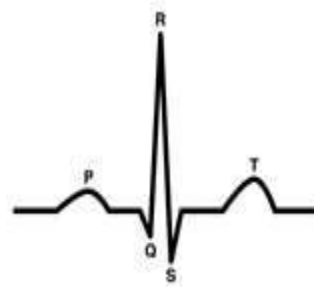


The ABC's of ECG'S

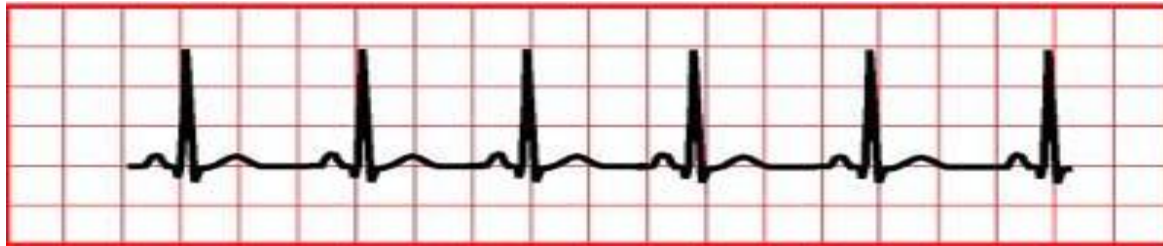


Michelle Crane CVT



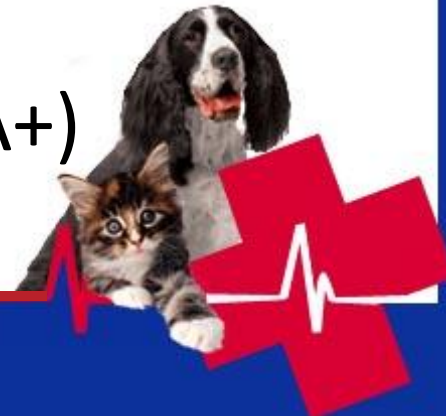
What's an ECG

- It magnifies and records the major electrical forces generated by the heart as they are read on the body surface.



Why

- Trauma(HBC,head,GSW)
- Shock(Cardiogenic,hypovolemic)
- Syncope/collapse(CHF,severe Brady/Tachy)
- Anesthesia(OHE,GDV,Spleenectomy)
- Poisoning(Chocolate, Ethylene Glycol)
- CPR
- Arrhythmia(SVT,AF, VT)
- Injectables (Sodium,Potassium and CA+)



What it won't do

- Won't tell you about the mechanical status of the heart
- It cannot specify anatomic pathology of valves, arteries, endocardium or pericardium



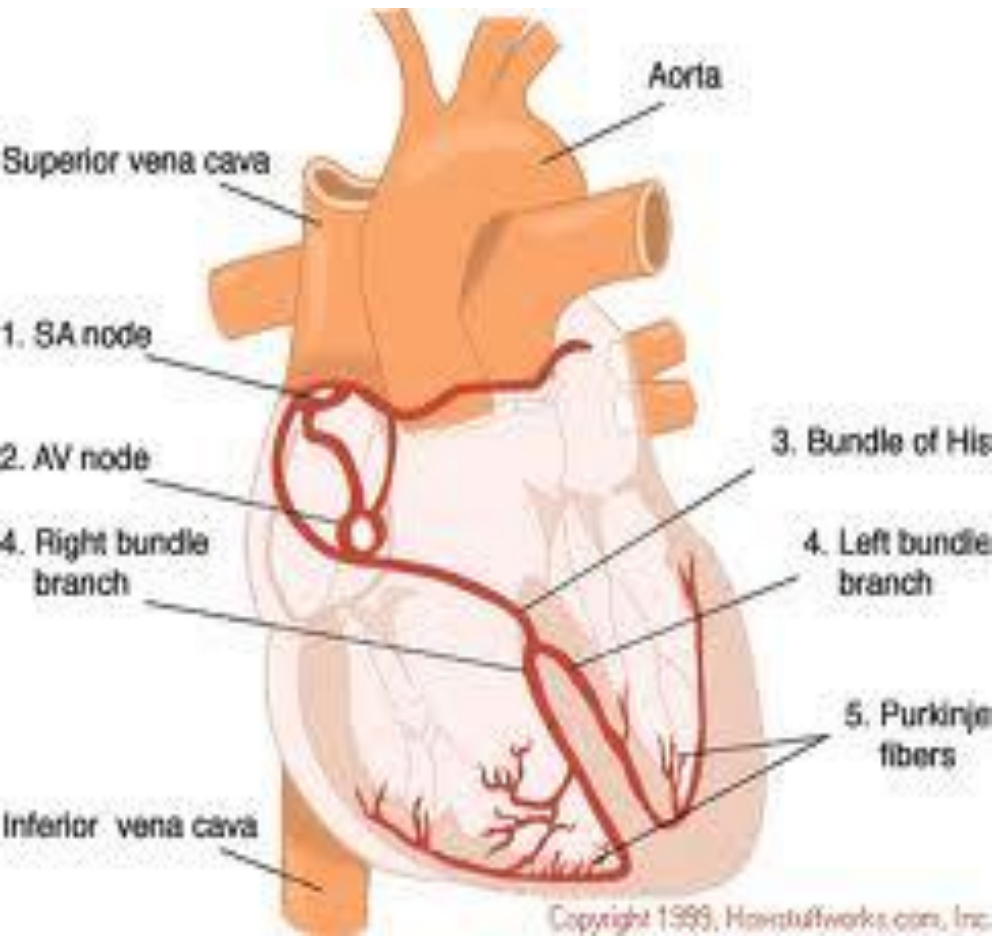
How does the heart work

- Blood enters the heart through the veins → right atrium and travels through the tricuspid valve -> right ventricle , Blood pumped from the right ventricle → the lungs where it picks up oxygen -> left atrium then through the mitral valve -> left ventricle then into the aorta then the rest of the body



Its electric

- Sino- Atrial (SA) Node
- Atrial- Ventricular Node
- Bundle of His
- Bundle Branches
- Purkinje Fibers



Positioning



LEADS

- **Should never touch table or patient**

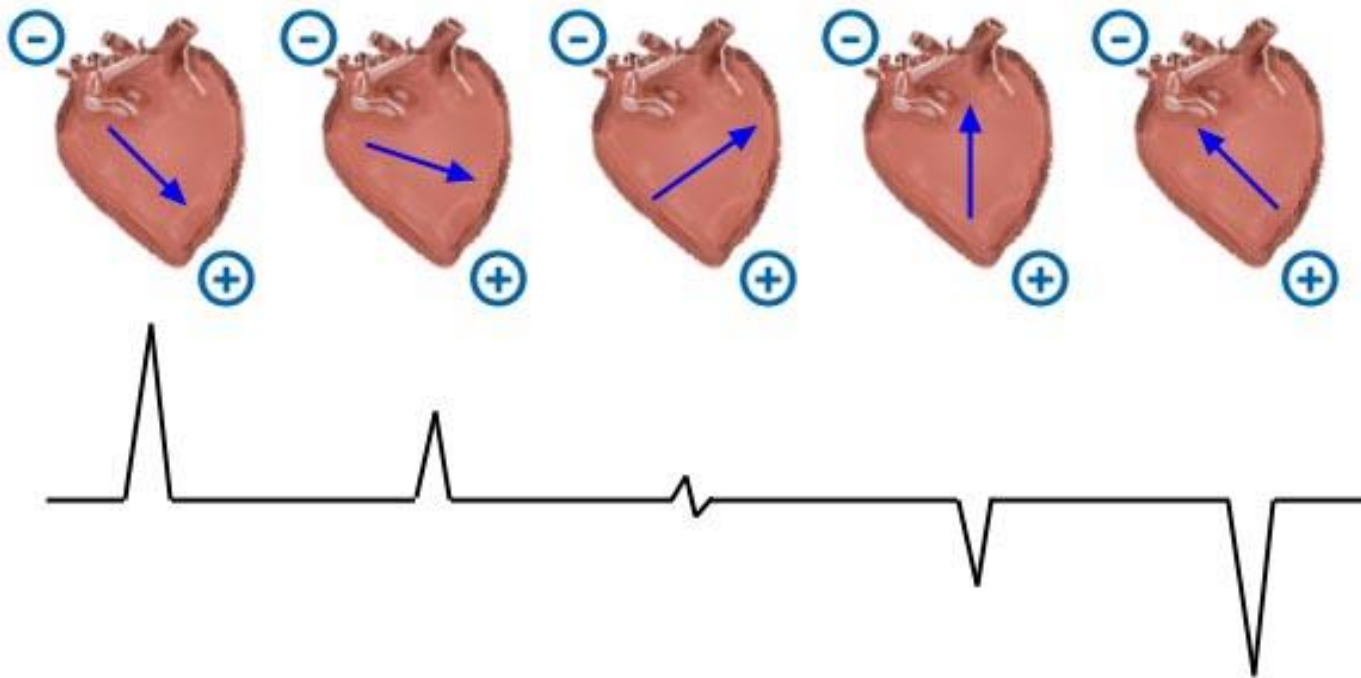
*** *Alligator Clips***

*** *Adhesive pads***

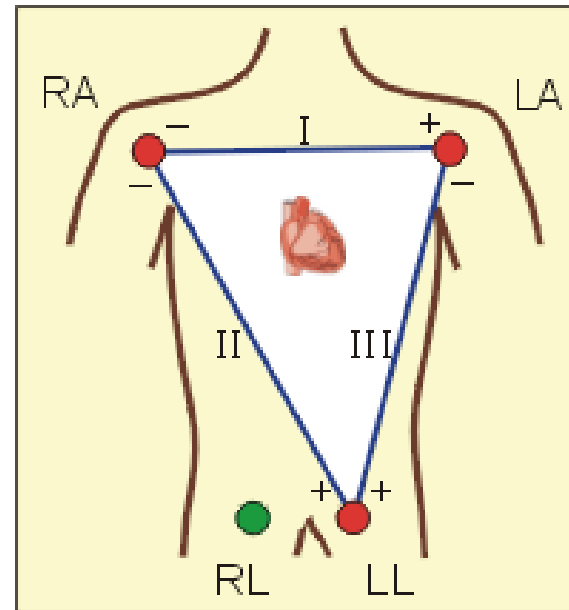
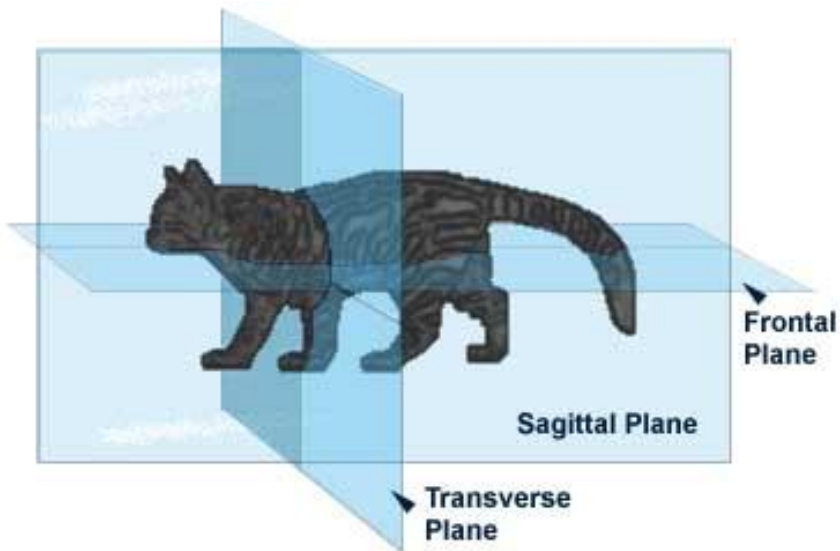
*** *Wires***



Leads ...



Planes and Triangles



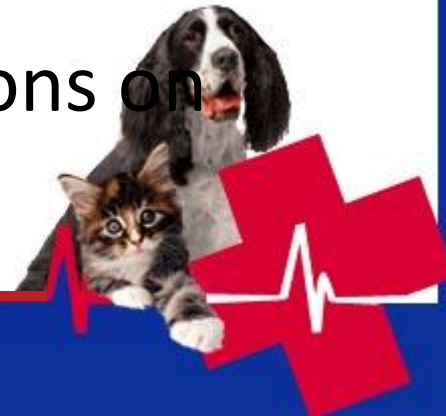
Gel Vs Alcohol

- Skin is not a good electrical conductor and will cause artifact on the ECG reading, alcohol and gel are commonly used.
- During CPR, it is not advised to use alcohol on the leads when a defibrillator is used on the animal. This is a fire hazard.
- Gel is water based, conductive and lasts longer than alcohol. It is also not offensive to the animal's sense of smell.

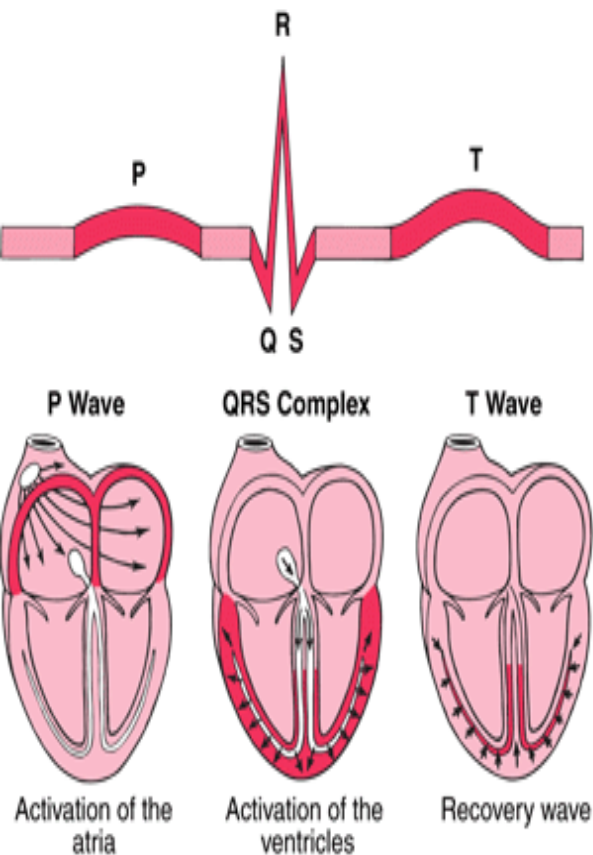


Troubleshoot

- Check placement and integrity of the clips
- Patient motion
- Interference by other machinery (i.e. cautery)
- Good contact
- Poor pulse quality or cardiac output, low blood volume
- Move electrodes to peripheral locations on body



Rhythm



- Normal tracing has a P wave, QRS complex and T wave. This tracing corresponds to the atrial depolarization (P wave) ventricular depolarization (QRS complex) and ventricular repolarization (T wave)



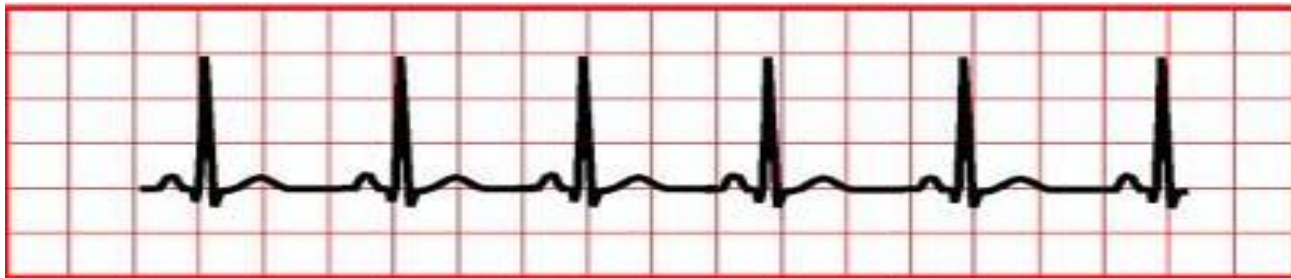
Interpretation in 3 easy steps

- I. Is it fast, slow or normal
- II. Are there P waves for every QRS.
- III. QRS pattern



ECG strips

- The strip should be labeled with patient information, date/time of tracing .
- The ecg strips should be 1 minute's worth of tracing at both 50mm/sec and 25 mm/ sec



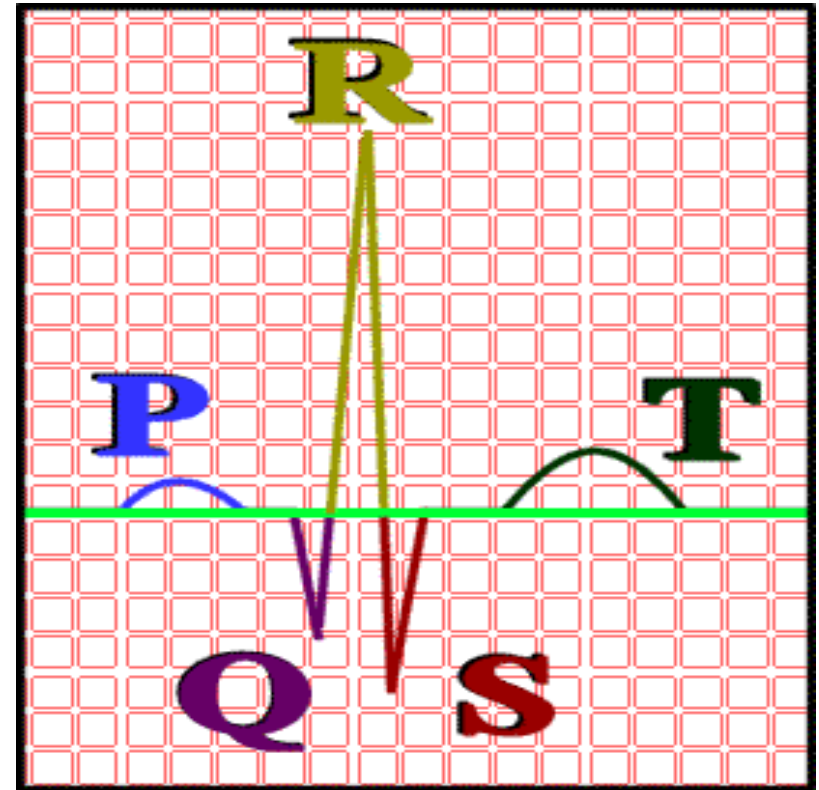
Calculate

- 2 methods used
- Pen method
- Instantaneous method
- Pen Method is good for quick and practical
- Instantaneous method used for arrhythmias and measurements.

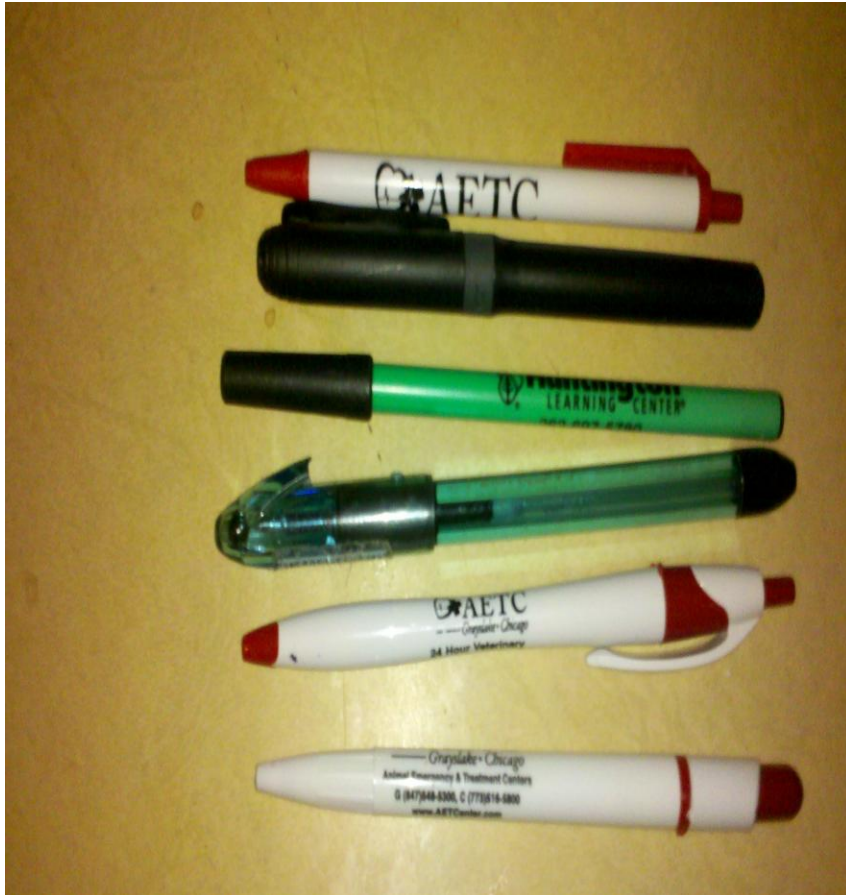


Instantaneous method

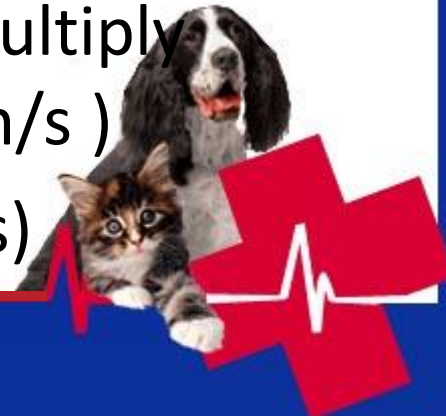
- Measure the number of small boxes in between the 2 R waves
- 25mm/s : 1500/# small boxes= HR
- 50 mm/s: 3000/# small boxes = HR



Pen method



- Length of pen is 150mm long
- With cap exactly 6seconds (25mm/s speed) & 3 seconds (50mm/s speed)
- Count complexes/pen length and multiply by 10 (25mm/s) or 20 (50 mm/s)



Stress and ECG



- Stress is adrenaline (epinephrine) and norepinephrine release (sympathetic stimulation)
- Increase BP, HR, inotropy (pump), preload (blood going through)

Myocardial irritated.

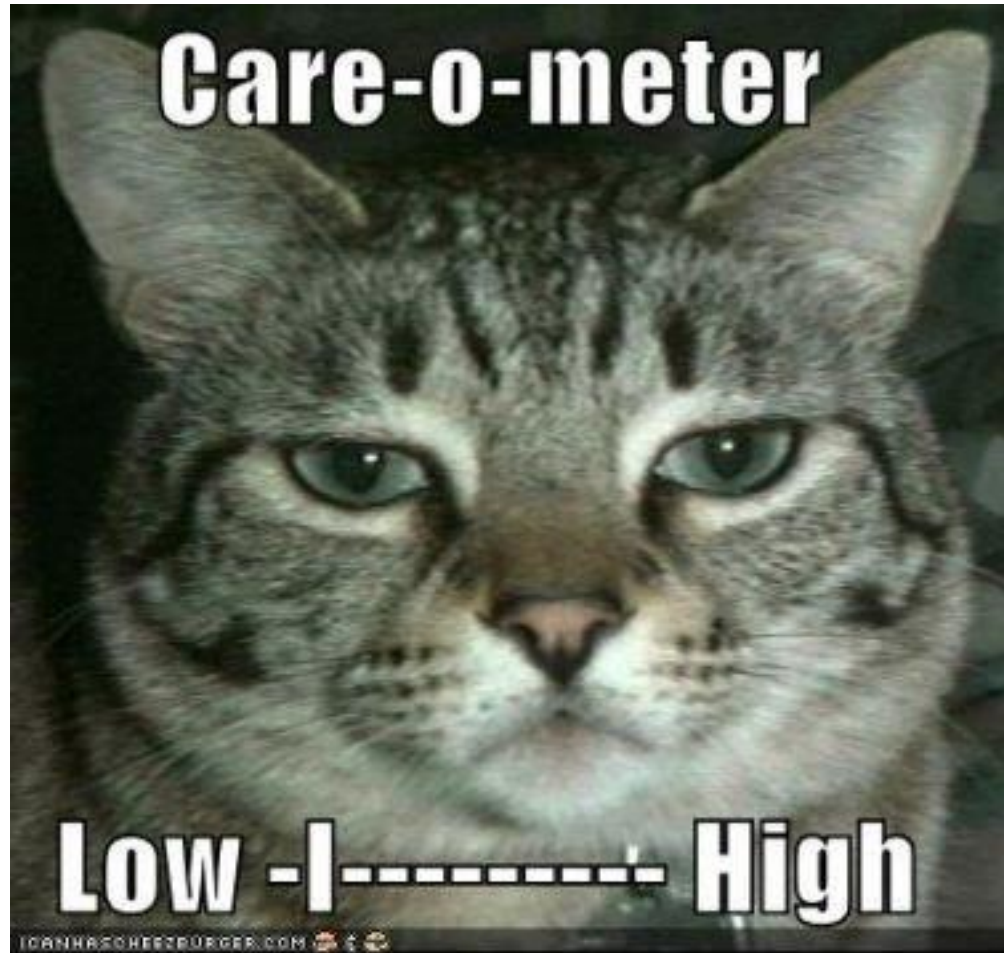


Stress ..

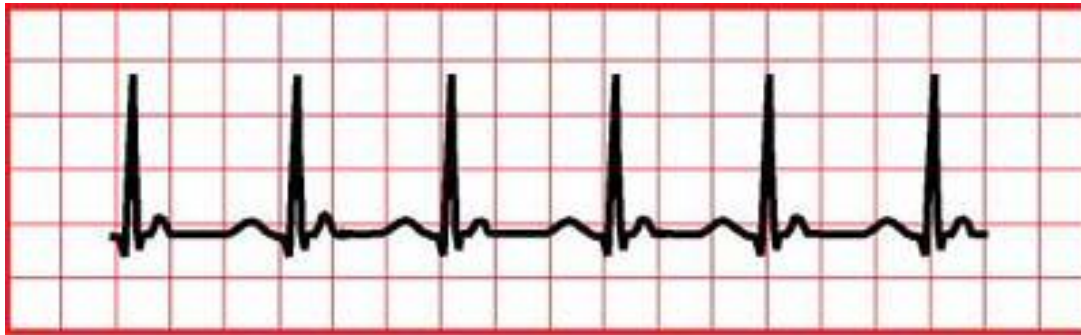
- Increase O₂ usage because the hearts now pumping harder and faster.
- If in CHF already diminished myocardial oxygen plus increasing workload and needing more O₂ while irritating the heart
- IS it worth it...



We okay so far... Now to
complexes

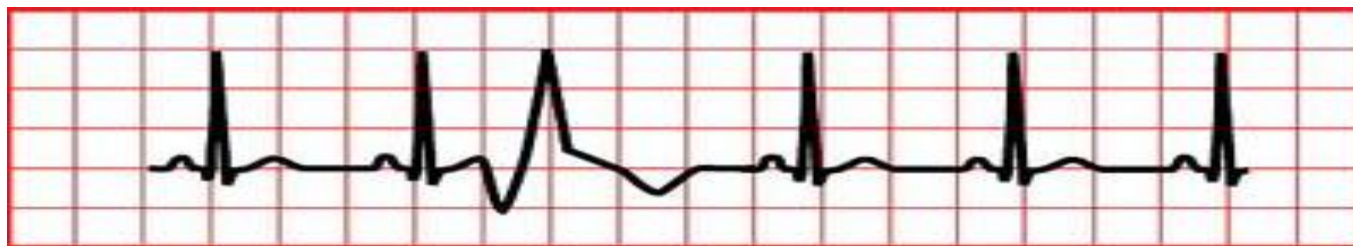




















QUESTIONS!!!!!!!!!!!!





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