

The Pulse

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What is the pulse?



A blood wave created by contraction of the left ventricle represents the palpable arterial of the heartbeat by trained fingertips.



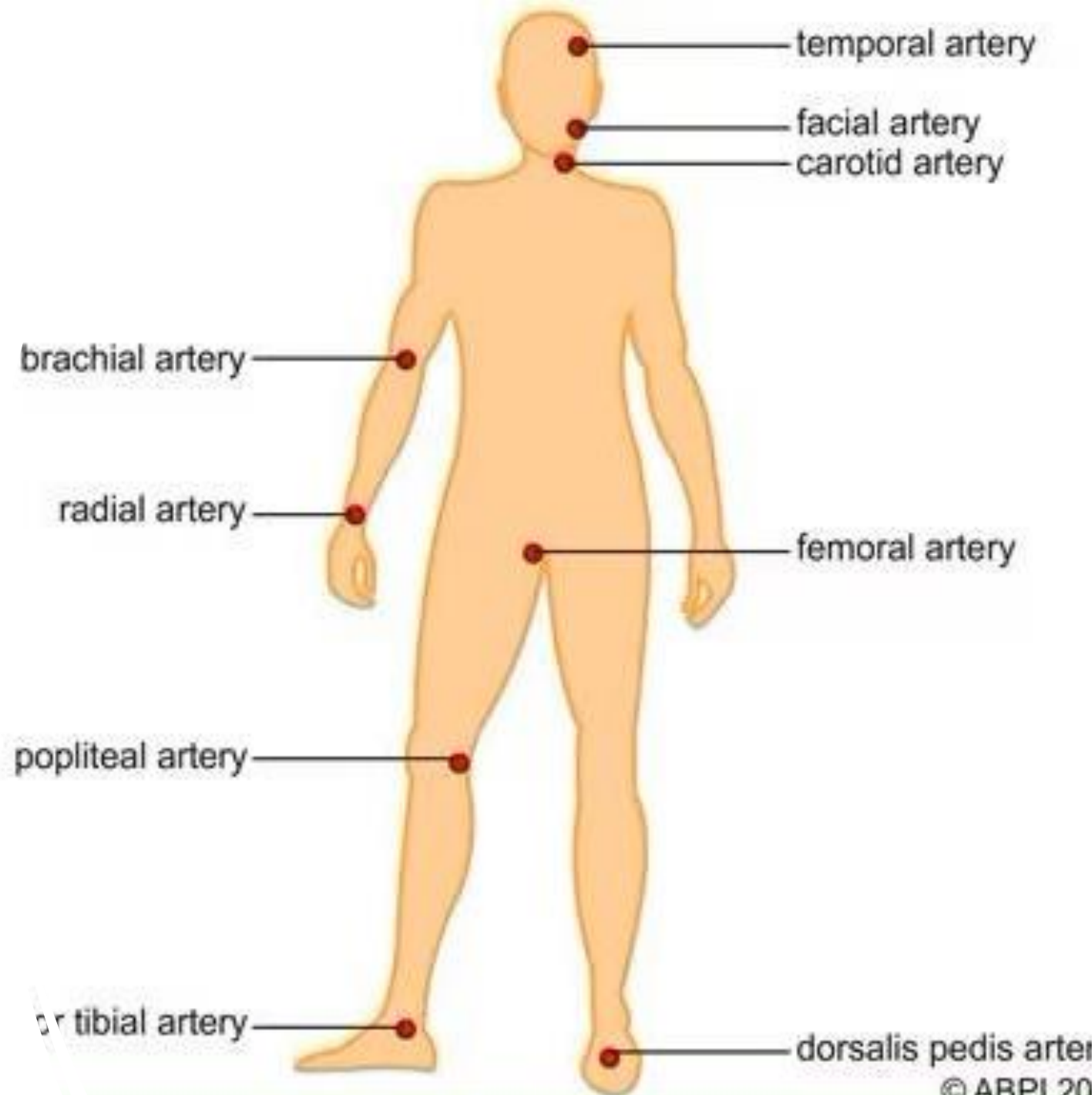
Arterial pulse is defined the alternate expansion and recoil of elastic arteries after each systole of the left ventricle creating a traveling pressure wave.



The pulse is a palpable bounding of blood flow noted at several points on the body (the pressure of the blood pushing against the walls of an ARTERY).

Pulse points

1. Temporal A.
2. Carotid A.
3. Apical A.
4. Brachial A.
5. Radial A.
6. Ulnar A.
7. Femoral A.
8. Popliteal A.
9. Posterior tibial A.
10. Dorsalis pedis A.



Pulse characters

Rate: Number of beats per minute (**60-100**) bpm.

Rhythm: Interval between contractions of ventricles (**regular, irregular**).

Strength: The volume of blood ejected against the arterial wall is graded as **strong or weak**.

Equality: Are pulses the same on both sides of the body.

Factors affecting the pulse

Age

Gender

Exercise

Fever

Medications

Hypovolemia

Stress

Position changes

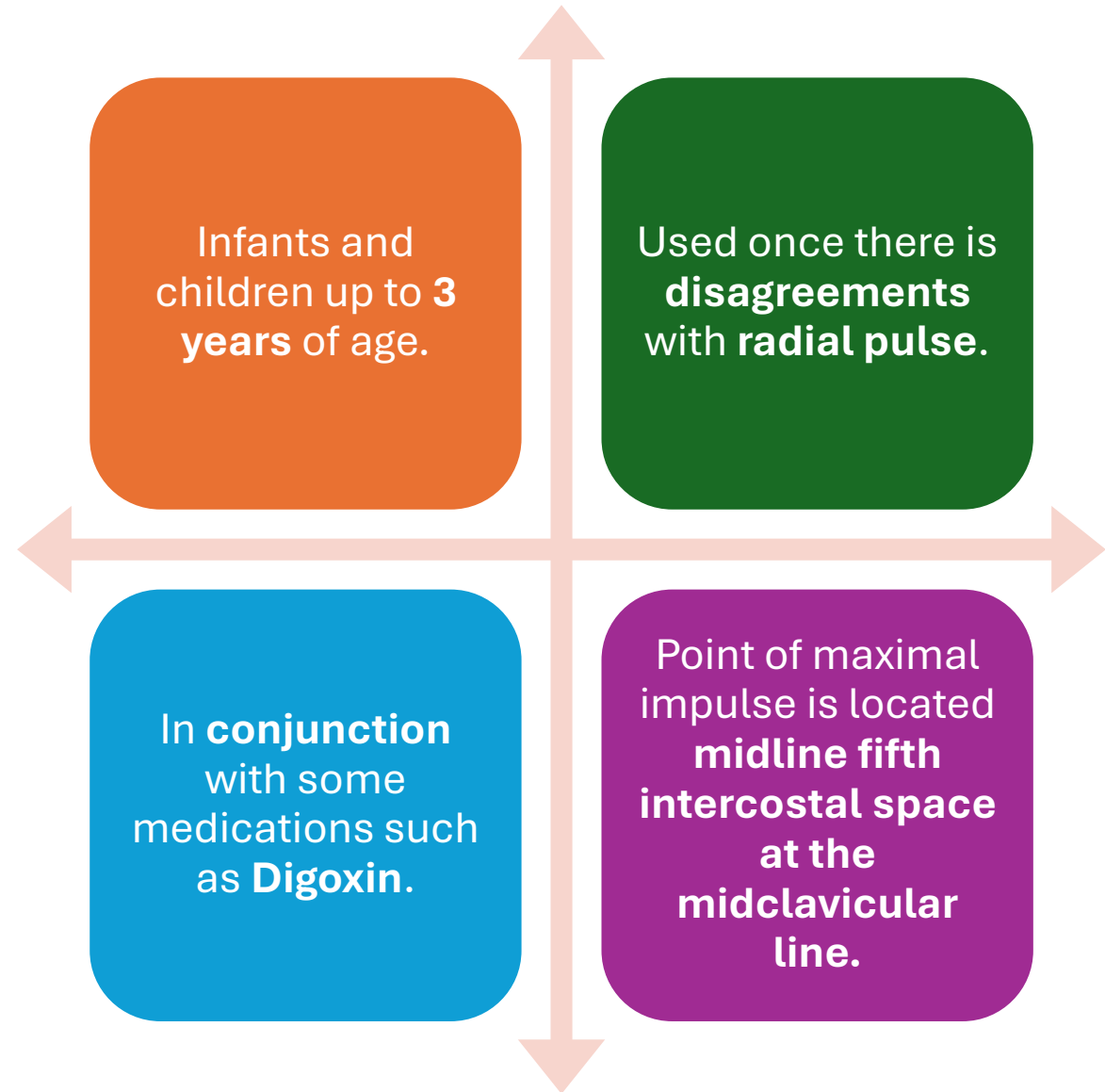
Pathology

Types of pulse

PERIPHERAL PULSE

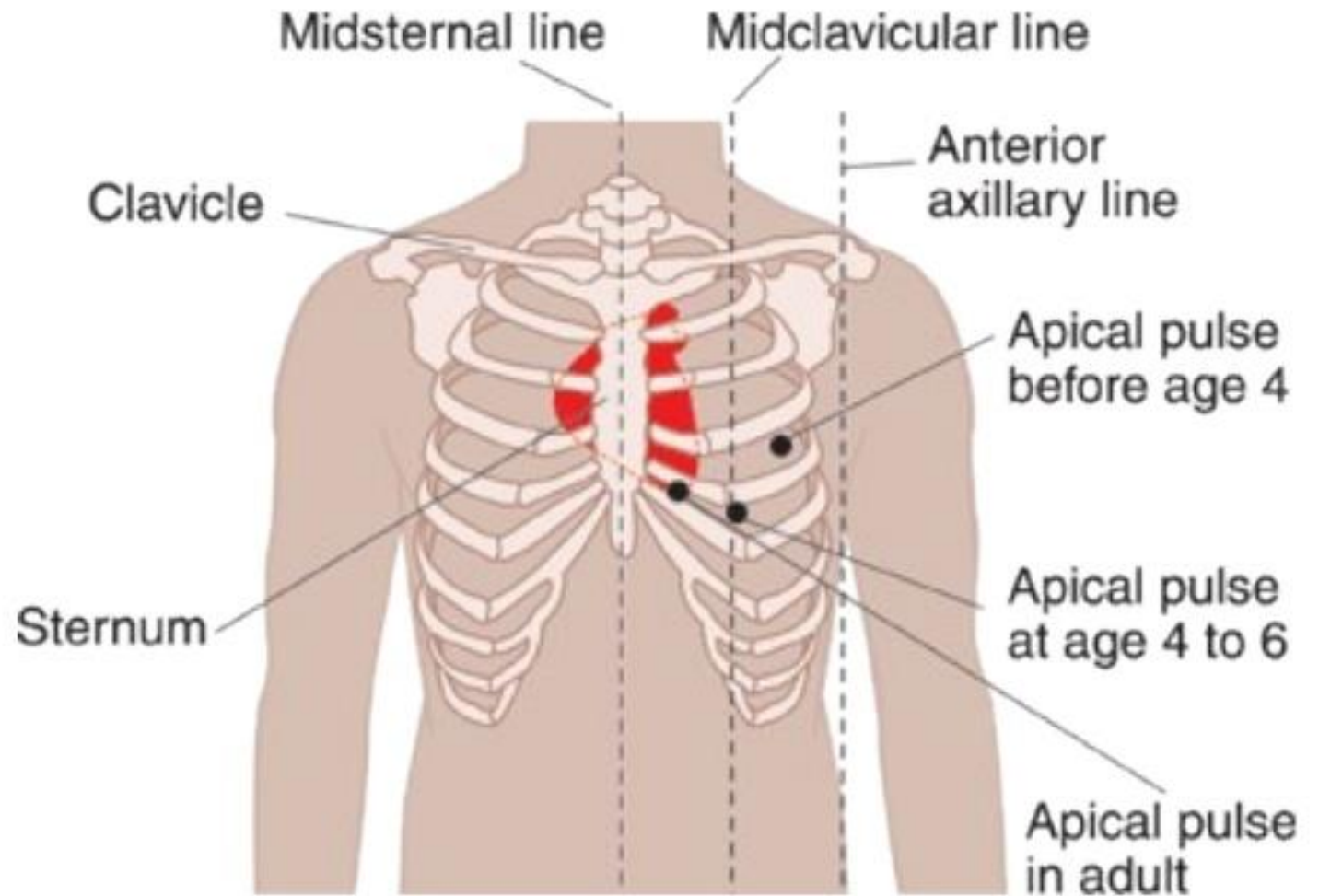
APICAL PULSE

Apical Pulse



Assessing Apical pulse

- Explain the procedure.
- Ensure Privacy.
- Patient in a supine or sitting position.
- Clean earpiece and diaphragm with antiseptic gel.
- Warm diaphragm before use.
- Locate the 5th. Intercostal space.
- Locate the Point of maximal impulse (PMI).
- Palpate for (**60 sec.**) with the Middle three fingers or Using a stethoscope or Doppler ultrasound



Peripheral Pulse

Arteries in the arm

- Brachial.
- Ulnar.
- Radial.

Arteries in the leg

- Popliteal.
- Posterior tibial.
- Dorsalis Pedis.

Radial pulse

- Common pulse sites is Radial Pulse.
- It is measured on the Lateral aspect of the lower forearm just proximal to the wrist joint.
- Feel the bony prominence
- Move fingertips medially
- Tips of fingers drop into a groove in which lies the artery
- Examine the pulse by compressing the artery backwards against the bone, using the fingertips



Brachial pulse

Medial aspect of the antecubital fossa at the line of the elbow joint.

The artery is felt by compressing backwards with fingers or thumbs through the aponeurosis, which divides below the elbow to form the radial and ulnar arteries.



Carotid Pulse

- 1-1.5 cm lateral of the midline in the neck at the upper level of the thyroid cartilage.
- Readily palpable at the anterior border of the sternomastoid muscle.
- May be felt with fingertips or thumb which are used to push posteriorly.



Femoral artery pulse

- The femoral artery enters the upper leg by passing under the inguinal ligament.
- It enters the leg at the mid-inguinal point.
- The femoral artery is usually easily palpated 2-3 cm inferior to the midpoint. Which is located between the pubic tubercle and the anterior superior iliac spine.



Popliteal artery pulse

- The popliteal artery is palpable in the popliteal fossa.
- The artery passes through the fossa slightly medially to laterally.
- The popliteal artery can be palpated in about the fossa's midline at the femoral condyles' level.
- Artery best felt with the knee in slight flexion.



Posterior Tibial artery pulse

The tibialis posterior artery is found on the medial aspect of the ankle.

It is palpable midway between the prominence of the medial malleolus and the calcaneus.



Dorsalis Pedis artery pulse

- Begins in front of the ankle over the tarsal bones
- Superficial in position
- Some people congenitally do not have Dorsalis Pedis artery pulse, which is usually bilateral.

