

TRAINING EFFECT OF CIRCUIT AND INTERVAL TRAINING ON CHANGE OF ANXIETY IN KABADDI PLAYERS

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Abstract:- The present study was designed to evaluate the effect of circuit training and interval training on general anxiety in Kabaddi players. The investigator defined the population for the study as 60 college men Kabaddi players in Kerala state. The investigator has to obtain a sample which would represent the population in all relevant aspects. The methodology used in this research involves the choice of a specified group of subjects, selection of variables, administering of standard tests, using of the relevant tools, obtaining predetermined information in the certain chosen factors and subjecting them for a statistical analysis.

Introduction

The changing nature of the game Kabaddi, demands the right type of psychological physical and physiological abilities on the part of a player. The increasing trend of professionalism and the converging demand for competitive sports have changed the complexion of the games which had been initially intended as a recreational activity of the villagers. Today with the advent of modern scientific equipments for training and selection of the players, it has been now made possible to measure the fundamental performance characteristics which contribute to a player's success through psychological factors.

Kabaddi is one of the most popular games in India and its unique origin can be traceable in the early Indian history. Many regions of India claim the credit for originating it and that would perhaps indicate that the game has been popular in many parts of the country for a long time ago. The present form of Kabaddi is entirely different from that of the ancient, as changes occurred in the rules and regulation of the game in different periods. At present the game turns more defensive in nature even though it demands a great deal of fitness from the players. Nowadays it is attaining wide popularity and soon the game Kabaddi may find an important place in the international sports calendar.

Circuit training

Circuit training was developed by R. E. Morgan and G. T. Anderson in 1953 at the University of Leeds in England (Sorani, 1966). The term circuit refers to a number of carefully selected exercises arranged consecutively. In the original format, 9 to 12 stations comprised the circuit. This number may vary according to the design of the program.

Interval training

The last few decades has seen the introduction of interval training which has considerable influence on sports conditioning. Interval training involves alternating periods of work and rest during a training session. It is a program that varies the intensity within the training session by interspersing a workout of a higher intensity with a rest period of lower intensity; then another workout is completed, once again followed by a rest period, and so on through the workout.

Sports psychology

Sport psychology is a division of psychology aimed at better preparing the mind of an athlete for competition. Sports psychology has been defined as "The sub discipline of exercise science that seeks to understand the influence of behavioral processes on skilled movement" (Hatfield and Brody).

General anxiety

Anxiety is another psychological factor, which differs from arousal in that it encompasses some degree of activation and an unpleasant emotional state. Thus the term anxiety is used to describe the combination of intensity of behaviour and directional effect or emotion. The direction of effect, a characteristic of anxiety, is negative in that it describes subjective feelings that are unpleasant.

Anxiety means troubled state of mind, anxiety can be called nervousness. Anxiety is an unpleasant emotional state. Anxiety is an emotional reaction that is often irrational to conditions that may be unknown to others. Anxiety can be experience at various levels of intensity. Tension is another term used to describe the chronic, usually low level anxiety. Most of the people are susceptible for it, high level of anxiety as panic, which should never form to be a part of the athletic environment. That is the condition in which "The anxiety has become so great that the person loses complete control of himself and the situation".

Anxiety is situation specific. To some extent common feeling which tends to increase anxiety in players are fear of success and maintenance of high level of performance, fear of injuries, failure to achieve and fear surroundings, the psychological stresses and pain experiences.

There are many dimensions of fear and anxiety in athletes and non-athletes, experienced and non-experienced athletes, team game and individual sports players are reported to differ on the level of pre-competition anxiety. While highly competitive situations shoot-up anxiety, yogic practices reduce the state of anxiety.

Selection of subjects

The most important aspect of a study is the selection of the sample. A good sample is one which will reproduce the characteristics of the population. It is imperative that a suitable sample representative of the population be selected to ensure validity for the results arrived at. This present study 60 college men Kabaddi players in Kerala state were selected as the subjects. The age of the subjects ranged between 18 to 25 years. The subjects were informed about the nature of the study and their consent also taken before involving them as subjects of this study. The subjects were later randomly assigned to a control group-1, an experimental group-2(circuit training) and, experimental group-3(interval training) of equal sizes.

Psychological variable Anxiety and respective test for the study

Sl.no.	Variable	Test
1	Anxiety	General anxiety scale

Anxiety was recorded in general anxiety scale (scoring marks).

Reliability of the test

Reliability of a test refers to the degree of consistency and accuracy with which it measures what it is intended to measure. Anastasi (1959) considered, “The reliability of a test as the consistency of the scores obtained by the same individuals on different occasions or with different sets of equivalent forms”.

Test re-test method was followed in order to establish the reliability for the selected tests. Taking fifteen subjects at random all the dependent variables selected in the present study were tested twice for the subjects by the investigator under similar condition.

General anxiety scale

To measure the process skills in sports psychology, the investigator used a questionnaire for developing the tool. The development and the final tool include the following steps.

Collection of statements

The first step of the study was the construction of the tool having a number of statements about the topic. Before the preparation of the tool, discussions were held with experts in the field of physical education, psychology and education. Besides, initial tool was prepared by the investigator in related areas of research by collecting ideas. Finally by making use of these, 66, 75 and 59 statements were prepared by the investigator in the draft form of the tool general anxiety.

Screening of statements

The draft tool was then submitted to the guide and experts in the field of physical education, psychology and education to judge the suitability of the items. According to the suggestions given by experts and concerned guide, a few statements which seemed to overlap with one another were rejected.. The draft form of the tool was then printed.

Sample for try out

The draft tool was subjected to a pilot study by administering it in a sample of 60 male Students in Emmanuel College of arts and science Vazhichal in Thiruvananthapuram district.

The draft tool and its administration

The draft form of the tool was presented before the college men students in the above three groups personally. Suggestions were given to answer the questions of process skill in an intelligent way. Help was given wherever necessary. Each statement had three choices. The students were instituted to read each of the statements carefully and answer them by making a tick mark (✓) against the answer which they think as appropriate for themselves. Sufficient time was given to them.

Instructions for scoring

The response sheets were collected and stencil method was used to evaluate the process skills such as observing, inferring, predicting, classifying and using number relations. The answer sheets were scored by giving marks for correct answers. The final scores of students were measured from the total scores obtained for all items.

Scoring

The test can be scored by hand. For positive statement, scores of 2, 1 and '0' are given for the alternatives; *Always*, *Sometimes*, *Never* and negative statements, scores of '0', 1 and 2 are given for the alternatives; *Always*, *Sometimes*, *Never* respectively.

Scoring key

Sl.no.	Responses	Scoring for positive statements	Scoring for negative statements
01.	Always	2	0
02.	Sometimes	1	1
03.	Never	0	2

Item analysis

Item analysis is an important phase of test construction. Through this items can be analyzed qualitatively in terms of their content and form, and quantitatively in terms of their statistical properties.

Validity and reliability of general anxiety scale

Reliability

The reliability of general anxiety scale was established into two viz. test re-test and split half method. The re-test method was done on a sample of 50 students (males and females) selected randomly. The time interval for the two testing's was one month. The reliability coefficient obtained for general anxiety was 0.78 which was significant at 0.01 level, and are verbally interpreted as high, showing that the variable indicate high reliability of measurement.

The split-half reliability has been found in the following way. The scale has been administered to a sample of 60 students. The scores on odd items and even items are obtained separately for the scale and the correlation was calculated using Spearman-Brown formula. The reliability coefficient was found 0.74, which was significant at 0.01 level. This showed that the variable have higher split-half reliability as in the case of test-retest reliability.

The validity of the test represents the extent to which a test measures what it purpose to measure. As far as the general anxiety scale of this nature is concerned, content validity and criterion related validity are important.

Content validity is the degree a test measures and intended content area. Consideration of the subject matter will yield satisfactory validity with regard to the content and is maintained by careful reference to the literature as well as by consultation with experts.

The criterion validity of the scale was found out by correlating the present scale with an external criterion that in general anxiety scale (Mukundan 2003). Both tests were administered on a sample of 100 students and correlation was found out. The validity coefficient thus obtained was 0.761.

Thus the scale as a whole in a reasonably valid and reliable instrument for the purpose of the present investigation. A copy of the drafted general anxiety scale and final general anxiety scale were given in the appendix - A and B respectively.

Statistical techniques used for the study

Following are the statistical techniques used for the study.

1. Percentage analysis
2. Means
3. Standard deviation
4. 'F'test (ANOVA & ANCOVA)
5. 't'-test
6. Correlation.

General anxiety

The pre-test and post-test scores among control group, circuit training group and interval training group of college men Kabaddi players in Kerala with respect to the level of general anxiety is given bellow

Level of general anxiety of college men of different group
Kabaddi players in Kerala

Test	Level	Control group		Circuit group		Interval group	
		N	%	N	%	N	%
Pre-test	Low	5	25.0	6	30.0	5	25.0
	Average	9	45.0*	6	30.0	5	25.0
	High	6	30.0	8	40.0*	10	50.0*
Post-test	Low	7	35.0*	5	25.0	5	25.0
	Average	6	35.0*	7	35.0	7	35.0
	High	6	30.0	8	40.0*	9	45.0*

* indicates the level of general anxiety

Table 4.57 reveals that in the post-test the level of general anxiety is higher in circuit and interval training group than the control group.

Effectiveness of Kabaddi players circuit training and interval training on general anxiety of college men

The pre-test and post-test scores of the control, circuit and interval groups were subjected to the statistical technique, analysis of co-variance to findout the effectiveness of circuit and interval training general anxiety of college men Kabaddi players in Kerala. The summary of analysis of variance over pre-test(x) and post-test (y) scores of players in the control, circuit and interval groups taken separately

Summary of analysis of variance of pre-test and post-test scores on general anxiety among the control, circuit and interval group

Source of variance	df	SS _x	SS _y	MS _x (V _x)	MS _y (V _y)	F _x	F _y
Among group mean	2	54.70	44.43	27.35	22.22	0.98	0.86
Within group mean	57	1598.70	1464.55	28.05	25.69		
Total	59	1653.40	1508.98				

From table of F ratio, for df (2/57);

F at 0.05 level = 3.16

F at 0.01 level = 5.00

The F ratio for the pre-test and post-test scores was tested for significance. F_x value obtained 0.98 (F_x = 0.98). It is less than F at 0.05 level (i.e, 3.16). So it can be interpreted that the experimental groups (circuit and interval) and control group do not differ significantly with regard to pre-test in general anxiety. The three groups are more or less equal with regard to pre-test scores of general anxiety.

The obtained value of F_y is 0.86 (F_y = 0.86). It is less than F at 0.01 level (i.e, 5.00). Hence it can be interpreted that the experimental groups (circuit and interval) and control group do not differ significantly with regard to post-test in general anxiety.

The summary of analysis of co-variance of pre-test and post-test scores of players in experimental (circuit and interval) and control groups

Summary of analysis of co-variance of pre-test and post-test scores on general anxiety among players in experimental (circuit and interval) and control groups (ANCOVA).

Source of variance	df	SS _x	SS _y	SS _{xy}	SS _{yx}	MS _y (V _{yx})	F _{yx}	SD _{yx}
Among group mean	2	54.70	44.43	-49.30	180.95	90.48	190.53	0.69
Within group mean	56	1598.70	1464.55	1516.20	26.59	0.47		
Total	58	1653.40	1508.98	1466.90	207.55			

From table of F ratio, for df (2/56);

F at 0.05 level = 3.16

F at 0.01 level = 5.00

F_{yx} = 190.53

The obtained value of F is 190.53 ($F_{yx}=190.53$). It is greater than the table value at 0.01 level (i.e.,=5.00). This shows that the final mean scores of treatment groups differ significantly after they have been adjusted for differences in the post-test scores of general anxiety.

The data for adjusted means of post-test scores of players in experimental and control groups

Data for adjusted means of post-test scores in experimental
and control groups

Groups	N	M_X	M_Y	Adjusted Y Mean $M_{YX}(\text{adj})$
Control	20	30.75	29.40	30.37
Circuit	20	32.80	27.55	26.58
Interval	20	32.75	27.60	26.68
Group means	20	31.78	28.48	

From table 't' for $df=56$,

't' at 0.05=2.005;

't' at 0.01=2.67

Minimum significant difference required at 0.01 = 0.58

Minimum significant difference required at 0.05 = 0.44

The difference between adjusted means (M_{yx}) of post-test scores of players in experimental (circuit and interval) and control groups

Difference between adjusted means (M_{yx}) of experimental
(circuit and interval) and control groups

	$M_{YX}(\text{adj})$	Difference	RM
Control	30.37	3.79	Sig
Circuit	26.58		
Control	30.37	3.70	Sig
Interval	26.68		
Circuit	26.58	0.10	Not sig
Interval	26.68		

Difference between adjusted means (M_{yx}) of control and circuit training groups =3.79 which is greater than 0.58 implies that the both the groups differ significantly at 0.01 level. Difference between adjusted means (M_{yx}) of control and interval training groups =3.70 which is greater than 0.58 implies that the both the groups differ significantly at 0.01 level and difference between adjusted means (M_{yx}) circuit and interval training groups =0.10 which is less than 0.58 implies that the both the groups do not differ significantly at 0.01 level.

It can be interpreted from the analysis of co-variance among adjusted means of experimental and control groups that there is significant difference between experimental and control groups with respect to general anxiety i.e., circuit training group ($M_{yx} = 26.58$) is significantly superior to control ($M_{yx} = 30.37$) and interval training group ($M_{yx} = 26.68$) with regard to their post-test scores.

Comparison of pre-test and post-test scores of general anxiety among the control, circuit and interval group Kabaddi players

Inorder to findout the significance difference between pre-test and post-test means of experimental and control groups, the critical ratio of the pre-test and post-test scores were calculated. For this, the mean and standard deviation of the groups were calculated. The data and the result of the test of significance are given bellow.

Comparison of pre-test and post-test scores of general anxiety among the control, circuit and interval group Kabaddi players

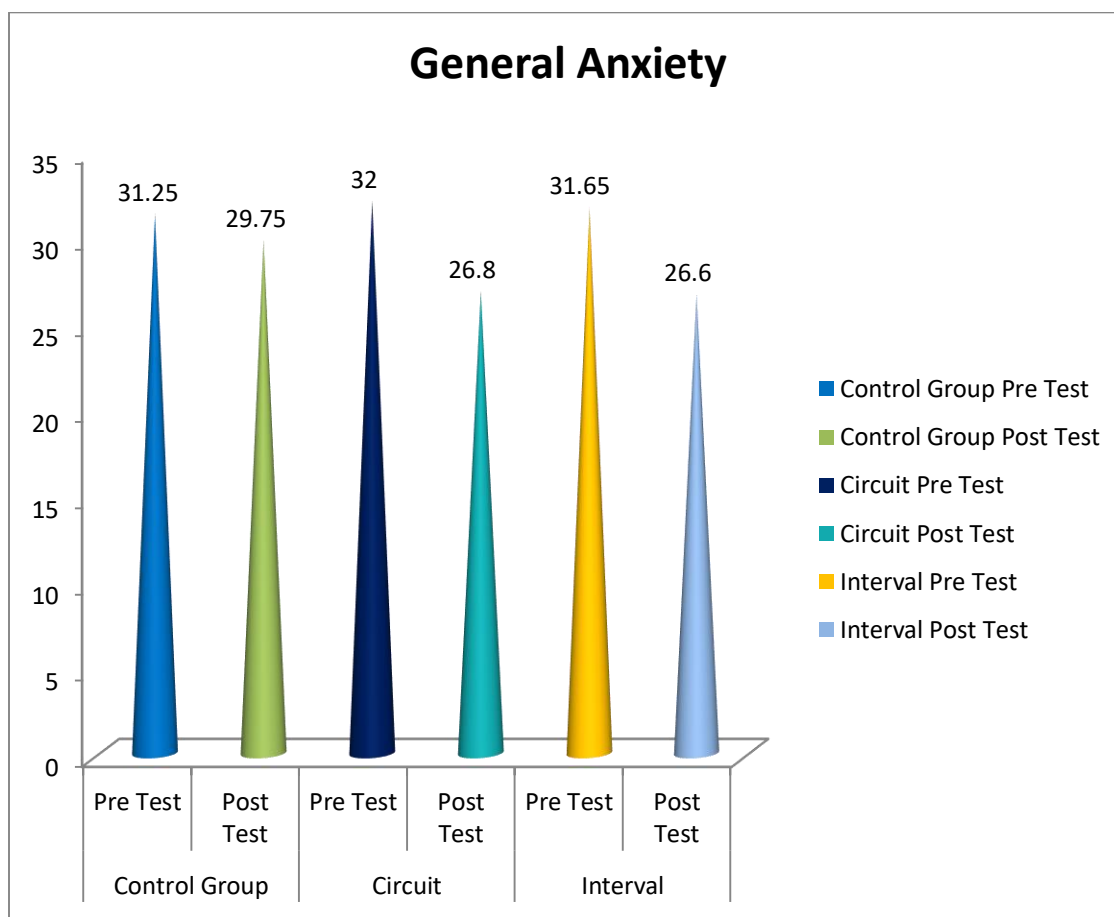
Group	Test	Mean	S.D	r Value	Calculated 't' value	P Value
Control	Pre-test	31.25	5.57	0.99	11.05	0.00
	Post-test	29.75	5.40			
Circuit	Pre-test	32.00	5.39	0.96	27.90	0.00
	Post-test	26.80	5.30			
Interval	Pre-test	31.65	5.37	0.99	27.35	0.00
	Post-test	26.60	5.00			

$p < 0.01$ indicates significant at 1% level

As the p value of the table is less than 0.05, there is significant difference between pre-test and post-test scores of general anxiety among the control group, circuit and interval group Kabaddi men players of Kerala.

From the mean value it is clear that all the group players seem to score more in their pre-test than that of their post-test which reveals their anxiety level is more before the treatment than that of after treatment. It clears that the experiment strengthens their mind in such a way that to reduce their anxiety to a considerable level.

Difference between pre-test and post-test scores of general anxiety among the control, circuit and interval group
Kabaddi players



The figure 4.I shows that psychological variable general anxiety had reduced in its level on both experimental groups, in comparison to control group after a 10 weeks training programme and the circuit group showed significant reduction in general anxiety as compared to interval training group.

Correlation between circuit group and interval group in general anxiety

Inorder to findout the correlation between circuit group and interval group in general anxiety , the mean and standard deviation of the data were calculated and the correlation were computed to see whether there is any relationship between them.The result and correlation coefficient are shown bellow.

Relationship between circuit group and interval group in

general anxiety of pre-test and post-test

Test	Group	No	Mean	S.D	'r' value	'P' Value
Pre-test	Circuit	20	32.00	5.39	0.03	0.92
	Interval	20	31.65	5.37		
Post-test	Circuit	20	26.80	5.30	0.01	0.96
	Interval	20	26.60	5.00		

$p < 0.01$ indicates significant at 1% level

As the r value of the table 4.63 is positive, the proposed hypothesis i.e., the circuit and interval training will have a positive correlation with variable- general anxiety is accepted.

Conclusion

This study found that the psychological variable of anxiety, in comparison to control group after 10 weeks training program and the circuit training

The study found that psychological variable general anxiety had reduced in its level on both experimental groups, in comparison to control group after a 10 weeks training programme and the circuit group showed significant reduction in general anxiety as compared to interval training group.

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