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Diploma in Pharmacy 1st Year
Human Anatomy & Physiology
Experiment

To record the Pulse rate /Heart rate at various locations in the body, before and after exertion.

Aim:

To record the Pulse rate /Heart rate at various locations in the body, before and after exertion.

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Dr. Sharma Rahul Kumar , "Practical Manual of Human Anatomy and Physiology" Published by Nirali Prakashan , Pg.No 97 - 100

Theory :

The heart rate, or the number of times the heart beats in one minute, is the pulse Pulse rates differ from one person to the next. As a person is at rest, the pulse rate or heart rate is lower, and when he/she exercise, it increases (while exercising. the body needs more oxygen-rich blood.)

Various locations in the body for recording of pulse rate are as follows:

1) **Temporal:** The site is above and lateral to the eye where the temporal artery passes over the temporal bone of the head.
2) **Carotid:** At the side of the neck where the carotid artery runs between the trachea and the sternocleidomastoid muscle.
3) **Apical:** At the apex of the heart.
4) **Brachial:** At the inner aspect of the biceps muscle of the arm or medially in the antecubital space
5) **Radial:** At the thumb side of the inner aspect of the wrist where the radial artery runs along the radial bone.
6) **Femoral:** Where the femoral artery passes alongside the inguinal ligament.

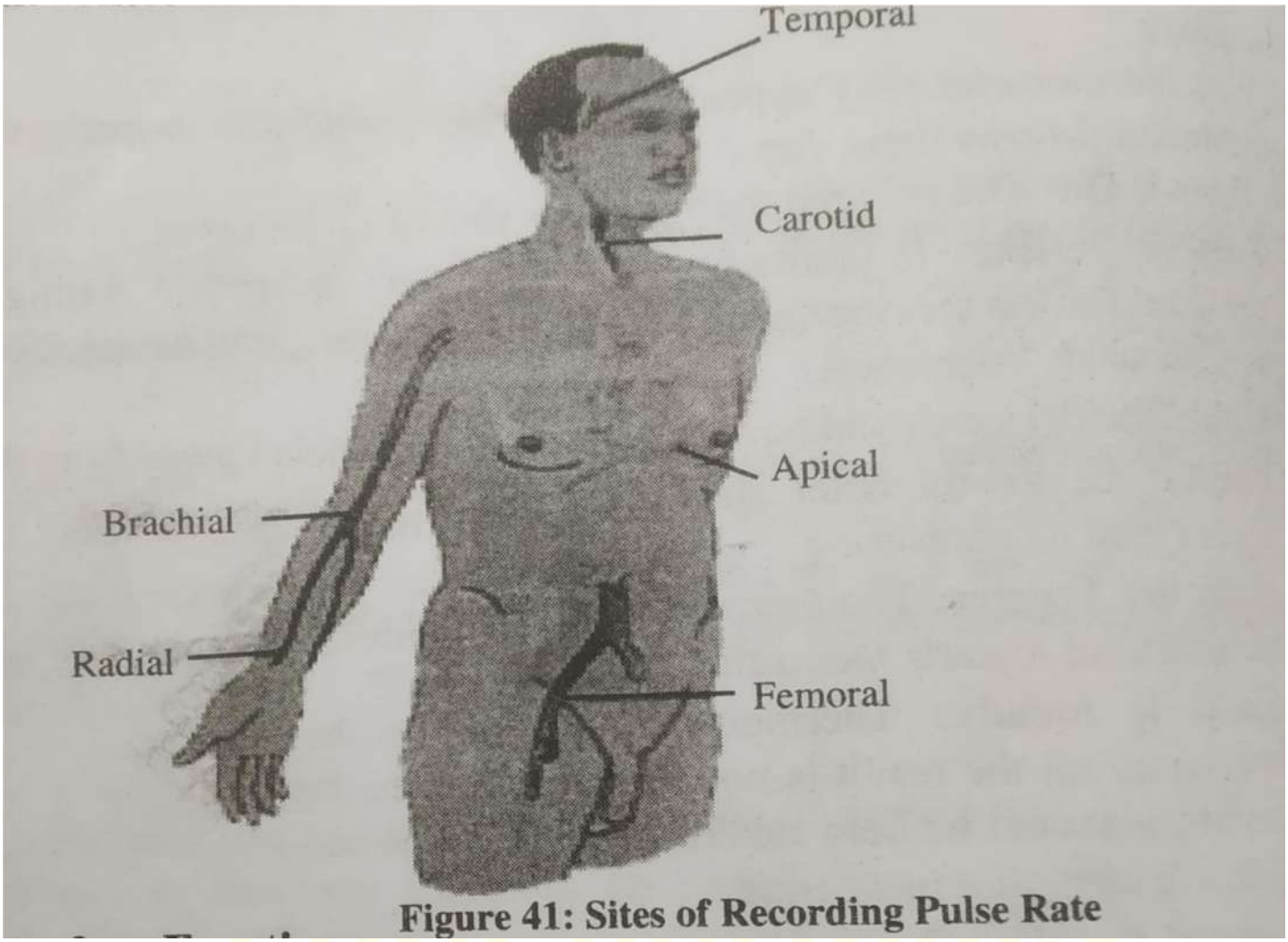

Figure 41: Sites of Recording Pulse Rate

Pulse Rate Before Exertion

When begin to exercise, a person should aim for the lower end of the target heart rate range (50% of his/her maximal heart rate) and progressively increase this to 85% over the time. A normal resting heart rate is 60-100 beats per minute.

Pulse Rate After Exertion

Subtract the age from 220 to determine the maximal heart rate. If the person is 45 years old, in that case subtract 45 from 220 to get a maximum heart rate of 175 beats per minute. After exercise, this is the maximum number of times the heart should beat per minute.

Procedure

1) The tips of index, second and third fingers should be placed on the palm side of another wrist below the base of the thumb or, the tips of

index and second fingers should be placed on lower cheek on either side of wind pipe.

2) Slight pressure should be applied with the fingers until the blood pulsing is not felt beneath the fingers. At times patient should be instructed to move the fingers around slightly up or down until feel the pulsing.
3) A watch should be used with a second hand or should be looking at a clock.
4) The beats felt should be counted for 10 seconds. The number should be multiplied by six to get heart rate/pulse rate per minute.

Observation

Normal Heart Rate/Pulse Rate At Rest

1) Children (age 6-15)→ 70-100 beats/minute.
2) Adults (age 18 and over) 60-100 beats/minute.

Maximum Heart Rate/Pulse Rate

The highest heart rate reached during maximal exertion is known as the maximum heart rate. This formula is a simple method to calculate the predicted maximum heart rate/pulse rate.

220-Age = Predicted maximum heart rate

Example: A 40 years old's predicted maximum heart rate is 180 beats/minute.

Result: The Pulse rate /Heart rate at various locations in the body, before and after exertion was recorded.