



EFFECT OF SLEEP DEPRIVATION ON SPEED AND STRENGTH

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Abstract

The purpose of this study was to determine the effect of sleep deprivation on speed and strength. The physical variables Speed and Strength were taken for this study. To facilitate this study forty-five (45) subjects were selected randomly for the study from the Institute of Professional Studies, Group of College, Gwalior (M.P) and their residence was in the institute hostel. Subjects divided into three equal groups namely Experimental Group I, Experimental Group II, and Control Group. The pre-test and post-test were taken before and after the completion of six weeks of sleep deprivation. The significant effect of conditioning was determined through Analysis of Co-Variance (ANCOVA) at 0.05 level of significance. The adjusted post-test means were computed by the LSD Post hoc test. Based on the result of this study we can conclude that no significant effect was found on strength and speed due to sleep deprivation.

Keywords: Sleep Deprivation, Speed, and Strength.

Introduction

The effects of sleep deprivation are not as severe as once thought. Most people can pull an "all -night" (stay up one night) with no ill effects other than extreme sleepiness. But most people have trouble staying up for more than 48 hours. Long walks, exposure to cold, and attention-grabbing stimuli will keep a person awake after 48 hours, but after 100 hours (4 days) only constant prodding from an experimenter will keep people from dozing off. Most people do not get enough sleep. We are a society that burns the candle at both ends, a nation where people stay up all night to study, work, or have fun. However, going with adequate sleep carries with it both short- and long term consequences. In the short term, a lack of adequate sleep can affect judgment, mood, ability to learn and retain information, and may increase the risk of serious accidents and injury. In the long term, chronic sleep deprivation may lead to a host of health problems including obesity, diabetes, cardiovascular disease, and even early mortality. Many studies show that subjects can compensate well for the effects of sleep deprivation. However, the number of mental lapses increases steadily as the amount of sleep deprivation increase. Their mental lapses are moments when a person does not respond to a signal from the experimenter or



“drifts off” and forgets to concentrate on an assigned task.

Methods

To reach up to availed conclusion total number of 45 (Forty-Five) subjects were selected randomly for the study from the Institute of Professional Studies, Group of College, Gwalior (M.P) and their residence was in the institute hostel. All subjects were divided into three equal groups namely Experimental Group I, Experimental Group II, and Control Group. The experimental I group was engaged with the sleeping training which was 10:00 pm to 6:00 am and the Experimental II group engaged with 12:00 am to 6:00 am and the control group was not involved in any type of sleeping variation. Sleep Deprivation was set as Independent variables as whereas, dependent variables were Speed and Strength. For this study, the research design used in the study was Pre-Post Random Group Design. To measure the speed the 50-meter run test was applied and measuring the strength standing broad jump test was applied. To compare the mean of three different groups data was analyzed through Analysis of Co-Variance (ANCOVA) at 0.05 level of significance.

Findings and Results

Data was analyzed using the Analysis of Co-Variance at 0.05 level of significance. ANCOVA was applied about an experimental group and control group as per the pre-test post-test was randomized group design was applied.

To determine the significant difference between the experimental group and control group, the pre-test and post-test scores were collected; the initial and final scores were

analyzed using ANCOVA. The result was presented in the tabular form.

TABLE NO. 1
ANALYSIS OF COVARIANCE THREE
DIFFERENT GROUPS ON STRENGTH

Source	Sum of Squares	df	Mean of Squares	F
Groups	0.003	2	0.0015	0.625
Error	0.100	42	0.0024	

*Significant at 0.05 level $F_{0.05(2,42)}=3.22$

Table no 1 shows the F value for comparing the adjusted means of the three treatment groups (Experimental Group 1, Experimental Group 2 and Control Group C) during post-testing as calculated F-ratio 0.625 is less than tabulated f-ratio 3.22 at 0.05 level of significance. Thus the null hypothesis of no difference among the adjusted post-mean for the data on strength in three treatment groups may be accepted at 0.05% level.

TABLE NO. 2
ANALYSIS OF CO- VARIOUS GROUPS ON
VARIOUS GROUPS ON SPEED

Source	Sum of Squares	df	Mean of Squares	F
Groups	0.10	2	0.005	0.551
Error	0.34	42	0.008	

*Significant at 0.05 level $F_{0.05(2,42)}=3.22$

Table no 2 shows the F value for comparing the adjusted means of the three treatment groups (Experimental Group 1, Experimental Group 2 and Control Group C) during post-testing as calculated F-ratio 0.551 is less than tabulated f-ratio 3.22 at 0.05 level of significance. Thus the null hypothesis of no difference among the adjusted post-mean for the data on strength in three treatment groups may be accepted at 0.05% level.



Conclusion

Based on output of present study it is found that there is no impact of sleep deprivation on physical fitness variables i.e., speed and strength. Taheri & Arabameri (2012), Moore Joss, Ciaran McDonald, McIntyre Alan, Carmody Kevin & Donne Bernard (2018) also found similar results in their studies.

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