



Postural Deformities among Teacher Trainees

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ABSTRACT: The research intends to find out the postural deformities among teacher trainees of govt. training college, Trivandrum. Good posture requires a person to maintain the alignment of certain body parts; poor posture is often acknowledged as a cause of musculoskeletal pain, joint restriction or general discomfort. For the study, 150 teacher trainees age ranged between 20 and 24 years were randomly selected as subjects. Among the postural deformities, the following deformities namely kyphosis, lordosis, scoliosis, bow leg and knock knee were selected. They are analysed and measured using Plum line test. This study's resultshelp the physical educationist and coaches to know their player's postural deformities. Also, the research serves as an aid for budding researchers in future to develop remedial measures to eradicate postural deformities

KEYWORDS: Posture, Kyphosis, Lordosis, Scoliosis, Bow leg, Knock knees, Postural deformities, Plum line test

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I. INTRODUCTION

Good posture is the position of the body held without any sense of effort. The body weight should be equally distributed to both the legs and feet to produce the least fatigue. Good posture may also be defined as that assumed position which enables the body to function effectively. Good posture means the balancing of body in accurate and proper manner while sitting, standing, reading and writing or during any other action of body. The foremost impression of an individual is gathered from how he stands, sits and walks. In a proper posture, the whole-body weight falls on both feet without any effort and the entire body appears to be in a vertical line. All the limbs of body perform their functions efficiently. Posture is dynamic and changes according to the activity.

Some common postural deformities, which are observed from the trainees include spinal curvature which is related to spine. It is caused by carrying excessive weight beyond capacity. Weak muscles cause the formation of spinal curvature. There are three types of spinal curvature. First is kyphosis, which implies an increase or exaggeration of a backward or posterior curve or a decrease or reversal of a forward curve. It is caused by the malnutrition, illness, crowd, insufficient exercise, rickets etc. Depression of chest is common in kyphosis. Second is lordosis, which is referred as an increased forward curve in the lumbar region. In this deformity, upper body leans forward. Generally, malnutrition, unhealthy environment, under-developed muscles and heavy loads are the main causes of Lordosis. Lordosis may be prevented or controlled by same means as that of kyphosis.

Third is scoliosis, which refers to the postural adaptation of the spine in lateral direction. It means bending, twisting or rotating. Scoliosis curves are usually found in 'S' shape. The main reasons of scoliosis are diseases in the joints of bones, underdeveloped legs, infantile paralysis, rickets etc. it may also be due to carrying heavy loads on one shoulder, unhealthy conditions like inadequate lighting arrangement and wrong standing posture. Scoliosis can be prevented by having the subject bent forward from the waist with the arms hanging down. This position is called the Adam's position. Hanging by the hands is also a good exercise.

Knock knees is also another common postural deformity found in observed trainees. In this deformity, both knees join together. Feet remain parallel apart when the child stands. The gap between ankles is enhanced. It is caused by rickets and due to the deficiency of calcium and vitamin-D. Along these, walking calipers may be beneficial. In severe state, doctor consultation is important. Flat foot is also seen in common. It is easy to observe whether a person has flat foot or not. If there is no proper arch in the foot prints, then that person has flat foot. Such persons do not have jumping or running ability. The main cause of flat foot is weak muscles of the foot which cannot bear the body weight. Hence, feet become flat or without arches. Last but not the least, bow legs are also seen in which, the knees are wide apart. This deformity leaves a gap between knees, when a

bow legged keeps his feet together. The main cause of bow legs is the deficiency of calcium and phosphorus in the bones. Improper way of walking may also result in bow legs.

II. OBJECTIVE OF THE STUDY

The research intends to make readers aware of the postural deformities we have been ignoring unconsciously. One can attribute many ailing health conditions with the deformities present in one's body posture. Body workers have become familiar with postural terms such as scoliosis and genu valgum, which are used to describe a congenital, inherited position, plus used to describe a position assumed through habit, such as increased thoracic kyphosis resulting from prolonged sitting in a hunched position.

For an example, observe 10 people feeling confident, motivated and optimistic and you will notice that most are standing tall, with their chests out and heads up, and that most have adopted a wide stance, giving themselves a wide base of support. They may be smiling or have a countenance that reflects their positive feelings.

By contrast, observe 10 people feeling anxious, demotivated and pessimistic, and you may notice that they have shifted their weight to one leg, reducing their base of support and that they stoop or flex at the waist, looking to the floor rather than up and ahead. They may touch the chin with one hand the way we sometimes do when we are thinking, and may even cross one or both arms against the chest in a protective manner. Hence the posture is the most important aspect which everyone should concentrate among themselves. This study would reflect the importance of posture and postural deformities.

III. LIMITATIONS

The following limitations were drawn to consider, while interpreting the results of the study.

1. The food habits, hereditary aspects, lifestyles of the subjects were not ascertained and this may influence the study.
2. The age was not ascertained and this may have influenced the study.
3. Socio-economic and cultural status of the students are considered as limitation.

IV. SELECTION OF TESTS

The test items for measuring the criterion variables are presented in the table.

S.NO	CRITERION VARIABLE	TEST ITEMS
1	Kyphosis	Plum line test
2	Lordosis	Plum line test
3	Scoliosis	Plum line test
4	Bow leg	Plum line test
5	Knock knee	Plum line test

V. EXPERIMENTAL DESIGN AND STATISTICAL PROCEDURES

The random group design was used as experimental design. The purpose of the study was to find out the postural deformities like kyphosis, lordosis, scoliosis, bow leg and knock knee among teacher trainees of govt. training college, Trivandrum. The collected data on selected criterion variables were statistically analyzed by using percentage statistics.

VI. OBSERVATION AND ANALYSIS

The study focuses on the importance of postural positions. The main causes for the above postural deformities include sitting posture, standing posture, walking posture and lying posture. Talking about sitting posture, people adhere to various positions to perform an activity. Simple sitting means a body well placed asymmetrically on the pelvis, hips as far back in the chair as possible. Head, shoulders and hips in a line with spinal column erect with its natural curves. Legs should rest vertically on the feet, thighs horizontal, and both flat feet resting on the ground. Generally, children develop a 45-degree curve in the vertebral column and put undue pressure upon the internal organs, which is a wrong posture.

For reading purposes, the sitting posture should be the same as explained above. In addition, the person must sit erect and hold the book at an angle of 45 degree to the horizontal and at a distance of 12 inches from the eyes. Both hands should rest on the table in front and if the book is held nearer, it may strain the eyes or result in myopia or short sight. For best writing posture, it is advisable to use chair and writing table. For writing, the person should sit squarely in the seat, body erect and balanced, thighs horizontal, legs vertical and feet flat on the floor. It is observed that some trainees have a tendency of showing slanting style while writing, they bend their head towards left side and raise the right shoulder, the spine is curved to the left, the writing paper is held towards right side of the body. This posture is very boring and causes muscular and nervous strain and early fatigue.

For standing posture, there are two styles for standing. For short period standing, the best way is to hold the body in a way with proper alignment. That is, the head in-between the two shoulders, chin drawn in, the chest thrown forward with shoulders in level and back erect with its natural curves and body weight equally distributed over both the legs and feet. For a long, standing position, the best way is to put one foot ahead of the other, in a balancing position or one leg can be shifted to the left or right sides main body weight remains in one leg and other leg acts as a balancing leg. The weight is transferred, giving rest to both the legs turn by turn alternatively.

Good walking shows the personality of a person. The best walking posture is the foot in action should be placed on the ground with the line of direction parallel to the line of movement. The toes should point forward. In walking, the heels should touch the ground first and the weight of the body should then be transferred to the toes and its disposition always to the outer part of the foot. Wrong walking can cause early fatigue to the leg and foot muscles or pain in the legs and feet. In lying posture, it is advised to take a pillow of normal height, with legs and arms freely stretched out while sleeping.

The key to good posture is the position of your spine. To correct posture, it is important to maintain the three natural curves of spine – at neck, lower back and mid-upper back. In an ideal posture, the line of gravity should pass through specific points of the body. this can be observed using plum line test to assess the midline of the body. Upon viewing the body in multiple sides, the vertical line passing through the body’s center of gravity should theoretically bisect the body into two equal halves. The body weight must be evenly distributed between the two feet.

VII. ANALYSIS OF THE DATA

The percentage of postural deformities of selected subjects were presented in the table

S.NO	POSTURAL DEFORMITIES	NO. OF SUBJECTS	TOTAL	PERCENTAGE
1	Kyphosis	30	150	20%
2	Scoliosis	25	150	16.67%
3	Lordosis	20	150	13.33%
4	Bow legs	2	150	1.33%
5	Knock knee	2	150	1.33%
6	Flat foot	70	150	46.67%
7	Normal	1	150	0.67%

VIII. FINDINGS

Upon analysing the findings, the study suggests that major portion of selected teacher trainees are having Flat foot. Second comes Kyphosis followed by Scoliosis. Upon research, it was clear that the 70% of teacher trainees had no idea about their postural deformity, a major share coming from number of subjects having Flat foot. A significant number of subjects having Flat foot continuously complained of stumbling down while walking. This is because of the absence of foot arches, ultimately losing balance between foot and ground while running or skipping. The arch provides a sort of springboard for your feet while working with other bones, tendons and ligaments to propel you to move forward or run. In addition to that, 40% of Flat foot subjects either have heel pain, arch pain or plantar fasciitis. As for kyphosis, some subjects acquired this postural deformity since childhood while others pinned fault on their desk-job system and continuous use of mobile and laptop. Almost all subjects in lordosis are having obesity and over-weight body mass index.

When it comes to the prevention of postural defects, teacher trainees may give direction to the forthcoming generation by getting knowledge from this study. Because childhood is the best time to improve bad postures. Every attention should be paid on the postural aspect of the child’s wellness. The teacher trainees had given direction to grasp all the remedial exercise to overcome postural deformities. Through the remedial exercises, it is expected that the teacher trainees can correct their postural deformities. The class room teacher must understand it and transmit it to the pupils. Individual instruction in correct posture may also be given to certain pupils with faulty posture habits, to achieve best results. Instructions before full length mirror can be most effective because, in that case, the pupil can see as well as feel the correct position.

IX. REMEDIAL MEASURES

There are numberless exercises for improving postural defects. The trainees had given direction to grasp all the remedial exercise to overcome postural deformities. For improving round upper back or kyphosis, it is beneficial to lie on back with knees drawn up and feet flat on the floor with hands at sides. Then move arms along floor to position over head, palms still up. Hold for a few seconds and repeat the exercise. It is also advised to practice the exercise of sitting in a firm position with neck firm and fingers laced behind head. In

addition to that, stretch trunk and neck, along with head and elbows upwards to keep back straight and trunk erect.

To improve Kypholordosis, try prone lying with hands under abdomen. Then keep hips and shoulders down, press hands up on abdomen and raise lower back. There's another exercise in which the back should be in lying position with knees drawn up, arms over head and elbows bent. Then separate knees, touching soles of feet together. While exhaling, draw knees towards chest, keeping hips on floor and keep on repeating. For lordosis, the knees must be extended and feet spread while in a sitting position. Then reach forward, grasping ankles, pull trunk forward relaxed bounce for three counts.

For scoliosis, staying in a prone lying position, put right arm upward and left arm at side. Then move right arm in an arc towards the left, over head, press down with left hand and slide left hip. With the help of a partner, another exercise can be performed in which in prone lying, extend the right arm forward and left arm at side. Then the partner holds feet firmly on floor. Then extend the trunk, the right arm pushed forward and the left arm pushed backward. Hold three counts, relax and repeat.

Many have doubts on how to treat flat foot. It is advisable to perform exercise on sitting position, with knees fixed, feet together and flat on the floor. Then place hands on floor behind the back and raise inner border of feet, keeping toes and heels on floor.

X. CONCLUSION

With studies conducted and analysis performed on observed trainees, it was further concluded that most of the trainees had flat foot and Kyphosis. A few of the trainees had no postural deformities and they belong to normal category. Generally, children develop a 45-degree curve in the vertebral column and put undue pressure upon the internal organs, which is a wrong sitting position. The trainee must sit erect and hold the book at an angle of 45 degree to the horizontal and at a distance of 12 inches from the eyes. Similarly, there are many exercises which can be adopted for posture correction.

The study makes it clear that a major portion of people are still unaware of their postural deformities. Nor did they attempted to give importance to posture correction in busy schedules on their daily lives. Upon interviewing 150 teacher trainees, the research helped convincing them of the need to correct bad posture for good health and calm living. Just like treating blood pressure, diabetes, and cholesterol, posture correction is equally important as it deals with bodily pain leading to mental imbalance and lack of critical thinking.

The role of physiotherapy is crucial in such physical conditions and it is advisable to approach a qualified trainer for correcting postural deformities.

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