

\* **Position of heart** : middle of the thorax (**base** : superiority /**apex** :inferiorly at the 5<sup>th</sup> intercostal space)

**Function of the heart :**

**1) muscle pump :**

- taking (Deoxy ) Blood to the **RT** side of heart then it gets **OXYGENATED** by the lungs then it goes to the **LT** side .

-The rise of **CO2** level or decrease of **O2** level in blood indicates either :

**heart problem OR a respiratory problem .**

-pulmonary = lung .

**2) Regulation (HOMEOSTASIS).**

The heart is concerned with it because the blood contains many chemicals -**that got** - transported by the heart when it pumps the blood to different areas in the body.

\* atrium is **smaller** than ventricles (**10- min** )

\* **DEOXY BLOOD** comes from **superior and inferior vena cava** and it pumps into → the **RT atrium** → when enough volume and pressure are found at the atrium the **TRICUSPID VALVE** will open to let the blood flow from the **RT AT** to the **RT VE** when enough volume and pressure are found at the **RT VE** the **PULMONARY ARTERY** will open →lung →**Oxy** blood coming from lung through **RT** and it **PULMONARY VEIN** → **LT ATRIUM** →**BICUSPID (MITRAL)** will open when there is enough pressure and volume → **LT VENTRICLE** →**AORTIC ARTERY** through **SEMILUNAR AORTIC VALVE** .

**ACCORDING TO BLOOD CIRCULATION :**

\***ARTERY** : Blood vessels that take the blood from the heart to the whole body .

\***VEIN** : Blood vessels that take the blood from the BODY to the HEART .

\*\*Why we don't need valve at the **JUNCTION** between the **RT atrium and superior and inferior vena cava** ??

Due to the pressure Difference between them ( the **PRESSURE** at the **RT atrium** is lower than the **PRESSURE** at **the veins** , so the blood will go from high pressure to low pressure so no back flow will happen so we don't need valves .

The contraction of atria will cause the blood to flow from **VEINS to ATRIA** .

\* **VALVES** are a kind of smooth muscle found in the heart that allow the movement of blood in one direction and prevent the back flow (it will cause heart problem ) of blood between the atria and ventricles .

\* **VALVES** are attached to a Special muscle called **PAPILLARY** muscles by a special tendon that is called **chordae tendineae**.

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### AV VALVE FUNCTION :

\* The **PAPILLARY** muscle controls the opening and the closure of the valve.

\*When the papillary muscle is contracted the chordae tendineas will tighten

\* Incompetence of the valves will cause regurgitation which is the leakage of blood through closed valves and this will effect the heart negatively. We can diagnose this problem by listening to the heart sounds through a stethoscope

\* **SEMILUNAR VALVE FUNCTION**: ( from slide ) .

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#We can record the electricity of the heart by ECG.

\* The heart electricity has a pattern that could be drawn , it's called **NORMAL PATTERN OF ECG** .

\* The shape of the ECG diagram result from the specific location of the electrodes in the body to draw the electricity of the heart by **cathods** and **anods** .

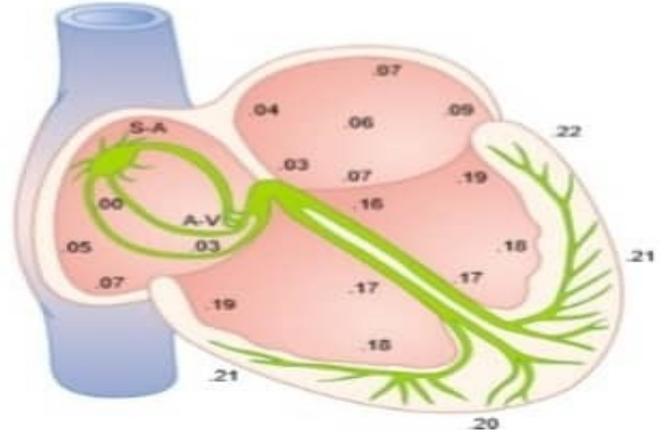
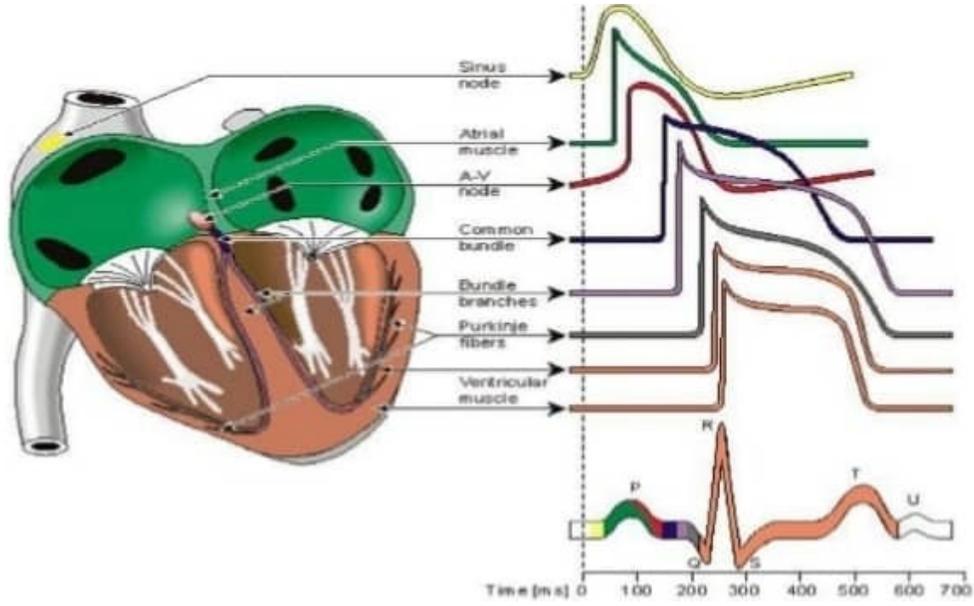
\* **lead 1** ———> the potential difference between an **anods** situated at the RT arm and the cathod situated at the left arm ———> prepindicular to the heart ( يسجل جزء معين من كهرباء القلب ويترك الباقي )

\* **lead 2** ———> the potential difference between an **anods** situated at the RT arm (-) and the (+) at the left leg ....(the most important one) .

\* depolarization of the heart begins at the **SA Node** 0.3 sec → **AV Node** 1.6-1.2 sec → common bundle ( bundle of His ) → bundle branch .21-.22 → Purkinje Fibers → ventricular muscle .

\* AV Node ———> common branch ———> the site of delay . F depolarization .

\* A varage of all of the nodes electricity gives us the ECG diagram .



### اختصارات مهمة :

- Oxy▶oxygenated
- Deoxy▶deoxygenated
- Rt▶right
- Lt▶left
- Ve▶ventricle
- At▶atrium

### تذكير : آخر ربع ساعة من record مهمة جداً .

- نسأل المولى التوفيق لنا ولكم جميعاً .
- تم العمل من قبل لجنة التبيصات .
- 1. أروى العجالين
- 2. يوسف الطراونة
- 3. أحمد معاينة
- 4. فراس احمد