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# Review Of Research



## A COMPARATIVE STUDY OF RELATIVE KINANTHROPOMETRIC VARIABLES OF INTER-COLLEGE MALE KHO-KHO PLAYERS AT DIFFERENT LEVEL OF PERFORMANCE



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### ABSTRACT

**T**he present investigation was to study the comparison of winner and loser players of kho-kho at the inter-college level of Himachal Pradesh on the basis of 20 kinanthropometric variables at the different level of performance. Present study has been conducted on 99 male inter-college level kho-kho players of Himachal Pradesh. The data has been collected held in G.P.G.C. at MandiCollege during tournament in the session 2009. For the collection of tool has used data Levelbased weighing machine, Anthropometric Rod, Steel measuring tape, A compass rodandSliding caliper. The null hypothesis is used. The statistical tool used for the study were mean, SD, SEM, and t-test. From the finding it was observe that in there

are no significant difference in all the variables of loser and winner in the pre-quarter final stage of tournament. In quarter final the winner team has shone superiority in total arm length, for arm length and Hand length. In semifinal the winner teams have shown superiority over the loser teams in the variables of Upper Arm Circumference and Lower Leg Length but the loser teams have shown superiority over the winner teams in the variables of Thigh Circumference and Upper Arm Length in the semi- final stage of tournament. In the final stage of tournament the winner teams have shown superiority over the loser teams in the variables of Weight, Chest circumference and for arm length.

**KEYWORDS :** Male Kho-Kho Players , Relative Kinanthropometric , weighing machine.

### INTRODUCTION

The world of games has crossed many milestones gaining various achievements in games, sports and athletics events in general and most particularly by applying the various methods which led to these achievements. Scientific investigation for improving for performance on the training of sportsman in various spheres of sports is now gaining importance as to attain excellence. Various

research studies conducted by experts in physical education and sports have emphasized on the importance of investigating the specific structures correlated with various sports activities, for the selection and development of talent in sports for better performance at different levels of sports competitions.

Performance improvements has been achieved mainly due to application of different sports sciences, new techniques, methods of training, availability of appropriate body structures and modern facilities.

The time has arrived to explore the possible body structure related to specific sports activity and develop the body for a particular level of performance. In this way kinanthropometry plays an important role in the selection and development of athletes.

The level of sports performance at top competition is increasing day by day and it is very true that only a trifling margin makes the difference for top position.

Kinanthropometry is one of the sports sciences that emerged and got many impacts during the last few decades. Knowledge of this science equips us with the technique of various body measurements which ultimately deal with the assessment of human physique, body composition, physical growth, maturation and gross function of human body. The inter relationship of each of these mentioned variables with success in sports can be regarded as a proven fact today

Now a days kinanthropometry is widely used for sports talent identification, human growth study, medical examination and performance enhancement in sports etc. kinanthropometry provides quantitative interface between human structure and function, that's why application of kinanthropometric knowledge is gaining tremendous importance and popularity in helping to identify the potential talent in sports for a particular event. India is a country of large population with enormous variation and thus, there is an ample scope for kinanthropometric study in India.

## OBJECTIVES

1. To determine the physique and body composition for the game of Kho-Kho.
2. To compare the Kho-Kho players of inter-college level on the basis of their performance in tournament:

To compare the winner and loser of Kho-Kho players in pre-quarter, quarter final, semifinal and final.

**Comparison made on the following variable:** Height ,Weight, Chest circumference shoulder length, Total arm length, upper arm circumference, Fore arm length, Fore arm Circumference, hand length, Palm length, hand breadth, Waist circumference, thigh circumference, Calf circumference, total leg length, Upper leg length, lower leg length, Foot length and foot breadth.

**Tool are used in present investigation are:**Level based weighing machine, An Anthropometric, Rod Steel measuring tape and sliding caliper.

## METHDOLOGY

In the present study selective sampling technique was used for selection of the samples. The present investigation was conduct on 99 male inter-college level kho-kho players of Himachal Pradesh. For the present study the investigator had used 't'-test for the comparison of winner and loser inter-college Kho-Kho players of Himachal Pradesh at the different level of performance.

**ANALYSIS AND INTERPRETATION OF DATA**

**Table 1**  
**A COMPARISON OF LOSER AND WINNER KHO-KHO PLAYERS IN PRE-QUARTER FINAL ON**  
**DIFFERENT VARIABLES**

t-value for loser and winner kho-kho players in pre-quarter Final along with their mean scores on the variables.

SN	VARIABLES	WINNER				LOSER					t-value
		N	M	SD	SEM	N	M	SD	SEM	df	
1	Standing Height	27	5.59	0.15	2.99	27	5.56	0.11	2.27	52	0.88
2	Weight	27	51.72	3.45	0.66	27	51.27	3.08	0.59	52	0.50
3	Chest circumference	27	80.38	5.09	0.98	27	80.52	4.14	0.79	52	0.11
4	Upper arm circumference	27	22.94	1.40	0.27	27	22.60	1.05	0.20	52	0.98
5	Fore arm Circumference	27	21.15	1.56	0.30	27	21.05	1.01	0.19	52	0.26
6	Waist circumference	27	68.69	3.08	0.59	27	69.21	3.16	0.61	52	0.61
7	Thigh circumference	27	44.61	2.50	0.48	27	44.26	2.01	0.38	52	0.57
8	Calf circumference	27	28.95	2.09	0.40	27	28.28	2.02	0.38	52	1.21
9	Shoulder length	27	16.80	0.57	0.11	27	16.87	0.27	5.22	52	0.60
10	Total arm length	27	71.76	2.20	0.42	27	71.79	1.65	0.31	52	0.06
11	Upper arm length	27	28.98	1.67	0.32	27	28.52	1.18	0.22	52	1.15
12	For arm length	27	42.85	2.07	0.39	27	43.15	1.48	0.28	52	0.62
13	Hand length	27	17.28	0.45	8.84	27	17.17	0.49	9.59	52	0.90
14	Palm length	27	9.86	0.51	9.84	27	9.92	0.33	6.41	52	0.50
15	Total leg length	27	92.00	3.54	0.68	27	92.69	2.83	0.54	52	0.78
16	Upper leg length	27	46.36	2.27	0.43	27	47.79	1.88	0.36	52	0.74
17	Lower leg length	27	44.36	1.94	0.37	27	44.90	1.86	0.35	52	1.03
18	Foot length	27	23.66	0.76	0.14	27	23.37	1.09	0.21	52	1.12
19	Foot breadth	27	8.28	0.45	8.66	27	8.25	0.35	6.82	52	0.30
20	Hand breadth	27	7.44	0.35	6.90	27	7.45	0.41	7.90	52	0.10

Not significant at 0.05 level

It is evident from Table 1. that 't' value of all variables are less than tabulated 't' value 2.00 required for the difference in means to be significant at 0.05 level .Hence the hypothesis that "winner and loser KhoKho players in pre-quarter Final will not differ significantly with respect all variables the Null Hypothesis stand accepted.

Table 2

**A COMPARISON OF LOSER AND WINNER KHO-KHO PLAYERS IN QUARTER FINAL ON DIFFERENT VARIABLES**

t-value for loser and winner kho-kho players in quarter Final along with their mean scores on the variables.

S.N	VARIABLES	WINNER				LOSER					t-value
		N	M	SD	SEM	N	M	SD	SEM	df	
1	Standing Height	36	5.57	0.20	3.36	36	5.61	0.15	2.51	70	0.79
2	Weight	36	52.54	4.54	0.75	36	51.94	3.56	0.59	70	0.61
3	Chest circumference	36	82.16	4.12	0.68	36	8.85	4.76	0.79	70	1.25
4	Upper arm circumference	36	22.96	1.00	0.16	36	22.82	1.17	0.19	70	0.55
5	Fore arm Circumference	36	21.05	1.13	0.18	36	21.08	1.16	0.19	70	0.11
6	Waist circumference	36	70.05	2.72	0.45	36	69.87	2.63	0.43	70	0.27
7	Thigh circumference	36	45.74	2.55	0.42	36	44.64	2.21	0.36	70	1.94
8	Calf circumference	36	28.45	1.83	0.30	36	28.46	2.10	0.35	70	0.03
9	Shoulder length	36	17.04	0.42	7.15	36	16.96	0.35	5.99	70	0.89
10	Total arm length	36	72.61	2.17	0.36	36	71.59	1.90	0.31	70	2.12*
11	Upper arm length	36	28.56	1.91	0.31	36	28.43	1.65	0.27	70	0.30
12	For arm length	36	44.04	1.42	0.23	36	43.20	1.62	0.62	70	2.32*
13	Hand length	36	17.45	0.75	9.57	36	17.16	0.55	9.30	70	2.14*
14	Palm length	36	10.08	0.41	6.84	36	10.00	0.39	6.52	70	0.88
15	Total leg length	36	93.46	5.08	0.84	36	92.81	3.34	0.55	70	0.64
16	Upper leg length	36	47.94	3.10	0.51	36	47.75	2.19	0.36	70	0.29
17	Lower leg length	36	45.22	1.94	0.32	36	45.01	1.53	0.25	70	0.49
18	Foot length	36	23.45	1.20	0.20	36	23.59	1.12	0.18	70	0.52
19	Foot breadth	36	8.38	0.43	7.22	36	8.31	0.33	5.53	70	0.76
20	Hand breadth	36	7.32	0.40	6.76	36	7.47	0.36	6.15	70	1.57

\*significant at 0.05 level

It is evident from Table 2. that 't' value of total arm length 2.12, For arm length 2.32\* and Hand length 2.14\* are more than tabulated 't' value 2.00 required for the difference in means to be significant at 0.05 level. Hence the hypothesis that "winner and loser KhoKho players in quarter Final will differ significantly with respect of above three variables the Null Hypothesis stand rejected.

Not significant at 0.05 level

And It is also evident from Table 2. that 't' value of all other variables are less than tabulated 't' value 2.00 required for the difference in means to be significant at 0.05 level. Hence the hypothesis that "winner and loser KhoKho players in quarter Final will not differ significantly with respect of variables the Null Hypothesis stands accepted.

**Table 3**  
**A COMPARISON OF LOSER AND WINNER KHO-KHO PLAYERS IN SAMI FINAL ON DIFFERENT VARIABLES**

t-value for loser and winner kho-kho players in semi Final along with their mean scores on the variables.

S.N	VARIABLES	WINNER				LOSER					t-value
		N	M	SD	SEM	N	M	SD	SEM	df	
1	Standing Height	18	5.58	0.23	5.53	18	5.56	0.16	3.96	34	0.32
2	Weight	18	52.43	4.46	1.05	18	52.64	4.75	1.12	34	1.34
3	Chest circumference	18	81.71	4.47	1.05	18	82.62	3.82	0.90	34	0.65
4	Upper arm circumference	18	22.31	1.13	0.26	18	23.31	0.73	0.17	34	2.14*
5	Fore arm Circumference	18	20.74	1.11	0.26	18	21.37	1.09	0.25	34	1.71
6	Waist circumference	18	69.85	2.96	0.69	18	70.25	2.53	0.59	34	0.42
7	Thigh circumference	18	44.79	3.08	0.72	18	46.69	1.44	0.34	34	2.36*
8	Calf circumference	18	28.43	1.82	0.44	18	28.72	1.88	0.43	34	0.06
9	Shoulder length	18	17.05	0.44	0.16	18	17.06	0.42	0.10	34	0.07
10	Total arm length	18	72.13	2.81	0.66	18	73.10	1.16	0.27	34	1.33
11	Upper arm length	18	27.82	1.98	0.46	18	29.25	1.61	0.38	34	2.28*
12	For arm length	18	44.25	1.83	0.43	18	43.83	0.84	0.19	34	0.87
13	Hand length	18	17.37	0.68	0.16	18	17.52	0.44	0.10	34	0.80
14	Palm length	18	10.08	0.50	0.11	18	10.09	0.30	7.20	34	0.08
15	Total leg length	18	93.08	5.33	1.25	18	93.85	4.93	1.16	34	0.45
16	Upper leg length	18	47.91	3.13	0.73	18	47.96	3.15	0.74	34	0.04
17	Lower leg length	18	45.88	1.98	0.46	18	44.55	1.69	0.39	34	2.16*
18	Foot length	18	23.54	1.54	0.36	18	23.35	0.75	0.17	34	0.46
19	Foot breadth	18	8.37	0.55	0.12	18	8.40	0.28	6.78	34	0.22
20	Hand breadth	18	7.37	0.35	8.27	18	7.37	0.35	0.10	34	0.65

\*significant at 0.05 level

It is evident from Table 3. that 't' value of Upper arm circumference 2.14\*, Thigh



circumference 2.36\*, Upper arm length 2.28\* and Lower leg length 2.16\* are more than tabulated 't' value 2.00 required for the difference in means to be significant at 0.05 level. Hence the hypothesis that "winner and loser KhoKho players in semi-Final will not differ significantly with respect of above four variables the Null Hypothesis stands rejected.

Not significant at 0.05 level

And it is also evident from Table 3. that 't' value of all other variables are less than tabulated 't' value 2.00 required for the difference in means to be significant at 0.05 level. Hence the hypothesis that "winner and loser KhoKho players in semi-Final will not differ significantly with respect of variables the Null Hypothesis stands accepted.

**Table 4.**  
**A COMPARISON OF LOSER AND WINNER KHO-KHO PLAYERS IN THE FINAL ON DIFFERENT VARIABLES**

t-value for loser and winner kho-kho players in Final along with their mean scores on the variables.

S.N	VARIABLES	WINNER				LOSER					t-value
		N	M	SD	SEM	N	M	SD	SEM	df	
1	Standing Height	9	5.65	0.02	6.89	9	5.52	0.25	8.46	16	1.22
2	Weight	9	54.72	5.50	1.83	9	50.56	2.84	0.94	16	2.01*
3	Chest circumference	9	83.73	4.32	1.44	9	79.70	3.83	1.27	16	2.09*
4	Upper arm circumference	9	27.42	1.73	0.57	9	28.33	2.21	0.73	16	0.97
5	Fore arm Circumference	9	20.98	0.99	0.33	9	20.50	1.22	0.40	16	0.92
6	Waist circumference	9	71.08	2.39	0.79	9	68.62	3.09	1.03	16	1.89
7	Thigh circumference	9	43.74	2.90	0.96	9	45.84	3.04	1.01	16	1.49
8	Calf circumference	9	27.73	1.91	0.63	9	29.13	1.51	0.50	16	1.71
9	Shoulder length	9	17.03	0.23	7.99	9	17.06	0.59	0.19	16	0.15
10	Total arm length	9	72.85	0.99	0.66	9	71.42	3.42	1.14	16	1.08
11	Upper arm length	9	27.42	1.73	0.57	9	28.33	2.21	0.73	16	0.97
12	For arm length	9	45.43	1.55	0.51	9	43.06	1.30	0.43	16	3.53*
13	Hand length	9	7.44	0.26	8.99	9	7.30	0.42	0.14	16	0.86
14	Palm length	9	10.24	0.35	0.11	9	9.92	0.59	0.19	16	1.39
15	Total leg length	9	94.50	6.22	2.07	9	91.66	4.15	1.38	16	1.13
16	Upper leg length	9	48.16	3.46	1.15	9	47.16	2.76	0.92	16	1.01
17	Lower leg length	9	44.77	1.22	0.40	9	44.33	2.12	0.70	16	0.54
18	Foot length	9	22.93	1.17	0.39	9	24.15	1.68	0.56	16	1.78
19	Foot breadth	9	8.44	0.31	0.10	9	8.30	0.73	0.24	16	0.54
20	Hand breadth	9	17.15	0.39	0.13	9	17.58	0.86	0.28	16	1.37



\*significant at 0.05 level

It is evident from Table 4. that 't' value of Weight 2.01\*, Chest circumference 2.09\* and For arm length 3.53\* are more than tabulated 't' value 2.00 required for the difference in means to be significant at 0.05 level. Hence the hypothesis that "winner and loser KhoKho players in Final will not differ significantly with respect of above three variables the Null Hypothesis stand rejected.

Not significant at 0.05 level

And It is also evident from Table 4. that 't' value of all other variables are less than tabulated 't' value 2.00 required for the difference in means to be significant at 0.05 level. Hence the hypothesis that "winner and loser KhoKho players in Final will not differ significantly with respect of variables the Null Hypothesis stand accepted.

## CONCLUSION

There are no significant difference in all the variables of loser and winner in the pre-quarter final stage of tournament.

The winner teams have shown superiority over the loser teams in the variables of total arm length, for arm length and Hand length the variables of loser and winner in the quarter final stage of tournament.

There are no significant difference in Body Weight, Standing Height, Chest Circumference, Upper Arm Circumference, Fore Arm Circumference, Waist Circumference, Thigh Circumference, Calf Circumference, Shoulder Length, Upper Arm Length, Palm Length, Total Leg Length, Upper Leg Length, Lower Leg Length, Foot length, Hand breadth and Foot breadth the variables of loser and winner in the quarter final stage of tournament.

The loser and winner in the Semifinal stage of tournament does not differ significantly in the variables of Body Weight, Standing Height, Chest Circumference, Fore Arm Circumference, Waist Circumference, Calf Circumference, Shoulder Length, Total Arm Length, Fore Arm Length, Hand Length, Palm Length, Total Leg Length, Upper Leg Length, Foot length, Hand breadth and Foot breadth.

The winner teams have shown superiority over the loser teams in the variables of Upper Arm Circumference and Lower Leg Length the variables of loser and winner in the semi- final stage of tournament.

The loser teams have shown superiority over the winner teams in the variables of Thigh Circumference and Upper Arm Length the variables of loser and winner in the semi- final stage of tournament.

The loser and winner in the final stage of tournament does not differ significantly in the variables of Body Weight, Standing Height, Chest Circumference, Upper Arm Circumference, Fore Arm Circumference, Waist Circumference, Thigh Circumference, Calf Circumference, Shoulder Length, Total Arm Length, Upper Arm Length, Hand Length, Palm Length, Total Leg. Length, Upper Leg Length, Lower Leg Length, Foot length, Hand breadth and Foot breadth

The winner teams have shown superiority over the loser teams in the variables of Weight, Chest circumference and for arm length in the final stage of tournament.

## REFERENCE

1. Chauhan, M.S. (1986), "The Relationship Between Selected Anthropometric Variables and Endurance Running Performance", Unpublished Ph.D. Thesis, Kurukshetra, University, Kurukshetra.
2. Clarke, H.H. (1957), "Relationship of Strength and Anthropometric Measures to Physical Performance

Involving Trunk and Legs Research Quarterly” 28, p. 223.

3.Malhotra, M.S., Ramaswami, S.S. and Joseph, N.T.J. (1972), “Functional capacity and Body Composition of Indian Athletes”, Indian Journal of Physiology and Pharmacy, Vol. 16: p. 301.

4.Yadav, Dinesh; SatishYadav; SatishMathana (2006), “Kinanthropometric and Physical Fitness Variables of University Level Fast Bowlers in Relation to Their Bowling Performance”, Journal of Sports and Sports Sciences, Vol. 29, No. 3, pp. 47-58.

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