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Impact of Aerobic Training on Motor Ability in College Level Athletes

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Abstract: ***Sixty college athletes participated in this study, divided into experimental and control groups. The experimental group underwent a six week aerobic program, while the control group did not participate in any training. Pre - test and post - test evaluations were conducted on motor ability components such as sprint, broad jump, high jump, and shot put. Results showed significant improvements in the experimental group, while the control group did not exhibit notable changes. This study highlights the effectiveness of aerobic training in enhancing motor abilities in college level athletes.***

Keywords: Aerobic training, motor ability, athletes, college sports, physical fitness

1. Introduction

Aerobics is a form of physical exercise that combines rhythmic *aerobic* exercise with stretching and strength training routines with the goal of improving all elements of fitness (flexibility, muscular strength, and cardio - vascular fitness).

The concept suggests that an athlete's ability to perform various motor skills is determined by one general ability. Thus, a person with high general motor ability would tend to learn motor skills more quickly than a person with low general motor ability. Thus, general motor abilities indicate the abilities work together to the level of motor skill development in a person. This study is significant as it provides evidence for the role of aerobic training in enhancing motor abilities, which could inform training protocols for sports coaches and athletes.

The purpose of this study was to examine the effect of a structured aerobic program on the general motor abilities of college level athletes.

2. Methodology

A total of 60 (sixty) college athletes and players were taken as subjects for the study. Their ages ranged from 20 to 25 years. The average age of the subjects was 22.3 year. The measurements of experimental variables were taken in the beginning and after the experimental period of 6 weeks. Groups A, and B underwent the pre - test on all the parameters, pertinent to the study. The experimental group followed a scheduled aerobic exercise program for six weeks under direct supervision of the investigator. Group B served as the control group and did not participate in the Aerobic Programme. After the end of six weeks of conducting Aerobic Programme, the two groups underwent post - test on all the variables on which pre - test was made.

Selection of Variables: According to Mc Cloy and Young, (1954), the test - items included to measure general motor ability are: 1. *Sprint (varying from 50 to 100 yards), 2. Broad Jump (either running or standing), 3. Running High Jump and 4. Throwing event (Shot put/ Basketball throw/ baseball throw) are being taken as Dependant variable.* Based on the above, the investigator has selected the following test items: 1.5*0 yds. dash, 2. Standing Broad Jump, 3. Running High Jump and 4. Shot put.* The Training stimuli (a set of Aerobic exercises), adopted for 6 weeks period for Experimental Group, was considered here as independent variables.

Training Schedules: Aerobic Programme group (Experimental group) was administered with the scheduled selected Aerobic exercise Programme for duration of 6 weeks under direct supervision of the researcher. The scheduled Aerobic exercise Programme was fixed for five days in a week from Monday to Friday in the morning from 6 am to 7 am, which was repeated along 6 weeks period.

Findings: For each of the chosen variables, the results pertaining to significant difference, if any, between the pre - test and post - test means for the two groups after six weeks of Aerobic programme, which were submitted to 't' test.

Table 1: Significance of Difference between Pre - Test and Post - Test Means of the Experimental Group and the Control Group in 50 Yd Dash

Groups	Pre - test (mean±SE)	Post - test (mean±SE)	Difference between means	SE	't' ratio
Experimental group	6.895±0.049	6.650±0.044	0.245	0.013	19.002*
Control group	6.897±0.047	6.900±0.046	0.003	0.011	0.314

* Significant at 0.05 level of confidence, 't' $_{0.05}$ (59) = 2.045

Table 1 shows that the experimental group improved significantly with a t value of 19.002, while the control group did not show any significant improvement in 50 yd dash performance of subjects indicating 't' value of 0.314. In 50 yd dash, it was noted that the difference between the mean scores existed and the experimental group improved in 50 yd dash. No significant change was observed in the control group.

Table 2: Significance of Difference between Pre - Test and Post - Test Means of the Experimental Group and the Control Group in Standing Broad Jump

Groups	Pre - test (mean±SE)	Post - test (mean±SE)	Difference between means	SE	't' ratio
Experimental group	1.022±0.016	1.241±0.009	0.219	0.010	22.296*
Control group	1.020±0.019	1.030±0.019	0.010	0.009	1.156

*Significant at 0.05 level of confidence. 't' $_{0.05}$ (59) = 2.045

Results shown in Table 2 clearly reveals that, the experimental group improved significantly yielding 't' value of 22.296, whereas the control group did not show any significant improvement in standing broad jump performance of subjects indicating 't' values of 1.156. In standing broad jump, it was noted that the difference between the mean scores existed and the experimental group improved in standing broad jump. No significant change was observed in the control group.

Table 3: Significance of Difference Between Pre - Test and Post - Test Means of the Experimental Group and the Control Group in Running High Jump

Groups	Pre - test (mean±SE)	Post - test (mean±SE)	Difference between means	SE	't' ratio
Experimental group	1.234±0.004	1.329±0.003	0.095	0.002	48.647*
Control group	1.227±0.003	1.228±0.004	0.002	0.001	1.426

*Significant at 0.05 level of confidence, 't' $_{0.05}$ (59) = 2.045

It is evident from Table 3 that, the experimental group improved significantly yielding 't' value of 48.647, whereas the control group did not show any significant improvement in running high jump performance of subjects indicating 't' values of 1.426. In running high jump, it was noted that the differences between the mean scores existed and the experimental group improved in running high jump performance. No significant change was observed in the control group.

Table 4: Significance of Difference between Pre - Test and Post - Test Means of the Experimental Group and the Control Group in Shot Put

Groups	Pre - test (mean±SE)	Post - test (mean±SE)	Difference between means	SE	't' ratio
Experimental group	7.738±0.108	8.865±0.100	1.127	0.082	13.787*
Control group	7.823±0.102	7.770±0.049	0.053	0.029	1.859

*Significant at 0.05 level of confidence, 't' $_{0.05}$ (59) = 2.045

It is evident from Table 4 that, the experimental group improved significantly yielding 't' value of 13.787, whereas the control group did not show any significant improvement in shot put performance of subjects indicating 't' values of 1.859. In shot put throw, it was noted that the differences between the mean scores existed and the experimental group improved in shot put throw performance. No significant change was observed in the control group.

3. Conclusion

The results of this study confirm that participation in a structured aerobic program significantly improves motor abilities in college athletes. These findings underline the importance of integrating aerobic exercises into training routines to boost performance in sports related activities. Further studies are encouraged to explore the long term effects of aerobic training on different athletic populations.

References

[1] Bera, T. K. and Rajapurkar, M. V., (1993). "Body composition, cardiovascular endurance and anaerobic power of yogic practitioner". Indian Journal of Physiology and Pharmacology 37 (3), 225 - 228.

[2] Campbell, (1985). "A study on systematic changes in perceptual reactance induces in physical fitness training and the effect of life change events on perpetual augmentation reduction".

[3] Cowen, V., and Adams, T. (2005). Physical and perceptual benefits of yoga asana practice: Results of a pilot study. *Journal of Bodywork and Movement Therapies*, *9*, 211 - 219.

[4] Schure, M., Christopher, J., and Christopher, S. (2008). Mind - body medicine and the art of self - care: Teaching mindfulness to counseling students through yoga, meditation, and qigong. *Journal of Counseling & Development*, *86*, 47 - 56.