

Lecture 7 : Fundamentals of Nursing

2 . Pulse:

Definition: It is the expansion of the arterial walls occurring with each ventricular contraction.

Purpose of taking pulse:

- To identify whether the pulse rate is within normal range.
- To determine the pulse volume and whether the pulse rhythm is regular.
- To determine the equality of corresponding peripheral pulse on each side of the body.
- To monitor and assess changes in client's health status.
- To monitor clients at risk for pulse alterations(e.g. those with a history of heart disease or experiencing cardiac arrhythmias, hemorrhage).
- To evaluate blood perfusion to the extremities.

Notes when taking pulse:

A- Pulse rate:

It is the number of heart beat in minute .

Normal Pulse Rates :

Adults 60 to 100 beats/ minute.

Children 70 to 150 beats/ minute.

Infants 100 to 160 beats/ minute.

Fast = Tachycardia - over 100 in adults

Slow= Bradycardia - under 60 in adults

Factors affecting pulse rate:

1. Sleeping: pulse rate morning lowest than at afternoon.
2. Sex: female is faster about (7 -8) beat / minute than male.
3. Age: infant higher than adult.
 - ❖ Infant 120 - 130 beat /minute.
 - ❖ Adult 60 - 100 beat /minute.
4. Body build: body size and build may affect pulse rates.
 - ❖ Thin and long body low pulse.
 - ❖ Obese and short body.....high pulse.
5. Other factors are emotion, medication, Phobia ,Anxiety ,activity, digestion of food and hormones, Body temperature.

-**Tacky cardiac:** pulse rate is over 100 beat /minute.

- **Brady cardiac:** pulse rate is below 60 beat /minute.

B- Rhythm of pulse: it means the time interval between heart beats is equal.(Regular or irregular)

Arrhythmia: irregular pulse rhythm or Irregularity of time interval between heart beats.

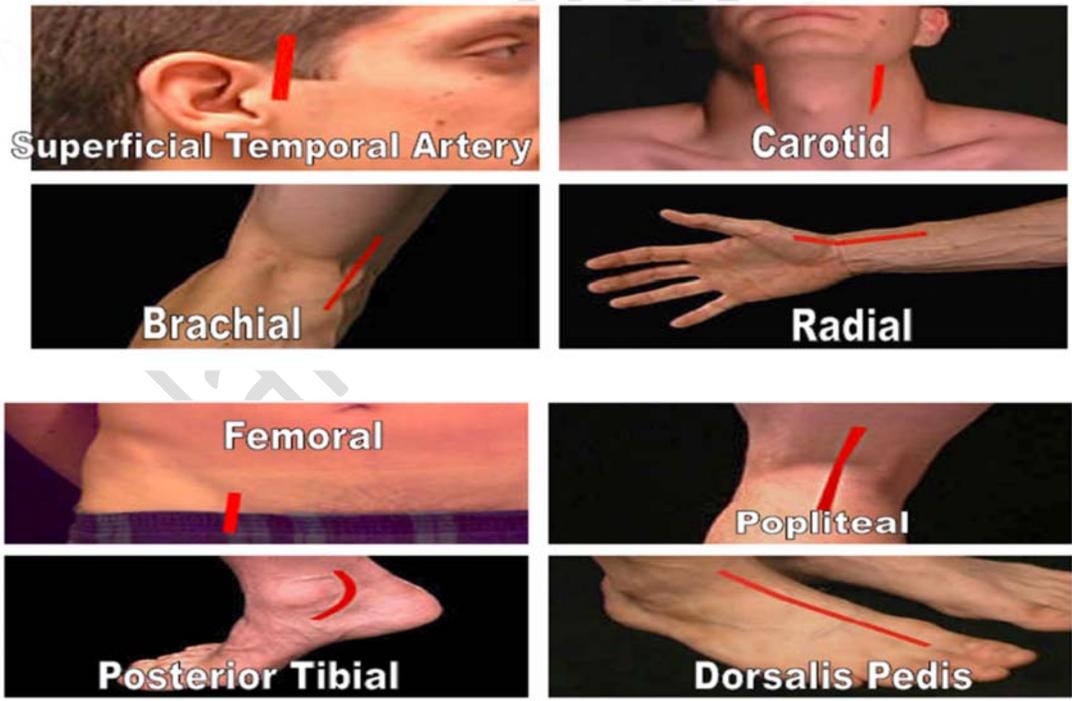
C- Volume of pulse:(Quality)

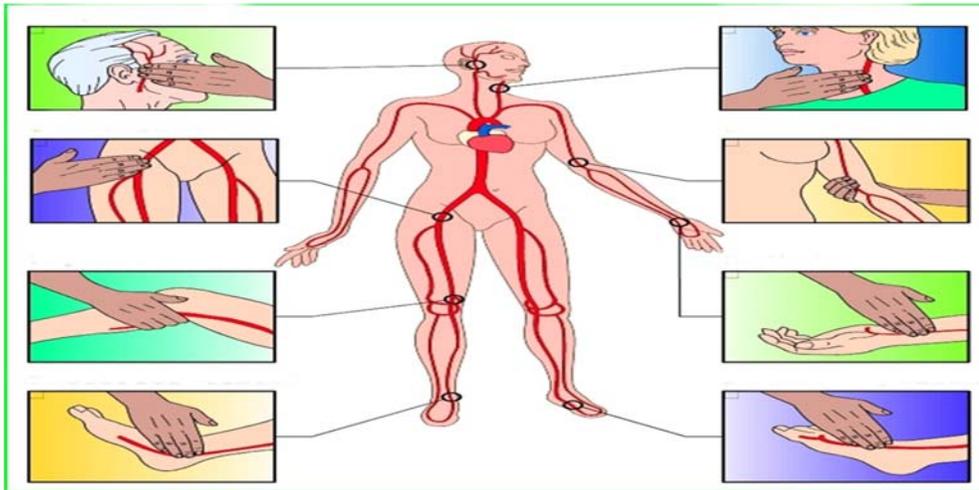
Is the degree of fullness of the artery and reflects the strength of the left ventricular contraction.

- ❖ Strong pulse .
- ❖ Weak pulse.

Site of taking pulse:

1. Radial artery.
2. Temporal artery.
3. Carotid artery.
4. Facial artery.
5. Femoral artery.
6. Dorsal pedis artery
7. Brachial artery.
8. Apical pulse rate.





Procedure of Radial artery:

- Explain the procedure to the patient.
- Perform hand hygiene.
- Provide for client privacy.
- Select the pulse point .
- Palpate and count the pulse , Locate pulse by pressing lightly with index and middle finger pads at the pulse site .
- Count the number of beats felt in 1 minute.
- Document the pulse rate ,rhythm, and volume.
- If regular – may count beats for 30 seconds and multiply by 2.
- Irregular Pulse Rhythm Count for one full minute.
- May use stethoscope to listen for apical pulse and count for a full minute use in irregular pulse. The site of apical pulse at the left 5th intercostal space at the midclavicular line .



- Pulse and respirations are related because the heart and lungs work together. Normally, an increase or decrease in one causes the same effect on the other.
- Pulse : number of the heart beats in 1 minute.
- Ratio of pulse to respirations is 4:1

3 . Respiration:

The exchange of oxygen and carbon dioxide in the body .

- ❖ Respiration : number of times breaths in 1 minute.
- ❖ One breath = one inhalation and one exhalation.
- ❖ The normal adult breath is (12 – 24) time in minute or breath per minute .
- Adults 12 to 24 breaths/min.
- Children 15 to 30 breaths/min.
- Infants 25 to 50 breaths/min.

■ Purpose the measurement of Respiration:

- To monitor abnormal respiration and respiratory patterns and identify changes.
- To monitor respiration before and after of general anesthesia or any medication that influences respiration

- To monitor clients at risk for respiratory alterations (e.g. those with fever , pain , acute anxiety ,chronic obstructive pulmonary disease , asthma , respiratory infection, pulmonary edema , chest trauma, brainstem injury).

- **Respiratory Rate (RR):**

Observe the movement of client's chest a rise and coming down for a complete minute.

- 1 inhalation + 1 exhalation= 1 respiration.

- **External respiration:**

It is process for providing oxygen to the blood , and removal a carbon dioxide from it .

- **Internal respiration:**

It is process for providing the oxygen present in the blood to the body's cells and removal of carbon dioxide from the tissues to the blood.

Notes in observed respiration:

1. Respiratory rate.
2. Quality (Normal ,shallow, or deep).
3. Nature of Respiration (regular, or irregular).
4. Noisy respiration (Normal ,wheezing ,snoring, crackles).

Procedure:

1. Provide for client privacy.
2. Observe and Count the respiratory rate for 30 second if the respiration is regular .
3. Count for 60 second if the respiration is irregular .
4. An inhalation and an exhalation count as one respiration.
5. Observe the deep ,rhythm ,character of respiration.
6. Observe the respiration for depth by watching the movement of the chest .
7. Observe the respiration for regular, or irregular rhythm .
8. Observe the character of respiration the Sound they produce and effort they require.
9. Document the respiratory rate, depth , rhythm and character .

Common Terms:

- ❖ **Eupnea:** normal Respiration.
- ❖ **Bradypnea:** slow breathing.
- ❖ **Tachypnea:** fast breathing.
- ❖ **Apnea :** no breathing.
- ❖ **Dyspnea:** difficult of breathing.
- ❖ **Orthopnoea:** shortness of breath when lying .