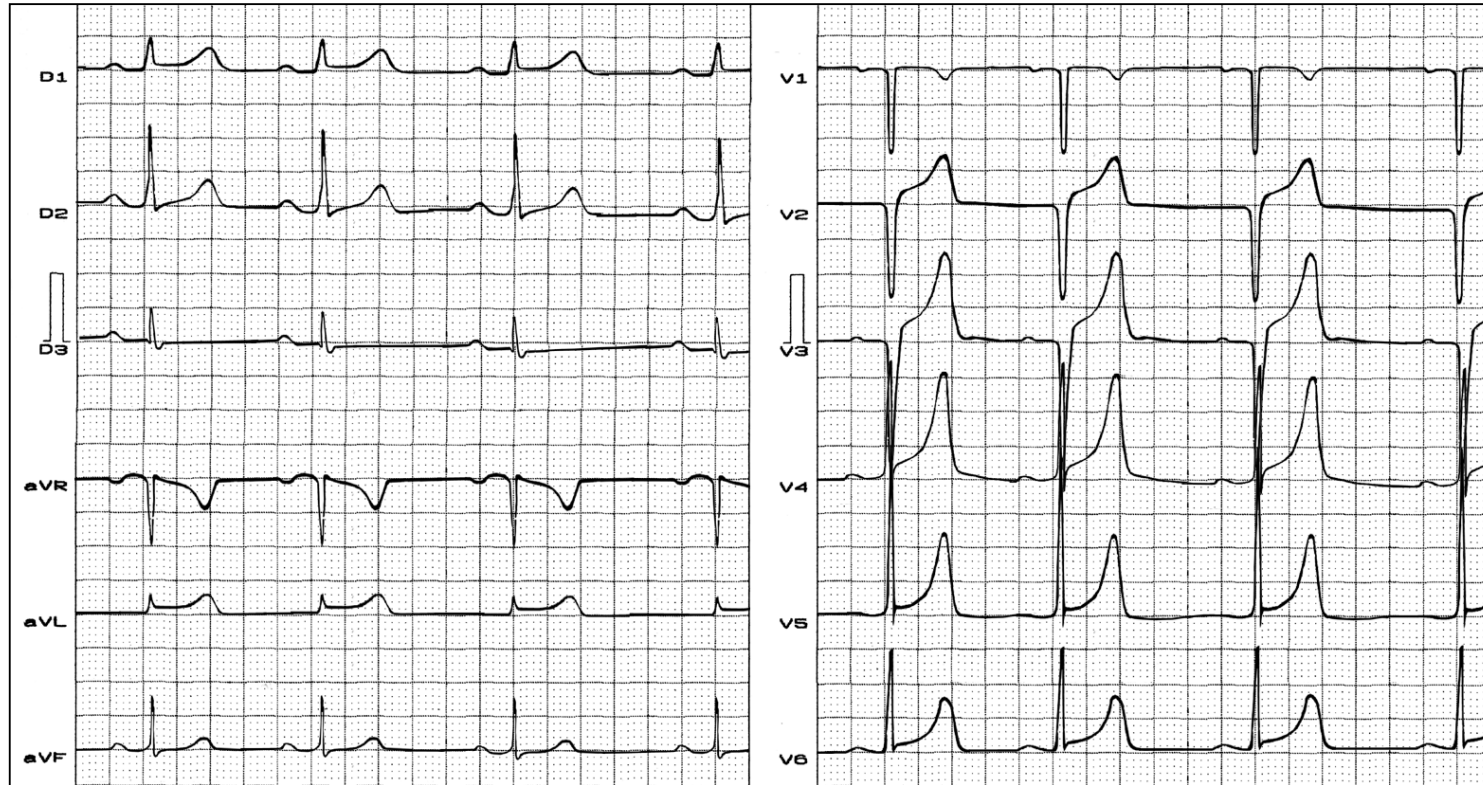


Degrees AV blocks in athletes

Name: BCA **Age:** 22yo **Sex:** Male **Race:** Black **Weight:** 82 kg
Height: 1.96m **Biotype:** Athletic **Profession:** professional basketball player **Date:** 2/09/2001

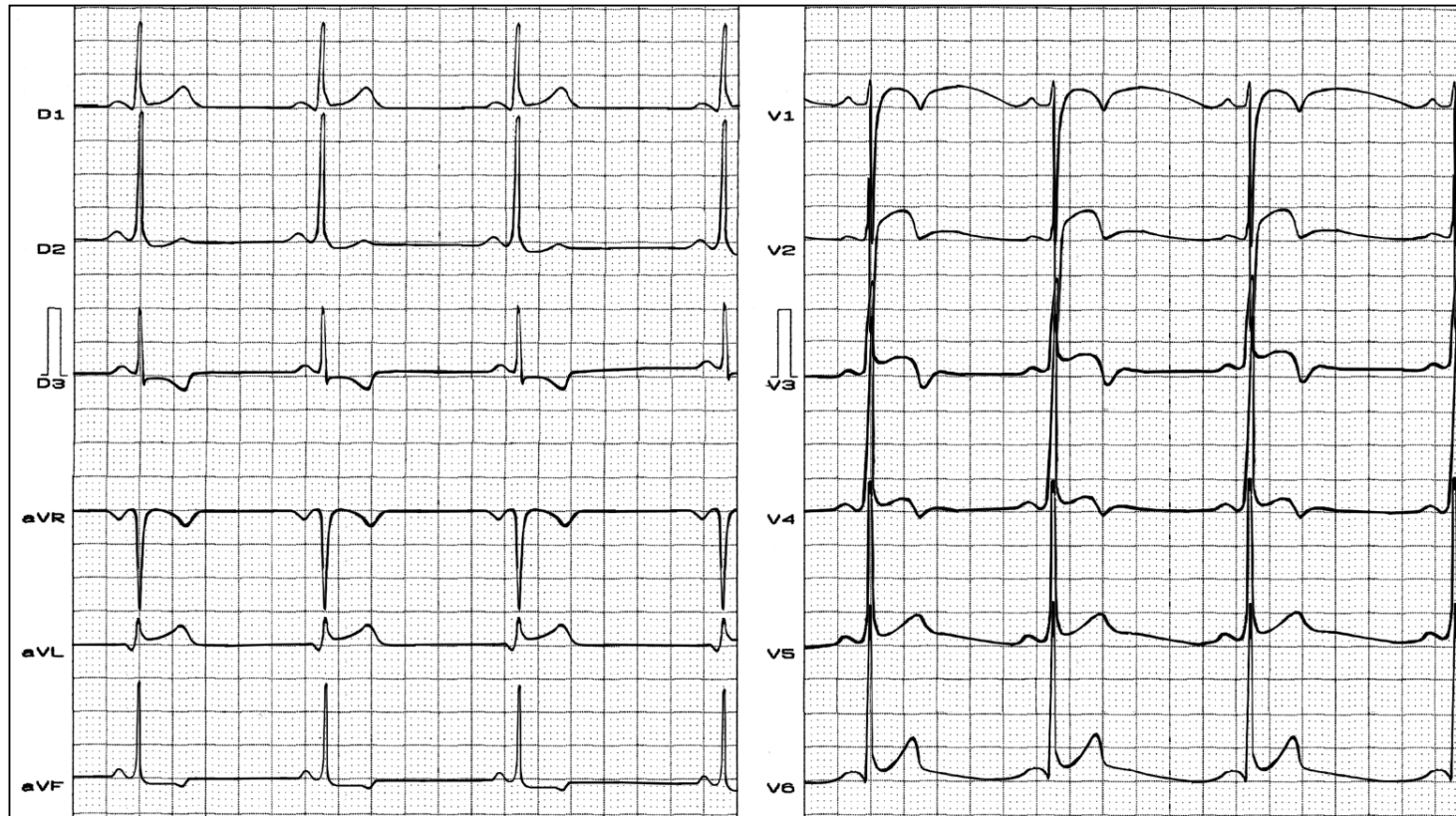


Clinical diagnosis: athlete's heart. Normal variant.

ECG diagnosis: sinus rhythm; HR: between 50 bpm and 57 bpm: phasic or respiratory sinus bradyarrhythmia; QS from V1 to V3: pattern of pseudo infarction in antero-septal wall. Peaked T waves from V3 to V6. Normal X-rays of chest and echocardiogram.

Pattern of pseudo anterior infarction in an athlete, professional player of basketball with normal heart.

Name: BCW; **Age:** 24yo.; **Sex:** Male; **Race:** Black; **Weight:** 86 kg; **Height:** 2.02 m; **Biotype:** Asthenic; **Profession:** professional basketball player; **Date:** 05/01/1999



Clinical diagnosis: healthy patient. Tracing obtained in a periodical evaluation.

ECG diagnosis: sinus bradycardia, phasic sinus arrhythmia. Positive voltage criterion for LVE. SV_1 or $V_2 + RV_5$ or $V_6 > 35$ mm (Index of Sokolow Lyon). ST segment elevation from V_2 to V_6 and with negative T from V_1 to V_4 . Early repolarization, pattern of pseudo injury and anterior subepicardial ischemia. Normal chest X-rays and echocardiogram.

Pattern of pseudo subepicardial injury and ischemia in anterior wall in an athlete, professional player of basketball with normal heart.

Holter recording 1ST degree AV block

Name: B . C.

Sex: Male

Age: 22

Race: Black

Weight: 74 Kg.

Height: 1.82 m

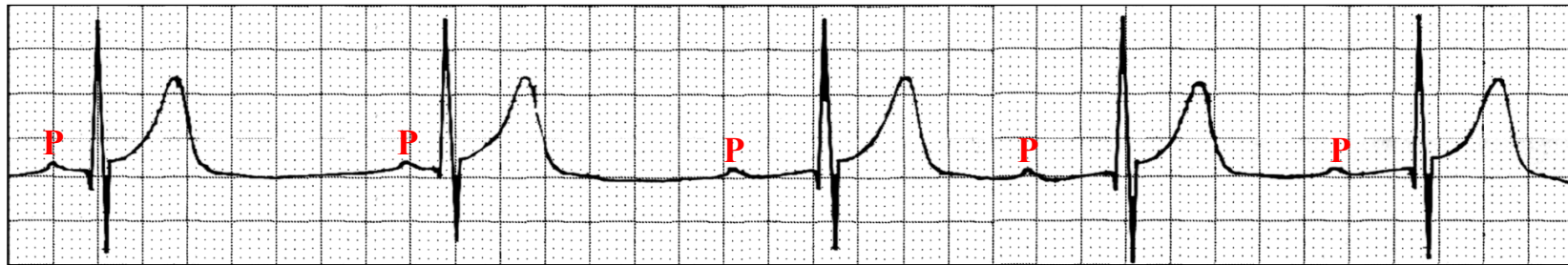
Biotype: Athletic

Date: 01/04/2002

Time: 2:50:12 AM

Patient sleeping.

Profession: Marathon runner



Heart rate of 38 bpm.

1st degree AV block usually observed for a few seconds, as in this case, where it is present only in the three last beats.

1st degree AV block is observed in average between 10% and 33% of athletes (**Smith 1964**), generally very briefly. In non-athletes it is around 0.65%.

1st-degree AV block in an elite athlete in Holter.

Holter recording

Name: A . S.

Sex: Male

Age: 26

Race: Black

Weight: 64 Kg.

Height: 1.68 m

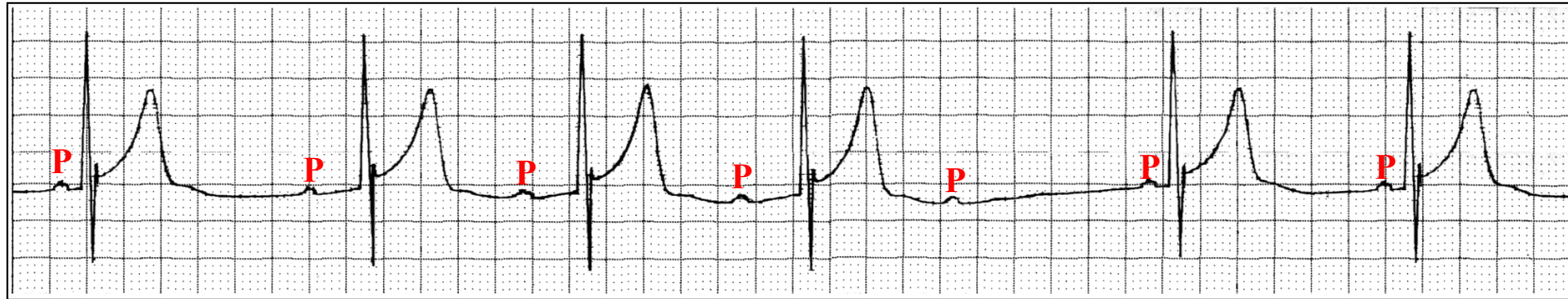
Biotype: Athletic

Date: 05/01/2003

Time: 3:42:30 AM

Patient sleeping.

Profession: long distance runner



Gradual prolongation of PR interval until the 5th P wave is not conducted: 2nd degree AV block; Wenckebach or Mobitz Type I.

This modality of dromotropic disorder is observed in more than a 20% of elite athletes (**Viitasalo 1982**). In the general population, 2nd degree AV block Type I & II is observed and 1 each 30,000 people or 0.003 %

2nd-degree AV block, Wenckebach type or Mobitz Type I in an elite athlete.

Holter recording 2nd degree AV block, Mobitz type II with narrow QRS

Name: E . J. **Sex:** Male **Age:** 26 **Race:** White **Weight:** 70 Kg.
Height: 1.72 m **Biotype:** Athletic **Date:** 25/01/2001 **Time:** 1:52:10 AM Patient sleeping
Profession: Long distance runner

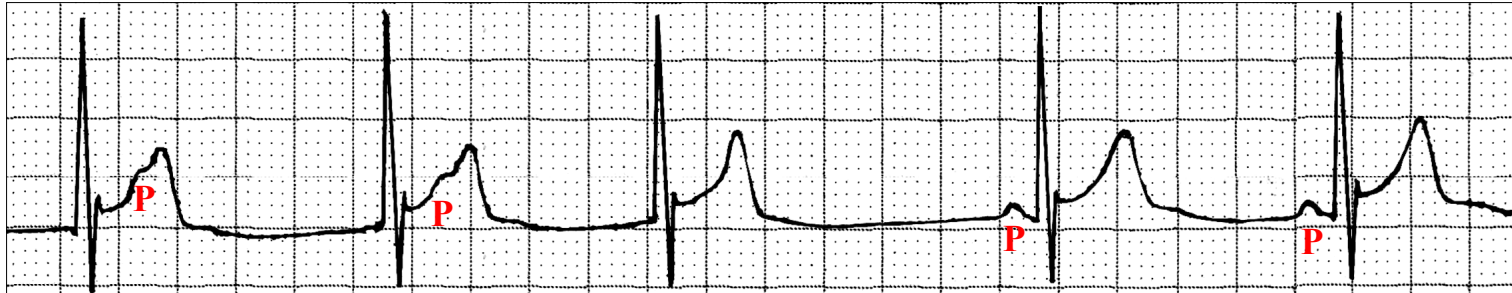


PR interval remains constant until a P wave is not conducted. This type of block is observed in 7% of the cases in athletes of enduro. Fixed or constant PR interval: it does not exist, progressive prolongation of PR, with the block occurring suddenly. In general, 2nd degree AV block type II with narrow QRS is observed in 35% of the cases and in the remaining 65%, the QRS is long.

2nd-degree AV block, Mobitz type II with narrow QRS.

Holter recording

Atrioventricular dissociation (dissociation by interference) with junctional escape rhythm



Atrioventricular dissociation (dissociation by interference) with escape ventricular rhythm



Atrioventricular dissociation (dissociation by interference) with junctional escape rhythm and atrioventricular dissociation (dissociation by interference) with escape ventricular rhythm in an elite athlete in Holter.

Summary of the ECG elements common in athletes

- 1) Sinus bradycardia.
- 2) Sinus arrhythmia.
- 3) P wave with notches and of greater voltage.
- 4) 1st degree AV block: 6% to 36%.
- 5) 2nd degree AV block, Wenckebach type: Mobitz Type I (0.125% to 10%).
- 6) IRBBB or end conduction delay.
- 7) Voltage or axis criterion for RVE.
- 8) Voltage criterion for LVE.
- 9) Early repolarization variant
- 10) J point and ST segment elevation or depression.
- 11) QT interval in the superior borderline of normality.
- 12) T wave of increased voltage, peaked and inverted.
- 13) Atrial fibrillation and flutter (**Furlanello 1998**).
- 14) Junctional rhythm.