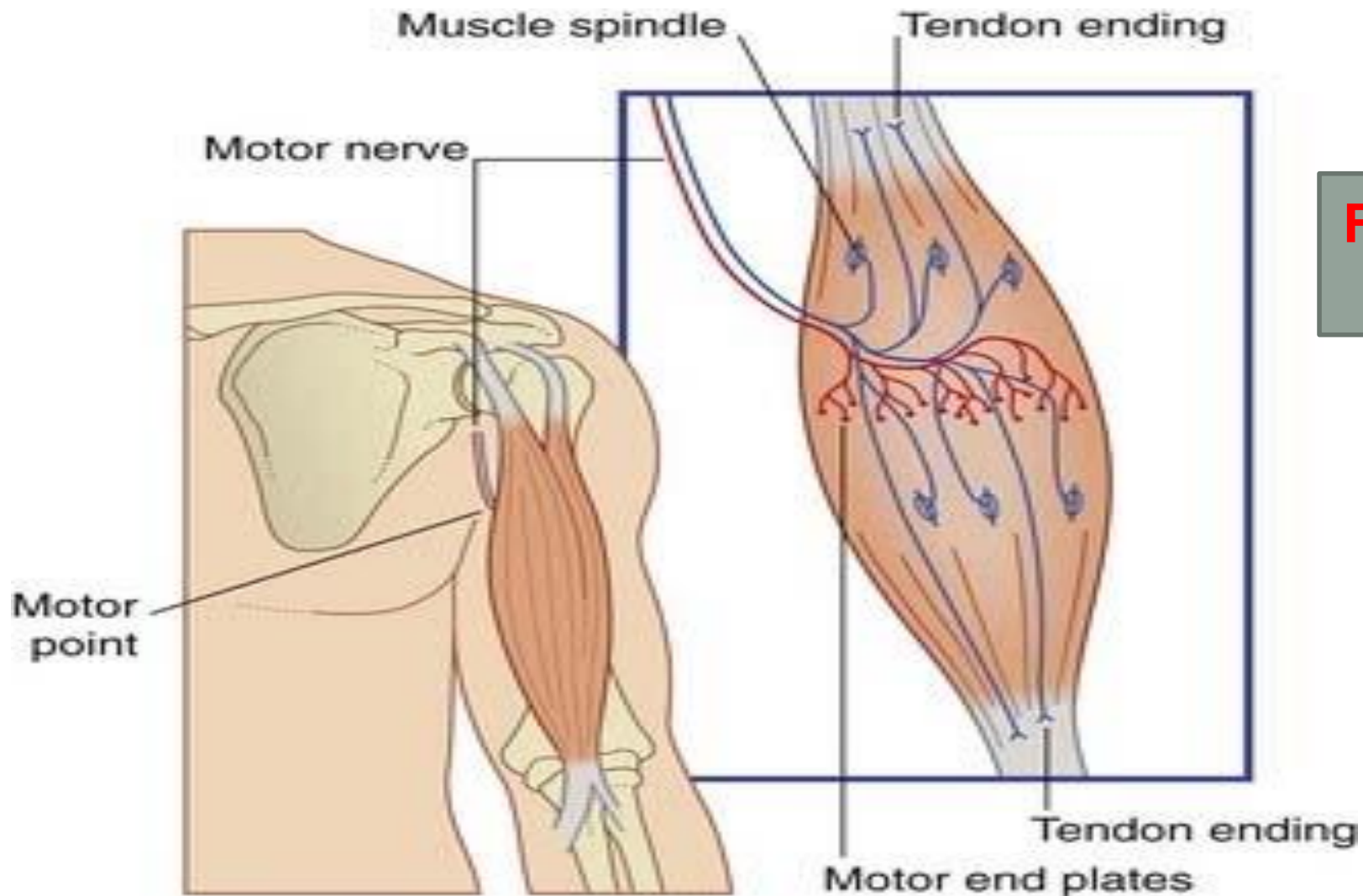


Figure 2.9

Basic structures in the body

Nerve Supply of Skeletal Muscle (figure 2.10). The nerve supply to a muscle is a mixed nerve, **about 60% is motor and 40% is sensory**, and it also contains some sympathetic autonomic fibers. The nerve enters the muscle at about the midpoint on its deep surface, often near the margin; the place of entrance is known as the **motor point**. This arrangement allows the muscle to move with minimum interference with the nerve trunk.

Basic structure



**Figure
2.10**

Basic structures in the body

Numenclature of muscle

Deltoid Triangular

Teres Round

Brachii Of the arm

Profundus Deep

Superficialis Superficial

Externus External

Sternocleidomastoid From sternoclavicle to mastoid process

Coracobrachialis From coracoid process to arm

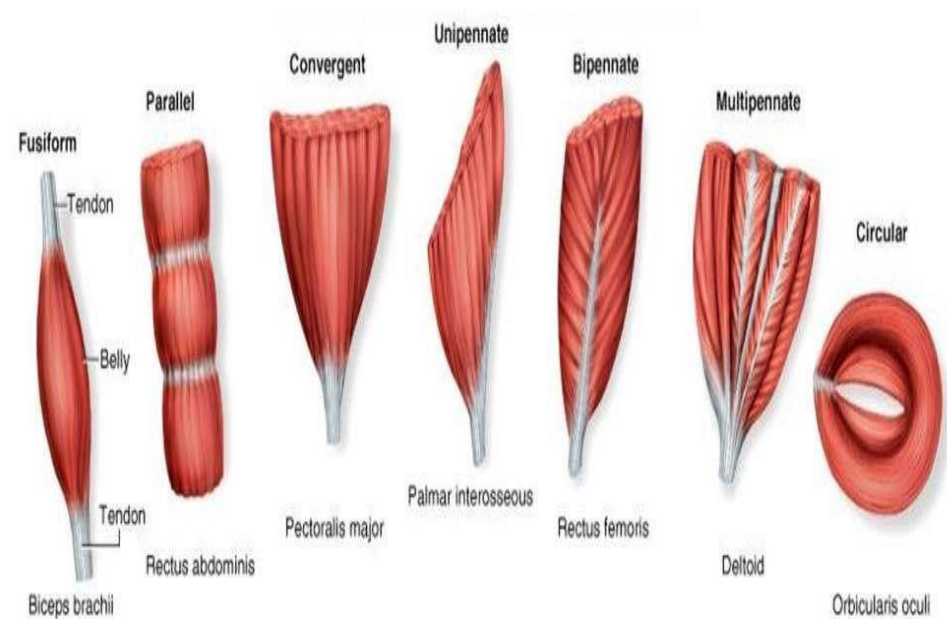
Extensor Extend

Flexor Flex

Constrictor

Rectus Straight

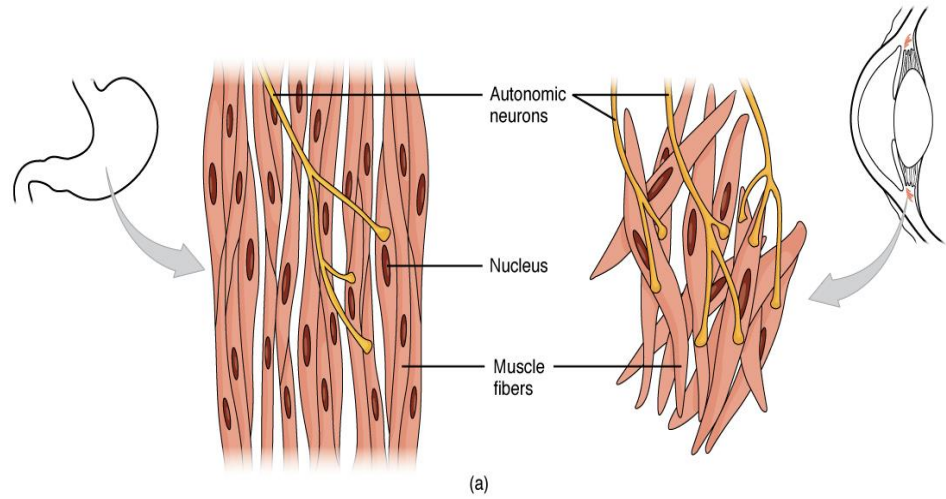
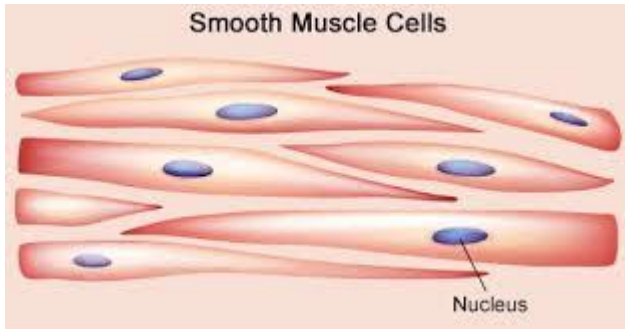
Skeletal Muscle Shapes



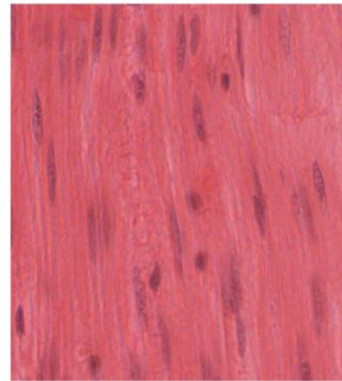
Basic structures

Smooth muscles. Figure (2.11)

Smooth muscle consists of long, spindle-shaped cells closely arranged in bundles or sheets. It forms the muscular wall of the digestive system, and consists of two layers; **outer longitudinal and inner circular**. A wave of contraction of the circularly arranged fibers passes along the tube, milking the contents onward. By their contraction, the longitudinal fibers pull the wall of the tube proximally over the contents. This method of propulsion is referred to as **peristalsis**.



**Figure
2.11**



Basic structure

In **the urinary bladder and the uterus**, the smooth fibers are irregularly arranged and interlaced with one another. Their contraction is slow and sustained and brings about expulsion of the contents of the organs.

In the walls of the blood vessels, the smooth muscle fibers are arranged circularly and serve to modify the caliber of the lumen.

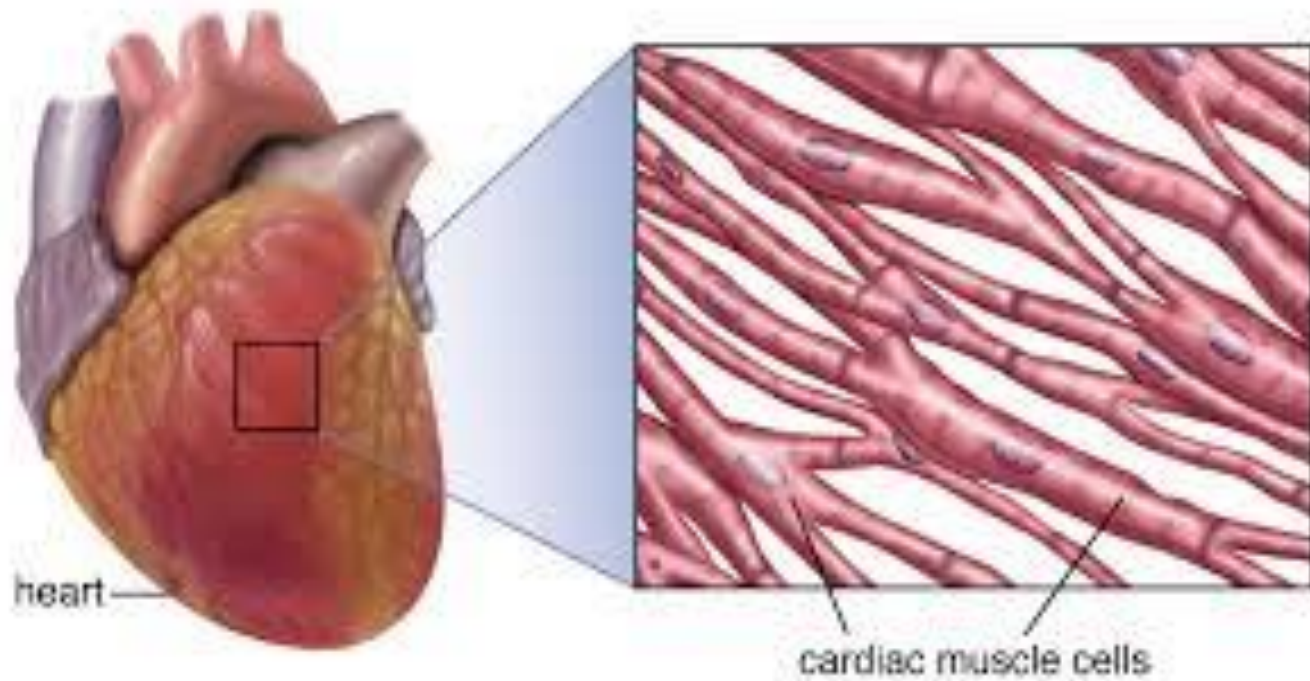
Depending on the organ, smooth muscle fibers may be made **to contract by local stretching of the fibers, by nerve impulses from autonomic nerves, or by hormonal stimulation**

Basic structures

Cardiac muscles figure (2.12).

Cardiac muscle consists of **striated muscle fibers** that branch and unite with each other. It forms **the myocardium** of the heart. Its fibers tend to be arranged in whorls and spirals, and they have the property of **spontaneous and rhythmic contraction**. Specialized cardiac muscle fibers form the **conducting system of the heart**.

Cardiac muscle is supplied by **autonomic nerve fibers** that terminate in the nodes of the conducting system and in the myocardium.



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**Figure
2.12**

A close-up photograph of a spiral-bound notebook. The notebook is open to a blank, light brown page. The spiral binding is visible at the top edge. The text "THANK YOU FOR YOUR ATTENTION" is printed in a bold, black, serif font, centered on the page. The text is arranged in three lines: "THANK YOU" on the first line, "FOR YOUR" on the second line, and "ATTENTION" on the third line. The background is a solid, light green color.

**THANK YOU
FOR YOUR
ATTENTION**