

EFFECT OF CONCURRENT TRAINING ON SELECTED PHYSICAL AND PERFORMANCE RELATED VARIABLES AMONG KABADDI PLAYERS

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Abstract-The purpose of the study was to find out the effect of concurrent training on selected physical and performance related variable among Kabaddi players. To achieve the purpose of the study thirty male kabaddi players have been randomly selected from various colleges in the state of Tamil Nadu, India. The age ranged between 18 and 25 years. The subjects had past experience of at least three years in Kabaddi and only those represented their respective college teams were taken as subjects. A series of Physical variables namely Explosive power, strength endurance were randomly assessed by using standing broad jump and Bend knee sit-ups and performance related variable measurement was carried out on each participant. These included raid, ankle hold and toe touch were assessed by using subjective rating. The subjects were assigned into two groups of fifteen each, such as experimental and control groups. The Experimental group participated in the concurrent training for 3 alternative days per week for eight weeks. Duration of training session in all days with one session was one hour approximately which including warming up and limbering down. The control group maintained their daily routine activities and no special training was given. The subjects of

the two groups were tested on selected variables prior and immediately after the training period. The collected data were statistically analyzed through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. In all case the criterion for statistical significant would set as 0.05 level of confidence. The results of the study showed that there was significant differences exist between concurrent group and control group. And also concurrent training group showed significant improvement on Explosive power, strength endurance, raid, ankle hold and toe touch, compared to control group.

Key words: Concurrent training, performance related variables and Kabaddi.

I. Introduction

Kabaddi is essentially an Indian game, which commands huge popularity in the India as well as its hinterland. The game is known as Kabaddi in northern India. Breath control, raid, dodging and movement of hand and feet are the basic skills that one has to acquire, in order to play Kabaddi. The player has to acquire power and learn both offensive and defensive skills to excel in the game, which combines the characteristics of rugby and wrestling. Since its inception, India is the best in Kabaddi when compared to other countries. This

is due to constant practices of the game and new training methods. Keeping this objective the investigator combined concurrent training on selected physical and Performance related variables among Kabaddi players

Concurrent training is the combination of these training types (resistance and endurance). Concurrent training appears to inhibit strength development when compared with strength training alone. The acute hypothesis contends that residual fatigue from the endurance component of concurrent training compromises the ability to develop tension during the strength element of concurrent training. The development of strength in trained and untrained subjects has been shown to be compromised after a concurrent training program (Dudley and Djamil 1985, Sale 1990). Hunter et al (1987) showed that athletes had significantly greater increases in strength and power after a concurrent training program when compared to a sedentary group of volunteers who performed the same program. However, this study did not include a group of endurance athletes who performed strength training in isolation. Therefore, it is unclear whether previous endurance training either partially or fully negates any inhibitory effect on strength development associated with concurrent training (Lervitt 1999). The majority of concurrent training studies have demonstrated that strength development is inhibited during concurrent strength and endurance training programs. However, few authors have attempted to identify why this phenomenon exists (Lervitt 1999). Possible mechanisms have been suggested, which include over-training, conflicting physiological

adaptations, muscle fiber type transformations, hypertrophy, endocrine changes, and muscular or neural adaptations

II. Materials and Methods

The purpose of the study was to find out the effect of concurrent training on selected physical and performance related variable among Kabaddi players. To achieve the purpose of the study thirty male Kabaddi players have been randomly selected from various colleges in the state of Tamil Nadu, India. The age ranged between 18 and 25 years. The subjects had past experience of at least three years in Kabaddi and only those represented their respective college teams were taken as subjects. A series of Physical variables namely Explosive power, strength endurance, were assessed by using standing broad jump, bend knee sit-ups and performance related variables measurement was carried out on each participant. These included raid, ankle hold and toe touch assessed by using subjective rating. The subjects were assigned into two groups of fifteen each, such as experimental and control groups. The Experimental group participated in the concurrent training for 3 alternative days per week for eight weeks. Duration of training session in all days with one session was one hour approximately which including warming up and limbering down. The control group maintained their daily routine activities and no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were statistically analyzed through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. In all case the criterion for statistical significant would set as 0.05 level of confidence

TABLE-I
Criterion Measures

| S.No | Criterion measure | Test items | Unit of measurement |
|------|--------------------|---------------------|---------------------|
| 1 | Explosive power | standing broad jump | In numbers |
| 2 | Strength endurance | Bent knee sit-ups | In numbers |
| 3 | Raid | Subjective rating | In points |
| 4 | Ankle hold | Subjective rating | In points |
| 5 | Toe Touch | Subjective rating | In points |

TABLE – II

Descriptive analysis of selected Physical and Performance related variables among Control and Experimental groups

| S.No | Variables | Group | Pre-Test Mean | SD (\pm) | Post –Test Mean | SD (\pm) | Adjusted Mean |
|------|--------------------|-------|---------------|--------------|-----------------|--------------|---------------|
| 1 | Explosive power | CG | 1.38 | 0.14 | 1.60 | 0.22 | 1.61 |
| | | CCTG | 1.50 | 0.21 | 1.93 | 0.17 | 1.92 |
| 2 | Strength endurance | CG | 28.07 | 1.67 | 32.07 | 2.46 | 32.06 |
| | | CCTG | 28.00 | 1.60 | 35.00 | 2.10 | 35.00 |
| 3 | Raid | CG | 6.33 | 1.35 | 7.13 | 1.19 | 7.20 |
| | | CCTG | 6.60 | 1.30 | 8.33 | 1.05 | 8.27 |
| 4 | Ankle hold | CG | 5.87 | 1.25 | 7.20 | 1.01 | 7.40 |
| | | CCTG | 6.60 | 1.18 | 8.33 | 0.90 | 8.14 |
| 5 | Toe Touch | CG | 5.27 | 1.10 | 7.00 | 1.07 | 7.11 |
| | | CCTG | 5.60 | 1.40 | 7.87 | 1.06 | 7.76 |

CCTG= Concurrent training group CG= control group

The tables II shows the pre and post-test means, standard deviations and adjusted means on selected physical and performance related variables among Kabaddi players were presented in numerically. The analysis of covariance on selected variables of concurrent training and control group presented in table – III

TABLE – III

Computation of analysis of covariance on selected Physical and Performance related variables among Kabaddi players

| S.No | variables | Test | Sum of variance | Sum of squares | df | Mean square | F ratio |
|------|-----------------|----------|-----------------|----------------|----|-------------|---------|
| 1 | Explosive power | Pre-test | Between group | 0.11 | 1 | 0.11 | 3.50 |
| | | | Within group | 0.85 | 28 | 0.03 | |

| | | | | | | | | | |
|----------------|--------------------|----------------|---------------|----------|---------------|-------|--------|------|------|
| | | Post-test | Between group | 0.88 | 1 | 0.84 | 21.46* | | |
| | | | Within group | 1.09 | 28 | 0.04 | | | |
| | | Adjusted means | Between sets | 0.62 | 1 | 0.62 | 16.12* | | |
| | | | Within sets | 1.04 | 27 | 0.04 | | | |
| 2 | Strength endurance | Pre-test | Between group | 0.03 | 1 | 0.03 | 0.01 | | |
| | | | Within group | 74.93 | 28 | 2.68 | | | |
| | | Post-test | Between group | 64.53 | 1 | 64.53 | 12.30* | | |
| | | | Within group | 146.93 | 28 | 5.25 | | | |
| | | Adjusted means | Between sets | 64.78 | 1 | 64.78 | 11.96* | | |
| | | | Within sets | 146.29 | 27 | 5.42 | | | |
| | | 3 | Raid | Pre-test | Between group | 0.53 | 1 | 0.53 | 0.31 |
| | | | | | Within group | 48.93 | 28 | 1.77 | |
| Post-test | Between group | | | 10.80 | 1 | 10.80 | 8.62* | | |
| | Within group | | | 35.07 | 28 | 1.252 | | | |
| Adjusted means | Between sets | | | 8.45 | 1 | 8.45 | 9.94* | | |
| | Within sets | | | 22.97 | 27 | 0.85 | | | |
| 4 | Ankle hold | | | Pre-test | Between group | 4.03 | 1 | 4.03 | 2.73 |
| | | | | | Within group | 41.33 | 28 | 1.48 | |
| | | Post-test | Between group | 9.63 | 1 | 9.63 | 10.48* | | |
| | | | Within group | 25.73 | 28 | 0.92 | | | |
| | | Adjusted means | Between sets | 3.70 | 1 | 3.70 | 7.35* | | |
| | | | Within sets | 13.59 | 27 | 0.50 | | | |
| | | 5 | Toe touch | Pre-test | Between group | 0.83 | 1 | 0.83 | 0.52 |
| | | | | | Within group | 44.53 | 28 | 1.59 | |
| Post-test | Between group | | | 5.63 | 1 | 5.63 | 4.97* | | |
| | Within group | | | 31.73 | 28 | 1.133 | | | |
| Adjusted means | Between sets | | | 3.16 | 1 | 3.16 | 6.16* | | |
| | Within sets | | | 13.88 | 27 | 0.51 | | | |

*Significant at 0.05 level of confidences

(Table value for df 1 and 28 was 4. 21, Table value for df 1 and 27 was 4.20)

The obtained F-ratio of 16.12 for adjusted mean was greater than the table value 4.20 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among control and

experimental groups on Explosive power. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on Explosive power.

The obtained F-ratio of 11.96 for adjusted mean was greater than the table value 4.20 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among control and experimental groups on strength endurance. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on strength endurance.

The obtained F-ratio of 9.94 for adjusted mean was greater than the table value 4.20 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among control and experimental groups on Raid. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on Raid.

The obtained F-ratio of 7.35 for adjusted mean was greater than the table value 4.20 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among control and experimental groups on Ankle hold. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on Ankle hold

The obtained F-ratio of 6.16 for adjusted mean was greater than the table value 4.20 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among control and experimental groups on toe touch. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on Toe touch

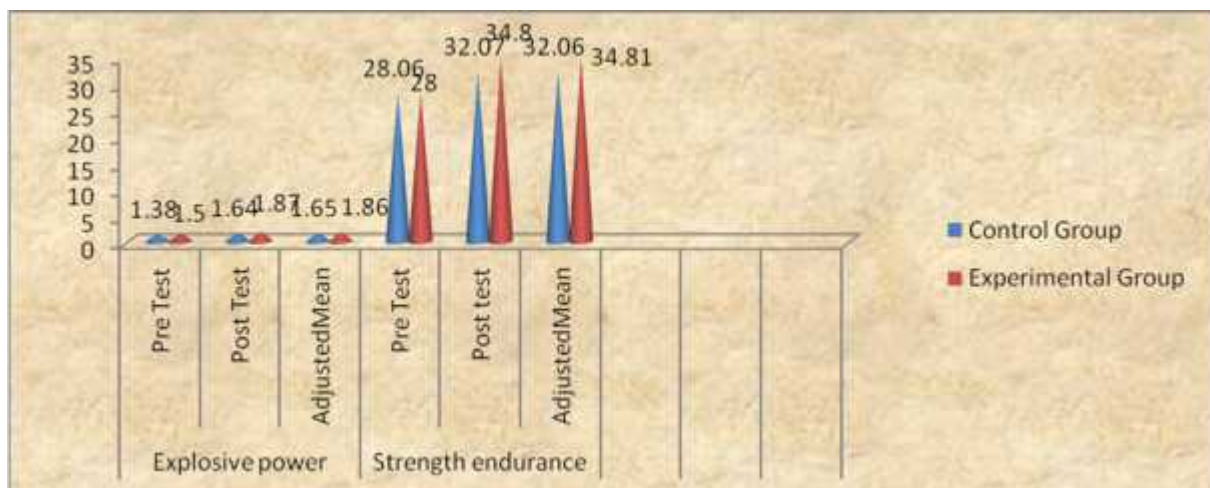


Figure-I: Bar diagram showing the pre, post and adjusted mean of the control and experimental group on Explosive power, Strength endurance.

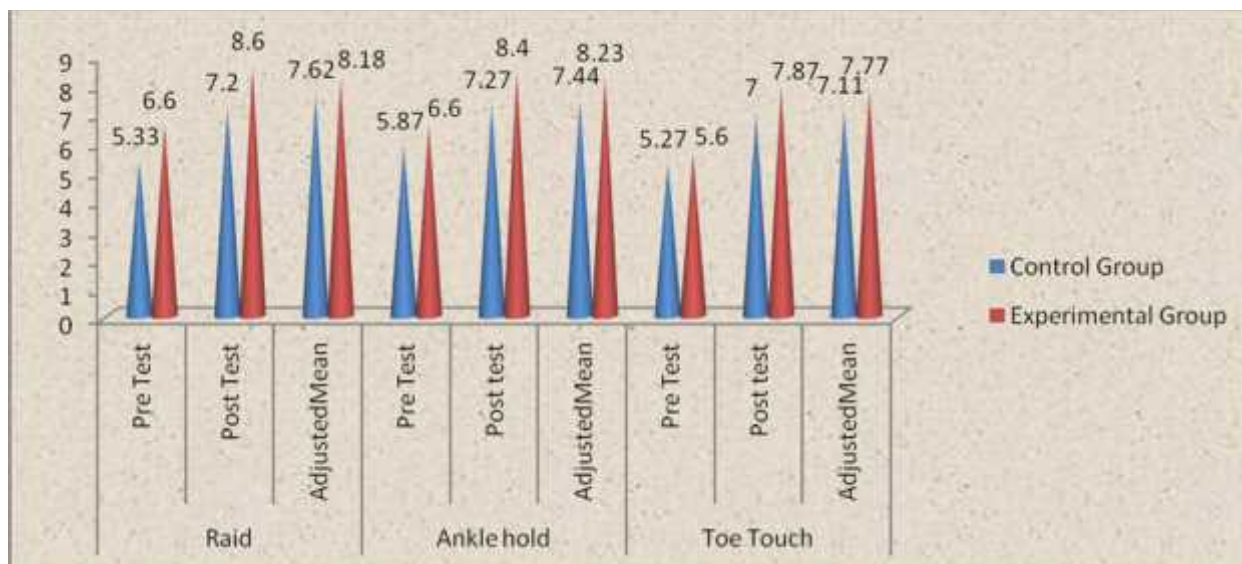


Figure-II : Bar diagram showing the pre-test, post-test and adjusted mean of the control and experimental groups on raid, ankle hold and toe touch

III. Discussion of findings

The results of the study indicate that the experimental group which underwent concurrent training had showed significant improved in the selected variables namely such as Explosive power, Strength endurance, raid, ankle hold and toe touch among Kabaddi players when compared to the control group. The control did not show significant improvement in any of the selected variables.

The past studies on selected physical and Performance related variables also reveals that majority of concurrent training studies have demonstrated that strength development is inhibited during concurrent strength and endurance training programs. However, few authors have attempted to identify why this phenomenon exists (Lervitt 1999). Possible mechanisms have been suggested, which include over-training, conflicting physiological adaptations, muscle fiber type transformations, hypertrophy, endocrine changes, and muscular or neural adaptations

IV. Conclusions

From the analysis of data, the following conclusions were drawn.

1. The experimental group showed significant improvement in all the selected physical and performance related variables such as Explosive power, Strength endurance raid, ankle hold and toe touch.
2. The control group did not show significant improvement in any of selected variables.

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