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Research Paper

A Comparative Study of Postural Deformities of School Girls of Rural and Urban Area of Punjab

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Abstract:
The human body is a single structure but it is made up of billions of smaller structures. Human beings are arguably the most complex organisms on this planet. Imagine billions of microscopic parts, each with its own identity, working together in an organized manner for the benefit of the total being.
In human being normally two types of Posture one of correct Posture and the other of incorrect Posture. When the human beings are habitual of bad posture position then the people suffered from many postural deformities e.g. Kyhposis, lord sis, scoliosis knock knee, bow legs, etc. So the researcher has selected this type of study .The subject was an comparative study of postural deformities in school children of rural & urban area in Punjab, For this study 200 school children (100 girls rural & 100 girls urban) of Punjab have been observed .The age group of school children is 10-18years .The main objective this study is find out the ratio of the school children who have suffered from postural deformities .The posture grid chart has been used for data collection on the subject and data have been analytical (percentage method). After that the researcher has found that knock knee postural deformities are very high and flat foot posture deformities is very low in rural area of Punjab.

Keywords: Kyhposis, Lord Sis, Scoliosis, Knock knee, Bow leg, Deformities.

Posture

The position of the body segments which requires the smallest amount of effort from the muscles and ligaments, will lead to this balanced static state. Posture in its most basic form is static, standing with no movement. As we stand, the segments of our body, whether they be the head, torso or limbs, arrange themselves in a certain way. If the posture is good, the body is in a state of muscular and skeletal balance and is protected against damage and deformity to the joints, muscles, vertebrae and other tissues.

Anatomical Structure of Posture

On a basic level, our spine not straight, but s-shaped, with three main curves, one in the neck, one in the upper back and one in the lower back. To appreciate the relationship between our posture and the effects it has on our body, we must understand our current anatomy, and the evolutionary path we have taken to reach this anatomy. These curves and the other segments of the body are supported by a variety of postural muscles which will discuss in more detail later. This anatomical make-up is a result of our evolution from a quadruped, an animal walking on four legs, to a biped, walking on two. The human skeletal originally evolved for this four legged posture, and we have now gone through an incomplete evolution that has left us with several weaknesses. It is for this reason that we experience postural abnormalities and problems related to poor posture, particularly in the neck, lower back, knees and feet. [1]

Classification of posture

Healthy posture is based on natural positions that balance and support your skeletal system's curves and weight-bearing abilities against the force of gravity. The idea that standing straight and tall is best for your back posture is a misconception. Ideally, you should stand with knees slightly bent and shoulders slightly back. This position works with the pelvis and lumbar, thoracic and cervical curves of your spine to achieve a vertical equilibrium. Habitually poor posture contributes to back pain and may indicate a bone deformity or another underlying medical condition. [2]

Correct posture

Broadly there are two types of posture: (a) inactive posture - when a person is sleeping or having rest and body requires minimum muscular efforts, and (b) active posture – where integrated muscular activity is required.

Active posture may be static or dynamic. Static posture is one where the body is passive, not active or changing stance and forces are acting in equilibrium. Dynamic posture is one where the body is in motion, active and changing its stance, postural position whether inactive or active (static and dynamic), can be broadly classified in four categories.

1. Standing position or posture
2. Sitting position or posture.

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3. Lying position or posture.
4. Walking posture.

Perfect posture

The position for which we must aim is called 'neutral spine', a perfect postural position. Neutral spine exists when there is a slight forward curve in the small of the lower back, a slight backward curve in the upper back around the shoulder blades, and a slight extension of the neck. Before we can assess our posture and determine ways to correct any abnormalities, we must first know what the ideal posture should look like. In this neutral spine position, the other segments of the body must also be arranged, so you can draw a straight, vertical line through ears, shoulders, hips, wrists, knees and ankles. With the spine and segments in their correct positions, the muscles and ligaments are imparting the smallest possible force and the body is balanced, protecting against damage and deformity. If this position is good posture, poor posture results in the opposite effects. If a balance is not found between the spine and the segments of the body, the muscles and ligaments are required to exert a force to maintain posture. This increases stress on the muscular and skeletal structures supporting the body. [1]

Incorrect posture

Just what's so terrible about having poor posture, besides not looking as sharp as you could? Quite a bit as it turns out. When you slouch or slump, so does your spine, leading to bad circulation. This can cause vertebrae to deteriorate over time. Chronic fatigue can also result. Coupled with circulation issues, the result can be early exhaustion. Chronic back, neck, and shoulder pain can also result from the strain of bad positioning. Fifty percent of working Americans suffer from back pain, and it's the second most common reason for doctor visits. Twenty five percent of those with back pain suffer from a herniated disc, which may be caused by poor posture.

1) Bad posture causes

Bad posture isn't always a sign of laziness. As a nation, weight issues are becoming more common, and weight gain changes how our skeleton and muscles support themselves. We also tend to be less active, which can lead to increased risk of disease. Chairs, hunching at work, unsupportive mattresses, and even low self-esteem contribute to these problems. [2]

Common postural deformities

Various types of postural deformities are discussed below:

- Spinal curvature
- Flat foot
- Knock knees
- Bow legs
- Round shoulders

Spinal Curvature

This type of deformity is related to spine. This deformity is caused by carrying excessive weight beyond capacity. In another way we can say that weak muscles cause the formation of spine curvature. The normal lumbar spine is characterized by a moderate anterior hyperextension curve, when viewed laterally. Although there is absolute standard for the determination of the degree or extent of the anterior convexity of the normal lumbar curve. There are three types of spinal deformities: [4]

- Kyhposis
- Lord sis
- Scoliosis.

Kyhposis

Kyhposis implies an increase or exaggeration of a backward or posterior curve or a decrease or reversal of a forward curve. It is also called round upper back. Depression of chest is common in kyphosis[1].

Kyhposis is an exaggeration or increase the amount of the normal convexity of the thoracic reason of the spine. Such a condition may arise from various causes. Lack of strength or tonus of the extensors of the spine that region may allow too much flexion. Continuous position involving flexion may cause a stretching of the extensors and a readjustment of the tonus of antagonistic groups until the flexed position feels more natural. The weight of the body parts such as forward head or forward position of the arms may cause stretching of the posterior muscles. Also, excessive relaxation may allow gravitas forces to flex the spine too much. An exemplar of this is the tall, self conscious individual who attempts to shrink by slumping. Kyhposis should not be confused with other conditions which give a rounded contour to the upper part of the back. For example, well developed muscles of the athlete, particularly the gymnast, may pad the shoulders and scapula sufficiently to give an appearance of Kyhposis. [2]

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Posture

The location of the body segments which requires the least of effort from the muscles and ligaments, will lead to this balanced motionless state. Posture in its most essential form is static, standing with no movement. As we stand, the segments of our body, whether they be the head, torso or limbs, arrange themselves in sure way. If the posture is good, the body is in a state of muscular and skeletal balance and is sheltered against damage and deformity to the joints, muscles, vertebrae and other tissues

As of mechanical point of view the perfect posture is one in which the different segments of the body neck, chest and stomach are balanced upright one upon the other .The body weight is borne mostly by the bony skeleton with a minimum of energy spending and strain by muscles and ligaments. This is a case when the long axis of its segments forms a vertical line as a replacement for zigzag .If any part of the body is out of its natural placement more muscular power needs to be prolonged to maintain the location of the body. The strength used this way is exhausted energy.

Perfect Posture

The location for which we must aim is called 'neutral spine', an ideal postural position. Neutral spine exists when there is a slight forward curve in the small of the lower back, a slight backward curve in the upper back around the shoulder blades, and a slight extension of the neck. Before we can review our posture and resolve ways to correct any abnormalities, we must first know what the ideal posture should look like. In this neutral spine position, the other segments of the body must also be agreed, so we can draw a straight, vertical line through ears, shoulders, hips, wrists, knees and ankles. With the spine and segments in their accurate positions, the muscles and ligaments are imparting the smallest credible force and the body is balanced, protecting against damage and deformity. If this position is good posture, poor posture results in the contrary effects. If a balance is not found between the spine and the segments of the body, the muscles and ligaments are required to exert a force to maintain posture. This increases stress on the muscular and skeletal structures sustaining the body.(Dan William range of motion.net.au)

Correct Posture

There are two types of posture

1. Unmoving posture - when a person is sleeping or having rest and body requires minimum muscular efforts.
2. Energetic pos
3. True – where included muscular activity is required.

Bad Posture

Just what's so appalling about having poor posture, also not looking as sharp as you could? Quite a bit as it turns out. When you slouch or slump, so does your spine, leading to bad circulation. This can cause vertebrae to worsen over time. Chronic fatigue can also result. Coupled with circulation issues, the result can be early tiredness. Chronic back, neck, and shoulder pain can also result from the strain of bad positioning. Fifty percent of working Americans suffer from back pain, and it's the second most common reason for doctor visits. Twenty five percent of those with back pain suffer from a herniated disc, which may be caused by poor posture. (michaelgleibermd.com)

Common Postural Deformities

Various types of postural deformities are discussed below:

- Spinal curvature (Kyhposis, lord sis, scoliosis)
- Flat foot
- Knock knees
- Bow legs
- Round shoulders

Position of the posture

1. Standing position or posture
2. Sitting position or posture
3. Lying position or posture.
4. Walking posture

Methodology

The study is entitled "**A comparative study of postural deformities of school girls of rural and urban area of Punjab"**

" For the study the researcher used 200 school children (100 girls of rural &100 girls of urban) as a sample for this study. The age group of subject was 10-18 years. The samples were collected from different schools of Punjab through the random sampling method. In this study researcher find out the ratio of different postural deformities e.g. Kyhposis, Lord Sis etc .There was no control on diet, habit & daily routine on sample related. The data was collected through the fallowing standardized Posture test:

S/N	Particular	Test/Equipment
1.	Kyhposis	Grid chart
2.	Lord sis	Grid chart

3.	Scoliosis	Grid chart
4.	Knock Knees	Grid chart
5.	Bow Legs	Grid chart
6.	Flat Foot	Foot print

Data Analysis

Table-1
Showing the percentage of postural deformities in school girls of rural area

S/N	Total	Kyhposis	Lord sis	Scoliosis	Knock knee	Bow legs	Flat foot
1	**100**	08	04	10	59	14	05
2	Percentage	8%	4%	10%	59%	14%	5%

According to above table showing percentage wise data of rural girls, as per table 8% girls were found suffering from kyhposis, 4% suffering from lord sis and 10% suffering from scoliosis. 59% girls were found suffering from knock knee, 14% suffered from Bow legs and 05% suffering from flat foot.

It is concluded that the knock knees deformities are very high and lord sis deformities are very low in school girls of rural area.

Figure-I
Showing the percentage of Postural deformities in girls of rural area

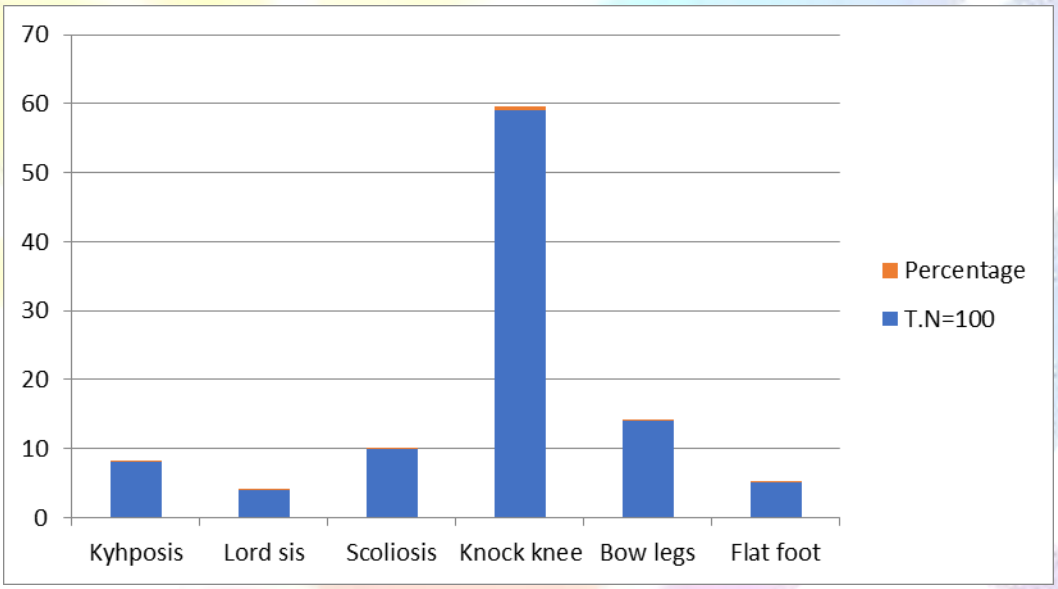

Table No-2
Showing the percentage of postural deformities in school girls of urban area

S/N	Total	Kyhposis	Lord sis	Scoliosis	Knock knee	Bow legs	Flat foot
1	100	09	08	40	23	13	07
2	Percentage	9%	8%	40%	23%	13%	7%

According to above table showing percentage wise data of urban girls, as per table 9% girls were found suffering from kyhposis, 8%suffering from lord sis and 40% suffering from scoliosis. 23% girls were found suffering from knock knee, 13% suffered from Bow legs and 07% suffering from flat foot.

It is concluded that the scoliosis deformities are very high and flat foot deformities are very low in school girls of urban area.

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Figure-II
Showing the percentage of posture deformities in girls of urban area

Table-3
Showing the percentage of postural deformities in school girls of rural & urban area

S.NO	Postural deformities	Rural Area		Urban Area	
		No .of suffered	Percentage	No .of suffered	percentage
1	Kyhposis	08	8%	09	9%
2	Lord sis	04	04%	08	08%
3	Scoliosis	10	10%	40	40%
4	Knock knees	59	59%	23	23%
5	Bow Legs	14	14%	13	13%
6	Flat Foot	05	05%	07	07%
	Total	100		100	

According to above table showing percentage wise data of rural girls as per table 8% girls were found suffering from Kyhposis, 4% suffered from Lord Sis and 10% suffered from Scoliosis.59% girls were found suffering from knock knee, 14% suffered from Bow legs and 05% suffered from flat foot.

In the Urban area as per table 9% girls were found suffering from Kyhposis 8% suffered from Lord sis and 40% girls suffered from Scoliosis.23% girls were found suffering from knock knee,13% suffered from Bow legs and 7% suffered from flat foot

It is concluded that in the knock knee deformities are very high and Lord Sis deformities are very low in school girls of rural area and the urban area concluded that scoliosis deformities are very high and Flat foot deformities are very low in the school girls.

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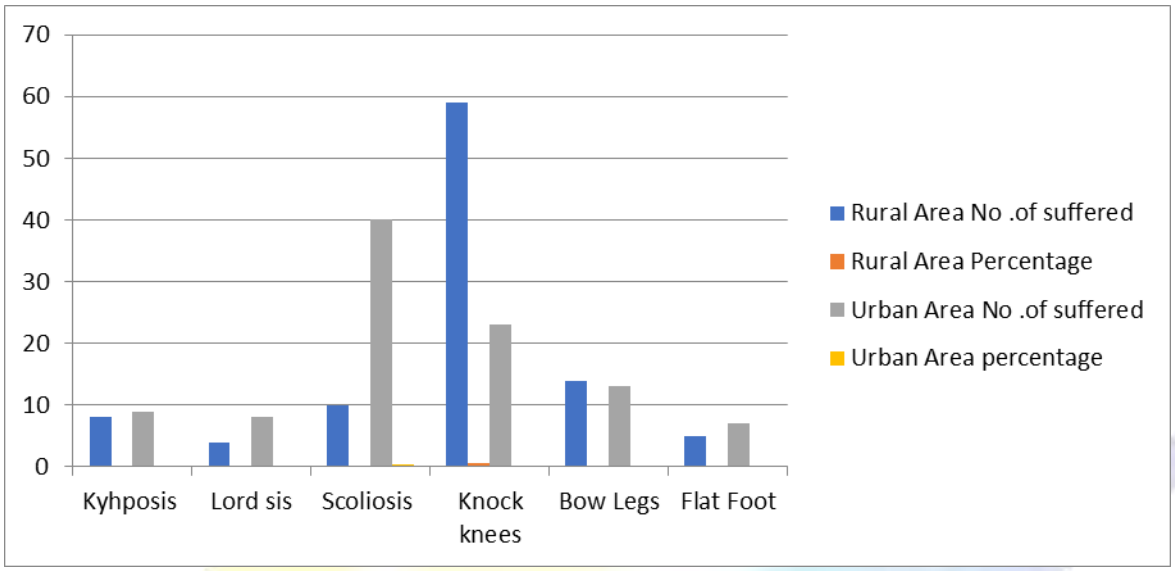
Figure-III
Showing the percentage of posture deformities in school children of rural &urban area of Punjab



Summary & Conclusion

In this study the subject were chosen from different school of Punjab with the help of random sampling method. The postural grid chart was used for data collection. The collected data was converted in form of table and was presented with the help of various bar figure and diagram. After the analysis of data, researcher has found that there was difference in postural deformities in school children and following conclusion were made.

After the comparative suitable statistical process there are more postural deformities in rural & urban area of Punjab. In the rural area of knock knee deformities are very high. In the urban area Knock knee deformities are low. In the rural area scoliosis deformities are very high than rural area scoliosis deformities are low. In the rural area kyhposis deformities are low than urban area kyhposis deformities are high. In the rural area the bow leg deformities are high than urban area bow leg deformities are low. But a flat foot postural deformity is very low in rural area of Punjab. The Urban area calculated flat foot deformities are very high.

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