**Human Anatomy and Physiology 2**

**NURS 142**

**Effect of hyperactivity on Heart rate, Blood pressure, Temperature, and Respiratory rate**.

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**Objective**

**Measure the respiratory rate at rest and after activity observe and understand the difference between the two respiratory rates recognize the factors effecting respiratory rate among individuals.**

**Measure the heart rate at rest and after activity observe and understand the difference between the two heart rates recognize the factors effecting heart rate among individuals.**

**Measure the blood pressure at rest and after activity observe and understand the difference between the two blood pressure recognize the factors effecting blood pressure among individuals.**

**Measure the temperature at rest and after activity observe and understand the difference between the two temperatures recognize the factors effecting temperature among individuals.**

**Introduction**

**Studies have shown that hyperactivity affects human vital signs, as the human heart beats in normal mode (60-100 beats per minute), blood pressure (120/80 mm Hg), and respiratory rate (12-20 beats per minute)، and The average temperature ranges between (36. -37.5 C), when a person does a lot of activities and makes a great effort that exhausts all his energy, it is certain that his vital signs will change, in order to know the changes that occurred in vital signs as a result of hyperactivity we conducted an experiment Through which we can know the changes that have occurred and compare them with the vital signs in the normal situation.**

**Results**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **At rest** | **MAX** | **5 minutes** | **10 minutes** | **15 minutes** | **20 minutes** |
| **ST 1** | **18** | **35 (94%)** | **32** | **20** | **20** | **18** |
| **ST 2** | **20** | **46(130%)** | **27** | **24** | **22** | **20** |
| **ST 3** | **16** | **31 (93%)** | **20** | **18** | **18** | **18** |
| **ST 4** | **19** | **38 (100%)** | **25** | **23** | **22** | **20** |
| **MEAN** | **18.25** | **37.5** | **26** | **21.25** | **20.5** | **19** |
| **SED** | **1.7** | **6.5** | **5** | **3** | **2** | **1** |
| **SEM** | **0.85** | **3.25** | **2.5** | **1.5** | **1** | **0.5** |

**Table 1\_ Respiratory Rate**

**The results:**

**At rest: 18.55 +/- 0.85(4)**

**MAX: 37.5 +/- 3.25(4)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **At rest** | **MAX** | **5 minutes**  | **10 minutes** | **15 minutes** | **20 minutes** |
| **ST 1** | **80** | **78(122%)** | **120** | **115** | **72** | **78** |
| **ST 2** | **78** | **149(91%)** | **120** | **111** | **107** | **92** |
| **ST 3** | **68** | **118(74%)** | **108** | **104** | **90** | **78** |
| **ST 4** | **96** | **166(73%)** | **126** | **118** | **119** | **122** |
| **MEAN** | **80.5** | **127.75** | **118.5** | **112** | **97** | **92.5** |
| **SD** | **12** | **40** | **7.5** | **6** | **20.5** | **21** |
| **SEM** | **6** | **20** | **3.75** | **3** | **10.25** | **10.5** |

**Table 2\_ Heart Rate**

**The results:**

**At rest: 80.5 +/- 6(4)**

**MAX: 127.75 +/- 20(4)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **At rest** | **MAX** | **5 minutes** | **10 minutes** | **15 minutes** | **20 minutes** |
| **ST 1** | **36.5** | **37(1.5%)** | **36.8** | **36.6** | **36.6** | **36.5** |
| **ST 2** | **36.4** | **36.9(1.1%)** | **36.5** | **36.5** | **36.5** | **36.5** |
| **ST 3** | **36.5** | **36.6(0.2%)** | **36.5** | **36.5** | **36.5** | **36.5** |
| **ST 4** | **37.1** | **37.7(1.6%)** | **37** | **36.7** | **36.6** | **36.8** |
| **MEAN** | **36.6** | **37.05** | **36.7** | **36.5** | **36.55** | **36.57** |
| **SD** | **0.3** | **0.5** | **0.25** | **0.12** | **0.05** | **0.15** |
| **SEM** | **0.15** | **0.25** | **0.125** | **0.06** | **0.025** | **0.075** |

**Table 3\_ Temperature**

 **The results:**

**At rest: 36.6 +/- 0.15(4)**

**MAX: 37.05 +/- 0.25(4)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **SYSTOLIC** |  |  |
|  | **At rest** | **MAX** | **5 minutes** | **10 minutes** | **15 minutes** | **20 minutes** |
| **ST 1** | **122** | **162(32%)** | **134** | **127** | **124** | **122** |
| **ST 2** | **120** | **151(25%)** | **130** | **125** | **117** | **108** |
| **ST 3** | **101** | **160(58%)** | **121** | **115** | **114** | **112** |
| **ST 4** | **113** | **129(14%)** | **123** | **117** | **102** | **115** |
| **MEAN** | **114** | **150.5** | **127** | **121** | **114.25** | **114.25** |
| **SD** | **9.5** | **15** | **6** | **6** | **9** | **6** |
| **SEM** | **4.75** | **7.5** | **3** | **3** | **4.5** | **3** |

**Table 4\_ Blood Pressure (Systolic)**

**The results:**

**At rest: 114 +/- 4.74(4)**

**MAX: 150.5 +/- 7.5(4)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **DIASTOLIC** |  |  |
|  | **AT rest** | **MAX** | **5 minutes** | **10 minutes** | **15 minutes** | **20 minutes** |
| **ST 1** | **80** | **93(16%)** | **85** | **80** | **77** | **74** |
| **ST 2** | **70** | **81(15%)** | **80** | **78** | **62** | **60** |
| **ST 3** | **64** | **105(64%)** | **68** | **70** | **70** | **69** |
| **ST 4** | **66** | **79(20%)** | **71** | **74** | **72** | **70** |
| **MEAN** | **70** | **89.5** | **76** | **75.5** | **70.25** | **68.25** |
| **SD** | **7** | **12** | **8** | **4.5** | **6.2** | **6** |
| **SEM** | **3.5** | **6** | **4** | **2.25** | **3.1** | **3** |

**Table 5\_ Blood Pressure (Diastolic)**

**The results:**

**At rest: 70 +/- 3.5(4)**

**MAX: 89.5 +/- 6(4)**

**Figure1-RR**

**Figure2-HR**

**Figure3-Temperature**

**Figure4-BP (systolic)**

**Figure5-BP (diastolic)**

**Discussion**

**In this experiment we have calculated each of Respiratory rate, Temperature, Heart rate, Blood pressure at rest and hyperactivity, by using the radial artery for calculating the pulse rate by putting the tip of index & middle finger and sensation the pulse near the radial bone above radial artery.**

**First of all, we calculate this vital signs at rest without doing any activity and in sitting position, so we have done this experiment on our partner Raneen, we begin with her in Heart rate calculating and then Respiratory rate, and then temperature, and finally blood pressure.**

 **As for respiratory and heart rate we set the timer for 30 second and multiply it by 2 because each of them is shown as regular rhythm, and then we have measured the temperature orally and blood pressure by the dinamap machine. As you see in the figures the values is normal.**

**After we have finished the measuring of RR, HR, Bp, Temperature at rest , we complete the measuring of them at hyperactivity but in several periods, the first period was determined to be directly after an extreme activity and it was by running on the treadmill and we called it the (Maximum Hyperactivity), and the other periods is divided into five periods, the first one was after 5 min from the exercise, and then after 10 min, and then after 15 min, and then after 20 min , and the last one after 25 min, so we have done the measurements of these vital signs during this periods and we have documented it on the board, and then we have calculated the standard error mean (SEM) , mean value, Standard Deviation (SD) for the respiratory rate, Heart rate, Blood pressure(Systolic & Diastolic) & Temperature, and also we have calculated the percentage of maximum hyper activity for each of these measurements as shown in the tables.**

**Conclusion**

 **To conclude, we have realized that the exercise causes the body to need more oxygen. Thus, the body breaths quicker, has a faster pulse rate, and higher blood pressure; but the temperature only slightly elevates.**