

## COMPARED THE RATE OF PREVALENCE ABNORMALITY POSTURAL IN UPPER EXTREMITY OF THE FEMALE AND MALE STUDENTS AT RAMHORMOZ AZAD ISLAMIC UNIVERSITY

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### ABSTRACT

Research evidence suggests that abnormalities of stature, especially in young people is increasing. This study compared the rate of prevalence abnormality postural in upper extremity of the female and male students at Ramhormoz Azad Islamic university. A descriptive study of 328 subjects of the Islamic Azad University Ramhormoz (127 girls and 201 boys), for example, randomly and voluntarily participated in this study. Checked using the screen test and New York, the stature of the subjects of the three lateral view, posterior and anterior were assessed. The results showed that 64.8% of boys and 76.37% girls and 70.58% of the total, are those with postural abnormalities. drooping shoulders, Lordosis, kyphosis, skoliosis and head forward are more common among girls and boys. Frequency difference between boys and girls was statistically significant level. The girls and boys at risk for serious disorders and, a significant difference was observed. In conclusion, the high prevalence of postural abnormalities among students considered necessary to provide a basis for improved anomaly appears.

**Keywords:** Dropping Shoulders, Kyphosis, Lordosis, Head Forward and Scoliosis.

### INTRODUCTION:

Health and wellbeing of people, one of the important indicators of development countries. The future of any society, depends on the dynamics of mental and physical health of young people and Future of any society, As existence of a healthy and empowered individuals is considered greatest national capital of a society.

Mechanical life of the present age, brought the industrial and technological progress and many human welfare and it was origin valuable services to human, But had many complications. One

of the major complications is a replacement car motor as a muscle that being generates poverty, inactivity and overweight.

Man banned movement will have numerous physical and psychological complications. Among the issues that have attracted the attention of specialists and doctors, physical and postural disorders in organs and tissues of the body. Perhaps say that different factors such as, poor motility, bad habits in standing and walking, moving objects, imitation incorrect movement patterns, body type, etc. are one of the major causes of these disorders. One of the most common musculoskeletal disorders is the deformity in spine and upper body. Adverse effects of these disorders, including disorders such as; tilt, forward a head and sides, kyphosis, lumbar or back Lordosis, dropped shoulder, sway back, flat back and skoliosis.

In addition to these factors, the wrong patterns of sitting, standing, walking and carrying objects, use of inappropriate clothing, illness, inheritance, employment status, culture and anthropometric characteristics can lead to weakness and growth disorder. Impairment and poor development is caused physical abnormalities and person eventually loses its ideal body condition. On the other hand, people in every moment of our lives, it is inevitable to think about how to walk, stand, sit, and how to move and be active, as it's important for the human body, Because positive and negative changes that are due, will affect the physical and mental states(Karimi 1996)

Physical deformations are caused by various factors If these deformations are not corrected in timely, with time it progresses and can cause many complications for people who affliction are the most of them. Pain Is created from stimulation of Mechanical or chemical nerve endings pain receptors. Low Back Pain receptors are located out of the disk between vertebrae, joint capsule, anterior and posterior longitudinal ligaments and supporting and building muscle - ligaments lumbar spine.

Since the diseases and disorders of the spine and skeletal muscle are considered among the most common diseases in human communities, Maybe say: back pain and musculoskeletal disorders is one of the most common diseases after cold in human, and most people have been living in a period of their lives.

Consequences of false body condition is so widespread that the physical, psychological, social and economical should be investigated. A person has poor posture, in fact, the situation is not favorable in terms of the energy and movement. Vertical position and correct enhances the feeling of safety in humans, along with this sense, consequences the ability to stand for extended, pleasure by doing the movements, actions and skills.

In a normal situation and good the rate of abnormal forces of inflicted on the joint decreased, Breathe slowly and minimal energy consumption. And also he has an attractive appearance, her confidence increased, her motor capabilities developed and he feel that satisfaction and joy. Conversely, bad and poor posture, addition to giving an ugly appearance, is caused disturbing other organ systems such as respiratory, circulatory and nervous system and the first complications is pain.

The smallest type of scoliosis in spinal can cause changes and abnormalities in kyphosis back and natural waist and neck Lordosis in spine and damage. Caroflid et al (2000) believe that the strong Kyphosis One of common spinal disorders in children and exists in most samples Kyphosis back be changed. Therefore, adolescents should be examined and modified the Kyphosis consecutively. Given the comments above and the results of the research can be concluded that spinal abnormalities subject is highly important and should be considered. On the other hand the students form a part of our community that these people according to their position, they need particular attention and special. Unfortunately does not attention to the needs of this group of the population. Some of the physical problems that make us To try to identify possible incidence of these anomalies and could modulate their effects, And prevent the adding other problems that could easily be obstacle.

Studies show a high prevalence of postural abnormalities (Kohandel 1995, Shojaadini 2005, Halaji 2006, Bahrami and Farhadi 2007, Heidari nik 2008, Rahmni nia and Daneshmandi 2008) Despite the attention to abnormalities situation subject, this set of researchs have not adequate integrity, some researchers in their research, said the highest prevalence of cervical lordosis (59%), lumbar lordosis (54%) and dropped shoulders (46%) of the students their school (Honary, 1994) and some of them, have been the most deviation, respectively, dropped shoulders (34/5%),

the forward head (27/5%), lumbar lordosis (24/10%), scoliosis (11/3 %) (Eghbali 1994), and also after the investigate the deviations of the spine the boys' school, has stated that 87/8% of subjects, had deviation of the spine and only 21/2 of their had normal posture. Research findings showed male students schools (11-15 years) Saray city that 89/21% of participants have normal posture and body position in 11/78% they are abnormal. (shojaei, 2001). Ghaffarpour in 2003 through screening and to do the New York test in concluded that 445 students of school, 79 individual have scoliosis. Also based on Shojaadini (2005) on the skeletal and postural abnormalities of male students, the largest anomalies, with 66/66 percent is allocated to the dorsal kyphosis. Daneshmandi, Pour hoseini and Sardar (2006) also in study the use of posture screen and New York test, spinal postural abnormalities in boys and girls age 15 to 12 years were compared. The results show that 79/75 %, of the boys and 81/66 % of the girls, and overall, 80/68 % of the study population have suffered spinal postural abnormalities, as well as between the shoulders position and thoracic kyphosis boys and girls, and between the spine situation boys and girls in the posterior view, there was significant difference. Assess the status spine of subjects showed the prevalence of vertebral deformities in female subjects more than boys.

As background, the research shows that regardless of the severity of abnormalities, the existence of postural abnormalities among male and female students is obvious. One of the Necessary actions for basic organizing and Improving physical education plans, indeed Know situation anomalies and determine priorities and scope of each of these disorders among them.(Mousavi gilani and Sokhangooei, 2002).

Considering the importance and necessity of spine disorders problems and , physical deficiency and and also need and special attention to the young and educated, we were prompted to investigate the curvature of the back and spine, especially the main three issues, kyphosis, lordosis and scoliosis at the Islamic Azad University Ramhormoz student. Identify defects and complications, and modifying the effects of them and prevent adding them further problems.

## MATERIALS AND METHODS:

The present descriptive research targeted on the students of Islamic Azad University Ramhormoz with an age range of 18 to 30 years that study in the academic year 2012 to 2013 in this University who was performed the field. The participants of this study were male and female students ( $n= 6154$ ). The statistical sample of this study was 328 (127 girls and 201 boys) participated in this study voluntarily. The present study examined the variables of the upper limb, including malformations of the head forward, dropped shoulders, scoliosis, kyphosis back, flat back and lumbar lordosis. Information were collected with using a questionnaire and practical test utilizes posture screen, meters, scales, and through the implementation of standardized testing, New York, students by personal check. Among the existing methods, and the posture screen and New York's standardized tests easy to perform, requires no expensive equipment and facilities, safe, rapid and short duration of the test, were used (Kravv et al, 1981).

For assessment for the spine situation in the examination room, subjects were measured without clothes three view of the posterior, anterior and lateral spine and upper extrimity side to detect the presence of scoliosis, Kyphosis, dropped shoulders, forward a head Lordosis using posture screen measurement tools, plumb line and New York test chart with variables such as age, height and weight.

Objective information and assesment body of the student is used New York test chart. This paper contains some of the characteristics of the test subjects including name, family name, age, height, weight, and etc. And also includes images of the posterior and lateral aspect of the spinal column in three severe, moderate and normal. severe condition number (1), the average position number (3) and the normal situation value (5) awarded. The subjects of this examination is done by insert the name and last name of the subjects in leaves New York examined, height By meters and weight of his subjects were measured by balance and was recorded to sheet test. Than using a posture screen and plumb lines examined and evaluated three view posterior, anterior and lateral spine and upper extrimity participants.

While the receptor test stand on to screen posture, than volunteer wants to command her body sets in all three cases, the line of gravity of the device. The observations were made is recorded

during the various views is investigated for a closer look at the New York test. The posture screen uses the line as a reference guideline for screening body position is very good, and it is used with minimal preparation (skills) and the equipment (Norris, 2000).

New York test, also has made in the New York State Department of Education; These tests evaluated 13 different states of the body that is 11 states to assess the spine Physical situation is usually recorded in the posture screen test to increase the accuracy of the observations. This test includes a graphic image that will evaluate posture. Each row has three images in the form of diagrams How to get the right body and the deviation of each part of the body's natural state is to the show. This test is used to take analyze different forms of body such as: shoulder dropped, sway back, lumbar lordosis, scoliosis checks. The use of both New York test and posture screen anomaly detection may facilitate and also increases. Accuracy of measurement internal research entitled "Reliability and validity of New York test in measuring arch spine," after considering the assessment were obtained by two receiver tests, it was clear that the New York test in measurements the spine (lordosis back, skoliosis, sway back) with 95% confidence reliability, but after measurements from New York test and the X-ray test obtained, it became clear that the New York test in with high accuracy measurements of the spine is not reliable (Rajabi and Samadi, 2009).

The data were refined using descriptive statistics. Kalmogrof Smirnov test was performed to test for normal distribution. Analysis of research findings with descriptive statistics and independent t-test, chi-square tests to examine the relationship between "sex" with the prevalence of abnormalities (in two levels having and not having abnormalities) in the upper extremities was performed. In this study, the significance level for all tests 0/01 was considered. Students that have posture "weak and middle" in who have an abnormal and students that have normal posture as "good", they were in no abnormalities. All statistical work was done by the software. SPSS 16 edition.



**RESULT:**

First, the data was assessed normally distributed. To this action were used Klmogrof - Smirnov test and charts Q-Q Plote That the normality of the data was confirmed.

Table 1: Number of samples and physical characteristics of the subjects according to sex

| Physical Characteristics | Girl(127Person)                   | Boy(201Person)                    |
|--------------------------|-----------------------------------|-----------------------------------|
|                          | Mean<br>And<br>Standard deviation | Mean<br>And<br>Standard deviation |
| Age                      | 22/96±3/193                       | 22/72±2/750                       |
| Height(cm)               | 160/10±6/06                       | 169/61±7/06                       |
| Weight(kg)               | 65/81±7/98                        | 69/428±8/79                       |

Table 2: Comparison of the severity of spine disorders in male and female students

| Kind of disorder |        | Girl      |         | Boy       |         | Statistical test |             |
|------------------|--------|-----------|---------|-----------|---------|------------------|-------------|
|                  |        | Abundance | percent | Abundance | percent | Chi-square       | Significant |
| Skoliosis        | sever  | 11        | 8.66    | 21        | 10.45   | 6.228            | 0.049       |
|                  | midle  | 34        | 26.77   | 63        | 31.34   |                  |             |
|                  | normal | 82        | 64.57   | 117       | 58.21   |                  |             |
|                  | gather | 127       | 100     | 201       | 100     |                  |             |

| Kind of disorder |        | Girl      |         | Boy       |         | Statistical test |             |
|------------------|--------|-----------|---------|-----------|---------|------------------|-------------|
|                  |        | Abundance | percent | Abundance | percent | Chi-square       | Significant |
| Kyphosis         | sever  | 12        | 9.45    | 22        | 10.94   | 18.526           | 0.000       |
|                  | midle  | 82        | 64.57   | 138       | 68.66   |                  |             |
|                  | normal | 33        | 25.98   | 41        | 20.40   |                  |             |
|                  | gather | 127       | 100     | 201       | 100     |                  |             |

| Kind of disorder |        | Girl      |         | Boy       |         | Statistical test |             |
|------------------|--------|-----------|---------|-----------|---------|------------------|-------------|
|                  |        | Abundance | percent | Abundance | percent | Chi-square       | Significant |
| Lordosis         | sever  | 22        | 17.33   | 33        | 16.42   | 12.154           | 0.017       |
|                  | midle  | 87        | 68.50   | 140       | 69.65   |                  |             |
|                  | normal | 18        | 14.17   | 28        | 13.93   |                  |             |
|                  | gather | 127       | 100     | 201       | 100     |                  |             |

| Kind of disorder |       | Girl      |         | Boy       |         | Statistical test |             |
|------------------|-------|-----------|---------|-----------|---------|------------------|-------------|
|                  |       | Abundance | percent | Abundance | percent | Chi-square       | Significant |
| Dropped          | sever | 9         | 7.08    | 25        | 12.43   |                  |             |
|                  | midle | 64        | 50.40   | 74        | 36.82   |                  |             |



|          |        |     |       |     |       |        |       |
|----------|--------|-----|-------|-----|-------|--------|-------|
| shoulder | normal | 54  | 42.52 | 102 | 50.75 | 10.759 | 0.023 |
|          | gather | 127 | 100   | 201 | 100   |        |       |

| Kind of disorder    |        | Girl      |         | Boy       |         | Statistical test |             |
|---------------------|--------|-----------|---------|-----------|---------|------------------|-------------|
|                     |        | Abundance | percent | Abundance | percent | Chi-square       | Significant |
| Forwarded<br>a head | sever  | 10        | 7.87    | 14        | 6.96    | 22.454           | 0.011       |
|                     | midle  | 36        | 28.35   | 57        | 28.36   |                  |             |
|                     | normal | 81        | 63.78   | 130       | 64.68   |                  |             |
|                     | gather | 127       | 100     | 201       | 100     |                  |             |

As Table 2 indicates, in general, the highest percentage are related to Lordosis 85/95% and kyphosis, 76/81%, and the lowest percentage of scoliosis with a 38/61. The highest percentage of male students is associated in the Lordosis 86/07% and the highest percentage of female students is related to lordosis 85/83 percent. Also, the results in Table 2 indicate there is a significant difference between the severity of spine abnormalities in male and female students, ( $p < 0/05$ ).

#### CONCLUSION:

The aim of this study was to determine the prevalence of upper extremities deformities (scoliosis, forward head, dropped shoulder, Lordosis and Kyphosis) by posture screen, plumb line, New York test of male and female students Islamic Azad University Ramhormoz Branch. A total of 328 male and female students of Islamic Azad University Ramhormoz were tested that of these 127 were girl (38/7%) and 201 were men (61/3 %).

In fact, the findings of this study indicate that there are a significant differences between the prevalence of spine deformities in men and women. Ramhormoz Branch.

Today, for assess the status of spine curves that are used the various tools who applied on the basis goals, the type of researches and different experiments.

According to numerous studies the most of the research that has been done in developed countries, the spine arches are assessed by an accredited laboratory, While research has been conducted in Iran with a similar method (posture screen plumb line or New York test) and repeatedly without the desired results and particular. All Researches provided various methods such as X-ray, Ct.scan, Posture screen and Spinal mouse to assess physical abnormalities.

Using the above method, despite having high validity and reliability due to expensive, lack of access at any time and place and a complex analysis relatively of data from these devices, limited its application in wide and extensive and has caused more physical education and rehabilitation professionals in their studies used posture screen, plumb line line and and New York test. Of course, some of the findings exceptions about the use of posture screen devices, New York test and plumb line in evaluation and determine situation of the abnormalities spine.

Also, the results in Table 2 show that generally in female students under investigated deformity of forward a head 57/48%, the disorder of kyphosis 74/02%, the abnormality of lordosis 85/83%, the anomaly of dropped shoulder 57/48 %, and complication of scoliosis 35/43 %. while the male students were respectively in this values 49/25, 79/6, 86/07, 49/25, 41/79, %. These findings suggest that the prevalence of all abnormalities (excluding of dropped shoulder ) boys more than girls.

Mahdavi Nejad (2000) The prevalence of spine abnormalities students of Islamic Azad University Isfahan, very high reported about 90 %. So that about 95 % had abnormal of the spine were situation deformity. Asghar Zadeh, Golzar (1996) in their their research reports showed that 90 % of students in the city of Mashhad have been somehow affected the upper extremity postural abnormalities.

Overall, the study showed that the prevalence of upper extremity abnormalities in boys more than girls.

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## References

- Ahmadi, A. *Assessment of upper extremity disorders in male students of Shahid Chamran University, and propose corrective exercise it. Master's Thesis, Shahid Chamran University. 2003*
- Alizadeh, MH. 2000. *The role of posture in sport, Journal of Olympics. No. 3 and 4, published by the National Olympic Committee autumn and Winter.*
- Andersen M.L, Langhoff L, Jensen T.S, Albert H.B. *Reproduction of the lumbar lordosis: a comparison of standing radiographs versus supine magnetic resonance imaging obtained with straightened lower extremities. J Manipulative Physiology Ther 2007 ; 30(1):26-30.*
- Anne F.M, kartrin K, Gordana B, Jiri D, Dieter G. *A new skin-surface device for measuring the curvature and global and segmental range of motion of the spin: reliability of measurements and comparison with data reviewed from the literature. Eur Spine J 2004; 13: 122-136.*
- Asghar Zadeh Gulzar, S.. *investigated the Anomalies spine in secondary students of Mashhad. Master's thesis, Tarbiat Moallem University, Tehran, 1996*
- Birdwell K, Lawrence G. L. *Determine the optimal time dependent sagittal spinal balance following adult lumbar deformity instrumentation and fusion from the distal thoracic spine to L5- S1. 2005; 35 (2): 275-325.*

Copec J.A, Efdiale J.M, Abrahamowicz M, Abenhaim L, Wool-Dauphinee's Hamping, D.L, Williams J.A. The Quebec, back pain disability scale measurement properties. Spain Feb 1995: 1; 20(3): 341-352.

Dobosiewicz K, Durmala J, Jendrzek H, Czernicki K. Influence of method of asymmetric trunk mobilization on shaping of a physiological thoracic kyphosis in children and youth suffering from progressive idiopathic scoliosis. Stud Health Technol Inform 2002; 91:348-351.

Fast A, Weiss L, Ducommum E. J. (1992). Low back pain in pregnancy: Abdominal muscles, Sit- up performance & back painy; J Spine 15, 1:28-30.

Francis, A. (1998). Spine and Scoliosis. Journal Orthopaedic- Res; 8 (1) : 8-13.

Franklin M.F, Konner K.T. (2000). An analysis of posture and back pain in the first and third trimesters of pregnancy. J orthop and Sports Phys Ther; 28: 333- 338.

Garoflid N, Fragnière B, Dutoit M. Round back in children and adolescents. Rev Med Suisse Romande. 2000 Oct;120(10):815-20.

Garshasbi A, Faghih Zadeh S. (2005). The effect of exercise on the intensity of low back pain in pregnant women. Int J Gynaecol Obstet; 88(3):271-275.

Guo JM, Zhang GQ, Alimujiang. Effect of BMI and WHR on lumbar lordosis and sacrum slant angle in middle and elderly women. Zhongguo Gu Shang. 2008 Jan; 21(1):30-1.

Hoseinifar M, Ghiasi F, Akbari A. The Relationship between Lumbar and Thoracic Curves with Body Mass Index and Low Back Pain in Students of Zahedan University of Medical Sciences. Journal of Medical Sciences. 2007; 7(6): 984-990.

Ider DA, Roper MG, Henderson RC, Davenport L. Kyphosis in a turner syndrome population. Pediatrics 2002; 109 (6):e93.

James WY, Tom RG, Scott H, Vera JS, James RC. Lumbar lordosis and pelvic inclination of asymptomatic adults. Physical Therapy, Oct, 1996.

Lucio C, John C, and Thomas J C. SpinalMouse for assessment of spinal mobility. *Journal of Minimally Invasive Spinal Technique* 2001; vol 2 .Nr.1.

Mahdavi Nejad, Reza. *The prevalence of spine deformities students university of Isfahan and affect a program of corrective exercises, the most common abnormality of their situation. Within an academic research project, 2000*

Miline JS, Lauder IJ. Age effects in kyphosis and Lordosis in adults. *Ann Hum Biol.* 1974: 327-337.

Rost RB, Leferink VJ ., Deanna M Gareen .(2004). Spinal mobility: sagital rang of motion measured with the SpinalMouse, a new non- invasive device. *Arc Orthop Trauma Surg.*

Shaheen, Mashaallah. *Low back pain in athletes And methods for the treatment and prevention. Publications of Physical Education Organization, First Edition. 1993.*

Sokhangooeei, Yahya. 2004. *Sitting position, Journal of value and the exercise number 163, Ministry of Education, Department of Physical Education and Health.*

Sokhangooeei, Yahya. *Tables and Benches high school. Journal of Zivar sports. 2002. No. 17, pp. 28 -29*

Youdas JW, Garrett TR, Harmsen S. Lombar lordosis and pelvis inclination of asymptomatic adults. *Phys Ther.* 1996; 76: 1066-1081.