To get credits from Bi3030cen, you will need:

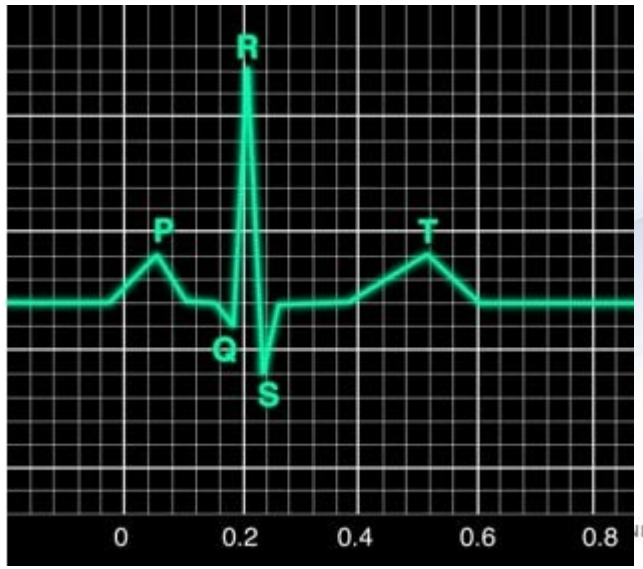
Attendance
Attention, Cooperation, comunication
Written test (about 3 basic questions)
Evaluation and discussion of data (One file from all topics sent to Homework Voults in IS)

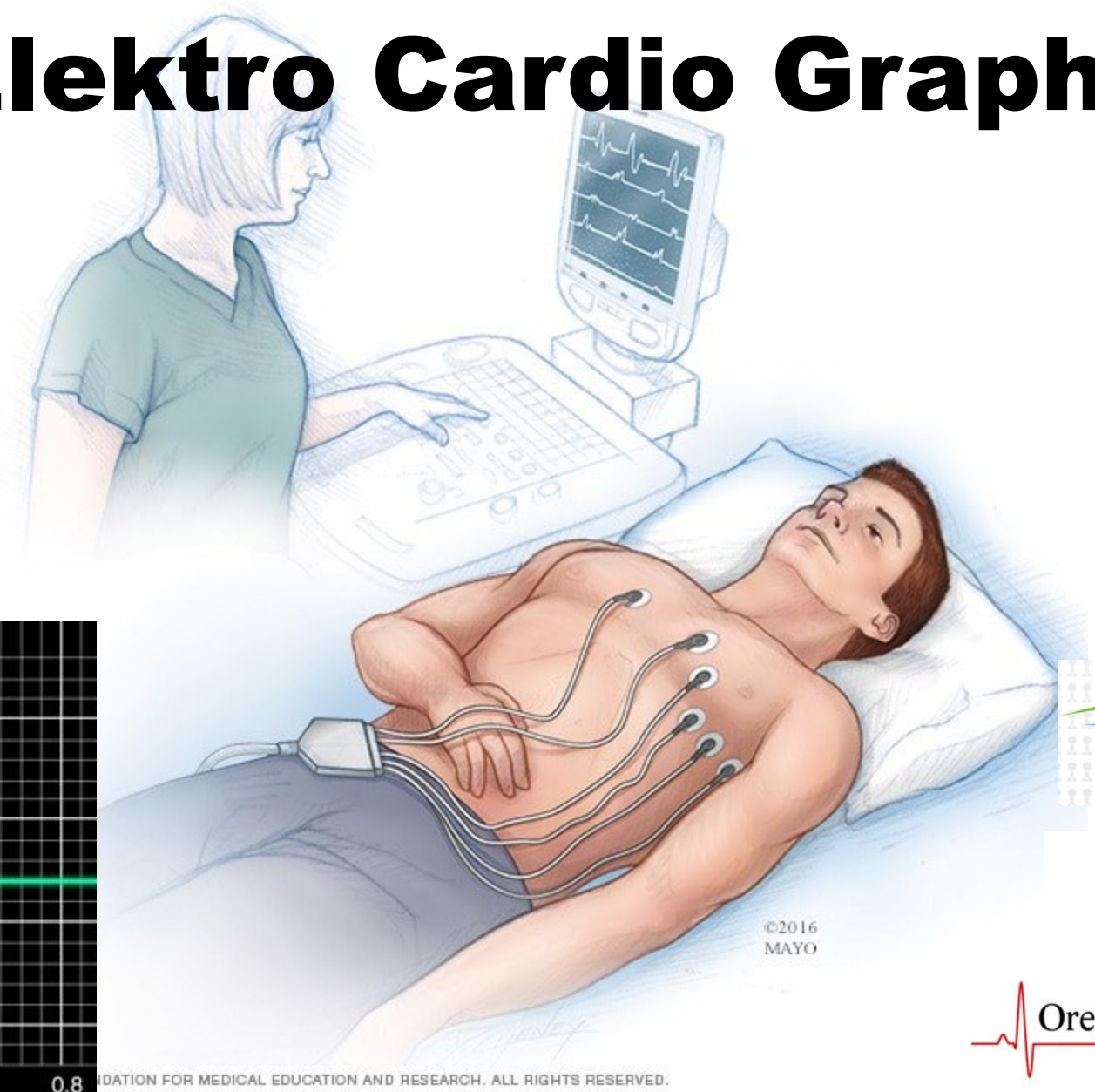
Animal Physiology - practical course Bi3030cen

Thursday, 4th January, 2024
8:30 - 12:00 Vácha - electrocardiography (ECG), blood pressure and plethysmography. Medalová - Blood groups
13:00 - 17:00 Medalová - glycaemia, blood cells,

Friday, 5th January,
8:30 - 12:00 Hyršl - Muscles, total proteins, Tomanová - sensory system,
13:00 - 17:00 Tomanová - reflexes, Dobeš - metabolism and pulmonary ventilation

Elektro Cardio Graphy

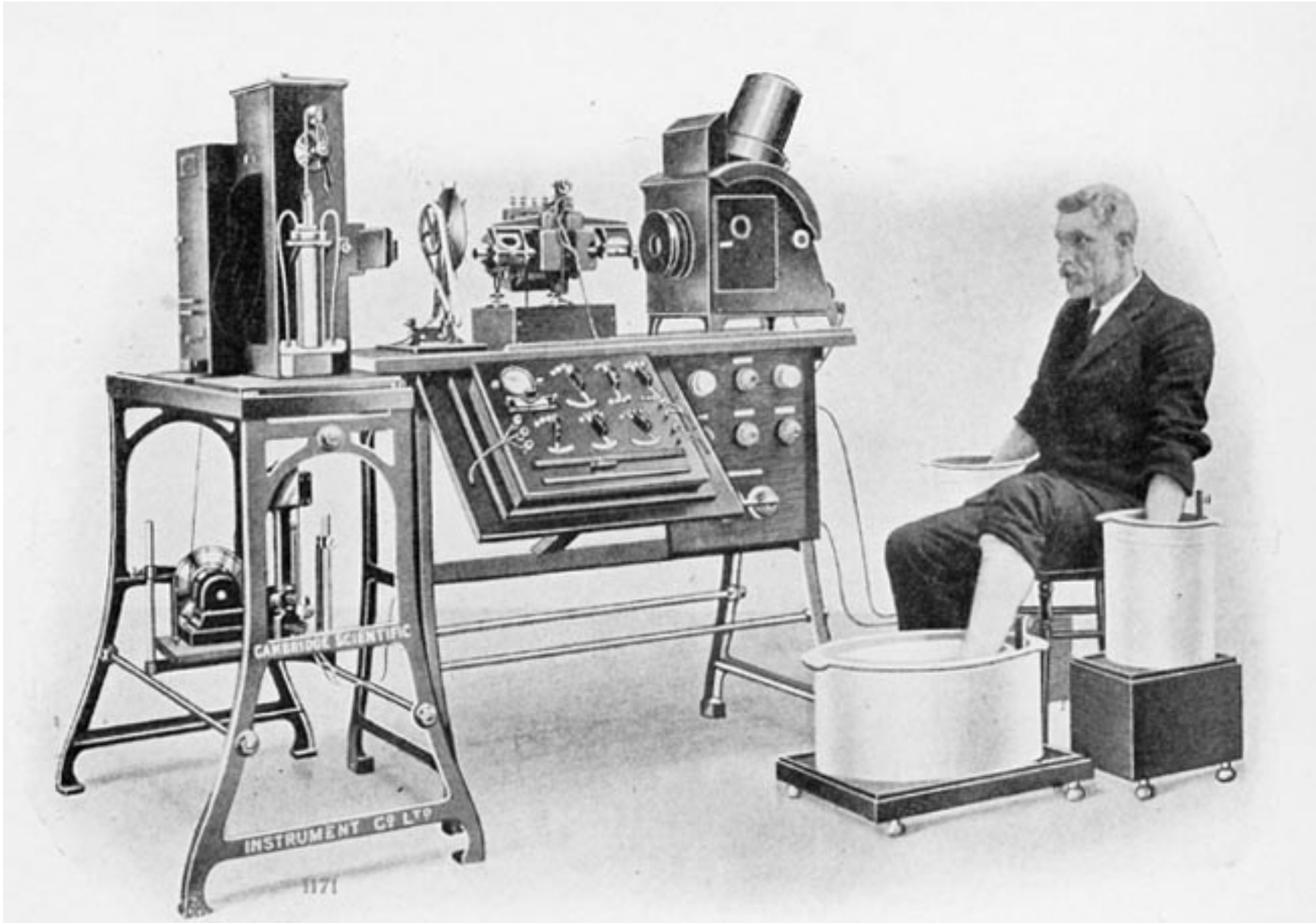




medequip restore

Heart Watch 24/7

OregonMedicalTraining, Inc.
Private Career School



PHOTOGRAPH OF A COMPLETE ELECTROCARDIOGRAPH, SHOWING THE MANNER IN WHICH THE ELECTRODES ARE ATTACHED TO THE PATIENT, IN THIS CASE THE HANDS AND ONE FOOT BEING IMMERSED IN JARS OF SALT SOLUTION


User
custo med GmbH
10.06.2013
14:52
Patient
Doe John
15.04.1982 (31 Y.)
Examination
Resting ECG
Evaluation of 10.06.2013 14:50
HR 75
Channel
12 Channel
mm/mV
10
mm/s
50
Mouse
Analysis
Main filter
00 23
00 24
00 25
00 26
I
II
III
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6
1121
799
801
799
799
mm/mV
30
mm/s
100
V1
V2
V3
I - III
aVR-aVF
V1-V3
V4-V6
Comparison
Measurement
ECG Overview
Options
Print
End

Heart Anatomy

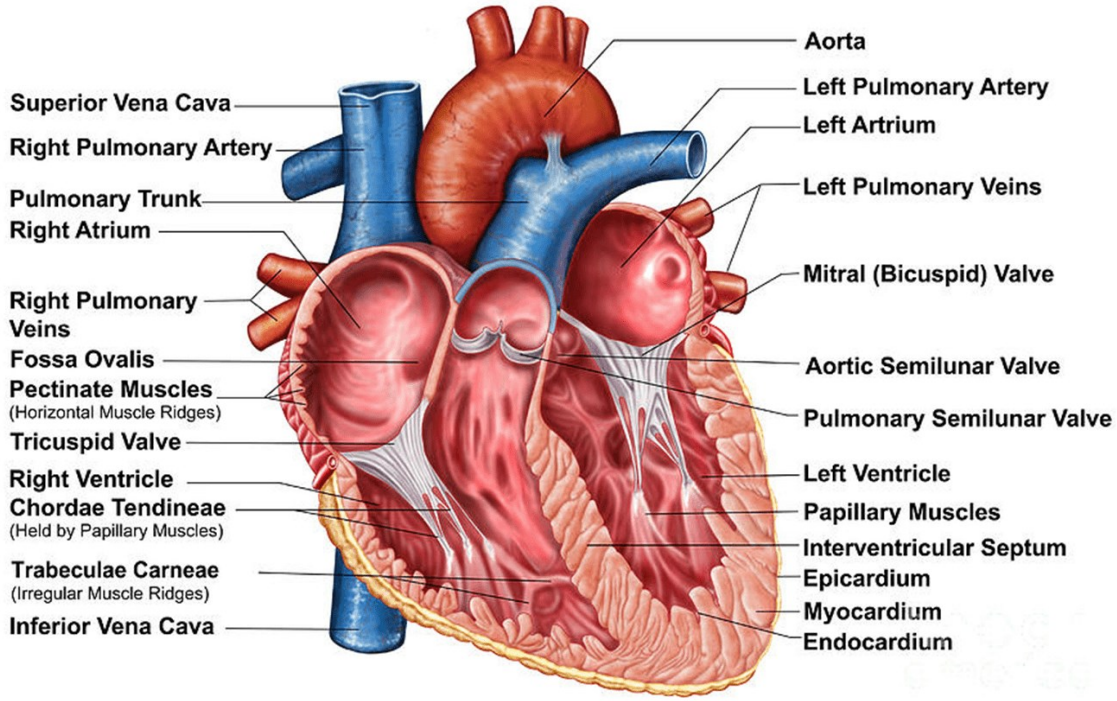
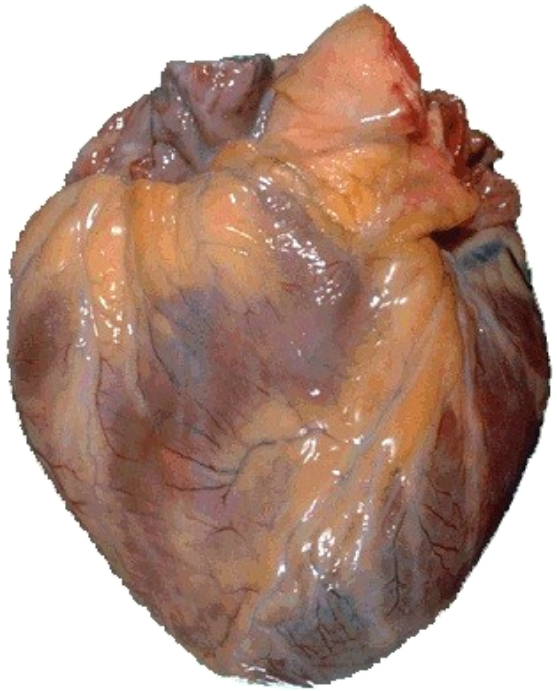
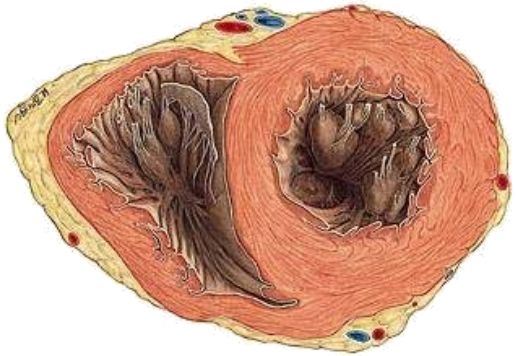
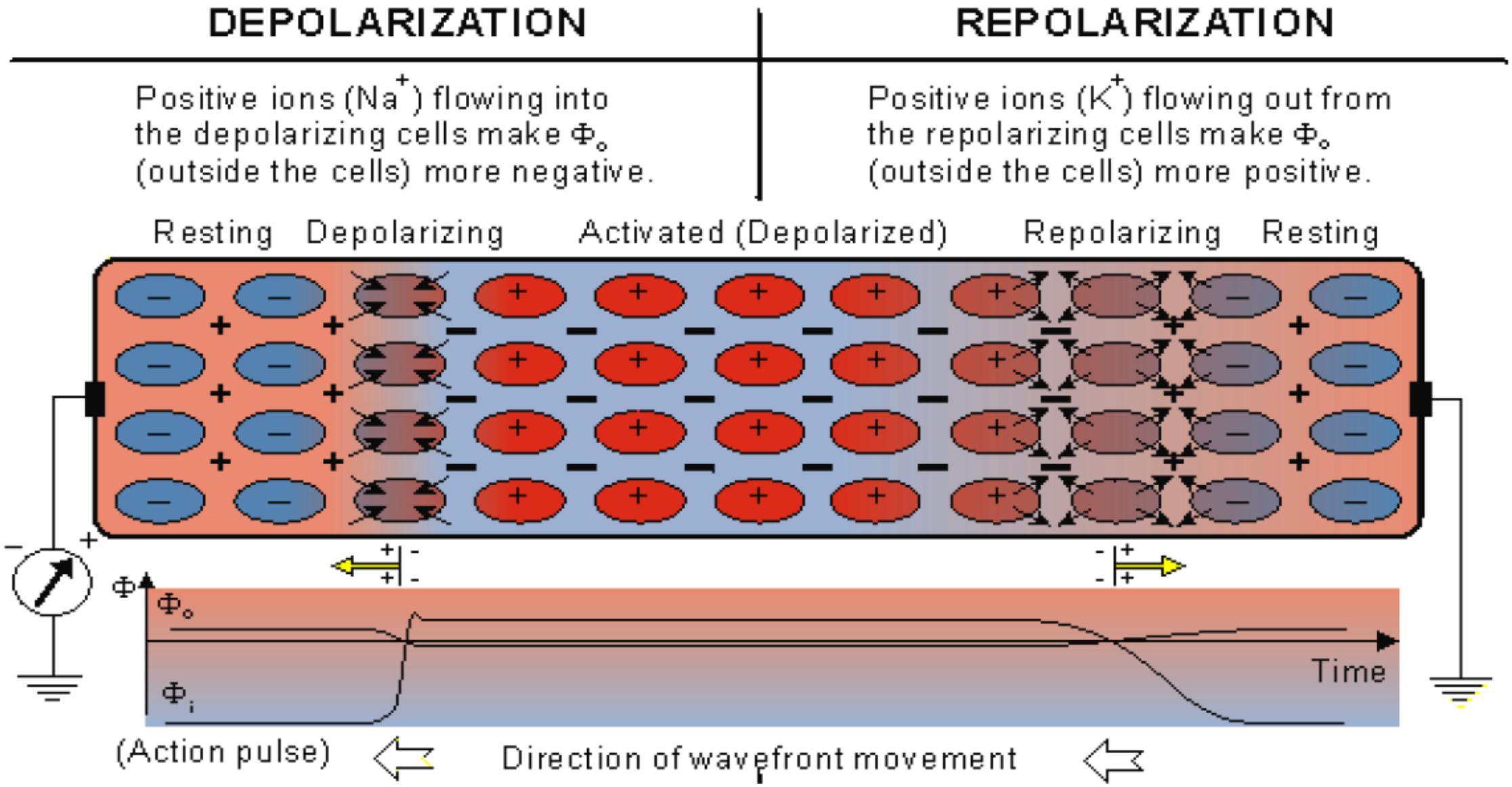


image via: wikipedia.com

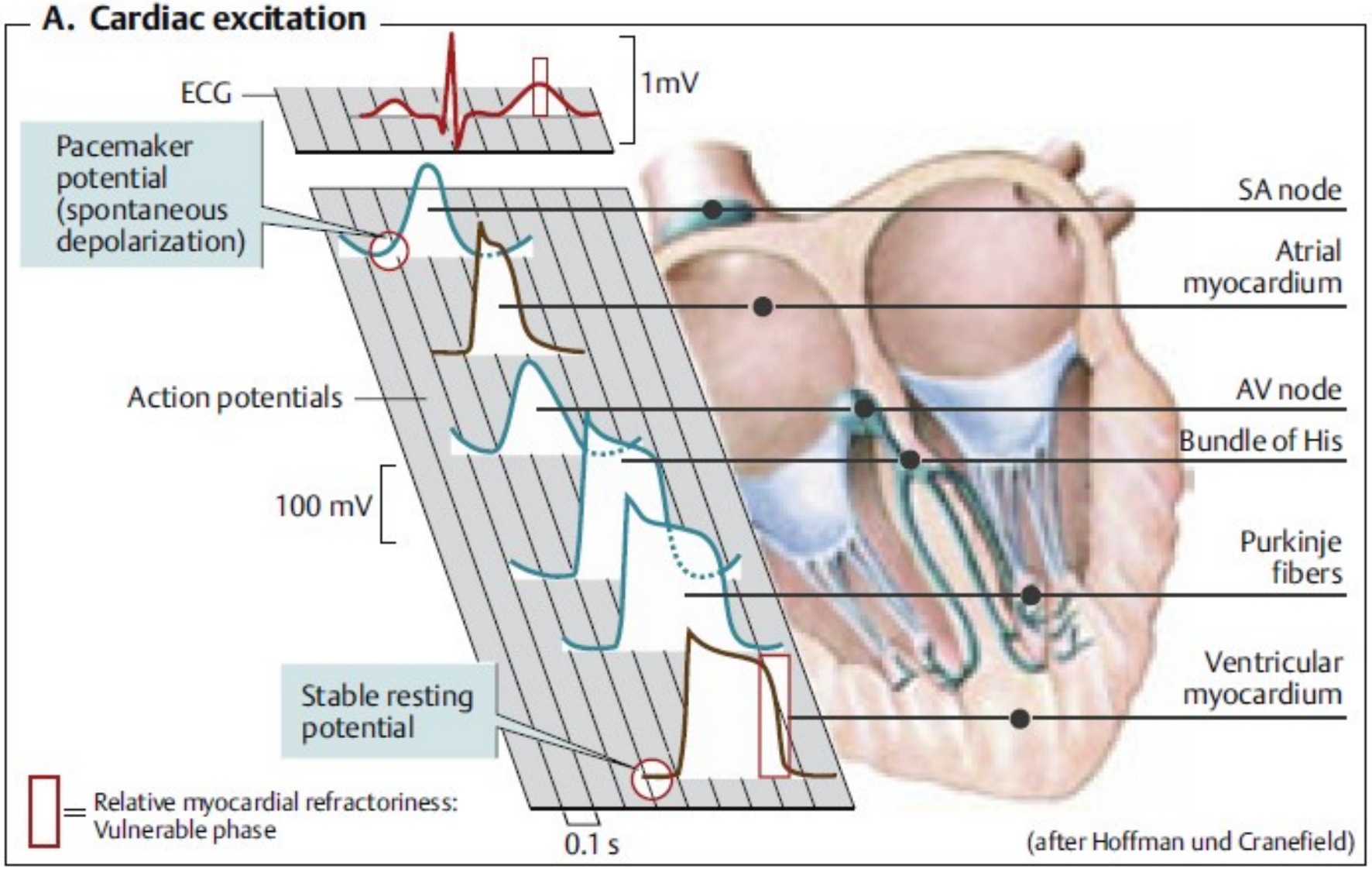




How voltage is generated?

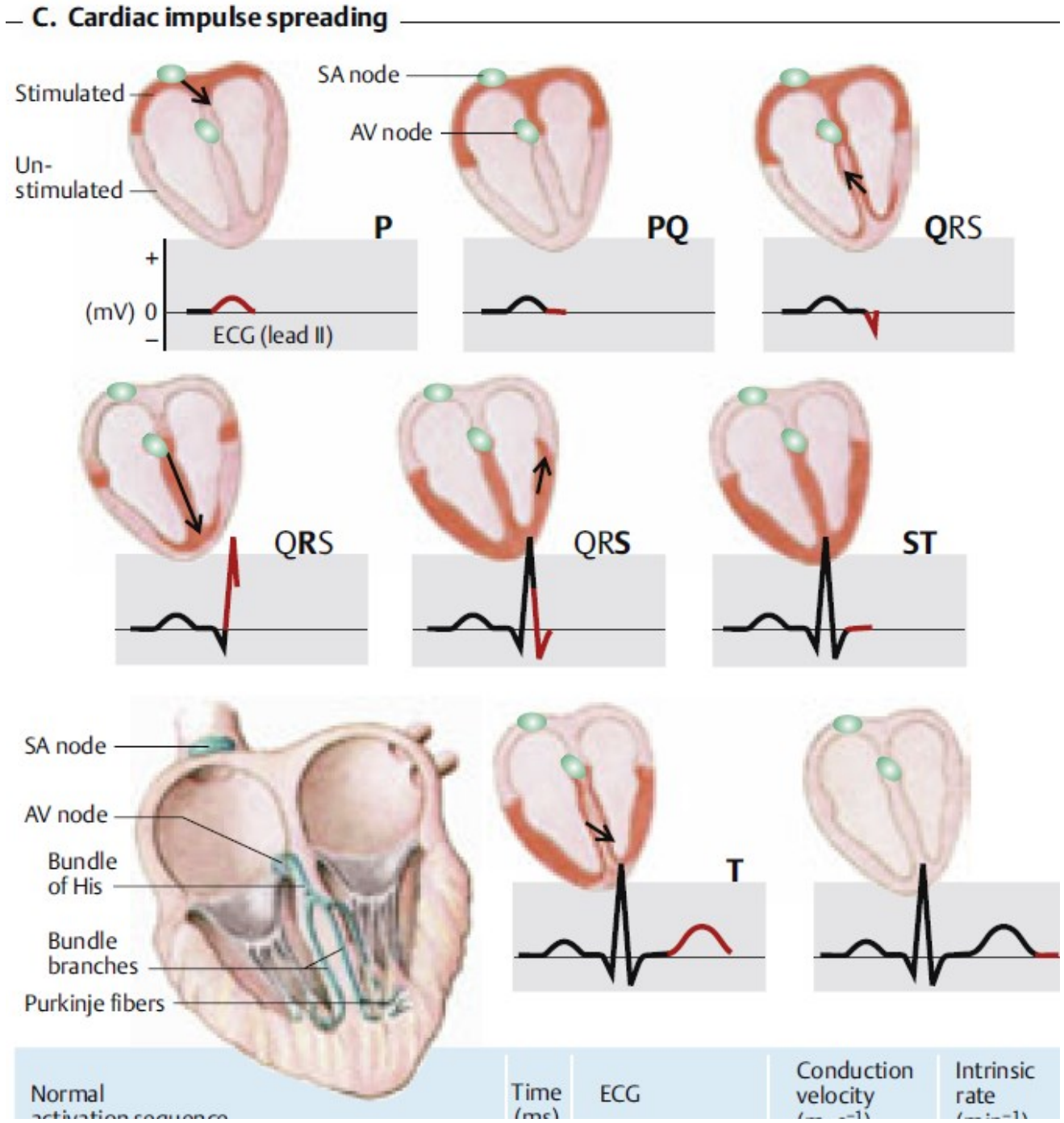


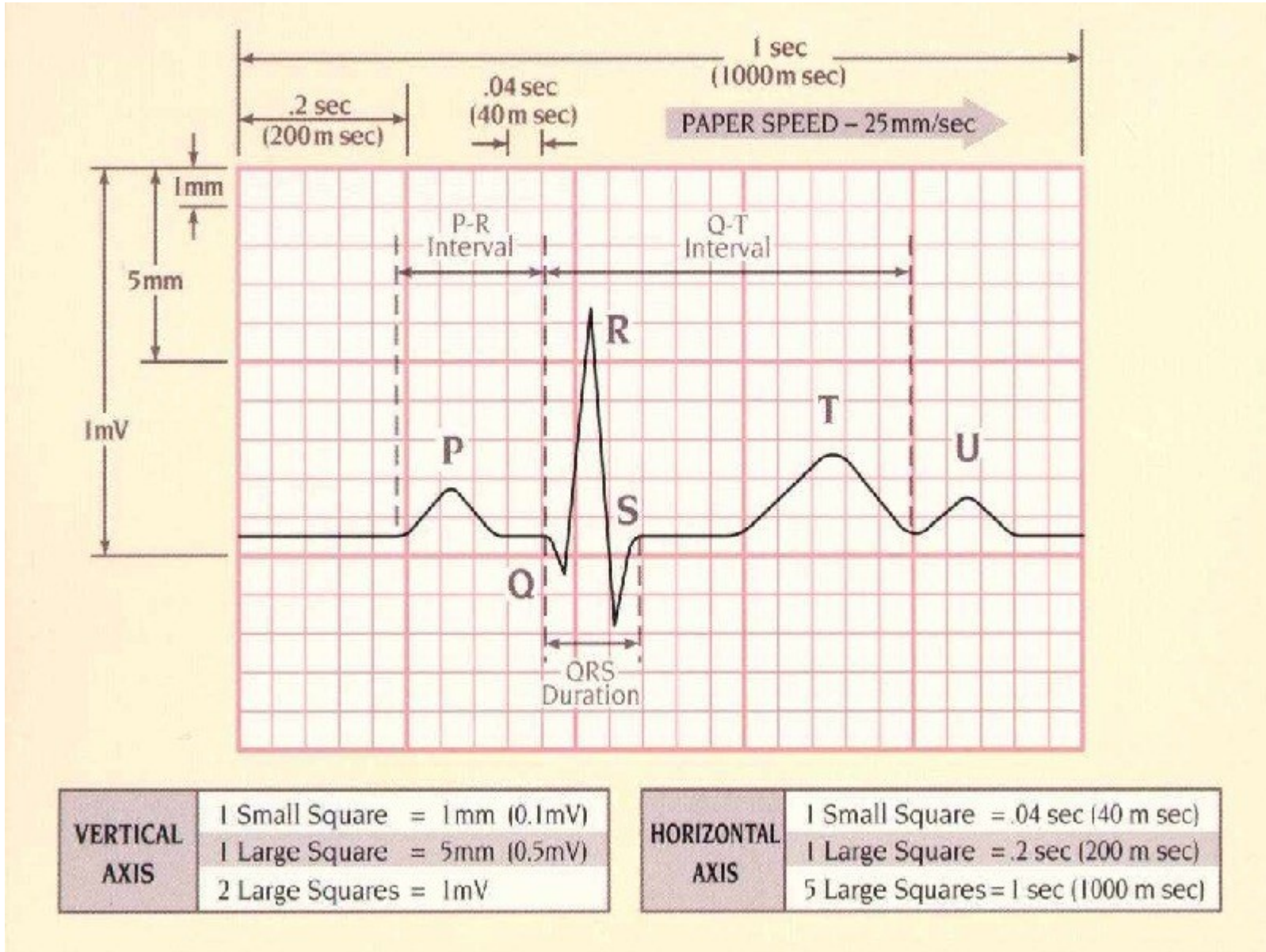
Nodes and conduction system



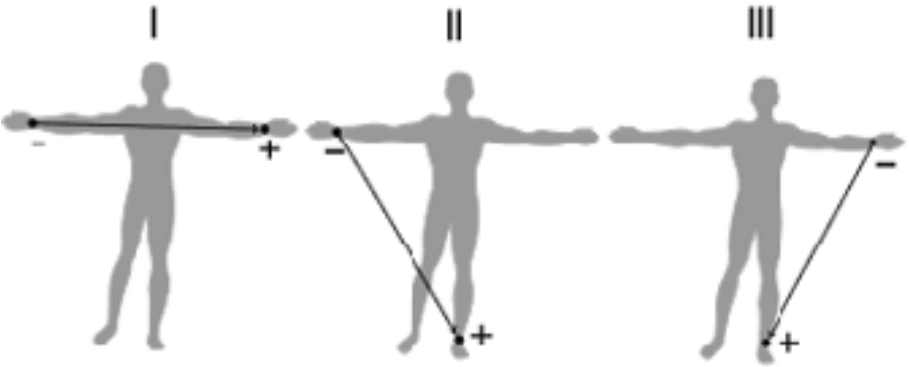
Cardiac Impulse Generation and Conduction

Wave P – atrial depolarisation
QRS Complex – ventricular Depolarisation
Wave T – ventricular repolarisation

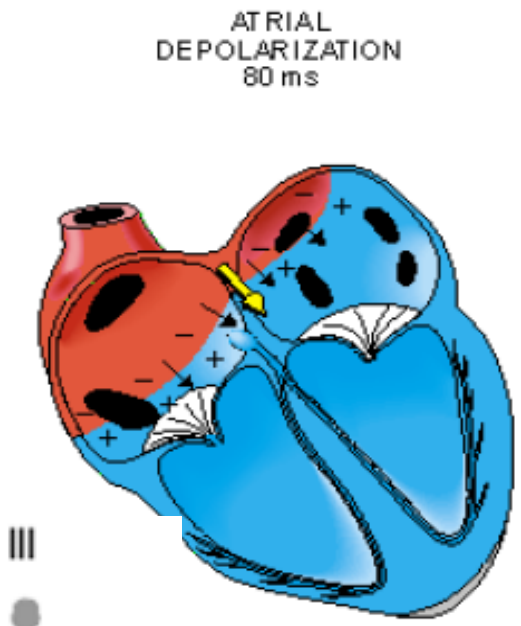


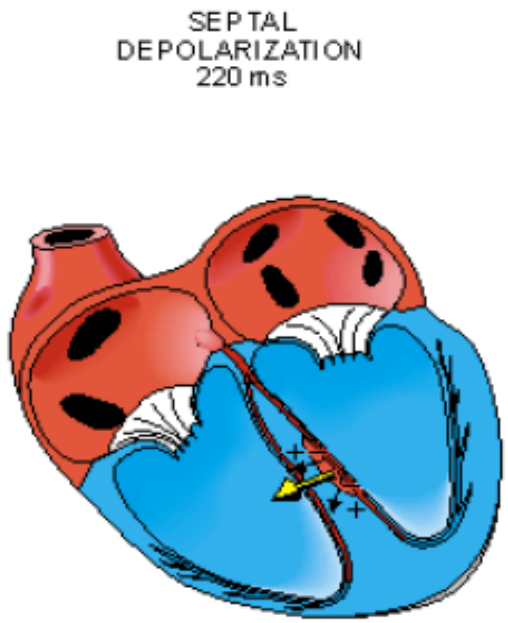


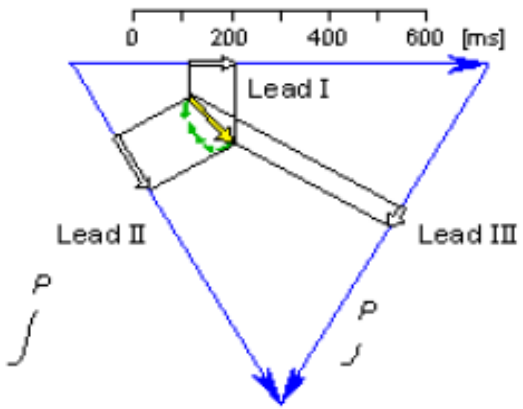
VERTICAL AXIS	1 Small Square = 1mm (0.1mV)	**HORIZONTAL AXIS**	1 Small Square = .04 sec (40 m sec)
	1 Large Square = 5mm (0.5mV)		1 Large Square = .2 sec (200 m sec)
	2 Large Squares = 1mV		5 Large Squares = 1 sec (1000 m sec)

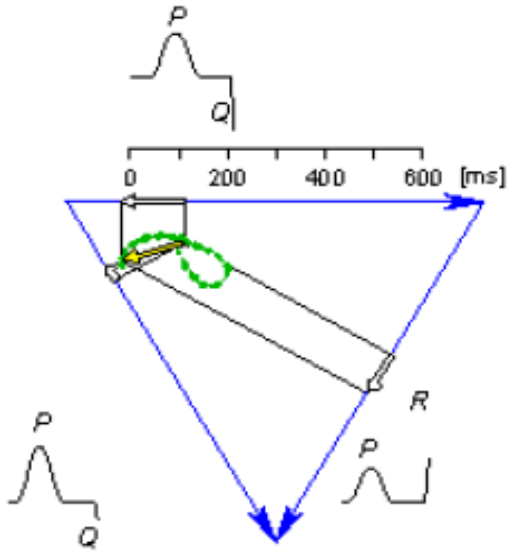


Einthoven's triangle



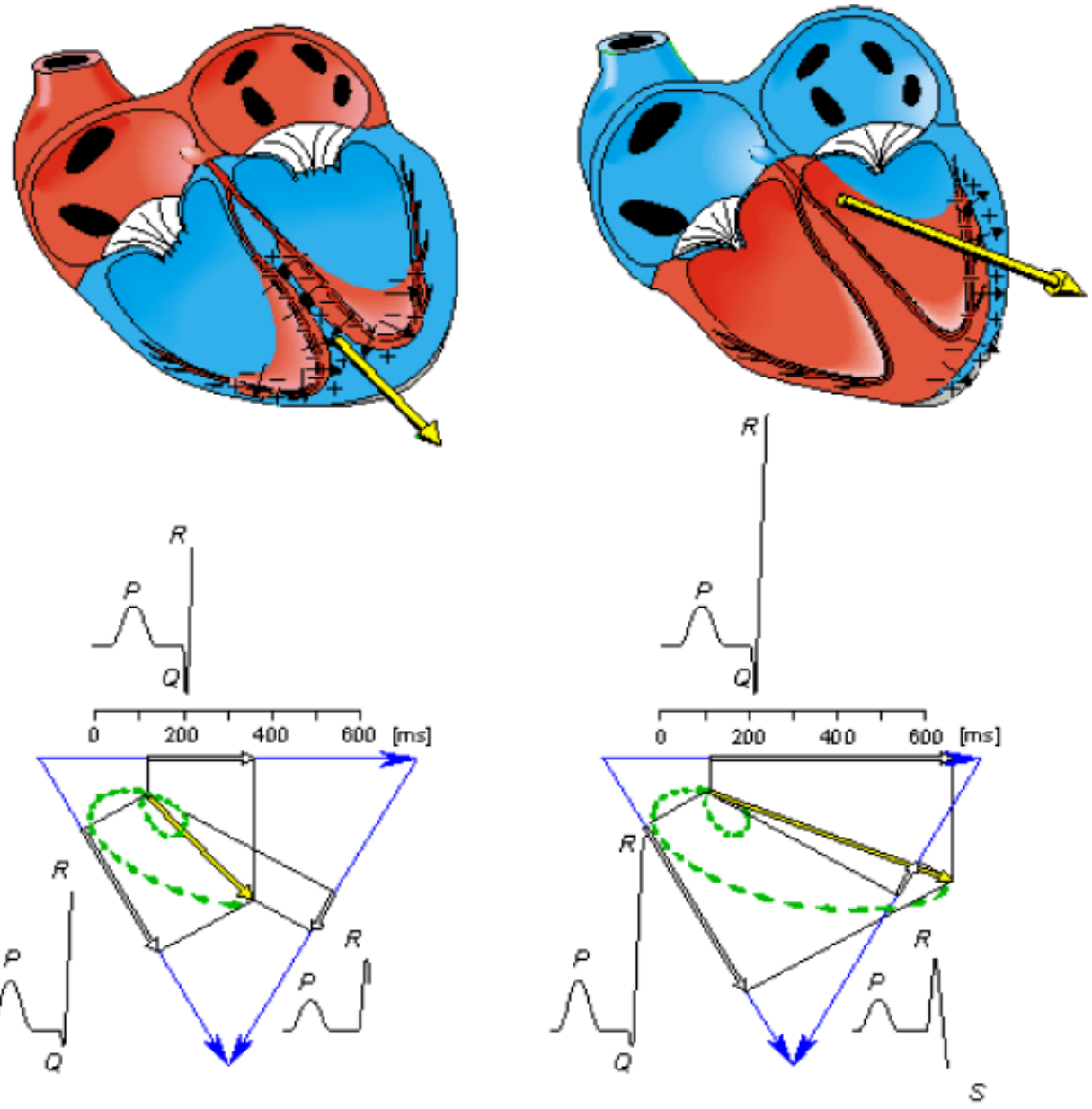




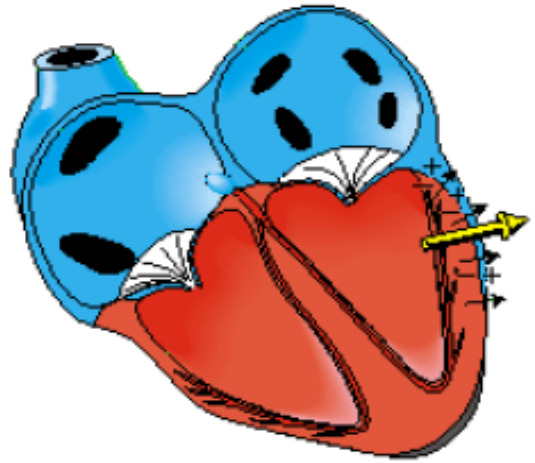


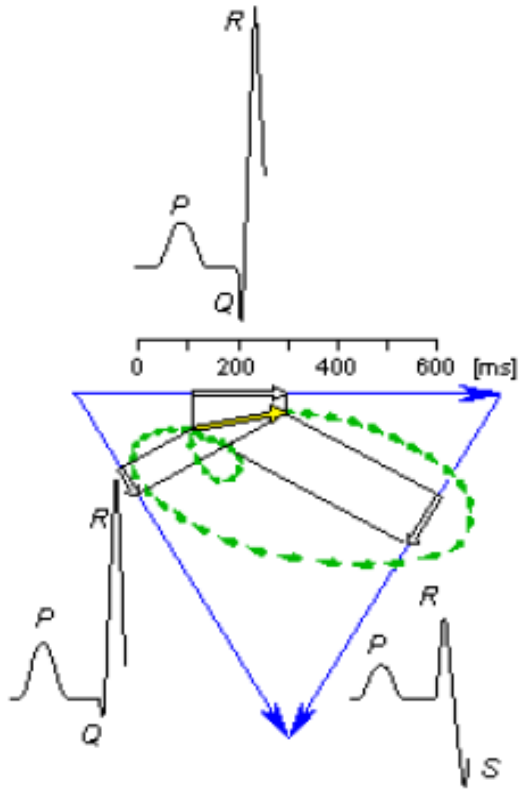
APICAL
DEPOLARIZATION
230 ms

LEFT VENTRICULAR
DEPOLARIZATION
240 ms

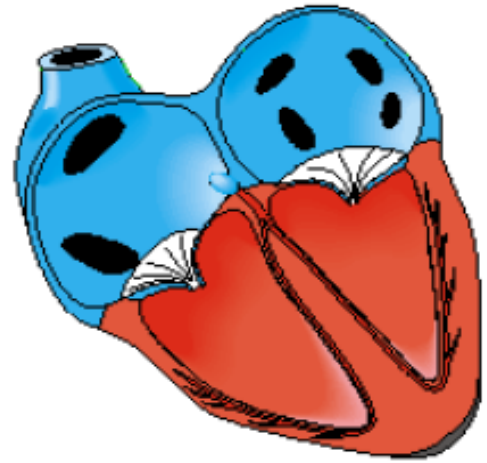


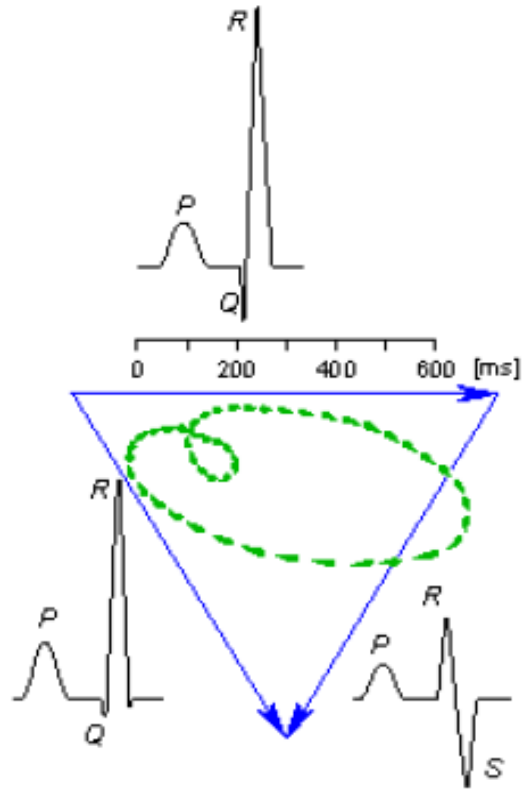
LATE LEFT VENTRICULAR DEPOLARIZATION
250 ms





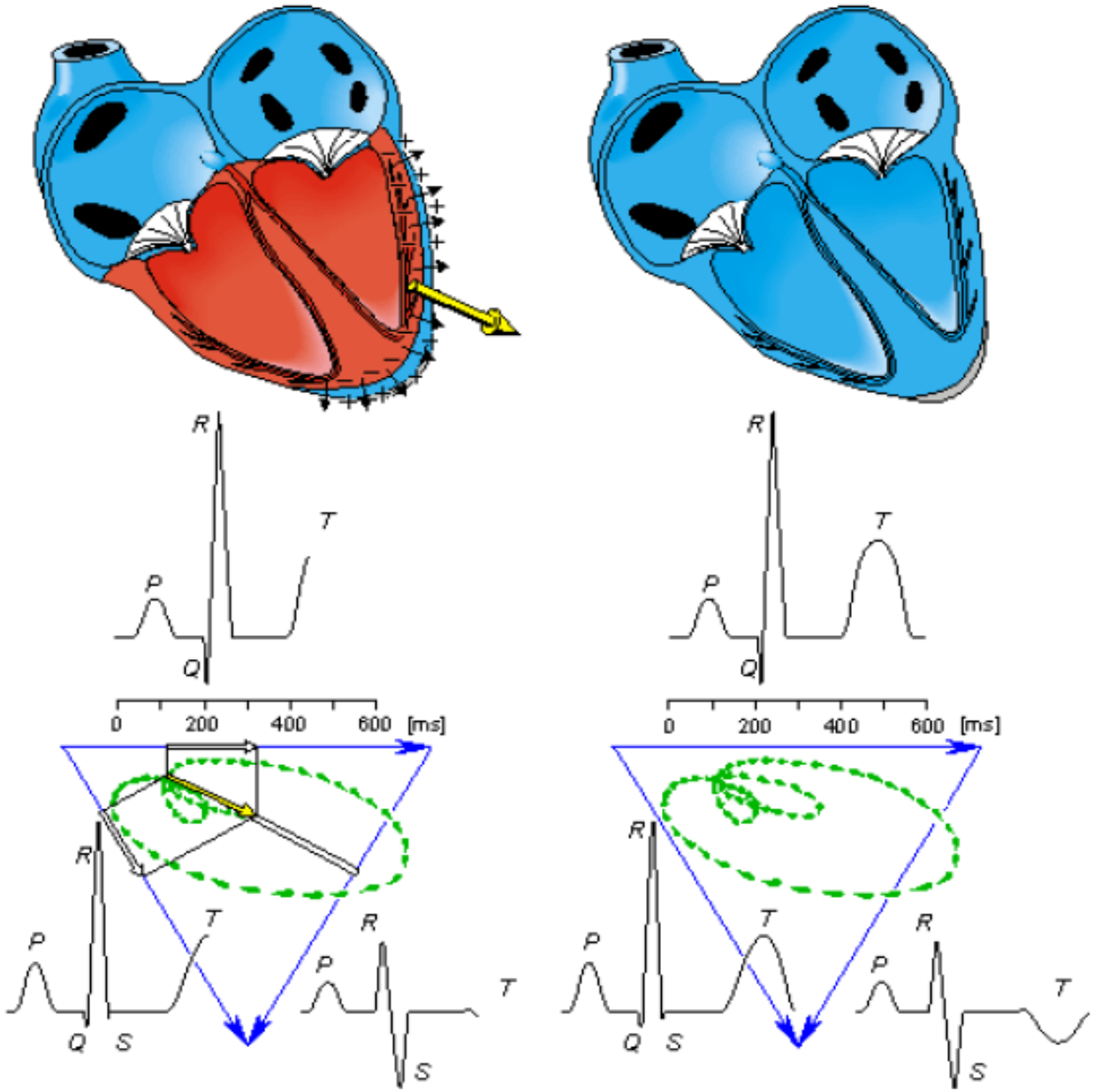
VENTRICLES DEPOLARIZED
350 ms

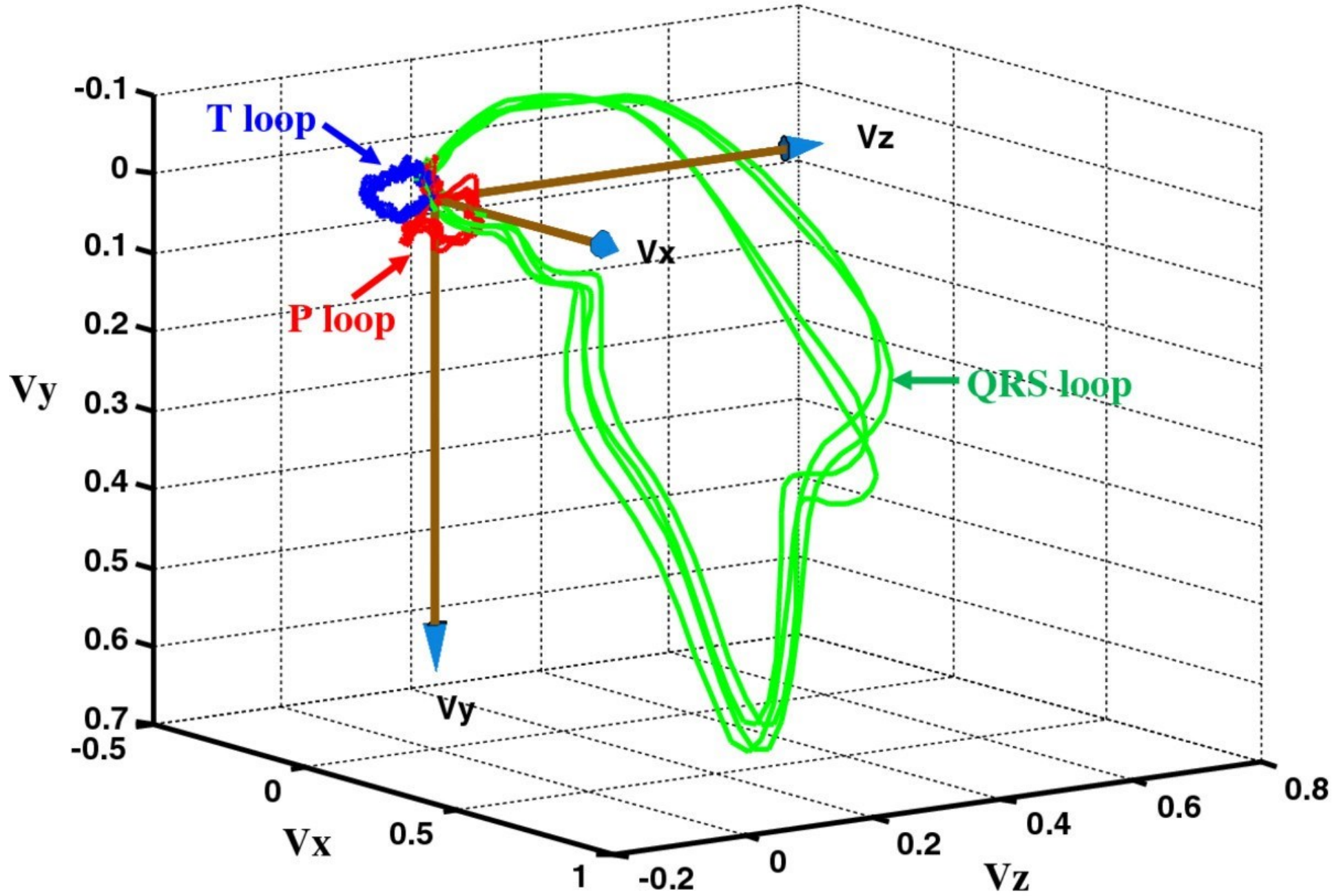




VENTRICULAR REPOLARIZATION 450 ms

VENTRICLES REPOLARIZED 600 ms

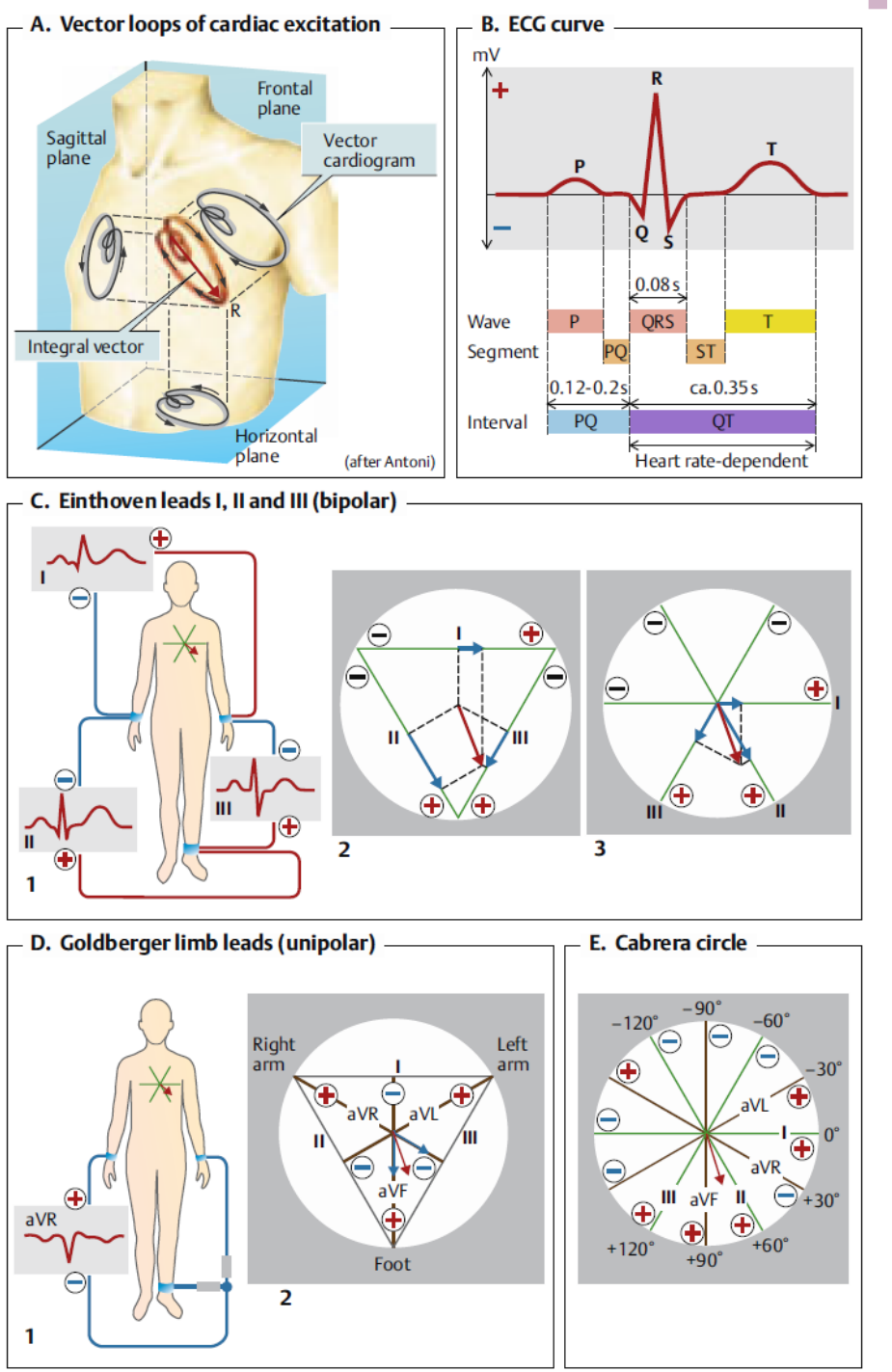


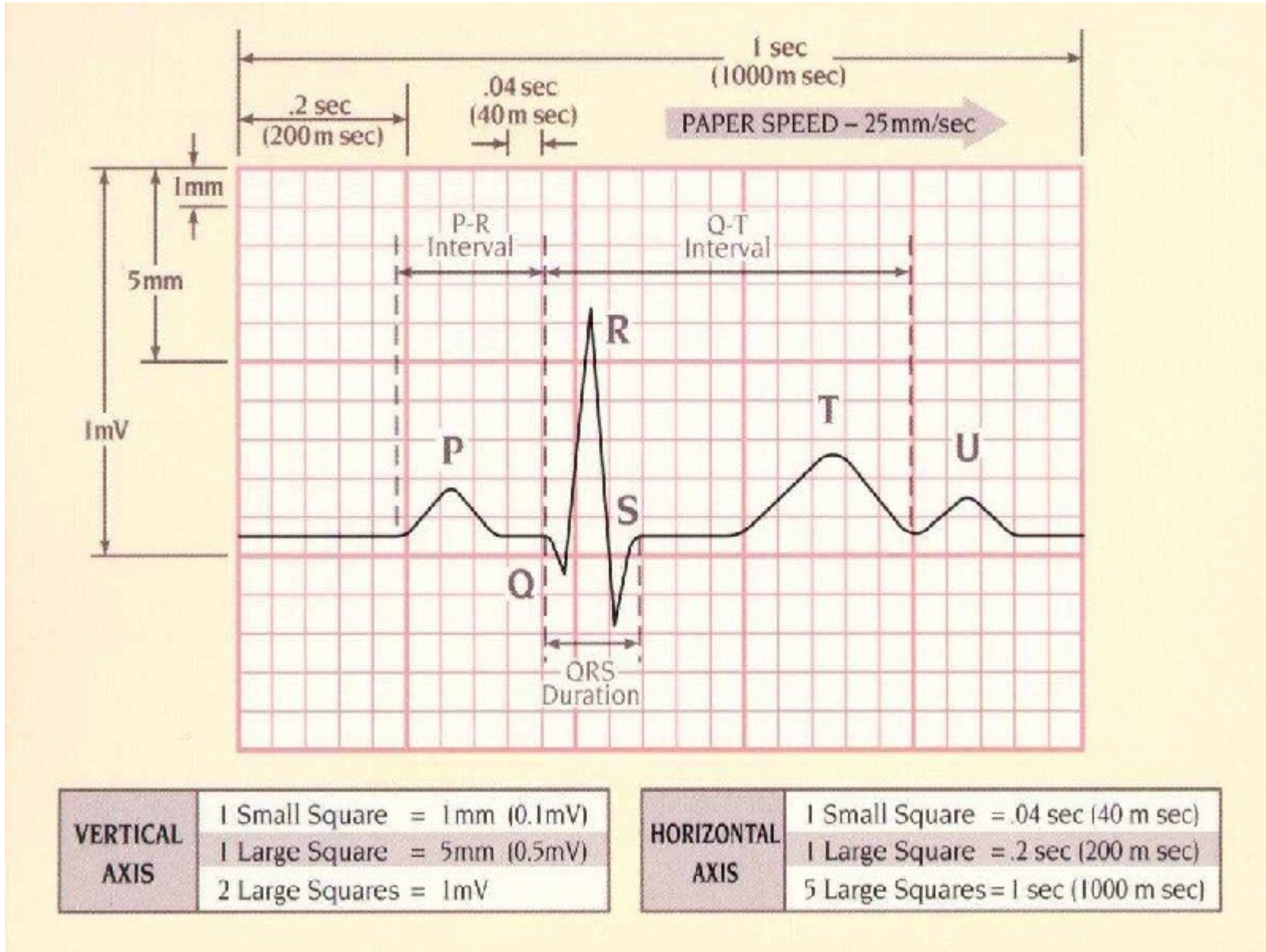

T loop
P loop
Vz
Vx
Vy
QRS loop
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
Vy
-0.5
0
0.5
1
Vx
-0.2
0
0.2
0.4
0.6
0.8
Vz

Vector loop
Video

Remember intervals:
PQ: 0.12 – 0.2s
QRS: max 0.1s

Where is the problem if PQ / QRS takes too long?





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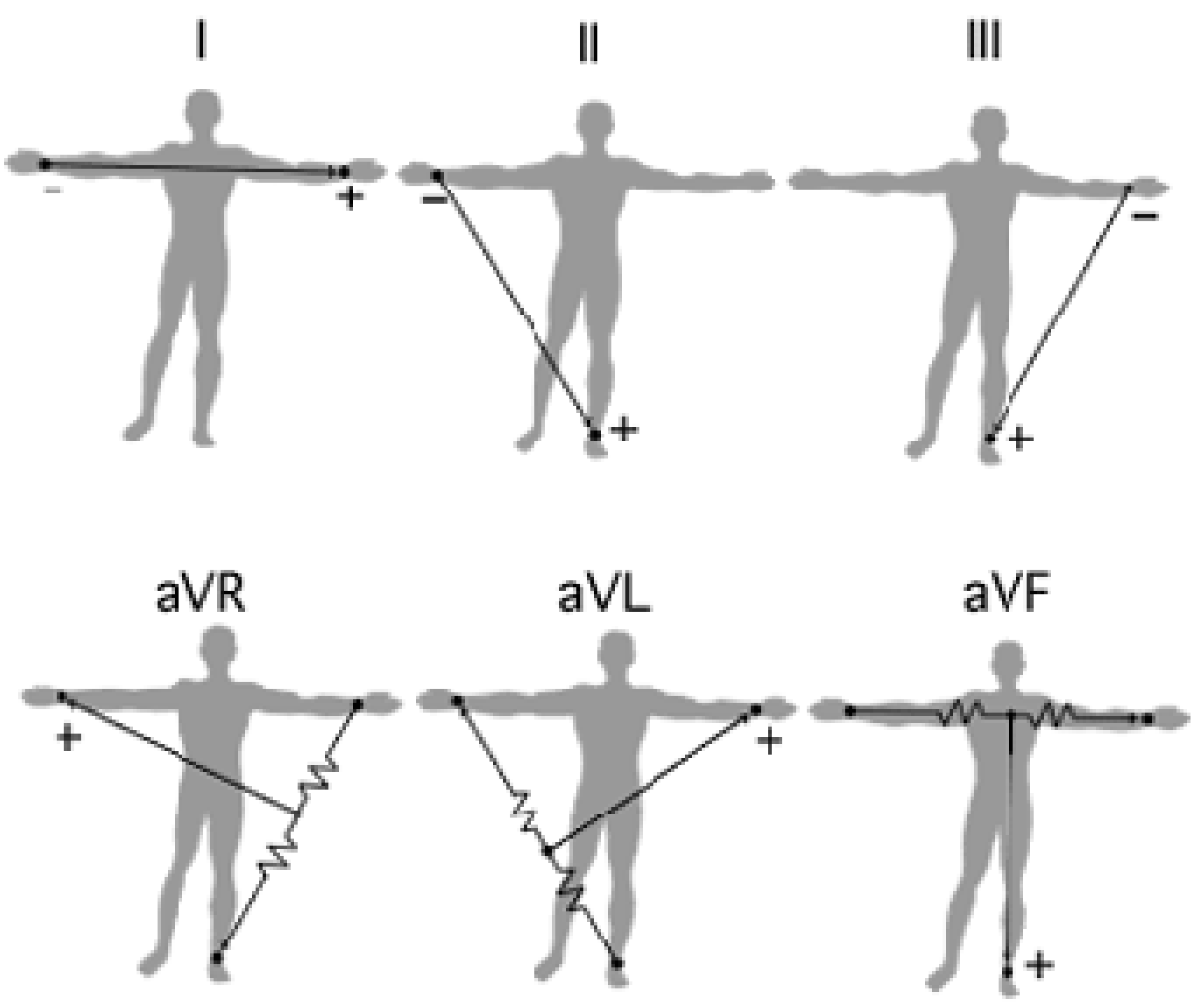
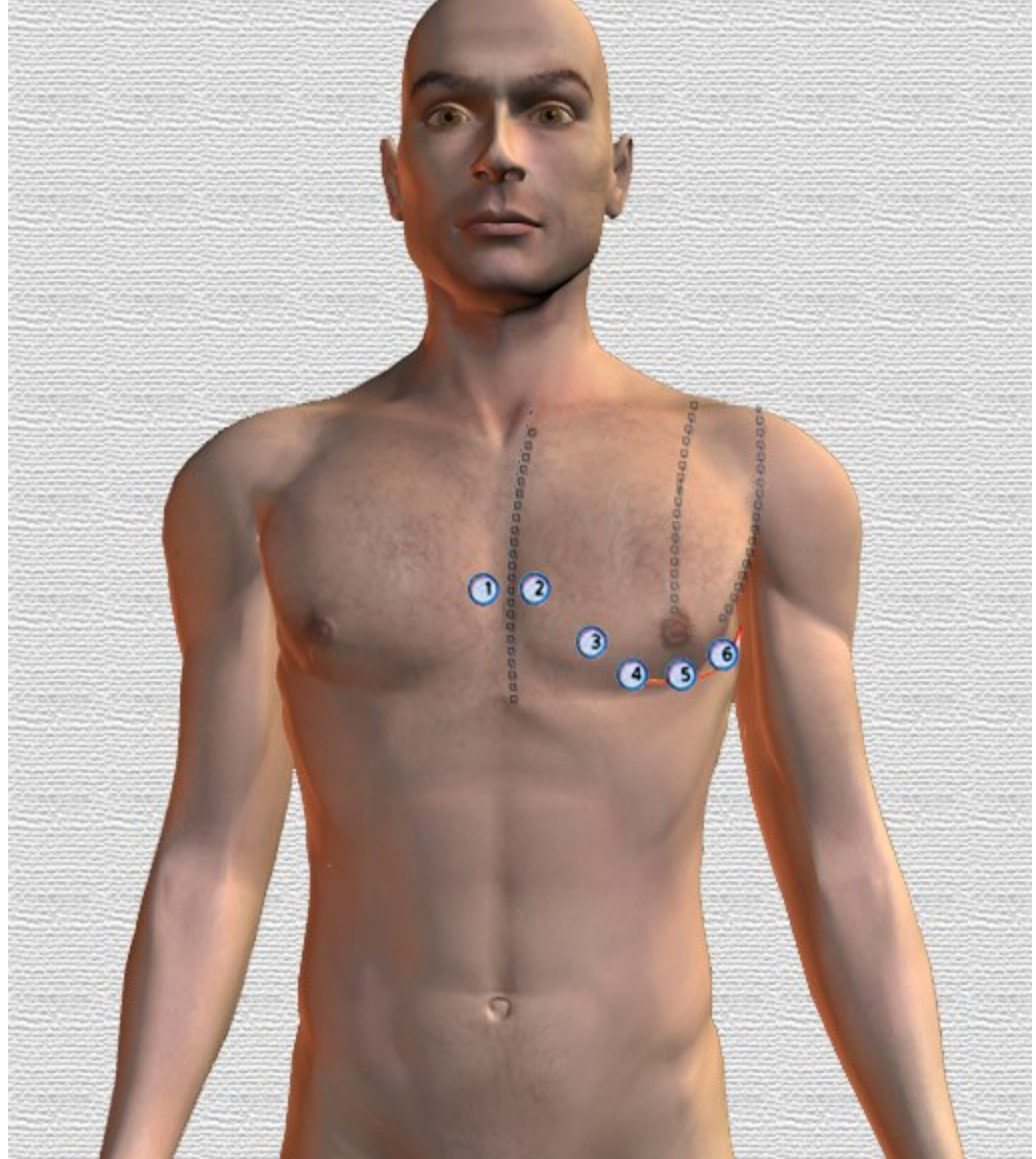
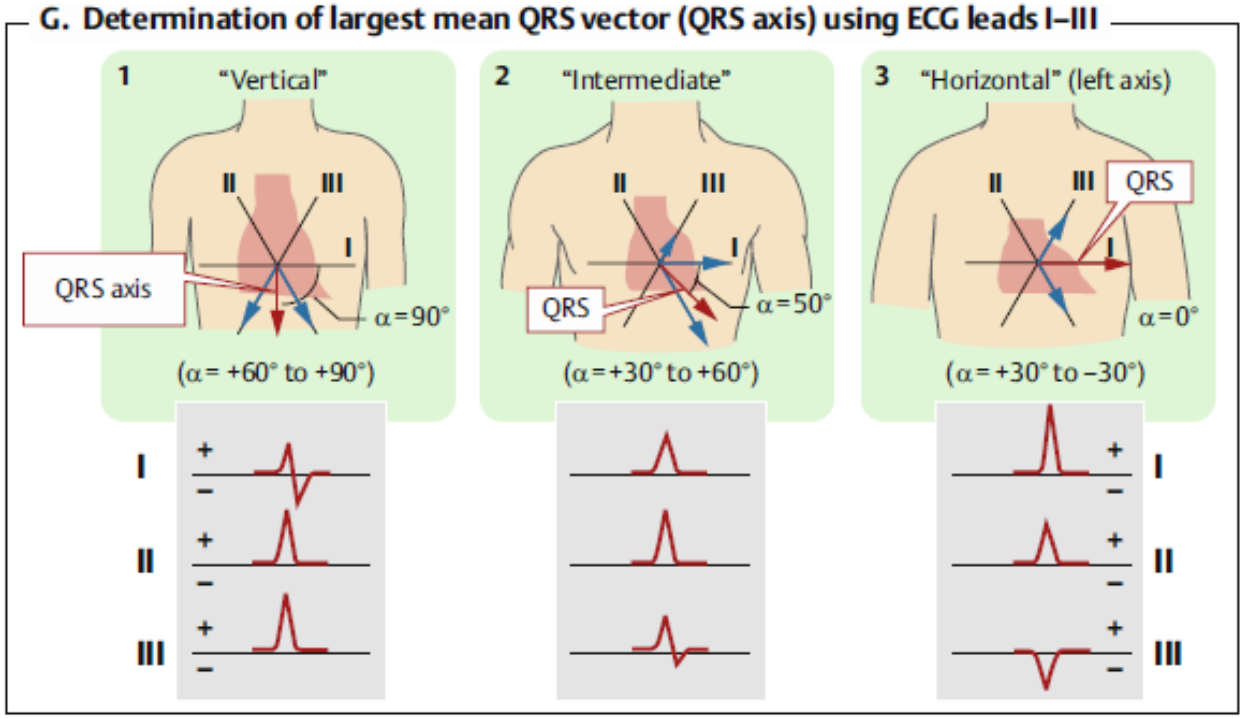

I
II
III
aVR
aVL
aVF

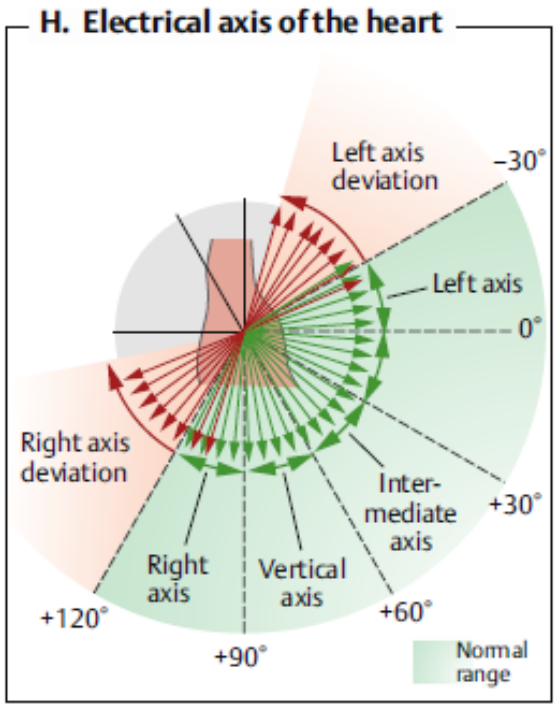

1
2
3
4
5
6

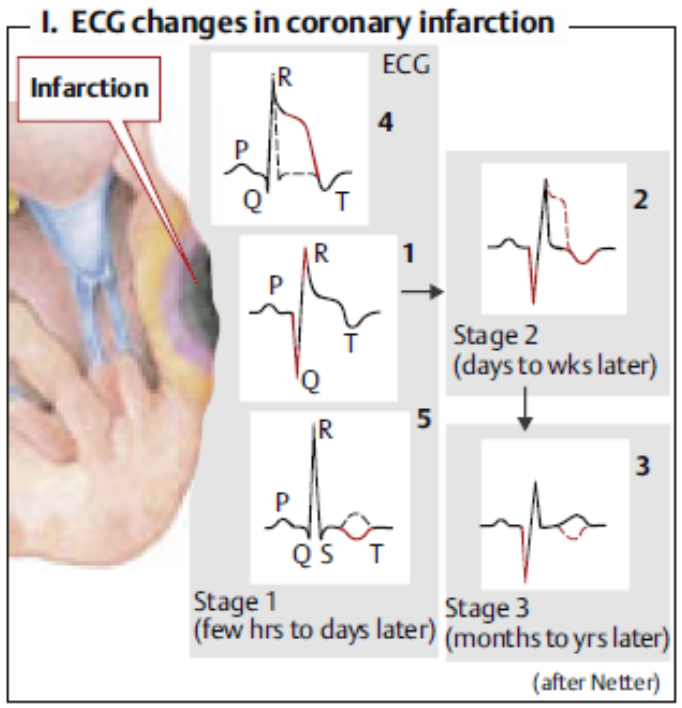
Electric heart axis

Remeber angles:
-30° - +120° is normal

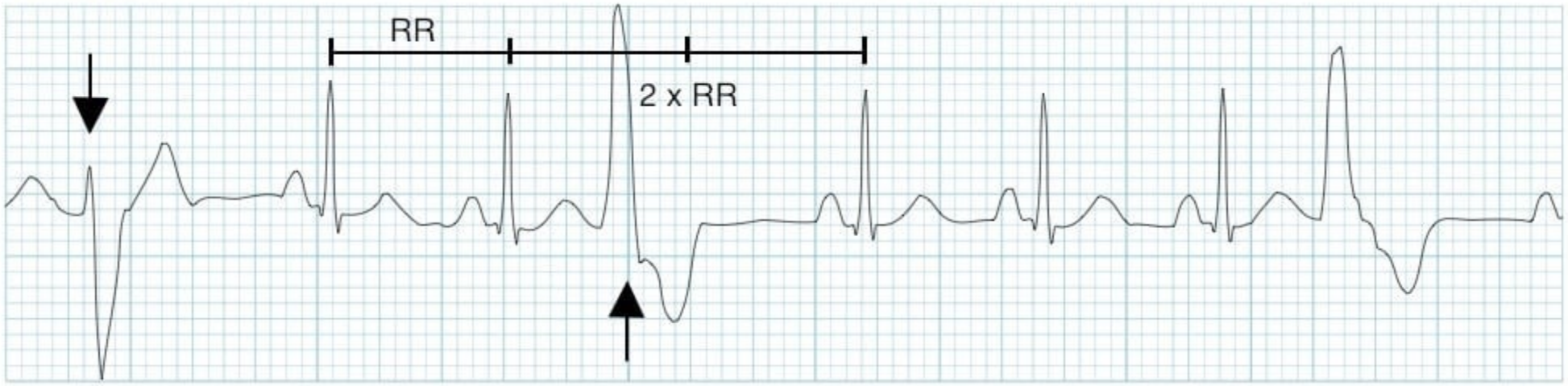
Infarction:
ST segment elevation



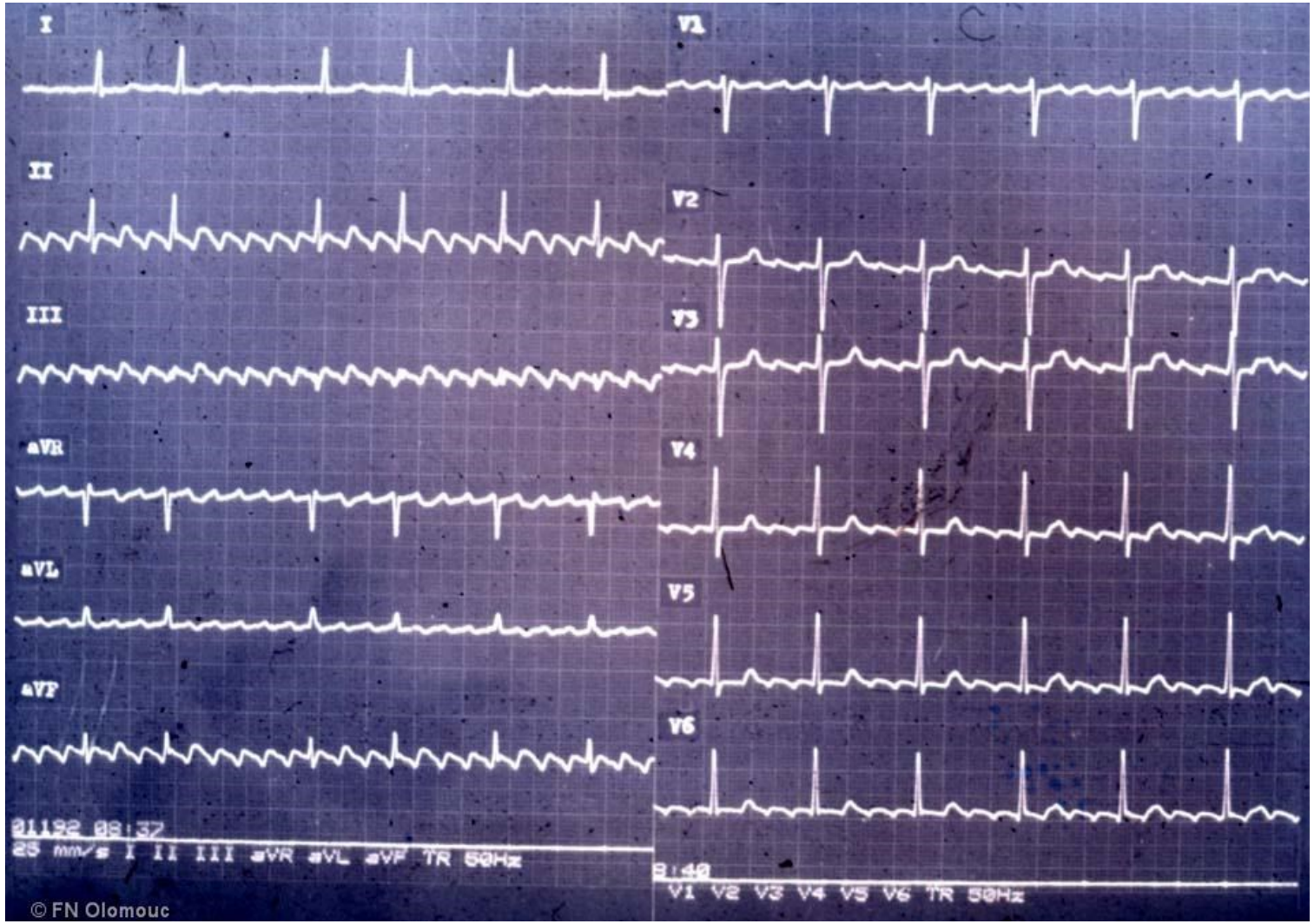




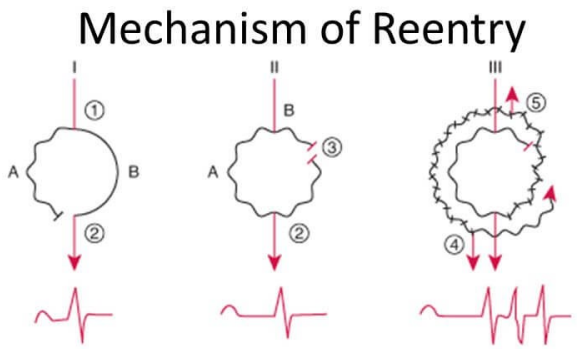
Ventricular Extrasystole



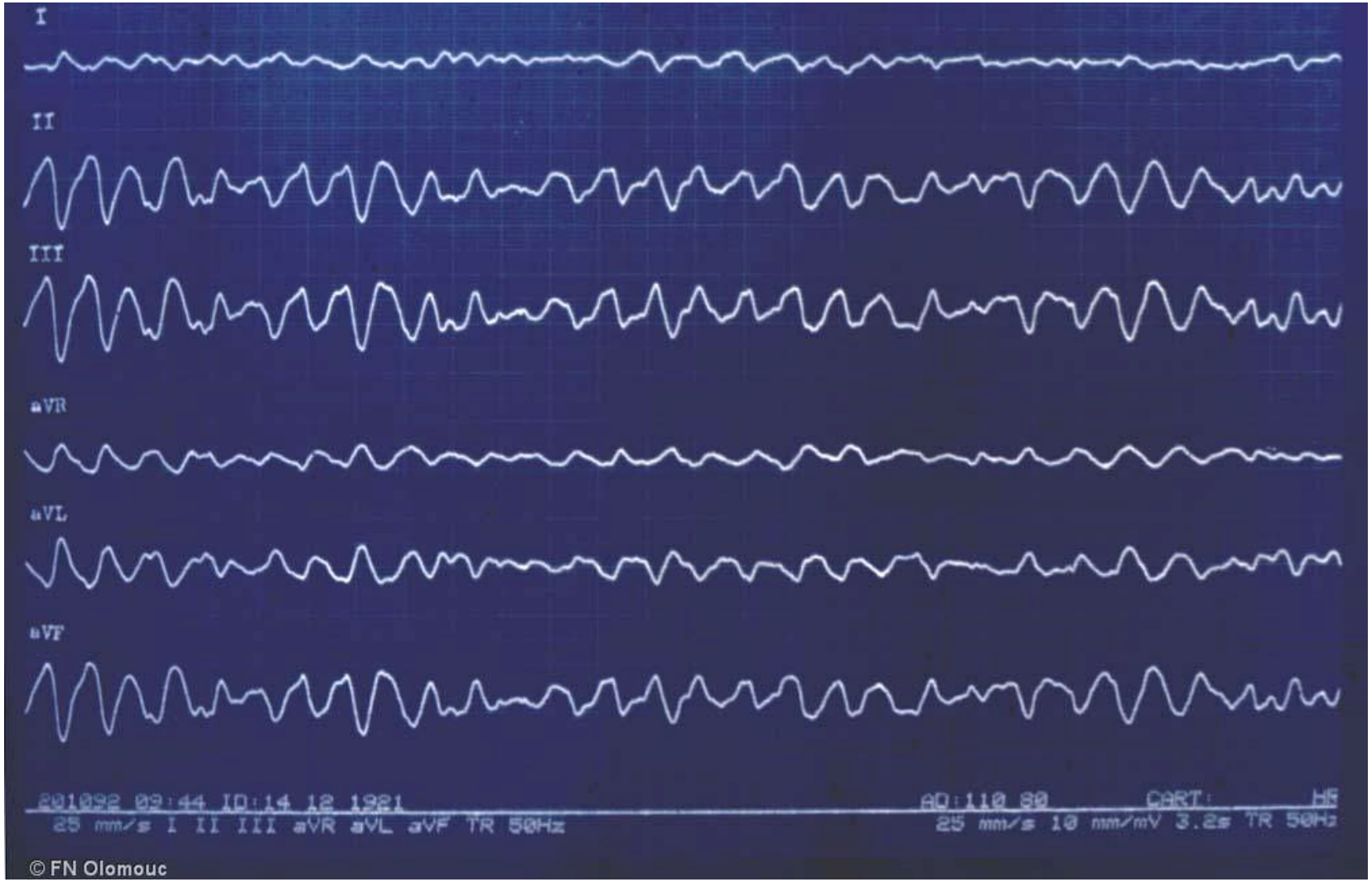
Atrial Flutter



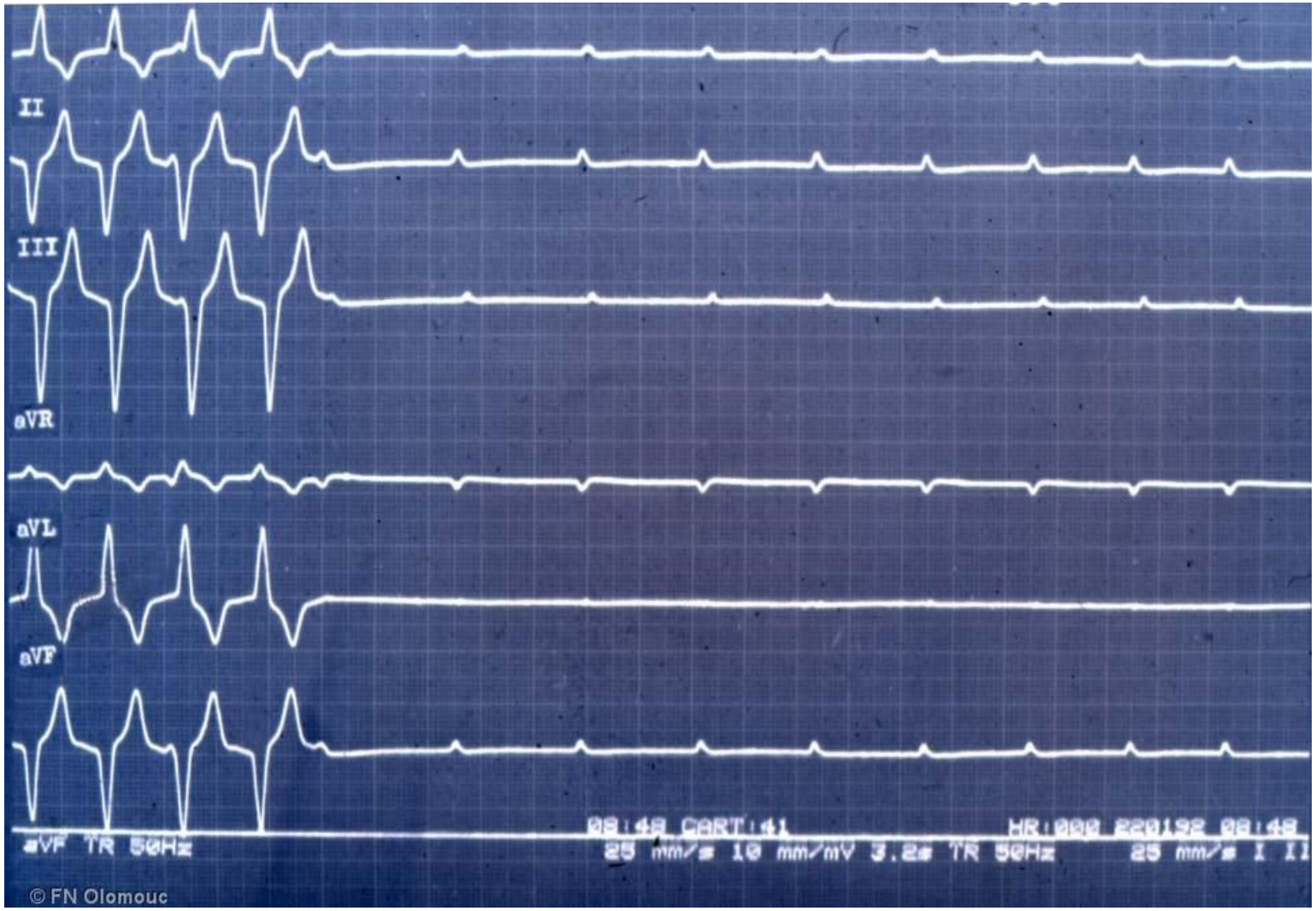
Ventricular Fibrilation



- A: slow conduction, short RP
- B: normal conduction and RP



Ventricular arrest

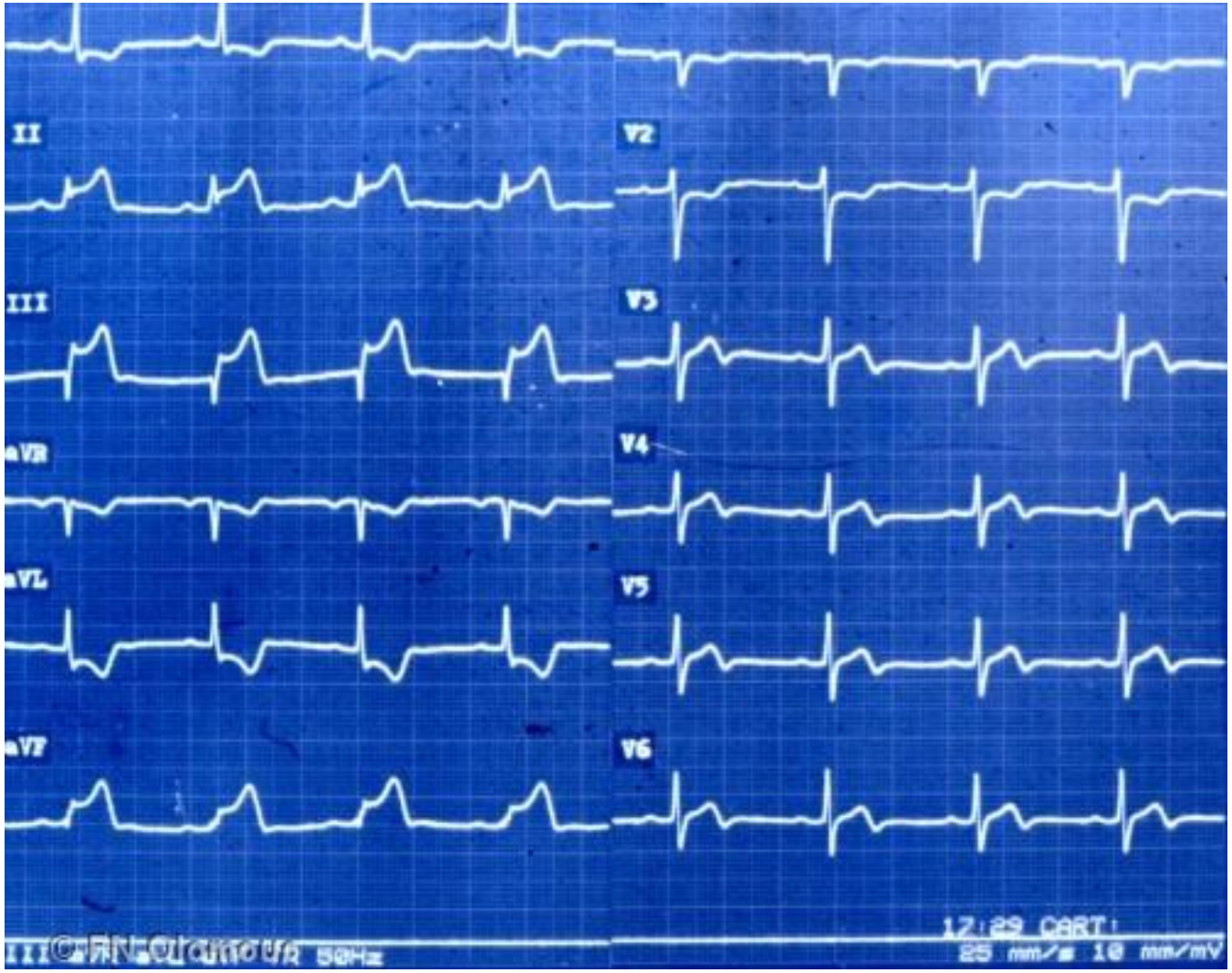


Infarction of Myokard

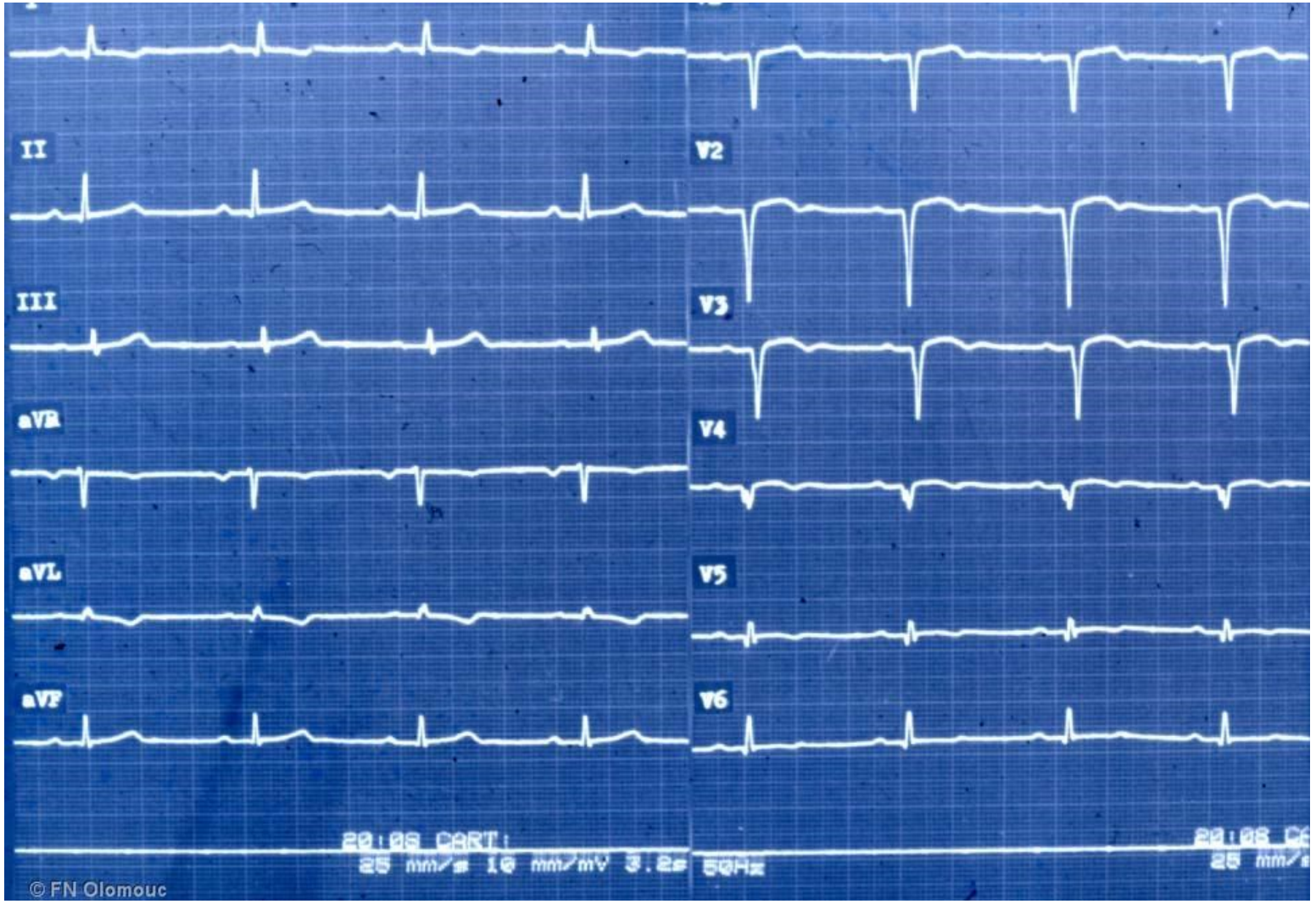
- coronary vessels blocked
- limited oxygen supply
- necrosis are irreversible

In the picture, we can see a transversal cross-section of the heart (right and left ventricles are visible). The ventricular myocardium is affected by infarction. Extensive tissue necrosis appears as lighter areas in the muscle. This is an extensive anterior scar; the entire wall is affected.

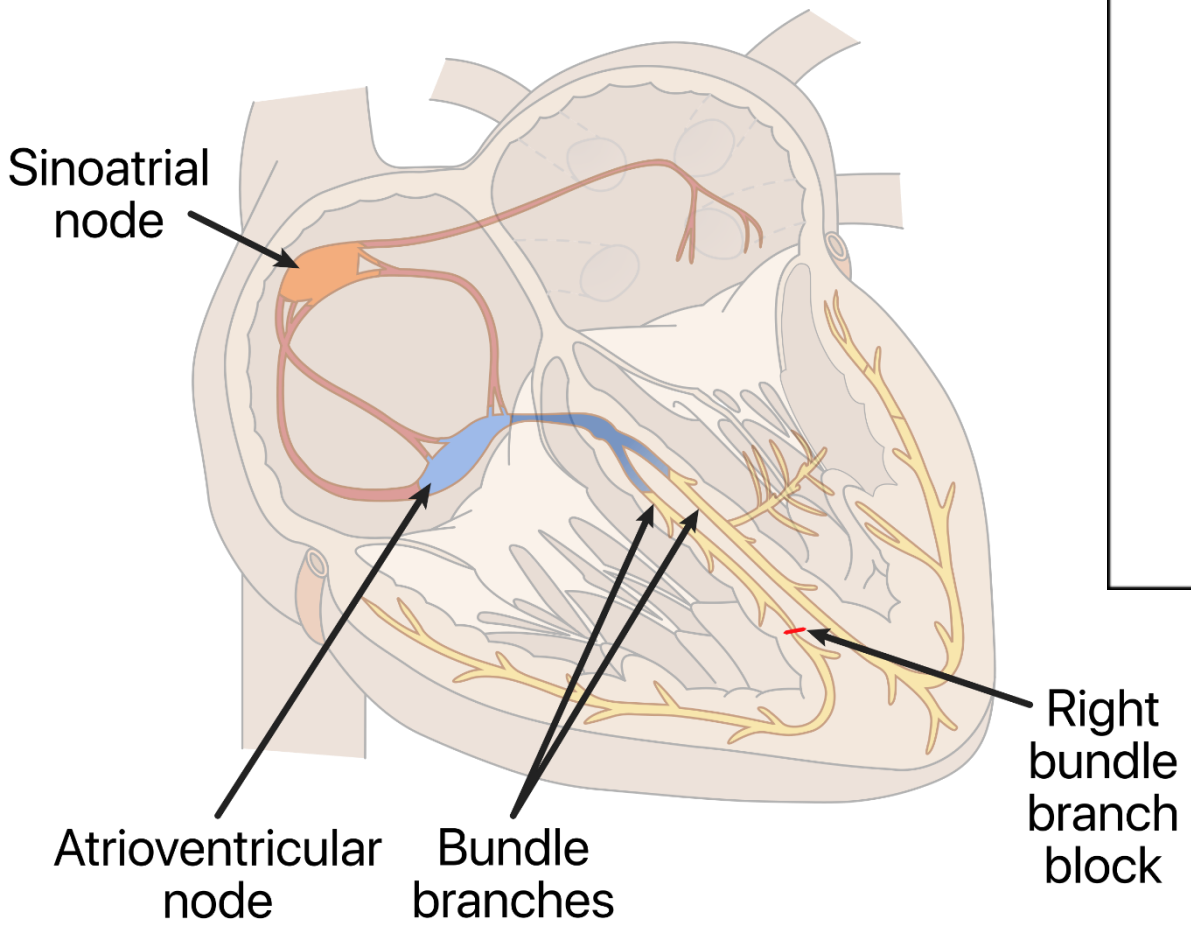
IM accute

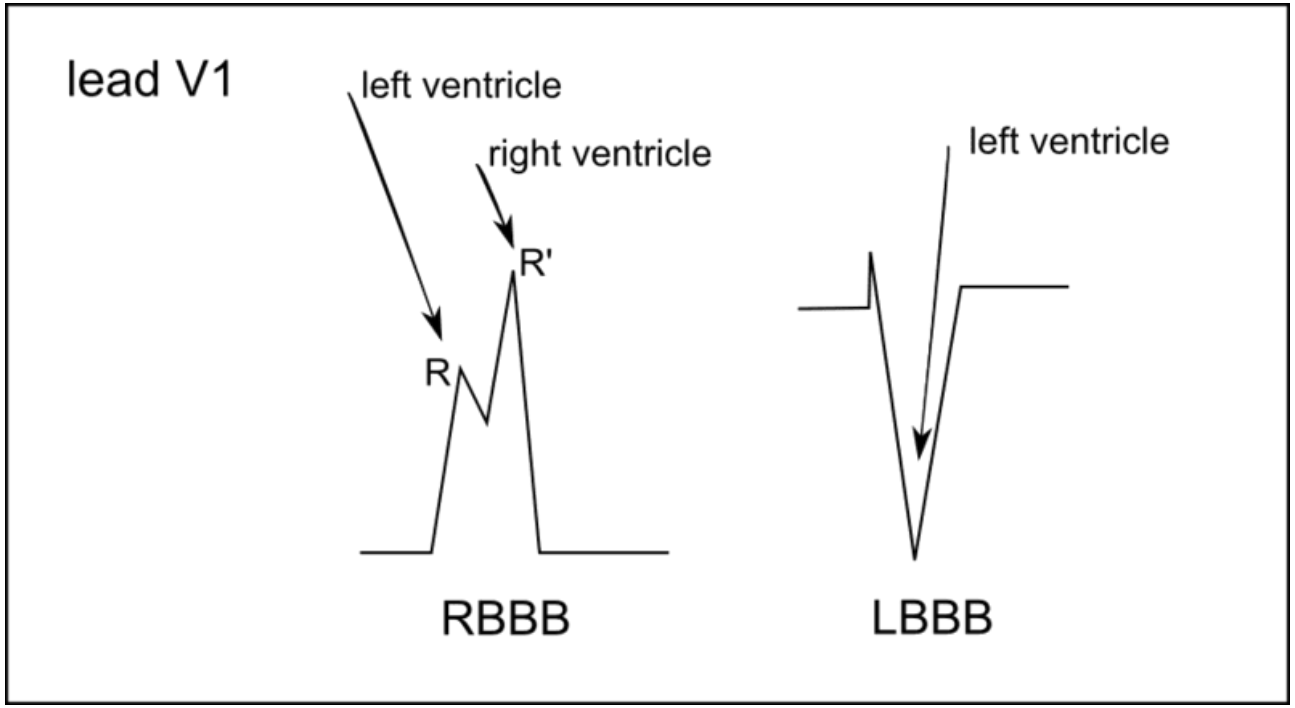


IM chronic


II
III
aVR
aVL
aVF
V2
V3
V4
V5
V6
25 mm/s 10 mm/mV 3.2s
50Hz
© FN Olomouc

Bundle branch block
QRS too long





Experiment

Normal record, note:

Pulse rate
Arrythmia?
Extrasystols?
Shape and length of QRS complex
Length of PQ interval
Electrical axis

Table of Results

Fill in and discuss

INITIALS	PULSE (/min)	PQ (ms)	QRS (ms)	AXIS (°)