TO STUDY THE POSITIONAL PLAYERS OF HANDBALL IN RELATION TO MOTOR FITNESS VARIABLES

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Abstract

The purpose this study was to compare the selected motor fitness variables among the Handball players different positional play i.e. Wingers, Center, Back & Pivot. The Subjects were 100 male senior Handball players who had participated in national or University level tournament. These subjects were selected randomly on regional basis comprising 25 from each of the different positional play i.e. Wingers, Center, Back & Pivot. For the purpose of assessing the comparison of motor fitness variables all the subjects formed a single group, whereas for the purpose of comparing them on different positional play basis, the subjects from each region were considered separately. Various measurements of motor fitness tests i.e. speed, strength, agility, endurance and explosiveness.The test for motor fitness variables were 50m dash, Sit ups, 4x10 m shuttle rum, 600m run, poll ups and standing bread jump. The test- retest method was used to determine the tester's competency. The data collection was statistically analyzed to compare each variable of motor fitness of the Handball of different positional play i.e. Wingers, Center, Back & Pivot. F-test was employed to test the inter regions variability, and LSD test was administered to find out the superiority of one region over the other in a particular variable of motor fitness. To determine the difference between the means of different motor fitness variables of the subject of different positional play the level of significance chosen was .05. F ratio obtained on six variables out of all the measurement and tests in all the regions were significant, and to fine which of the differences among the paired means on various tests were statically significant the LSD test was applied.

Keywords: Handball, Motor Fitness, Positional Play

INTRODUCTION

The first level of specificity in the universe "physical value" is based on logic, leading us to distinguish between the set "structures", the set "qualities", and the set "kinetic

behaviors". Within the set 'qualities", it appeared useful to regroup the considered factors around the three subjects." organic qualities", "muscular qualities" and "kinetic perceptual qualities". This regrouping is based both on logic and on experimentally established specificity. Evidence of this is common place: observe the well proportioned physiques of boxers and gymnasts, the super structure of great basketball competitors, the solidarity of top flight football players and winners of champion distance runners and the massive builds of great shot putters and discus throwers.

The Concept of physical fitness is as old as the human origin, and it has achieved a universal appeal in the modern time too. Movement is involved in every task accomplished by human beings. Today, it is the need of every individual to understand the movement to do any type of activity efficiently and effectively. Sports biomechanics are at the intersection of sports, biology and mechanics. Sports biomechanics are having relationship with physical activity, human anatomy physiology and motion. The term biomechanics defined by James Hay (1973) as "the science that examines the internal and external forces acting on a human body and the effects produced by these forces". Physical exercise and performance in games and sports are making possible by the force developed by muscles through the lever system of our body. The only function of the muscle fibers and the cells of muscles are to generate force.

The effectiveness of many physical performances is related to various basic traits, found in boys and girls including their maturation, body size and physique type. Many of these traits are related to heredity, such as body weight was hereditary implications but may also: be affected by environmental influences inducing the nature and amount of exercise, nutritional aspects and health aspects.

Specifically, physical education contributes to the development of such physical traits as endurance, strength, the ability to resist and recover from fatigue, neuromuscular skills of balance, co-ordination, etc. to the enhancement of socio-emotional development, and an increased ability to interpret new situations in a meaningful and purposeful manner, thus enabling the individual to play an effective role in democratic group living.

Crucial for the attainment of these objectives in a democratic society is provision of those aspects of activity instruction, and guidance which allow for the optimal development of inherent potential, contributing, directly or indirectly, to the total health and well being of the individual, and help him become adjusted to immediate and long term problems of living.

Development of such qualities as neuro-muscular skills, strength, endurance, speed

etc., which may collectively be considered as a representation of the physical or motor aspect of the individual, is probably the most significant contribution of physical education. The relevance and importance of participation in artificially structured activity programme stem from the fact that man, who is the result of thousands of years of evolution and has a deep rooted urge for activity, needs to participate in such activities for a healthy and meaningful existence.

Along with the contributory potential of an activity or a sport, due consideration must be given to the needs, interests and abilities of the students while developing a programme of physical education. Thus developed, the program will include only those activities which are relevant, meaningful, and which offer reasonable chances of success to the participants.

The Morphological characteristics of man at work and at play have after received the attention of the human biologist or anthropologist. However, the increasing attention to sport as a prominent form of human behavior in many societies has passed many unanswered questions. The Olympic Games present a situation which is potentially very valuable for anthropological study.

SIGNIFICANCE OF THE STUDY

1. This study will be of a great use to the physical education teachers and coaches to select appropriate potentialities for different positions in Handball.
3. This study may give certain guidelines for selecting players for competitive sports which demand high levels of motor fitness.
4. This study may also help in resolving the contradictions existing so far in the relationship of strength and speed of movement.

PROCEDURE

In this chapter the procedure adopted for selection of subjects, selection of variables, criterion measures, reliability of data, collection of data, administration of tests, design of the study and statistical procedure used for analyzing data are presented.

SELECTION OF SUBJECTS

100 Senior Hanball players (25 from each positional play i.e. Wingers, Center, Back & Pivot were selected as subject for this study through random sampling technique who had participated in the National or university level tournament.

The age level of the subjects was ranged from 18 years to 25 years. All the subjects belong to different socio-economic conditions.

SELECTION OF VARIABLES

The following motor fitness components were selected for the purpose of the study.

Motor Fitness Components & Criterion Measures

1. 50 meter dash (Speed)
2. 4x10 meter shuttle run (Agility)
3. Standing broad jump (Explosiveness)
4. 600 meters run (cardio-respiratory endurance)
5. Sit ups (power)
6. Pull-ups. (Strength)

RELIABILITY OF DATA

The reliability of the data was insured by establishing the tester competency, subject reliability and instrument reliability.

Tester competency

To ensure that the investigator was well versed with the techniques of conducting the tests and taking the measurements, the investigator had a number of practice session in testing procedure under the guidance of an expert. All the measurements and tests were conducted by the investigator with the assistance of gymnastic coaches who were also well acquainted with the tests and measurements.

Tester reliability in conducting motor fitness components were established by test retest process thereby consistencies of results were obtained by product moment correlation of 15 subjects. The coefficients are presented in Table-1

TABLE - I

RELIABILITY COEFFICIENTS OF TESTS RETEST SCORES

S.No.	Variables	Coefficient of reliability
1.	50 Meter Dash	0.93
2.	4x10 Meter Shuttle Run	0.90
3.	Standing Broad Jump	0.92
4.	600 Meters Run	0.87
5.	Sit Ups	0.92
6.	Pull-Ups	0.94

From the test, retest coefficients of correlation (Table I) in that the tester reliability was significantly high establishment competency of the scholar to administer the tests. The coefficients of correlation also indicated the reliability of the tests selection high correlations were obtained when the tests were repeated.

Instrument Reliability

The steel tape to measure the performance subjects in standing broad jumps was non-elastic and flexible calibrated and approved for use by competent authority. The stop watches were all calibrated which used for performance of subjects in shuttle run,

50 meter dash and 600m run.All the instruments were calibrated and thus accepted are enough for the purpose of study.

STATISTICAL ANALYSIS

In order to find out the significance difference among the Handball players of different positions of game the statistical analysis initially descriptive statistics then analysis of variance (f-ratio) Which was followed by least significance difference(LSD) test of post hoc comparison between paired means.

TABLE - II

Descriptive Statistics of Motor Fitness variables of Handball Different Positional Play

Dependent variables	Groups	N	Mean	Std. Deviation	Minimum	Maximum
50 METER DASH	Wingers	25	7.1080	.17776	6.80	7.50
	Back	25	7.4840	.19933	7.00	7.90
	Center	25	7.1160	.17000	6.80	7.50
	Pivot	25	7.2520	.26476	6.80	7.70
	Total	100	7.2400	.25426	6.80	7.90
4X10 SHUTTLE RUN	Wingers	25	9.6960	.19253	9.40	10.20
	Back	25	10.3760	.31129	9.70	10.80
	Center	25	9.7400	.19365	9.40	10.20
	Pivot	25	9.8360	.31342	9.40	10.40
	Total	100	9.9120	.37478	9.40	10.80
STANDING BROAD JUMP	Wingers	25	2.1604	.10768	1.98	2.35
	Back	25	9.9524	39.17674	1.96	198.00
	Center	25	2.1680	.09734	1.95	2.30
	Pivot	25	2.1848	.10879	1.96	2.34
	Total	100	4.1164	19.58450	1.95	198.00
600M RUN	Wingers	25	2.1340	.06843	2.02	2.27
	Back	25	2.2164	.09995	2.05	2.50
	Center	25	2.1852	.08525	2.03	2.35
	Pivot	25	2.1436	.07947	2.02	2.30
	Total	100	2.1698	.08919	2.02	2.50
SITUPS	Wingers	25	47.2400	4.19603	41.00	58.00
	Back	25	42.5200	3.53695	38.00	50.00

	Center	25	45.0800	4.14246	39.00	55.00
	Pivot	25	45.6800	4.87100	38.00	55.00
	Total	100	45.1300	4.48714	38.00	58.00
PULLUPS	Wingers	25	14.8400	1.99332	11.00	18.00
	Back	25	14.6000	1.38444	13.00	18.00
	Center	25	15.1600	1.62481	12.00	18.00
	Pivot	25	15.3200	1.72530	12.00	18.00
	Total	100	14.9800	1.69360	11.00	18.00

*** The mean difference is significant at the .05 level.**

Table - III

Analysis of Variance of Motor fitness variables Performance of Handball Different Positional Play

Dependent variables	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
50 METER DASH	Between Groups	2.312	3	.771	18.098	.000
	Within Groups	4.088	96	.043		
	Total	6.400	99			
4X10 SHUTTLE RUN	Between Groups	7.433	3	2.478	36.746	.000
	Within Groups	6.473	96	.067		
	Total	13.906	99			
STANDING BROAD JUMP	Between Groups	1135.304	3	378.435	.986	.403
	Within Groups	36836.404	96	383.713		
	Total	37971.709	99			
600M RUN	Between Groups	.109	3	.036	5.163	.002
	Within Groups	.678	96	.007		
	Total	.788	99			
SITUPS	Between	289.230	3	96.410	5.431	.002

	Groups					
	Within Groups	1704.080	96	17.751		
	Total	**1993.310**	**99**			
PULLUPS	Between Groups	7.800	3	2.600	.904	.442
	Within Groups	276.160	96	2.877		
	Total	283.960	99			

*** Significant at .05 level of confidence** **F 0.05 (3, 96) = 2.71**

Table-IV

Least Significance Difference (LSD) Post Hoc Test for the Means of Motor Fitness variables of Handball Different Positional Play

Dependent Variable	GROUPS	Mean Difference (I-J)	F	Sig.
50 METER DASH	Wingers	Back	-.3760(*)	.000
		Center	-.0080	.891
		Pivot	-.1440(*)	.015
	Back	Wingers	.3760(*)	.000
		Center	.3680(*)	.000
		Pivot	.2320(*)	.000
	Center	Wingers	.0080	.891
		Back	-.3680(*)	.000
		Pivot	-.1360(*)	.022
	Pivot	Wingers	.1440(*)	.015
		Back	-.2320(*)	.000
		Center	.1360(*)	.022
4X10 SHUTTLE RUN	Wingers	Back	-.6800(*)	.000
		Center	-.0440	.551
		Pivot	-.1400	.060
	Back	Wingers	.6800(*)	.000
		Center	.6360(*)	.000
		Pivot	.5400(*)	.000

	Center	Wingers	.0440	.551
		Back	-.6360(*)	.000
		Pivot	-.0960	.194
	Pivot	Wingers	.1400	.060
		Back	-.5400(*)	.000
		Center	.0960	.194
STANDING BROAD JUMP	Wingers	Back	-7.7920	.163
		Center	-.0076	.999
		Pivot	-.0244	.996
	Back	Wingers	7.7920	.163
		Center	7.7844	.163
		Pivot	7.7676	.164
	Center	Wingers	.0076	.999
		Back	-7.7844	.163
		Pivot	-.0168	.998
	Pivot	Wingers	.0244	.996
		Back	-7.7676	.164
		Center	.0168	.998
600M RUN	Wingers	Back	-.0824(*)	.001
		Center	-.0512(*)	.034
		Pivot	-.0096	.687
	Back	Wingers	.0824(*)	.001
		Center	.0312	.193
		Pivot	.0728(*)	.003
	Center	Wingers	.0512(*)	.034
		Back	-.0312	.193
		Pivot	.0416	.083
	Pivot	Wingers	.0096	.687
		Back	-.0728(*)	.003
		Center	-.0416	.083
SITUPS	Wingers	Back	4.7200(*)	.000
		Center	2.1600	.073
		Pivot	1.5600	.194
	Back	Wingers	-4.7200(*)	.000
		Center	-2.5600(*)	.034

	Center	Pivot	-3.1600(*)	.009
		Wingers	-2.1600	.073
		Back	2.5600(*)	.034
	Pivot	Pivot	-.6000	.616
		Wingers	-1.5600	.194
		Back	3.1600(*)	.009
PULLUPS	Wingers	Center	.6000	.616
		Back	.2400	.618
	Back	Center	-.3200	.506
		Pivot	-.4800	.320
		Wingers	-.2400	.618
		Center	-.5600	.246
	Center	Pivot	-.7200	.137
		Wingers	.3200	.506
		Back	.5600	.246
	Pivot	Pivot	-.1600	.739
		Wingers	.4800	.320
		Back	.7200	.137
		Center	.1600	.739

*** The mean difference is significant at the .05 level**.

CONCLUSIONS

Within the limitations identified and on the basis of the results of the study, the following conclusions were drowns.

1. Significant differences were found in some selected variables of motor fitness of Wingers, Center, Back & Pivot.
2. The present study revealed that there are difference on the variables or motor fitness of various regions and this perhaps may be attributed to the fact that the qualities like speed and agility are hereditary characteristics and may be improved through training within the frame work of genetic transmissions.

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