

ECG Interpretation

1) RHYTHM:

regular, regularly irregular, irregularly irregular

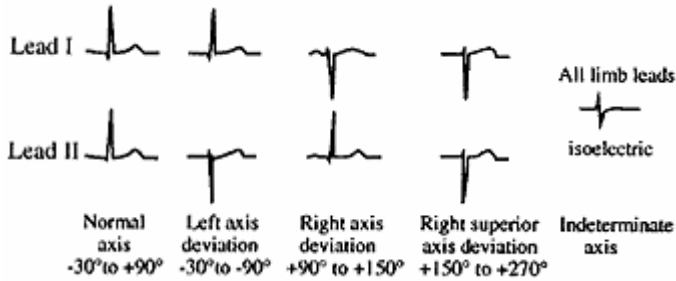
2) RATE:

tachy or brady

4) CARDIAC AXIS DEVIATION:

S greater than R in lead I = **RIGHT AXIS**

S greater than R in lead II = **LEFT AXIS**



3) P wave =atria depolarising

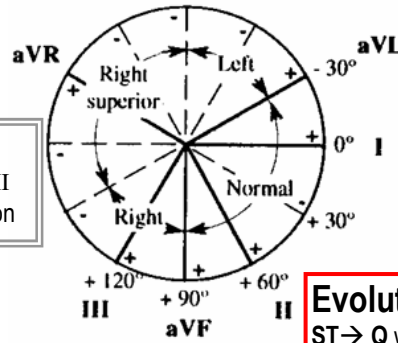
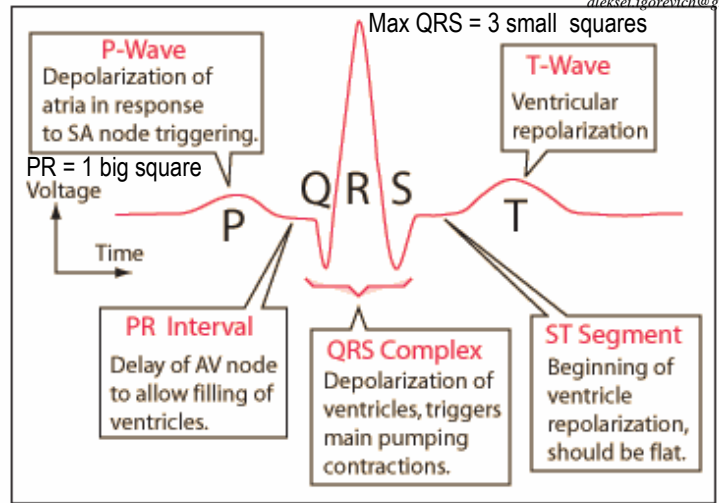
should be 1 P for every QRS:

How many Ps per QRS?

How long is the PQ interval?

- irregular P with irregular rhythm QRS = **AF**
- absent P with wide QRS = **Ventricular Tachy**
- absent P with narrow QRS = **Junctional Tachy**
- continuous undulating sawtooth baseline P = **Atrial Flutter**
- continuous with 2P per 1 QRS = **Atrial Tachy with block**
- bifid Long P waves = **LA enlargement**
- peaked tall P waves = **RA enlargement**
- normal rate, 2Ps per QRS = **second degree block**
- Progressive PQ lengthening = **second degree block**
- Long PQ interval = **first degree block**
- Ps don't match to QRS, very brady = **complete block**
- No P wave but a solitary QRS = **ventricular extrasystole**

QRS in lead I is smaller and in lead II is bigger on inspiration



Lead II looks from the **NORMAL DIRECTION**
II, III, aVF → inf. view
V1, V2 = Rt Heart
V3, V4 = Septum
V5, V6 = Lt Heart

Evolution of an infarct:
ST → Q wave 12hrs later → T inversion

4) Q wave =septum depolarising or hole in conduction pattern

HOW BIG? Normal unless large,

Big Q wave = **Infarct in the direction of THAT LEAD**

5) QRS =ventricles depolarising;

HOW BIG? Normal under 25mm,

HOW WIDE? Hyperkalemia, BBB

DEFORMED QRS?

- Huge tall QRS = **LV hypertrophy**
- Weak little QRS = **old infarcted muscle**
- RSR pattern ("M") in V1 = **Right Bundle Branch Block**
- SRS pattern ("W") in V1 = **Left Bundle Branch Block**
- A "Delta" wave (gently up-sloping R) = **Wolff-Parkinson-White Syndrome**

The higher the Ca++
The shorter the QT

P is the HEART BLOCK WAVE
P is also the ENLARGED ATRIUM WAVE
Q is the INFARCT WAVE
QRS is the CARDIAC AXIS COMPASS
ST is the ISCHAEMIA SEGMENT
T is the HYPERKALEMIA WAVE
U wave is the HYPOKALEMIA WAVE
Long P = LAH; RSR = RBBB;
ST Depression = Demand ischaemia

6) ST SEGMENT:

DEPRESSED OR ELEVATED? Biggest ST points to the lesion

Depressed = **demand ischaemia**, elevated = **supply ischaemia**

Down-sloping ST = **Digoxin therapy**

CONCAVE ST elevation in all leads, with elevated PR in aVR → **pericarditis**

7) T wave =ventricles repolarising

TALL? INVERTED?? WITH "U" WAVE???

inverted = **infarct in last 24 - 48 hrs; without Q waves = Subendocardial infarct**

continuously painlessly inverted = **LV hypertrophy**

with U wave = **HYPOKALEMIA**

Tall T waves, Wide QRS, no ST segment = **HYPERKALEMIA**

9) U wave

just a little bump on the end of the T wave = **HYPOKALEMIA** →

