Monitoring

Leads allow us to view the electrical activity in 2 planes:
- -frontal (coronal)
- -horizontal (transverse)

Three types of leads:
- -standard limb leads
- -augmented leads
- -precordial (chest) leads

If the wave of depolarization moves toward the positive electrode, the waveform will be positive (upright).

If away from negative electrode, the waveform will be negative (inverted).

Frontal Plane Leads:
- -3 bipolar leads
  - -2 electrodes of opposite polarity
  - -represent the difference in electrical potential
  - -Leads I, II, III
- -3 unipolar leads
  - -single positive electrode and a reference point
  - -also called augmented limb leads
  - -reference point is in the center of the heart's electrical field
  - -measures the potential between a positive electrode and a central terminal or reference point
  - -aVL, aVR, aVF
  - -"a" augmented
  - -"V" voltage
  - -"R" right arm, "L" left arm, "F" left foot (leg)

Horizontal Plane Leads:
- -6 precordial leads view the heart in a horizontal plane
- -V_1, V_2, V_3, V_4, V_5, V_6

Standard Limb Leads:
- -Leads I, II, III
- -one electrode placed on R arm, L arm, and L leg = 3 leads formed
- -imaginary line join the positive and negative electrodes = axis of the lead
- -axes of these leads form a triangle w/heart at center (Einthoven's Triangle)
- -sum of any complex in leads I and III equals that of Lead II

Lead I
- -records difference in electrical potential between L arm (+) and R arm (-)
- -third electrode is a ground and is used to reduce or eliminate interference
- -ground on L leg

Lead II
- -difference in potential between L leg (+) and R arm (-)
- -ground on L arm

Lead III
- -difference between L leg (+) and L arm (-)
- -ground on R arm

Modified Chest Leads

-bipolar precordial leads that are variations of unipolar leads

MCL_1

-variation of V_1

-views ventricular septum

MCL_6

-variation of V_6

-low lateral wall of L ventricle

Artifact

-Causes

-tremors

-movement

-AC or 60-cycle interference

-loose electrodes

-chest compressions