EFFECT OF VARIED CAPSULES OF FITNESS TRAINING ON SELECTED PHYSICAL PHYSIOLOGICAL PSYCHOLOGICAL AND SKILL PERFORMANCE VARIABLES AMONG COLLEGE LEVEL MEN HANDBALL PLAYERS

ABSTRACT

Dissertation Submitted to the Tamil Nadu Physical Education and Sports University, Chennai for the fulfilment of the requirements for the award of Degree of

DOCTOR OF PHILOSOPHY
IN
PHYSICAL EDUCATION

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INDIA

JULY - 2021

An abstract of the dissertation of L. SASI KUMAR, submitted to Tamil Nadu Physical Education and Sports University for the award of Doctor of Philosophy in Physical Education.

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"EFFECT OF VARIED CAPSULES OF FITNESS TRAINING ON SELECTED PHYSICAL PHYSIOLOGICAL PSYCHOLOGICAL AND SKILL PERFORMANCE VARIABLES AMONG COLLEGE LEVEL MEN HANDBALL PLAYERS"

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Sports performance is the result and expression of the total personality of the sportsman. The development of the sportsman to achieve high level of performance is usually concentrated in four areas namely physical power, social adjustment, psychological development and physiological efficiency. Sports achievements depends mostly on the training designed for a particular sport. If our nation wants to win laurels it must take the challenge seriously in terms of well-developed physical training. Circuit training is very special form of training which concentrates on different parts of the body and general endurance. Circuit training is a method of physical conditioning that employs both resistance training and callisthenic training exercises. Interval training develops the ability of the athlete to run at a particular pace. This type of training by adjusting the time, number and distance of the run can be adopted to suit the needs of any middle-distance runner. This flexibility is an advantage of training system. Staircase training is a suitable exercise to burn fat and improve the condition of heart and lungs. Staircase training is a creative, fine and very challenging patterns of movement, that is, on and off stair case can challenge the legs, footsteps and arms also. Sportsmen requires a multitude of athletic abilities, such as explosive acceleration and fast sprinting speed; muscular endurance and strength in the lower body; muscular balance and high levels of neuromuscular co-ordination, body awareness and agility, the ability to know where the body is, and be able to move it; good flexibility to avoid injury and correct balance between the quadriceps and hamstrings, as well as strength imbalances between the left and right leg. Thus, every sportsman is interested to improve their physical, physiological and psychological and performance levels.

OBJECTIVES OF THE STUDY

1. To find out the influence of varied capsules of fitness training namely circuit training, interval training and stair case training for better performance on selected physical variables among college level men handball players.

2. To evaluate the effect of varied capsules of fitness training namely circuit training, interval training and stair case training for better performance on selected physiological variables among college level men handball players.

3. To determine the impact of varied capsules of fitness training namely circuit training, interval training and stair case training for better performance on selected psychological variables among college level men handball players.

4. To find out the effect of varied capsules of fitness training namely circuit training, interval training and stair case training for better performance on selected skill performance variables among college level men handball players.

STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of varied capsules of fitness training namely circuit training, interval training and stair case training on selected physical, physiological, psychological and skill performance variables among college level men handball players.

HYPOTHESES

1. It was hypothesised that 12 weeks of varied capsules of fitness training namely circuit training, interval training and stair case training would significantly improve the selected physical variables namely speed, abdominal strength, flexibility and cardiovascular endurance and physiological variables namely vital capacity and breath holding time and psychological variables namely achievement motivation, self-confidence and anxiety and skill performance variables namely dribbling, shooting and wing shot shooting among college level men handball players.

2. It was hypothesised that 12 weeks of circuit training would significantly improve the selected physical variables namely speed, flexibility and cardiovascular endurance and physiological variables namely vital capacity and breath holding time and psychological variables namely achievement motivation and self-confidence than stair case and interval trainings among college level men handball players.
3. It was hypothesised that 12 weeks of stair case training would significantly improve the selected physical variable namely abdominal strength and psychological variable namely anxiety and skill performance variables namely dribbling, shooting and wing shot shooting than circuit and interval trainings among college level men handball players.
4. It was hypothesised that 12 weeks of interval training and stair case training would significantly improve the selected physical variables namely speed, abdominal strength, flexibility and cardiovascular endurance and physiological variables namely vital capacity and breath holding time and psychological variables namely achievement motivation, self-confidence and anxiety and skill performance variables namely dribbling, shooting and wing shot shooting than control group among college level men handball players.

SIGNIFICANCE OF THE PROBLEM

1. This study is unique in suggesting varied training schedules for the physical, physiological, psychological and skill variables of college men handball players.
2. The findings of this study would suggest which training schedule is better in improving and developing the specific physical, physiological, psychological and skill variables of handball players.

3. The findings would be helpful for the coaches and administrators to modify their existing training schedules for the preparation of handball probable's.
4. This study may help the coaches and physical educators to train the handball players to improve their selected physical, physiological, psychological and skill variables.
5. This research may help the sports scientists to suggest ways and means to improve better standard in sports through suggesting suitable training methods.
6. This study may provide clear guidelines in better performance to be groomed for higher levels of competition.

DELIMITATIONS

1. The study was delimited to the college men handball players in the age group of 18 to 24 years from various colleges of the University of Madras.

2. The study was delimited to 80 handball players. Further, they were randomly assigned into four equal groups of 20 subjects each.

3. The period of the training programme was delimited to 12 weeks.

The study was restricted to the following variables.

Dependent Variables

Physical Variables

1. Speed
2. Abdominal Strength
3. Flexibility
4. Cardiovascular Endurance

Physiological variables

1. Vital Capacity
2. Breath holding time

Psychological Variables

1. Achievement Motivation
2. Self Confidence
3. Anxiety

Skill Variables

5. Dribbling
6. Shooting
7. Wing Shot Shooting

Independent Variables

1. Twelve Weeks of Circuit Training
2. Twelve Weeks of Interval Training
3. Twelve Weeks of Stair Case Training

LIMITATIONS

1. The influence of certain factors like daily routine, food habits, life style and rest period were not taken into consideration.
2. Hereditary and environmental factors which contribute to both physical and mental efficiency were not taken into consideration.
3. Though the total work load of these three training programme was equated, the intensity of the load which varies from individual to individual was not taken into consideration.

4. The previous knowledge of the subjects and their experience in activities was not taken into consideration.

SELECTION OF SUBJECTS

The purpose of the study was to find out the effects of varied capsules of fitness training such as circuit training, interval training and stair case training on selected physical, physiological, psychological and skill variables among college level men handball players. To achieve the purpose of this study, 80 college men handball players from various colleges of the University of Madras were selected as subjects and they were in 18 to 24 years of age.

SELECTION OF VARIABLES

The research scholar reviewed the various scientific literature pertaining to the circuit training, interval training and stair case training on selected physical, physiological and psychological variables from books, journals, periodicals, magazines and research papers. Taking into consideration of feasibility criteria, availability of instruments and the relevance of the variables of the present study, the following variables were selected.

3.2.1 Dependent Variables

a. Physical Variables

1. Speed
2. Abdominal Strength
3. Flexibility
4. Cardio-vascular Endurance

b. Physiological Variables

1. Vital Capacity
2. Breath Holding time

c. Psychological Variables

1. Achievement Motivation
2. Self Confidence
3. Anxiety

d. Skill Variables

1. Dribbling
2. Shooting
3. Wing Shot Shooting

3.2.2 Independent Variables

1. Experimental Group I: Twelve weeks of Circuit Training
2. Experimental Group II: Twelve weeks of Interval Training
3. Experimental Group III: Twelve weeks of Stair Case Training
4. Group IV: Control Group

EXPERIMENTAL DESIGN

The study was formulated as a true random group design, consisting of a pre test and post test. The subjects (n = 80) were randomly assigned into four equal groups of 20 handball players in each group. The groups were assigned as Experimental Groups I, II, III and control group respectively. Experimental group I was assigned as Circuit Training Group (CTG),

experimental group II was assigned as Interval Training Group (ITG), experimental group III was assigned as Stair Case Training Group (SCTG) and the Control Group (CG) was strictly under control not involving any special training. Pre tests were conducted for all the subjects on selected physical, physiological and psychological variables. The experimental groups participated in their respective circuit training, interval training and stair case training for a period of twelve weeks. After the experimental period, the post tests were conducted on the above said dependent variables for all the four groups. The difference between the initial and final scores on each variable was considered the effect of respective treatments. The effects of varied package of training on selected variables were tested through ANCOVA. In all cases 0.05 level was fixed to test the hypothesis.

STATISTICAL TECHNIQUES

The following statistical techniques were used to find out the effects of varied capsules of fitness training such as circuit training, interval training and stair case training on selected physical, physiological, psychological and skill variables among college level men handball players.

Analysis of covariance (ANCOVA) statistical technique was used to test the adjusted post test mean differences among the experimental groups. If the adjusted post test result was significant, the Scheffe's post-hoc test was used to determine the significance of the paired mean differences (Thirumalaisamy R., 1997).

DISCUSSION ON HYPOTHESES

1. The first hypothesis was stated that 12 weeks of varied capsules of fitness training namely circuit training, interval training and stair case training would significantly improve the selected physical variables namely speed, abdominal strength, flexibility and cardiovascular endurance and physiological variables namely vital capacity and breath holding time and psychological variables namely achievement motivation, self-confidence and anxiety and skill performance variables namely dribbling, shooting and wing shot shooting among college level men handball players.

The findings of the study showed that there were significant effects due to the influence of the 12 weeks of circuit training, interval training and stair case training on selected dependent variables such as speed, abdominal strength, flexibility, cardiovascular endurance, vital capacity, breath holding time, achievement motivation, self-confidence, anxiety dribbling, shooting and wing shot shooting. Hence, the first hypothesis was accepted on above said variables.

2. The second hypothesis was stated that 12 weeks of circuit training would significantly improve the selected physical variables namely speed, flexibility and cardiovascular endurance and physiological variables namely vital capacity and breath holding time and psychological variables namely achievement motivation and self-confidence than stair case and interval trainings among college level men handball players.

The findings of the study showed that there were significant effects due to the influence of the 12 weeks of circuit training on selected dependent variables such as speed, flexibility, cardiovascular endurance, vital capacity, breath holding time, achievement motivation and self-confidence. Hence, the second hypothesis was accepted on above said variables.

3. The third hypothesis was stated that 12 weeks of stair case training would significantly improve the selected physical variable namely abdominal strength and psychological

variable namely anxiety and skill performance variables namely dribbling, shooting and wing shot shooting than circuit and interval trainings among college level men handball players.

The findings of the study showed that there were significant effects due to the influence of the 12 weeks of stair case training on selected dependent variables such as abdominal strength, anxiety, dribbling, shooting and wing shot shooting. Hence, the third hypothesis was accepted on above said variables.

4. The fourth hypothesis was stated that 12 weeks of interval training and stair case training would significantly improve the selected physical variables namely speed, abdominal strength, flexibility and cardiovascular endurance and physiological variables namely vital capacity and breath holding time and psychological variables namely achievement motivation, self-confidence and anxiety and skill performance variables namely dribbling, shooting and wing shot shooting than control group among college level men handball players.

The findings of the study showed that there were significant effects due to the influence of the 12 weeks of interval training and stair case training on selected dependent variables such as speed, abdominal strength, flexibility, cardiovascular endurance. vital capacity, breath holding time, achievement motivation, self-confidence, anxiety, dribbling, shooting and wing shot shooting. Hence, the fourth hypothesis was accepted on above said variables.

CONCLUSIONS

1 Circuit training, interval training and stair case training significantly improved the selected physical variables such as speed, abdominal strength, flexibility and cardiovascular endurance and physiological variables such as vital capacity and breath holding time and psychological variables such as achievement motivation, self-

confidence and anxiety and skill performance variables such as dribbling, shooting and wing shot shooting compared to control group.

2 Circuit training significantly improved the selected physical variables such as speed, flexibility and cardiovascular endurance and physiological variable namely vital capacity and psychological variable namely achievement motivation, self-confidence and anxiety and skill performance variable namely shooting among college level handball players than other trainings.

3 Stair case training significantly improved the selected physical variable namely abdominal strength and physiological variable namely breath holding time and psychological variable namely self-confidence and anxiety and skill performance variables namely dribbling and wing shot shooting compared to other groups.

4 Interval training significantly reduced the selected psychological variable namely anxiety compared to other groups.

RECOMMENDATIONS

1. The findings of the study confirmed that circuit training, interval training and stair case training significantly improved the selected physical, physiological, psychological and skill performance variables among college level handball players. Hence, professionals in physical education, coaches and trainers in the field of sports can utilize these training programme for better performance of their players.

2. Physical education teachers, coaches and trainers may adopt the circuit training, interval training and stair case training methods to develop the selected physical, physiological and psychological variables.

3. The result of the study would help the handball coaches and players to understand and add the circuit training, interval training and stair case training in their training schedule of fitness and skill development.

SUGGESTIONS FOR FURTHER RESEARCH

1. There are great scopes for other researchers to carry out similar studies with different physical, physiological, psychological and skill performance variables.

2. Similar studies may be conducted for various games like, hockey, basketball, volleyball, kabaddi and kho-kho.

3. Same training programme may be carried out for more than 12 weeks of training period.

4. Similar studies may be conducted for inter school and state level handball players.