

THE ARTERIAL PULSE

The arterial pulse is the rhythmic expansion of pressure waves along the walls of the arteries which is produced during each systole of cardiac cycle. It is one of the **vital signs** that must be checked with general examination. It gives information regarding function of **cardiovascular system**.

- ✗ The pulse represents pulse pressure. The pulse pressure is the difference between systolic & diastolic pressure. **See figure (1).**

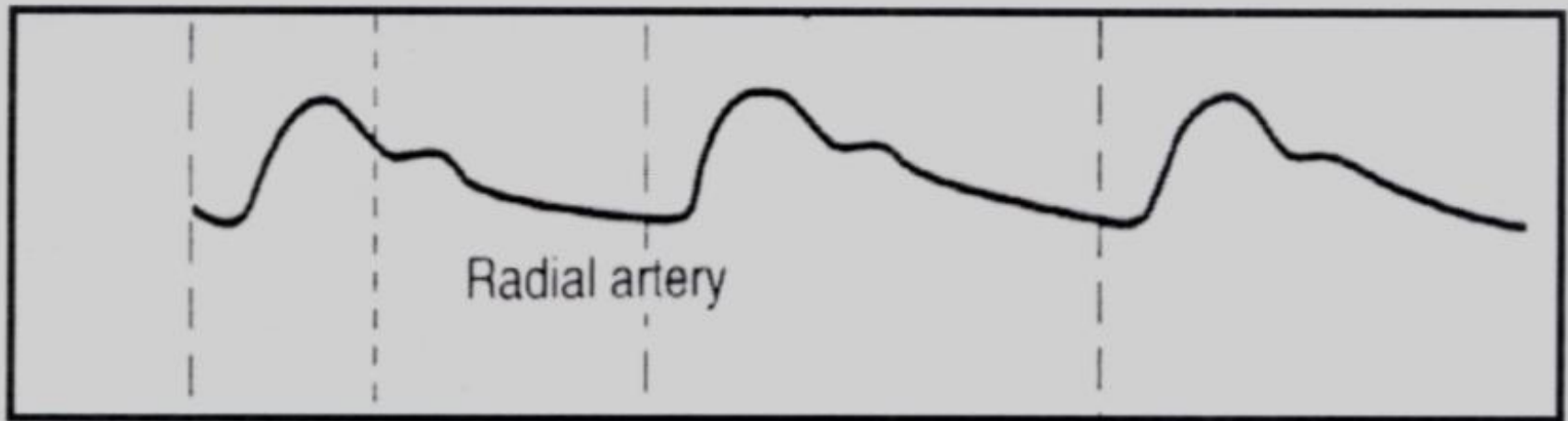


Figure (1): Radial artery pulse pressure curve.

✖ How is the arterial pulses felt?

- ✖ The arterial pulses are detected by gently compressing the vessel against some firm structure usually bones by tip of middle three fingers of hand. The distal finger is used to empty the vessel, the proximal finger is used for palpate pulse, third middle finger is used for palpate the condition of vessel wall.

× The following observation should be checked

× 1- Rate of pulse

× It is stated as number of pulses per minute. Count the pulses for not less than half minute. The pulse rate increases in exercise and decreases in athletes?

× 2-Rhythm

× It is regular or irregular. Normal sinus rhythm is regular, but in young subjects may show variation in rate beats during respiration. An irregular rhythm usually indicates atrial fibrillation or ectopic beats.

✖ 3- Volume of pulse

It is degree of expansion. It gives idea about the stroke volume. It increases in aortic valve regurgitation and decreases in aortic valve stenosis.

✖ 4- The condition of vessel wall

✖ In young adult, the wall is not felt while in old people it is like cord due to atherosclerosis. With advancing age, the arteries become more rigid.

- ✘ In aorta the velocity of transmission of pulse wave is more and independent of velocity of blood flow. The pulse that is felt in the radial artery at wrist about 0.1 second after systolic ejection of blood into the aorta., and pulse movement is faster.
- ✘ Typical pulse in healthy young adult is 70 beats/minute (60 – 100 beats / minute), regular in rhythm, normal volume, no collapsing and the arterial wall is just palpable

- ✖: Objective
- ✖ To examine peripheral arterial pulses.
- ✖ Materials:
- ✖ Subjects.

✖ Procedures:

✖ 1- radial artery pulse:

- ✖ It is best felt when the subject's arm is pronated and the wrist is slightly flexed. The three fingers of examiner's hand are used for feeling the pulse. The index finger is proximal toward the subject. Slight pressure is exerted on the radial artery against the radius by the finger. This will make the pulsation more evident and easy felt by index finger.

RADIAL ARTERY PULSE

The radial pulse is felt on the wrist, just under the thumb



✖ 2- the brachial artery pulse

- ✖ It is best felt when artery is compressed against humerus just above the antecubital fossa, medial to biceps tendon.

✖ 3- The carotid artery pulse

- ✖ Pulse is best detected by pressing gently carotid artery which is placed adjacent to trachea in lower part of neck, backwards against the front of the cervical vertebrae. The two carotid pulses should never be examined together because of danger of reducing the cerebral arterial supply.

CAROTID ARTERY PULSE



✖ 4- The femoral artery -pulse

- ✖ It is best detected at halfway between the pubic tubercle and the anterior superior iliac spine at the level of the inguinal ligament.

✖ 7- The dorsalis pedis

- ✖ It is best felt by compressed artery against the tarsal bones at the posterior of foot between the medial and lateral malleolus .

5- THE POPLITEAL ARTERY PULSE

IT IS BEST DETECTED BY PRESSING THE POPLITEAL ARTERY IN MIDDLE OF POPLITEAL FOSSA WHILE THE SUBJECT LIES ON HIS FACE, THE KNEE IS SLIGHTLY FLEXED.



6- POSTERIOR TIBIAL ARTERY -PULSE

**THE POSTERIOR TIBIAL ARTERY IS FOUND 1 CM
BEHIND THE MEDIAL MALLEOLUS OF THE TIBIA.**



NEW EQUIPMENTS TO MEASURE PULSE



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