V Vikashpaul
Research Scholar, Amravati
University, Amravati,
Maharashtra, India

Tahir Ramzan Bhat
Director, Physical Education &
Sports, GDC Pattan. Baramulla,
Jammu and Kashmir, India

Physiological profiles of male basketball players of L.N.I.P.E. Gwalior

V Vikashpaul and Tahir Ramzan Bhat

Abstract
The purpose of this study was to construct the profiles of selected physiological variables such as Breath Holding Capacity, Vital Capacity, VO_2 Max, Respiratory Rate and Resting Heart Rate of male Basketball Players of L.N.I.P.E. Gwalior. The study was restricted to 30 male basketball players from L.N.I.P.E. Gwalior. The average age of the subject was 20 years, ranging between 18 and 25 years.
For estimating of profiles, the tests were employed. Breath Holding Capacity was recorded in seconds, Vital Capacity was measured in liters and milliliters and Vo_2 Max was recorded in milliliters per gram per minute, Respiratory Rate was recorded in number of inhalation per minute, Resting Heart Rate was recorded in count beat per minute.
All the physiological tests were administrated individual to all the thirty players and descriptive statistics was employed.

Keywords: Breath holding capacity, vital capacity, vo_2 max, respiratory rate and resting heart rate

Introduction
The world of game and sports has crossed many miles stones as a result of different achievements in general and their application in the field of sports in particular. Scientifically investigation into performance of sportsman has been playing an increasing important role to attain excellence of performance in different sports. Now the sportsmen have been able to give outstanding performance because of involvement of new scientifically substantiated training method and means of execution of sports exercise such as sports technique and tactics, improvement of sports gear and equipment as well as other component and conditions of the system of sports training.

The professionals must aware of the latest and high sophisticated tool that can facilitate the measurement of various physiological and morphological characteristic and for different sports event should be given proper extensive training by over prolong period.Physiological variables may be defined as those variables which are directly linked with various physiological systems such as heart rate blood pressure, vital capacity, fat percentage, respiratory rate and hemoglobin. Physiological variables such as cardiovascular efficiency, percentage of fat, reaction time vital capacity and other should be taken into consideration while selecting hockey players cardiorespiratory endurance denoted capacity of individual to work effectively with the help of oxygen which is collected, transported and utilized by lungs, blood and muscles respectively. Any work as daily task or form of physical activity is directly related to energy supplying system which in turn is the cardio respiratory endurance. Cardiovascular endurance varies from individual to individual and one of the important variables for establishing top class performance in hockey as the game involves work of long duration / endurance type. Resting heart rate average 60 to 80 beats/minute. In middle aged, unconditioned, sedentary individual, the resting heart rate can exceed 100 beat/minute. In highly conditioned, endurance trained athlete resting rates in the range of 28 to 40 beat/minute have been reported. Physiological system is highly adopted to exercise. Each task has major physiological component and fitness for the task require effective functioning of appropriated system. Involvements in systematic training bring about desirable changes in physiological ability which enhances the athlete's performance in game like basketball. Basketball is fast, furious game of remarkable complexity, and the variety of skill,

Correspondence
V Vikashpaul
Research Scholar, Amravati
University, Amravati,
Maharashtra, India

displayed can become even the most knowledge spectators. At the height level these movement are the result of year of painstaking practice by player who've made many sacrifices in the interest of to reach the game's premier stage. Basketball is very popular in the country, but very less scientific work has been done in the field especially physiological profiles of male basketball players. Research work is very important for advancement of game through which we can educate the coaches, physical education teachers and basketball players regarding the role played by physiological variables in achieving high performance efficiency. Hence the scholar has undertaken the present study

Methodology
To conduct the study, 30 male basketball players were selected as subjects from Lakshmi Bai National Institute of Physical Education, Gwalior. All the subjects were staying in the hostels of Lakshmi Bai National Institute of Physical Education, Gwalior. As they were residing together, they were getting same food. All the subjects were also participating in different sports and games. The age of the selected subject ranged between 18 to 25 years. The criterion measures chosen for preparing physiological profiles of this study, the following were chosen as criterion measures.

1. **Breath Holding Capacity:** Breath holding capacity was measured in seconds.

2. **Vital Capacity:** Vital capacity (lung volume) was measured in liters.

3. **VO2 Max:** Vo2 max for aerobic capacity, was measured in (ml/kg /min)

4. **Respiratory Rate:** Respiratory rate was measured in numbers/minute.

5. **Resting Heart Rate:** Resting heart rate was measured in beats/minute.

Analysis and Interpretation of Data
The analysis of data and results of the study are presented in this chapter. Descriptive analysis was used to analyze the data in mean, standard deviation, lowest, highest, coefficients of variance were computed for each of the parameters under the category of physiological variables.

Table 1: Descriptive statistics of physiological variable of L.N.I.P.E. men basketball players

Variable	Mean	Median	Standard Deviation	Kurtosis	Skew ness	Minimum	Maximum	Coefficient of Variance	Confidence Level
Breath Holding Capacity (in sec)	47.13	48.15	10.05	-1.23	-0.22	27	60	21.3	3.75
Vital Capacity (in liters)	3.23	3	0.59	1.29	0.78	2.1	5	18.2	0.22
V0$_2$ Max (ml/gm/min)	51.05	51.66	6.00	-1.31	0.04	42.66	60.65	11.7	2.24
Respiratory Rate (no. of inhalation in one min)	21.26	21	2.13	-0.36	-0.19	17	25	10.3	0.79
Resting Heart Rate (Beat/min)	70.76	70.5	3.20	-0.27	0.36	65	78	4.5	1.19

The table-1 describes various statistics of L.N.I.P.E. Men basketball Players in relation to Physiological variables. An average Breath Holding time of all basketball players were 47.13 seconds. In the same age categories the minimum Breath Holding time was around 27 seconds and maximum Breath Holding time was 60 seconds.
The variables like Breath Holding Capacity and Respiratory Rate were negatively skewed whereas variables like Resting Heart Rate, Vital Capacity and Maximum Oxygen uptake were positively skewed. Negatively skewed distribution shows that the most of the data are on the higher side where as positively skewed distribution shows that the most of the data are on the lower side. Since value of Kurtosis was negative in almost in all the variables except Vital Capacity, it shows that data of on these variables except Vital Capacity were more variable than that of normal distribution. On looking to the value of coefficient of variance it was found that the maximum variability was 21.3 in relation to Breath Holding Capacity whereas minimum variability was noticed in Resting Heart Rate variable. The means of different variable has been depicted picturesquely in Figure-1.
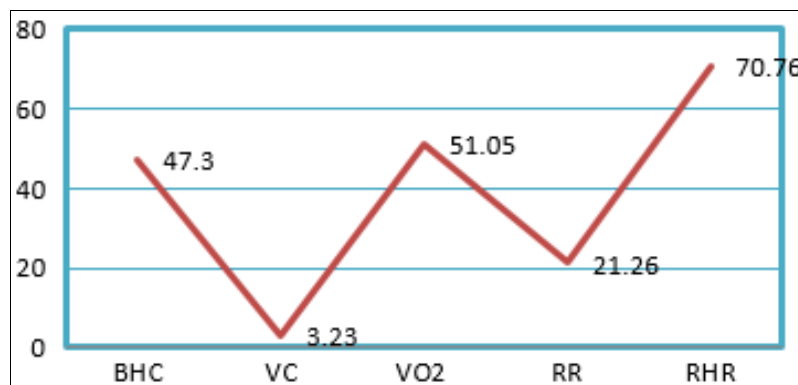
The means of different variable L.N.I.P.E basketball players

Discussion on findings
Since the average Breath Holding Capacity of all basketball players were 47.13, it indicates that in general basketball players had better Breath Holding Capacity in comparison to normal person in that age category. It may be because basketball players deal with vigorous training load so their anaerobic capacity increases.
Further the maximum variability was found in the Breath Holding Capacity. As coefficient of variance of this variable was 21.3 it may be due to the fact that basketball players were

selected at a random fashion in which some of the best players as well as poor players were also part of the sample. It may be also because of fact that the Breath Holding Capacity is the most important parameter which affects the basketball performance i.e. greater the Breath Holding Capacity better the performance.

However the variance in the Resting Heart Rate parameter as least as coefficient of variance of this variable 4.5 it may be because of the fact that the cardio-vascular fitness of basketball players are more or less is of the same level.

Further looking to Vital Capacity it could be seem that there is not much variance because the reason may be their lung capacity level would be more or less the same.

Further, variable like Respiratory Rate was negatively skewed. Negative skewed distribution shows that the most of the data are on the higher side.

However the average of Maximum Oxygen uptake is 51.05 which indicate that the cardio-vascular fitness of basketball players is better than the normal human being.

Conclusion
Within the limitations of the study the following conclusions may be drawn:
1. There is significant role of Vital Capacity, Respiratory Rate and VO_2 Max in the men basketball performance.
2. Breath Holding Capacity and Resting Heart Rate did not play a significant role in the basketball performance.
3. Though many international studies indicate that in basketball Resting Heart Rate plan a very important role, but in this study Resting Heart Rate time was insignificant due to the reason that the standard of L.N.I.P.E. men basketball players is very low than that of the international level.

References
1. Ali Tohar. Some physiological Values of Athletes of Hyderabad Sports Medicine, 1972, 70.
2. Astrand Pre-Olouf, Rodahl Kaare. Text Book Work Physiology New Delhi: MC Graw Hill Kogakusha Ltd, 1970.
3. Chakraborty Debananda. Relationship of Selected Motor Components and Physique Characteristics to Performance in Soccer. Unpublished Master's Thesis, Jiwaji University, 1986.
4. Edmund Bruke J, Brush Florence C. Physiological and Anthropometric Assessment of Successful Teenage Female Distance Runners. Research Quarterly. 1979; 50:2.
5. Ellena Jack Duiane. Relationship of Physiology Factors to Football Performance Completed Research in Health Physical Education and Recreation. 1960; 2:26.
6. Ellis, Walter Terrel. An Exploratory Study using Selected Physiological and Psychological Variables for Prediction of Performance in the 12 Minute run. Completed Research in Health, Physical Education and Recreation, 1970, 214.
7. Hooks Eugene G. Prediction of Baseball Ability through and Analysis of Measures of Strength and Structure. Research Quarterly, 1959, 38.
8. Joseph PT. Relationship of Selected Anthropometric and Strength Variables to Speed Performance. Unpublished Master's Thesis, Jiwaji University, 1984.
9. Mofatt Robert J, Ayres Nola. Body Composition and Physiological Characteristics of Female High School Gymnasts. Research Quarterly. 1971; 42:264.
10. Thomas Domic. Relationship of Selected Motor Fitness Components of and Anthropometric Variables to Velocity of Basketball Throw. Unpublished Master's Thesis, 1991.