

Effect of Strength and Conditioning Exercise on Depression and Sleep Quality

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Introduction

A lack of regular physical activity and rising levels of psychological disorders including depression and poor sleep quality are major concerns affecting college students

Purpose

This research assessed the effectiveness of strength and conditioning exercise at reducing levels of depression and improving sleep quality

Methods

Research Participants and Setting

- 509 students from Peking University

Research Design

- Before intervention:
 - Students took online questionnaires using social media platform WeChat to gauge depression and sleep quality
- Intervention: (3 month duration)
 - One 90 min class session per week
 - Ran 68 kilometers outside of class
 - Retook the online questionnaires and the differences were recorded

Data Collection

- *Center for Epidemiologic Studies Depression (CES-D)*: Score is the sum of the 20 questions. Possible range is 0-60. A score of 16 points or more is considered depressed
- *Pittsburgh Sleep Quality Index (PSQI)*: Measures the quality and patterns of sleep with 7 components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction over the last month

Data Analysis

- Evaluated using IBM SPSS Statistics 24
- Cronbach's alpha values were determined for each scale to test internal consistency
- Repeated Measures ANOVAs were calculated for each variable to test differences between means for the 2 groups

Results

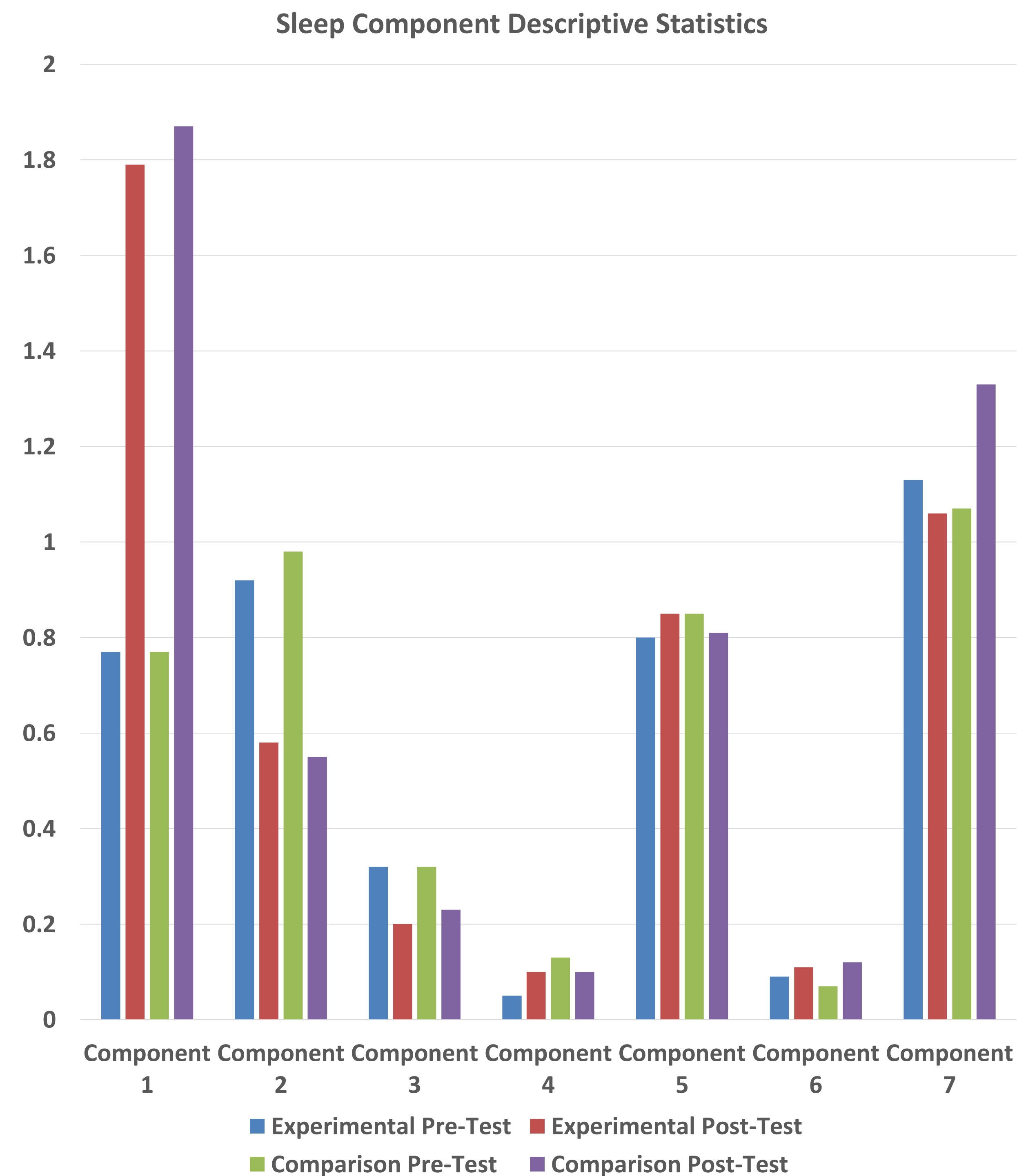


Table 1: Descriptive Statistics for CES-D Scores

Experimental	Mean Score	SD	Control	Mean Score	SD
Pre CES-D	18.51	6.576	Pre CES-D	18.93	5.896
Post CES-D	14.35	10.611	Post CES-D	15.91	9.861

- The alpha was set at $p = .05$
- Significant improvement in depression ($F=49.59, p<.000$) following the strength and conditioning class
- Decreased time to fall asleep and increased sleep duration ($F=74.787, p<.000, F=9.207, p<.003$), but lower subjective quality ($F=579.124, p<.000$)

Component 1: Overall sleep quality overall? (0=worst 3=best)

Component 2: How long does it take to fall asleep? (<15min (0), 16-30min (1), 31-60 min (2), >60min (3))

Component 3: Hours spent sleeping? (>7(0), 6-7 (1), 5-6 (2), <5 (3))

Component 4: (# of hours asleep) / (# of hours in bed) x 100

Component 5: How often do you have trouble sleeping?

Component 6: How often do you take medicine to help you sleep?

Component 7: How often do you have trouble staying awake while driving, eating meals, or engaging in social activity?

#s 5-7 are scored as follows: Not at all (0) Less than once a week (1) Once or twice a week (2) Three or more times a week (3)

Conclusion

- Students took the post-intervention survey shortly before exam season, and the stress associated with exams can induce feelings of despair and depression
- The comparison group was individual sports, which is a different form of exercise. A control group might have been students without exercise
- Depression level decreased
- Time to fall asleep decreased and sleep duration increased
- These findings encourage strength and conditioning exercise for people with high levels of depression and poor sleep duration.