

## Experiment No.3 – To measure the blood pressure in human

### Observations

#### 1. Normal Blood Pressure

##### (a) Palpatory method

<u>Reading No.</u>	<u>Systolic B.P. (mmHg)</u>
<u>1.</u>	<u>112</u>
<u>2.</u>	<u>118</u>
<u>3.</u>	<u>114</u>

##### (b) Auscultatory method

<u>Reading No.</u>	<u>Rt. Arm SBP (mmHg)</u>	<u>Rt. Arm DBP (mmHg)</u>	<u>Lt. Arm SBP (mmHg)</u>	<u>Lt. Arm DBP (mmHg)</u>
1.	122	78	118	76
2.	118	74	116	72
3.	120	80	118	78

#### 2. Normal Blood Pressure

##### (a) *Resting position (Supine/Sitting)*

<u>Reading No.</u>	<u>Rt. Arm SBP (mmHg)</u>	<u>Rt. Arm DBP (mmHg)</u>	<u>Lt. Arm SBP (mmHg)</u>	<u>Lt. Arm DBP (mmHg)</u>
1.	110	70	108	68
2.	112	72	110	70
3.	108	68	106	66

***(b) Standing position***

Reading No.	Rt. Arm SBP (mmHg)	Rt. Arm DBP (mmHg)	Lt. Arm SBP (mmHg)	Lt. Arm DBP (mmHg)
1.	108	72	106	70
2.	110	74	108	72
3.	104	68	102	66

**3. Effect of mild exercise on blood pressure**

***Before Exercise (Resting Condition)***

Reading No.	Heart Rate (beats/min)	SBP (mmHg)	DBP (mmHg)
1.	84	104	86

***After Moderate Exercise***

Reading No.	Heart rate (beats/min)	SBP (mmHg)	DBP (mmHg)
<b>1. Immediately after exercise</b>	124	116	76
<b>2. After 3 minutes</b>	97	120	80
<b>3. After 7 minutes</b>	95	104	90
<b>4. After 10 minutes</b>	90	108	80

**Exercises**

- 1. Define Pulse pressure. What is the pulse pressure in your subject? Define Blood Pressure.**

**Ans:-** Pulse pressure (PP) is the difference between systolic and diastolic pressures, the average PP being about 40 mm Hg. Other factors remaining unchanged, the magnitude of PP indicates the stroke volume.

Pulse pressure on my subject=116-76

=40 mmHg

**Blood Pressure :-** The outward lateral force on the vessel exerted by flowing blood is called Blood Pressure.

## 2. Define Mean Arterial Pressure and calculate it on your subject.

**Ans:-** The mean arterial pressure (MAP, or mean arterial blood pressure, MABP) is the average of all the pressures measured during the cardiac cycle.

The true MAP can be determined only by integrating the areas of the pressure curves.

A reasonable approximation :-

$$\text{MAP} = 1/3(\text{PP}) + \text{DBP}$$

$$\text{MAP} = 1/3(40) + 76$$

$$= 13 + 76$$

$$= 89 \text{ mmHg}$$

## 3. Why the blood rises during standing position?

**Ans:-** The pressure in any artery or vein below the level of the heart is increased and that in any vessel above the heart is decreased by the effect of gravity. The degree of this effect (the product of the vertical distance above or below the heart, the acceleration due to gravity (980 cm/s/s) and the density of blood), is 0.77 mm Hg/cm.

## 4. Which of the two pressures is affected more by exercise and why?

**Ans:-** During the exercise, there is marked increase in cardiac output due to rise heart rate and force of ventricular contraction. This causes the significant rise in systolic pressure.

**5. What is the criteria for mild, moderate and severe exercise?**

**Ans:-** The WHO grading in muscular exercise, according to heart rate and relative load index.

<b>Grade</b>	<b>Heart Rate</b>	<b>% inc of heart rate</b>
<b>Mild</b>	<100	25%
<b>Moderate</b>	100-125	50%
<b>Severe</b>	>140	75%