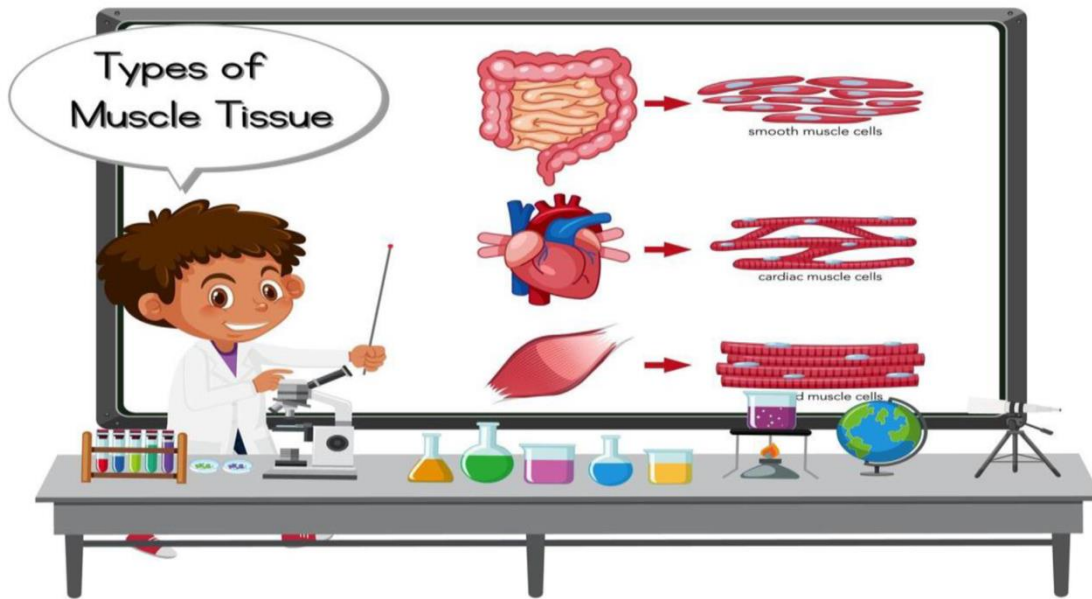




Muscles & Joints

Lab 5&6

Al-Zahraa(A.S.) University for Women
College of Health and Medical
Techniques
Department of Radiological Techniques

Practical Physiology
Asst. Lect. Duaa Raad

Outlines

Student should know:

- **What are muscles?**
- **What are muscles' function?**
- **What are the types of muscles?**
- **Conditions and Disorders**
- **Muscle tests**
- **How do healthcare providers treat muscle issues?**

What Are Muscles?

Muscles are pieces of soft tissue throughout your body.

- They **help you do everything** like holding your body and running.
- Muscles also **move and support** your organs.
- muscles are made of thousands of **small fibers** woven together.

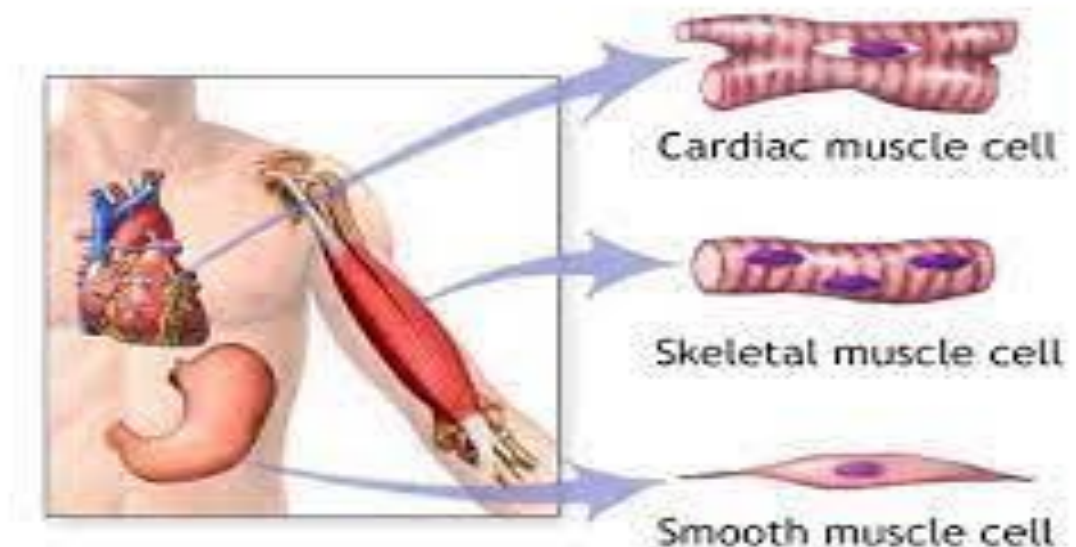
What Are Muscles' Function?

- 1. Voluntary movements:** Which are actions you control. You choose to perform an action and your muscles move your body to make it happen due to nervous system.
- 2. Involuntary movements:** Which happen automatically without you thinking about them. The muscles in and around your organs move involuntarily to keep your body working properly as in heart beating and breathe

Muscles Types

There are three types of muscle tissue in your body:

- Skeletal.
- Cardiac.
- Smooth.



Skeletal Muscles

- They are part of your musculoskeletal system.
- They work with your bones, tendons and ligaments to support your weight and move you.
- Tendons attach skeletal muscles to bones all over your body .
- Skeletal muscles are **voluntary**.



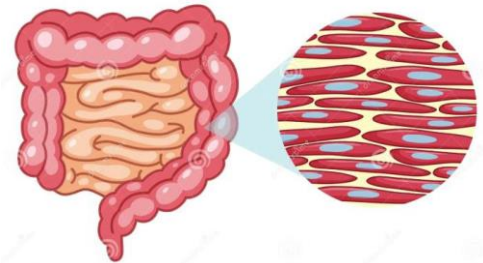
Cardiac Muscles

- Cardiac muscle (**myocardium**) makes up the middle layers of your heart.
- Cardiac muscle contraction and relaxation to pump blood through your cardiovascular system.
- Your heart is an **involuntary** muscle

Smooth Muscles

- They are **involuntary** muscles that line the inside of some organs.
- They do essential role like moving waste through your intestines and helping your lungs expand when you breathe.
- Play an important role in **urinary system, respiratory system, and digestive system.**

Smooth Muscle Tissue



dreamstime.com

ID 121065507 © Blue Ring Education Pte Ltd

Conditions and Disorders

- **Muscle strains (pulled muscles)** are the most common muscle injury. They happen when you overuse a muscle.
- Infections, including the **flu (influenza)** and **COVID19**.
- **Cardiovascular disease**.

Muscle Tests

- A different kinds of tests to diagnose muscle conditions or injuries:
- **Blood tests.**
- **Electromyography (EMG).**
- **Magnetic resonance imaging (MRI).**
- **Ultrasound.**
- **Muscle biopsy.**

Treat of Muscle Issues

- **Rest**: Avoid the activity that caused the injury.
- **Ice**: Apply a cold compress to your injury 15 minutes at a time, a few times a day.
- **Compression**: Wrap an elastic bandage around your injured muscle to help reduce swelling.
- **Elevation**: Keep your injured muscle above the level of your heart as often as you can.

joint

- A joint or (articulation): refers to the connection between bones or other hard structures in the body.
- joints are important for movement and stability.



joint Functions

Facilitating Movement: Joints enable different types of movements, such as bending, rotating, and gliding. Ex., synovial joints.

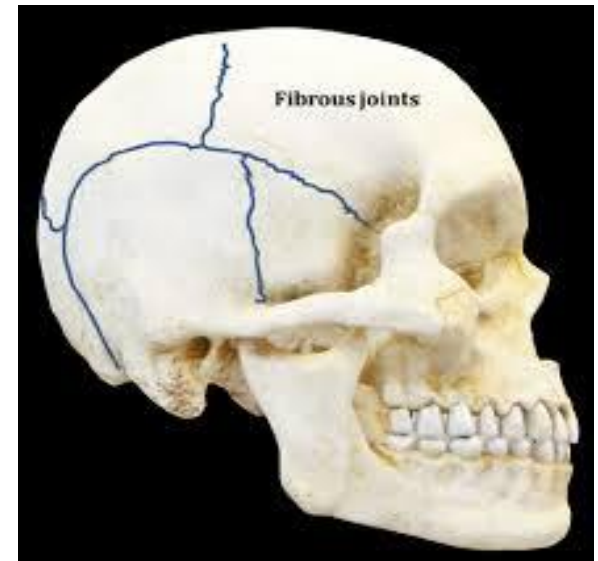
Providing Stability: Joints help maintain the structural integrity of the skeleton, supporting the body during various activities.

Shock Absorption: Certain joints, particularly those with cartilage, help absorb impact and reduce stress on bones during movement.

Types of joint

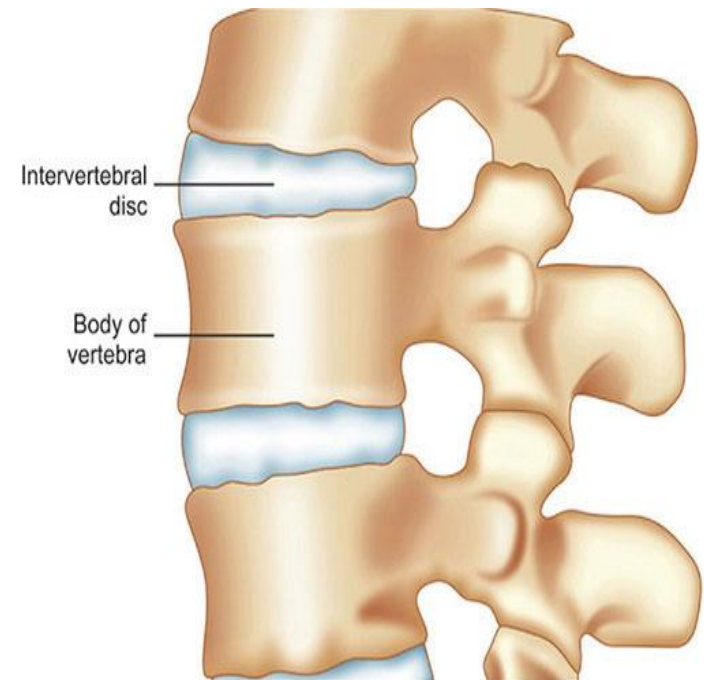
1. Fibrous Joints:

- ✓ Connected by dense connective tissue.
- ✓ Allow little to no movement.
- ✓ Example: Sutures of the skull.



2. Cartilaginous Joints:

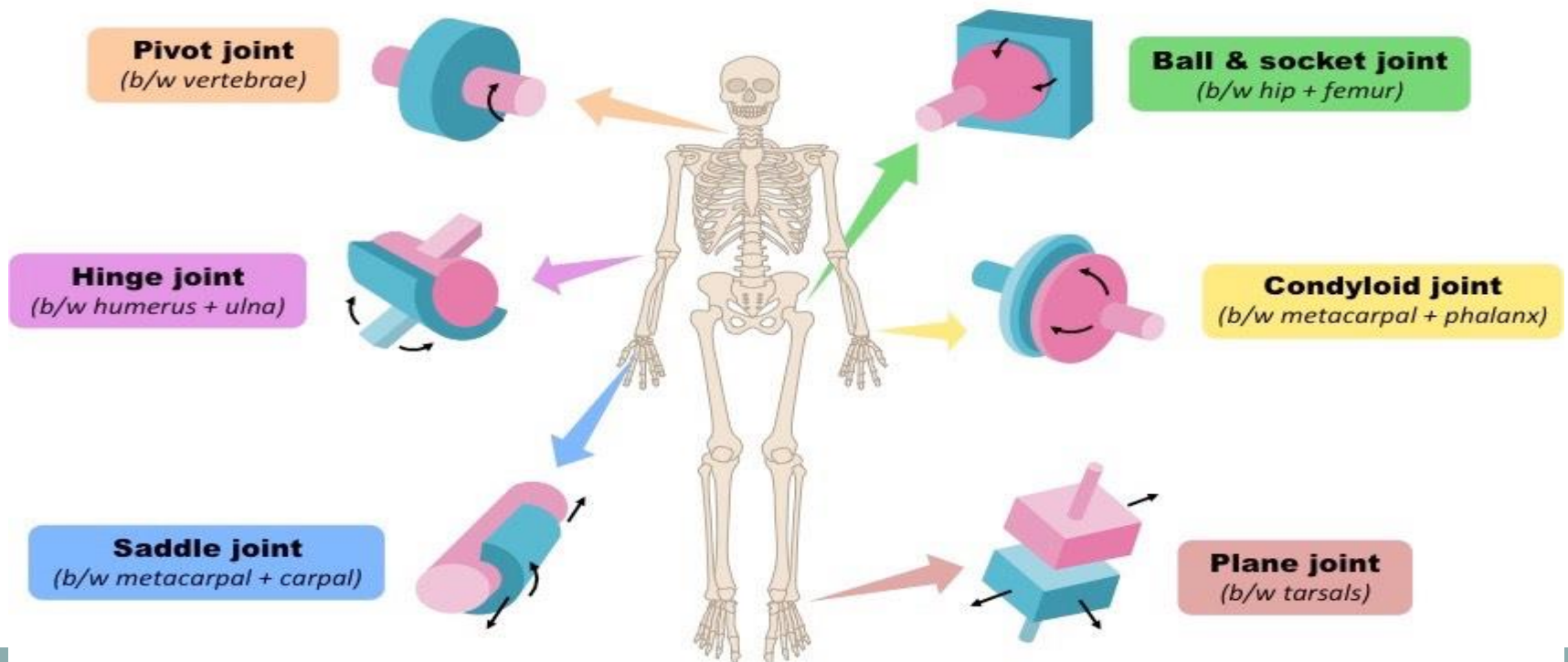
- ✓ Connected by cartilage.
- ✓ Permit slight movement.
- ✓ Example: Intervertebral discs.



3. synovial Joints:

These joints are characterized by a synovial cavity filled with fluid, allowing for a wide range of motion.

Types



Conditions and Disorders

1. Arthritis

2. Bursitis

3. Tendinitis

4. Gout

5. Ligament Injuries

Symptoms

Common symptoms of joint disorders include:

- Pain and tenderness
- Swelling and inflammation
- Stiffness, especially in the morning
- Reduced range of motion

Joint Tests

1. Physical Examination :

palpation :Feeling around the joint for swelling, tenderness, or warmth

2. Imaging Tests:

X-rays & Ultrasound

3. Laboratory Tests:

Blood Tests

Treat of joint Issues

1. **Non steroidal Anti-Inflammatory Drugs (NSAIDs):**
Reduce pain and inflammation

2. **Corticosteroids:** Help control inflammation and immune responses

3. **Physical Therapy:** Exercise Programs.

4. **Diet:** Anti-inflammatory diets rich in omega-3 fatty acids, fruits, and vegetables.

5. **Surgery**