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Comparative effect of specific weight training on the performance of fast & spin bowling in cricket players

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Abstract

Aim: The purpose of this study was to find out the comparative effect of specific arm and leg strength training exercises on the performance of fast and spin bowlers.

Material and Methods: The study was delimited to the 30 male cricket players belonging to the age group 18 to 28 years of CSJMU, Kanpur Cricket Match Practice Group and delimited to following training period of ten weeks specific weight training programme. Analysis of co-variance was used to find out the significant difference among the difference exercise group and the level of significance set as 0.05 level.

Results: The difference between the paired adjusted final means for Arm Strength, Leg Strength and Control Group in layup shot indicates significant value gain of 5.98 and 6.08 and in case of leg strength and control arm strength and control in significant value gain (0.102). The difference between the paired adjusted final means for Arm Strength, Leg Strength and Control Group in SPIN indicates significant value gain of 2.47, 9.13 and 6.66 in case of arm strength and leg strength, arm strength and control, leg strength and control.

Conclusion: (a) Both training groups (leg strength and arm strength) improved fast bowler performance but for these both arm strength and leg strength required equally.

(b) Arm Strength training programme is significantly better than Leg strength training programme on the performance of spin bowler.

Keywords: Training, bowling & strength

Introduction

Cricket was introduced in India some seventy years ago by the Y.M.C.A., Calcutta, after that Y.M.C.A. College of Physical Education which was started in 1920 at Madras played an important role in popularizing the game. But in India we are not able to make much head way as far as International Competition is concerned, because of lack of facilities and advance scientific coaching. The performance of Indian cricket players at the International level has been a great concern to the coaches, scientists and physical educationists. Efforts have been and are being made to improve the standard of our sportsmen, but little has been achieved in this respect ^[1] (H.S. Sodhi and L.S. Sodhi 1984).

Bowling is probably the most attractive part of the game of cricket, players practice the skill for long periods of time without being prodded by the coach. It is an activity from which they derive enjoyment during the off season or even after a hard practice session is concluded. As a result, couple with better techniques of instruction bowling percentages have steadily climbed during the years. Cricket players are better bowlers today, and they will continue to improve each year, because bowling is a skill that can be learnt. Coaches everywhere have devised excellent method of instructing their players in this all important area and the results have been extremely rewarding ^[2] (Jack Richard 1957).

The selection of strengthening exercises should be done according to aim, training state and nature of the competition activity. According to the competition activity, these exercises should be further subordinated to general, special and competition exercises and should be accordingly selected and used ^[3] (Hardayal Singh 1984).

Objective

The purpose of this study was to find out the comparative effect of specific arm and leg

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strength training exercises on the performance of fast bowler and spine bowlers.

Methodology

The study was delimited to the 30 male cricket players belonging to the age group 18 to 28 years of CSJM University, Kanpur Cricket Match Practice Group and delimited to following training period of ten weeks specific weight training programme. The study was further delimited to two techniques in cricket i.e fast bowling and spine bowling.

The pretest was conducted and on the basis of their performance and with the help of Equating Group Design, the three groups were formed (Group A, group B, Group C) each consisting of ten subjects. The groups were further assigned randomly to act as experimental I i.e. arm strengthening, experimental II i.e. leg strengthening and III as control group. The total number of wicket taken out of 20 delivers (10 each techniques) from both side i.e. over the wicket and round the wicket was taken as the criterion measure for the study. Each subject was given 5 chances at each side. The test was taken at the beginning and after the ten weeks training period.

If a cricketer was able to take a wicket, he was awarded, two points and if he was able to beat the batsmen he was awarded one point and if he failed to right ball, then he was given a zero. So, like wise points of the individual was collected.

Experimental design

Group A were given the set of selected arm strengthening

exercises, group B were given the set of selected leg strengthening exercises and group C worked as a control group. This exercise programme was given for ten weeks period and again the same test i.e. post test was conducted.

Table 1: Weight training exercises for experiment

| Arm and Shoulder Strength | Leg Strength |
|---------------------------|------------------|
| Arm Curl | Heel Raise |
| Reverse Arm Curl | Half Squat |
| Wrist Curl | Dead Lift |
| Bent Arm Pull-over | Straddle Lift |
| Press Behind the Neck | Striding |
| Shoulder Press | High Knee Action |

A training programme of 10 weeks on alternate days, in the morning session i.e. 8.15 am. To 9.00 am was administered to Group A and Group B. Group C was the control group who went through the normal playing schedule without doing any specific weight training exercises. The training load was increased progressively after every two weeks. These exercises with same load was repeated for thrice a week for a block of two weeks. The days were Monday, Wednesday and Friday.

Analysis of co-variance was used to find out the significant difference among the difference exercise group and the level of significance set as 0.05 level.

Table 2: Analysis of co-variance of the mean of two experimental groups and the control group in fast bowlers

| | Arm strength | Leg strength | Control Group | Sum of Square | Df. | Mean sum of square | F-Ratio |
|------------------------|--------------|--------------|---------------|---------------|--------|--------------------|---------|
| Pre-test Mean | 21.8 | 23.32 | 22.72 | A | 59.30 | 2 | 29.65 |
| | | | | W | 364.10 | 27 | 13.48 |
| Post0Test Means | 30.10 | 32.50 | 23.60 | A | 352.46 | 2 | 176.23 |
| | | | | W | 348.35 | 27 | 12.90 |
| Adjusted posttest mean | 30.65 | 30.732 | 24.67 | A | 185.24 | 2 | 92.62 |
| | | | | W | 118.17 | 26 | 4.545 |

* Significant at 0.05 level

i) F 0.05 (2.27) 3.35 ii) F 0.05 (2.26) 3.37

As shown table that fast bowlers for Arm Strength, Leg Strength Control Groups indicates insignificant F-ratio of 2.20 for the pre-test. This shows that the random assignment of the group was quite successful. However, the F-ratio for the post test mean, and adjusted posttest means reveals a value of

13.66 and 20.38 which was significant for being greater than the required F-value at 0.05 level of significance. This indicates that there was significant difference from the adjusted posttest means of Arm Strength, Leg Strength and Control Groups in fast bowlers

Table 3: Paired adjusted final means and difference between means of three different groups of fast bowlers in cricket

| Leg Strength | Arm Strength | Control Group | Mean Difference | Critical Difference |
|--------------|--------------|---------------|-----------------|---------------------|
| 30.752 | 30.65 | | 0.102 | 2.096 |
| 30.752 | | 24.67 | 6.082* | 2.096 |
| | 30.65 | 24.67 | 5.98* | 2.096 |

Table 1.1 indicate that the difference between the paired adjusted final means for Arm Strength, Leg Strength and Control Group in fast bowlers indicate significant value gain

of 5.98 and 6.08 and in case of leg strength and control arm strength and control in significant value gain (0.102)

Table 4: Analysis of co-variance of the mean of two experimental groups and the control group in spin bowlers

| | Leg strength | Arm strength | Control Group | Sum of Square | Df. | Mean sum of Square | F-Ratio |
|-------------------------|--------------|--------------|---------------|---------------|--------|--------------------|---------|
| Pre-test Mean | 21.6 | 20.18 | 22.57 | A | 32.221 | 2 | 16.110 |
| | | | | W | 320.70 | 27 | 11.88 |
| Post0Test Means | 31.80 | 30.30 | 24.55 | A | 226.53 | 2 | 113.265 |
| | | | | W | 365.30 | 27 | 13.529 |
| Adjusted Post Test Mean | 34.89 | 32.42 | 25.76 | A | 354.32 | 2 | 177.16 |
| | | | | W | 132.20 | 26 | 5.084 |

* Significant at 0.05 level

i) F 0.05 (3.36) 2.86 ii) F 0.05 (3.35) 2.88

The table 2 of spin bowlers for Arm Strength, Leg Strength Control Groups indicates insignificant F-ratio of 1.356 for the pretest. This show that the random assignment of the group was quite successful. However the F-ratio for the post test mean, and adjusted posttest means reveals a value of 8.372 and 34.85 which was significant for being greater than the required F-value at 0.05 level of significance. This indicate that there was significant difference from the adjusted posttest means of Arm Strength, Leg Strength and Control groups in spin bowlers.

Table 5: Paired adjusted final means and difference between means of three different groups of spin bowlers in cricket

| Leg Strength | Arm Strength | Control Group | Mean Difference | Critical Difference |
|--------------|--------------|---------------|-----------------|---------------------|
| 34.89 | 32.42 | | 2.47* | 2.023 |
| 34.89 | | 25.76 | 9.13* | 2.023 |
| | 32.42 | 25.76 | 6.66* | 2.023 |

Table 2.1 indicate that the difference between the paired adjusted final means for Arm Strength, Leg Strength and Control Group in Spin bowlers indicate significant value gain of 2.47, 9.13 and 6.66 in case of arm strength and leg strength, arm strength and control, leg strength and control.

Discussion of Findings

Results of the study revealed that both the training groups (leg strength and arm strength training group/improved fast bowlers performance of cricket. Further the study also revealed that leg strength training. Proved to be equal to arm strength in the improvement of Fast bowlers performance. This might be due to the reason that in the Fast bowlers performance strength in both the body parts i.e. leg as well as arm required equally. It means that performance of Fast bowlers depends on the involvement of leg and arm equally. Results of the study revealed that leg strength training group improved Spin bowlers performance of cricket players. Further the study also revealed that leg strength training proved to be superior to arm strength training in Spin bowlers. This might be due to the reason that performance of Spin bowlers depends on the jumping ability of the individual which required greater leg strength. Although arm strength is also required but leg strength is more significantly. As revealed by the study.

Conclusions

1. Both training groups (leg strength and arm strength) improved Fast bowlers performance but for these both arm strength and leg strength required equally.
2. Leg Strength training programme is significantly better than arm strength training programme on the performance of Spin bowlers.

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