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Effect Of Sports Specific Training On Plyometric Speed Endurance Strength Endurance And Agility Of Inter College Men Football Players

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Abstract:

The purpose of the study was to determine the effect of sports specific training on plyometric,speed, speed endurance,strength,strength endurance and agility of inter college men football players. It had to test out on students divided by two groups experimental and control group each consisted of 15 students. It was hypothesized that there would be significant changes in the effect of plyometric training on speed, speed endurance; strength, strength endurance and agility of inter college men football players. The experimental group underwent the plyometric training for a period of twelve weeks, whereas the control group did not invole in any strenuous physical activity during the course of study. However both the groups were permitted to go their routine curriculum. The study was formulated as a random group design. The subjects were tested at the beginning (pre-test) and at the end of the experimental period (post-test) was taken after a twelve weeks. With the help of ANOVA was used for statistical analyzed. The result shows that experimental group showed remarkable increases in the speed, speed endurance, strength, strength endurance and agility than the control group.

KEY WORDS: Plyometric, Speed, Speed Endurance, Strength, Strength Endurance, Agility

Introduction:

Sports have a very important role in modern society. It is important for an individual, a group, a nation and indeed the world. Sports performance is the result and expression of the total personality of a sports man. The development of a sports man enabling him to achieve high level of performance is usually concerned in four areas namely physical power, social adjustment, psychological development and physiological efficiency. Different activities make different demands on the organism with respect to circulatory, respiratory, metabolic and neurological and temperature regulating functions

Statement of the problem:

The purpose of the study was to investigate the effect of sports specific training on plyometric speed speed endurance strength strength endurance and agility of sedentary college men football players.

Hypothesis:

It was hypothesized that there would be significant change in the effect of plyometric training on speed, speed endurance, strength, strength endurance and agility of inter college football players.

Significance of the study:

1. The result of the study will focus effect of plyometric training on speed, speed endurance; strength, strength endurance and agility of inter college football players.
2. It is the guideline for the college men to improve their physical fitness.
3. The result can be used by the coaches and physical education teachers for further development in sports performance [Speed Endurance Strength Endurance and Agility].
4. This study may be useful for physical educationists and coaches to decide the training load during the period.
5. The study would help the physical educators to conduct further research in this area.

Methodology:

The study was formulated as a random group design. Thirty inter college football players students were selected for this study were randomly divided in to two groups i.e Group

'A' Plyometric group (N=15) Group 'B' control group (N=15). The Plyometric group underwent the training period of 12 weeks. The control group did not involve in any strenuous physical activity during the course of study. However plyometric group and control group were permitted to attend their routine curriculum. The subjects were tested at the beginning (pre test) and end of the experiment (post test) in the period of twelve weeks. The programme was scheduled for in evening sessions between 4:30p.m and 5:30 p.m .The training programme consists of Plyometric training.

Result:

The data pertaining of the variables under study have been examined by Analysis of variance (ANOVA) for each variable in order to determine the differences. When the differences were found to be significant by analysis of variance, the scheffe's post hoc test was applied to assess the significant difference between adjusted means. The level of significance to test the F-ratio obtained by the analysis of variance at .05 level .01 level of confidence of data

Source of variance	Sum of squares	Df	Mean square	'F'
Between	.002	1	.002	.015
Within	3.311	28	.118	
Total	3.312	29		

Table:1

One way analysis of variance (ANOVA) for Pre- Test Scores of 50mts Dash

Table Value for DF (1, 28) at 0.05 level = 4.20 DF (1, 28) at 0.01 level = 7.64

Table I, which portrays the result of one way ANOVA for difference in mean 50 meter dash between experimental group and control group before (pre) test, shows that obtained F values are insignificant (F=.015)for pre test. The lack of significant has clearly revealed that there is no difference in group mean values. The calculated F- value is lesser than the table value of 4.20 at 0.05 level and hence it is not significant.

Therefore, there is no significant difference among pre-test scores of 50mts dash scores of control and experimental group.

Source of variance	Sum of squares	Df	Mean square	'F'
Between	1.156	1	1.156	13.678
Within	2.367	28	.085	
Total	3.524	29		

Table:2

One way analysis of variance (ANOVA) for post- Test Scores of 50mts Dash

Table Value for DF (1, 28) at 0.05 level = 4.20

DF (1, 28) at 0.01 level = 7.64

Table II shows that the difference in post-test mean between two groups differ significantly at 0.01 level as the obtained ANOVA F value 13.678 is much higher than 7.64 the table value for 1, 28 degrees of freedom at above specified significant level this in turn indicates that there is variance between pre and post test conditions of the subjects. Scheffe's post test is applied for between group comparisons. The result of the post-hoc test is portrayed in Table 3.

Mean values		Mean difference	LS
Control group	Experimental group	0.4	0.01
6.88	6.48		

Table:3

Scheffe's Test: Test of significance of the Difference Between Pairs of Means

Scheffe's Confidence Interval at 0.05 level = 0.217 0.01 level = 0.293

It can be observed from table 3 that the scheffe's confidence interval (CI) values at 0.05 level and 0.01 level for post-test scores are 0.217and 0.293 respectively. The mean difference between Control group and Experimental group (0.4) is above the obtained CI values, 0.217and 0.293 at 0.01 percent significant level respectively. On the whole from

overall result for 50 meter dash, it is inferred that plyometreic training has significant effect on increasing the 50meter dash of Experimental group.

Source of variance	Sum of squares	Df	Mean square	'F'
Between	2.291	1	2.291	2.260
Within	28.383	28	1.014	
Total	30.674	29		

Table:4

One way analysis of variance (ANOVA) for pre- Test Scores of 100mts Dash

Table Value for DF (1, 28) at 0.05 level = 4.20

DF (1, 28) at 0.01 level = 7.64

Table IV, which portrays the result of one way ANOVA for difference in mean 100 meter dash between experimental group and control group before (pre) test, shows that obtained F values are insignificant (F=2.260) for pre test. The lack of significant has clearly revealed that there is no difference in group mean values. The calculated F- value is lesser than table value of 4.20 at 0.05 level and hence it is not significant. Therefore, there is no significant difference between pre-test scores of 100mts dash scores of control and experimental group.

Source of variance	Sum of squares	Df	Mean square	'F'
Between	.510	1	.510	1.180
Within	12.092	28	.432	
Total	12.602	29		

Table:5

One way analysis of variance (ANOVA) for post- Test Scores of 100mts Dash

Table Value for DF (1, 28) at 0.05 level = 4.20

DF (1, 28) at 0.01 level = 7.64

Perusal of the table 5 shows that the difference in post-test mean between two groups differ insignificantly at 0.05 level as the obtained (ANOVA) F value 1.180 is lower than 4.20 the table value for 1, 28 degrees of freedom at above specified significant level this in turn indicates that there is no variance between pre and post test conditions of the subjects. The calculated F- value is lesser than the table value of 4.20 at 0.05 level and hence it is not significant. Therefore, there is no significant difference among post-test scores of 100mts dash scores of control and experimental group.

Source of variance	Sum of squares	Df	Mean square	'F'
Between	32.033	1	32.033	1.151
Within	779.467	28	27.838	
Total	811.500	29		

Table:6

One way analysis of variance (ANOVA) for Pre- Test Scores of Push-ups

Table Value for DF (1, 28) at 0.05 level = 4.20 DF (1, 28) at 0.01 level = 7.64

The difference in pre test mean scores across groups is tested with ANOVA and the results are portrayed in table 6. It is apparent from the examination of result that there is no significant difference in pre test group means of Push-ups .This is because F value obtained from the analysis is insignificant for pre test scores (1.151). The lack of significant has clearly revealed that there is no difference in group mean values. The calculated F- value is lesser than table the value of 4.20 at 0.05 level and hence it is not significant. Therefore, there is no significant difference among pre-test scores of push-ups scores of control and experimental group.

Source of variance	Sum of squares	Df	Mean square	'F'
Between	218.700	1	218.700	6.695
Within	914.667	28	32.667	
Total	1133.367	29		

Table:7

One way analysis of variance (ANOVA) for Post- Test Scores of Push-ups

Table Value for DF (1, 28) at 0.05 level = 4.20

DF (1, 28) at 0.01 level = 7.64

Perusal of the table 7 shows that the difference in post-test mean between two groups differ significantly at 0.05 level as the obtained ANOVA F value 6.695 is higher than 4.20 the table value for 1, 28 degrees of freedom at above specified significant level this in turn indicates that there is variance between pre and post test conditions of the subjects. Scheffe's post test is applied for between group comparisons. The result of the post-hoc test is portrayed in Table 8.

Mean values		Mean difference	LS
Experimental group	Control group	5.40	0.05
32.93	27.53		

Table:8

Scheffe's Test: Test of significance of the Difference Between Pairs of Means

Scheffe's Confidence Interval at 0.05 level = 4.27 0.01 level = 5.76

It can be observed from table 8 that the scheffe's confidence interval (CI) values at 0.05 level and 0.01 level for post-test scores are 4.27and 5.76 respectively. The mean difference between Control group and Experimental group (5.40) is above the obtained CI values, 4.27 at 0.05 percent significant level respectively. On the whole from overall result for push-ups, it is inferred that plyometreic training has significant effect on increasing the push-ups of Experimental group.

Source of variance	Sum of squares	Df	Mean square	'F'
Between	4.800	1	4.800	.326
Within	412.667	28	14.738	
Total	417.467	29		

Table:9

One way analysis of variance (ANOVA) for Pre- Test Scores of Sit-ups

Table Value for DF (1, 28) at 0.05 level = 4.20

DF (1, 28) at 0.01 level = 7.64

Table 9, which portrays the result of one way ANOVA for difference in mean sit-ups between experimental group and control group before (pre) test, shows that obtained F values are insignificant (F=.326) for pre test. The lack of significant has clearly revealed that there is no difference in group mean values. The calculated F- value is lesser than table value of 4.20 at 0.05 level and hence it is not significant. Therefore, there is no

significant difference between pre-test scores of sit-ups scores of control and experimental group.

Source of variance	Sum of squares	Df	Mean square	'F'
Between	307.200	1	307.200	29.033
Within	296.267	28	10.581	
Total	603.467	29		

Table:10

One way analysis of variance (ANOVA) for Post- Test Scores of Sit-ups

Table Value for DF (1, 28) at 0.05 level = 4.20 , 0.01 level = 7.64

From the examination of table 10, it is observed that F value from (ANOVA) for post-test scores, 29.033 is much higher than the above 7.64, the table value for 1, 28 degrees of freedom, revealing that the difference in post-test mean scores sit-ups between two groups dose differ significantly. As the variance F is significant, scheffe's post test is carried to know the significance of the difference in post-scores between two groups.

Mean values		Mean difference	LS
Experimental group	Control group	6.4	0.01
36.73	30.33		

Table:11

Scheffe's Test: Test of significance of the Difference Between Pairs of Means

Scheffe's Confidence Interval at 0.05 level = 2.43, 0.01level = 3.28

It can be observed from table 11 that the scheffe's confidence interval (CI) values at 0.05 level and 0.01 level for post-test scores are 2.43and 3.28 respectively. The mean difference between Control group and Experimental group (6.4) is above the obtained CI values, 3.28 at 0.01 percent significant level respectively. On the whole from overall

result for sit-ups, it is inferred that plyometreic training has significant effect on increasing the sit-ups of Experimental group.

Source of variance	Sum of squares	Df	Mean square	'F'
Between	.137	1	.137	.155
Within	24.846	28	.887	
Total	24.983	29		

Table: 12
One way analysis of variance (ANOVA) for Pre- Test Scores of Shuttle Run

Table Value for DF (1, 28) at 0.05 level = 4.20

DF (1, 28) at 0.01 level = 7.64

The difference in pre test mean scores across groups is tested with ANOVA and the results are portrayed in table 12. It is apparent from the examination of result that there is no significant difference in pre test group means of shuttle run .This is because F value obtained from the analysis is insignificant for pre test scores (.155). The lack of significant has clearly revealed that there is no difference in group mean values. The calculated F- value is lesser than table the value of 4.20 at 0.05 level and hence it is not significant. Therefore, there is no significant difference among pre-test scores of Shuttle run scores of control and experimental group.

Source of variance	Sum of squares	Df	Mean square	'F'
Between	6.403	1	6.403	7.983
Within	22.459	28	.802	
Total	28.863	29		

Table:13

One way analysis of variance (ANOVA) for Post- Test Scores of Shuttle Run

Table Value for DF (1, 28) at 0.05 level = 4.20

DF (1, 28) at 0.01 level = 7.64

From the examination of table 13, it is observed that F value from (ANOVA) for post-test scores, 7.983 is above 7.64, the table value for 1, 28 degrees of freedom, revealing that the difference in post-test mean scores (Agility on shuttle run) between two groups dose differ significantly. As the variance F is significant, scheffe's post test is carried to know the significance of the difference in post-scores between two groups.

Mean values		Mean difference	LS
Control group	Experimental group	0.92	0.01
15.05	14.13		

Table: 14

Scheffe's Test: Test of significance of the Difference Between Pairs of Means

Scheffe's Confidence Interval at 0.05 level = 0.670, 0.01level = 0.904

Table 14 presents the result of scheffe's post hoc test for post test scores of agility on shuttle run of Experimental group .it is apparent from the table that there is remarkable difference between control group and experimental group. However, the mean difference (MD=0.92) is significant at 0.01level of (MD=0.904.CI value at 0.01 level). The above picture clearly envisages that Plyometric training has significant impact has marginal effect on shuttle run of experimental group.

Discussion on Findings:

All the subjects of the experimental groups involved in this study were under went regular plyometric training which is assigned to them. From the previous tables it is evident that in the case of selected physical fitness variables such as speed, speed endurance, strength, strength endurance and agility significant changes were noticed expect speed endurance after 12 weeks of plyometric training. As regards to control group no changes were seen in the selected physical fitness variables.

Speed, strength, strength endurance and agility of experimental groups improved except speed endurance following 12 weeks impact of plyometric training.

The greatest significant changes on selected physical fitness variables except speed endurance in the experimental group.

The experimental group has under gone plyometric training programme 5 days in a week with sufficient rest period of 2 days in a week. All the selected physical fitness variables were improved expect speed endurance because of the continuity of training with in the 12 weeks of time.

All these significant changes may be attributed to fact that as they undergoing the plyometric training. This works load improves the physical fitness such that the speed, strength, strength endurance and agility improves in efficiency. Thus the research hypothesis is accepted.

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