

- **Red** : important
- **Black** : in male / female slides
- **Pink** : in girls slides only
- **Blue** : in male slides only
- **Green** : notes, Extra



# 1-INTRODUCTION TO PHYSIOLOGY

## 2-LEVELS OF ORGANIZATION





# OBJECTIVES

- Define Physiology.
- Understand Physiology's types
- Describe the levels of organization of an organism
- Provide an orientation to the subject of human physiology.
- Describe the levels of organisation of an organism.
- The cell is the basic unit of life.
- Describe briefly the basic structure of the cell and state the function of the different cellular organelles.
- Discuss briefly the different levels of organization starting from the cell to body systems giving examples at each level.

# DEFINITIONS

Physio + logy

**Physio** : Nature

**Logy** : Science or study of

Physiology : The science dealing with the way a **normal** organism and their body parts **function** , and how these functions are maintained in a changing environment.

( Considered as one of the cornerstones of medicine )

## Types of Physiology

### Cellular physiology

Is the study of the cellular components that primarily determines organ function.

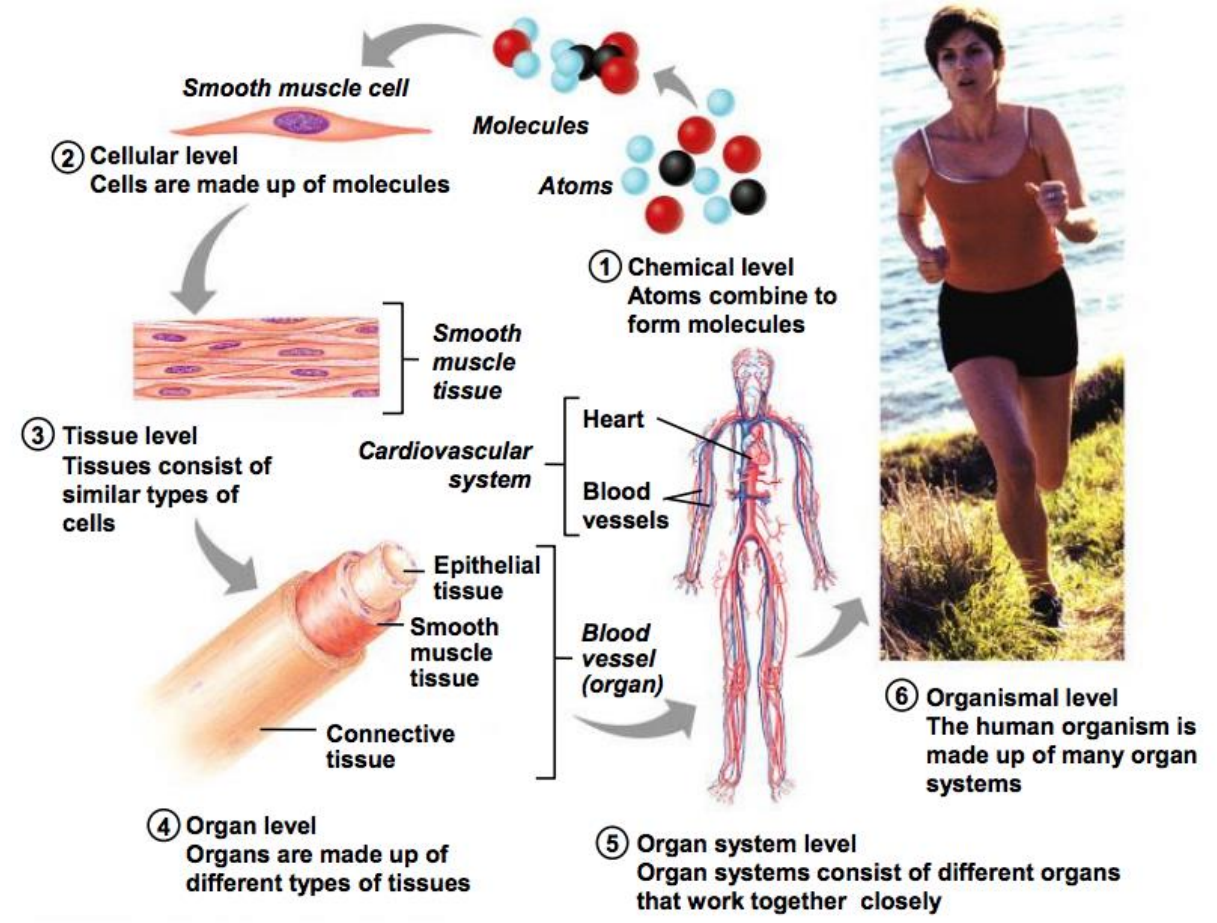
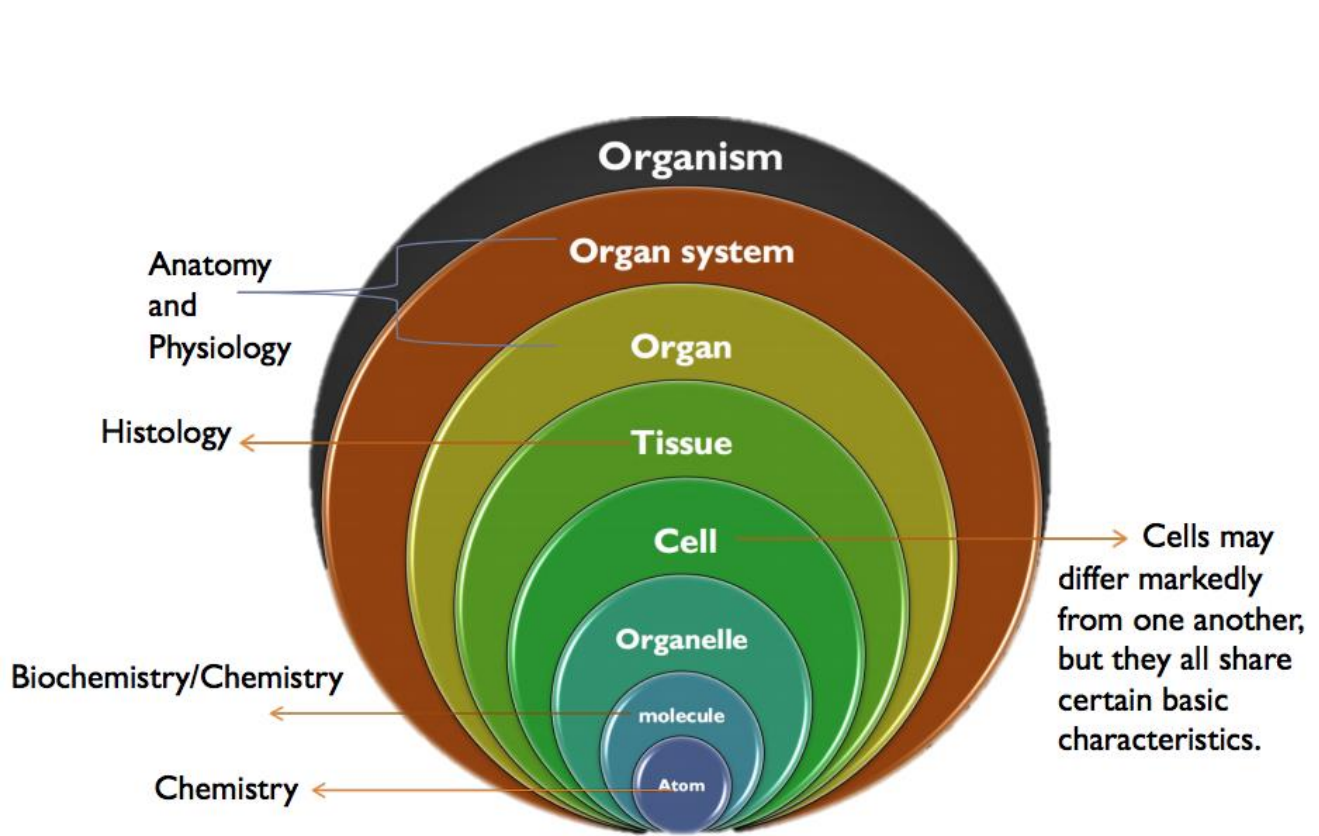
### Systems physiology

Is the study of the coordinated and networked processes that determine whole body function and adaption to change.

girls

- Many disease can be viewed as physiology “ gone wrong “  
**pathophysiology**
- The difference between anatomy and physiology :  
Anatomy : the structure  
physiology : the function
- An understanding of physiology is essential for the study and practice of medicine.

# LEVELS OF STRUCTURAL ORGANIZATION

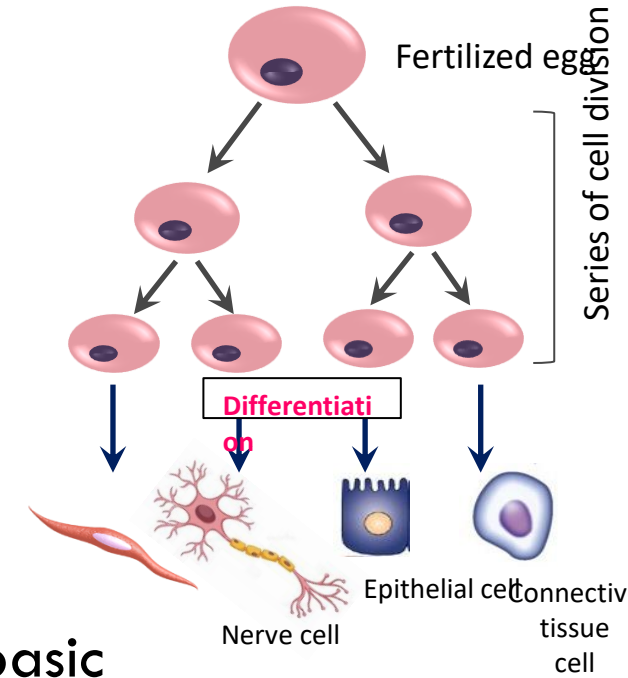




# THE CELL

## THE BASIC LIVING UNIT OF THE BODY:

- Each human being begins as a single cell (i.e. fertilized egg).
- The number of cells increase by cellular division.
- The process of transforming an unspecialized cell into a specialized cell is known as **differentiation**.



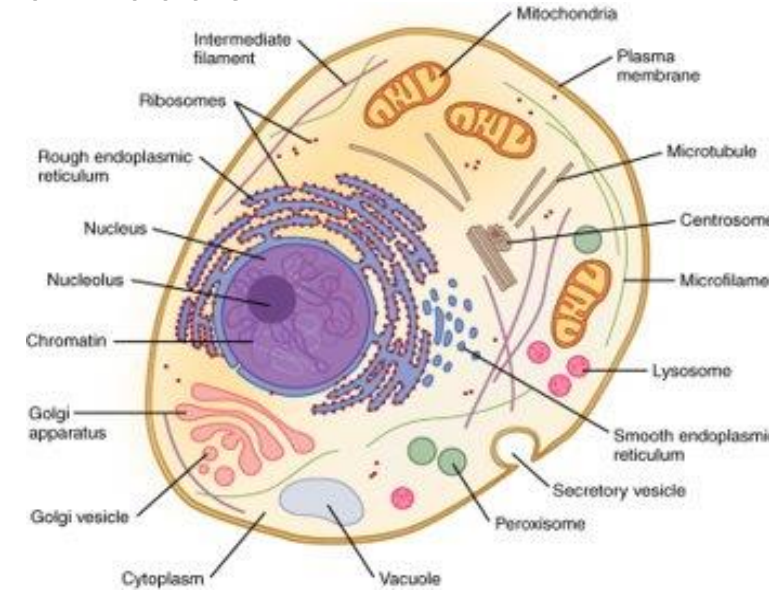
## Cell structure

- Cells may differ markedly from one another, but they all share certain basic characteristics.

### Cell organelles

- Nucleus.
  - Ribosomes.
  - Endoplasmic reticulum:
    - Rough
    - Smooth
  - Golgi apparatus.
  - Mitochondria.
  - Lysosomes.
  - Peroxisomes.
  - Cytoskeleton.
- \*You need to know what the function for each

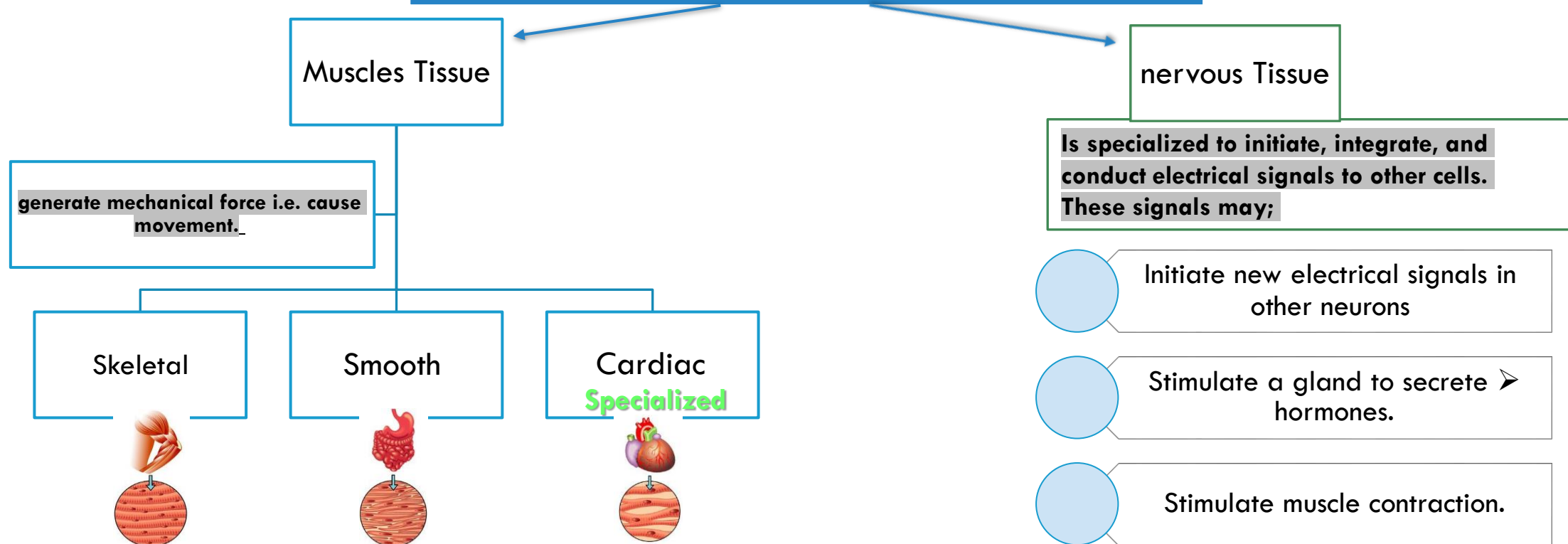
\* Cell membrane will be discussed in a future lecture.



# DEFINITIONS

- A collection of a single type of specialized cells = **tissue**.
- The combination of two or more types of tissues forms an **organ**.
- Several organs come together and are organised into a **system**.

## The four major tissue types in the body



**Note:**

هذولا هم النوع الثالث  
تبع السلايد السابق والرابع

# The four major tissue types in the body

## Epithelial Tissue

There are many shapes of epithelial cells according to the function they need to perform. Thus, there are many types of epithelial tissue.

## Connective Tissue

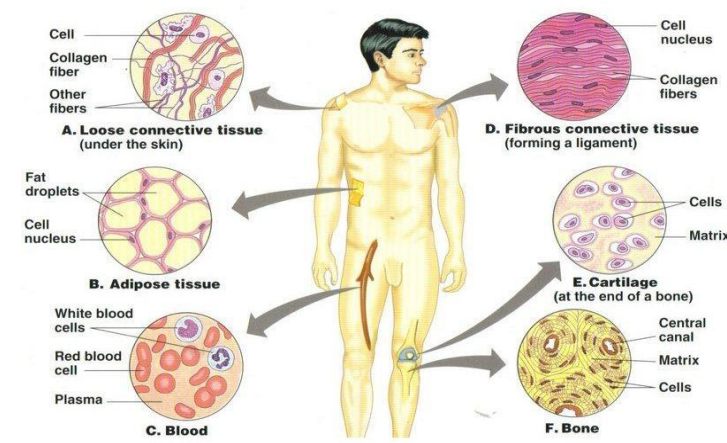
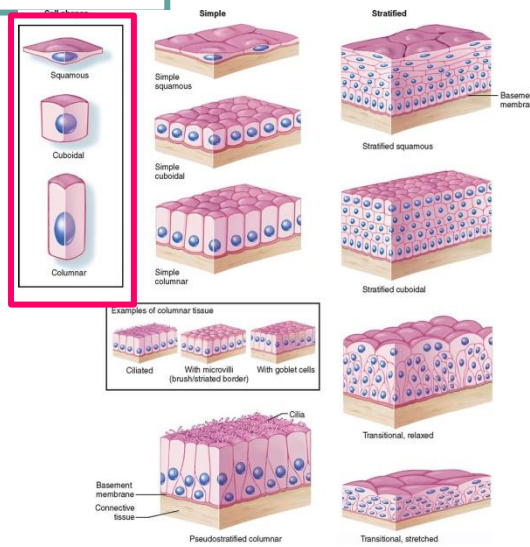
It connects, anchors and support the structures of the body. It consist of many and diverse cell and tissue types, each with its specific function.

shared properties:

It lines surfaces. ■

Offers protection. ■

May be involved in secretion and absorption of ions & organic molecules



# QUIZ

1-It is the study of the cellular components that primarily determines organ function?

A-Physiology

B-  
pathophysiology

C- cellular  
physiology

D- system  
physiology

2- the combination of two or more types of tissues form:

A-system

B-organ

C- cell

D- body

3- type of tissues which connects and support the structure of the body:

A- Muscles tissue.

B- Nervous tissue

C- Connective tissue

D- epithelial tissue

4- it is specialized to initiate and conduct electrical signals to other cells:

A- nervous

B-muscle tissues.

C- epithelial tissue

D- connective  
tissues

Key answers:

1-C

2-B

3- C

4- A



# THANK YOU

## Boys team members

- عمر الدوسري
- زياد الدوسري
- عبدالله الغامدي
- محمد الحمد
- عوض العنزي
- فيصل القفاري
- عبدالله باسمح

## Girls team members

- اروى الامام
- ديما المزيد
- جود الخليفة
- جود العتيبي
- ريناد المطوع
- ريما المطوع
- طرفة آل كلثم
- مي بابعير
- نجود العلي
- نورة المزروع



## Team leaders:

- عمر الشيناوي
- ايلاف المسichel



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