IJBPAS, August, 2015, 4(8), Special Issue: 373-380

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

THE COMMON POSITIONAL ABNORMALITIES IN MALE STUDENTS UPPER AND LOWER LIMBS IN ELEMENTARY SCOOLS' IN URMIA

TOHID NEKOUKHAH[*1], AMIR FIROUZI[2], BEHZAD MAHMOUDIAN[3], AFSHIN VALI LOU GEZELBASH[4] AND KIYARASH MALEKI[5]

[1]Teacher of Physical Education, Khoy, Iran

[2]ShahidRajaee teacher trainingUniversity, Urmia, Iran

[3]Teacher of Physical Education, Urmia, Iran

[4]Department of Physical Education, Aliabad-e katul branch, Imam Khomeini technical faculty, Golestan, Iran

[5]Department of Physical Education, Jolfa International Branch, Islamic Azad University, Eest Azerbaijan, Iran

***Corresponding Author: E Mail: tohid.nekukhah@gmail.com**

ABSTRACT

The research suggests that the postural abnormalities are increasing, especially in young people. The spinal cord is known as main part of body and it has crucial and important role. However, any damage and deformation in this part of body will lead to dysfunction in function of body and lower limbs. This study aimed to investigate the common positional abnormalities in male and female students' upper and lower limbs in elementary schools in Urmia.

This was a descriptive-cross sectional study. The population consisted of 1462 male students in elementary schools in Urmia province. After screening the primary schoolchildren in Urmia in terms of physical abnormalities, the suspected students for deformity were selected as sample and were evaluated. The Adam's forward bend Test, mirror box, Caliper, the distance between disks in the knee, the distance between disks in inner ankle of foot, and checkerboard were used for checking scoliosis, checking PesCavus and PesPlanus, measuring Navi bone height, diagnosing Genu Varum, diagnosing Genu Valgum, and checking other abnormalities,

respectively. All collected data were analyzed using descriptive statistics such as frequency and percentage and software Excel 2010.

The results showed that 81% of boys had abnormalities and 9% of boys had no abnormalities. In total, the boys had falling shoulder (frequency= 582, 19% of deformities), lumbar lordosis (frequency= 443, 14% of deformities), PesPlanus (frequency= 428, 14% of deformities), and Genu Varum (frequency= 267, 9% of deformities). From 2779 abnormalities, the varus foot and out toeing, pelvic obliquity, and Genu Recurvatum had the lowest prevalence among boys. In general, the male students in elementary schools had more abnormalities in upper limb than lower limb.

According to the results, it seems that it is necessary to implement screening tests in all school levels to prevent the occurrence of such abnormalities in adults and the necessary treatments to be conducted.

Keywords: Physical Abnormalities, Upper Limbs, Lower Limbs, Male Students

INTRODUCTION

The good health and normal physical structure are the most important indicators of health in communities which are closely associated with physical and mental health of individuals. The physical status is the relative arrangement of body parts in relation to each other. In fact, good physical condition is a condition in which the skeletal, muscular, and joint systems act in balance with each other to minimize the amount of stress on body (2). If this balance is lost for any reason, the static and dynamic balance of human stature will be impaired. This is generally referred to as postural abnormality (4). These abnormalities have many negative consequences such as muscle fatigue, joint deformation, biomechanical imbalance in the body, mental health problems, social problems, and neuromuscular pains (13). In case of ignorance, these mechanical defects will be fixed and incurable. So, the quality of physical status plays an important role in human life, since any changes in it impacts on other aspects of life (9). The human skeletal health is constantly threatened by different factors such as lifestyle, occupation, culture, and environment (7). In addition to increasing prosperity, the advancement in technology and industry has lead to major changes in lifestyle. Today, the replacement of machines has had negative effects such as motor poverty, lack of exercise, and weight

gain. In addition to above, the factors such as wrong patterns of sitting, walking, standing, sleeping, and carrying objects, job status, and even using inappropriate clothing contribute in developmental and health problems. Finally, people will lose good physical condition and will suffer from physical abnormalities (13). In this regard, the postural defects such as Lordosis, kyphosis, Scoliosis, flat foot, Genus valgum, Genu varum, and etc. may be mentioned.

The contributing factors in skeletal status changes in children in elementary schools mainly include muscle weakness, disease progression, wrong sitting position in classroom, lack of interest in active play and exercise, different height of students, and non-standard height of tables and chairs in schools (5).

The knowledge of postural status is essential for every human being. Therefore, a clear picture of health status of people in society should be obtained using various investigations. Although several studies have been conducted in this area such as the studies of Shujahuddin (2004) (14), Rashidi et al (2010) (11), and Ali Abadi et al (2014) (1), it should be noted that considering various factors such as geopolitical, nutrition, and genetics issues, the results of other studies cannot be certainly and fully generalized to other communities. Also, these studies were conducted on adolescents and young adults. The research should be conducted on children due to more flexibility in their bones, their organs growth, and the ability to correct their postural abnormalities. However, the authorities may use the results to provide appropriate scientific and educational programs. Considering the importance of such research, especially among children, this study aims to investigate the prevalence of musculoskeletal abnormalities in boys in elementary schools in Urmia province.

MATERIAS AND METHODS

Methodology

This was a descriptive-cross sectional study. It aimed to investigate the prevalence of musculoskeletal abnormalities in boys in elementary schools in Urmia province. The population consisted of 1462 male students in elementary schools in Urmia province. After screening the primary schoolchildren in Urmia in terms of physical abnormalities, the suspected students for deformity were selected as sample and were evaluated. Among them, 1171 cases had deformity and 291 cases had no deformity. The subjects referred voluntarily and completed the consent form. Then, they were completely checked by corrective actions experts. The

variables of this study which examined the upper and lower limbs were 18 different deformities including forward head, torticoly, Scoliosis, falling shoulder, winging scapula, sway back, flat back, Kyphosis, Lumbar Lordosis, Pelvic obliquity, varus foot, out toeing,back knee, Genu varum, Genus valgum,flat foot,pescavus and Hallux valgus.

In this study, the Adam's forward bend Test was used for checking scoliosis. It has high sensitivity in evaluating scoliosis and it is an accurate and non-invasive method. In this test, the subjects take their clothes off and stand vertically. Then, the examiner stands in the back of subjects and checks the balance of shoulders, the balance of shoulder bones, and iliac bones balance on both sides. Any asymmetry is seen as disease. Then, the subject leans forward. At this time, the examiner checks carefully the salience on back in half of the body. This salience is caused by rib hump which is created in scoliosis due to vertebral rotation (12).

Also, the checkerboard was used for evaluating the falling shoulder, sway back, flat back, kyphosis, lordosis, Pelvic obliquity, varus foot, out toeing, back knee, forward head, andtorticoly. In this test, the subjects stand normally in lateral, anterior, and posterior states behind the checkerboard. At a distance of 3 meters, the examiner checks the subjects using baseline (6). The checkerboard is a framework with dimensions of 200 × 100 cm which is divided into5 cm grid squares in longitudinal and transverse sections. The middle line with a different color is considered as vertical line.

The mirror box and Navi bone height measurement was used for checking PesCavus and PesPlanus. The Caliper, the distance between disks in the knee, and the distance between disks in inner ankle of foot were used for checking Genu Varum and Genu Valgum, respectively. All collected data were analyzed using descriptive statistics such as frequency and percentage and software Excel 2010.

RESULTS AND DISCUSSION

Findings

The results showed that from 1462 male students, 81% of boys (n=1171) had deformity and 9% (n=291) had no abnormalities.

According to table 1, in total, the boys had falling shoulder (frequency= 582, 19% of deformities), lumbar lordosis (frequency= 443, 14% of deformities), PesPlanus (frequency= 428, 14% of deformities), and Genu Varum (frequency= 267, 9% of deformities). From 2779 abnormalities, the varus foot (n=7) and out toeing (n=1), pelvic obliquity (n=12), and Genu Recurvatum

(n=13) had the lowest prevalence among boys.

Table 1: The frequency and prevalence percentage of positional abnormalities in upper and lower limbs of male primary school students in Urmia

Hallux valgus	*out toeing*	*varus foot*	*pescavus*	*flat foot*	*back knee*	*Genu varum*	*Genus valgum*	*Pelvic obliquity*	*Lumbar Lordosis*	*Kyphosis*	*flat back*	*sway back*	*Scoliosis*	*winging scapula*	*falling shoulder*	*torticoly*	*forward head*	**Type of deformity**
127	1	7	29	428	13	267	341	12	443	92	19	19	19	272	582	53	55	**frequency**
%4	%0	%0	%1	%14	%0	%9	%11	%0	%14	%3	%1	%1	%1	%9	%19	%2	%2	**percentage**

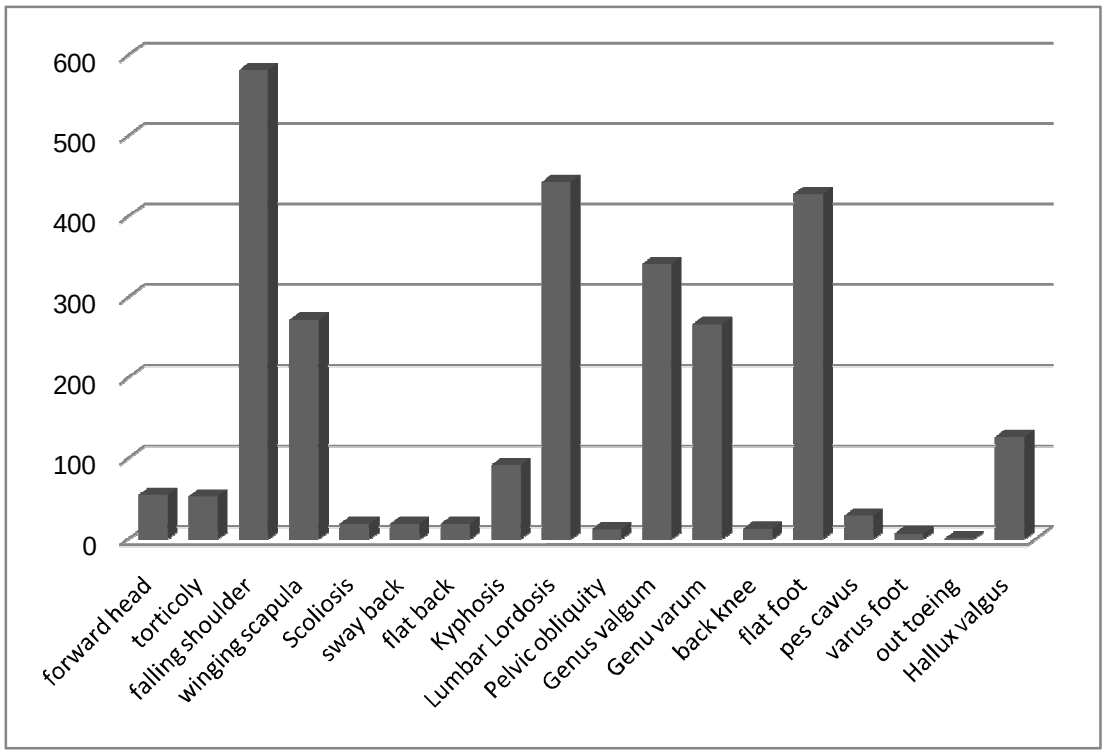

Figure 1: The frequency and prevalence percentage of positional abnormalities in upper and lower limbs of male primary school students in Urmia

DISCUSSION

The results of this study are consistent with the results of some research and inconsistent with the results of some research in terms of prevalence of deformities among boys. However, this is predictable considering different sample sizes and types and other conditions that impact on studies. The high

prevalence of these abnormalities at low age groups is considerable. Naturally with aging, their incidence and severity increase. Thus, the importance of reforming postural abnormalities at early ages should not be neglected.

According to the results of present study, the mean age of male primary school children was 9.5years. Generally, 9% of boys had not had any abnormality and their backbone and lower limbs were normal. However, 81% of boys had been suffering from atleast one of the abnormalities. This finding is consistent with the findings of similar studies, because the high prevalence of postural abnormalities has also been reported in other studies. The study of Shujahuddin, Daneshmandi et al, Rashidi et al, Mirzai, and Bahrami and Farhadi reported 69.73%, 80.68%, 91.3%, 63.46%, and 57.67% abnormalities, respectively (11).

The upper body abnormalities are mainly associated with backbone and the spinal cord is the central part of body. The spine's vertebrae, with their specific situation, are very vulnerable. It plays a major role in maintaining the proper structure of body. Its arcs increase resistance to horizontal forces such as body weight, objects weight, sports activities, and work activities (15). These factors show the importance of backbone and its role.

According to findings, in total, the boys had falling shoulder (frequency= 582, 19% of deformities), lumbar lordosis (frequency= 443, 14% of deformities), Pes Planus (frequency= 428, 14% of deformities), and Genu Valgum (frequency= 341, 11% of deformities). From 2779 abnormalities, the out toeing (n=1), varus foot (n=7), pelvic obliquity (n=12) and back knee (n=13), had the lowest frequency. This is consistent with the study of Ali Abadi and colleagues which is the latest research that has been carried out on boys and girls in elementary schools in Tehran. They studied three anomalies including Scoliosis, lordosis, and kyphosis; the lumbar lordosis was the most common abnormality.

According to the results, it can be said that abnormalities are more in upper limb than lower limb in male students in elementary schools. This is inconsistent with the research of Salimi and Mirzaee. This may be due to different sample ages, because they conducted research on middle school and high school students. The highest abnormality was related to falling shoulder; this is consistent with research of Fathi and Rezaie (7).

According to above, it can be concluded that a large percentage of population, especially children and adolescents, suffer from postural abnormalities. The factors such as wrong exercise in daily life, low movement, muscle weakness, and lack of healthy movements lead to the creation of abnormalities (8).

CONCLUSION

According to the figures and the high prevalence of postural abnormalities in primary school children which may increase during the time, its ignorance of this issue may lead to severe damages in adolescents and young people. Also, the high number of falling shoulders may be the result of improper use of backpack bags and low movement.

Limitations

-The high number of participants in research

-The evaluation and testing was time consuming

-The interference of test time with school hours.

Research suggestions

- Due to the extent of postural abnormalities suggest that among students, increase the awareness of parents, coaches and physical education teachers, screening students and detect abnormalities in the early stages of the year.
- Corrective and treatment programs and the preparation and distribution of brochures and corrected ways to prevent the development of these abnormalities can be greatly reduced and more important to prevent the spread to other parts of the body and the incidence of complications was.
- Recommended that a similar study conducted on students in other areas, to investigate and determine the causes of these abnormalities.

REFERENCES

Aliabadi F, Askary Kachoosangyr, Qorban M. Evaluation of Postural Abnormalities and Their Relationship with Age and Gender in Primary Students in Tehran. J. Res Rehabi lSci., 2014; 10 (1).

Arshadi R, Rajabi R, Alizadeh Mh, Vakili J. Correlation between back extensor strength and spine flexibility with degree of kyphosis and lordosis. Olympic, 2009; 17(2): 127-36, [InPersian].

Bahrami, M. Farhadi, A. The study of deformities in upper and lower limbs of 11to 15 years adolescent boys and girls in Lorestan province. Journal of Medical Sciences, found in 2006, 8(4).

Daneshmandi H, Hemmati-Nejad MA, Shahmoradi D. Survey kyphos is changes and aerobic capacity after a corrective

exercises program. Movement.2004; 22:75-86. [In Persian].

Daneshmandi H, Pourhosseini H, Sardar M. A. A Comparative Study of Spinal Column Abnormalities of Male and Female students. Movement journal, 2005; 23: 143-156, [InPersian].

David J. Magee. Orthopedic Physical Assessment. 4th edition, 2006. Elsevier sciences (USA).Pp:429

Fathi M, Rezaee R. Explanation and comparison of postural abnormalities in middle school and high school girls and boys. Amoozesh Tarbiate Dini. 2010; 11(1): 46-51. [In Persian].

Mashhadi M, Ghasemi GH, Zolaktaf V. Effect of combined training exercises on the thoracic kyphos is and lumbarlordosis of mentally retarded adolescents. JRRS, 2012; 8(1): 192-201. [In Persian].

Mackie HW, Legg SJ. Postural and subjective responses to realistic school bag carriage. Ergonomics. 2008; 51 (2):217-31

Mirzaee, R. Salimi, N. Evaluation of postural abnormalities among secondary school students in Bayengan area. Monthly Journal of Kermanshah University of Medical Sciences, 2012,16(1).

Rashidi M, Ghorbani R. Investigation of abnormalities in the spinal column and some related factors in male students of Islamic Azad University of Semnan. J Nurs Midwifery Shahid Beheshti Univ Med Sci., 2010, 20(69):25-30[inPersian].

Ronald C. Evans. Illustrated orthopedic physical assessment. 3rd edition, 2009. Mosby. pp: 468-4721.

Shamsedini. A, Hellisaz. MT, Dalvand. H, Khatibi. A, D, Sobhani, V. The investigation of prevalence of musculo-skeletal symptoms and discomfort caused by them in students of Tehran. JAUMS, 2011, 8(4):271-276[InPersian].

Shojaeddin S. Explenation of skeletal abnormalities in middle school boys in Damavand and relationship with the selection of individual features, MSSJ, 2004, 1(3), 31-41

Tondneis, Fereydoun(2000). Kinesiology. Moalef Publication.