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Effect of induced mental and physical fatigue on kinesthetic perception of school children

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Abstract

Physical fatigue and Mental fatigue. With physical fatigue, your muscles cannot do things as easily as they used to with mental fatigue, it may be difficult to concentrate for as long as you used to. "Kinesthetic perception is the ability to perceive the position, effort, and movement of part of the body or entire body during muscular action." this study was to compare the effect of induced physical and mental fatigue on kinesthetic perception of school children. The subjects was selected from BGS World School, Chikkaballapur. The investigator randomly selected 40 subjects (25 boys and 15 girls) from BGS World School, Chikkaballapur and their age ranged from 11 to 13 years. Prior to the administration of test the investigator held a series of meetings with the subjects and were made clear about the objectives and purposes of the test. Findings related to boys: Kinesthetic perception was affected more when physically fatigued than mentally fatigued. Findings related to girls: In case of girl subjects, kinesthetic perception was affected more when they were mentally fatigued. Findings related to sex comparison. There is no significant difference between boys and girls with respect to kinesthetic perception after getting physically and mentally fatigued. The hypothesis stated that there would not be any significant effect of mental and physical fatigue on kinesthetic perception. But the results of the study proved that in case of boy's kinesthetic perception were affected more when they were physically fatigued. In case of girls, kinesthetic perception were affected more they were mentally fatigued. Thus the hypothesis is rejected.

Keywords: Mental fatigue, physical fatigue, hypothesis, kinesthetic, health problems

Introduction

Fatigue is the feeling of extreme tiredness or weakness that can make it difficult for you to perform ordinary tasks. Fatigue affects everyone differently. You may feel very tired and all you want to do is sleep. Fatigue may also along with pain and sometimes can make you feel that you have little control over your life. There are two types of fatigue – Physical fatigue and mental fatigue. With physical fatigue, your muscles cannot do things as easily as they used to. With mental fatigue, it may be difficult to concentrate for as long as you used to. "Kinesthetic perception is the ability to perceive the position, effort, and movement of part of the body or entire body during muscular action".

Some causes of physical fatigue are

1. Not getting enough sleep.
2. Chronic disease and other health problems.
3. Poor physical condition, lack of exercise.
4. Obesity.

Some causes of mental fatigue

1. Depression or anxiety.
2. Overextending yourself or trying to hide your emotions from others.
3. A major life change.
4. Work place stress.

Statement of the problem

The purpose of this study was to compare the effect of induced physical and mental fatigue on Kinesthetic perception of school children.

Delimitations

The study was delimited to the following aspects

1. The subjects was selected from BGS World School, Chikkaballapur.
2. Their age ranged from 11 to 13 years.
3. 40 students (both boys and girls) were randomly selected from the school.

Limitations

The following were the limitations of the present study

1. Physical state of the subjects was not taken into consideration.
2. Mental state of the subjects was not taken into consideration.

Hypothesis

The study hypothesized that there will not be any significant effect of mental fatigue and physical fatigue on kinesthetic perception.

Methodology

The investigator randomly selected 40 subjects (25 boys and 15 girls) from BGS World School, Chikkaballapur and their age ranged from 11 to 13 years. Prior to the administration of test the investigator held a series of meetings with the subjects and were made clear about the objectives and purposes of the test. The testing procedure was explained to them in detail. They were requested to co-operate and participate actively as subjects for this study. The subjects assured their voluntary participation during testing period.

Selection of variable

For the purpose of the study the following variable were selected.

Kinesthetic perception

Test	Instruments
Distance Perception Jump	yard stick or tape measure, blindfold and chalk

Procedure for administration of tests

Physical Fatigue

In order to bring the subjects under the physical fatigue condition the subjects were made to play a game of Kho-Kho following the actual rules and regulation.

Mental Fatigue

Group Test of Intelligence Test Booklet constructed and standardized by Dr. Pramila Ahuja, was used to make the subjects mentally fatigued.

Kinesthetic perception

1. **Objective:** To measure ability to perceive distance by concentrating on the effort involved in a jump.
2. **Equipment and Materials:** Yardstick or tape measure, blindfold, and chalk.
3. **Directions:** The performer was instructed to sense the distance between the two lines without a practice trail. The blindfold was then put on and the subject jumped from behind the starting line trying to land with the heels as close to the target line as possible. He was allowed to see where he lands on each trail. Ten trails were given.

Statistical techniques

To compare the mean difference between the scores of mental and physical fatigue, dependent 'T' Test was employed with

each of the selected variables and to compare the mean difference between the scores of boys and girls independent 'T' Test was employed with each of the selected variables.

Results and Discussion

The data pertaining to kinesthetic perception for both physically and mentally fatigued subjects were statistically analysed by 'T' Test. The level of significance was chosen at 0.05 level.

Findings

To find out the significant mean difference between physically fatigued and mentally fatigued groups paired 'T' Test was used. The mean difference of the criterion measures for the physically fatigued and mentally fatigued groups are presented below.

Table 1: Difference in means of physically and mentally fatigued groups on kinesthetic perception of boys

Group	No. of subjects	Mean	'T' Ratio
Physically fatigued	25	79.00	4.13*
Mentally fatigued	25	70.92	

'T' Value needed for significance at 0.05 level with 24 degrees of freedom was 2.06. The above table indicates that, since calculated 'T' Value of 4.13 is higher than tabulated 'T' Value of 2.06, it can be concluded that kinaesthetic perception of the subjects (boys) was affected more when physically fatigued than mentally fatigued.

Table 2: Difference in means of physically and mentally fatigued groups on kinesthetic perception of girls

Group	No. of subjects	Mean	'T' Ratio
Physically fatigued	15	59.20	4.26*
Mentally fatigued	15	63.66	

'T' Value needed for significance at 0.05 level with 14 degrees of freedom was 2.14. The above table indicates that, since calculated 'T' Value of 4.26 is higher than tabulated 'T' Value of 2.14, it can be concluded that kinaesthetic perception of the subjects (girls) was affected more when mentally fatigued than physically fatigued.

Table 3: Difference in means of physically fatigued boys and girls on kinesthetic perception

Group	No. of subjects	Mean	'T' Ratio
Physically fatigued Boys	25	79.00	0.74
Physically fatigued Girls	15	59.20	

'T' Value needed for significance at 0.05 level with 39 degrees of freedom was 2.00. The above table indicates that, since calculated 'T' Value of 0.74 is lower than tabulated 'T' Value of 2.00, it can be concluded that there is no significant difference between boys and girls with respect to kinesthetic perception after getting physically fatigued.

Table 4: Difference in means of mentally fatigued boys and girls on kinesthetic perception

Group	No. of subjects	Mean	'T' Ratio
Mentally fatigued Boys	25	70.92	0.82
Mentally fatigued Girls	15	63.66	

'T' Value needed for significance at 0.05 level with 39 degrees of freedom was 2.00. The above table indicates that, since calculated 'T' Value of 0.82 is lower than tabulated 'T' Value

of 2.00, it can be concluded that there is no significant difference between boys and girls with respect to kinesthetic perception after getting mentally fatigued.

Discussion on Findings

From the tables it was evident that in the case of selected psychomotor variables (kinesthetic perception) there were significant difference between the physically and mentally fatigued groups and between boys and girls.

1. **Findings related to boys:** Kinesthetic perception was affected more when physically fatigued than mentally fatigued.
2. **Findings related to girls:** In case of girl subjects, kinesthetic perception was affected more when they were mentally fatigued.
3. **Findings related to sex comparison:** There is no significant difference between boys and girls with respect to kinesthetic perception after getting physically and mentally fatigued.

Discussion on Hypothesis

The hypothesis stated that there would not be any significant effect of mental and physical fatigue on kinesthetic perception. But the results of the study proved that in case of boy's kinesthetic perception were affected more when they were physically fatigued. In case of girls, kinesthetic perception were affected more they were mentally fatigued. Thus the hypothesis is rejected.

Recommendations

In the light of conclusions drawn, the following recommendations are made:

1. Similar studies may be under taken for different age groups other than the age group taken for the present study.
2. Other psychomotor variables can be incorporated in the future studies.

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