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Analysis of forced expiration volume of spat players belong to Haryana

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Abstract

The purpose of the study was to investigate the effect of training on respiratory profile of SPAT players. For this purpose PC based mini Spiro meter was used. Forced expiratory volume within the first second (FEV1).

The scholar selected 206 SPAT (103 Experimental and 103 control group) players of various games between their ages ranging from 10 to 14 years from various sports Nursery of district Kaithal of Haryana state. The responses of the respiratory parameters were recorded by using pc based mini spirometer. The significant difference among the means of the variance of the pre-training and post training means of experimental group were determined by ANOVA test.

The result shows that the integrated approach of training of SPAT Experimental group players significantly increased the FEV1 (Forced Volume Expired in the 1st second of the test).

Keywords: SPAT, SPEED, COPD, Spirometry

Introduction

SPAT (Sports & Physical Aptitude Test) now known as SPEED (Sports and Physical Exercise Evaluation and Development Test) in Haryana has grown into a popular movement. The program aims at popularizing sports and channeling resources to high potential athletes. The vision is to harness community building, preventive health ware and counter-delinquency potential of sports. 5000 Scholarships are on offer in every version of SPAT for aspiring athlete in 8-19 years age group, Haryana state players are performing outstanding at International level though it has just about 3% of population of India. To investigate the effect of SPAT a talent hunts in the performance of Haryana players, the investigator selected this study.

Sports & Physical Activity Test is a battery of seven physical tests of running, jumping, throwing, and stretching for boys and girls in 8-19 years of age group. The tests are:

- 30 meter flying race
- 6x10 meter shuttle Race
- 800 meter run
- Standing Broad Jump
- Standing Vertical Jump
- Medicine Ball Put
- Forwards Bend & Reach

Spirometry is a common test used to assess how well your lungs work by measuring how much air you inhale, how much you exhale and how quickly you exhale. Till now the pulmonary function of SPAT is insufficiently investigated.

Spirometry is used to diagnose chronic obstructive pulmonary disease (COPD), asthma and other conditions that affect breathing. Spirometry may also be used periodically to monitor your lung condition and check whether a treatment for a chronic lung condition is helping you breathe better.

The spirometry tests are mostly used in the respiratory status evaluation, and they have become a basic part of the routine health checks in occupational medicine, sports medicine, public health status monitoring and clinical practice.

Although lung function is genetically regulated, and its function is among other influenced by

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the environmental and alimentary factors, previous research show that it can be improved by bodily exercise as well as the fact that it is influenced by the type of the sport. It is therefore important to ascertain the analysis in spirometry parameters of SPAT players. They represent an indirect indicator of the aerobic abilities, which are an important factor in realising the individual and team achievement in those sport

Methods

The main aim of this study was to analyse the pulmonary function of SPAT qualified players. The research was conducted on a sample of 206 examinees of various games like Volleyball, Hockey, Handball, Swimming; boxing etc. The dynamic spirometry research was conducted in concordance with Kurukshetra University Kurukshetra by using a portable spirometer PC Based Spirometer. The examinees sat with their nose plugged, performing three forced expiratory manoeuvres. The best of three repeated forced expiratory measures was used in the analysis. Pulmonary measures included:

- Forced expiratory volume within the first second (FEV1), representing a volume of air expired by a maximum expiration after a maximum inspiration. It is usually measured during the first second (FEV1), because the initial part of the curve depends on the effort and the cooperation of an examinee, while the end part expresses the changes of capacity
- Maximum voluntary ventilation, measured while the examinee, after a period of calm breathing, tries to ventilate his lungs as much as possible during 10-15 sec;

All values are expressed as percentages of reference (predicted) values for European adults.

3. Results and Discussion

3.2 Forced Expiratory Volume in one Second (FEV1)

The comparison of the mean values of FEV1 showed statistically significant difference between Pre test and Post training for experimental group. The mean FEV1 value significantly increased from 1.90 L preoperatively to 2.12L during pre test and post test training period of SPAT players. Experimental Group

Table 1: Summary

Groups	Count	Sum	Average	Variance
FIV1(Pre Test)	103	195.85	1.90	0.42
FIV1(Post Test)	103	218.44	2.12	0.40

Table 2: ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2.48	1	2.48	6.00	0.02	3.89
Within Groups	84.28	204	0.41			
Total	86.75	205				

Conclusion

Based on the findings of this study, the following conclusions have been drawn:

- SPAT players significantly improved in the FEV1 (Forced Volume Expired in the 1st second).

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