**Muscle Fatigue**

**Abstract:**

This experiment was to observe the effect of muscle fatigue on performance. Experimenter selected two groups i.e. experimental and control group. The experimenter gave them a paper and asked both the groups to draw dots on it. During experiment, experimental group provided with no relaxation which reduces their performance thus proving the experimental hypothesis true. Muscle fatigue termed as independent variable and performance of the subject as dependent variable.

**Introduction:**

Fatigue has been found to play a big role in limiting performance. Muscle fatigue is the decline in ability of a muscle to generate force. It can be a result of vigorous exercise but abnormal fatigue may be caused by barriers to or interference with the different stages of muscle contraction. Muscle fatigue is a symptom that decreases your muscles' ability to perform over time. It can be associated with a state of exhaustion, often following strenuous activity or exercise. While exercise is a common cause of muscle fatigue, this symptom can be the result of other health conditions, too. There are many different fatigue classification methods. According to its duration, fatigue can be classified into acute fatigue and chronic fatigue. Acute fatigue can be quickly relieved by rest or life-style changes, whereas chronic fatigue is a condition defined as a persistent tiredness lasting months that is not ameliorated by rest. Fatigue can also be classified as mental fatigue, which refers to the cognitive or perceptual aspects of fatigue, and physical fatigue, which refers to the performance of the motor system.

**Types of Fatigue:**

* **Physical Fatigue:**

Feeling of tiredness with a physical appearance, e.g. heavy feeling in the body, tensed feeling in the body and mild pain in some part of the body is called physical fatigue.

* **Mental Fatigue:**

Mental fatigue is a condition characterized by excessive mental tiredness. Mental fatigue potentially lead to serious problems include reduced productivity, poor job performance and impaired physical functioning.

* **Psychological Fatigue:**

Psychological fatigue is a diminution in emotional, spiritual, or attitudinal components of our skills, our contributions, and our output.

**Method:**

* **Type of Practical:** Experimental type.
* **Design of Practical:** Repeated measures.

**Independent variable:** Muscle fatigue.

**Dependent variable:** Performance of the subject.

**Experimental Hypothesis:**

Fatigue is directly influence the performance.

**Null Hypothesis:**

Performance is not influenced by fatigue.

**Subject:**

Name: S.F.

Age: 19 years.

Gender: Female.

Education: BA.

**Apparatus:**

* Two blank pages.
* Pen/Pencil.
* Calculator.

**Procedure:**

1. The examiner selected two groups. The first group was experimental group and the second one is control group.
2. The experimenter gave one page to each of the group to fill it with dots.
3. In the experiment, the examiner gave relaxation of few minutes to the control group while experimental group continued to fill the paper without any break.
4. After the experiment, the examiner checked the average of clear and unclear dots.
5. The results showed that control group was much better in performance than experimental group. Because of continuous work, experimental group got muscle fatigue which influences their performance thus proved the experimental hypothesis.

**Results:**

The number of clear dots of control group is greater than experimental group so the experimental hypothesis is proved that muscle fatigue directly influences the performance. Because the experimental group was given no rest as compared to control group so the continuity of work causes muscle fatigue in experimental group which leads to poor performance.

**Experimental Group:**

In first page:-

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. # | Clear Dots | Unclear Dots | Total |
| 1 | 200 | 108 | 308 |
| 2 | 207 | 130 | 337 |
| 3 | 208 | 180 | 388 |
| 4 | 179 | 280 | 459 |
| **Result** | 794 | 698 | 1492 |

In Second page:-

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. # | Clear dots | Unclear dots | Total |
| 1 | 307 | 25 | 332 |
| 2 | 290 | 55 | 345 |
| 3 | 240 | 98 | 378 |
| 4 | 210 | 101 | 311 |
| **Results** | 1047 | 279 | 1266 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Clear Dots** | **Unclear Dots** | **Total dots** |
| Page one | 8794 | 698 | 1492 |
| Page Two | 1047 | 279 | 1266 |

**Control Group:**

In first page:-

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. # | Clear dots | Unclear dots | Total |
| 1 | 95 | 5 | 100 |
| 2 | 130 | 20 | 150 |
| 3 | 110 | 50 | 160 |
| 4 | 82 | 18 | 100 |
| **Result** | 417 | 93 | 510 |

In Second page:-

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. # | Clear dots | Unclear dots | Total |
| 1 | 90 | 10 | 100 |
| 2 | 140 | 10 | 150 |
| 3 | 160 | 18 | 178 |
| 4 | 80 | 30 | 110 |
| **Results** | 470 | 68 | 538 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Clear dots** | **Unclear dots** | **Total dots** |
| Page one | 417 | 93 | 510 |
| Page two | 470 | 68 | 538 |

**Conclusion:**

In this experiment, the experimental hypothesis is proved and null hypothesis is rejected. Due to the relaxation during the experiment the control group is better efficiency in work as compared to the experimental group due to muscle fatigue. Muscle fatigue decreases the amount of force you use to perform muscle actions. This symptom is often considered no cause for alarm unless your fatigue doesn’t improve with rest.

In more severe cases, muscle fatigue can be an indication of a more serious disorder. Left untreated, this condition can lead to overwork and increase your risk of injury. Do not self-diagnose. If your muscle fatigue is paired with other irregular symptoms or if your condition doesn’t improve after a few days, schedule a visit with your doctor.

**Reference:**

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