The Therapeutic Value of Indian Classical Dance

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Asyenaalambayet gitam hastenarthaprasdarshayet
Chakshubhyam bhavamdarshayet padabhyam talamarchet

When reading this famous *shloka* from the *Abhinayadarpanam* one is struck by the fact that the classical dances of India are art forms that are meant to encompass every vestige and every potential of the human body. In the very next *sholka* that starts with '*Yatho hasta..*' the key element of coordination between the body parts is stressed by stating how the eyes, the hands, the mind and the mood should be in perfect harmony with each other to create that height of perfection which succeeds in producing *rasa* in a spectator or a *rasika.*

In a sense Bharatanatyam is a combination of *yoga* and *mantra sastra*. The mudras of the *mantra sastras* are the same as the hand gestures of Bharatanatyam. When dancing on the beat of the rhythm, as in a yoga exercise, the dancer's body is rid of its human weaknesses, and is purified into a conduit of the spiritual and the beautiful. However, the experience of the art can be total only if a variety of moods and feelings are portrayed and variety is the soul of the art. The *yogi,* by controlling his breath, and by modifying his body acquires the halo of sanctity. Even so, the dancer, who dissolves her identity into the music and rhythm, makes her body an instrument, at least for the duration of the dance for the experience and expression of the spirit.' – (T. Balasaraswati speaking about Bharatanatyam)

It has been commonly observed and experienced that classical dance benefits the body to a great extent. When my research into the advantages of this art form began, I noticed that classical dances contain all the components of body conditioning viz. strength, endurance, power, flexibility, balance, agility, kinesthetic awareness, and cardiovascular endurance.

A step-by-step study was conducted on each organ system to examine how they are impacted by classical dance starting from the muscular system, which has been taken as the main trigger.

The muscular system

The movements that form the skeleton of Indian classical dance forms act as muscular triggers that stimulate the function of all the other parts of the body in such a way that each part acts in perfect coordination with other parts. This psycho-physiological relationship is nowhere seen to be as smooth as it is in Indian classical dancing

But the muscle movement trigger is effective as long as the brain and its nervous network

is toned, which have to stimulate the muscle, and vice versa. In other words a toned nervous system leads to an active muscular system.

The variety of movements and activities involved in the art make various demands on the brain. This can increase the oxygen transport capacity to the brain and improve the I.Q. That is, by feeding the muscles with this kind of activity we actually nourish the brain. No muscle is left unmoved in any classical dance form. This helps in stimulating the maximum number of nerve cells in the body as well. Thus a toned nervous system in an agile and active body is a key to dance therapeutics.

An ideal movement system

Indian classical dance encompasses almost all the attributes of a perfect conditioning program. The conditioned muscles act as an ideal trigger system to further stimulate the efficient working of the organs of the body.

The various hand mudras and movements involving the dancer's head, neck, eyes, waist, shoulders and feet are performed simultaneously and symmetrically so that in minimum possible time, maximum number of movements is executed. This type of movement is known as simultaneous symmetric movement system, SSM for short. Taking the smallest piece from Bharatanatyam—the Alarippu, it was observed and calculated that within a miniscule duration of 3 minutes a total number of 238 movements were performed without the dancer being aware of it!

The dancer undergoing training performs in the three different speeds- *Vilambit*, (slow) *Madhya* (medium) and *Ruth* (fast). In this process he/she is supposed to keep his/her body still and only move his/her feet and hands. This develops a steady balance in him/her and tightens calf muscles and other muscles of the body. This is unlike other exercises where beauty is not a criteria. The tightening of the muscles to create beauty in speed is the most important criteria of classical dance movement and, a child learns this from day one.

This way the three types of endurance—basic, general and specific are developed with long-term benefits of this art form.

The effects of Indian classical dance as a movement trigger system on the cardio vascular system (CVS):

The heart, like any other muscular organ, needs work to stay healthy and fit. But the trouble is that it cannot be made to work directly like a voluntary muscle. It is made to work indirectly through the voluntary muscle. But the work done by voluntary muscles is directly proportional to the work done by the heart.

The fact that not even one of the 10,000 skeletal muscle fibers of the body should be left unused, has been very well taken care of by the great seers who created our Natya Vedas and Sastras. A detailed study has been done and every single part of the body—the head (*shirobhedas*), eyes (*drishti bhedas*), neck (*greeva bhedas*), Hands (*hasta mudras*), feet (*pada Bhedas*) etc have been dealt with so that not a single part is left unmoved. This

automatically helps the heart to adapt itself in every way.

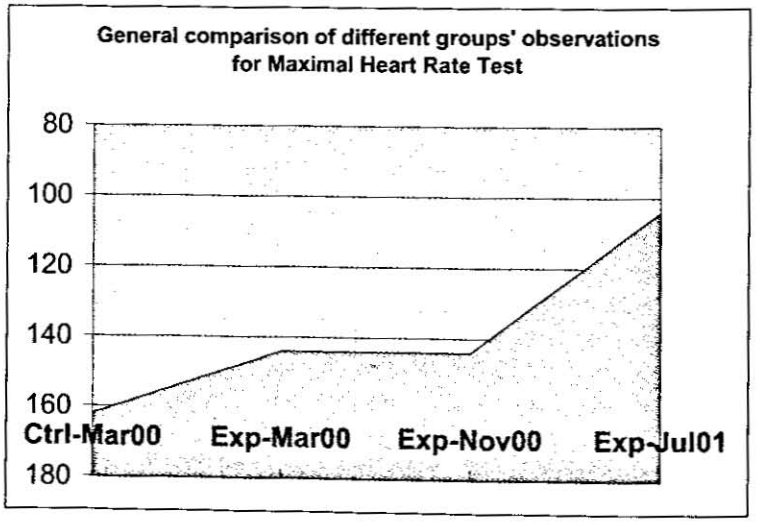
Some of the adaptations studied are as follows:-

- The content of Oxidative enzymes is 3 to 4 times higher in the trained muscle than the untrained one.
- The capillary supply registers an increase in this type of training
- Bharatanatyam training strengthens the heart.
- The heart rate becomes lower.
- The efficiency of the heart, as a pumping mechanism, is increased by a training in Bharatanatyam

In the context of, how the use of the maximum number of muscles in the body helps to strengthen the heart muscle, our experiments showed that the trained muscle was under continuous vibration, pressing on the intra muscular arteries and thus making each muscle behave like a mini pump. Imagine the addition of 10,000 extra pumps to the whole body, thus reducing the workload of the heart and increasing the longevity of the person concerned. It is plausible that total lifetime hours of dance plays a role in the aerobic and anaerobic adaptation of the CVS.

The speciality of Indian classical dance movements is that there is an alternation in aerobic exercise with vigorous bursts of anaerobic activity. Due to this there is alternate work and rest for the heart and the lungs, which ensures that there is no oxygen deficiency in such an exercise. Incidentally, as the stamina of a dancer increases, he/she experiences less strain.

This happens because of the progressive strengthening of the lungs and the heart and a steady improvement in circulation. There is progressive toning of the muscular and the nervous systems. Moreover, agility of the movements with practice leads to the economy of effort



Explanation of the First graph maximal heart rate

At rest, the heart is regulated by signals from the brain reach it via parasympathetic nervous system. The function of these nerves is to keep the heart functioning regularly at a slow rate. Cardiovascular training increases the sensitivity of the heart towards these nerves and the heart rate slows down.

When the exercise program starts, the sympathetic and adrenal glands, located near the kidneys, secrete a chemical substance that immediately increases the rate of the heart. But the fact is that this happens even when there is fear, suspense, or seeing a horror movie.

The difference in exercise is that the increase in heart rate is also related to increase in the Oxygen delivery to the contracting muscles (inc. in Oxygen consumption) this is directly related to the improving of the aerobic capacity.

Actually the response of the heart to exercise slowly changes and as the heart becomes fitter, the intensity of the exercise program also increases.

The graph shows the maximal heart rate with dance training, which decreased as the intensity of the training increased with time i.e. March 2000 then November 2000 and July 2001

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The curriculum of a classical dance form like Bharatanatyam starts with very basic *adavus* like *thattadavu*. Initially, it is an extremely tiring and painful experience. As complex movements are taught, children become fitter and healthier due to a steady state and aerobic nature of these movements. The dancer submits to a strict discipline of training and the traditional art form and finds freedom in creativity and experience. The enjoyment is total and consists of diverse psychomotor and psychological elements. (The CVS fitness and muscular fitness achieved during a two year period was evaluated using standard tools such as peak flow meter test, walk and run test, and pulse rate etc. with 18 experimental and control group children.)

Efficient perception is altered through a fully planned program of progressive practice which perfects co-ordination, eliminates unnecessary movements, accomplishes results at the expense of minimum energy and conditions the muscle structure and circulation to withstand without harm the intensive demand made upon the muscle. The different perceptions studied with regard to same, were visual perception, sequential perception, memory, voluntary motor output and brain function and all the elements of neurological maturation.

These perceptions sharpen as they are used and their efficiency can be measured with certain standard tests.

A student who joins a course of classical dance at the age of eight years is first taught the essentials of rhythm and the basic simple steps in which she learns how to balance in minimum space, and various aspects of spatial orientation, and sequencing .

Visual perception: Visual perception functions entail the ability to recognize or discriminate between patterns and relationships in space. It plays an accentuated role in learning,

particularly in the earliest grades. A child's perception of spatial relationships entails the appreciation of properties' relative position, size, contour and the orientation of still patterns.

Another concomitant of visual perception is visual motor co-ordination, which may depend upon the adequacy of spatial perceptions and constant monitoring of visual feedback. There are many tasks in which a child has to obtain data through vision and then utilize this data to plan and execute a motor movement.

During classical dance training, there are many such visual tasks. This is true for both *nritta* and *abhinaya.*

The *jatis* of Bharatanatyam and Kuchipudi are visually pleasing and aesthetic. The child follows Guru's instructions and grasps the execution of difficult steps and uses his/her own body to achieve master the step. The *nritta* of classical dancing is classified into a series of steps each having its peculiar visual pattern—straight lines—horizontal diagonal and vertical. Then we have circles in all directions. Then there are movements with specific angles. All of this provides a visual imagination to the child, in understanding shapes, space and figures.

Sequential organization: Just as children acquire a schema for vision and space, a schema for time and sequence emerges during development. Neuro-physicists have located this function in the left hemisphere of the brain, while the appreciation of overall form and pattern in thought is located in the right hemisphere.

Much of a child's information gathering and daily activity depends upon sequencing; this sequential organization is closely related to memory. The retention of sequential information is essential; for following instructions at home and in school. A sequential function organizes a variety of sensory and motor processes. These are visual sequences (example of objects, or symbols.) and auditory sequences (example of numbers, words, or musical notes). There are also sequences in motor activity, which suggest relationship between integrated behaviour and a level of sequential organization.

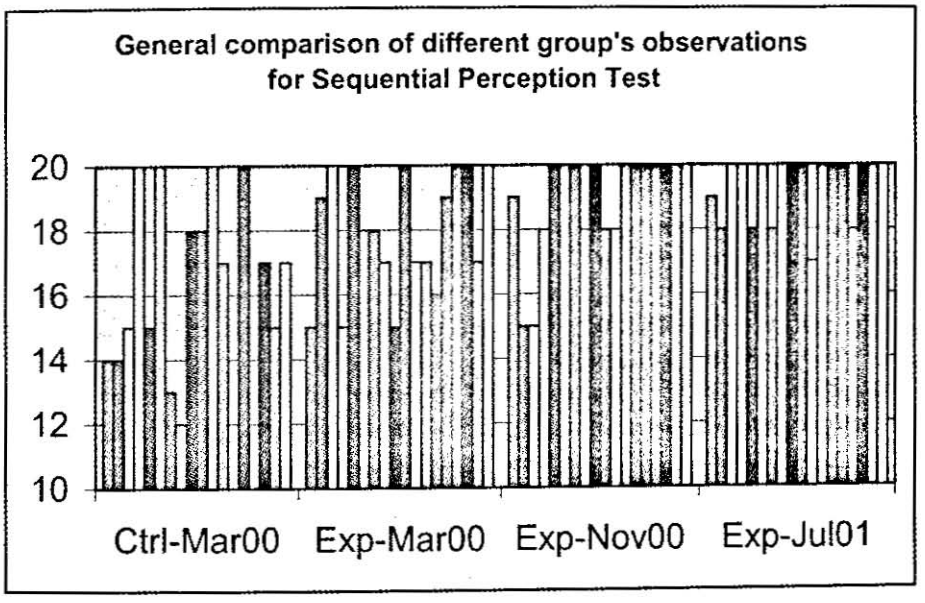
Children with any disorder in sequential organization will have trouble with memory, complaints of not following instructions or get overloaded when a series of orders is given.

Observation from Indian classical dancing:

The syllabus of an Indian classical dance like Bharatanatyam is set in a sequential pattern. A disciple of Bharatanatyam undergoes a step-by-step increase in the complexity of the sequences and ultimately comes to a stage when he/she can learn the items consisting of hundreds of sequences. In the preliminary step or adage sequences, a technical and geometric pattern is followed throughout.

Explanation to the second graph sequential perception

Some standard tests were given to the experimental group in March 2000, November 2000 and July 2001. The marks were given ranging from 10 to 20. It was seen that the temporal



sequential perception improved with the progress of dance training. This is because Indian classical dance involves the use of interesting and complex sequences of movements and incidents, which are to be remembered and performed with confidence and perfection.

The course of Bharatanatyam involves a lot of calculation when the child is performing. There are seven time cycles and five types of time intervals or *jatis* used in this classical dance form. The song is usually set to any one of the seven *talas*. The gait or time intervals are calculated mentally so that any combination used in the item adds up to the number of beats in the *taal*, or its multiple. This continuous calculation goes on in the mind of the performing artiste throughout the performance. He/she has to remember a large number of steps, which only happens as a result of an improvement in memory factor.

Voluntary motor output and Brain function: Voluntary and fine motor controls reflect some aspects of reorganization of the central nervous system. The constant feedback of some aesthetic cues from muscles and joints, contribute to the sense of body position in the maintenance of static posture and to the sustenance of dynamic motor acts. Other aspects of gross motor action include facilitation and inhibition that appropriates muscle group activity, the planning and execution of sequential motor acts and the coordination and integration of muscle activity with sensory feedback and memory.

Fine motor function is often dependent upon eye hand co-ordination; sensory cues of either type that contribute to finger agnosia (awareness of digit location). Adequate fine motor function is important for manipulative activities especially for the development of writing skills.

Inefficiency of fine motor function performances directly affects the ability to write prop-

erly, to copy from the blackboard, and to draw. Grasp of the pencil may be awkward or ineffective. Some children perform fine motor activities ineffectively, at rates below classroom expectations; they may have difficulty in appearing for a test and may be overwhelmed by lengthy writing assignments.

Through connections that classical dance creates when a dancer performs, he/she develops remarkable control over her limbs. Dance training aims at the universal skill of controlling the body in every position and movement except climbing. Due to the development of potent skills in Bharatanatyam, there is a refinement of fine neuromuscular adjustments of a whole host of co-operating nerve

The next stage in the study of the development of brain is the Neurologic maturation that occurs with classical dancing.

The behavioural indicators of central nervous system organization and maturation have often been referred to as 'soft Neurologic signs' which are common in children and but rare in adults. For this reason, they have been linked with the central nervous system maturation. Many of these signs reappear during senescence. The persistence of neuro maturational signs beyond the age levels at which they most commonly disappear have been associated with learning disorders, behavioural problems and other manifestations of developmental dysfunction.

The most frequently examined neuro maturational indicators are commonly seen among students who enter the dance classes They can be easily corrected through Indian classical dance movements.

1. Synkinetic (mirror) movements: With these motor phenomena, one side of the body mimics, an action performed by the other side. This phenomenon is common in pre-school children, and becomes less evident as children mature. In high school students, synkinetic movements may be elicited by more complex unilateral acts. Persistence of true mirror movements in several different areas of the body beyond the age of 8 years is unusual and tends to occur commonly in children with learning and behavioral disorders.

In Bharatanatyam, the very first *hasta adavu* is the opening of one hand at the wrist while keeping the other closed. One hand does a very different action while the other opposes that e.g. in the 7th *nattadavu.* This can be seen in the training program of all classical dance forms.

2. Other associated movements: Other forms of unnecessary or inefficient movements may also be interpreted as evidence of a neuro maturational lag in older children. For example a child may consistently show rhythmic mouth movements, head bobbing or foot tapping in conjunction with another activity concentrated in a distant anatomic area.

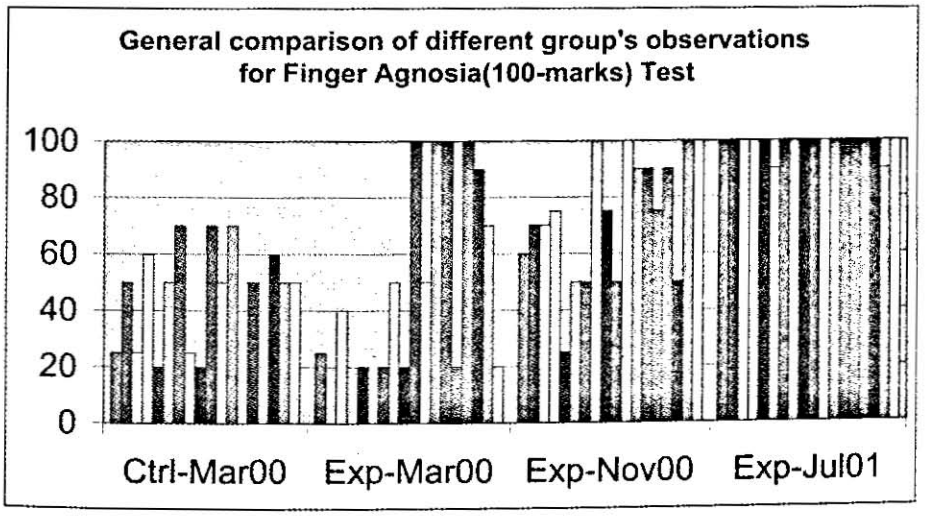
In dance training unnecessary movements are continuously discouraged and only desired functions are performed in a controlled manner. Of course, all of it, with an aim to create beauty.

Finger agnosia: This is to assess the ability of the child to perceive and name the position of the fingers in the absence of visual cues. The child, with eyes closed may be asked to

name how many of his or her fingers are held by the examiner. Reduced finger awareness appears to have some validity in prediction of educational readiness. In Indian classical dance the use of the *asamyutha* and *samyutha hasta mudras* indirectly helps the child to identify the fingers that are used to form a *mudra* without even looking at it. Not only that, from early on, a child is taught various uses of these *mudras* to depict various words and objects *(viniyogas)*

Stimulus extinction: Often children are unable to perceive a sensory stimulus when it is presented simultaneously with a second stimulus. In some cases, more proximal stimuli are dominant over distal, or the two point discrimination may be poor. For example, a child with eyes closed maybe touched on a hand and then on the face and then asked each time to locate the touch. When the hand and the face are touched simultaneously, the child may report only the touch on the face. This is common in younger children but not generally encountered as they grow old. Its persistence may be associated with dysfunction.

In Indian classical dance training stimulus of many kinds follow—the words, the song, the rhythm of the drum, the stimulus of two consecutive counts etc. These help the children



over come dysfunctional disorders.

Choreiform movements: Involuntary rotatory and arhythmic movements are most commonly seen in the outstretched fingers or the protruded tongue. They can be elicited by having a child close his/her eyes, extend both hands, spread the fingers, open the mouth, protrude the tongue, and sustaining this posture for thirty seconds. A number of studies in older children have correlated such involuntary movements with school failure and behavioural problems.

The *karanas* and poses that are held during a recital or item are not only beautiful but help to correct this defect. There are 108 *karanas* and associated *angaharas* which are not only

extremely interesting to learn but also build up the child's self confidence and sense of achievement.

Lateral dominance: The propensity to use one side of the body preferentially reflects the development of one hemisphere of the brain for a particular set of functions. Eye dominance is often established by the age of two whereas hand dominance is usually well established by the age of six. Ear and foot dominance can also be evaluated but less is known about these. Children with delays in establishing clear dominance may have problems in other areas. Mixed dominance (example, a tendency to be left-eyed and right-handed) has been associated in some studies with an increased incidence of reading disabilities;(though research is still on). In classical dance what ever is done on the right is immediately repeated on the left. This starts from the very beginning. All movements and sequences have this quality of repetition on both sides. In this way lateral dominance is corrected.

Left-right discrimination: A sense of laterality should be distinguished from the ability to name left and right. As children grow old, they become progressively competent in these discriminations Initially, a child maybe able to identify asymmetry of the sagittal plane. By the age of six, most children can tell the left side from the right on their own body coordinates. Before they celebrate their eighth birthday, they can cross the midline (e.g. touch the right ear with the left hand). By the time they cross the age of ten, they can identify right and left parts of another person's body starting from new bases (example: turning to face left, then right, then left, and so on).

Here too, the ability to hold different poses (For example, In the Ganesha pose the right hand is in *kapita* and the left *padmakosha*; in Nataraja, the right hand shows *abhaya hasta* and the left *dhanda hasta*, the right again shows the *dumroo* and the left the *Agni* with *alapadma hasta*) delights children as they execute these complicated sculpturusque poses and get rid of their defect.

Problems in left–right discrimination may be complex manifestations of both maturational and basic processing problems, For example many children with visual spatial dysfunction have delays in the acquisition of left–right discrimination.

The signs of neuro maturational delay described above are those used most commonly in evaluation of dysfunctional children. They do not have direct implications for intervention, but they may suggest a degree of constitutional or maturational deficit. In some cases, other forms of accompany delays in neuro maturational delays described above are used most commonly in evaluation of dysfunctional children. They do not have direct implications for intervention but they may suggest a degree of constitutional or maturational deficit. In some cases, other forms of maturational lag noticed in skeletal age, dentition, emotional maturity, social insight, or physical stature, accompany delays in neuro-maturation. Some affected children have delayed onset of puberty

The Accupressure benefits of Indian classical dance forms

The fact that Indian classical dances are learnt, practiced and performed barefoot directly

leads to the hypothesis that such an exercise should have some effect on the functioning of the body because the pressure experienced on the feet while doing a full throttle practice is very similar to the pressure applied on the feet in the ancient system of medicine called Acupressure. This is evident when one has a chance to either witness a dance performance or hear the constant stamping of feet standing outside a dance class in session. The vigorous and continuous sound of the feet beating to the correct timing or rhythm corresponding to the *Bol* of the *Guru* or the percussion instrument, bares testimony to the fact that enormous the pressure is applied on the feet in every such dance class.

To arrive at a scientific conclusion of such a practice, a study was conducted with the help of Accupressure specialists.

In all classical dance forms, the beating of the foot (foot accupressure) takes place throughout the performance or during a practice session as an incidental feature. Incidentally, the dancer is least aware of the fact that a perfect accupressure massage is taking place side by side even as he/she is learning classical dance. While doing so, the different points regulating the various functions of the body are regularly pressed leading to a prevention of disorder in these organic functions

To cite few examples:

1. Pineal point: This pressure point regulates the water balance, manages all the glands, controls cerebro-spinal fluid and stimulates the growth of nerves. Any malfunctioning of this gland results in high blood pressure among other things, the development and stimulation of this gland leads to strong will power. The point of this gland is point no. 4 on the big toe.

2. Pituitary gland: This pressure point controls brainpower and enhances our memory. This gland can be called the prime regulator or the king of all glands. The stimulation of this gland also leads to control in will power, sight, hearing, the creative and applied part of the brain is stimulated and this results in the creation of scientists, writers, poets, artistes and philosophers etc. The point of this gland is point no. 3 on the big toe.

3. Thyroid/parathyroid gland: This gland is very important for the development of the child's body. It helps in the digestion of calcium and thus controls the heat in the body and maintains the child's health. It also increases the thinking capacity and concentration leading to self-control and balanced temperament, purity of heart and selflessness. The pressure point of this important gland in the body is point no. 8.

4. Thymus gland: This gland protects the person till the stage of puberty. It protects a child against disease. If pressure is applied on this point till the child enters his or her teens along with pressure on the points of the other glands as well, the child can remain disease free and in healthy state of mind and body. This point is point no. 30, which is under point no. 38.

5. Adrenal and Pancreas: This gland regulates blood and sugar levels; controls stress activeness and character building. It enhances our perception, makes us energetic and helps us build out inner energy and courage. It also intensifies the flow of blood, helps proper

oxygenation, and develops organizing power. This is an important gland for the character building of a child. This gland is stimulated by pressure at point no. 28.

Keeping the above glands in proper condition is important not only for the particular functions they perform but also for the fact that these control our mind and vice versa.

Many points and areas were studied in this way and it was found that many diseases such as allergy, acidity, hypertension, and hypotension could be relieved or prevented from occurring incidentally during a classical dance practice.

Indian classical dance—a dynamic yoga

In this aspect one can observe that the aim and prime objective of the classical dance forms like Bharatanatyam is to attain perfection by increasing the power of the mind to concentrate upon the object under description or on the beauty and precision of the movements being performed. The Indian classical dance forms are strict disciplines, which not only need devotion, sincerity and hard work but also patience and meditation.

In this context it is relevant to point out that Bharatanatyam is an ideal Yogic system and like the *yoga sastra*, it helps us increase flexibility. It has been studied that *Hatha Yoga* promotes vibrant health and helps us tap our latent energy with its *asanas* and postures.

During the achievement of each posture, the artiste totally concentrates on the stability of the body. The rule is to press on the flat foot and slowly build up the tension and tightness of the muscles involved by focussing on the final stage. The position of the hand for e.g. in the Nataraja pose is such that it forms a right angle with the shoulder and the elbow. Another example is the formation of the *Padmanabha or Ranganatha* posture. The artiste elongates his/ her body and keeps the foot in the farthest possible point. The upper body is kept straight and stiff and the posture is maintained.

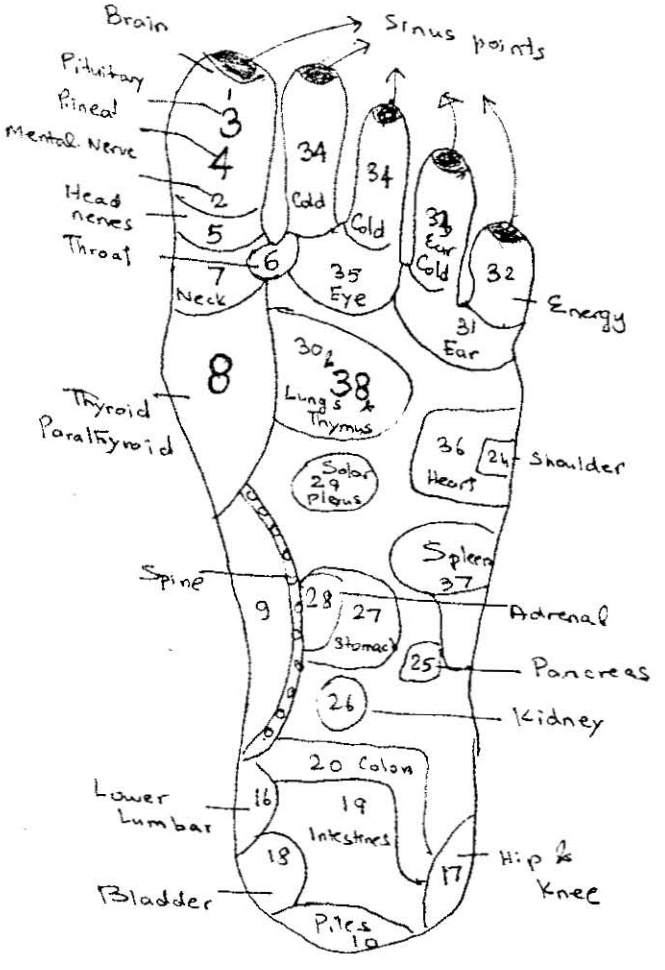
Further, the eye and neck exercises, used in yoga are similar to the ones used in classical dancing. To take an example: the shoulder rotation movements were studied.

The movements performed in these *asanas* are very similar to the shoulder movement performed in classical dance, which strengthen the shoulders and improve the flexibility.

- *Bhuja–bali shatkti vikasak:* Taking the arms high up and bringing it down. The palm should face outwards. This can be done with both arms alternatively or together also. There is similar shoulder movement seen in the 7th *Nattadavu.*
- *Poorna bhuja Shakti vikasak:* In this asana the arms are rotated anti—clockwise. The arms are rotated from front to back, keeping the hands in *mushti.* This *asana* gives a natural strength to the shoulders and also strengthens the arms. A similarity can be seen with the 2nd *mardita adavu* of Bharatanatyam and the 3rd *paichal adavu*

The wrist is one portion, which is usually forgotten in exercises. The wrist *asanas* takes care of this part beautifully such as the raising of wrist and the lowering of wrist occurs in *mushti* and *pataka mudras.*)

Similarly, Natya Sastra talks about the *hasta prachara- uttana, adhomukha* and



The Pressure Points on the Left Foot

parshvagatha. This is applied to the dance training from the very beginning.

A great deal of study was made going into every part of the *yoga Sastra* in this research and it was ultimately found that Classical dance was indeed a dynamic yoga. Keeping this in mind a new system of movements was formulated—the yogic aerobics for the benefit of middle aged men and women based on the classical dance movements. Set in cycles of 8, 10, 12, 14 and 16 movements these movements are a truly Indian way to aerobic fitness.

Further studies are now being conducted on the hormonal benefits of Indian classical dance. For this, it s assumed that the muscular trigger system of Indian Classical dance stimulates the functioning of the ductless glands and hence the production of many hormones is regulated. For example it has been discovered that the production of no-epinephrine is increased during the first 20 minutes of dancing which increases the ecstasy level of the dancer thus elevating his/her mood and helps to get rid of stress and depression. The production of insulin, the anti diabetes hormone, is also increased by this type of movement system.

The learning of Indian classical dance improves circulation by toning each and every skeletal muscle. Learning bharatanatyam improves the working of the endocrine glands by through accupressure foot movements and by stretching the body. Flexibility, endurance, stamina, agility and strength are also developed incidentally. The correct body posture maintained throughout a performance helps prevent diseases due to postural defects.

A famous dancer and critic once said, "Posture is static not dynamic. It is that moment of seeming stillness when the body is posed for the most intense, most subtle action. At that instance, body is at its moment of greatest potential energy." It is this very energy, which becomes the source of a dancer's ecstatic experience on one end and his/her mantra of healing on the other.

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