The module: Foundation of Medicine

Semester : 1

Lecture : 8

Lecture title :

Medical Terminology

Musculoskeletal system & Reproductive system

by

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Musculoskeletal system (MSK)

Moore, K.L. and Dalley, A.F. Clinically Oriented Anatomy, 8th Edition. Lipincott Wlliams and Wilkins, 2018.

Musculoskeletal system:

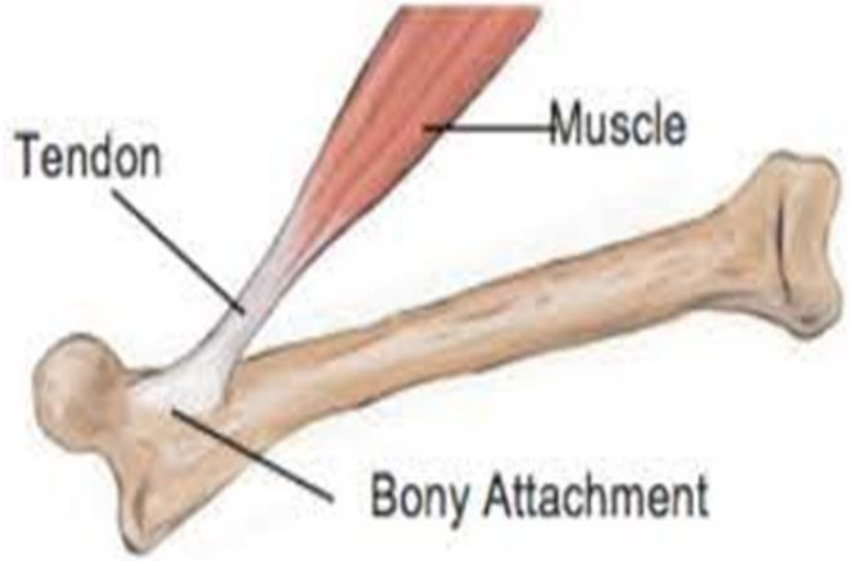
Includes two major and different subsystems which are the muscular system and the skeletal system

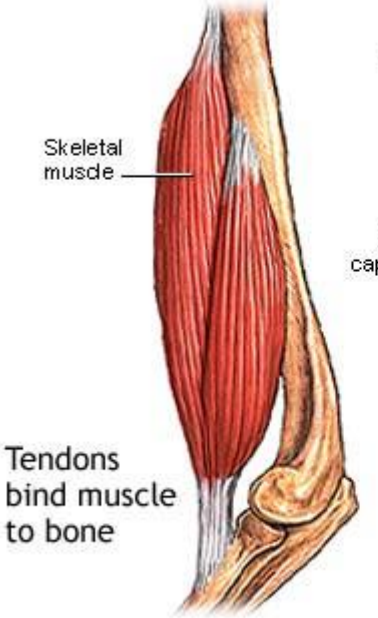
- The skeletal system consists of 206 bones and 360 joints.

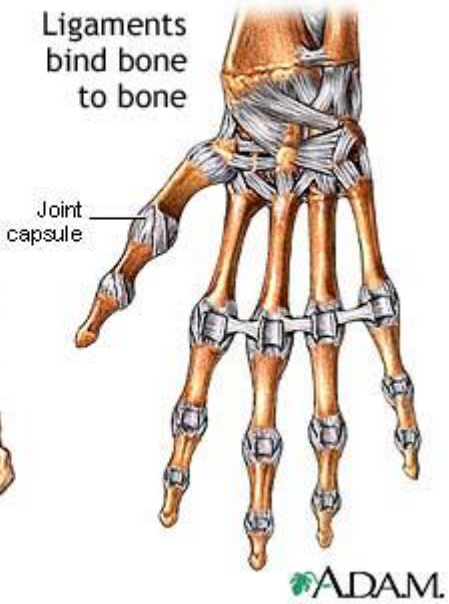
- Connective tissue : tendons and ligaments

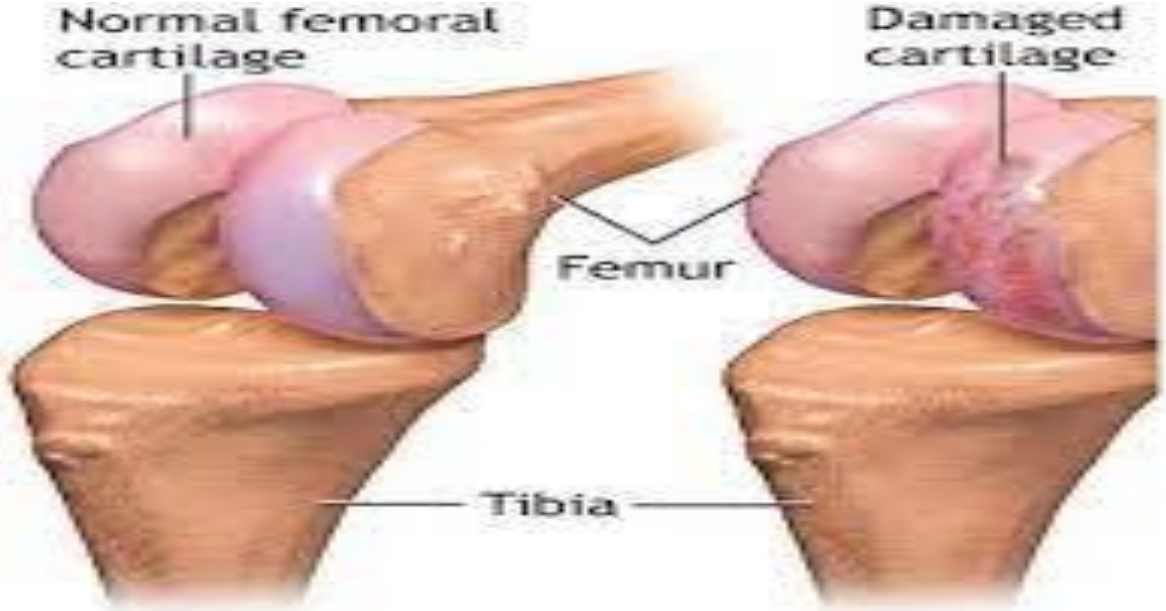
The parts of the musculoskeletal system are:

- **Bone:** is a living tissue (connective tissue) that makes up the body's skeleton
- **Cartilage**: A type of connective tissue.
- **Joints**: points at which two bones fitted together.
- **Muscles**: a bands that’s made of thousands of stretchy fibers.
- **Ligaments:** are band made of collagen fibers, connect bones and help stabilize joints.
- **Tendons**: Tendons connect muscles to bones. Made of fibrous tissue and collagen, tendons are tough but not very stretchy.


Tendon
Muscle
Bony Attachment


Skeletal muscle
Tendons bind muscle to bone


Ligaments bind bone to bone
Joint capsule
A.D.A.M.


Normal femoral cartilage
Damaged cartilage
Femur
Tibia

MUSCULOSKELETAL SYSTEM TERMS

Oste/o	Bone	Osteitis, osteoma, osteocyte
Chondr/o	Cartilage	Chondritis, chondroma, chondrocyte
Arthr/o	Joint	Arthritis, arthroplasty
Myel/o	Bone marrow	Myeloma
Ten/o, tendin/o	Tendon (binds muscle to bone)	Tendonitis, tenorrhaphy
Ligament/o	Ligament (binds bone to bone)	Ligamentous injury

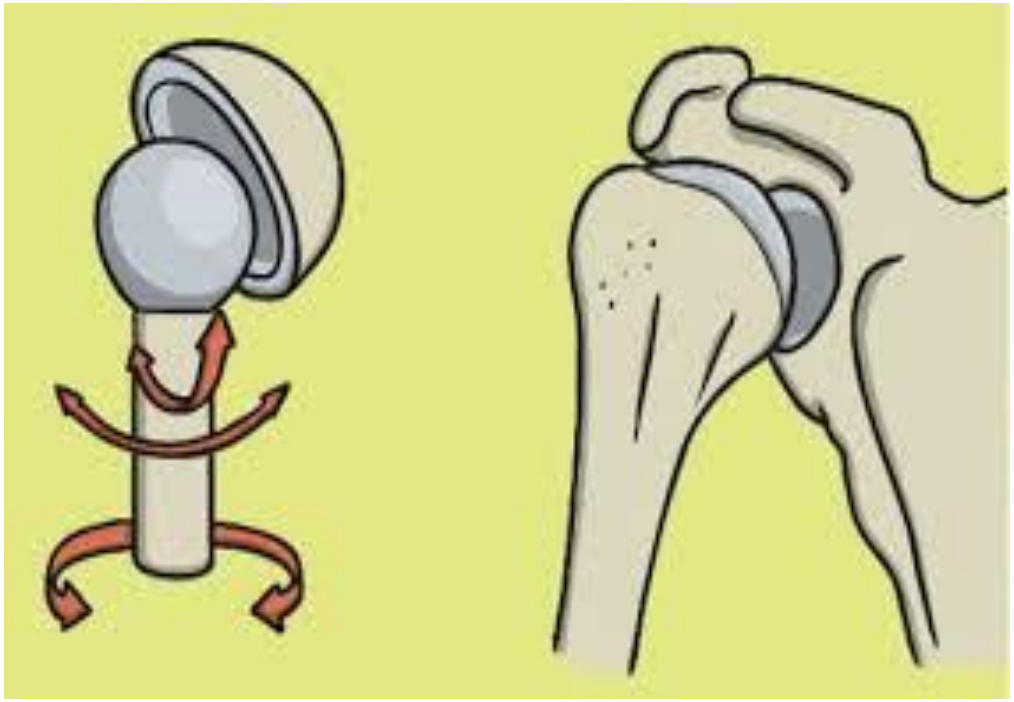
Type of cells :

- **Osteoblast** : bone forming cell
- **Osteocyte** : mature bone cell
- **Osteoclast** : bone destructing cell

- **Chondroblast ?**
- **Chondrocyte ?**
- **Chondroclast?**

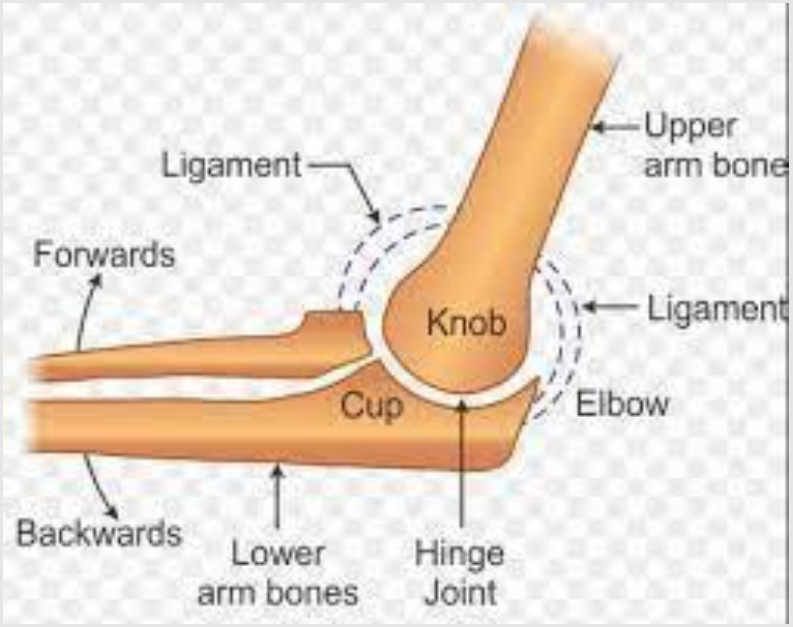
Types of joints:

- **Ball and socket joint**. Permitting movement in all directions. Ex. **shoulder joint** and **hip joint**.

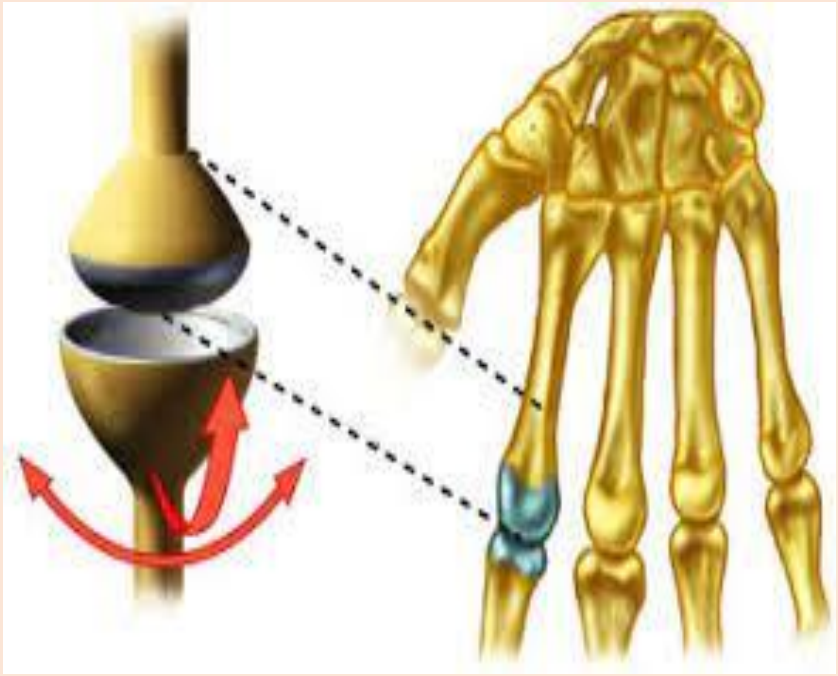


Types of joints:

Hinge joint. The hinge joint is like a door, opening and closing in one direction, along one plane. Ex. elbow joint and knee joint.

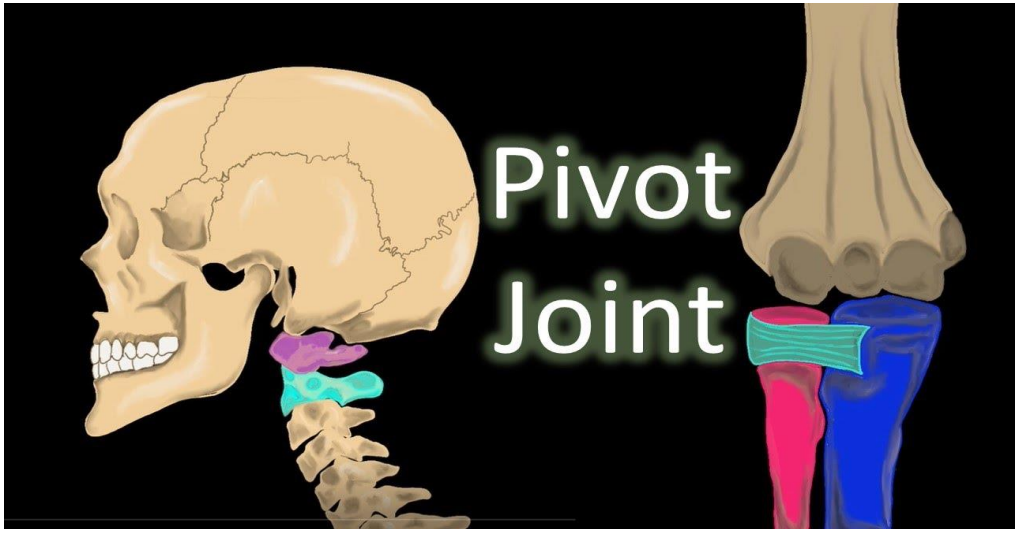


Condyloid joint. The condyloid joint allows movement, but no rotation. Ex. finger joints and jaw.



Types of joints:

Pivot joint: The pivot joint, also called the **rotary joint** or **trochoid joint**, is characterized by one bone that can swivel in a ring formed from a second bone. Examples are **the joints between ulna and radius bones** that rotate forearm, and **the joint between the first and second vertebrae in neck**.



Types of joints:

Gliding joint: The gliding joint is also called **the plane joint**. Although it only permits limited movement, it's characterized by smooth surfaces that can slip over one another. An example is **the joint in wrist.**

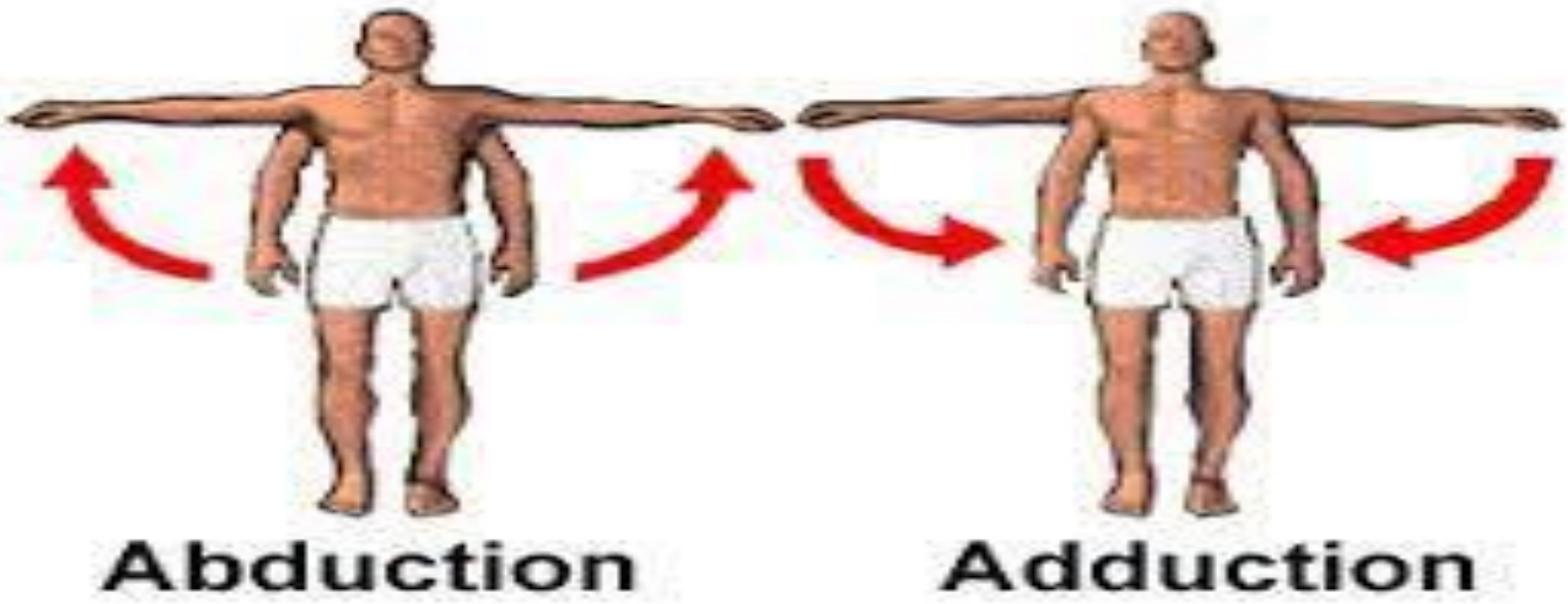
Types of joints:

Saddle joint. Although the saddle joint does not allow rotation, it does enable movement back and forth and side to side. An example is the joint at the base of your thumb.

The movement of muscles and joints

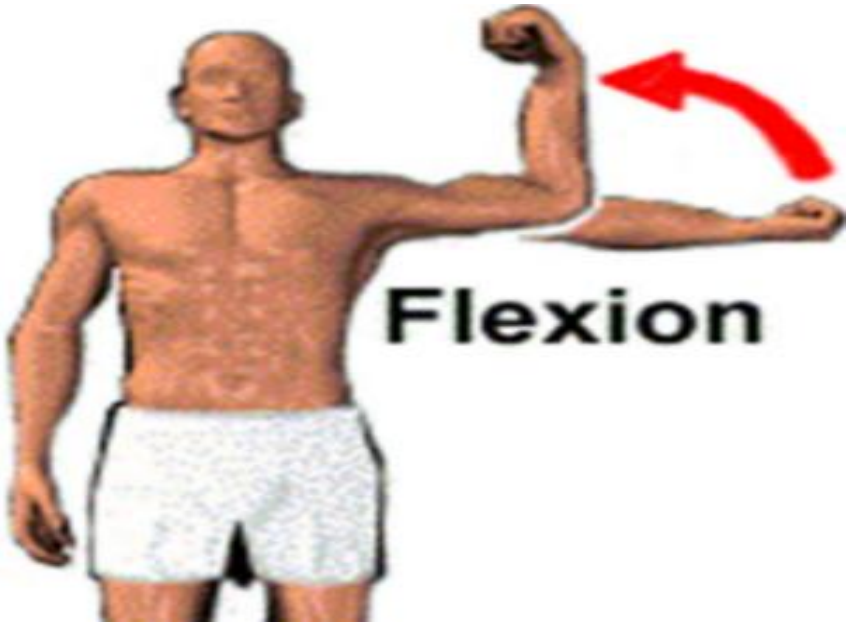
Abduction: Movement away from the middle of the body

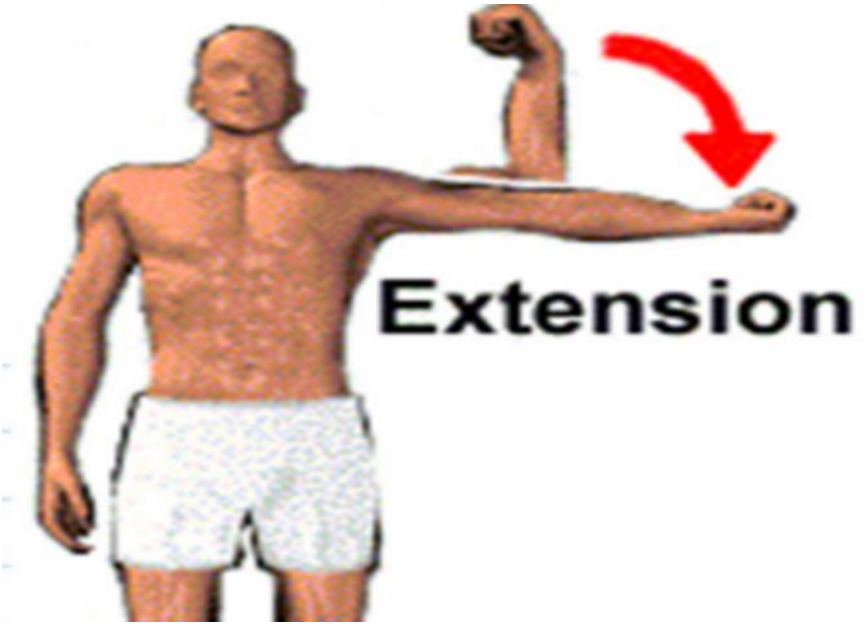
Adduction: Movement towards the middle of the body



The movement of muscles and joints

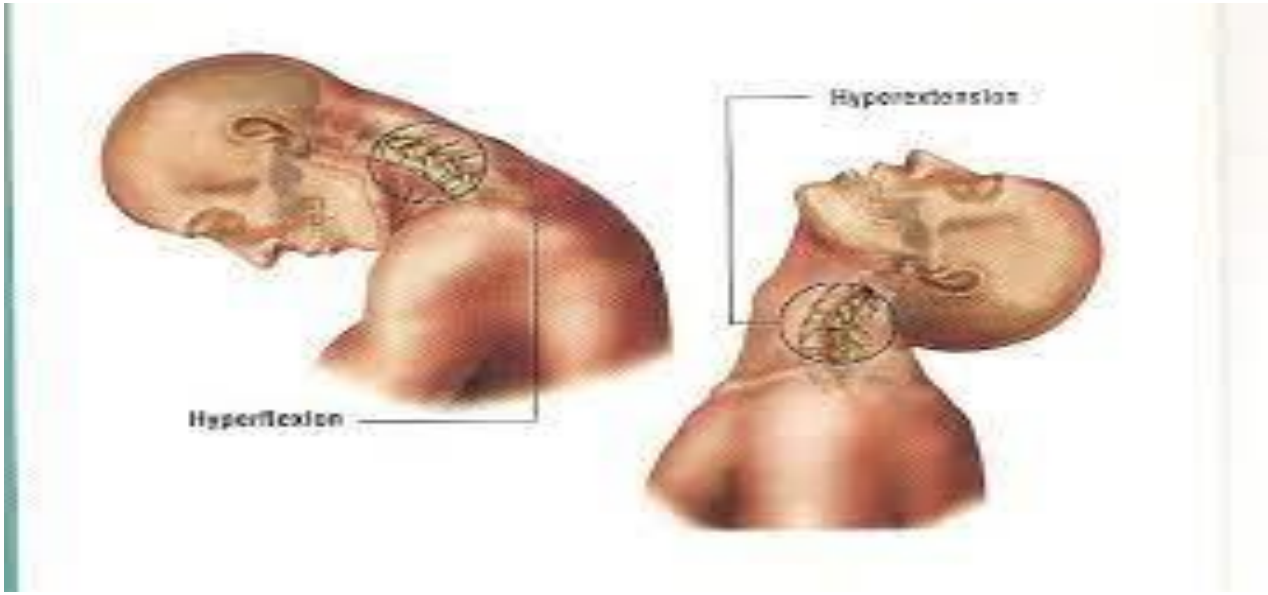
- **Flexion**: Movement that decreases the angle between two muscles or joints
- **Extension**: Movement that increases the angle between two muscles or joints





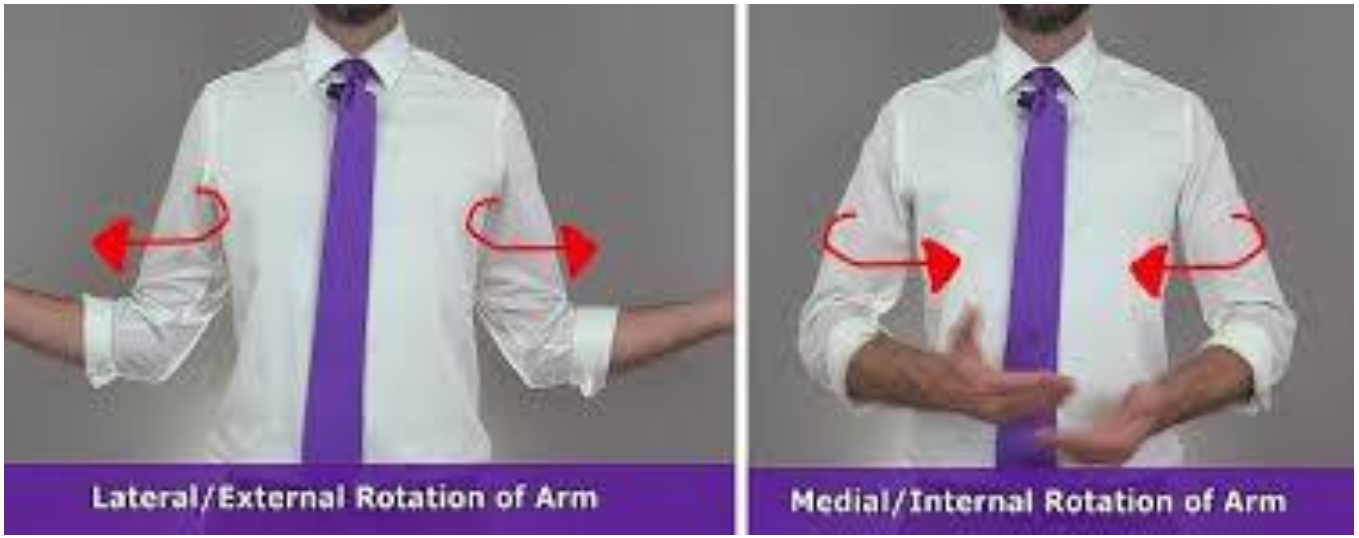
Hyperflexion: The flexion of a joint that is beyond what it normally should do

Hyperextension: The extension of a joint that is beyond what it normally should do

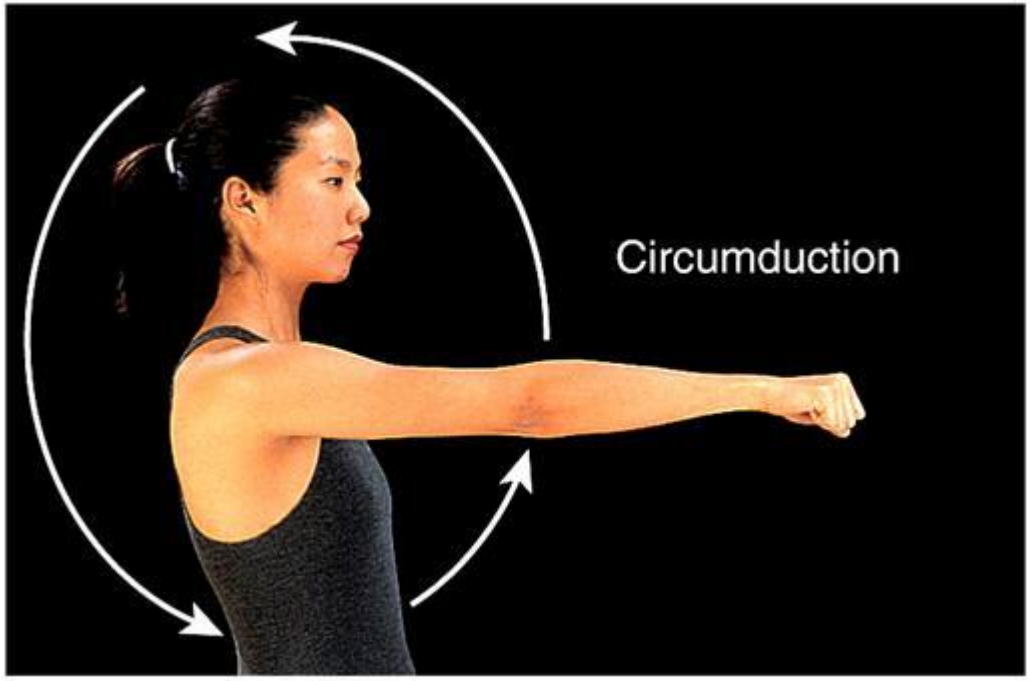


External rotation: Rotation of the muscle and joint(eg. hip or shoulder) away from the midline.

Internal rotation: Rotation of the muscle and joint(eg. hip or shoulder) toward the midline.



Circumduction: The circular movement of both muscle and joint such as socket joint



Movement of the foot.

1- Inversion : Turning the sole of the foot inward

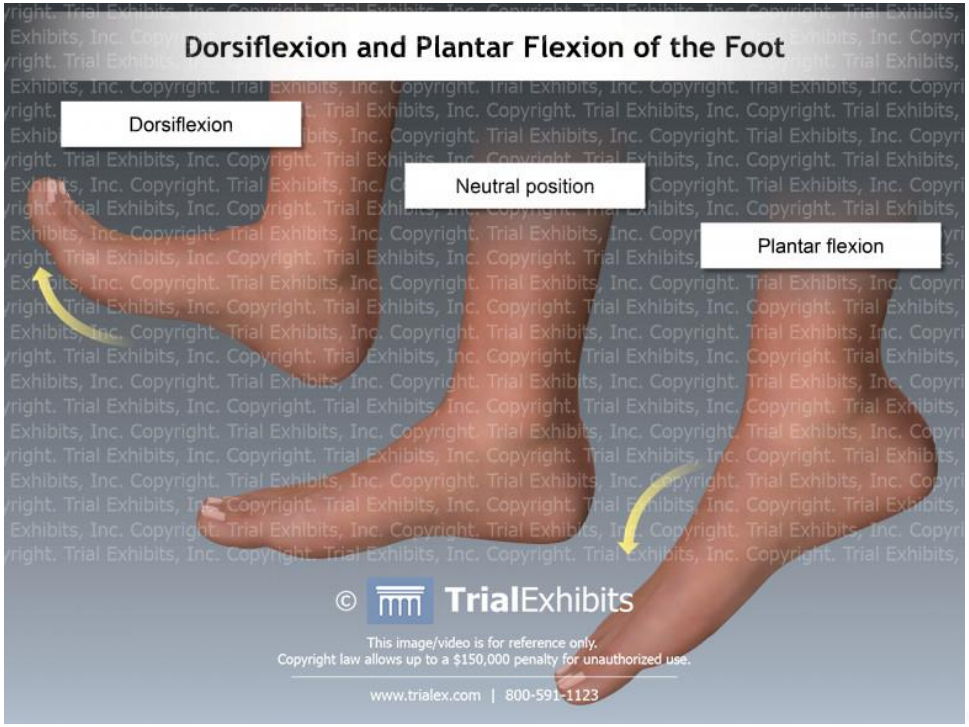
2- Eversion : Turning the sole of the foot outward

(b) Inversion

(c) Eversion

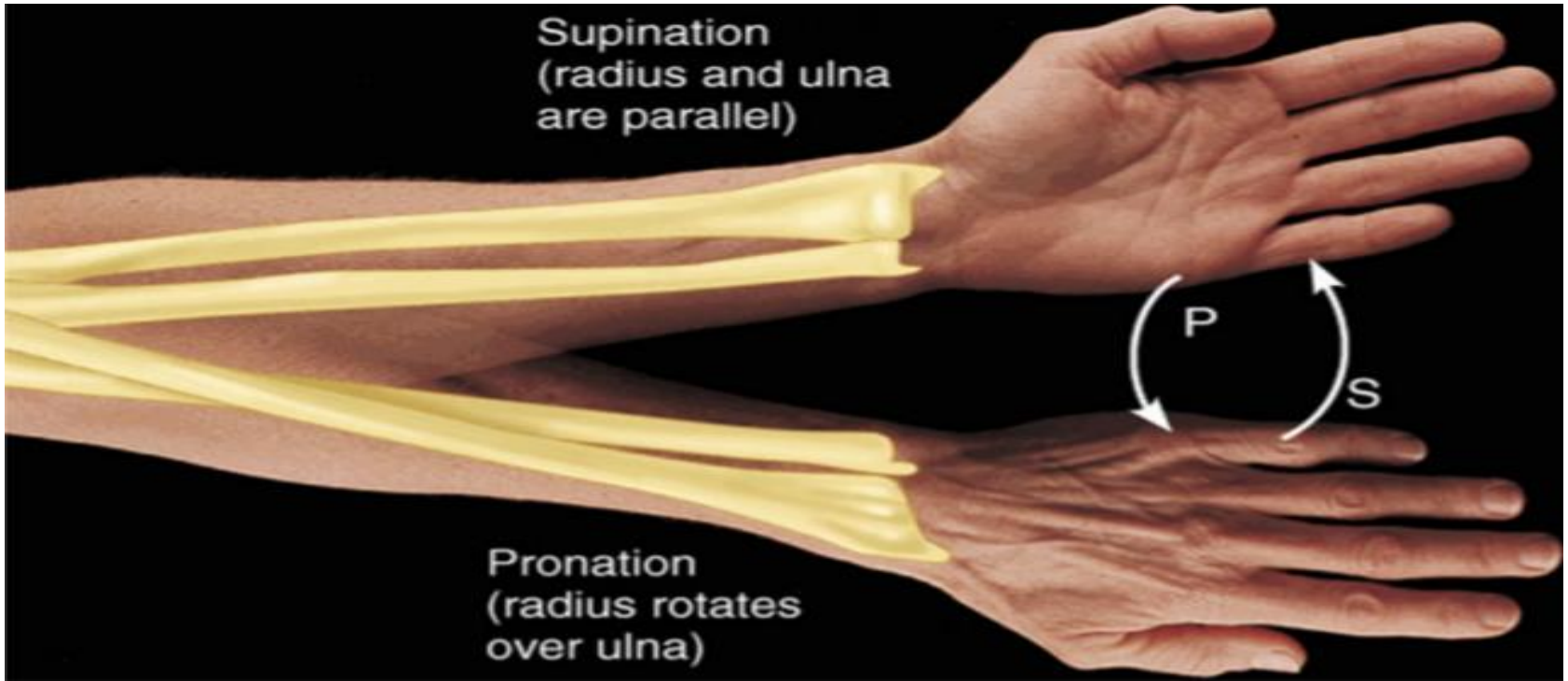
3- Plantar flexion: Ankle movement pointing the foot downward

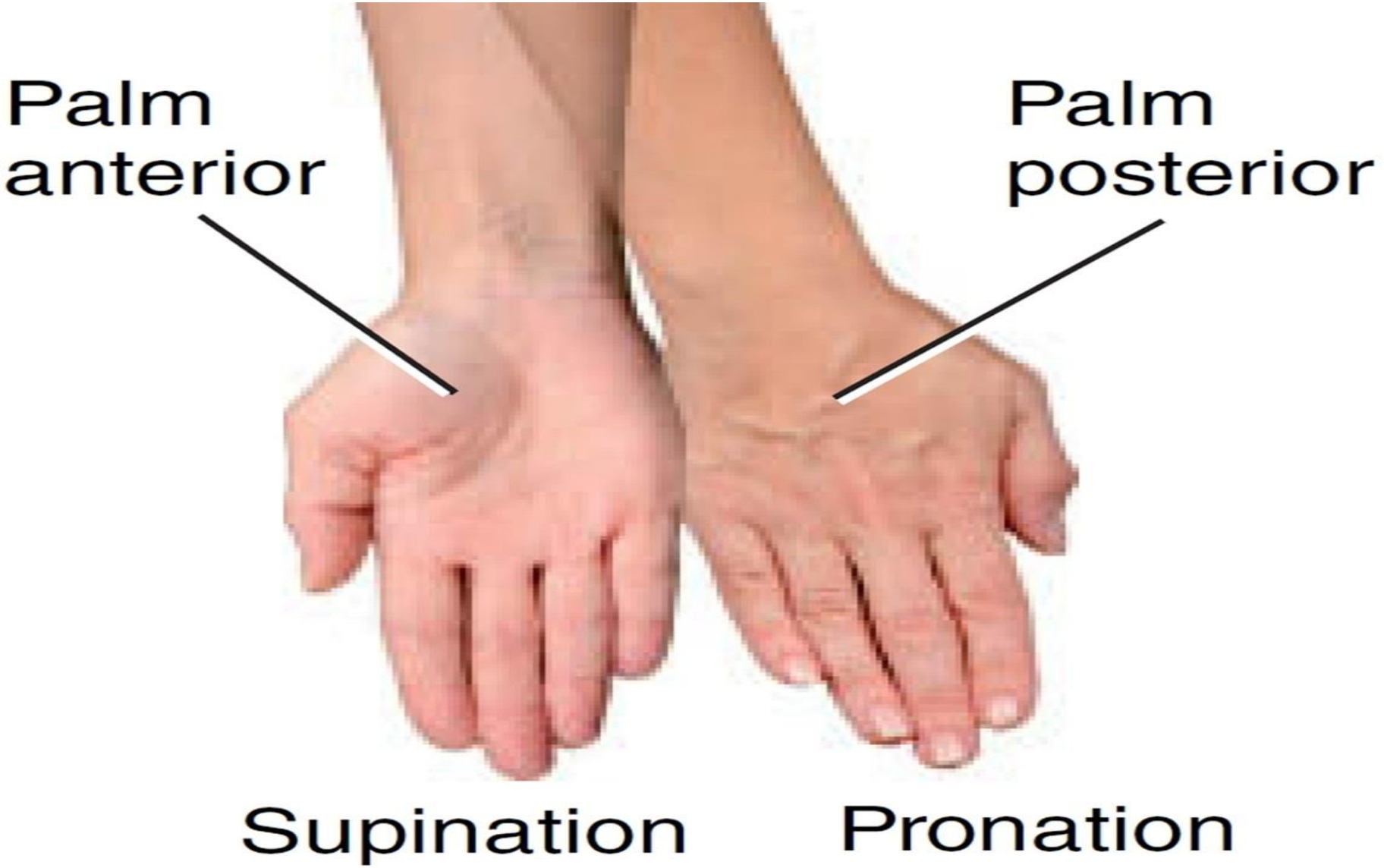
4- Dorsiflexion: Ankle movement bringing the foot towards the shin.



Pronation : rotation of the hand or foot in palm face – down

Supination : turning the palm or foot upward (palm - up)




Palm
anterior
Palm
posterior
Supination
Pronation

The Reproductive system

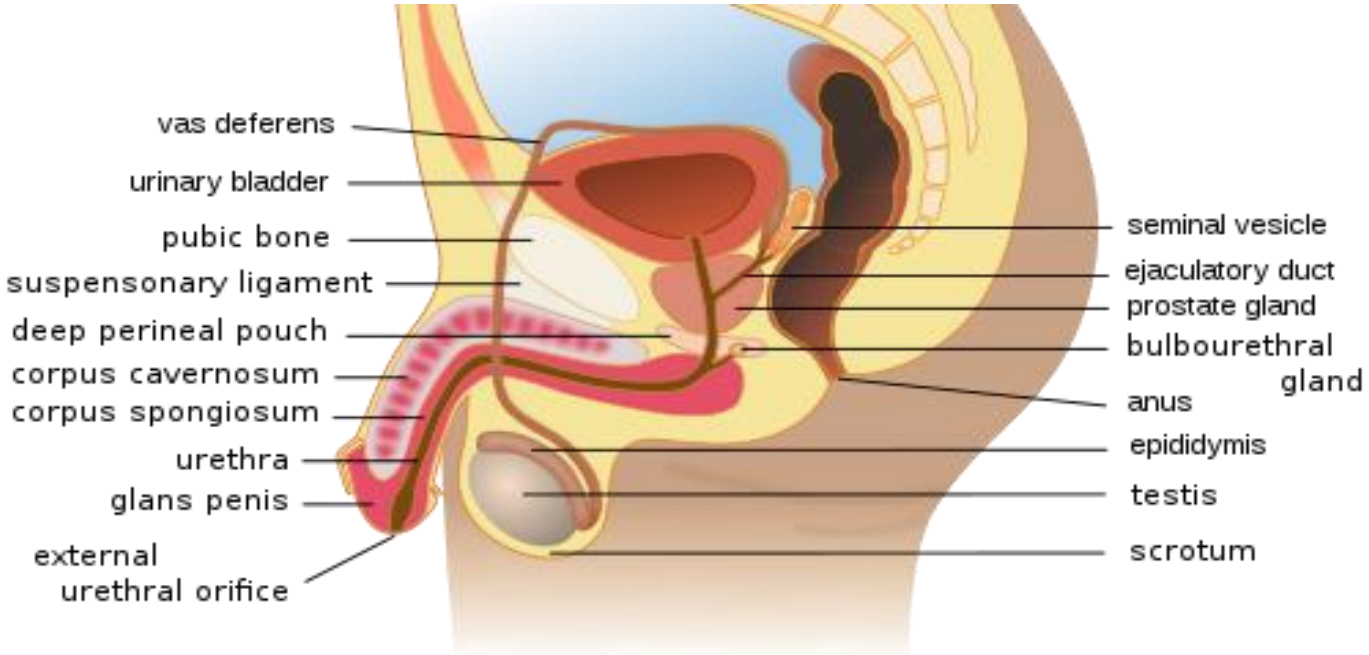
The human reproductive system includes:

- The male reproductive system
- The female reproductive system

which have a high level of sexual differentiation

Male Reproductive System

The function of the male reproductive system is to produce the sperm, which can then be transferred to the female reproductive tract



Components of the Male Reproductive System

- **Scrotum:** The scrotum is a skin-covered, highly pigmented, muscular sac that encloses the testes.
- **Testes:** These are the male gonads or, in other words, the male reproductive organs.
- **Epididymis:** This is a coiled tube attached to each testis connects it to the Vas deferens.
- **Vas deferens:** This thick, muscular tube is bundled together inside the scrotum with connective tissue, blood vessels, and nerves.

Components of the Male Reproductive System

- **Seminal vesicles:** As sperm pass through the vas deferens, they mix with fructose fluid from the seminal vesicles.
- **Prostate gland:** This gland sits in front of the rectum and at the base of the bladder, surrounding part of the urethra.
- **Bulbourethral glands:** These glands release a thick, salty fluid that lubricates the end of the urethra and helps clean urine residue from the male urethra
- **Penis:** This is the male organ of copulation and deposits semen into the female reproductive tract.

COMBINING FORMS

TERMS	MEANING	EXAMPLE OF USE IN MEDICAL
balan/o	penis	balanitis
orch/o	testis	orchitis
orchi/o	testis	orchioplasty
orchid/o	testis	orchidotomy
prostat/o	prostate gland	prostatectomy
scrot/o	scrotum	scrotitis
urethr/o	urethra	urethrotomy
vas/o	vas deferens	vasectomy

Female Reproductive System

The female reproductive system functions to produce gametes and reproductive hormones, making it similar to the male reproductive system. However, it has another function—to support a developing fetus and deliver it to the outside world.

Components of the Female Reproductive System

- **Vagina:** Approximately 10 cm long, the vagina is the muscular entrance to the reproductive tract.

- **Cervix:** This structure connects the lower end of the uterus to the vagina.

- **Uterus:** This muscular organ nourishes and supports the growing embryo. On average, it is approximately 5 cm wide and 7 cm long.

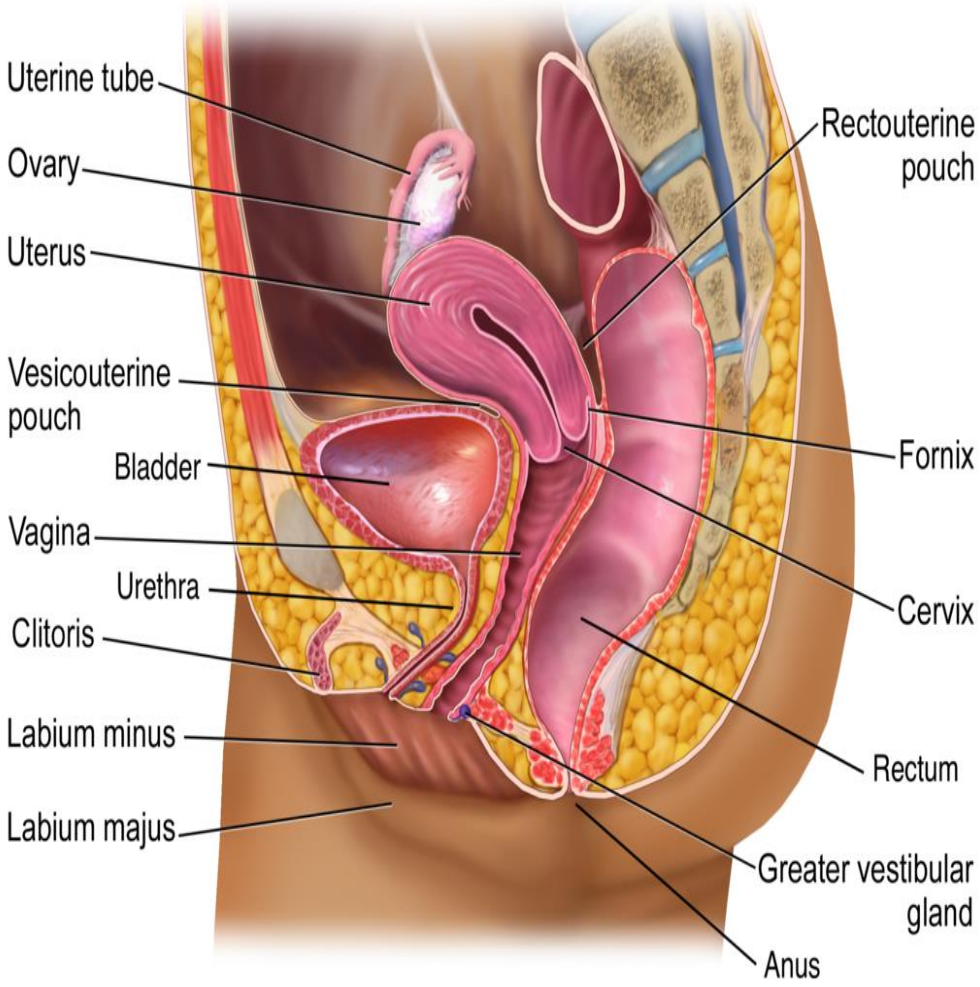
Components of the Female Reproductive System

- **Ovaries:** These are the two female gonads. They are located at the entrance to the fallopian tubes.

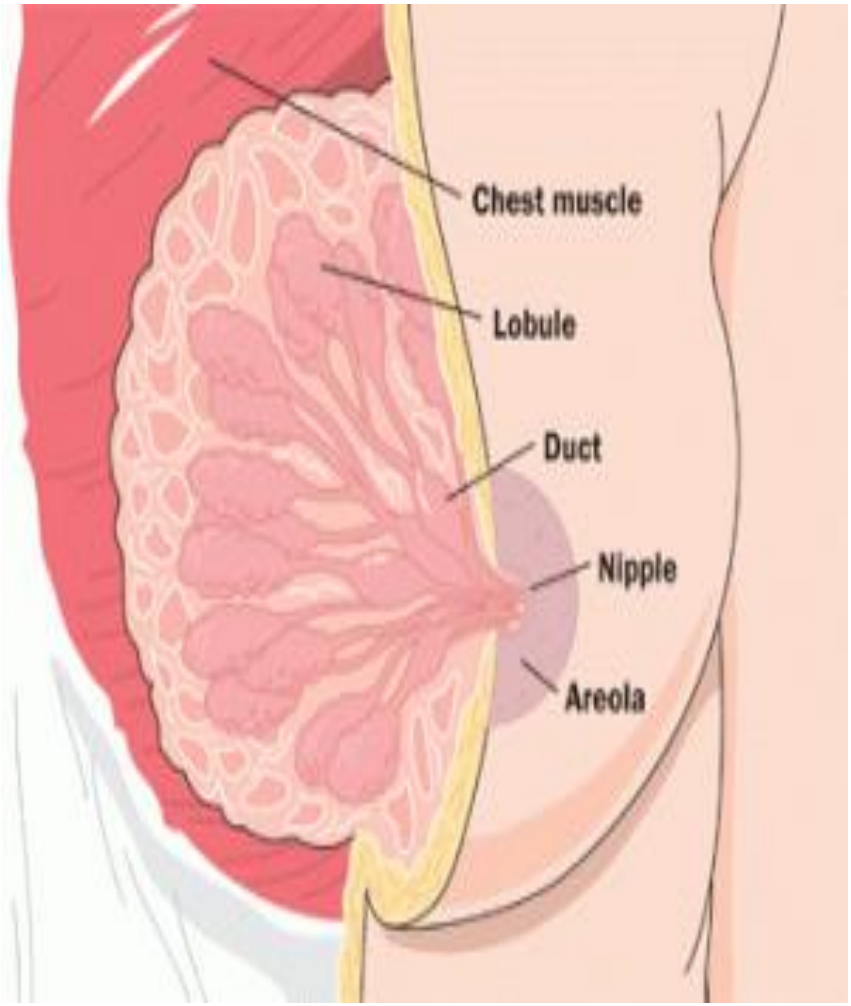
- **Fallopian tubes:** The fallopian tubes are the pathway that the **oocyte** travels from the ovary to the uterus.

- **Breast:** The breasts are located far from the other female reproductive organs and, as such, are considered accessory organs of the female reproductive system. The function of the breasts is lactation, which is supplying milk to an infant.

Genitourinary tract



Breast



Combining Forms

Term	MEANING	EXAMPLE OF USE IN MEDICAL TERMS
cervic/o	cervix	cervical
hyster/o	uterus	hysterectomy
mamm/o	breast	mammography
mast/o	breast	mastectomy
men/o	menstruation	amenorrhea
metri/o	uterus	endometrial
o/o	egg	oocyte
oophor/o	ovary	oophorectomy
ovari/o	ovary	ovarian
salping/o	fallopian tube	salpingitis
vagin/o	vagina	vagin

Obstetrics Combining Forms

-gravida	Pregnancy	Nulligravida (never pregnant), primigravida (first-time pregnant), multigravida (many pregnancies)
-para	Live birth	Nullipara (no live births), multipara (many live births)
Part/o, toc/o	Labor/birth/delivery	Prepartum, postpartum (before and after delivery), dystocia (difficult delivery)


thanks