



International Journal of Physical Education, Sports and Health

P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 4.69
IJPESH 2015; 2(2): 344-346
© 2015 IJPESH
www.kheljournal.com
Received: 14-09-2015
Accepted: 15-10-2015

Dr. Amit Anurag
Assistant Professor,
Dept. of Physical Education &
Sports Shri Ramdeobaba College
of Engineering & Management,
Nagpur, (M.S.), India.

Comparative study of some selected physical & physiological variables between national level gymnast and Malkhamb players

Dr. Amit Anurag

Abstract

Sports performance is the manner in which sport participation is measured. Sport performance is a complex mixture of biomechanical function, emotional factors, and training techniques. Elite athletes need a thorough understanding of all the components in order to be successful, so that training sessions can be tailored to their individual needs. The results of present study highlight the comparison of physical & physiological variables between Gymnast and Malkhamb players. Physical fitness variables were grip strength & abdominal strength whereas physiological variables consist of vital capacity and maximum breath holding capacity. As far as differences are concerned the significant differences are found in grip strength and abdominal strength and Gymnast were observed better in both components. It is recommended that elite players may be undertaken for further study, it will also help for identification of talents for sports.

Keywords: Malkhamb, Gymnastic, grip strength, abdominal strength, vital capacity, physical & physiological variables.

1. Introduction

Physical fitness is the capacity to carry out reasonably well various forms of physical activities without being unduly tired and includes qualities important to the individual's health and well being. Fitness may be described as a set of attributes that an individual has or has acquired which help in their ability to perform physical activity. Physical fitness can be divided into two distinct categories the health related physical fitness and skill-related physical fitness. Health related physical fitness components are cardio-respiratory fitness, body composition, abdominal strength, muscle endurance and flexibility. Skill related physical fitness includes components important to play sports well, such as speed, strength, endurance, agility, flexibility, balance, power, co-ordination etc. Both type of physical fitness are important for all the sportsmen in order to achieve better performance. The physiological demands of gymnastic events places a heavy burden on anaerobic energy pathways. While energy contributions will differ between different apparatus, this means that strength and power are more important to a gymnast than aerobic endurance. The abdominals are some of the most important muscles in the body for gymnastics and many other sports. Having strong abs is crucial to being successful in many skills, or just maintaining form in most skills. Gymnastics and Malkhamb are sports that require an extreme amount of upper body and core strength.

1.1 Purpose of the study

The main purpose of the study was to compare the selected physical & physiological variables of National Gymnast and Malkhamb Players.

2. Material and Methods

2.1 Subject: Required data for the present study were collected from age group of 18-25 years of male National Gymnasts and Malkhamb Players at the time of National Game held at Ranchi (Jharkhand) in 2011 and 29th National Competition of Malkhamb at Pune (Maharashtra) in 2012 respectively. 49 Gymnasts were selected from top seven teams qualified in national games. Similarly 28 Malkhamb players were selected from top seven teams. Subjects for the study were selected by Purposive sampling method.

Correspondence
Dr. Amit Anurag
Assistant Professor,
Dept. of Physical Education &
Sports Shri Ramdeobaba College
of Engineering & Management,
Nagpur, (M.S.), India.

2.2 Procedure

i) The Physical fitness variables

Grip strength was measured in kg by grip dynamometer. Abdomen strength was measured in numbers by administering bent knee sit-ups test for 60 seconds.

ii) Physiological variables

Vital capacity was measured in ml by using dry Spirometer, maximum breath holding time was measured in seconds. Height was measured in cm by steel tape and Weight was measured in kg by weighing machine.

2.3 Reliability of data

The reliability of data was ensured by establishing the instrument reliability, tester, competency, and reliability of test and subject’s reliability.

3. Results & Discussion

3.1 Statistical analysis

The t-test statistical technique was used to find out the Comparison of selected physical & physiological variables between Gymnast and Malkhamb Players.

3.2 Findings

Table 1 summarizes the differences in various physical–physiological parameters of Gymnast and Malkhamb players. Significant differences are obtained in height, weight, grip strength and abdominal strength because $p < 0.05$. Malkhamb players show higher mean values in height (5.55 ± 0.14) while Gymnasts show highest mean values in weight (58.24 ± 5.37), grip strength (37.06 ± 4.16) and abdominal strength (62.06 ± 4.92).

3.3 Tables and Figures

Table 1: ‘t’ - Test Table: Showing Differences of Various Variables

Variables	Players	N	Mean	SD	SE	Mean Difference	t	Sig. (2-tailed)
Age	Malkhamb	28	21.39	2.23	0.42	-0.85	1.74	0.09
	Gymnast	49	22.24	1.96	0.28			
Height	Malkhamb	28	5.55	0.14	0.03	0.07	2.10*	0.04
	Gymnast	49	5.48	0.14	0.02			
Weight	Malkhamb	28	55.39	3.48	0.66	-2.85	2.52*	0.01
	Gymnast	49	58.24	5.37	0.77			
Grip Strength	Malkhamb	28	33.96	3.02	0.57	-3.10	3.45**	0.00
	Gymnast	49	37.06	4.16	0.59			
Abdominal strength	Malkhamb	28	53.43	7.72	1.46	-8.63	5.99**	0.00
	Gymnast	49	62.06	4.92	0.70			
Vital Capacity	Malkhamb	28	4292.86	677.65	128.06	254.29	1.84	0.07
	Gymnast	49	4038.57	524.63	74.95			
Maximum Breath Holing Capacity	Malkhamb	28	35.22	12.98	2.45	-1.42	0.74	0.46
	Gymnast	49	36.63	2.80	0.40			

* Significant at 0.05 level of confidence.

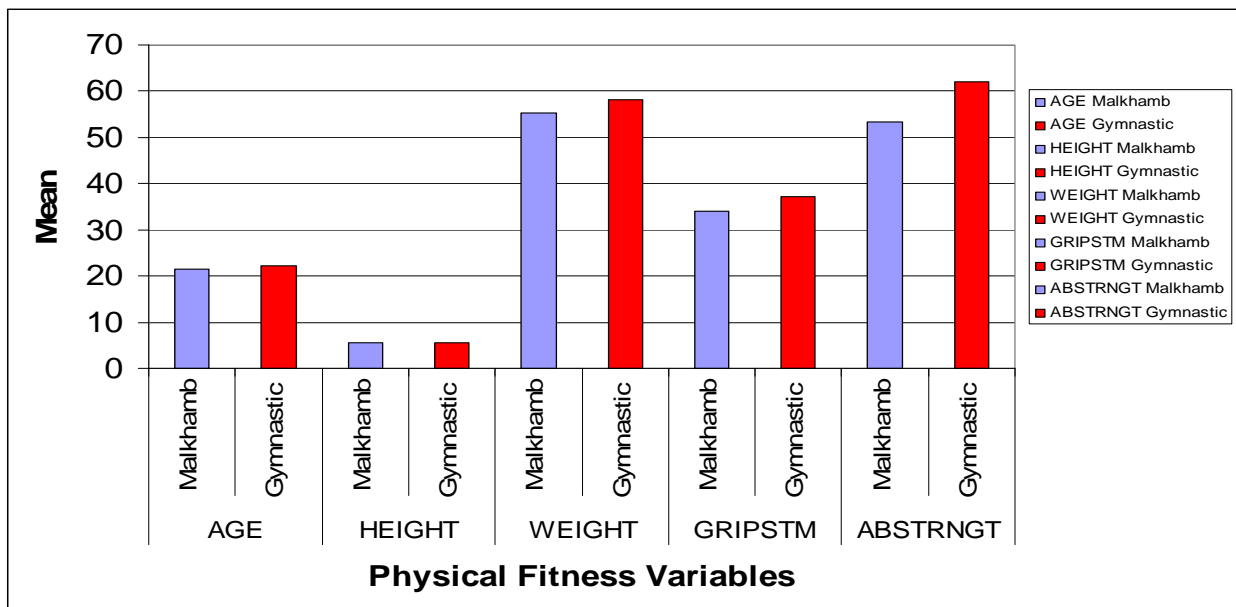


Fig 1: Shows Mean Difference of Players between Malkhamb and Gymnastic in Age, Height, Weight, Grip Strength and Abdominal Strength.

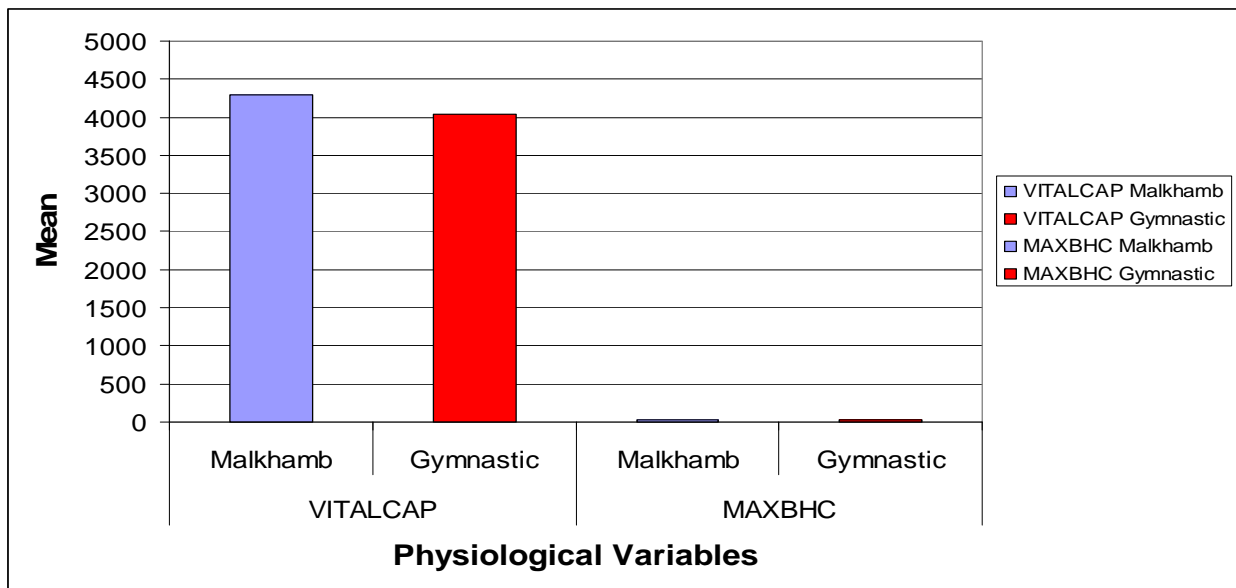


Fig 2: Shows Mean Difference of Players between Malkhamb and Gymnastic in Vital Capacity and Maximum Breath Holding Capacity

4. Conclusion

Physical educationist and sports scientists have been constantly examining sports performance in relation to the anthropometric characteristics and fitness standards. They try to search those factors that are extensive contribution to high performance. The present study shows differences in Malkhamb players and Gymnasts of some selected physical-physiological parameters. Significant differences were obtained in height, weight, grip strength and abdominal strength. Because Malkhamb players shown higher mean values in height whereas gymnasts shown higher mean values in weight, grip strength and abdominal strength.

5. References

1. Opton Henry J. An Analysis of Breath Holding Test, Research Quarterly 1950; 21(20):22-30.
2. Jürimäe T, Hurbo T, Jürimäe J. Relationship of Handgrip Strength with Anthropometric and Body Composition Variables in Prepubertal Children, Homo Internationale Zeitschrift für die vergleichende Forschung am Menschen, 2009; 60(3):225-238.
3. Lyndon JO, Joseph Ryan Alice S. Body Weight, Body Composition and Aging, Available online 14 June Encyclopedia of Endocrine Diseases, 2004, 373-377.
4. Hariharan S. Thesis on Malkhamb-Lathi-Lezim, 1961; 1:24.
5. Faria IE, Faria EW. Relationship of the anthropometric and physical characteristics of male junior gymnasts to performance, Journal of Sports Medicine and Physical Fitness. 1989; 29(4):369-378.