Chapter-I

INTRODUCTION

"A thing of beauty is joy for ever"

How true is Keats’ observation that a thing of beauty is a joy for ever! Good health basically depends on good habits. Health and Better structure are mutually dependent. A man’s posture is the index of his personality and good habits help develop a good posture. The early years of childhood and adolescence in an individual’s life are vital stages in the process of his growth and development. A child is most impressionable and most eager and ready to learn during the period. So, for the normal development of its mind and body, it is important to provide it the right opportunities in its early life. Parents deeply influence (impact) the development of the child, especially during the early stages of its life. They transmit their own behaviour codes, attitudes and values to their offspring. The child’s immediate family members, sibling and peer groups also have a bearing on its learning process. Once in a school, it is exposed (open) to carefully designed learning experiences based on a set curriculum which is devised to facilitate the achievement of definite academic goals and objectives. All academic activities aim at enabling a child to become aware of talents, sharpen its capabilities and mental faculties, realise its physical
and intellectual potentialities and social skills to the maximum and ensure its emotional well being.\(^1\)

Posture denotes a physical position and a multi segment organism, such as the human body, cannot be expected to have a single (standard or uniform) posture. As it provides an index of one’s health, posture improvement is desirable for a person to realise how it feel’s to stand, walk or sit the way he habitually does. Good habits also enable him to adopt a good posture while speaking, sitting, walking, standing, sleeping, lying down etc. The manner of carrying things on the arms, the back, the shoulders or the head makes for a good posture, which is often envied. However, posture varies with age, occupation, type of activity, physique and health.\(^2\)

A good posture helps the body to perform activities (action) with ease and at its best the body to function properly. It can be defined as the position in which the centre of gravity of each body segment is centered over its supporting


\(^2\) Ibid.
base. It is chiefly dependent on maintaining the centre of gravity in a correct way, an upright body, an alert whole, with right balance and poise.³

A child cannot be compelled to acquire a good posture. Any factors, either of health or environment, that reduce muscular strength or encourage exaggerations of the spinal curve, will produce a poor posture. Children with a habitual poor posture are unhealthy, fatigued, under weight, self-conscious, fidgety etc and suffer from hearing defects, restlessness, weakness (timidity) and asthma. Functional posture flows are concomitant symptoms of illness and poor health. A malnourished child, deprived of enough caloric intake to provide required energy, just does not have the strength to hold itself up; a poor posture is the inevitable (inescapable) result. A depressed mental attitude chronic fatigue or an intestinal parasite might produce the same result.⁴

The way a person carries himself makes an important impression. From his appearance, peoples draw certain conclusions about their health, their vitality and their 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 of 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{5}

By good posture is meant an adjustment of body parts to each other which results in an 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 proper alignment of its parts. Good posture, in repose and in activity permits mechanically efficient function of the joints. Friction in the joints is diminished, tension of opposing ligaments are balanced and pressures within joints are equalized. Hence the skeletal structure is architecturally and mechanically sound and there is minimum of wear and tear on the joints.\textsuperscript{6}

\textsuperscript{5} N. Parmeshwara Rao, \textit{Kinesiology Physical Education and sports} (West Godawari : S.S.R. Government college of Physical Education) P. 96.

A child may have numerous health problems. Suppose, at age one he had an operation to repair a hernia in the right groin. In the early years, probably spread between the ages of one to five, he may have had several infectious illnesses which included chickenpox, mumps, whooping cough and diphtheria.

Where as a healthy child aged two to three years old. He has seated; with bright eyes, a healthy and robust physique, square shoulders, and a straight spine.

Between the age of three and seven he slept in a spring mesh bed which slugged in the middle. At the age of five he contracted the measles which inflected the muscles of the left eye and caused a squint which was treated by two operators. Afterwards he was required to wear a patch over the healthy eye to force the other one to return to normal function. But these measures failed so he was prescribed spectacles with greater magnification in the left lens than the right. He also had all of his primary teeth removed in one dental operation and the permanent teeth grew crowded together. At the age of six he contracted hepatitis and was hospitalised for six months during which time he lost much of his body weight. The changes in Physique which resulted are obvious looks same child at age of six to seven sitting slumped and Crumpled forward with
very rounded shoulder sloping more on the right than the left, and wearing spectacles with greater magnification in the left lens.

A child wearing spectacles with greater magnification in the left lens and his facial expression shows that he is relaxed and comfortable. His physique in thin, his spine is stooped and his body is slumped, and his right shoulder is lower than left, his chest is flattened and leaning to the right, and his legs are bowed.\(^7\)

The habitual sitting posture of most people is distinctly bad.

A chair conductive to good posture is a rarity, much of the seating in public building and conveyances makes wholesome sitting impossible. School seats, even those designated as hygienic or posture seats, often violate the fundamentals of posture hygiene.\(^8\)

It is frequently said," Posture expresses mental as well as Physical Statis."

"Posture is an index of personality." "Erect Posture is an Expression of


intelligence.” The Posture often proclaims the man.” “Posture shows the rise and fall of nation.”

Look at your youngsters tonight as they sit reading or studying. Are their back straight? If they are learning over burden work on desk or table, do they lean from the hips? or does the spine seem to collapse at a point just below the shoulders, giving the child, whom you know to be perfectly normal, a slightly hunch back appearance?

Posture can be defined as “Any position in which the body resides.” As we are always in motion, even when we appear to be perfectly still, Posture is actually a fluid concept. Good posture is a series of shifts in position that make it possible for us to operate with no useless expenditure of energy, permitting optimal function of the entire body including the organs.

From a social perspective, a person with good posture and who move gracefully projects poise, confidence, and dignity. From a mechanical standpoint, in good posture the bones and joints are in position to take the stress of weight and movement, and the musculative in firmly balanced to hold the

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boy organs in place. In poor posture the bones are out of line and muscles and ligaments take more strain than nature intended. Besides being unattractive, faulty posture may cause fatigue, muscular strain, postural deformities, and pain. In some cases, poor posture affects the position and functioning of vital organs, particularly those of the abdominal region.  

Good posture is help in kinetic sense. Study proposed examined the relationship between a motor skill postural and action components and balance while moving. The first experiment examined the influence of experience on the development of balance control strategies (stabilization of head in space) during locomotion given varying levels of task complexity. A qualified gymnast have a good posture. It had been proved that good gymnast have a good kinetic sense.  

Concerted action of bones, joints and muscles direct all human movement, the three work together to operate a very efficient and effective system of motion and locomotion. This will discuss the bones and joints.

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Any activity running, jumping, throwing, lifting, swimming requires its own variety of movements and creates its own stresses on the skeletal system. Over the short term and long term, the skeletal system responds and adopts to this stress. Adaptability has been designed into the human skeleton, so that structure affects function and function effects structure. In other words the makeup of bone its size, has to perform.\textsuperscript{12}

Connected with mind an mood is obvious when you think of a depressed person, eyes cast down, shoulders hunched, and compare him with someone whose mood is confident, who swing along, head shoulders back, moving with grace and control. Active alerted posture, which is an attitude not only of the body but of the mind is a complete way of living and moving promoting both mental and physical equilibrium and poise.

This posture encourages the full expansion of the lungs by ensuring balanced action between the muscles of the abdominal wall and the diaphragm.

The whole process is like a bellows. This means that all the waste products from the bottom as well as the top of the lungs are removed regularly.  

Advocates of school athletics often justify sports programs with the notion that healthy minds and healthy bodies go together. In this study we postulate that a sense of physical well being Physical fitness and a healthy, coordinated and energetic body is a mediator between sports participation and self-esteem. We argue that participating in a sport generates a sense of physical well being and that this positive view of one’s body and health is associated with self esteem.

The keen body mechanics may detect tell late 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 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

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and ends in a posture, but during the execution of the movement the postural contractions are altered or abolished.\textsuperscript{15}

Normal posture, then is that posture which best suits the individual in accordance with his own condition and the condition of his environment. In a condition of distress because of sad circumstances, normal posture will be characterized by a general sagging of all body parts. In extreme fatigue the normal posture will be that which conserves energy. The normal posture of physical attractiveness is that which displays the specific qualities of the physique to the best advantage.

Mental attitudes seemingly can induce pleasing or displeasing postures. Professional people who have worked with the mentally ill have reported that there are characteristic posture 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 tension. These tensions seemingly

\textsuperscript{15} Laurance E. More House and Augustus T. Miller Jr., \textit{Physiology of Exercise} (St. Louis : The C.V. Mosby Company 1976), P. 42.
tend to interfere with the awareness of the individual of minor degree of sway that is normal.\textsuperscript{16}

Superior intelligence and tremendous energy are some time housed in a body that is habitually stouched. Some great athletes assume a habitual posture of extreme relaxation.\textsuperscript{17}

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 apparent accompaniment of motor response. At certain ages, feelings of shyness bash fullness, 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, standing and walking.

\textsuperscript{16} Encyclopedia of sports science and measurement, P. 1081-82.

Poor posture is also detrimental to the appearance of the Youngman. 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 imporing their organic functioning and activities. The person with poor posture is ungainly, awkward and unaesthetic.

Good posture obeys certain laws of physics in that efficiency involves the smallest possible expenditure of energy to maintain its 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 part off center 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.\textsuperscript{18}

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 cannot 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 correlation of skeletal muscular, and organ system is most favorable for function. If organs are displaced or crowded by bad posture, serious disorders may develop in human body organs which are adopted to upright posture.\textsuperscript{19}

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

\textsuperscript{18} Encyclopedia of sports sciences and measurement, P. 1161-62.

\textsuperscript{19} Encyclopedia of sports Science and measurement, P.1162
body head, neck, chest and abdomen are all balanced vertically, one on the other, so the weight is borne mainly by the bony frame work, with a minimum of efforts of and strain on the muscles and ligaments.\textsuperscript{20}

Bad body mechanics and poor posture are the result of exaggerating the cervical curve in the neck and 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 contributed 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{21}

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 better, or to twist the body in order to avoid glare. proper adjustment of seating

\textsuperscript{20} Willgorse, \textit{Evaluation in Health Education And Physical Education}, P. 189.

\textsuperscript{21} Encyclopedia of sports Science of Measurement, P. 1161-62.
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 periods. He should use playground equipment to make his activities and exercises 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.  

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

Spinal deviations include Kyphosis-hunch backed curvature, Lordosis-exaggerated forward curvature in the lower part of the back, and scoliosis-lateral curvature and forward tilt of the head.

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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), low back (lumber), and pelvic (Sacral) regions.

Exaggeration of these curves produce what is commonly termed "Poor Posture".

An angulations forward of the vertebral, 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.

The period of most rapid growth of vertebrae is from 11 to 15 yrs. of age. They 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 pewis.
The performance of any machine is determined by the proper alignments of its pares. Consequently all directors of athletics and physical training should recognise 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 disturbances in his musculoskeletal apparatus that will results 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 extention.

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 peronel, that can very seriously limit the success of runners and jumpers and are prone to weakened knee conditions.23

A teacher should alert the children to health problems and environmental situations which create fatigue and slumping. One 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) **Hygienic**: 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.

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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** – They are most stable neither tall or short, psychologically and mentally sound and stable, and move freely in the society.

Specific exercise programmes are recommended for correction of postural defects. The purpose of these exercises is to improve the strength, coordination and elasticity in the body. This is accomplished by developing actively the flexor muscles of the lumbosaeral spine and stretching passively the extensor
muscles and fasciae. Faculty 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 recognised 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.\textsuperscript{24}

Exercises for the development and maintenance of range of motion plays an important role in rehabilitation of the handicapped and is an essential part in treatment of acute and chronic trauma in orthopedic work. Specific exercises such as those used for postural correction are 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

\textsuperscript{24} Encyclopedia of sports Science of Measurements, P. 240
apply equally to therapeutic exercise apply equally to therapeutic exercise as they do to exercise and sports generally.²⁵

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 personality and attitude. The teacher must pay special attention on the sitting, standing habits of the students 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 of the children to
develop a strong personality.

Some factors which may play havoc 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 thing 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
compelled to walk limpingly or lean on one side and with the passage of time
the child may develop bad posture which would develop 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 or 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 eating 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 was to detect the common postural defects namely flat-foot, Lordosis, Kyphosis and Scoliosis among Primary School Children of Baroda City and their Remedial Programme” and also to make some suggestions to parents and related Government Authority regarding corrective program of Postural defects.

Delimitations

1. The study was delimited to the Government Primary School children of Baroda city.

2. The study was delimited in between 2\textsuperscript{nd}, 3\textsuperscript{rd}, 4\textsuperscript{th}, and 5\textsuperscript{th} classes of Government Primary Schools.

3. The present study was further confined to only the following postural defects.
   i) Flat foot
   ii) Lordosis
   iii) Kyphosis
   iv) Scoliosis
Limitations

1. The present study was confined to the detection of post defects but the congenital causes responsible for these defects was not taken into consideration.

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

Hypothesis

1. It was hypothesised that the common postural defects prevalent among children will be flat foot, Lordosis, Kyphosis and Scoliosis.

Definition and Explanation of the Terms

Posture

Posture is described as one in which the head is held erect, the chest is forward, the shoulders are drawn back and the abdomen is retracted.\(^{26}\)

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, type of activity, physique and health.\textsuperscript{27}

Posture is that in which the body segments are balanced in the position of least strain and maximum support.\textsuperscript{28}

**Flat Foot**

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{29}

**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{30}


\textsuperscript{28} John M. Cooper and Ruth B. Glassow, *Kinesiology* 3\textsuperscript{rd} ed. (St. Louis : The C.V. Mosby Company, 1972), P. 186.

\textsuperscript{29} Nigel H. Harris, *Post graduate Text Book of Clinical Ochthopaedics* (Bristol : John Wright and Sons Ltd., Stone Bridge Press, 1983), P. 49-50.

\textsuperscript{30} Ibid. P. 147.
Kyphosis

Kyphosis is an exaggeration or increase in amount of normal convexity of the thoracic region of the spine.\textsuperscript{31}

Lordosis

Lordosis is an exaggeration of norms lumber curve accompanied by forward tilt of the pelvis.\textsuperscript{32}

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 a 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.


\textsuperscript{32} Rash and Bark, Kinesiology and Applied Anatomy, P. 385
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 provide guidelines by way of a suggested corrective programme to eliminate postural defects of school children.

3. The study would help Administrative authority to frame the co curricular activity to improve or minimize the primitive defects.

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