

COMPARATIVE ANALYSIS OF POSTURAL DEFORMITIES BETWEEN SPORTS AND NON-SPORTS PARTICIPANTS

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Abstract

The purpose of the study was to compare postural deformities between sports and non- sports participants among school boys. To achieve the purpose of the study, 300 School boys were selected as subjects randomly from Tirunelveli District, Tamilnadu, India. The selected subjects were divided into two equal groups namely sports participants as group-I (n=150) and non-sports participants as group – II (n=150). The age of the subjects were ranged from 9 to11 years. The following variables only were selected as postural deformities such as Neck, Shoulder, Trunk and Lower back. The collected data were tested by standardized Newyork Posture Rating Test and it was statistically analyzed by independent ‘t’ test at 0.05 level of confidence to find the significant differences. The results of the study shown that there was a significant difference exists between sports and non-sports participants.

Key words: Postural Deformities, Newyork Posture Rating Test, Sports participants, Non-sports participants

INTRODUCTION

Posture can provide a significant amount of important information through nonverbal communication. Physiological spinal curvature is gradually formed in the earliest stages of posturogenesis. The degree of spinal curvatures depends on many factors such as gender, lifestyle, physical activity, etc. (Lichota, Plandowska, & Patrycjusz, 2011)^[2]. Television, video entertainment, motorized transportation, fast food and lack of regular physical activity contribute to the poor physical condition of children. Good posture is the correct alignment of body parts supported by the right amount of muscle tension against gravity. Without posture and the muscles that control it, we would simply fall to the ground.

The importance of normal upright posture has been described as a state of balance requiring minimal muscular effort (Griegel-Morris, Larson, Mueller-Klaus & Oatis, 1992)^[7]. Santonja, (1996)^[3] suggested that children should be encouraged to practice sport, as it is a stimulating factor for the correction of spine abnormalities.

PURPOSE OF THE STUDY

The purpose of the study was to compared postural deformities between sports and non- sports participants among school boys.

METHODOLOGY

To achieve the purpose of the study, 300 School boys were selected as subjects randomly from Tirunelveli District, Tamilnadu, India. The selected subjects were divided into two equal groups namely sports participants as group-I (n=150) and non-sports participants as group – II (n=150). The age of the subjects were ranged from 9 to11 years. The following variables only were selected as postural deformities such as Neck, Shoulder, Trunk and Lower back. The collected data were tested by standardized Newyork Posture Rating Test and it was statistically analyzed by independent ‘t’ test at 0.05 level of confidence to find the significant differences.

ANALYSIS OF DATA

1. NECK

The Mean and standard deviation on Neck postural deformity between sports and non-sports participants among School boys were collected and presented in table I.

TABLE I

MEAN AND STANDARD DEVIATION OF INDEPENDENT T TEST SCORES ON NECK POSTURAL DEFORMITY BETWEEN SPORTS AND NON-SPORTS PARTICIPANTS (NEWYORK POSTURE RATING TEST IN POINTS)

Neck	Total	Mean	SD	't' Test
Sports Participants	150	4.17	1.01	8.56*
Non-Sport Participants	150	3.03	1.29	

The table value required of 0.05 levels with df 298 is 1.97.

From the table above the means values between Sports participants and Non-sports participants are 4.17 and 3.03 respectively. The obtained 't' value between Sports participants and non-sports participants on Neck Postural deformities is 8.56, which is greater than the tabulated 't' value of 1.97 with degree of freedom 298 at 0.05 level of significance. Therefore it was concluded that there was significant difference exist on Neck Postural deformity between sports and non-sports participants.

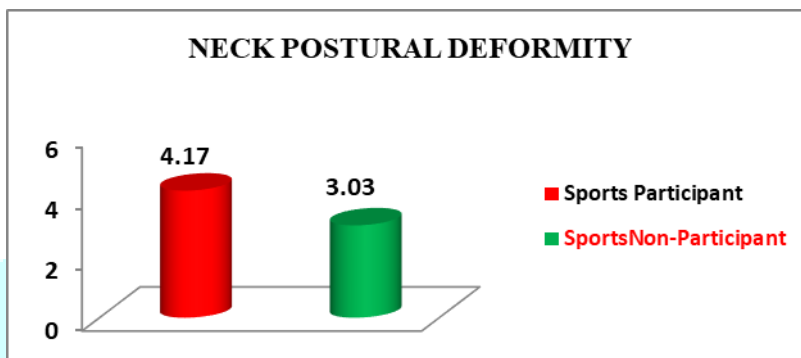


FIGURE I: THE MEANS VALUE ON NECK POSTURAL DEFORMITY BETWEEN SPORTS AND NON-SPORTS PARTICIPANTS.

2. SHOULDER

The Mean and standard deviation on Shoulder postural deformity between sports and non-sports participants among School boys were collected and presented in table II.

TABLE II

MEAN AND STANDARD DEVIATION OF INDEPENDENT T TEST SCORES ON SHOULDER POSTURAL DEFORMITY BETWEEN SPORTS AND NON-SPORTS PARTICIPANTS (NEWYORK POSTURE RATING TEST IN POINTS)

Shoulder	Total	Mean	SD	T Test
Sports Participant	150	3.99	1.11	12.09*
Non-Sport Participant	150	2.41	1.15	

The table value required of 0.05 levels with df 298 is 1.97.

From the table above the means values between Sports participants and Non-sports participants are 3.99 and 2.49 respectively. The obtained 't' value between Sports participants and non-sports participants on Neck Postural deformities is 12.09, which is greater than the tabulated 't' value of 1.97 with degree of freedom 298 at 0.05 level of significance. Therefore it was concluded that there was significant difference exist on Shoulder Postural deformity between sports and non-sports participants.

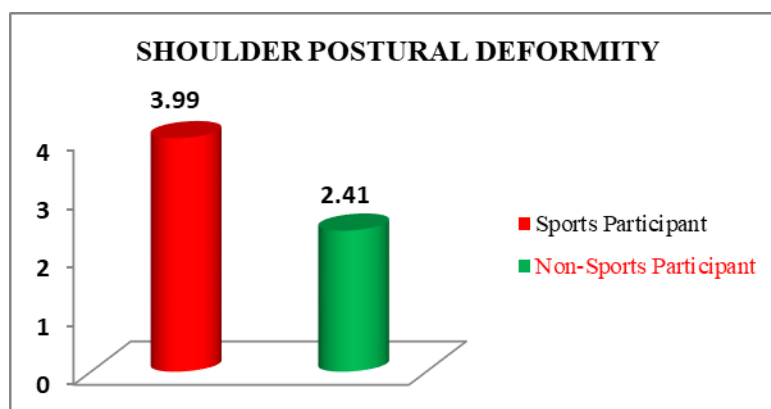


FIGURE II: THE MEANS VALUE ON SHOULDER POSTURAL DEFORMITY BETWEEN SPORTS AND NON-SPORTS PARTICIPANTS.

3. TRUNK

The Mean and standard deviation on Trunk postural deformity between sports and non-sports participants among School boys were collected and presented in table III.

TABLE II
MEAN AND STANDARD DEVIATION OF INDEPENDENT T TEST SCORES ON TRUNK POSTURAL DEFORMITY BETWEEN SPORTS AND NON-SPORTS PARTICIPANTS (NEWYORK POSTURE RATING TEST IN POINTS)

Neck	Total	Mean	SD	T Test
Sports Participant	150	3.72	1.12	10.56*
Non-Sport Participant	150	2.37	1.09	

The table value required of 0.05 levels with df 298 is 1.97.

From the table above the means values between Sports participants and Non-sports participants are 3.72 and 2.37 respectively. The obtained 't' value between Sports participants and non-sports participants on Trunk Postural deformities is 10.56, which is greater than the tabulated 't' value of 1.97 with degree of freedom 298 at 0.05 level of significance. Therefore it was concluded that there was significant difference exist on Trunk Postural deformity between sports and non-sports participants.

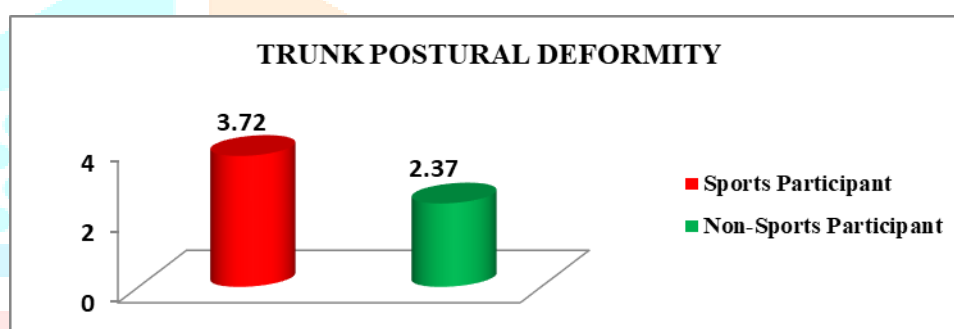


FIGURE III: THE MEANS VALUE ON TRUNK POSTURAL DEFORMITY BETWEEN SPORTS AND NON-SPORTS PARTICIPANTS.

4. LOWER BACK

The Mean and standard deviation on Lower back postural deformity between sports and non-sports participants among School boys were collected and presented in table IV.

TABLE II
MEAN AND STANDARD DEVIATION OF INDEPENDENT T TEST SCORES ON LOWER BACK POSTURAL DEFORMITY BETWEEN SPORTS AND NON-SPORTS PARTICIPANTS (NEWYORK POSTURE RATING TEST IN POINTS)

Lower back	Total	Mean	SD	T Test
Sports Participant	150	3.53	1.15	8.03*
Non-Sport Participant	150	2.48	1.12	

The table value required of 0.05 levels with df 298 is 1.97.

From the table above the means values between Sports participants and Non-sports participants are 3.53 and 2.48 respectively. The obtained 't' value between Sports participants and non-sports participants on Trunk Postural deformities is 8.03, which is greater than the tabulated 't' value of 1.97 with degree of freedom 298 at 0.05 level of significance. Therefore it was concluded that there was significant difference exist on Lower back Postural deformity between sports and non-sports participants.

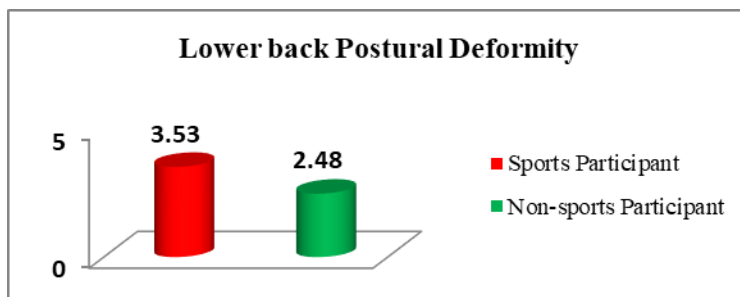


FIGURE IV: THE MEANS VALUE ON LOWER BACK POSTURAL DEFORMITY BETWEEN SPORTS AND NON-SPORTS PARTICIPANTS.

DISCUSSION ON FINDINGS

The result of the study proved that there were significant differences exist on all the selected postural deformities between sports and non-sports participants among school boys. Also the results of the study indicated that sports participants had good posture compare than non-sports participants among school boys. The results of the study indicate the similar result of Hatam Asadpour, Hasan Gharekhani, Vahid Karvani (2012) [6] compared postural abnormalities in athlete and non-athlete elementary students. The population consisted of all the elementary students of Naqadeh County (N=10114) of which 1042 were selected as sample. Cluster sampling was used for selecting the schools and random sampling was applied for selecting the students. MannWhitney U test was applied to test the research hypotheses. The statistical operations were done in SPSS at the 5% significance level. The results showed that there is a significant difference between athlete and non-athlete students in such postural abnormalities as uneven shoulders, scoliosis, kyphosis, and hallux valgus. However, no significant difference was observed between these groups in forward head, flat back, lordosis, genu varum, and genu valgum.

Liliana-Elisabeta Radu, Simona-Pia Fagaraş, Gynetta Vanvu (2013) [5] investigated the body posture of middle-distance and long-distance races athletes. The posture questionnaire (Rusu, 2009) [4] was applied to 32 former middle-distance and long-distance runners aged between 19 and 23, who had given up on sports activity 1-3 years before. We applied a 15-item questionnaire with multiple pre-coded answers. Subjects underwent mirror test to consider their own posture. In 167 cases, a correct posture was indicated, and only in 25 cases, the posture was reported as inadequate for frontal plane examination. Pearson's correlation coefficient (r) is 0.72, at a significance threshold of 0.01, which indicates a strong correlation between the ideal body posture and the body posture examined in frontal plane. Concerning lateral examination, the subjects identified 91 nominations for correct positions at the level of various segments and 69 situations that did not correspond to the correct posture. The relation between the ideal body posture and the body posture examined in sagittal plane is strong: $r=0.79$ and $p=0.01$ significance threshold.

CONCLUSIONS

From the result of the study the following conclusions were drawn,

There was significant difference exists between sports and non-sports participants on neck postural deformity among school boys.

There was significant difference exists between sports and non-sports participants on shoulder postural deformity among school boys.

There was significant difference exists between sports and non-sports participants on trunk postural deformity among school boys.

There was significant difference exists between sports and non-sports participants on lower back postural deformity among school boys.

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