

Effect of Twelve Weeks Training on Selected Physical Physiological and Psychological Variables of Novice Hockey Players

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Abstract: It is a fact that apart from other factors, the performance of an individual in any game and sports is mainly dependent upon physical, physiological and psychological factors. Every sports person should be physically, physiologically and psychologically fit to carry out daily tasks. Physical fitness is the result of regular physical activity, proper diet and nutrition and proper rest for physical recovery within the parameters allowed by the genome.

Keywords: General fitness, Physical, Physiological, Psychological fitness

I. Introduction

It is a fact that apart from other factors, the performance of an individual in any game and sports is mainly dependent upon physical, physiological and psychological factors. Every sports person should be physically, physiologically and psychologically fit to carry out daily tasks. Physical fitness is the result of regular physical activity, proper diet and nutrition and proper rest for physical recovery within the parameters allowed by the genome. Physical fitness is used in two close meanings, general fitness and specific fitness. General fitness is often divided into agility, balance, body composition, cardio vascular endurance, co-ordination, flexibility, muscular strength and endurance speed. Many sources also cite that mental and emotional health as an important part of overall fitness. In physical fitness, body-composition is used to describe the percentage of fat, bone and muscle in human body. The percentage of fat is of most interest because it can be very helpful in judging health in addition to body weight. Specific or task oriented fitness is a person's ability to perform in a specific activity with a reasonable efficiency.

II. Methodology

The study was conducted on twenty girls between the age group of 10-15, ten each from Sree Narayana Girls High School and John Paul Eluvathingal High School for Girls and Boys at Trichur district, Kerala State India. The subjects undergone hockey training five days in a week for a period of 12 weeks. The main objective of the study was to determine the effect of twelve weeks training on selected physical, physiological and psychological variables of novice hockey players. Criterion measures chosen for testing the Physical variables were AAPHER Youth fitness test (1976 revision). Physiological variables were tested by using the standardized test to measure Resting pulse rate, Body composition and Flexibility. The memory card and mood chart were used to measure Psychological variables. In the consecutive weeks, the work out session varied with introduction of more basic skills and culminating with the complex skills. The warm up session too varied with the introduction of new drill where as, the warm down session remained more or less the same.

III. Data Collection

The data pertaining to the motor fitness variables such as flexed-arm hang, bend knee sit-ups, standing broad jump, shuttle run, 50 yard dash and 300-yard run or walk test, Physiological variables such as body composition, flexibility and resting pulse rate and psychological variables such as memory and mood were collected by administering the appropriate test and using the appropriate measurement procedure. All were given a chance to practice and familiarize themselves with the proposed test.

IV. Statistical Technique

To compare the mean difference between the initial and final score, of the experimental group dependent 't' test was employed with respect to the selected Physical fitness variables.

The 't' – ratio was calculated by using the following method;

$$t = \frac{\Sigma d}{\sqrt{\frac{n(\Sigma d^2) - (\Sigma d)^2}{n-1}}}$$

V. Discussion on Findings

All subjects of the group underwent hockey-training program for five days per week for a period of 12 weeks. From the statistical analysis it is evident that in case of all the selected performance related variables such as speed, agility, flexibility, cardio respiratory endurance, muscular endurance of arm & shoulder and abdominal and leg power significant changes were noticed.

It can be concluded that twelve weeks hockey-training resulted in the improvement of cardio respiratory endurance. As hockey is a longer duration activity, the involvement in such training program for longer period improved functioning of various organs and systems of the human body.

The improvement in the muscular endurance can be attributed to the fact that the subjects did drills and activities with and without equipment for longer duration. They were also engaged in various exercises such as sit-ups and push-ups. Hockey is the second fastest game and hockey skill movements are also fast. Moreover, speed is a conditional ability. It has complex nature as it depends to a considerable extent on the central nervous system. As we can influence the functioning of central nervous system only to a very limited extent, speed performances cannot be improved beyond a certain extent. During the game players need rapid shifting of body position and direction. As the practice, needed quick movements, such drills practiced over a period of time might have brought about the improved agility of the subjects.

Hockey movements require constant bending of the upper body, which in turn stretches the hamstring muscles. Moreover, the subjects are made to do stretching exercises after training. Along with the training, the best age for the development of flexibility is before puberty. These may be the causes for a considerable improvement in flexibility of subjects. Heart rate increases with exercises. Physically fit individuals will have lower heart rate. The physical fitness of the subjects had improved considerably and an indication of this was the improvement in their pulse rate. Improvement in body composition may be, because, for the liberation of energy metabolic process occur. For this purpose fat is used as a major energy source.

Apart from the physical and physiological variables like mood and memory of the subjects were also tested. Normally all the girls up to twelve like to engage in physical activities. Schools from where the subjects were selected did have good hockey team, and they were motivated to be a member of the team and when it was announced that a new training session was going to begin, majority of them voluntarily joined with out any compulsion from parents or school authorities. This reflected their enthusiasm towards play. When mood of these subjects were rated it was noticed that they were much anxious prior to each training session whether they could perform well or practice well and finally seem to be much satisfied.

Memory of the subjects was also tested using three type of memory card. Results indicated that the memory of majority of the subjects were above average in two of the test in which the subjects had to memorize the numbers and places. In the other test, the subjects had to memorize various objects after viewing it and the whole group succeeded in their task. Thus, it can be concluded that memory status of the selected subjects were above average.

VI. Conclusion

The results of the study permit the following conclusions. Participation in three months hockey training improved the following variables:

- Cardio respiratory endurance.
- Agility.
- Arm and shoulder muscular endurance.
- Abdominal muscular endurance.
- Speed.
- Leg power.
- Flexibility.
- Body fat.
- Cardio vascular system.
- Mood and memory status.

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