Comparison of the Prevalence of Postural Abnormalities in the Lower Extremities of High School Students in the City of Karaj

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ABSTRACT

The aim of this study was to investigate the postural abnormalities of lower bodies of high school students in the city of Karaj. Methods: The number of 298 students participated in this study. By using the grid and New York test, postural status of students from three lateral views, posterior and anterior was evaluated. Findings: Right hallux valgus deformity 43/62 percent and left foot with hallux valgus 43/28 are highest prevalence among study. Bent knee with 1 percent had the lowest prevalence of abnormalities. Conclusion: The results indicate that abnormalities among students are high. Lack of attention to education and reform of these disorders increases their prevalence as they grow older.

INTRODUCTION

One of the most important problems of any society is health and wellness of that society. In fact, the health of every person is affected by many factors such as genetics, environment or lifestyle. Today, technology has made great progress and many everyday tasks are easily accessible by using the technology in a way that lifestyle has undergone a series major changes. It should be noted that in parallel to these developments we see negative effects such as movement deficiency, lack of exercise, use of inappropriate clothing, weight gain and [2,13,7] therefore as a result of the above factors, and especially bad habits, we witness a series of physical disorders in humans upper and lower extremities. These abnormalities can include drooping shoulders, thoracic kyphosis, lordosis, genu feet, crossed legs, etc. According to a study of the prevalence of abnormalities in adolescents is more than 60% [1]. So if these abnormalities are not detected and treated in time they will have irremediable consequences. Some of these effects are negative consequences such as muscle fatigue, joint deformation, physical biomechanical imbalance, psychosocial problems and nerve and muscular pains [12] accordingly, you should use the various researches to obtain a clear picture of the health status of the population to help people take action in prevention and treatment. In this study, we are trying to measure physical abnormalities among girl secondary school students of High school physical education ArminehMosalanjad. Because of the flexibility of the bones and organs as well as growth in these ages, by using appropriate exercise and action we can resolve abnormalities, and provide them the right solution for them. Therefore necessity and importance of such research, especially among young people, it is quite tangible. In addition, several studies in this area should be done at the community level and their results should also be available to stakeholders.

2- Research background:

Zahedmanesh in 1374 did a study on 80 girl students between the ages of 15 to 17 from high school of physical education sports science and in it the upper and lower extremity skeletal deformation was investigated and the following results were achieved:

75% of the subjects with kyphosis abnormality, 37/5 lordosis, 31/25 head deviation, 56/25 drop shoulder, 12/5 Scoliosis, 52/5 Genu varum, 10 Valgus deformity, 23/75 Flat foot, 26/25 tilted thumb, 16/27 hammer toes and in total 96/25 percent of subjects suffered from abnormality and 3/75 had normal situation.

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In 1379 EbrahimAtri conducted a study named “physical Assessment of students of MashhadsFerdowsi University”, statistical population was students of Ferdowsi University of Mashhad that sele Using New York and plummet test sheet and statistical software cted physical education 1 and 2 in 1378-79, 300 people were randomly chosen for sample and then by using New York and plummet test sheet and statistical software he achieved these findings that say: rate of lower extremity abnormalities was 98.7 percent and in upper body was 95.7, also there was no significant relationship between upper body abnormalities and the rate and type physical exercise.

Bahrami et al [16] investigated the rate of physical disorders among adolescent boys and girls in Lorestan, his finding showed that the rate of physical abnormalities in boys and girls is very high, therefore the need for a good plan about these abnormalities and giving suggestion and providing them good physical actions is necessary. According to findings 57/67 percent of boys and 68/89 percent of girls suffer from physical abnormalities. There is a significant relationship between Sleeping habits and lumbar lordosis and thoracic kyphosis, Way to carry bags and drooping shoulders, Method sitting cross-legged and the parenthesis and also use of high-heeled shoes with narrow toe hallux valgus.

**MATERIALS AND METHODS**

Research population comprise the youths of Lorestan, 400 of them are boys and 450 of them are girls with age range of 11 to 15 and were chosen as research model and were randomly selected. Data were gathered by practical test such as checkerboard, meters, scales and etc. After completion of the study results were analyzed Using SPSS software.

Fathi Research evidence shows that postural abnormalities, especially in young people is increasing. The aim of this study is analyzing and comparing postural abnormalities of male and female students in guidance Schools and high school. The study is cross-sectional that 26733 (15602 girls, 11131 boys) people were chosen as an sample from 2nd year of middle school and 1st grade of high school and participated in this study by randomized cluster. With the checkered paper and New York test, postural statuses of subjects were evaluated from three points of views, lateral, posterior and anterior. The results showed that 49/99% boys and 67/71 of girls and 60/33 of their total suffer from postural abnormality. The prevalence of scoliosis is more common in boys, while drooping shoulders, kyphosis, lordosis, valgus deformity, Genu varum deformity, flat foot and thumb tilt is more common among girls. The frequency difference between girls and boys was significant at the 01/0 level. There was no significant difference between girls and boys in developing abnormality such as flat back and head to the front side. Given the high prevalence of postural abnormalities among students attention to paving the way for the correction of anomalies is essential.

EbrahimAtri et al [4] carried out a descriptive study. In this study 12 postural abnormalities in 446 female students and 357 male students with average 3 ± 21 years average height of 6/10 ± 54/165 average weight of 13 ± 64/60 were examined. Data was gathered by Questionnaire and practical tests, meters, padscope, scale, individual examination, standard test New York and chess page. For analyzing, statistical results were analyzed by spss version 16 and in order to compare the rate of anomalies in two groups’ chi-square test was used.

**Findings:**

Most abnormalities in boys, respectively, are down shoulder 77/9 percent, Lordosis 46/5, Genu varum deformity 41/7. While most abnormalities in girls are, down shoulder 75/1, Lordosis 33/9, Genu varum deformity 32/8 and forward head 32/2. Conclusion: maximum percentage of abnormality in boys and girls is down shoulder. Boys are in danger of forward head, Lordosis and Genu varum deformity.

Mirzayi et al [9], Postural abnormalities are increasing, especially in young people. The aim of the present study is evaluation of postural abnormalities among secondary school students in the region is Bayangan. Methods: 260 middle school students from area of Bayangan (120 girls and 140 boys) participated in the study. With the grid and the New York test, postural status of students from three lateral, posterior and anterior was evaluated.

75/71 percent of boys, 5/87 of girls and 63/46 percent of their total suffer from postural abnormality. The difference in prevalence between sexes was significant. 69/67 percent of all samples had lower region posturing, while only 13/69 of all samples had upper body posturing. Genu varum with 43/07 Hallux Valgus 19/23 Lordosis 6/53 were the most common upper body abnormality. The prevalence of flat back on boys and girls was low but Genu varum was in both gender a lot.

The results showed high levels of these disorders among these students. Lack of attention to education and correcting these abnormalities increases their prevalence with aging at the same time.

Sadeghi et al, Performing movement patterns and skills during training and competition can lead to negative adaptations in the skeletal system. They compared Abnormalities, kyphosis, lordosis and head forward in Wushu athletes both professional and amateur with non-athletes. The sample of this study consisted of 50 Wushu professional athletes, 50 Amateur Wushu athletes and 50 non-athletes.to measure the Kyphosis and
lordosis, flexible ruler was used. In order to measure the angle of head goniometer was used. In order to analyze the data the one-way ANOVA test and Tukey test was used. Kyphosis, lordosis and head forward in all three groups were significantly different. In professional athletes - 13 kyphosis 8/49, 9+- 2/51 degree Lordosis, 2/7 +, 6/35 degree head forward the highest rate was observed in postural disorder. According to the abnormality of kyphosis, lordosis and head of the professional athletes was more than amateur ones, Design and planning specialized training in the field of sport and attention to maintain correct posture during training is necessary.

Negin Kazemipour analyzed the effect of weight on cervical abnormalities tilt head forward, drooping shoulders, back rounded, concave rear waist tilt. 290 of Shushtar city high school students have been chosen by accident, based on ideal body weight based on height at three groups of women are underweight, healthy weight and overweight. Spinal abnormalities the the anterior and posterior lateral view and were examined. After reviewing the information descriptive analysis of multivariate ANOVA in p≤0 / 05 were analyzed. The results showed that the relationship between weights classes with drop shoulder deformity, kyphosis and scoliosis was no significant difference. The results showed significant differences in the rate lordosis, head tilted forward and the neck (p <0/05). Tukey's post hoc test was observed between low birth weight and overweight category there is a significant difference in abnormality lordosis. Also the forward head posture between low weight and optimal weight and optimal weight gain had no significant difference. LBW tilt cervical abnormalities among overweight was a significant difference. These abnormalities in the category of low birth weight were higher weight classes. According to the results we can conclude that weight and weight changes with deficiency as a major cause of motion and muscle weakness scat disorders of the central body should be considered.

3- Methodology:

The populations of study are girl students in the city of Karaj. The sample size was calculated using the sample table Morgan and Krejcie 1 to investigate the prevalence of abnormality of the lower sample will be tested in 298 patients which sampling are random.

Investigation of the stature of risk assessment was varum, Knee valgus, flat foot, foot ring, supinated, pronated foot and hallux valgus. Set measurements to detect anomalies, was New York test method with the plumb line chess board (posture screen). Page Tupperware is timber with dimensions (200 x 100 cm) that longitudinally and transversely to five inches square and is divided into grid. Intermediate line with a distinct color, vertical line is new test and plumb line and knee genu valgus deformity conditions in accordance with any abnormality of the three lateral views, posterior and anterior evaluated and characterized. Flat feet and deepen with convex mirror, arch height was evaluated. Thumb with a graduated compass, measuring tape, according to the deviation of the big toe, along the line the leg length was evaluated by presenters. It should be mentioned for identification and genu valgus deformity, when a person standing norm walk the front rear view our evaluation. Individual data subjects in case corrective movements were recorded. All cases were investigated and analyzed using descriptive statistics.

4- Findings:

The study population comprised secondary school students in Karaj. After analyzing the data obtained in accordance with the following table.

<table>
<thead>
<tr>
<th>The frequency percentage</th>
<th>Frequency</th>
<th>Number of samples</th>
<th>abnormality</th>
<th>Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>298</td>
<td>Bent right knee.</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>298</td>
<td>Bent left knee.</td>
<td>2</td>
</tr>
<tr>
<td>12/41</td>
<td>37</td>
<td>298</td>
<td>Cross right knee</td>
<td>3</td>
</tr>
<tr>
<td>13/42</td>
<td>40</td>
<td>298</td>
<td>Cross left knee</td>
<td>4</td>
</tr>
<tr>
<td>18/79</td>
<td>56</td>
<td>298</td>
<td>Genu varum right</td>
<td>5</td>
</tr>
<tr>
<td>18/12</td>
<td>54</td>
<td>298</td>
<td>Genu varum left</td>
<td>6</td>
</tr>
<tr>
<td>41/27</td>
<td>123</td>
<td>298</td>
<td>Supinated right</td>
<td>7</td>
</tr>
<tr>
<td>36/91</td>
<td>110</td>
<td>298</td>
<td>Supinated left</td>
<td>8</td>
</tr>
<tr>
<td>5/36</td>
<td>16</td>
<td>298</td>
<td>Pronated foot right</td>
<td>9</td>
</tr>
<tr>
<td>9/73</td>
<td>29</td>
<td>298</td>
<td>Pronated foot left</td>
<td>10</td>
</tr>
<tr>
<td>14/76</td>
<td>44</td>
<td>298</td>
<td>Flat foot right</td>
<td>11</td>
</tr>
<tr>
<td>15/43</td>
<td>46</td>
<td>298</td>
<td>Flat foot left</td>
<td>12</td>
</tr>
<tr>
<td>3/02</td>
<td>9</td>
<td>298</td>
<td>Goode right foot</td>
<td>13</td>
</tr>
<tr>
<td>3/02</td>
<td>9</td>
<td>298</td>
<td>Goode left foot</td>
<td>14</td>
</tr>
<tr>
<td>43/62</td>
<td>130</td>
<td>298</td>
<td>Right hallux valgus</td>
<td>15</td>
</tr>
</tbody>
</table>

5- Conclusion:

The results showed that the anomaly right hallux valgus and hallux valgus with 22.5 percent with 20 percent of the left foot and right foot turned out to 19/5 of the highest prevalence among study sample. Deep feet
had one percent the lowest prevalence of abnormalities and agrees with results ascetic temperament (1374), Nayeripour, year (1388) and Mirzaee.

Due to the physical activity in girls, girls may be more common disorders, caused by muscle weakness that have not been sufficiently strengthened, because the muscles are better able to maintain posture and proper body condition. It can be concluded that the rate of these abnormalities increased with age in girls, have increasing trend which may be due to the inertia muscles; because the muscles are not strengthened enough, the ability to establish and maintain the structure of the joints do not fit.

The results of studies in recent years show more than 80 percent of Iranian girls due to poor movement disorders postural structure the spectrum of low to high heels that are in miserable situation compared with international standards. However, in the meantime, the boys were not good either.

In addition, genetic disorders, orthopedic injuries and diseases related to lifestyle factors, such as poor movement habits inappropriate, improper patterns, physical activity, weight gain, the body mistakes an important role in the development of these abnormalities are improper. Statistical analysis shows that girls more than boys suffer the postural abnormalities. Genu varum deformity, flat foot stature and skeletal abnormalities the major ones that is common among Iranian girls.

Machine life today, brought advances in technology and the welfare of mankind brought many privileges. One of the main complications of alternative motor vehicle as muscle strength that underlies deficiency, inactivity and obesity is Screening program to identify people with postural abnormality, educational classes for physical education teachers and educators, assessment and treatment of postural abnormalities. Different strategies that schools and universities tens of standardized tables and benches among them and establishing advanced centers for prevention and treatment of structural abnormalities of the programs that have been adopted to reduce these statistics. Health and well-being of the population, one of the most important indicators developed countries. The future of any society is the dynamics and mental and physical health of teenagers and youth of the community. The existence of the able-bodied population is the largest national capital.

Suggestions:

Since the serum of the subjects of this study are still in adolescence, the prevalence of abnormalities, especially in the girl’s situation is alarming, because aging and addressing jobs, will be the severity of abnormalities.

It is expected that this figure is more prevalent in older. Since the reform and improvement of postural abnormalities in younger age because of greater flexibility in the muscles and joints is much easier it is essential in this age and corrective actions to be taken at an early age. While it is possible to design a program evaluation, education reform, provide the appropriate fields to prevent and even treatment.

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