Chapter I

INTRODUCTION

The erect posture is a unique characteristic of a man which distinguishes him from the rest of the animals. For which un-matching peculiarity of human posture, it has correctly been said, “without man’s posture no man, without man no culture, without culture, a world not work living in”

“Child is the father of man”

This is what an English Poet has said. Therefore, good habits are essentially the base for good health. Health needs better structure and vice-versa. Posture is the index of personality. Good habits help to develop good posture. The early childhood and adolescent years in the life of an individual are crucial stages in the process of his growth and development. This is the period when a child is more impressionable and is most eager and ready to learn. It is, therefore, essential to provide him with necessary opportunities early in life for normal development of his mind, his body in relationship to others. Parents exert a profound influence in the development of the child, particularly during the early stages of his development. They transmit their own behaviour codes, attitudes and values to their offspring’s. The immediate members of the family, the siblings and the peer groups also influence the learning process of the child. Once a child enters school, hit gets exposed to systematically design learning

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1 Oscar W. Kiputh et al., "Postural Defects" (London: W.B. Saunders Company, 1946), p. 1
experience, which are based on a prescribed curriculum designed to facilitate all attainment of certain educational goals and objectives. All educational activities are directed to enable a child to discover his talents, sharpen his abilities and faculties, develop his physical and intellectual potentialities and propensities to the fullest, develop his social skills and foster his emotional well being.

Healthy children and healthy families are essential for human and national development. For the well being of the children it had been recognized that ill health and poor nutrition are violations of the child's most basic right to survive and to develop normally in mind and body.²

Posture as an aspect of physical fitness, has an enormous popular and scientific literature. Postural "slump" indicates fatigue or poor condition and may be viewed as a barometer of muscular tone.³

There are innumerable concepts of human posture and innumerable interpretations of its significance. Posture may well claim to be "all things to all men." To the physical anthropologist posture may be a racial characteristic, or it may be an indication of phylogenetic development; to the orthopedic surgeon it may be an indication of the soundness of the skeletal frame work and muscular


system; to an artist it may be an expression of personality and emotions; to the actor it serves as a tool for expressing mood or character; to the physician, the biologist, the fashion model, the employer, the sculptor, the dancer, the phychologist — to each of these, posture has a different significance. Each sees posture within the frame work of his own profession and interest.4

Erect posture is commonly associated with attitude of readiness, self-confidence and assurance. A relaxed or slouched posture may generally connote laziness and incompetence. For this reason the erect posture is the one most often aspired to and considered normal. Certainly erect posture gives a better appearance since clothes fit better; the physique is shown to better advantage and the face is held up so that an expression of attentiveness is indicated. Fashion models, stage and screen actresses, and beauty contest winners’ assume erect and stately posture in order to appear to the best advantage before an audience.

A well-conditioned body makes possible good posture, the emotional concomitants of which might well be self respect, pride, self-confidence and courage. Weak muscles, poor posture and weak will, are likely to go hand in hand. Development of good posture requires consideration of the mental, physical and morphological aspects.

Type of Posture

Posture means position and a multi-segmented organism and as such the human body, cannot be said to have a single posture. Posture is an index of health. Where posture improvement seems desirable, consider first the factor, which makes a person feel like standing, walking or sitting the way he habitually does.

Posture can be “inactive or active”. Inactive postures are adopted for resting, sleeping or training general relaxation. In inactive postures, the essential muscular activity required to maintain life is reduced to a minimum. Active postures required an integrated action of many muscles to maintain these. Active postures may be either “static or dynamic”. A static posture is maintained by the interaction of group of muscles which work more or less statically to stabilize the joints, and in opposition to gravity or other forces whereas, a dynamic posture is required to form a efficient basis for movement, and the pattern of posture is constantly modified and adjusted to meet the changing circumstances which arise as a result of movement.5

An efficient posture requires strong muscles, nervous control for neuromuscular coordination, a stable psychological background, good hygienic conditions and an opportunity for plenty of natural free movement.

An intact nervous system coordinate various postural reflexes muscles, eyes, ears and joint structures which are essential for assuming and maintaining and efficient good posture.

GOOD POSTURE AND POOR POSTURE

Good Posture

Good posture is characterized by best mechanical efficiency, the least interference with organic function and the greatest freedom from strain. Good posture is even related to economics. Since good posture has aesthetic appeal, it is considered as a desirable social asset and one makes better impression and can there by, impress more people in business and professional life.\textsuperscript{6}

It is only in good posture that the body functions best. Ease and grace of body movements are promoted by correct posture which in turn contributes to health by promoting good body-mechanics. An efficient posture in standing and sitting is to be esteemed as much for its social and psychological value as for its direct hygienic value.

\textsuperscript{6}J.L. Rathbone and V.V. Hunt, "Corrective Physical Education", 7\textsuperscript{th} ed. (Philadelphia: W.B. Saunders Company, 1965), pp. 83-84.
Good habits also help to perform good posture like the way we speak, sit, walk, sleep, stand, lie etc. the way we carry things on arms, or back, hang on the shoulders or on head, are all constitutes of good posture which we generally envy. However, posture varies with age, occupation, type of activity, physique and health.\textsuperscript{7}

The way a person carries himself makes an important impression. From his appearance, people draw certain conclusions about his health, his vitality and his personality. Experience teaches us to expect enthusiasm for living, initiative, self confidence and self respect from a person with an easily erect posture.

Erect posture enhances the feeling or well being. There is the ability to consciously stand well with the same joy, which comes with any skill. To know that you know how to stand well, that you can and are standing well, gives a feeling of self-confidence and poise.\textsuperscript{8}

Good posture helps the body to work best and easy. It promotes easy and graceful movements, which help the body to function properly. Good posture might be defined as that position in which the centre of gravity of each body segment is centered over its supporting base. It mainly depends on the maintenance of centre of gravity in proper way, body erect, alert whole, with proper balance and poise.


By good posture is meant and adjustment of body parts to each other which results in a erect, alert whole, representing readiness for mental and physical effort. Body is like machine if its parts are maintained in good balance it functions smoothly. The performance of any machine is determined by the proper alignment of its parts. Good posture, in repose and in activity permits mechanically efficient function of the joints.

Friction in the joints is minimized, tension of opposing ligaments is balanced and pressures within joints are equalized. Hence the skeletal structure is architecturally and mechanically sounds and there is minimum of wear and tear on the joints.\(^9\)

This is no less true for the kinesiologically oriented physical educator. To him, posture is a gauge of mechanical efficiency of kinesthetic sense, of muscle balance and of neuro muscular coordination. Good posture, both static and dynamic, requires normal muscle tones. This implies adequate development of the antigravity muscle to resist the pull of gravity successfully and to maintain good alignment without excessive efforts or tension. It also implies a balance between antagonistic muscle groups. There is no indication, however, that the stronger the muscles the better the posture. Good posture requires good coordination. This implies good neuro-muscular control and well developed postural reflexes.

The importance of posture in its relationship to emotional and intellectual behaviour needs to be recognized at the initial stages. In this man is concerned with his output and better use for efficacious attainment of capabilities. Good posture promotes an attractive appearance with its accompanying psychological benefits, both for the individual and the favourable impression made upon others. This is worthwhile and should offer prime motivation to adolescents as an objective. It is recognized that good posture undoubtedly adds to one’s aesthetic appearance, enhances the impression made on others and in social adjustment.

An individual’s habitual posture reflects the general health and state of mind. Happy person tends to be erect and smart whereas sick or depressed person tends to be of slump or lanky posture. Personality also leaves and effect on posture. Introvert or shy natured man will have shabby and lanky structure whereas embivert personality has smart, erect and attractive posture. The literature is replete with the concepts and the observations of relationship between emotional behaviour of individuals and the posture assumed by them.

Rathbone and Hunt have observed that an individual’s habitual posture reflects the general health and state of mind. A buoyant and happy person tends to be erect and extended while an ill or depressed individual tends to be slump. Posture is considered by many to be an indication of the spiritual as well as the emotional tone of the individual.¹⁰

The keen body mechanics observers may detect telltale sign of deep-seated disability or incapacity for dynamic healthful living through a postural appraisal. Unbalanced segments are liable to produce strain and irritation of important nerves, and can be gauged as the mental concomitants of poor posture.

The study of posture involves the position of the various body segments at any given movement. It considers the mechanics of movement, especially the more fundamental movements of walking, running and sitting, as well as those related to daily tasks such as bending, stooping, pushing and lifting. There is even and optimum sleeping posture. Individual body build and its influence on behaviour, together with anthropometrics measurements in general, are related to posture.

The maintenance of posture and the corrective movements that restore balance involve the activities of a large portion of the skeletal musculature and many parts of the central nervous system. Every movement starts from posture and ends in a posture, but during the execution of the movement the postural contractions are altered or abolished.¹¹

Mental attitudes seemingly can induce pleasing or displeasing postures. Professional people who have worked with the mentally ill have reported that there are characteristic postures with certain types of illness. Posture has been used as a potential index of clinical value. Neurotic people tend to sway more than the normal individual because of muscle tensions.

These tensions seemingly tend to interfere with the awareness of the individual of minor degree of sway that is normal.\textsuperscript{12}

Superior intelligence and tremendous energy are some time housed in a body that is habitually slouched. Some great athletes assume a habitual posture of extreme relaxation.

Good posture cannot be forced upon a child. Any factor either of health or environment, which weaken muscular strength or encourage exaggerations of spinal curve, will produce poor posture. Children with habitual poor posture had more disease, fatigue, under-weight, self-consciousness, fidgeting, hearing defects, restlessness, timidity, and asthma. Functional postural defects are committant symptoms of illness and poor health. The malnourished child for example, who does not have the caloric intake to supply needed energy, simply does not have the strength to hold himself up; poor posture is the inevitable result. A depressed mental attitude, chronic fatigue, or an intestinal parasite might produce the same result.\textsuperscript{13}

It is commonly accepted that a person’s alertness and general outlook on life may be indicated by the likeness of the person’s posture to the ideal posture. With each attitude, whether consciously or unconsciously recognized, there is an

\textsuperscript{12}Encyclopaedia of Sports Sciences and Measurement, pp.1081-82.

apparent accompaniment of motor response. At certain ages, feelings of shyness, bashfulness, self-consciousness, insecurity, and inferiority may play an important part in respect to posture.

The attitudes of adults towards posture have been considered as doing much toward creating satisfactory attitudes in children. Children have been observed to imitate the mannerism of adults in sitting a standing and walking.

**Poor Posture**

Poor posture is also detrimental to the appearance of the young man. Most people with poor posture will become progressively worse as they grow older. Poor posture reduces physical fitness of a person because of the resulting pressure and thereby there is displacement of visceral and other internal organs, blood vessels and nerves, whose displacement results in impairing their organic functioning and activities. The person with poor posture is ungainly, awkward and unesthetic.

III posture is the result of exaggerating the cervical curve in the neck and lumber curve in the back III posture produces quick fatigue.

Good posture obeys certain laws of physics in that efficiency involves the smallest possible expenditure of energy to maintain it; when standing erect the centre of gravity is low in the abdomen and movement of the body requires less energy than when the posture is faulty. When one part of the body is off
centre it pulls another off centre to balance it, both of which require energy and produce fatigue.

Poor posture causes a cramped position of heart, lungs and abdominal organs. Circulation of the blood is impeded and the organs farthest from the heart fail to receive adequate oxygen. Under stretching of muscles in bad posture causes nerves and muscle fatigue. Bad posture is responsible for undue strain on joints and ligaments, which, after a time results in pain. Just as lack of alignment in an automobile causes friction so poor posture causes fatigue fear and tear in humans.\(^\text{14}\)

Children need more exercise to counter-act sedentary habits. Good health and strength all reflected in bearing chronic fatigue, malnutrition, illness and psychological feelings, which motivate an attempt at self-effacement, affect posture. Other causes may be poor adjustment of seats and desks, poor lighting, poor vision, impaired hearings, careless habits of sitting, walking and standing, and poorly fitted shoes and clothes. Postural fads, which develop in high school, such as throwing the trunk back on the pelvis, produce poor posture.

A postural alternation of vertebral alignment during the growth period could become permanent in time. Tall students tend to throw the head too far forward and develop “round shoulder.” Congenital anomalies or diseases of the vertebrae, involvement of their cartilaginous surfaces as in rheumatoid arthritis,\(^\text{14}\) *Encyclopaedia of Sports Sciences and Measurement*, pp.1161-62.
spasm of supporting muscles to the spine caused by a slipped disc, or weakness of the supporting muscles themselves all have produced poor posture.

It has been observed that there is no single best posture for all individuals. Each person must take the body he had and make the best of it since, it is an individual matter.\(^{15}\)

The body, like machine, is most efficient when all its parts are maintained in good balance. Wealth, beauty, and brains may not be distributed to everyone but except for the cripple good posture is accessible to all who will work for it. The importance of carriage and poise at all ages can not be over emphasized.

Mental alertness and physical efficiency certainly go together. Good posture is necessary for proper function of all the organs. Good body mechanics can be defined as the mechanical coorelation of skeletal, muscular, neurological, and organ system is most favourable for function. If organs are displaced or crowded by bad posture, serious disorders may develop in human body organs, which are adapted to upright posture.\(^{16}\)

There is some indication that the assumption of good posture is partly the result of understanding what good posture is and partly because of the desire to have good posture. Ideal posture is that in which the various segments of the


\(^{16}\)Encyclopaedia of Sports Sciences and Measurement, pp.1162.
body head, neck, chest and abdomen are all balanced vertically, one of the other, so the weight is borne mainly by the bony frame work, with a minimum of efforts and strain on the muscles and ligaments.¹⁷

The posture reflexes that follow to maintain an erect position against the force of gravity depend on muscle tone, stretch reflexes, Kinesthetic sense, and balance. They are all susceptible to training. Poor habits may lead to a variety of physical complaints or disorders. Good posture is characteristic of a good state of physical fitness and poor posture ordinarily goes with relatively poor fitness. Therefore, weak musculature and poor posture are the result of such underlying causes as malnutrition, fatigue, disease, under activity and personal attitude of depression, withdrawal and insecurity.

One of the basic elements in posture is the stretch reflex. It is important in the maintenance of posture and balance and is best developed in extensor muscles, which are ordinarily involved in maintaining a posture against the force of gravity. Another group of postural reactions that is of paramount importance in sports is equilibrium or balance. In complex motor skill activities it is essential that the body be in the correct posture for the performance of necessary movements.

Human kind’s biologic heritage has left them vulnerable in the area of posture and body mechanics. As prehumans scaled higher and higher on the

evolutionary ladder and ultimately assumed the biped position, several adverse
effects resulted in the skeletal and muscular system as they underwent the
necessary anatomical adaptations. Added stress was placed on the digestive and
circulatory systems as well as the skeletal. Some major adjustments were made
in the evolutionary process to offset these negative effects. However, in
complete evolutionary adaptations to the biped position has left humans with
problems which have been accentuated by their mode of life, the part of the aging
people is to do daily exercise and the physical activity necessary to acquire and
maintain good posture. It is only in the correct posture that the body functions
best. Ease and grace of body movements are promoted by correct posture, which
in turn contributes to health by promoting good body mechanics.

A bad or poor posture is a faulty relationship of various parts of the body
which produces increased strain on supporting structures and in which there is
less efficient balance of body over its base of support.

A bad or poor posture may be caused by:
1. Injury, e.g. fracture, dislocation, an untreated sprain etc.,
2. diseases, like osteomalacia, rickets, tuberculosis of bone etc.,
3. habit, which may be formed due to an injury, disease or habitual standing
   on one leg.
4. muscular or nervous weakness, may be caused by under nutrition or
   fatigue,
5. mental attitude, e.g. depression, inferiority complex etc.,
6. heredity, or
7. improper clothing, e.g. too tight or too loose clothes or shoes etc.
Poor or bad posture has got its physical, physiological, social and psychological ill effects. “Bad posture with its poor body mechanics is accompanied by lack of muscle-tone, lowered threshold to fatigue, and lessened available mechanical energy. Especially, in older people exaggeration of normal curves tends to become set-in-rigid patterns and interfere with normal physiology”.\(^{18}\)

Poor posture causes a cramped position of heart, lungs and abdominal organs. Circulation of the blood is impeded and the organs farthest from the heart fail to receive adequate oxygen.\(^{19}\)

Under stretching of muscles in bad posture causes nervous and muscular fatigue. Bad posture is responsible for undue strain on joints and ligaments, which after a time results in pain. Just as lack of alignment in an automobile causes friction, similarly, poor posture causes fatigue, wear and tear in humans.

Children with habitual poor posture had more disease, fatigue, underweight, self-consciousness, fidgeting, hearing defects, restless, timidity and asthma. Functional postural defects are committal symptoms of illness and poor health.\(^{20}\)


\(^{19}\)S.S. Kety, “Human Cerebral Blood Flow and Oxygen Consumption as Related to Aging”, *Journal of Chronic Diseases* 3 (1956): 478

The maintenance of an erect posture is a distinct problem to the humans since the skeleton is fundamentally unstable in this position. The two-legged human body presents a continuous problem in maintaining balance because the feet are a very small base of support for a multi segmented towering super structure.\textsuperscript{21}

Bad posture with its poor body mechanics is accompanied by lack of muscle tone, lowered threshold to fatigue. Older people should try to correct the factors contributing to poor posture, which includes poor eyesight or hearing, which makes a person lean forward or cock his head in an unnatural position to see or hear better. Over fatigue, malnutrition, anxiety, or lack of interest in life, lack of symmetry in muscular development because lack of exercises; sitting in strained; restraint of body movements by clothes or shoes that do not fit; and sleeping in strained position caused by sagging mattresses or bed springs or using pillows large enough to bend the neck forward. One can overcome the inherent weakness in body mechanics only by developing those muscles that are used in maintaining good body posture in sitting, standing, walking, running and exercising.

Posture and body mechanics are related to physique and body types. The more modern approach to posture emphasizes that there is no single best posture but there are many best postures. Posture becomes an individual matter, chiefly because of individual body types. Each person should develop a good body posture within the frame work of his/her body build. Good posture is characterized by best mechanical efficiency, the least interference with organic function and the greatest freedom from strain. When these criteria are applied to the frame work of specific body type, good posture will be characterized by good balance and proper alignment of the various body segments. No two people will be identical and the pattern of posture will always vary slightly in accordance with physique and body type from person to person. Thus, posture development comes within the province of the physical educator. The part played by muscles in maintaining good body position, cannot be over emphasized. Good posture not only had a relationship with health, but it has also psychological implications. It is even related to economics. Since good posture has aesthetic appeal one makes better impression and can thereby impress more people in business and professional life.

Postural evaluation is very important. Body alignment depends not only upon the integrity of the joints themselves but also upon the muscles acting upon the joints.22

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Bad body mechanics and poor posture are the result of exaggerating the cervical curve in the neck and the lumbar curve in the back. These exaggerations throw the skeleton out of good alignment and consequently the organs are not properly supported. In many areas of the world where people carry burdens on their heads, they develop perfect posture.

Postural defects often go undetected and therefore contribute to fatigue and muscle imbalance that often results in injury. Correct posture is therefore important as it enhances the function of the organic system. It reduces the strain on muscles, ligaments and tendons and there by retards the onset of muscle fatigue. It also increases the attractiveness of the person.\textsuperscript{23}

The spine plays a central role. All mammals except man have a single dorsal curve in their spines. The human spine contains four curves from front to back, cervical, dorsal, lumbar and sacral which enables the head to balance more easily in the upright position. The new born human follows the pattern of the single dorsal curve at the birth and does not develop the other curves characteristic of man until later. When he lifts up his head he develops the cervical curve in his neck and when he starts walking in upright posture, he develops the lumbar curve in the small of his back. The requirements of good standing posture are (1) stand as tall as possible with head help up so that the top of the head will be flat enough to hold a book, (2) chest high with rib cage

\textsuperscript{23}Encyclopaedia of Sports Sciences and Measurement, pp.1161-62.
expanded, (3) the lower abdomen held in and the gluteal muscles tense and (4) the extremities well poised to support the body weight with minimum exertion.\textsuperscript{24}

Bad posture with its poor mechanics, accompanied by lack of muscle tone is a lowered threshold to fatigue and lessens the available mechanical energy. Especially in order people exaggeration of normal curve tends to become set in right patterns and to interfere with the normal physiology.

Spinal deviation includes Kyphosis-hunch backed curvature, Lordosis-exaggerated forward curvature in the lower part of the back, and Scoliosis-lateral curvature and forward till of the head.

The spinal column is not a straight rod. The vertebrae are aligned one above the other to form a straight line when viewed from the back, but when viewed from the side there are mild natural curves in the neck (cervical), chest (thoracic), lowback (lumber), and pelvic (sacral) regions. Exaggeration of these curves produce what is commonly termed “Poor Posture.” An angulations forward of the vertebrae, usually in the upper thoracic region, is referred to as Kyphosis (hunch back, hump back). This occurs at times because of organic or structural changes and more commonly from posture. An increased inward curve, ordinarily in the low back, is labeled lordosis (sway back). The spinal column may also present a deviation laterally (side to side curve); producing scoliosis.

\textsuperscript{24} \textit{Ibid}
The period of most rapid growth of vertebrae is from 11 to 15 years of age. The are shaped as ossification continues to completion. This shaping and response to weight bearing is naturally affected by posture. The key to good posture is the lumbosacral joint in the low back. It carried the weight of the trunk, head and upper extremities, and permits flexibility of the upper part of the body on the pelvis.

The performance of any machine is determined by the proper alignments of its parts. Consequently all directors of athletics and physical training should recognize that the earlier proper steps are taken to correct or ameliorate postural faults, the greater will be the proficiency in performance and coaching of an athlete to his maximum. Lack of proper attention to correctable faults in his body mechanics, may accelerate the aging process and promote disturbance in his musculoskeletal apparatus that will result in an earlier development of “wear and tear” arthritis.

The compensatory changes in trunk caused by tilts in the pelvis usually result in scoliosis, with rotator shifts in the spinal column. The long round back has a short lumbar lordotic curve, and the round hollow back has the dorsal kyphosis and a longer lumbar lordosis. In most persons with such deviations there usually exist a widening of the inter scapular space and corresponding adaptive shortening of the pectorals and serrate. All the movements of the arms in throwing (javelin throw, shot put, discus and swimming) there is a limitation of shoulder extension.
Pronated feet with valgus ankles and some increase of outward tibial torsion result in stress on the anterior and posterior tibial muscles with shortening of their antagonists, the peronei, that can very seriously limit the success of runners and jumpers and are prone to weakened knee conditions.\textsuperscript{25}

Good posture is that state of muscular and skeletal balance which support and protect the structure of the body against injury or progressive deformity irrespective of the attitude adopted as running, kicking, swimming, squatting etc. in which the body structure is working or resting as in sleep. Under such conditions the muscles will function most efficiently and to the optimum position and provide full protection for thorax and abdominal organs.

Poor posture is a faulty relationship of the various parts of the body, which produce increase strain on supporting structure and in which there is less efficient balance of body over its base of support.

The common postural defects are:

1. Round shoulder, with protruding shoulder – blades, depressed chest and protruding – abdomen.
2. Scoliosis, or lateral curvature of spine column.
3. Forward – tilting head.
4. Lordosis, or forward curvature of the spinal column in the lumbar region or lower back
5. Flat back (not common in school children).

\textsuperscript{25}Encyclopaedia of Sports Sciences and Measurement, p. 240.
7. Pronated ankles.
8. Flat feet.
11. Pigeon-toes walk.

One common cause of poor posture is malnutrition. The child's muscles are weak. He needs better food, more rest, and greater muscular strength. Fatigue may underlie his poor posture. Because of poor hygiene or recent illness the pupil does not have sufficient strength to carry the day's programme without becoming over tired. This fatigue shows itself in his slumped position. The obese child is likely to develop poor posture because of excessive weight, which the body framework has to carry. The child with some visual and hearing defect may carry his head forward or tip it to one side. Improperly adjusted clothes or high heels and wrong habits in using play materials or carrying burdens are sometimes responsible for the poor mechanical use of the body. Some postural faults are due to poor habits of sitting or standing and walking.\(^{26}\)

Attention must be paid to environment. The classrooms must be correctly lighted so that children do not have to stoop forward in an attempt to see well, or to twist the body in order to avoid glare. Proper adjustment of

seating equipment for each young person, regardless of age level, should encourage him to a good sitting position. Child should be taught how to sit properly. He needs changes of activities so that he will not sit for too long period. He should use play ground equipment to make his activities and exercise pleasurable. He should be more posture-conscious, without being nagged. Teaching methods should motivate youngsters at each age level, to adopt good postural practices. Good practices of sitting, standing and walking develop good posture in the growing child.\(^{27}\)

A teacher should alert the children to health problems and environmental situations which cause fatigue and slumping. On way to promote good posture is to arouse interest and pride in maintaining a good posture by arranging annual posture contests.

Parents also need to be educated to provide healthy environment at home to enable a child to sit and study properly.

There are several values of good posture:

(a) Hygenic: The erect straight body has its organs properly set so that bodily functions are more complete, perfect and harmonious.

(b) Economic Value: May be a contributing factor for competition good posture can add to the work efficiency, whereas improper posture leads to decrease in work efficiency, thus affecting the economic aspects.

(c) Social Value: Fine body has good and balanced shape and therefore highly attractive.

(d) Spiritual Values: An individual with well-balanced posture brings appreciations for the creator i.e. “God.” The glory of the rising sun which has its own charm, can hardly be appreciated by a person (who walking with protruded head, abdomen and flat feet) with bad posture. Good health, good looks and social value develop their own forms and performances, which are their charm and beauty and are less likely to develop any of the deformities.

There are three categories of posture:

(1) Endomorph – Long, thin, cylindrical with developed muscles of short stature.

(2) Mesomorph – The are most stable neither tall nor short, psychologically and mentally sound and stable, and move freely in the society.

(3) Ectomorph – Very tall, lean and thin, less weight etc.

Awkward posture is greatly handicapped. Psychologically inferior and of shy nature. There are several causes for the bad posture, some of them can be corrected or controlled and for some complete correction is not possible.  

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Specific exercise programmes are recommended for correction of postural defects. The purpose of this exercise is to improve the strength, coordination, and elasticity in the body. Developing actively the flexor muscles of the lumbosacral spine and stretching passively the extensor muscles and fasciae accomplish this. Faulty posture must be corrected and proper posture must be maintained at all times.

The significance of posture in its relationship to emotional and intellectual behaviour as well as the laterality of cervical variances on visual perception need to be recognized before, during and after physical activity. Those who are concerned with results at the least cost of energy output would do well to investigate such applications to innate mental capacity and human movements for better use of such forces for the efficacious attainment of capabilities.\footnote{Encyclopaedia of Sports Sciences and Measurement, p. 240.}

Exercise for the development and maintenance of range of motion plays and important role in rehabilitation of the handicapped and is an essential part in treatment of acute and chronic trauma in orthopedic work. Specific exercise such as those used for postural correction is the concern of Orthopedists, Pediatricians, Physical Educators, and Physical Therapists. Various types of exercises are used to restore and recondition the patient. They are used to
prepare athletes for the performance of physical skills. The effects of exercise apply equally to therapeutic exercise as they do to exercise and sports generally.\textsuperscript{30}

The Physical Education Teacher, The Coach and the Trainer should be aware of acceptable structural differences and deviations among human bodies. It is also important that the students learn to detect deformities and abnormalities in body alignment that reflect poor posture and have a thorough understanding of those differences crucial to anyone involved in the prescription of exercises.

It has been observed that habits play an important role to develop the posture. Life has become so fast that individual does not have time to take care of himself as well as of his family. If parents pay some attention on their children and note their habits engagements, they might be able to bring some improvement in their children. Schools also play an important part in developing the child's personally and attitude.

The teacher must pay special attention on the sitting, standing habits of the student because a teacher has a strong bearing on the children's behaviour. The teacher should have pleasant personality with sense of humor, ready smile, sympathetic attitude and good health, so that the children feel the sense of belongingness, love and affection. It may be noted that children implicitly emulate and try to copy the teacher’s personality. If the teaching programme is

planned wisely and taught intelligently, it will contribute to sound health, pleasant habits, strong and healthy attitude for the children to develop a strong personality.

Some factors which may play have with a child’s personality should be carefully removed by the parents and the teachers. The children should be taught the methods of doing the things correctly. The child should be taught how to walk, talk, run or lift weight. Wrong methods of doing things may adversely affect the body such as a child carrying a heavy bag on one shoulder may be completed to walk limpingly or lean on one side and with the passage of time the child may develop bad posture which would defective gait and also affect his vision. If the weight of the bag is divided on both shoulders, it can help to reduce the bad curvature of the back and the child would be able to walk comfortably and gracefully. Stylish way of living has also its impression on an individual. People have become conscious about their diets and how they dress. They want to be in tune with modernity. They are not aware of the side effects of their doings. They think that by wearing loose of tight clothes make them look ‘advance’ in the society. They are not aware that too loose or tight fittings can produce odd movements, which could cause bad posture. Cushioned beddings also have the tendency to affect the spine growth adversely. Sleeping on hard surface helps the spine to keep straight which is very essential for good posture. Stylish shoes or foot wear may spoil the gait of a child. They should not be allowed to put on fancy, high healed or tight shoes because they are bound to leave bad effect on the posture. Such foot wear can cause headaches or false gait
and produce shabby posture. The child should also be taught of placing or lifting of weight because spine helps an individual move freely. If the movements are not done correctly they will affect the balanced growth of the body and develop certain postural defects.

School should have adequate time for studies and games. There should be adequate study rooms with proper lighting and ventilation with proper seating arrangements so that the children are not subjected to any undue fatigue. Teaching load should not be very heavy to create any sort of boredom to the children. They should have adequate play grounds with ample playing facilities and enough time for exercising. Proper care must be taken to avoid any kind of postural deformities. School should manage to have twice a year, body and health check-up of the students because the spine of a child being in growth is quite flexible and with certain physical activities and exercises might bring drastic changes in his body and personality.

Statement of the Problem

The purpose of the study as to detect the common postural defects namely flat-foot, scoliosis, kyphosis and lordosis among Secondary School Boys in relation to minimal strength and also to develop a corrective programme to eliminate identified postural deformities.

The problem is stated as under:

“Survey of postural deformities of Lucknow School Children in relation to minimal strength.”
Delimitations

1. The study was delimited to the Government Secondary School Boys of Lucknow.

2. The present study was further confined to only the following postural defects:
   (i) Flat Foot.
   (ii) Scoliosis.
   (iii) Kyphosis.
   (iv) Lordosis.

limitations

1. The present study was confined to detection of postural defects in relation to minimal strength but the congenital causes responsible for these deformities were not taken into consideration.

2. Non-availability of sophisticated instruments for identifying postural defects was treated as a limitation for this study.

Hypothesis

1. It was hypothesised that common postural defects prevalent among boys would be kyphosis, lordosis and flat foot.
2. It was further hypothesised that lack of strength may be main causative factor leading to postural deformities among Government Secondary School Boys.

**Definition and Explanation of the Terms**

**Posture**

Posture is described as on in which the head is held erect, the chest is forward, the shoulders are drawn back and the abdomen is retracted.\(^{31}\)

Posture involves the alignment of parts of the body to achieve balance in sitting, standing, walking or physical activity. The bony skeleton and muscle govern the balance, which varies with age, occupation, and type of activity, physique and health.\(^{32}\)

Posture is that in which the body segments are balanced in the position of least strain and maximum support.\(^{33}\)

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Flat Foot

Foot is called that foot when collapse of internal longitudinal and transverse arches of the foot combine with eversion. If the medial longitudinal arch of the foot touches the ground on weight bearing or is nearer the ground, then the foot is considered to be flat.\textsuperscript{34}

Scoliosis

Scoliosis has been defined as curvature of the spine in a lateral or coronal plane or it is lateral displacement of the spine in the coronal.\textsuperscript{35}

It is lateral curvature of spine. The shoulder on one side will be lower than the other. The hip of the opposite side will be higher, the arms hang loosely at the sides, the angle between arm and body is greater on one side than on the other.\textsuperscript{36}

\textsuperscript{34}Nigel H. Harris, \textit{Post-graduate Test Book of Clinical Orthopedics}, (Bristol : Johnwright and Sons Ltd., Stone Bridge Press, 1983), pp.49-50.

\textsuperscript{35}\textit{Ibid.}, p. 147.

Kyphosis

Kyphosis is an exaggeration or increase in amount of normal convexity of the thoracic region of the spine.

Lordosis

Lordosis is an exaggeration of normal lumbar curve accompanied by forward tilt of the pelvis.

Minimal Strength

Is a score obtained as a result of administration of Kraus-Weber Test.

Kraus-Weber Test

Is a test, which indicates the level of strength and flexibility for certain key muscle groups below, which the functioning of the whole body as a healthy organism seems to be endangered.

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Corrective Programme

Corrective programme is that which has the power to correct or remove the faults.

Significance of the Study

A good posture is an asset in achieving high performance in games and sports. It has been observed that those suffering from postural deformities are unable to put up good performance, which they otherwise could make depending upon their abilities and capacities. Postural deformities also hinder in the optimal application of various motor components in competitive situation. Therefore, teachers of physical education should be vigilant and identify postural defects and take necessary steps to remove them so as to enable each child to excel in the field of games and sports.

The present study would be of significance in the following ways:

1. The study would help to identify common postural defects prevalent among school children.
2. The study would indicate the relationship of different postural deformities in relation to minimal strength, if any.
3. The study would provide guide lines by way of a suggested corrective programme to eliminate postural defects of school children.