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Analysis of Selected Anthropometric and Physical Fitness Components between Senior and Super Senior Boys

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Abstract

The purpose of the present study was to analyse the selected anthropometric variables and physical fitness components between senior and super senior boys. To achieve the purpose of the study, sixty boys from Government Higher Secondary School, Rasipuram, Tamilnadu. Those subjects divided into two groups (group-I age 11-14 years and group-II age 15-17 years), to compare the selected anthropometrical variables and physical fitness variables. The collected data analysed by independent't' test were applied to find out the significant different among different age group of adolescences boys. The data were collected on height, weight, arm length, leg length, speed, agility and muscular endurance between adolescence boys of different age groups. The statistical analysis was done by used the SPSS package. The values obtained were tested for significant at 0.05 levels. There exist a significant difference on height, leg length, speed and agility between the group – I and group – II of boys and also the result showed that group – II adolescence boys higher than the group – I of boys. There was no significant difference on weight, arm length and muscular endurance between the group – I and group – II of boys.

Keywords: Height, Weight, Arm Length, Leg Length, Speed, Agility, Muscular Endurance.

Introduction

Sport is an organized, competitive, entertaining, and skillful physical activity requiring commitment and fair play, in which a winner can be defined by objective means. It is governed by a set of rules or customs. In sports the key factors are the physical capabilities and skills of the competitor when determining the outcome winning or losing. The physical activity involves the movement of people, animals and or a variety of objects such as balls and machines or equipment. In contrast, games such as card games and board games, though these could be called mind sports and some are recognized as Olympic sports, require primarily mental skills and only mental physical involvement. Non-competitive activities, for example as jogging or playing catch, are usually classified as forms of recreation. Sports have been increasingly organized and regulated from the time of the Ancient Olympics up to the present century. Industrialization has brought increased leisure time to the citizens of developed and developing countries. Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health or wellness. It is performed for various reasons. These include strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance and for enjoyment. It also improves mental health, helps prevent depression, helps to promote or maintain positive self-esteem, and can even augment an individual's sex appeal or body image, which again is also linked with higher levels of self-esteem. Childhood obesity is a growing global concern and physical exercise may help decrease the effects of childhood obesity in developed countries.

The measurements of various dimensions of human body have long been used by different researchers all over the world for different purposes. In their simplest form these measurements are used to describe the human body and to evaluate the increase in the size of the human body during various stages of post-natal development, i.e., from birth to old age, and also to study the changes during pre-natal period of growth, i.e., from conception to birth. The researchers in the field of human growth and development, Axiological Anthropometry as it is referred to at present, uses these anthropometric measurements to study precisely the age specific changes in the main body segments and the components of these segments. Through these changes the amount and rate of growth can be assessed for a specific child or a group of individuals at community or national level to formulate the respective health standards to assess the growth of children at both the levels. Athletes involved in court and field team sports face a broad range of challenges that involve physical fitness, precision motor skills, team tactics, and

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individual and group motivation. When an opposing team is then encountered, the difficulties in quantifying any of these challenges are compounded as one team affects the intensity and tactics that the other team must use.

Methodology

The purpose of the present study was to analyse the selected anthropometric variables and physical fitness components between senior and super senior boys. To achieve the purpose of the study, sixty boys from Government Higher Secondary School, Rasipuram, Tamilnadu. Those subjects divided into two groups (group-I age 11-14 years and group-II age 15-17 years), to compare the selected anthropometrical variables and physical fitness variables. The collected data analysed by independent 't' test were applied to find out the significant different among different age group of adolescences boys. The data were collected on height, weight, arm length, leg length, speed, agility and muscular endurance between adolescence boys of different age groups. The statistical analysis was done by used the SPSS package. The values obtained were tested for significant at 0.05 levels.

Results

Table I. analysis of 't' test on height of adolescence boys group – I and group - II

Group	N	Mean	SD	DM	't' – ratio
Group I	30	156.63	1.93	1.86	2.46*
Group II	30	158.50	3.67		

** Required table value for significance at 0.05 level of confidence for df of 58 is 2.02*

Table – I presents the mean and standard deviation values on height 156.63 + 1.93 and 158.50 + 3.67 for group - I and group – II adolescence boys respectively. Since the obtained 't' value of 2.46 on height was greater than the required table value of 2.02 for significant level 0.05 with 58 degrees of freedom. It concluded that, there is significant level of difference in the performance of height between group - I and group – II adolescence boys.

Figure I. Bar diagram showing the mean value on height of group – I and group – II adolescence boys

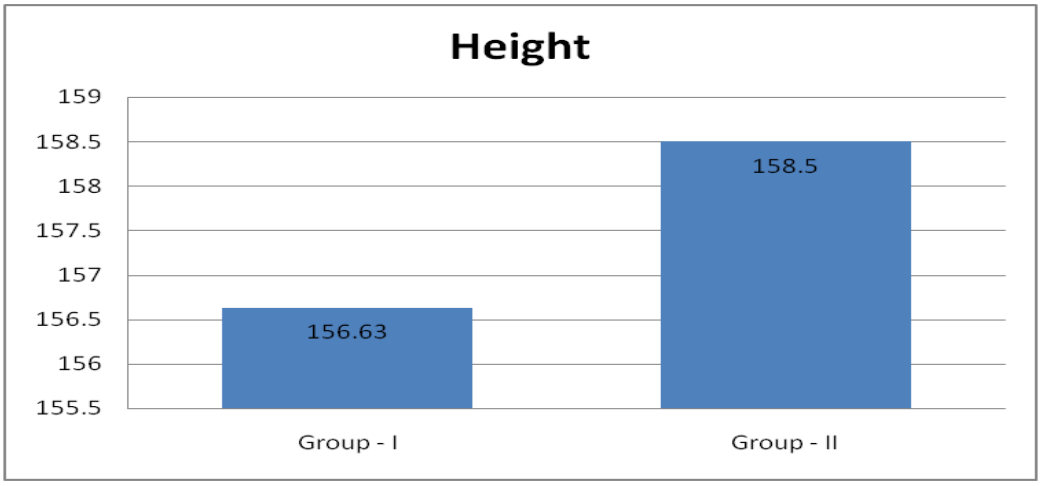

Table II. Analysis of 't' test on weight of adolescence boys group – I and group - II

Group	N	Mean	SD	DM	't' - ratio
Group I	30	47.17	2.71	0.50	0.65
Group II	30	47.67	3.20		

** Required table value for significance at 0.05 level of confidence for df of 58 is 2.02*

Table – II presents the mean and standard deviation values on weight 47.17 + 2.71 and 47.67+ 3.20 for group - I and group – II adolescence boys respectively. Since the obtained‘t’ value of 0.65 on weight was less than the required table value of 2.02 for significant level 0.05 with 58 degrees of freedom. It concluded that, there is no significant level of difference in the performance of weight between group - I and group – II adolescence boys.

Figure II. Bar diagram showing the mean value on weight of group – I and group – II adolescence boys

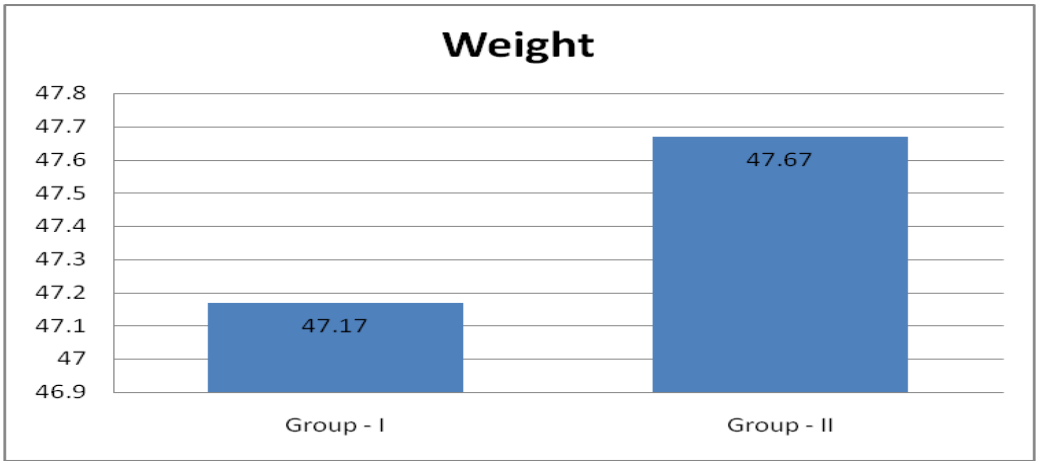

Table III. Analysis of ‘t’ test on arm length of adolescence boys group – I and group - II

Group	N	Mean	SD	DM	‘t’ - ratio
Group I	30	63.83	1.48	0.60	1.23
Group II	30	64.43	2.22		

** Required table value for significance at 0.05 level of confidence for df of 58 is 2.02*

Table – III presents the mean and standard deviation values on arm length 63.83 + 1.48 and 64.43+ 2.22 for group - I and group – II adolescence boys respectively. Since the obtained ‘t’ value of 1.23 on arm length was less than the required table value of 2.02 for significant level 0.05 with 58 degrees of freedom. It concluded that, there is no significant level of difference in the performance of arm length between group - I and group – II adolescence boys.

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Figure III. Bar diagram showing the mean value on arm length of group – I and group – II adolescence boys

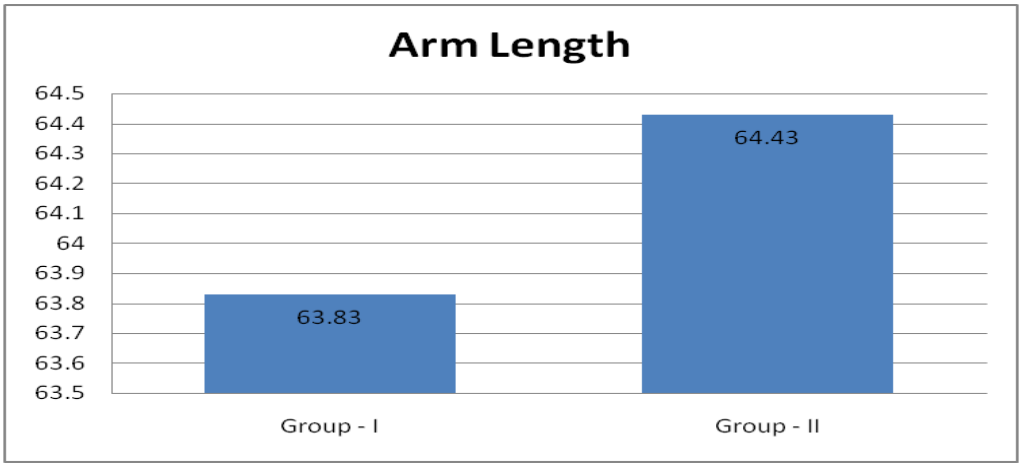


Table IV. Analysis of 't' test on leg length of adolescence boys group – I and group - II

Group	N	Mean	SD	DM	't' - ratio
Group I	30	86.60	2.19	1.20	2.34*
Group II	30	87.80	1.75		

** Required table value for significance at 0.05 level of confidence for df of 58 is 2.02*

Table – IV presents the mean and standard deviation values on leg length 86.60 + 2.19 and 87.80 + 1.75 for group - I and group – II adolescence boys respectively. Since the obtained 't' value of 2.34 on leg length was greater than the required table value of 2.02 for significant level 0.05 with 58 degrees of freedom. It concluded that, there is significant level of difference in the performance of leg length between group - I and group – II adolescence boys.

Figure IV. Bar diagram showing the mean value on leg length of group – I and group – II adolescence boys

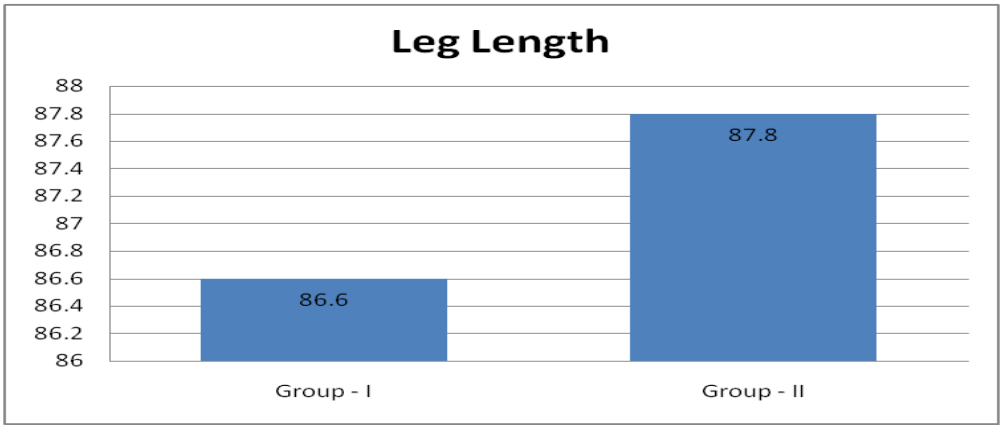


Table V. Analysis of 't' test on speed of adolescence boys group – I and group - II

Group	N	Mean	SD	DM	't' - ratio
Group I	30	7.81	0.20	0.16	2.51*
Group II	30	7.65	0.28		

* Required table value for significance at 0.05 level of confidence for df of 58 is 2.02

Table – V presents the mean and standard deviation values on speed 7.81 + 0.20 and 7.65 + 0.28 for group - I and group – II adolescence boys respectively. Since the obtained 't' value of 2.51 on speed was greater than the required table value of 2.02 for significant level 0.05 with 58 degrees of freedom. It concluded that, there is significant level of difference in the performance of speed between group - I and group – II adolescence boys.

Figure V. Bar diagram showing the mean value on speed of group – I and group – II adolescence boys

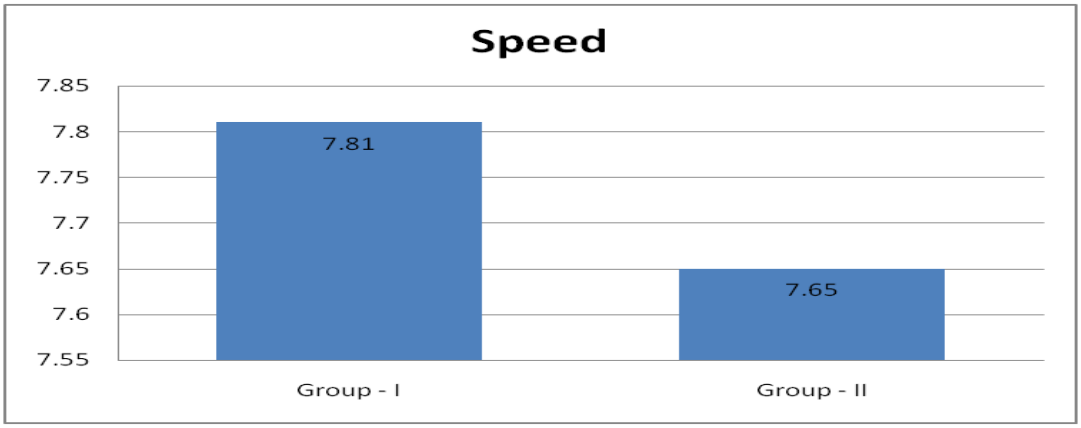


Table VI. Analysis of 't' test on agility of adolescence boys group – I and group - II

Group	N	Mean	SD	DM	't' - ratio
Group I	30	9.34	0.34	0.32	2.93*
Group II	30	9.02	0.49		

** Required table value for significance at 0.05 level of confidence for df of 58 is 2.02*

Table – VI presents the mean and standard deviation values on agility 9.34 + 0.34 and 9.02 + 0.49 for group - I and group – II adolescence boys respectively. Since the obtained 't' value of 2.93 on agility was greater than the required table value of 2.02 for significant level 0.05 with 58 degrees of freedom. It concluded that, there is significant level of difference in the performance of agility between group - I and group – II adolescence boys.

Figure VI. Bar diagram showing the mean value on agility of group – I and group – II adolescence boys

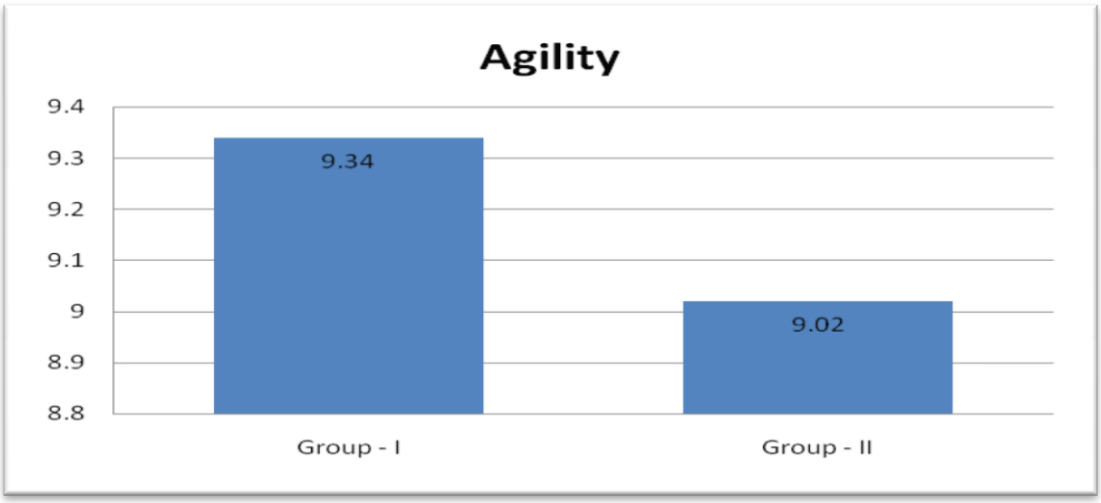


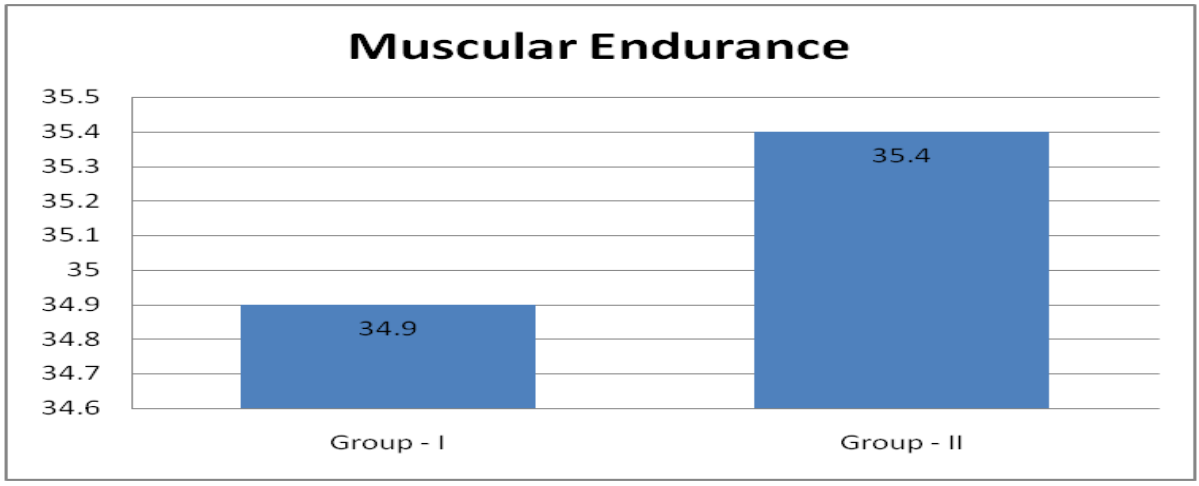
Table VII. Analysis of 't' test on muscular endurance of adolescence boys group – I and group - II

Group	N	Mean	SD	DM	't' - ratio
Group I	30	34.90	3.22	.50	0.73
Group II	30	35.40	1.87		

** Required table value for significance at 0.05 level of confidence for df of 58 is 2.02*

Table – VII presents the mean and standard deviation values on muscular endurance 34.90 + 3.22 and 35.40 + 1.87 for group - I and group – II adolescence boys respectively. Since the obtained 't' value of 0.73 on muscular endurance was less than the required table value of 2.02 for significant level 0.05 with 58 degrees of freedom. It concluded that, there is no significant level of difference in the performance of muscular endurance between group - I and group – II adolescence boys.

Figure VII. Bar diagram showing the mean value on muscular endurance of group – I and group – II adolescence boys



Conclusion

There exist a significant difference on height, leg length, speed and agility between the group – I and group – II adolescence boys and also the result showed that group – II adolescence boys higher than the group – I adolescence boys.

There was no significant difference on weight, arm length and muscular endurance between the group – I and group – II adolescence boys.

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