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EFFECT OF CIRCUIT TRAINING ON GENERAL MOTOR ABILITY

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ABSTRACT

The purpose of this study was to know the effect of Circuit training on general motor ability of school going adolescent students. One hundred twenty school going adolescent students, age ranging between 13 to 15 years acted as subjects and assigned to two groups (one experimental and one control group) with 60 students each. The experimental group was Circuit Training group. General motor ability parameters such as 50 yds dash, Standing Broad Jump, Running High Jump and Shot put were measured before and after training. The experimental Group (Circuit training) was administered with the selected programme, thrice in a week for a duration of 6 weeks under direct supervision of the researcher. The analysis of data revealed that the experimental group, showed significant gains in performance of general motor ability after administration of training for duration of 6 weeks. The control group did not show any significant increase in the performance.

INTRODUCTION:

A fit body is an asset to any game. The present era stresses upon sports and games involving high skill and expertise. Super performances not only depends upon skill and expertise but also requires a high degree of physical fitness of the players. Thus, fitness is the key factor and base of the super performances. Preparing a skilled player depends upon the provision of type of training to the player. Circuit training is an approach to training that can be used to develop several aspects of fitness. Circuits can be designed to include many types of activities and equipment that may be specific to a certain activity or sport.

The purpose of this study was to know the effect of Circuit training on general motor ability of secondary school children.

METHODOLOGY:

One hundred twenty school going adolescent students, age ranging between 13 to 15 years and studying in VIII, IX AND X classes acted as subjects and were randomly assigned to two groups i.e., one experimental groups (Circuit training) and one control group , consisting of 60 students each. The Experimental Group (A) was given Circuit Training. The group (B) served as control group and being kept away from the training schedule and continued in performing normal school programme. Keeping the feasibility criterion in mind the general motor ability test as stated by Mc cloy and Young, (1954) for school boys was adopted. They are 50 yds dash, standing broad jump, running high jump and shot put. The experimental Group (Interval training) was administered with the selected activities and exercises, thrice in a week for duration of 6 weeks under direct supervision of the researcher.

FINDINGS:

The statistical analysis of data on General Motor Ability components of subjects belonging to experimental group and control group, each comprising of sixty subjects, is presented below.

Table 1 Significance Of Difference Between Pre-test And Post-test Means Of The Experimental Group And The Control Group In 50Yd 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 reveals that the experimental group improved significantly yielding 't' value of 19.002, where as 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. As the experimental group showed a significant decrease, the data were analysed by applying variance and covariance to find out if, there was significant differences between two groups. The analysis of variance and covariance for 50 yd dash is shown in Table 2.

Table – 2 Analysis Of Variance And Covariance Of The Means Of Experimental Group And The Control Group In 50Yd Dash

	Experimental group	Control group	Sum of squares	df	Mean square	F ratio
Pre-test means	6.895±0.049	6.897±0.047	B0.001 W16.168	1 118	0.001 0.137	0.001
Post-test means	6.650±0.044	6.900±0.046	B1.875 W14.590	1 118	1.875 0.124	15.164 *
Adjusted post-test means	6.651±0.011	6.899±0.011	B1.852 W0.886	1 117	1.852 0.008	244.557 *

* Significant at 0.05 level of confidence, N = 120, B = Between group variance

W = Within group variance

The analysis of variance for 50 yd dash showed that the resultant 'F' ratio of 0.001 was not significant in case of pre test means. However, the post test means yielded 'F' ratio of 15.164, which was found to be significant. Therefore, the post test means were put to analysis of covariance with pre test scores as covariates to find out the adjusted post test means. The adjusted final means yielded the 'F' ratio of 244.557 and was found to be significant with respect to 50 yd dash. The 'F' ratio, needed for significance at 0.05 level of confidence (df 1, 118) was 3.92.

Table - 3 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 3 clearly reveals that, the experimental group improved significantly yielding 't' value of 22.296, where as 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. As the experimental group showed a significant increase, the data were scrutinized by application of analysis of variance and covariance to find out if, there was a significant difference between two groups. The analysis of variance and covariance for standing broad jump is shown in Table 4.

Table – 4 Analysis Of Variance And Covariance Of The Means Of Experimental Group And The Control Group In Standing Broad Jump

	Experimental group	Control group	Sum of squares	df	Mean square	F ratio
Pre-test means	1.022±0.016	1.020±0.019	B 0.001 W 2.173	1 118	0.001 0.018	0.012
Post-test means	1.241±0.009	1.030±0.019	B 1.329 W 1.583	1 118	1.329 0.013	99.099 *
Adjusted post-test means	1.240±0.008	1.031±0.008	B 1.305 W157.658	1 117	1.305 0.004	327.051 *

* Significant at 0.05 level of confidence, N = 120, B = between group variance, W = within group variance

The analysis of variance for standing broad jump showed that the resultant 'F' ratio of 0.012 was not significant in case of pre test means. However, the post test means yielded 'F' ratio of 99.099, which was found to be significant. Therefore, the post test means were put to analysis of covariance with pre test scores as covariates to find out the adjusted post test means. The adjusted final means yielded the 'F' ratio of 327.051 and was found to be significant with respect to standing broad jump. The 'F' ratio, needed for significance at 0.05 level of confidence (df 1, 118) was 3.92.

Table - 5 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 5 that, the experimental group improved significantly yielding 't' value of 48.647, where as 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. As the experimental group showed a significant increase, the data were put to analysis of variance and covariance to find out if, there was significant difference between two groups. The analysis of variance and covariance for running high jump is shown in Table 6.

Table – 6 Analysis Of Variance And Covariance Of The Means Of Experimental Group And The Control Group In Running High Jump

	Experimental group	Control group	Sum of squares	df	Mean square	F ratio
Pre-test means	1.234±0.004	1.227±0.003	B0.002 W0.105	1 118	0.002 0.001	1.900
Post-test means	1.329±0.003	1.228±0.004	B0.305 W0.088	1 118	0.305 0.001	407.654 *
Adjusted post-test means	1.326±0.001	1.231±0.001	B0.264 W0.118	1 117	0.264 0.001	264.000 *

* Significant at 0.05 level of confidence, N = 120, B = between group variance, W = within group variance

The analysis of variance for running high jump showed that the resultant 'F' ratio of 1.900 was not significant in case of pre test means. However, the post test means yielded 'F' ratio of 407.654, which was found to be highly significant. Therefore, the post test means were put to analysis of covariance with pre test scores as covariates to find out adjusted post test mean. The adjusted final means yielded the 'F' ratio of 264.000 and was found to be highly significant with respect to running high jump.

Table - 7 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 7 that, the experimental group improved significantly yielding 't' value of 13.787, where as 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. As the experimental group showed a significant increase, the data were analysed by applying variance and covariance to find out if, there was significant difference between two groups. The analysis of variance and covariance for shot put is shown in Table 8.

Table – 8 Analysis Of Variance And Covariance Of The Means Of Experimental Group And The Control Group In Shot Put

	Experimental group	Control group	Sum of squares	df	Mean square	F ratio
Pre-test means	7.738±0.108	7.823±0.102	B0.218 W78.044	1 118	0.218 0.661	0.329
Post-test means	8.865±0.100	7.770±0.049	B35.960 W72.372	1 118	35.960 0.613	58.631 *

Adjusted post-test means	8.898±0.058	7.736±0.058	B40.424 W23.211	1 117	40.424 0.198	203.768 *

* Significant at 0.05 level of confidence, N = 120, B = Between group variance W = within group variance

The analysis of variance for shot put showed that the resultant 'F' ratio of 0.329 was not significant in case of pre test means. However, the post test means yielded 'F' ratio of 58.631, which was found to be significant. Therefore, the post test means were put to analysis of covariance with pre test scores as covariates to find out adjusted post test mean. The adjusted final means yielded the 'F' ratio of 203.768 and was found to be highly significant with respect to shot put. The 'F' ratio, needed for significance at 0.05 level of confidence (df 1, 118) was 3.92.

DISCUSSION ON FINDINGS

The analysis of data revealed that the experimental group, administered with Circuit Training showed significant gains in general motor ability components after administration of Circuit Training programme for a duration of 6 weeks. The control group did not show any significant increase on the performance of any variable under study.

Precisely, the experimental group showed significant gain in performance of subjects in 50 yard dash, standing broad Jump, running high jump and shot put throw performance of the subjects under study.

The results of the study coincided with the general conception that Circuit Training improves general motor ability of the subjects in a progressive manner.

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