

CHANGES OF AGILITY AND MENTAL SKILLS THROUGH AEROBIC AND MENTAL TRAINING

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This study examined the effects of aerobic training and mental training on agility and mental skills among college male Volleyball players from Alagappa University College of Physical Education, karaikudi. The selected subjects were randomly assigned into three groups of ten each such as three experimental groups namely aerobic exercise group (Group-I), mental training group (Group-II) and combined(Aerobic & Mental) training group (Group-III).The experimental group I (n=10) underwent aerobic training, group II (n=10) underwent mental training and group underwent combined (Aerobic & Mental) training for 45 minutes in three alternate days (Monday, Wednesday and Friday) during morning session for eight weeks. The dependent variables namely mental skills was assessed by conducting Hardly Nelson mental skills test questionnaire and agility was measured by conducting the shuttle run test. The data were collected from each subject before and after the training period and statistically analyzed by paired sample't' test which was used to find out the significant improvement on selected criterion variables and Analysis of Covariance (ANCOVA) was used to find out the significant differences, if any among the adjusted post test means of experimental groups on each variables separately. Whenever, the obtained F-ratio for adjusted post test means was found to be significant, the Scheffe's test was applied as post hoc test to determine which of the paired mean differences were significant. All the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses. It was concluded that combined training group is found to be better than aerobic and mental training groups on agility and mental skills variables among college male Volleyball players.

Keywords: Aerobic exercise, Mental training, Agility, Shuttle run and Mental skills

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Introduction

Sports Mental Coaching, also known as sports mental training, is that segment of sports training that concentrates specifically on helping players break through the mental barriers that are keeping them from performing up to their peak potential. By focusing on the mental skills needed to be successful in any sporting competition, mental game coaching achieves the overall goal of performance improvement. The trained professionals, who do this mental coaching, employ proven techniques to accomplish this important work (George). The aerobic dance is a common craze among most people today. It is one of the best ways to enjoy a fitness program and also a way to achieve better health. The aerobic dance is feet tapping exercise that is accompanied with musical beats and the signals of an instructor. Aerobic dancing also induces fast breathing for a long period of time by pumping more oxygen into the bloodstream. Also known as "aerobics", the aerobic dance can be done with hip hop or country folk music. There are different types of aerobics such as dance aerobics, step aerobics, low impact aerobics, High Impact aerobics, Water Aerobics and aerobic kickboxing(Michalsik).

Aims of the Study

The purpose of the study was to find out the effects of aerobic training, mental training and combined training programmed on selected dependent variables namely agility and mental skills among college male Volleyball players.

Hypothesis

01. There would be significant improvement on selected dependent variables namely agility and mental skills due to the effects of aerobic training among college male Volleyball players.
02. There would be significant improvement on selected dependent variables namely agility and mental skills due to the effects of mental training among college male Volleyball players.
03. There would be significant differences between aerobic training, mental training and combined training groups on selected agility and mental skill variables among college male Volleyball players.

Analysis of Data

To achieve these purpose thirty college male Volleyball players were selected from Alagappa University College of physical education, karaikudi, Tamil Nadu and India. The selected subjects were randomly assigned into three groups of ten each such as three experimental groups namely aerobic exercise group (Group-I), mental training group (Group-II) and combined(Aerobic & Mental) training group (Group-III).The experimental group I (n=10) underwent aerobic training, group II (n=10) underwent mental training and group III underwent combined (Aerobic & Mental) training for 45 minutes in three alternate days (Monday, Wednesday and Friday) during morning session for eight weeks. The dependent variables namely mental skill was assessed by administering the Hardly Nelson mental skills test questionnaire and agility was measured by conducting the shuttle run test. The data were collected from each subject before and after the training period and statistically analyzed by paired sample't' test which was used to find out the significant improvement on selected criterion variables and Analysis of Covariance (ANCOVA) was used to find out the significant differences, if any among the adjusted post test means of experimental groups on each variables separately. Whenever, the obtained F-ratio for adjusted post test means was found to be significant, the Scheffe's test was applied as post hoc test to determine which of the paired mean differences were significant. All the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

Results

The effects of independent variables on selected agility and mental skills were determined through the collected data by using appropriate statistical techniques and the results are presented below. The analysis of dependent't' test on the data obtained for agility and mental skills of the pre-test and post-test means of aerobic training, mental training and combined training groups have been analyzed and presented in table 1.

Table 1: The Summary of Mean and Dependent'T' Test for the Pre and Post Tests on Agility And Mental Skills of Three Experimental Groups

Enclosed as Annexure 01

The table I show that the obtained dependent t-ratio values between the pre and post

Test means of agility on aerobic training and combined training groups are 13.53 and 6.93 respectively. Which are higher than the table value of 2.26 with df 9 at .05 level of confidence. It shows that aerobic training and combined training groups are improved significantly due to the effects of aerobic and combined training programmed on agility. However the mental training group is not improved on agility due to the effects of mental training programmed because the 't' value of agility is 2.15 on mental training group which is less than the table value. The obtained 't' test value of mental skills on aerobic training, mental training and combined training groups are 2.45, 13.04 and 7.13 respectively, which are greater than table value it shows that there were significant improvement on mental skills due to the effects of aerobic training, mental training and combined training programmed. The analysis of covariance on agility and mental skills of aerobic training group, mental training group and combined training groups have been analyzed and are presented in Table 2.

Table 2: Analysis of Covariance Computed for Three Experimental Groups on Agility and Mental Skills

Enclosed as Annexure 02

The table II shows that the obtained 'F' ratio values of agility and mental skills are **17.27** and **42.42** which are higher than the table value of 3.37 with df 2 and 26 required for significant at 0.05 level. Since the value of F- ratio is higher than the table value, it indicates that there is significant difference among the aerobic training group, mental training group and combined training groups on agility and mental skills. However, only 57% ($\omega^2 = 0.57$) and 77% ($\omega^2 = 0.77$) of the total variance on agility and mental skills was accounted by three groups. In order to find out which of the three paired means significantly differ, the Scheffe's post hoc test was applied and the effect size are presented in the table 3.

Table 3: Scheffe's Post Hoc Paired Means Comparisons And Effect Size On Agility And Mental Skills Of Experimental Groups

Enclosed as Annexure 03

Post-hoc test was conducted to evaluate the pair-wise difference among the adjusted post test means for three experimental groups on agility and mental skills. The Scheffe's test was used to control type I

Error across the three pair-wise comparisons ($\alpha = .05/3 = 0.16$ and 1.08). The results showed that the adjusted post test means of agility in aerobic training group ($M = 17.37$) had significantly outperformed than combined training group ($M = 17.69$) and mental training group ($M = 17.43$). The adjusted post test means of mental skills in mental training group ($M = 76.8$) had significantly outperformed than combined training group ($M = 75.1$) and aerobic training group ($M = 72.7$). It was found that there were significant difference exists among the three experimental groups.

The effect size of those significant pair wise comparisons such as aerobic training and mental training groups, and mental training and combined training groups on agility are 2.39 and 1.94 and the effect size of those significant pair wise comparisons such as aerobic training and mental training groups, aerobic training and combined training groups, and mental training and combined training groups on mental skills are 4.39, 2.57 and 1.82 respectively.

Discussion

The results of the study showed that there were significant differences between the aerobic and mental training groups, and mental and combined training groups but there was no significant difference between aerobic training and combined training groups on agility and also showed that there were significant differences between the three experimental groups on mental skills. Finally I concluded that combined training group is found to be better than mental training group and aerobic training group for improving agility and mental skills variables.

Conclusions with Recommendations

01. It was found that there was a significant improvement on agility due to the effects of aerobic and combined training programmes but there was no significant improvement on agility due to the effect mental training programme among college male Volleyball players.
02. It was found that there was a significant improvement on mental skills due to the effects of aerobic, mental and combined training programmes among college male Volleyball players.
03. There were significant differences between aerobic and mental training groups,

01. and mental and combined training groups but there was no significant difference between aerobic and combined training groups on agility among college male Volleyball players.

02. There were significant differences between aerobic training, mental training and combined training groups on mental skills among college male Volleyball players.

03. Finally it is also concluded that combined training group is found to be better than aerobic training group and mental training group for improving the selected dependent variables namely agility and mental skills among college male Volleyball players.

The results of this research study clearly indicate that the combined training programme enhance the performance of Volleyball players in the selected variables namely agility and mental skills. Hence, it is recommended that Volleyball coaches and physical education experts should give due importance to include aerobic training with mental training strategies in their schedule.

Annexure

Annexure 01

Table 1: The Summary of Mean and Dependent 'T' Test for the Pre and Post Tests on Agility And Mental Skills of Three Experimental Groups

Name of the Variables	Name of the test	Aerobic training group	Mental training group	Combined training group
Agility	Pre test mean± SD	17.84 ± 0.22	17.82 ± 0.23	17.83 ± 0.22
	Post test mean± SD	17.38 ± 0.18	17.76 ± 0.21	17.43 ± 0.19
	't' test	13.53*	2.15	6.93*
Mental skills	Pre test mean± SD	72.2 ± 0.79	72.4 ± 0.52	72 ± 0.82
	Post test mean± SD	72.6 ± 0.84	76.5 ± 0.97	74.9 ± 1.10
	't' test	2.45*	13.04*	7.13*

Annexure 02

Table 2: Analysis of Covariance Computed for Three Experimental Groups on Agility and Mental Skills

Variables	Groups	Adjusted mean	Adjusted mean differences (Effect size are indicated in parentheses)		
			Aerobic Training	Mental Training	Combined Training
Agility	Aerobic Training	17.37	---		
	Mental Training	17.69	0.32(2.39)	---	
	Combined Training	17.43	0.06	0.26 (1.94)	---
Mental skills	Aerobic Training	72.7	---		
	Mental Training	76.8	4.1 (4.39)	---	
	Combined Training	75.1	2.4 (2.57)	1.7(1.82)	---

Annexure 03

Table 3: Scheffe's Post

Hoc Paired Means Comparisons And Effect Size On Agility And Mental Skills Of Experimental Groups

Variables	Source	SS	df	MS	F	P	ω ²
Agility	Groups	0.615	2	0.307	17.27*	.000	.57
	Error	0.463	26	0.018			
Mental skills	Groups	73.41	2	36.71	42.42*	.000	.77
	Error	22.49	26	0.87			

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