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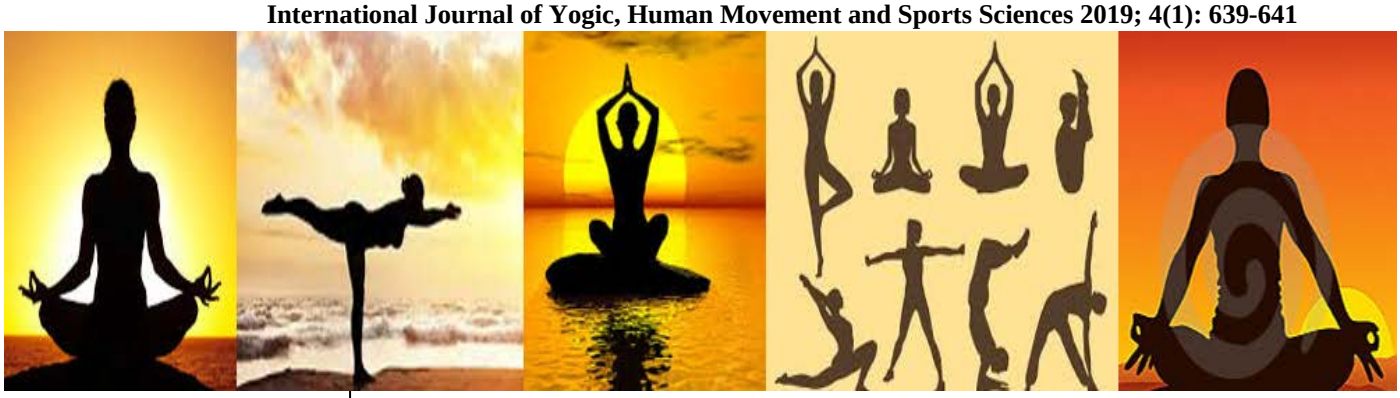

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Comparative analysis of physical fitness of handball players at different level

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Abstract
The purpose of the present study was to compare the selected physical fitness between selected intervarsity and senior national level Handball players of Maharashtra State. To achieve the purpose of the study, one hundred female players from each category (intervarsity and senior national level) were selected randomly. The aim was to study the selected physical fitness variables of intervarsity and senior national level Handball players of Maharashtra State. The variables selected for the study were speed, agility, explosive strength and strength endurance. The data was analyzed to find out the significant difference between the groups. 't' test statistical technique was used to analyze the significant difference and the level of significance was set at 0.05 level.

Keywords: speed, agility, fitness, handball

Introduction
Sports in the present world have become extremely competitive. It is not the mere participation or practice that brings out victory to an individual. Therefore, sports life is affected by various factors like Physiology, Biomechanics, Sports Training, Sports Medicine, Sociology and Sports Psychology etcetera. All the coaches, trainers, physical education personnel and doctors are doing their best to improve the performance of the players of their country. Athlete or players of all the countries are also trying hard to bring laurels/medals for their countries in International competitions (Charles A. Bucher., & Deborah, A. Wuest., 1987) [3].

Physical fitness is a relative concept. There is a maximal fitness level that must be maintained to prevent organic deterioration and ensure proper physiological functioning. The main factor responsible for the performance level improvement is the development of new training methods based on scientific principles derived from exercise physiology. Aging is an inevitable process; however the rate and magnitude of the decline in physiologic function may be attenuated by maintaining an active lifestyle. Research now suggests that lifestyle and environmental factors influence much of the physiologic deterioration previously considered "normal aging."

Team handball, also sometimes called continental, European and Olympic handball, provides a wealth of possibilities for school and community recreation programs that have as yet gone relatively untried in the English speaking world. This activity which takes its origin from soccer has evolved under the influence of basketball and yet is a unique Olympic sport, second only to soccer as the most popular sport of Europe. Handball is one of those rare games that is easy to learn, but difficult to perfect. The essential rules are easily understood and strategy may be developed in the course of play. Essentially a game of running, jumping, throwing and catching, it is played with enjoyment on the first attempt by a beginner of any age. In fact, it is an excellent activity to develop these natural, basic movement patterns. At the same time, the many unique and refined skills of the advanced player are readily identifiable and continue to be developed with years of practice and experience.

To develop fitness, there are so many training methods adopted in sports and games that are circuit training, fartlek training, interval training, pressure training, weight training and resistance training. Device ping and maintaining physical fitness requires vigorous effort by the body as a whole strength, muscular endurance, flexibility and cardio-respiratory endurance are the basic components of fitness. Singh (1991) [2] stated that the effect of vigorous training

upon certain systems is immediately noticed and felt. In the light of the effect of training it must be apparent that the growth and development of muscular endurance cannot be stately neglected even though they may appear to be non-essential. During vigorous training the blood circulation quickens the blood and lymph stream through the muscles supplying the cell with oxygen and nutrition removing waste products. The heart activity is accelerated exercising and strengthening its own fibers. Exercise also stimulates growth and strengthens the bones, muscular ligaments and tendons.

Objective

The objective of the study was to compare the physical fitness between intervarsity and senior national level Handball players of Maharashtra State.

Hypothesis

There will be significant difference of physical fitness between intervarsity and senior national level Handball players of Maharashtra State.

Material and Methods

Selection of Subjects: Total one hundred (100) handball players were selected as subjects. They were divided into two groups named: intervarsity and senior national level players. Each group had fifty (50) subjects. The age of the subjects ranged between 18-24 years.

Selection of Variables: The following four physical fitness variables were selected for the purpose of this research.

1. Speed
2. Agility
3. Explosive strength
4. Strength endurance

Statistical Procedure

After the collection of relevant data, to compare the selected physical fitness variables of intervarsity and senior national level handball players,'t' test was employed with the help of Statistical package for the social sciences (SPSS). The level of significance was set at 0.05.

Analysis of Data and Results

Table 1: Means and SDs of Speed of intervarsity and senior national level handball players.

Variable	Group	Mean	S.D.	p value
Speed	Intervarsity level	6.03	0.29	0.00011*
	Senior national level	6.19	0.10	

Level of Significance .05

Table 2: Means and SDs of Agility of intervarsity and senior national level handball players.

Variable	Group	Mean	S.D.	p value
Agility	Intervarsity level	10.13	0.49	0.389
	Senior national level	9.29	0.49	

Level of Significance .05

Table 3: Means and SDs of Explosive strength of intervarsity and senior national level level handball players.

Variable	Group	Mean	S.D.	p value
Explosive strength	Intervarsity level	2.00	0.11	0.101
	Senior national level	2.23	0.09	

Level of Significance .05

Table 4: Means and SDs of Strength endurance of intervarsity and senior national level handball players

Variable	Group	Mean	S.D.	p value
Strength endurance	Intervarsity level	21.01	3.49	0.283
	Senior national level	27.23	3.21	

Level of Significance .05

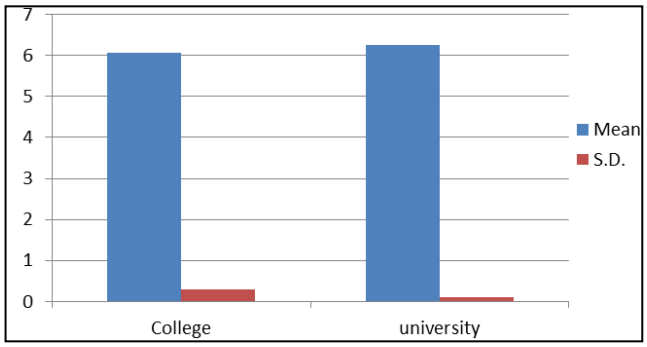

Fig 1: Comparison of Mean difference of Speed between intervarsity and senior national level handball players.

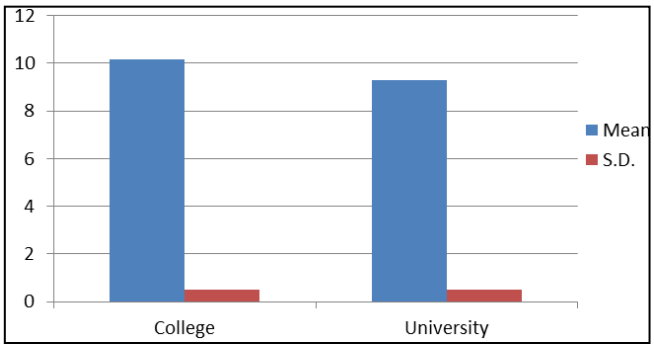

Fig 2: Comparison of Mean difference of Agility between intervarsity and senior national level handball players.

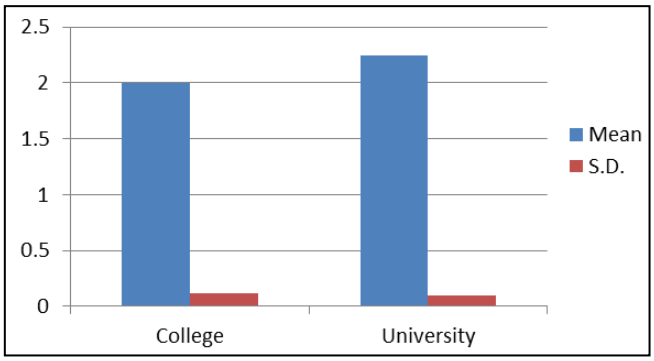

Fig 3: Comparison of Mean difference of Explosive strength between intervarsity and senior national level handball players.

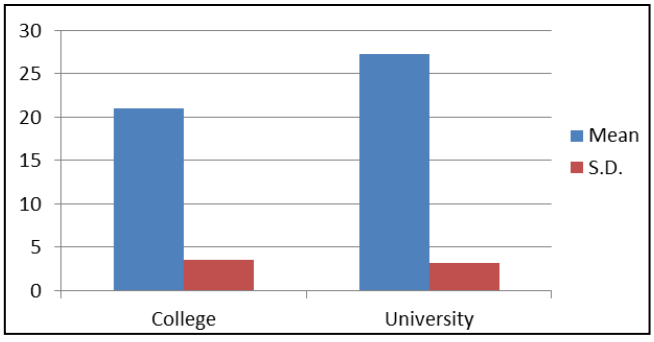

Fig 4: Comparison of Mean difference of Strength endurance between intervarsity and senior national level handball players.

Discussion and Findings

The results showed the significant difference in Speed of intervarsity and senior national level handball players**.** As we can observed from the given results that intervarsity handball players had more speed than senior national handball players. So the hypothesis is accepted for speed of intervarsity and senior national handball players. On the other side there was insignificant difference of agility, explosive strength and strength endurance. The results of (Sahaya Latha Rani, 2012) supported the study.

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