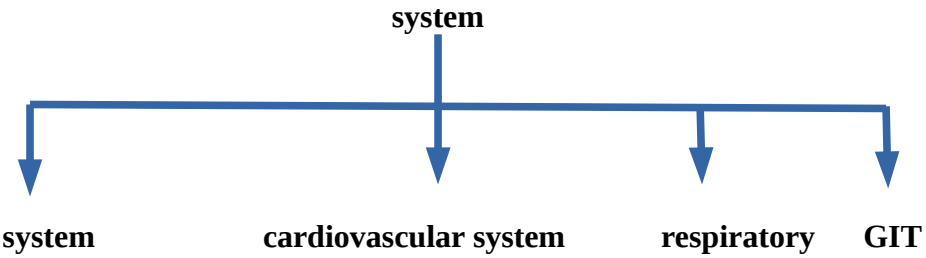
اليوم: الأحد
التاريخ :

بسم الله الرحمن الرحيم
محاضرة 1

فسيولوجي

* **physiology** : part of medical science which is responsable for studying the function of different body **organs /system.**



1. nerve system
* motor function * sensory function (**touch** , **pain** , **temp**) * co -ordination
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2. **cardiovascular system (heart + blood vessels)**
* the heart contracts and supplies other body organs with blood
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3. respiratory system
* gas exchange between **air** and **blood**
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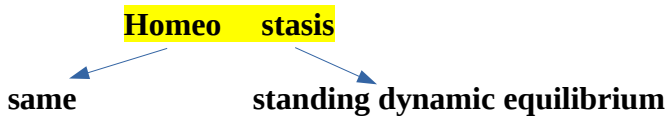
4. GIT
*digestion of food into carbohydrates , proteins and fats

⁂ **Homeostasis:**
maintenance of nearly constant condition in the internal environment (with in the normal rate)



EXAMPLE :
1. The normal body **temp ≈ 37**
*** If** an error occurred which as a result caused the body temp to be higher , how will the body react to that ?
A. sweat secretion
B. thirst centers are activated
C. the skin becomes red

2. the normal blood pressure = 120 / 80
*** If** it goes up or down , the body will take it back into normal range

 # The main thing that the body tries to keep constant

1. body temp
2. blood pressure
3. blood **PH** → It's really important to keep it within the normal range (**7.4**) because any change in it's value will result in **pathology** → **death**

How does different body organs and system make benefit of the homeostasis ??

-GIT

If it has good blood supply and the blood pressure is with in the normal range **(homeostasis)** → proper digestion and absorption of food

-R.S

proper gas exchange

 # Important note: each organ / system takes part in the **homeostasis** and makes benefit of it .

*** HOW does homeostasis work ?**

Homeostasis wants to keep or maintain the internal environment within the normal range so there must be an **(end point)** to it's work and that we call **((feed back))**

negative
when the stimulus goes to the center which will affect the stimulus to stop it's work (thank you no more !!)

positive
when stimulus goes to the center and gets affected to complete it's work

 # the feedback pathways and mechanisms are really clear in the endocrine system

EXAMPLE ON NEGATIVE FEED BACK :

- Blood glucose level :

when it gets really high → the glucose goes to the **β – cell** in the islets of **langerhans** in the **pancreas** which will secret insulin hormone → it will carry the extra glucose into or inside the cell , it also stimulate the break down of the glucose to produce energy so the glucose level in the blood goes back to it's normal range again

 # when it's go low (during fasting) the glucagon hormones is activated → it will break down the glycogen into glucose → glucose level is back to normal range

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- CO2 level in the blood

when you are in crowded place and you are doing an energy requiring activity → **CO2** level in the blood is high to goes to the (**respiratory center)** in the brain → it will higher the respiratory rate (inhaling oxygen) → **CO2** will be washed out

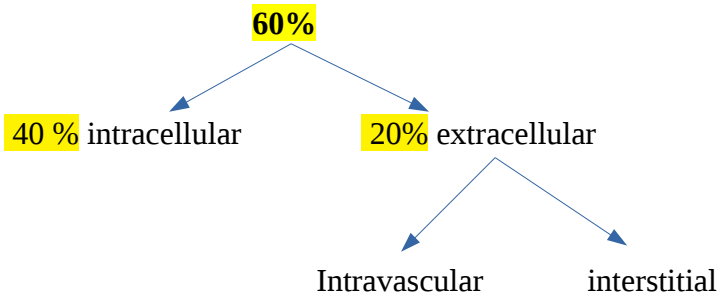
 # during emotional break downs when crying → **CO2** level gets really low → it might be treated by breathing in a plastic bag .

 # more EXAMPLE on +/- feedback

atrial blood pressure it's normal range is 120/80 but if it gets higher than that some commands from the brain lowers the heart beat and causes the blood vessels to be loose (ارتخاء) which will lower the blood pressure to it's normal range it's control by negative feed back .

 # Total body water

- the percentage of water in the body = **60%** (**variable water**)



***** the water mass depends on:

1) age

body content an → newborn > adult > old people .

new born **75%** water → their skin is really soft .

***** we should really be careful when a baby gets diarrhea because we don't want **him** / ***her*** *to lose a lot of a water because it makes a big part of* ***his*****/ her** entire body mass

2) SEX

***** water body content in males >females
***** females have fat cell
***** obese male < normal male (in water content)

#importance of water in the body

- it's the media where homeostasis occurs
- it's plasma inside the blood vessels where nutrients and minerals are dissolved
- water carries toxics outside the body

 # BODY TE TEMP REGULATION

-Cold environment

1. no sweating
2. cutaneous vasoconstriction → to lower heat loose
3. excretion of thyroxine → higher metabolism rate
4. eating center is activated

- hot environment

1. sweating
2. cutaneous vasodilation
3. less thyroxine excretion
4. thirst center is activated

نسأل المولى التوفيق لنا ولكم جميعا .

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