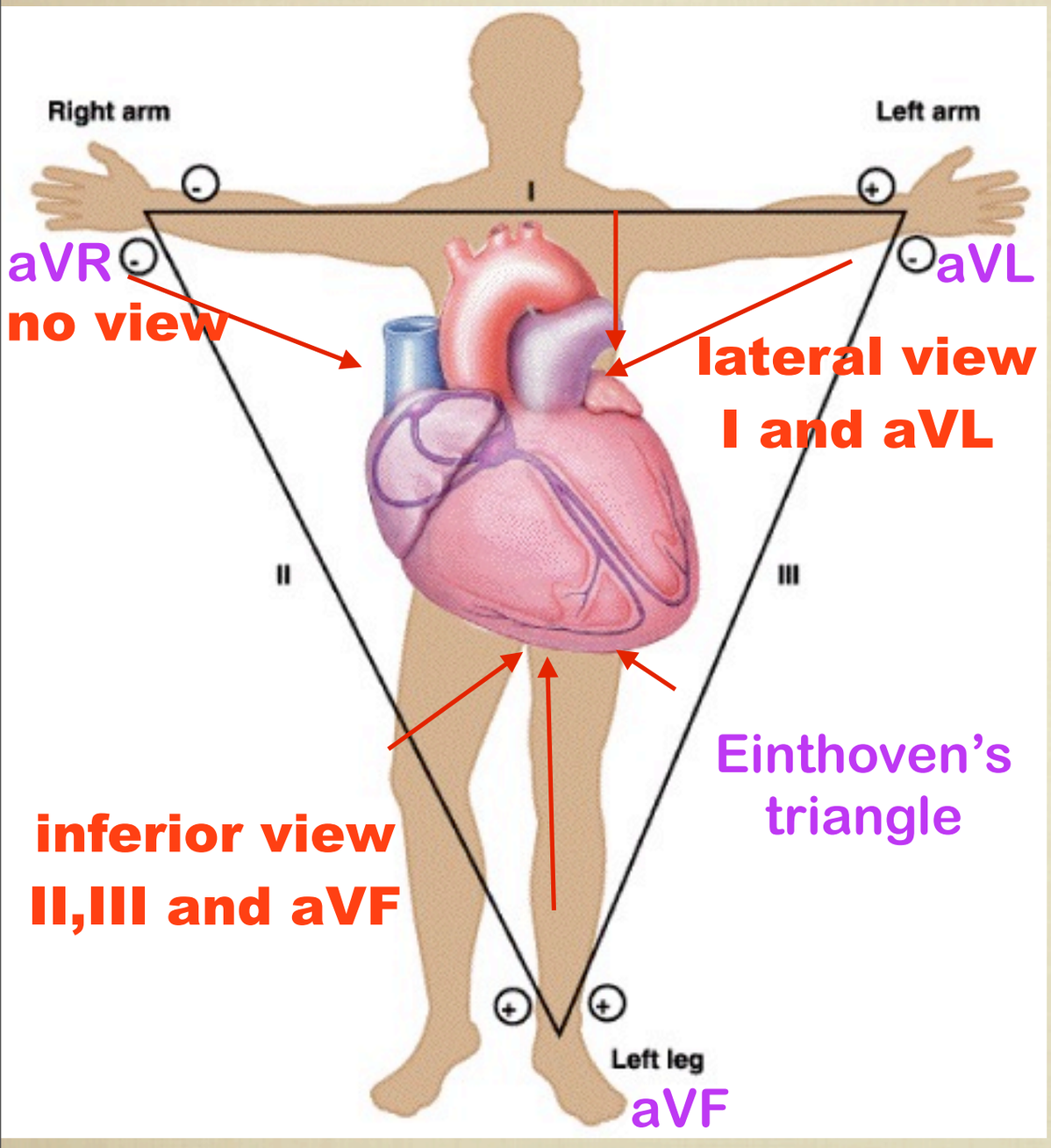
12 Leads EKG: 6 Limb Leads

Ask Mish



LEADS (12) 6 limb + 6 chest	12 views of different anatomic parts of the heart obtained from 9 detectors (electrodes)
LIMB LEADS (6) red arrows	6 views of different anatomic part of the heart from 3 limb electrodes; possible by adding lead I, II, and III obtained by 3 imaginary lines through electrodes (Einthoven's triangle)
LEAD I bipolar	machine combines information from 2 poles: L and R arms
LEAD II bipolar	machine combines information from 2 poles:R arm and L leg
LEAD III bipolar	machine combines information from 2 poles: L arm and L leg
LEAD aVL unipolar	aV =augmented voltage; voltage coming only from one arm (L in this case) needs to be boosted cos it's far from heart
LEAD aVR unipolar	information comes from the R arm
LEAD aVF unipolar	information comes from the L leg

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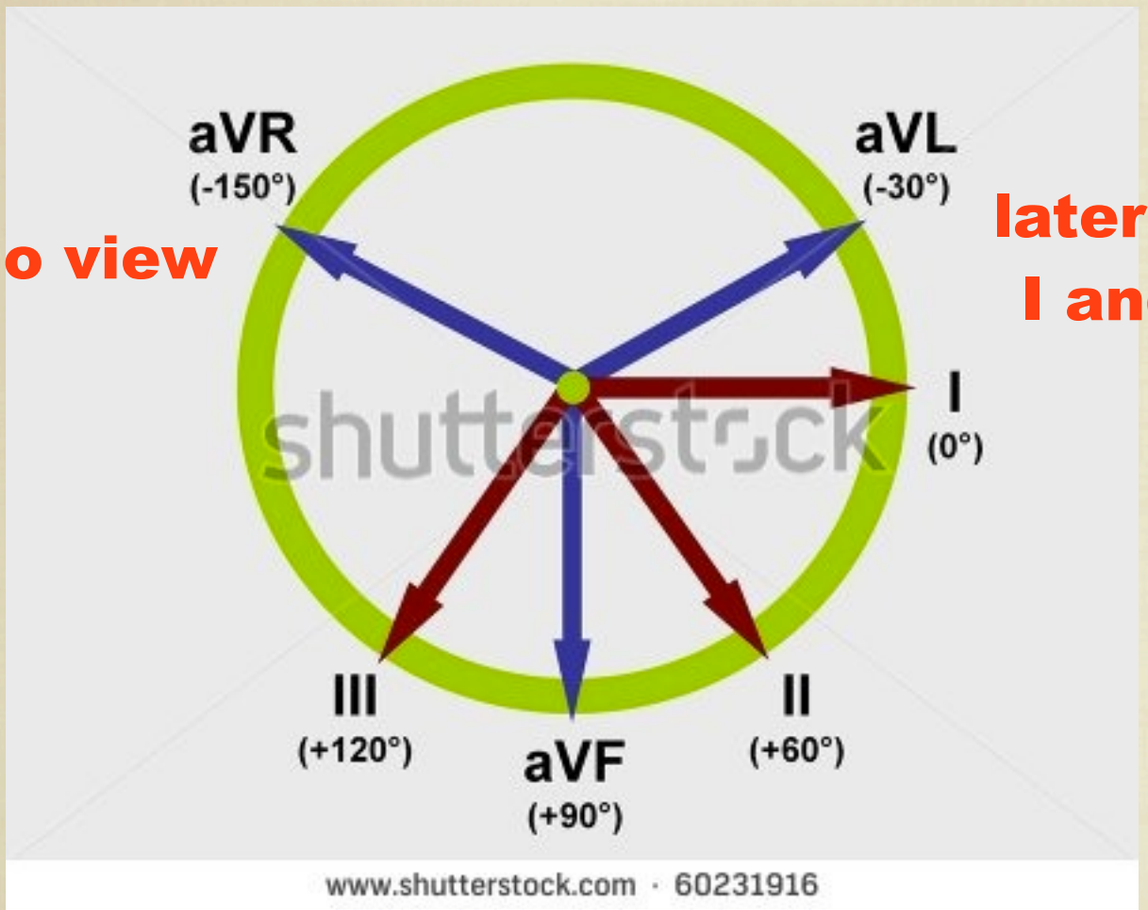


no view

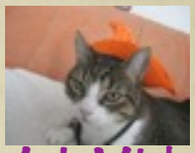
lateral view
I and aVL

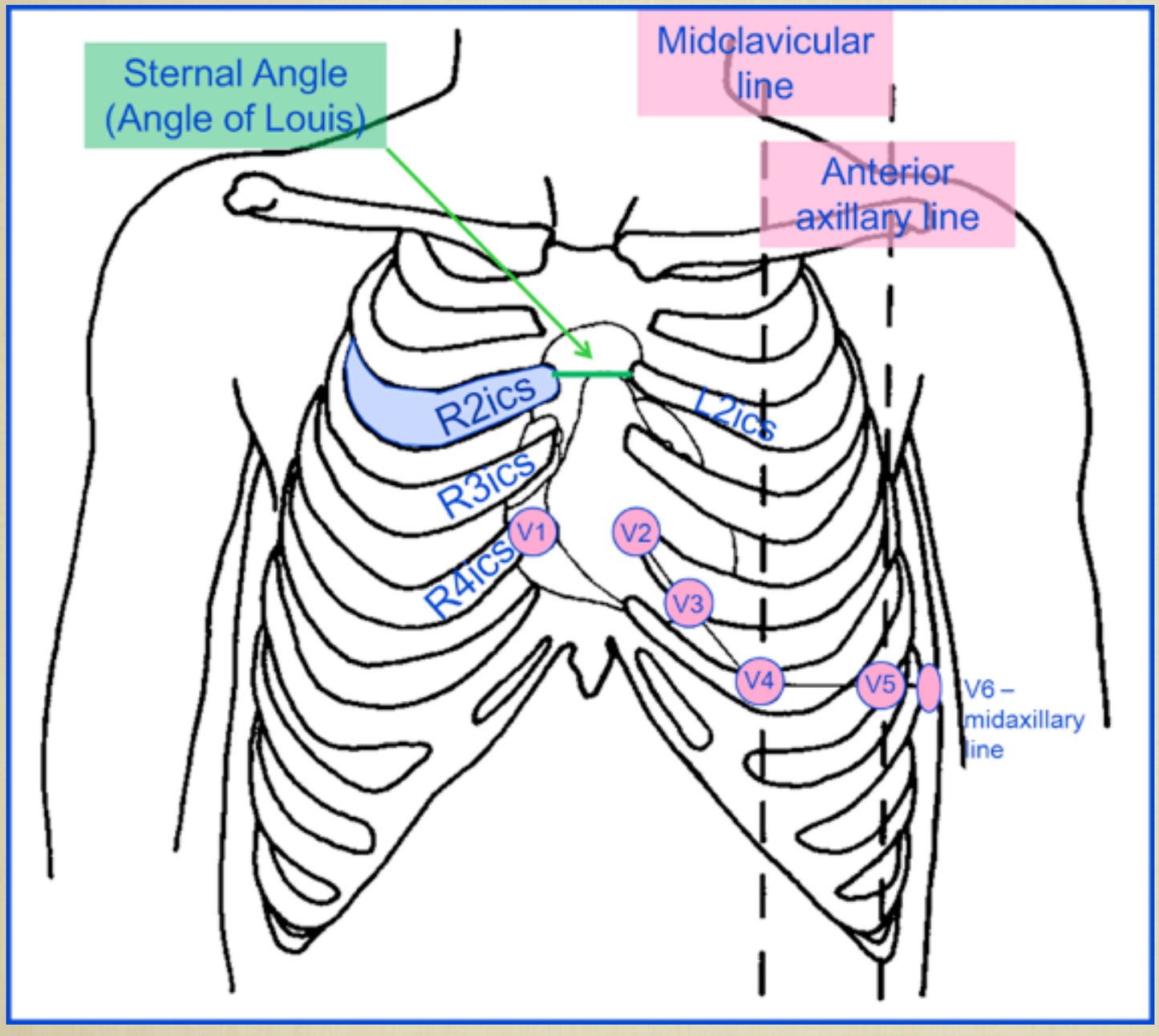
inferior view
II,III and aVF

- Moving the limb leads to a center we obtain the angles btw frontal heart views

- By convention, + is the direction of AP propagation(up to down) in the heart; negative is the opposite

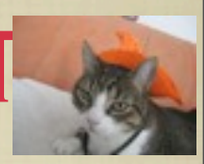
12 Leads EKG: 6 Chest Leads





- Position of chest (precordial) leads:
- V1 and V2 on R and L sternal border at level of the 4th rib
- V4, V5 and V6 on the level of the 5th rib as follows
- V4 : midclavicular line
- V6 : midaxillary line
- V5 : midway V4-V6 or anterior axillary line
- V3 : midway V2 - V4

12 Leads EKG: Views of Heart



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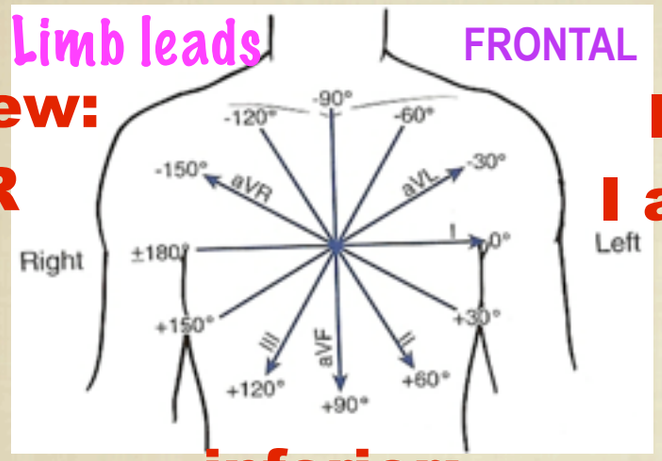
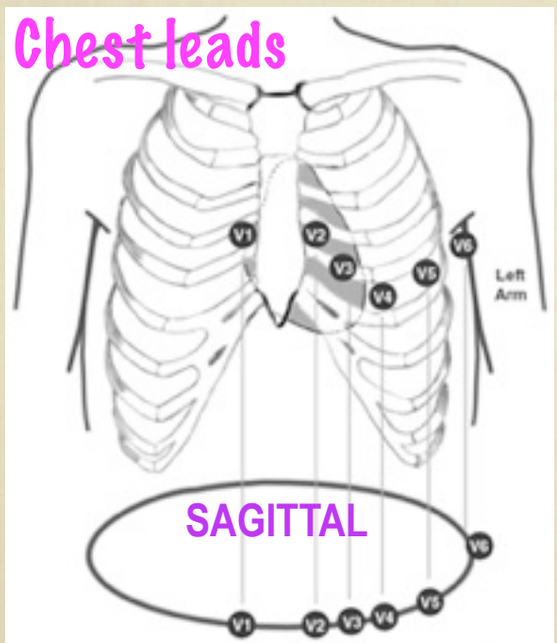


no view: aVR

lateral: I and aVL

inferior: II,III and aVF



lateral: V_5, V_6

anterior: V_3, V_4

septal: V_1, V_2

Leads: name, view and standard color

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral