RESEARCH PAPER | Physical Education | Volume : 5 | Issue : 12 | December 2015 | ISSN - 2249-555X

Analysis of Selected Motor Fitness Components Among Male Athletes and Non-Athletes of Different Age Groups

KEYWORDS: Motor fitness, Athletes, Non-athletes

BASANAGOUDA S LAXMESHWAR
Research scholar University College of Physical. Education, Bangalore University, Bangalore

Dr .K K Amarnatha
Associate Professor University College of Physical. Education, Bangalore University, Bangalore

ABSTRACT A sport consists of a physical and mentally competitive activity carried out with a recreational purpose for competition, for self-enjoyment, to attain excellence, for the development of a skill, or some combination of these. A sport has physical activity, side by side competition, self-motivation and a scoring system. The difference of purpose is what characterizes sport, combined with the notion of Individual (or team) skill or prowess. Sport has a very prominent role in modern society. In the light of contradicting reports, the main purpose of this study was to analyze the selected motor fitness components among athletes and non-athletes of different age groups. In this chapter the selection of subjects, selection of variables, testers' orientation, subjects' orientation, instrument reliability, administration of tests and statistical techniques used for analyzing the data are described. The speed is different in male athletes and non-athletes, The speed is different in 12years and 14 years of male athletes and non-athletes, The 12 years male athletes, 12 years male non-athletes, 14 years male athletes and 14 years male non-athletes have similar speed, The explosive power is similar in male athletes and non-athletes, The explosive power is similar in 12years and 14 years of male athletes and non-athletes.

INTRODUCTION

A sport consists of a physical and mentally competitive activity carried out with a recreational purpose for competition, for self-enjoyment, to attain excellence, for the development of a skill, or some combination of these. A sport has physical activity, side by side competition, self-motivation and a scoring system. The difference of purpose is what characterizes sport, combined with the notion of Individual (or team) skill or prowess.

Sport has a very prominent role in modern society. It is important to an individual, a group, a nation indeed the world. The world sport has a popular appeal among people of all ages and both sexes. Much of the attraction of sports comes form the wide variety of experience and feelings that result form participation Joy, anguish, success, failure, exhaustion, pain, relief and a feeling of belonging sport can bring money, glory, status and good will, however, sport can also bring tragedy, grief and even death.

According the Oxford dictionary, the term 'bio' is connected with living things and/or human life, and the term 'metric' is referred to made or measured using the metric system. Where the system of measurement that uses the metre, the kilogram, and the litre as basic units. Wells studied the relationship of the leg strength, body weight ratio and length of the lower limb segment to the vertical jump. For this study measurement of body segment (Foot, trunk, thigh and leg) were taken on 49 male college students to see whether significant relationship existed between to vertical jump height and any of the following leg strength body weight ratio, length of the selected segment of lower limbs and the ankle-heel length metatarsal length ratio. None of the relationship studied proved to be statistically significant.

PURPOSE OF THE STUDY

In the light of contradicting reports, the main purpose of this study was to analyze the selected motor fitness components among athletes and non-athletes of different age groups.

METHODOLOGY

In this chapter the selection of subjects, selection of variables, testers orientation, subjects orientation, instrument reliability, administration of tests and statistical techniques used for analyzing the data are described.

Selection of Subjects

The purpose of the study was to analyze the selected motor fitness components among male athletes and non-athletics of different age groups. To achieve the purpose of the study forty male athletics and forty non athletes from Chandargi Sports School were selected randomly as subjects. Of the selected groups of athletes and non-athletes, each group consists fifteen of them in the age of twelve years and the other fifteen of them in the age of fourteen years.

Selection of Variables

Study of literatures and the discussions with the experts had enlightened the investigator about the variables that might differ among athletes and non-athletes of different age groups. Based on the general conscience the following variables were taken up for the study.

Speed
Explosive Power

Selection of Tests

In the present study most ideal and standardised tests were used to assess the selected criterion variables, which are presented in table I.

Table -I
TESTS USED FOR CRITERION VARIABLES

Sl. No.	Criterion Variables	Instruments / Tests	Unit of Measurement
1.	Speed	50 metres dash	Seconds
2.	Explosive Power	Standing Broad Jump	Centimeters

Volume : 5 | Issue : 12 | December 2015 | ISSN - 2249-555X

Administration of the Test

FIFTY METRES RUN: The purpose of the test is to measure the speed.

STANDING BROAD JUMP: The purpose of the test was to measure the explosive power.

Data Analyses and Results

Descriptive statistics

In this section, the mean and SD values of speed and explosive power according to groups and categories and the results are presented in the following tables.

Table: Mean and SD values of speed according to athletes and non-athletes and categories

Group	Category	N	Mean	SD
Athletes	12 years	20	9.49	0.59
	14 years	20	8.98	0.52
Non-athletes	12 years	20	11.68	1.00
	14 years	20	10.57	0.67

From the results of the above table represents the Mean and SD values of speed according to athletes and non-athletes and categories. The 12 years non-athletes have higher speed as compared to 12 years athletes. But, the 14 years non-athletes have higher speed as compared to 14 years athletes. The means scores are presented in the following figure

Group	Category	n	Mean	SD
Athletes	12 years	20	201.35	14.82
	14 years	20	221.75	12.39
Non-athletes	12 years	20	199.90	15.32
	14 years	20	219.90	8.00

Table: Mean and SD values of explosive power according to athletes and non-athletes and categories

From the results of the above table represents the Mean and SD values of explosive power according to athletes and non-athletes and categories. The 12 years non-athletes have higher explosive power as compared to 12 years athletes. But, the 14 years non-athletes have higher explosive power as compared to 14 years athletes. The means scores are presented in the following figure

Differential statistics with 2-way ANOVA between study groups and categories

In this section, the interaction effect was calculated between the groups and categories and the results are presented in the following table.

Hypothesis: There is no significant interaction effect of study groups (athletes and non-athletes) and categories (12 years and 14 years) with respect to speed

To achieve this hypothesis, the two-way ANOVA withinteraction design was applied and the results are presented in the following table.

Table: Results of two-way ANOVA with interaction between study groups (athletes and non-athletes) and categories (12 years and 14 years) with respect to speed

SV	DF	SS	MSS	F-value	P-value	Signi.
Main effects						
Groups	1	71.1776	71.1776	137.7214	0.0000	S
Category	1	13.1058	13.1058	25.3584	0.0000	S
2-way interactions						
Groups x category	1	1.8605	1.8605	3.5999	0.0616	NS
Error	76	39.2786	0.5168			
Total	79	125.4225				

From the results of the above table, it can be seen that,

The main effect of groups (athletes and non-athletes) on speed of study subjects is found to be significant at 5% level of significance, since the obtained F value 137.7214 is greater than the F table value 3.92 with 1 and 79 degrees of freedom. Hence the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the speed is different in male athletes and non-athletes.

The main effect of categories (12 years and 14 years) on speed of study subjects is found to be significant at 5% level of significance, since the obtained F value 25.3584 is greater than the F table value 3.92 with 1 and 79 degrees of freedom. Hence the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the speed is different in 12years and 14 years of male athletes and non-athletes.

The interaction effect of groups (athletes and non-athletes) and categories (12 years and 14 years) on speed of study subjects is found to be not significant at 5% level of significance, since the obtained F value 3.5999 is smaller than the F table value 3.92 with 1 and 79 degrees of freedom. Hence the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the 12 years male athletes, 12 years male non-athletes, 14 years male athletes and 14 years male non-athletes have similar speed.

Hypothesis: There is no significant interaction effect of study groups (athletes and non-athletes) and categories (12 years and 14 years) with respect to explosive power

To achieve this hypothesis, the two-way ANOVA with interaction design was applied and the results are presented in the following table.

Table: Results of two-way ANOVA with interaction between study groups (athletes and non-athletes) and categories (12 years and 14 years) with respect to explosive power

SV	DF	SS	MSS	F-value	P-value	Signi.
Main effects						
Groups	1	41587.20	41587.1992	0.9382	0.3358	NS
Category	1	90990.05	90990.0469	2.0527	0.1560	NS
2-way interactions						
Groups x category	1	44274.05	44274.0508	0.9988	0.3208	NS
Error	76	3368836.86	44326.8008			
Total	79	3545688.16				

Volume : 5 | Issue : 12 | December 2015 | ISSN - 2249-555X

From the results of the above table, it can be seen that,

The main effect of groups (athletes and non-athletes) on explosive power of study subjects is found to be not significant at 5% level of significance, since the obtained F value 0.9382 is smaller than the F table value 3.92 with 1 and 79 degrees of freedom. Hence the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the explosive power is similar in male athletes and non-athletes.

The main effect of categories (12 years and 14 years) on explosive power of study subjects is found to be not significant at 5% level of significance, since the obtained F value 2.0527 is smaller than the F table value 3.92 with 1 and 79 degrees of freedom. Hence the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the explosive power is similar in 12years and 14 years of male athletes and non-athletes.

The interaction effect of groups (athletes and non-athletes) and categories (12 years and 14 years) on explosive power of study subjects is found to be not significant at 5% level of significance, since the obtained F value 0.9988 is smaller than the F table value 3.92 with 1 and 79 degrees of freedom. Hence the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the 12 years male athletes, 12 years male non-athletes, 14 years male athletes and 14 years male non-athletes have similar explosive power.

Conclusions:

- The speed is different in male athletes and non-athletes
- The speed is different in 12years and 14 years of male athletes and non-athletes
- The 12 years male athletes, 12 years male non-athletes, 14 years male athletes and 14 years male non-athletes have similar speed
- The explosive power is similar in male athletes and non-athletes
- The explosive power is similar in 12years and 14 years of male athletes and non-athletes
- The 12 years male athletes, 12 years male non-athletes, 14 years male athletes and 14 years male non-athletes have similar explosive power

REFERENCE

American College of Sports Medicine. Position Stand: Female Athlete Triad. Med Sci | Sports Exerc. 1997;29:i-ix. | American College of Sports Medicine. Position stand on exercise and fluid | replacement. Med Sci Sports Exerc. 1996a;28(1):i-vii. | American College of Sports Medicine. Position Stand on heat and cold illnesses | during | distance running. Med Sci Sports Exerc. 1996b;28(12):i-x. | American Dietetic Association. Position of the American Dietetic Association: | Nutrition | intervention in the treatment of anorexia nervosa, bulimia nervosa, and binge | eating. J Am Diet Assoc. 1994;94:902-907. | American Dietetic Association. Position of The American Dietetic Association, | Dietitians of Canada, and the American College of Sports Medicine: Nutrition and | athletic performance. J Am Diet Assoc. 2000;100(12):1543-1556. Authors: M | Manore, S Barr, G Butterfield. | Barr SI. Effects of dehydration on exercise. Can J Appl Physiol. 1999;24:164-172. | Beals KA. Disordered eating in athletes: A comprehensive guide to health | professionals. Champaign, IL: Human Kinetics Publisher, 2004. | Benardot D, Thompson WR. Energy from food for physical activity. Enough and on | time. ACSM's Health & Fitness Journal. 1999;3(4):14-18. | Bergman BC, Butterfield GE,Wolfe EE, Casazza GA, Lopaschuk GD, Brooks GA. | Evaluation of exercise and training on muscle lipid metabolism. Am J Physiol. | 1999;276:E106-117. | Bergman BC, Brooks GA. Respiratory gas-exchange ratios during graded exercise in | fed and fasted trained and untrained men. J Appl Physiol. 1999;86:479-487. | Brinkley HM, Beckett J, Casa DJ, Kleiner DM, Plummer PE. National Athletic | Trainers' | Association Position Statement: Exertional heat illness. J Athletic Training | 2002;37(3):329-343. | Brooks GA, Mercier J. Balance of carbohydrate and lipid utilization during exercise. | The cross over concept. J Appl Physiol. 1994;76:2253-2261. | Brooks GA, Trimmer J. Literature supports the cross over concept (Letter to the | Editor.) J Appl Physiol. 1995;80:1073-1075. | Burke LM, Collier GR, Davis PG, Fricker PA, Sanigorski AJ, Hargreaves M. Muscle | glycogen storage after prolonged exercise: effect of the frequency of carbohydrate | feedings. Am J Clin Nutr. 1996;64:115-119. | Burke LM. The IOC Consensus on Sport Nutrition 2003: New guidelines for nutrition | for athletes. Int J Sport Nutr Ex Metab. 2003;13; 549-552. | Burke LM, Kiens B, Ivy JL. Carbohydrates and fat for training and recovery. J Sports | Sci. 2004;22:15-30. | Casa DJ, Armstrong LE, Hillman SK, Montain SJ, Reiff RV, Rich BSE, Roberts WO, | Stone JA. National Athletic Trainers' Association Position Statement: Fluid | replacement for athletes. J Athletic Training 2000;35(2):212-224. | Coyle EF. Substrate utilization during exercise in active people. Am J Clin Nutr | 1995;61(suppl): 968S-79S. | Coyle EF. Fluid and fuel intake during exercise. J Sports Sci. 2004;22:39-55. | Coyle EF, Coggan AR, Hemmert MK, Ivy JL. Muscle glycogen utilization during | prolonged strenuous exercise when fed carbohydrate. J Appl Physiol. | 1986;61:165-172. | Dreon DM, Fernstrom HA, Williams PT, Krauss RM. A very low-fat diet is not | associated with improved lipoprotein profiles in men with a predominance of large | low-density lipoproteins. Am J Clin Nutr. 1999;69:411-418. | El-Khoury AE, Forslund A, Olsson R, Branth S, Sjodin A, Anderson A, Atkinson A, | Selvaraj A, Hambraeus L, and Young VR. Moderate exercise at energy balance does | not affect 24-h leucine oxidation or nitrogen retention in healthy men. Am J | Physiol. 1997;273:E394-E407. | Freund BJ, Sawka MN. Influence of cold stress on human fluid balance. In: Marriott | BM, Carlson SJ, eds. Nutritional Needs in Cold and in High-Altitude Environments. | Committee on Military Nutrition Research.Washington, DC: National Academy | Press, 1996, p. 161-179. | Food and Nutrition Board. Recommended Dietary Allowances (10th | ed.).Washington, | DC: National Academy Press, 1989. | Hargreaves M, Hawley JA, Jeukendrup A. Pre-exercise carbohydrate and fat | ingestion: effects on metabolism and performance. J Sports Sci. 2004;22:31-38. | Harber VJ. Menstrual dysfunction in athletes: an energetic challenge. Exerc Sport | Sci | Rev. 2000;28:19-23. | Horvath PJ, Eagen CK, Ryer-Calvin SD, Pendergast DR. The effects of varying | dietary | fat on the nutrient intake of male and female runners. J Am Coll Nutr. | 2000;19(1):42-51. | Horvath PJ, Eagen CK, Fisher NM, Leddy JJ, Pendergast DR. The effects of varying | dietary fat on performance and metabolism in trained male and female runners. | J Am Coll Nutr. 2000;19(1):52-60. | Institute of Medicine (IOM). Dietary reference intakes. Calcium, phosphorus, | magnesium, vitamin D, and fluoride. Washington, DC: National Academy Press, | 1997. |