
Domains of Investigation — main contents of the website

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E. Practices of Bodily Consciousness

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7. In nataraja yoga, the body produces slow fluid movements that are first defined by a formal routine and then improvised in three synchronous cycles: slow deep breathing movements; variable steady pelvic movements; and variable wavy movements of shoulders, arms and hands. Synchronized and improvised movements also appear as internal imagery of the whole body exercising freedom in a mental theater of bodily awareness.

1. **A table organizes diverse bodily practices and activities.**

The following Table of Bodily Practices and Activities provides a framework for investigations in this domain of freedom. The listings are organized by kinds of internal energy flows, with the smallest, simplest flows at the top and with increasing energy demands and difficulty in coordination as listings proceed from top to bottom. In shimmering activations, the emphasis shifts to mental energy.

"Energy Levels" and exemplars in the Table may be subject to personal revisions by the reader. "Activations" were introduced in the free-will puzzles project and have been investigated in Virtual Energy technology projects.

Table of Bodily Practices and Activities

Activations	**Energy Levels**	**Exemplary Practices, Exercises, etc.**
Stationary	relaxed	savasana (yoga rest position on back on floor)
	stretched	asana yoga (supported positions)
	stressed	asana yoga (progressive positions)
Steady	stepping	walking on a level surface, prana yoga, Feldenkrais, qigong
	loaded	walking on a sloping surface, vinyasas, metabolic bodybuilding
	ranging	walking a circular route on a hillside, qigong programs, sequence of vinyasas (e.g., sun cycle), circuit training of muscle sets
Saccadic	playing	ball throw and catch, darts, push hands
	working	jogging, running, anabolic bodybuilding, drills of wrestling and judo
	striking	drills of boxing, gongfu, karate; aiming and shooting at stationary targets
Shimmering	stroking	yoga nidra (rotation of consciousness), mindfulness of breathing and walking, ping pong, shooting at flying targets
	schematic	t'ai chi and karate forms, wilderness trails
	improvisational	wilderness exploration, competitive combat sports, nataraja yoga

DISCUSSION

The chief construction in this domain involves easy, simple movements and minimal exertion: savasana and supported asanas in stationary activations; prana yoga, Feldenkrais and qigong in steady activations; and yoga nidra, mindfulness of breathing and nataraja yoga in shimmering activations.

Simple practices are combined to make up a layered construction of movements and bodily feelings, memories and habits that are adapted for a new practice, ***nataraja yoga***, a slow, spontaneous dance combining multiple kinds of movements. The body moves on its own and exercises freedom on its own, under conscious supervision and mental guidance, like that of a parent minding a child who is climbing inside a cage of bars in a playground.

Some listings in the table involve groups of activities. As the chief group, ***yoga*** contributes multiple practices to the construction, manifesting progressive levels of energy flow: savasana, yoga nidra, asanas, prana yoga and nataraja yoga.

A different group, the ***Chinese*** group, includes qigong (also written as chi kung, chi gung, etc.), push-hands (a low-force combat sport), tai chi (t'ai chi ch'uan or taijiquan) and gongfu (kung fu – a classic combat sport). Practices in the Chinese group are based on actual movements occurring in actual time — in contrast to traditional hatha yoga practices that are controlled by states of mental imagery.

Three levels of walking outline three levels of steady activations. All levels share a smoothly rolling cycle. They differ in amounts and variations of exertion.

Steady movements and saccadic movements have distinctly different characters and forms of expression, which also often overlap and combine. An ideal steady movement is constant; an ideal saccadic movement starts from rest with a jump. In anticipated investigations, the two kinds of movement have independent origins and are also combined in constructions. Perhaps a saccadic impulse starts a movement that is sustained by a steady follow-up in the initial direction.

Distinctions between steady walking and saccadic jogging (or running) were introduced in part A. In walking, at least one foot is always on the ground; sometimes two feet are on the ground. In jogging, there is never any moment when two feet are on the ground; there is, at most, one foot on the ground. Walking is smooth over a cycle with a wavy character; in jogging, each foot impact is a distinct event and forceful leg thrusts alternate with effortless intervals.

Distinctions appear when fast walking and slow jogging are compared. If a treadmill operates at a constant speed where both gaits are possible and the person switches between them, fast walking requires a stride that is longer in both distance and time between strides — while slow jogging uses a shorter stride.

Similar distinctions are observed in the two different kinds of bodybuilding. Metabolic bodybuilding aims for a slow steady speed that imparts minimal momentum to the weight, requiring a steady application of force over the range of movement, especially at the "sticking point" near the middle of the range of movement where applied force is weakest. Anabolic bodybuilding uses a sudden surge of force at the beginning of a movement that imparts enough momentum to the weight to carry it over the "sticking point." Thus, anabolic bodybuilders work out with larger weights than metabolic bodybuilders, e.g., 60 lb. dumbbells compared to 20 lb. On the other hand, metabolic bodybuilders produce more repetitions of movements in a set, e.g., 20 reps instead of 8 reps for an anabolic bodybuilder.

Metabolic bodybuilding develops stamina and resembles physical labor performed by experienced workers who maintain their bodies without injury while getting the job done on a daily basis. Muscles grow larger in anabolic bodybuilding but there are greater risks of injury and the body requires rest and recuperation for days between workouts.

In shimmering activations, the table itself goes through a change of character. Progression in lower levels is reflected in requirements of muscular energy and coordination complexity from the most relaxed stationary activation to forceful working and striking activations. In shimmering activations, in contrast, increases in mental energy flow are manifest.

Two kinds of movement – striking (saccadic) and stroking (shimmering) – include examples with different sizes of forces. A chief distinction between striking and stroking is that stroking movements are sensitive to changing internal imagery or to changing external events while striking practices work best when an external target remains fixed and the body exercises freedom with variable movements. For example, aiming and shooting at a stationary target involves a fixed final point and deliberate adjustments of the body that sharpen its action directed at that point; in contrast, a flying target requires quick adjustment skills and bodily movements that can track exterior events.

Skills of moment-by-moment invention are manifest in practices of improvisation. In the culminating practice in this project – nataraja yoga – improvisation is based on "equipotential postures" and "equipotential movements" that can lead to multiple next movements. Selections of next movements are carried out through unification of multiple synchronous streams of internal bodily feelings, habits and intentions in a body producing movements and exercising freedom.

2. A progressive construction of practices leads to nataraja yoga — in which slow improvised dance movements also generate internal imagery of the whole body performing in a mental theater of bodily awareness.

During practices of nataraja yoga, slow improvised movements occur spontaneously in the body and also appear as imagery in a ***theater of bodily awareness***. "Spontaneously" means that I don't anticipate the next movement and that the next movement can happen in different ways. "Improvised" means that each unique movement is produced only at this moment "now." The "theater of bodily awareness" resembles imagery reported by practitioners of other disciplines.

Imagery of the "***body-mind***" is described by Bob Klein in *Movements of Magic: The Spirit of T'ai-Chi-Ch'uan* (1980), pp. 5-8 (emphases added).

> The [T'ai-Chi] Form, a slow, relaxing series of movements based on animal behavior, is designed to develop calm, peace and gentleness within us.
>
> …
>
> … the Form is done as slowly and smoothly as clouds drifting in the sky. The muscles learn to tense and relax slowly and smoothly. So slow is the Form that it resembles a slow-motion film of the animal called the slow loris
>
> …
>
> Many lessons are learned from the smoothness of the Form. While smooth, the movements are not mushy, but crisp and precise. Each movement is clearly finished before proceeding on to the next. Our attention is focused on the present moment.
>
> …
>
> To concentrate on the present is to trust in the future and in your own power. As a present-minded student, you trust that in the next second you will make the proper movement. You don't have to think about it first. You don't have to check up on yourself. The next second, your inner power will be there to do the right thing, just as it is there this second. This ***inner intelligence, which we call Body-Mind (BM)***, does not need the thinking mind to tell it how to do the Form.
>
> …
>
> Momentum is felt as slow-motion waves flowing through the body. As an arm moves to the right, a wave of momentum slowly spreads through it until, reaching the fingertips, the wave slowly bounces back through the center of the body and perhaps into the opposite leg, which steps out next. Thus, these waves of momentum splash in slow motion from one part of the body through the center and into another part. It is a very sensuous experience.

…

> The Form is an art which the BM can really "sink its teeth into" and thereby exercise its abilities. ***Motion is the canvas of this art, and the eddies and currents of the waves of momentum are the paints. BM paints a moving internal picture with momentum.*** Each eddy and current has its own set of qualities, just as each brush-stroke has its own quality and adds a new color to the canvas.

The "***self-image***" is described by Moshe Feldenkrais in *Awareness Through Movement, Health Exercises for Personal Growth* (1972). This concept has a large reach for the author, as manifested in the first sentence of the Preface: "We act in accordance with our self-image. This self-image —which, in turn, governs our every act—is conditioned in varying degree by three factors: heritage, education and self-education." In the first chapter ("The Self-Image"), the analysis has a heading **The four components of action** and a definition:

> Our self-image consists of four components that are involved in every action: movement, sensation, feeling and thought. The contribution of each of the components to any particular action varies, just as the persons carrying out the action vary, but each component will be present in any action.

Feldenkrais' self-image is limited in most persons. "The parts of the body that are easily defined in awareness are those that serve man daily…"

A complete self-image is a rare and ideal state, as discussed on page 21:

> A complete self-image would involve full awareness of all the joints in the skeletal structure as well as the entire surface of the body—at the back, the sides, between the legs, and so on; this is an ideal condition and hence a rare one. We can all demonstrate to ourselves that everything we do is in accordance with the limits of our self-image and that the image is no more than a narrow sector of the ideal image.

DISCUSSION

As indicated in the Table, practices of tai chi and nataraja yoga are closely related, like cousins. In nataraja yoga, movements are spontaneous, arising from shifting balances among multiple memories, rather than based in a singular Form in mind and memory, as in tai chi. In both cases, chief memories are body-based, established by actual practice, and directed towards producing movements and feelings that are experienced as they are happening. Highly energized Shimmering activations generate momentary possibilities of different movements that change

into selected actual movements, accompanied by bodily feelings that sometimes cause, sometimes participate in and sometimes result from the selections.

The theater of bodily awareness generated during nataraja yoga is not a rare state or an ideal state like that of Feldenkrais' complete self-image. Neither does it involve "full awareness" of all body parts. It is, however, repeatedly generated during daily practice sessions and, like Feldenkrais' self-image, it does include whole-body awareness of multiple kinds of movements, sensations and feelings that are occurring together.

With a suitable music background and supervision by the mind, the body maintains three slow, long, matching cycles of synchronous movements: breathing movements, pelvic movements and movements of the shoulders, arms and hands. Then, while the mind continues to control deep breathing, control over the body is released — and improvised movements arise in the pelvis, torso, neck, shoulders, arms and fingers, which often repeat and sometimes change spontaneously into fresh movements. The practice also generates a theater of bodily awareness in which the unified body and image, like a dancer on a stage, moves and feels on its own while the observing mind controls breath cycles and occasionally triggers a change of movements.

3. The construction begins with hatha yoga practices — in which positions, feelings and movements are controlled by conscious mental imagery ("will").

Yoga includes many diverse and interconnected domains of practice. Here, the focus is on introspective body-based practices that are called:

> Hatha-Yoga, the "forceful" yoga of bodily transformation … Perhaps the best-known modern representatives of this type of Yoga are B. K. S. Iyengar (who has trained many Western practitioners), Swami Vishnudevananda, ..." (Georg Feuerstein, *Yoga, the Technology of Ecstasy* (1989) at xxi.)

Vishnudevananda teaches:

> Hatha Yoga gives first attention to the physical body, which is the vehicle of the soul's existence and activity. Purity of the mind is not possible without purity of the body in which it functions and by which it is affected. Through the practice of *asanas* and *pranayama*, the mind becomes one-pointed and thus one can progress quickly in concentration and meditation. (Swami Vishnudevananda, *The Complete Illustrated Book of Yoga* (1960) at 237.)

a. Savasana

Investigations start with the most relaxed yoga position, called ***savasana***, or "corpse position." According to B. K. S. Iyengar:

> It means relaxation and therefore recuperation.
>
> …
>
> When savasana is well performed the breath moves like a string holding the pearls of a necklace together. The pearls are the ribs which move slowly, very steadily and reverently, reverent because when one is in the precise state, the body, the breath, the mind and the brain move towards the real self (Atma)…
>
> …
>
> *Alignment* Savasana is performed lying down full length on the back on a blanket spread on the floor.
>
> …
>
> First adjust the back of the body. Then adjust the head from the front. … Then adjust the front of the body, keeping the centre of the eyebrows, the bridge of the nose, chin, sternum, navel and centre of the pubis in line. … To prevent any tilt of the body keep it straight and level. … Finally stretch and adjust the back of the neck, so that it is centrally placed on the floor.
>
> …

Keep the feet together and stretch the outer edges of the heels; then let the feet fall outwards evenly. The big toes should feel weightless and non-resistant.

…

Keep the hands away from the body, forming an angle of fifteen or twenty degrees at the armpits. … Extend the hands from the wrist to the knuckles, palms facing upwards. Keep the fingers passive and relaxed, with the backs of the middle fingers touching the floor up to the first knuckles.

…

Unconscious Tensions One may be unaware of tension in the palms, the fingers, the soles of the feet or the toes. Watch for and release this tension when and where it occurs.

…

Removal of Tensions First learn to relax the back of the body from the trunk to the neck, arms and legs. Next relax the front of the body from the pubis to the throat, where emotional upheavals take place, and then from the neck to the crown of the head. In this way learn to relax the entire body.

…

Complete serenity of the body is the first requisite, and is the first sign of attaining spiritual tranquility.

…

The Senses ("the senses are withdrawn inwards") ... *Eyes ... Ears ... Tongue ... Skin ... Breathing ... Head ... Brain …*

…

The aim in savasana is to keep the body at rest, the breathing passive, while the mind and intellect are gradually sublimated. … Then the mind, free from fluctuations, dissolves and merges in the self, like a river in the sea.

(B.K. S. Iyengar *Light on Pranayama: The Yogic Art of Breathing* (1988), selected excerpts from the chapter "Savasana / The Art of Relaxation.")

Discussion

The practice of savasana, as set forth in the extracts from Iyengar, manifests significant features that will re-appear in later practices.

The practice is set forth as a series of commands from the instructor to the student. For a simple approach here, commands in a text are said to be equivalent to those delivered in person or on a recording. In contrast, traditional yoga practice

revolves around a personal relationship in which a student worships and obeys the guru as if they were a god. Regardless of form of delivery, commands are mentally processed by the student and then sent to the body, which is expected to obey. Thus, we are instructed by Iyengar to: "learn to relax the back of the body … Next relax the front of the body … In this way learn to relax the entire body."

The student learns the words of the commands after a few repetitions and sessions. Then the student can practice on their own, internally reciting the commands and directing the body to obey. This activity of mind control can be called "will." It develops into "free will" in subsequent steps. However, such concepts of "will" and "free will" are limited to specific domains where mental control is effective. The concepts can become delusional when attempts are made to expand their use into other domains of actual life, e.g., parent-child relations. A different meaning of "will" is "purposeful self-motion of the body that continues regardless of pain and fatigue" as in "the will to survive." Various meanings of "will" get conflated and confused. Freedom is obscured by a connection with the word "will.".

During the construction of nataraja yoga, "will" and "free will" are superseded by freedom of the body.

How does the body learn to obey and to relax? This is the Art of Relaxation. The chief answer is that learning comes from doing and from repeated practice. Lying on the back and being instructed to relax has a relaxing effect. The chest collapses a bit while exhaling and there is silent sigh, or perhaps an audible sigh. Slackening of tension is felt. The student notices these responses and has a feeling of satisfaction that they are advancing in the practice of yoga. Perhaps after a few more breaths and mental repetitions of instructions, tensions are felt to subside in the neck and shoulders, another satisfying event.

Iyengar's sequence of commands is based on a kind of verbal map of the body: first align torso — and head; then align legs, then arms and hands. Sequences can be repeated mentally and begin to establish a practice. Imbalances and tensions in body parts are noticed thereby and then energies in such parts rise out of an intermediate level of relaxation and re-position the parts at a more relaxed level.

Perhaps doing it again the next day sets the practice into a groove of relaxation and satisfaction. Repeated practice develops more acute sensitivity of misalignments, imbalances and tensions and greater skills of correction with only slight effort. Day by day, at the appointed time and in the appointed room, the groove grows deeper and steadier. Eventually, the only mental command needed is one to start the practice at such time and in such room — and the body begins to relax on its own. Thereafter, a return to savasana becomes a grounding event in a more highly developed yoga practice.

b. Yoga nidra (rotation of consciousness)

Yoga nidra was invented by Swami Satyananda Saraswati in the middle part of the 20th century, as described in his book *Yoga Nidra* (1998 reprint). Satyananda and Vishnudevananda name Swami Sivananda Saraswati as their guru and Master, respectively. According to Satyananda, Sivananda "guided thousands of his disciples and aspirants all over the world and authored over 200 books."

Yoga nidra is a program of relaxation in which performance of savasana as described above is the first step. With a fully relaxed body, activity is entirely mental. Mental activity is directed by an instructor's voice, typically on a recording. A recorded version by Tim Rowe is available on my website. (www.quadnets.com/yoganidra.mp3)

Satyananda directs the practitioner:

> … lie down in shavasana and listen to whatever the voice is instructing. Go on following the instructions mentally. Do not concentrate, do not control your breath, just listen to the instructions and follow them mentally.

Aims of yoga nidra are mental relaxation and removal of tension from the personality. Multiple kinds of mental activity are practiced that might be compared to different styles of massage. For such purposes, a practitioner who is following the instructor's commands puts their mind into a "***hynogagic state***"

> in between waking and sleep … In this state, the mind is exceptionally receptive. … enables one to receive intuitions from the unconscious mind … fount of artistic and poetic inspiration … most creative scientific discoveries … Wolfgang von Goethe … Kekule … Niels Bohr … Einstein … the answers to all problems … opening of the "third eye" … divine consciousness … As the [scripture] states: "Therefore, realize with a still mind your own true nature … This is the real Self, inhering in which one is no longer deluded." (*Yoga Nidra* at 7-8.)

This project is directed towards movements of the practitioner's body, different from the mental approach of Satyananda. A wide-ranging construction incorporates multiple body consciousness practices drawn from diverse sources, along with related bodily feelings and mental imagery. Towards this end, I investigate a particular practice in the yoga nidra program – called "rotation of consciousness" – and adapt it for my purposes. In later stages of the construction, the mind engages in detached observations and playful interventions that are far from a hypnogagic state.

Satyananda teaches the student how to perform rotation of consciousness:

> there are only three requirements to be fulfilled. (i) remain aware, (ii) listen to the voice, and (iii) move the mind very rapidly according to the instructions. When the instructor says 'right hand thumb,' repeat it mentally, think of the right hand thumb and move on. It is not necessary to visualize the different body parts. You have only to become accustomed to following the same sequence, mentally repeating the names of the different body parts in the same way that a child learns to repeat the letters of the alphabet. (*Id*. at 80.)

A full yoga nidra program includes body relaxation exercises, breathing exercises and image visualizations in addition to rotation of consciousness. The *Yoga Nidra* book includes four full programs of increasing complexity. In the first full program, the practitioner performs savasana and follows instructions during relaxation exercises. Then the instructor reads the following script:

> **Rotation of consciousness**
>
> We now begin rotation of consciousness, rotation of awareness by taking a trip through the different parts of the body. As quickly as possible the awareness is to go from part to part. Repeat the part in your mind and simultaneously become aware of that part of the body. Keep yourself alert but do not concentrate too intensely. Become aware of the right hand. *pause*
>
> (right side)
>
> Right hand thumb, second finger, third finger, fourth finger, fifth finger, palm of the hand, become aware of your palm, back of the hand, the wrist, the lower arm, the elbow, the upper arm, the shoulder, the armpit, the right waist, the right hip, the right thigh, the kneecap, the calf muscle, the ankle, the heel, the sole of the right foot, the top of the foot, the big toe, second toe, third toe, fourth toe, fifth toe...
>
> (left side)
>
> Become aware of the left hand thumb, second finger, third finger, fourth finger, fifth finger, palm of the hand, back of the hand, the wrist, the lower arm, the elbow, the upper arm, the shoulder, the armpit, the left waist, the left hip, the left thigh, the kneecap, the calf muscle, the ankle, the heel, the sole of the left foot, the top of the foot, the big toe, second toe, third toe, fourth toe, fifth toe...

(back)

Now to the back. Become aware of the right shoulderblade, the left shoulderblade...the right buttock, the left buttock...the spine...the whole back together...

(front)

Now go to the top of the head. The top of the head, the forehead, both sides of the head, the right eyebrow, the left eyebrow, the space between the eyebrows, the right eyelid, the left eyelid, the right eye, the left eye, the right ear, the left ear, the right cheek, the left cheek, the nose, the tip of the nose, the upper lip, the lower lip, the chin, the throat, the right chest, the left chest, the middle of the chest, the navel, the abdomen...

(major parts)

The whole of the right leg ... the whole of the left leg ... both legs together, *pause* The whole of the right arm...the whole of the left arm ... both arms together. *pause* The whole of the back, buttocks, spine, shoulderblades ... the whole of the front, abdomen, chest ... the whole of the back and front ... together ... the whole of the head ... the whole body together ... the whole body together ... the whole body together.

(Repeat one or two rounds gradually decreasing speed.)

Please do not sleep ... total awareness ... no sleeping ... no movement, *pause* The whole body on the floor, become aware of your body lying on the floor. *pause* Your body is lying on the floor, see your body lying perfectly still on the floor, in this room. *pause* Visualize this image in your mind. *long pause*

DISCUSSION

I investigate connections, if any, between (i) the practice of rotation of consciousness and (ii) muscular movements and bodily feelings of actual life.

One hypothesis is that thinking about a body part is devoid of content when there is no actual bodily feeling nor any sensation nor any muscular movement. Contrary to such an hypothesis, my practice of yoga nidra does have content, but it is very subtle and not very relaxing. Notably, my practice is not yoga nidra — I don't like hypnogagic states and recorded instructions irritate me after a few sessions. Accordingly, I have dispensed with instructors and practice yoga nidra on my own, running a script in my own mind and observing my responses. The commands of the instructor become my own commands subject to my timing and my own inventions and variations. Recalling the discussion of "will" in connection with savasana, this might be called "free will" but for lack of actual movements.

In other words, at first the instructor provided the "will" by reading the script and I followed the instructor's will. The instructions were easily learned and I now substitute my own will. I can move my will from finger to finger at a rate I choose and I can change the order of the movements if I choose. For example, I can move the will from fifth finger to fourth finger to third finger, in an order different from instructions. Such movements of will are effortless and can be quick. Different movements are possible at every step and choices are easily changed. In my approach, I presume that multiple possible movements and quick, effortless changes arise from an underlying ***shimmering condition*** of a body. I suggest that a body in a shimmering condition is ready to produce any one of a repertoire of movements and to generate related feelings.

A verbal map of the human body was introduced above in the savasana practice. The verbal body map in the rotation of consciousness script is much more detailed. According to Satyananda's book, the verbal body map in his script corresponds to an actual brain map defined in the ***primary motor cortex*** in the cerebrum at the top of the head. Neurons in this region send signals directly to the spine for conversion into drive signals for muscles in the spine and limbs.

Satyananda represents the organization of cells and groups of cells in the primary motor cortex by means of a ***motor homunculus***, which is like a doll of a human being with body parts distorted to illustrate the different sizes of cell groups in the primary motor cortex that drive different body parts. Thus, the hands of the doll are huge, compared to its torso, because many more motor nerves control the hands. Supposedly, the order of words in Satyananda's verbal map tracks the order of cell groups in the cortical map, so (on the right side), first comes the thumb, then the second finger, etc., up the arm and down the side, ending up with the toes. The verbal map for the left side repeats the process.

Recent studies refute Satyananda's simple mappings and doll representation. Notwithstanding such shortcomings, his description is roughly congruent with my own experience. After repeated practice sessions on my own, my "feeling" or sense is that, when my mind utters "right hand thumb," my right thumb controllers are alerted or activated to be ready to twitch on command. Then, with the next step, attention shifts to the second finger, which is alerted and activated while the thumb is de-activated. I suggest that the state of higher activation is a ***readiness condition*** of the mind that is specifically restricted to a single thumb or finger at a time. And it is this readiness condition that is manifested in a feeling.

In experiments in self-touching in part A of this project (domain of actual life), a right hand fingertip is brought into contact with a left hand fingertip, with visual control in one case (remote) and with eyes closed in the other case (residential).

When eyes are used as part of remote control, the primary motor cortex is appropriately organized with other brain parts for such functions.

The construction path in part A began with residential movements and introduced mental controls incrementally as cues, commands and choices. Residential movements were foundational and mental activity was based on those movements. In this part, a very different construction path begins with mental activity and then detaches residential movements in several developmental stages. Consciousness based on mental activity is foundational,

Hence, the rotation of consciousness practice starts with parallel courses of events in the domain of feelings and in cerebral brain structures: a verbal instruction is interpreted to activate a specific body part by means of a small part of the primary motor cortex, giving rise to a specific feeling of readiness. To complete the anatomical course of events, the ***pyramidal tract*** collects all the nerves from all the parts of the primary motor cortex and traces their routes in the body and their connections to corresponding motor drive neurons in the spine.

Towards the end of the rotation of consciousness practice, awareness is directed towards "whole" body parts, e.g., "whole of the right leg," and "whole of the left leg." Finally the all-inclusive "whole body together" becomes an object of consciousness. Final instructions are: "Your body is lying on the floor, see your body lying perfectly still on the floor, in this room. *pause* Visualize this image in your mind."

Recall that in savansana, the practitioner was instructed to "relax the entire body." Similar "whole body" consciousness and imagery is generated in Feldenkrais practices ("self-image"), in tai chi practice ("body-mind") and during nataraja yoga.

Throughout rotation of consciousness, all voluntary muscles are subject to the relaxation exercise of savasana and are wholly unready for any movement. Feelings are associated with fingers but hands are immobile and fingertips rest in air, generating null sensations.

Feelings in yoga nidra are entirely cerebral. The culminating exercise is to construct a holistic visual image in the mind. With higher activations, such feelings, restricted to the mind, can serve as a nucleus for forms with additional feelings and actual movements.

Looking at more highly activated examples in actual life, audible instructions for finger movements are provided during an executive's dictation to a touch typist. The typist's body is highly activated, with an erect position maintained by residential movements, which also place the hands and arms in positions that serve as starting points for multiple possible movements that are quickly made, with

minimal effort. The typist's mental activity and muscular activity are both based in shimmering conditions. A particular selection in the mind triggers a few selected movements of the body.

Suppose that the typist is also a poet in another part of their life. Verbal images in the mind that move muscles are provided by the will of the dictator in the office; in the private poetry space, however, the will and the words are free. Similar varieties can be observed in various performances of an ideal pianist, sometimes accompanying a chorus, sometimes practicing alone, sometimes practicing trio music with a violinist and a cellist, sometimes composing.

c. Asanas

According to *The Sivananda Companion to Yoga (Foreword by Swami Vishnu Devananda*) (1983) at 29:

> Asanas are postures to be held, rather than exercises, and are performed slowly and meditatively, combined with deep abdominal breathings. . . .
>
> There are three steps to each asana – coming into the pose, holding it, and coming out of it. . . . The real work of an asana is done while you hold the position – adepts of yoga will remain motionless in a pose for hours at a stretch. Try to keep still while you maintain the pose and breathe slowly and deeply, concentrating your mind. Once you are able to relax in a pose, you can adjust your position to achieve a greater stretch. Always release your body from an asana with as much grace and control as you used to come into it.

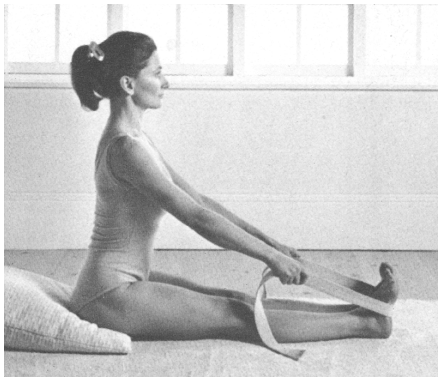
Meditative asanas include cross-legged sitting positions that are suitable for prolonged immobility and breath control exercises discussed below. In other asanas, the practitioner performs stretches, bends, twists and headstands.

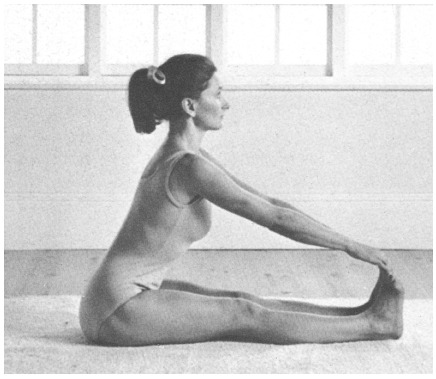
According to Vishnudevananda, *Illustrated Guide* at 51, 56-57:

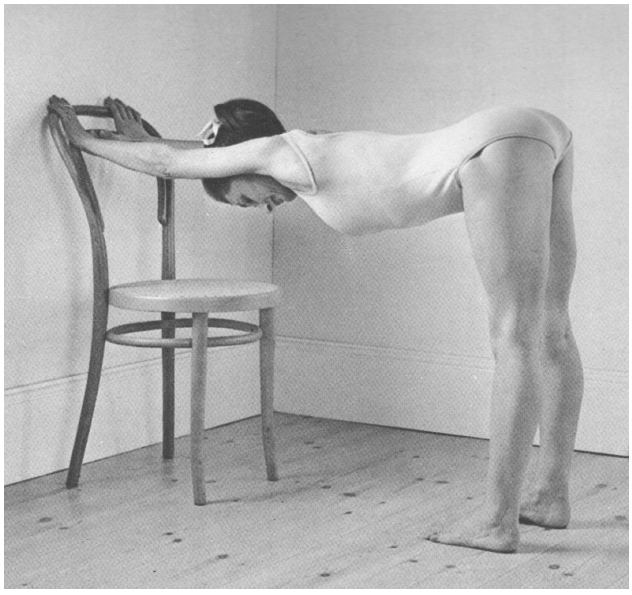
> The main purpose of exercise is to increase the circulation and the intake of oxygen. This can be achieved by simple movements of the spine and various joints of the body, with deep breathing but without violent movement of the muscles.
>
> . . .
>
> . . . you can, knowing that it is largely a matter of training, increase your own efficiency for, perhaps, less strenuous tasks we have to do. Moderate and consistent Yogic exercises, aside from making you feel better and relaxed, can help your body to become more adequate for the demands placed upon it. Moreover, a well-trained body helps a great deal to train the mind, which is the main purpose of all Yoga, in order to attain complete freedom and immortality, which is the aim of all religions of the world.

Exercises in this project differ from traditional yoga practices and focus on bodily feelings, along with slight movements ("wobbles"). Exercises involve minimal stretching and exertion. "Less stretch" variations of the ***forward bend*** are shown below; the concept and images are from Maxine Tobias & Mary Stewart, *Stretch & Relax* (1985). The authors trained in Iyengar methods and taught them to teachers, also stating: "We are both rooted in the traditions of our own culture and religion and are not interested in quasi-mysticism or the 'Eastern way of life.' "

In a "much less stretch" variation (upper left-hand image), the practitioner is supported by a cushion and reduces intensity by looping a strap or belt around the feet. All positions shown are ***supported***, by the floor or by a chair and a wall.







Features of an ideal position are shown in the standing example. The legs are perpendicular to the floor, rigid from heels to hips. The bend is executed by rotation of the hips more than by bending the waist. The back is stretched between fixed supports (legs and wall). The back and legs form a right angle. The distance of the feet from the wall has been adjusted to support the ideal position.

A "more stretch" — or ***progressive*** — version of the forward bend requires a practitioner to stand erect without support, with legs and feet widely spread, and to touch their fingers to the floor by rotating at the hips and without bending the knees. Additional effort is needed to maintain balance. Some extreme progressive exercises require contorted positions.

DISCUSSION

This project investigates interactions between movements and feelings rather than attaining a desired position. As with Satyananda's practice of yoga nidra, I adapt asana practices to suit my purposes. Both the effort and the stretch of a forward bend are minimalized. For a first exercise, I imitate the "much less stress" sitting position from *Stretch & Relax*, using a strap to reduce the stretch and the effort. I find a position where I can ***just barely feel*** a stretch in my lower back. Then I

cycle around that position, pulling a little bit tighter on the strap, then loosening the tension, then tighter, then looser — generating a minimal feeling, strengthening it a bit, then relaxing until the minimal feeling disappears, then tightening the strap to bring it back, etc. Small cycling movements around a position are called ***wobbles***.

Slow cycling of movements and sensitivity to feelings is a recurrent feature in practices in this project, producing exercises of freedom that can be observed in detail. In this case, such movements are under the control of will and include free selections of positions and speeds, within limits and constraints of the practice. The guideline of "minimal feeling" is applicable to other exercises of freedom during which the practitioner detects feelings and thereon changes movements.

For a second exercise, I stand at the end of a bare table with my thighs touching the table top. My height is such that, while standing with my legs nearly perpendicular, like the ideal forward bend position shown above, I can lie down on the table, resting my weight on my belly; and then I can relax my torso on the table without moving my legs. (Books to stand on or using a countertop instead of a table can adapt the exercise for people of different heights.)

As I bend over the table, I use my forearms and hands on surface to help stabilize balance and control movements; I slide my forearms and hands on the table as I lie down, while keeping my back straight.

Starting near the vertical position, weight is carried primarily by my legs and back. Effort is reduced as the forward bend proceeds because weight is borne by my belly and torso resting on the tabletop. At any place in the range of motion, I can take my hands off the table without much additional effort in legs and back.

After lying down on the table, I reverse the movement and raise my torso from horizontal to vertical, keeping my legs immobile, using leg and back muscles, while assisting with hands and arms. The movement can cycle, lying down and rising up, lying down and rising up, etc.

Thus I can maintain rotations around the hip joints, keeping my legs perpendicular to the floor, but with less effort than that required for the standing exercise shown in *Stretch & Relax*. My movements extend over a range, rather than standing fixed in immobility. I am especially aware of cycles of feelings in my lower back, where the effort and stretch are concentrated.

The third exercise combines features of the first two exercises and also includes more freedom. Support is provided by a bare kitchen countertop. In an ideal final position, the feet are several feet away from the countertop; legs, hips and back are in positions like that in the ideal standing position from Stewart/Tobias; instead of hands pressing against a wall for support, a substantial weight rests on forearms,

arranged in a triangle on the countertop with elbows at the edge. Hands are lightly closed in fists, touching in the center and with thumbs up. (I try to avoid sustained weight on palms of hands, as potentially injurious to wrists.)

The initial position of the third exercise is somewhat different from the ideal final position. The legs and feet are much closer to the countertop but still a foot or more away. Legs are perpendicular to the floor and there is some rotation around the hips. Forearms in the shape of a triangle are resting on the countertop with the elbows at the edge; there is slight weight on the forearms. The feeling of forward stretch in the back is slight or even absent.

The initial position is adjustable so as to increase and decrease the feeling of forward stretch in the back. Perhaps I keep feet fixed and press the hips forward towards the countertop, or to draw them back away from the countertop — the legs also sway back and forth. Cycles of pressing forward and drawing back are investigated. These are "whole body" movements of very slight size.

Another cycle of adjustments is produced when the practitioner shifts weight from side to side so that the weight is carried first by the left leg and then by the right leg and then back to the left leg, and so forth. These are "whole body" movements of a slightly larger size.

Another way to increase feelings of stretch in the lower back is to start in the initial position and then to slide or shuffle the feet and pelvis backwards, additionally rotating the hips, so that legs are perpendicular to the floor. The new position can be investigated by cycles of pressing forward and drawing back.

Movements in these exercises are primarily produced around the pelvis; feelings related to hip and pelvic movements combine with those in the lower back. Pelvic feelings and movements are developed later in this construction and combined with breathing movements and upper body movements to make up nataraja yoga.

Other asanas stretch different body parts and can be added to make up a daily program. Stewart/Tobias suggest programs with eight different asanas; other programs call for 20 or more. A program of asanas generates another kind of body-map, with feelings of stretch becoming active and sensitized in different body parts in an orderly succession.

Phenomena of will and free-will discussed above are further developed in the asana practice. I can say that free will causes actual movements and thereby generates bodily feelings, which, in turn, influence will in its decisions. In hatha yoga practices, will and free will are prior to movements and feelings. This approach is from a direction different from the approach in part A that starts with actual life, in which movements, feelings and freedom are prior to mental activity.

d. Prana yoga (controlled breathing)

According to Mircea Eliade, *Yoga: Immortality and Freedom* (1969), shaman practices of breath control began in ancient times in widely scattered societies around the world. He suggests that Hindu yogic breathing practices have been adapted by Chinese Taoists, Islamic mystics and Christian monks of Mt. Athos.

Many claims are made about yogic practices of breath control or ***prana yoga***, e.g., acquisitions of fantastic powers, possession by deities and indefinitely prolonged life. Vishnudevanda and Iyengar start their teachings on prana yoga by invoking an all-powerful "prana" or "energy" that permeates the universe, that is acquired by breathing and that is distributed inside the body through ***nadis*** or channels.

Vishnudevananda (407, 248, 326) teaches that nadis are "Physical and astral nerves," that there are "ten nadis (subtle nerve tubes) through which the nerve currents or prana moves" and that the three chief nadis are located in and around the spine.

According to Iyengar, "There are several thousand nadis in the body and most of them start from the areas of the heart and navel." (15) More generally (274):

> *Nadi* A tubular organ of the subtle body through which energy flows. Nadis are ducts or channels which carry air, water, blood, nutrients and other substances throughout the body. They channel cosmic, vital, seminal and other energies as well as sensations, consciousness and spiritual aura.

Disregarding excessive language, my experience is that powerful bodily feelings are actually generated during regular prana yoga sessions — and that these feelings might be usefully organized by a concept of prana. Generating and channeling such feelings is a major component of the practices. In this project, however, the focus is on movements and accompanying bodily feelings that are much simpler and more easily produced than flows of cosmic energy.

Breathing movements are made of alternating exhalations and inhalations. During exhalation, lungs are compressed and "used air" is expelled through the nose and/or mouth. During inhalation, lungs are expanded and "fresh air" is drawn in through the nose and/or mouth.

To build a conceptual model of yoga breathing, I presume that, within certain limits that are explored during practice, my free will can control the extent of the movement and the amount of used air expelled during an exhalation. An approximately equal amount of fresh air is drawn in during the next inhalation.

To investigate variations in breathing that are subject to my will, I assume a stationary meditative position and vary the amount of air expelled and also the rate

or frequency of cycles. I discover a ***range of movement***: near one end of the range of movement, small amounts of air are expelled during any one exhalation and the rate of such "shallow" breathing is quick. Towards the other end of the range of movement, large amounts of air are expelled during any one exhalation and the rate of such "deep" breathing is slow. Maintaining steady cycles at either end of the range of movement requires both practice and effort, perhaps called an effort of free will. This is a deliberated effort, in contrast to the more willful effort to hold your breath as long as you can until you can't hold it any more.

Such variations of breath in prana yoga are restricted to stationary positions of the body. In contrast, efforts of swimmers in a race are directed towards movements of limbs and their breath movements are maximal as to both speed and depth.

The chief ***feeling*** under investigation in prana yoga practices is called ***air hunger***. It is felt as a need to inhale fresh air, expelling used air if necessary. It is felt when swimming underwater or when engaged in muscular work at high altitude. Some people feel air hunger when emotional stresses are high.

Here, the initial goal is to generate feelings of air hunger at a barely detectible level. This goal resembles the goal of minimal feelings of stretch during asanas. In ideal steady breath cycles, air hunger is felt shortly after maximum exhalation and relieved immediately thereafter. The practitioner investigates breath cycles that generate a very slight feeling of air hunger for a very brief moment. This practice sharpens the mind without straining the body.

Exercises of will in basic prana yoga practices involve the slow deep end of the range of movement. In a slow deep breath, different movements are located in the belly, the chest and the shoulders. Thus, the belly moves out and in. During inhalation, the internal muscular diaphragm pulls the lungs down and pushes the belly out. During exhalation, the diaphragm moves upwards. Also the chest expands and compresses; the shoulders move up and down.

Practice leads to separation and articulation of the three kinds of movement: when exhaling, first pull shoulders down, then compress chest and finally push the belly in towards the backbone. During inhalation, reverse the order, first inhaling into the belly, then into the chest and ending up with rising shoulders. In slow, deep breathing, belly breathing takes more than half the time, while chest breathing takes more time than shoulder breathing. An ideal ***full breath*** touches extremes of full exhalation, generating a slight feeling of air hunger, and of full inhalation, when belly, chest and shoulders unite in expansive efforts to draw air in.

An analytic approach to prana yoga is supported by introduction of a steady metronomic ***beat***, which is provided by an .mp3 recording available on my website.

(quadnets.com/bpm40.mp3 - 6.3 MB) The rate is 40 beats per minute; the length is 7.5 minutes. In later developments in this project, movements according to an external musical beat occur during dance-like practices of nataraja yoga.

The recorded beat serves as a will substitute, reducing the need for efforts of will. I adjust exhalation and inhalation so that they take equal periods according to the number of beats. This may require re-balancing of the breath cycle. The number of beats is adjusted so that minimal air hunger is felt at full exhalation. I have no intention to increase the number of beats in a breathing cycle, although adjustments may bring this about. My efforts are more easily directed at adjustments than at full cycles and timings.

In my practice of prana yoga, feelings of air hunger are felt in the heart. Scientific evidence supports this location as cells that are sensitive to oxygen levels in the blood are located in ***aortic bodies***, adjacent to the blood stream in the aorta as it emerges from the heart. Minimal air hunger is immediately relieved upon the first intake of fresh air; detectors close to the lungs seem more likely to produce such an effect than distant brain locations. The heart is also identified by monks of Mt. Athos as the chief source of feelings in their practices of breath and prayer.

At the start of a practice session, efforts are directed at deepening the breath, using feelings in the belly to measure depth. My conclusion is that my body, left to itself, maintains a constant or ***residual*** air hunger that I feel during prana yoga practice. Intentionally driven deep breathing at a fast rate relieves any feeling of residual air hunger and leads to greater sensitivity. After a while, willful intentions are unable to sustain a high rate of deep breathing and the rate slows on its own. Then, the body is ready for steady practice.

When residual air hunger has been eliminated, I can exhale completely without feeling air hunger and then wait a few beats until I become aware of air hunger, which is a mental cue or trigger to start inhaling. The waiting period provides information (feelings) that I use to adjust the number of beats in a full breath.

Practice and training lead to full steady breathing that can be maintained with minimal conscious mental control. To be sure, conscious control is required at full exhalation while waiting for the first twinge of air hunger and than to start the inhalation smoothly so that the lungs reach full capacity after a certain number of beats. Once the inhalation is underway, however, less conscious control is required as practiced movements rise in the belly, pass through the chest and into the shoulders. Thus relieved, mind can recite mantras or visualize. The exhalation is also well-practiced; shoulders, chest and belly smoothly compress as consciousness readies itself for its repetitive duties.

4. Buddhist mindfulness practices detach movements of breathing and walking from mental control while maintaining conscious awareness.

According to ancient reports, about 2500 years ago a yogi in North India named Siddartha Gautama turned away from extreme lifestyles and introspective images of permeating energies and possessive deities. Thereafter named ***the Buddha*** ("Awakened One"), he developed new practices that also retained important features of the existing culture, e.g., belief in enormous numbers of re-births subject to an eternal moral law of *karma* or *kamma*. As with yoga, the aim of "freedom" or "liberation" in Buddhism is to escape from the otherwise eternal cycle of re-births by means of meditative and transformational practices.

The result of the innovations was a "seemingly paradoxical position, in which the Buddha opposed both orthodox doctrines and ascetico-contemplative disciplines yet at the same time adopted their premises and techniques. … The importance of the *guru* as initiatory master is no less great in Buddhism than in any other Indian soteriology." (Eliade at 163, 166-167.) Mind continues to control, even while exercising detachment. "In Buddhist doctrine, mind is the starting point, the focal point and also … the culminating point." (Nyanaponika, below, at 21.)

Among modern forms of Buddhism, the Theraveda tradition ("the Teaching of the Elders") reaches as far back as can be seen; and the guiding texts of Buddha's Discourses on the Foundations of Mindfulness have a strong claim to authenticity. Here, text and commentaries are provided in Nyanaponika Thera's *The Heart of Buddhist Meditation* (1970 American Edition). The title page names *Satipattana* as ″The Heart of Buddhist Meditation" and provides a subtitle: *A Handbook of Mental Training Based on Buddha's Way of Mindfulness.* Nyanaponika (1901-1994) mostly lived in Sri Lanka, also known as Lanka or the Isle of Ceylon in his lifetime; his discussion includes similar practices taught in Burma at that time.

The author states (p. 9) that, "… as a general psychological term, [Satipattana] carries the meaning of 'attention' or 'awareness'."

Practices set forth in Nyanaponika's handbook fit into this project. The prana yoga practice discussed at the conclusion of the previous section was preparation for this new practice. In the previous practice, mind and will controlled breathing so that movements were slow and deep. In the Buddhist practice, on the other hand, mental control is detached from movements and mind only observes breathing movements that occur on their own. Breathing movements that occur on their own are shallow and of moderate speed, neither slow nor quick — the body is in the familiar immobile position, consuming minimal oxygen.

The following text is a condensed version of the opening of Buddha's Greater Discourse on the Foundations of Mindfulness, part of Nyanaponika's book:

> Thus have I heard. At one time the Blessed One … addressed the monks … [and] spoke as follows:
>
> This is the sole way, monks, for the purification of beings, for the overcoming of sorrow and lamentation, for the destroying of pain and grief, for reaching the right path, for the realization of Nibbana, namely the four Foundations of Mindfulness.
>
> What are the four? Herein (in this teaching)
>
> a monk dwells practising body-contemplation on the body, ardent, clearly comprehending and mindful, having overcome covetousness and grief concerning the world;
>
> he dwells practising feeling-contemplation on feelings, ardent, clearly comprehending and mindful…
>
> he dwells practising mind-contemplation on the mind, ardent, clearly comprehending and mindful…
>
> he dwells practising mind-object-contemplation on mind-objects, ardent, clearly comprehending and mindful…

I. The Contemplation of the Body

1. *Mindfulness of Breathing*

> And how, monks, does a monk dwell practising body-contemplation on the body?
>
> Herein, monks, a monk having gone to the forest, to the foot of a tree, or to an empty place, sits down cross-legged, keeps his body erect and his mindfulness alert. Just mindful he breathes in and mindful he breathes out.
>
> Breathing in a long breath, he knows 'I breathe in a long breath'; breathing out a long breath, he knows 'I breathe out a long breath'; breathing in a short breath, he knows 'I breathe in a short breath'; breathing out a short breath, he knows 'I breathe out a short breath'. 'Conscious of the whole (breath-) body, I shall breathe in', thus he trains himself. 'Conscious of the whole (breath-) body, I shall breathe out', thus he trains himself. 'Calming the bodily function (of breathing), I shall breathe in', thus he trains himself; 'Calming the bodily function (of breathing), I shall breathe out', thus he trains himself.

Aspects of mindfulness are described by Nyanaponika (24):

> Mindfulness … [is] something quite simple and common, and very familiar to us. In its elementary manifestation, known under the term 'attention', it is one of the cardinal functions of consciousness without which there cannot be perception of any object at all. If a sense object exercises a stimulus that is sufficiently strong, attention is roused in its basic form as an initial 'taking notice' of the object …Because of this, consciousness breaks through the dark stream of subconsciousness … This function of germinal mindfulness, or initial attention, is still a rather primitive process, but it is of decisive importance, being the first emergence of consciousness from its unconscious subsoil.

Further (*Id*., 30):

> Mindfulness in its specific aspect of Bare Attention … provides the key to the distinctive method of Satipatthana, and accompanies the systematic practice of it …
>
> What is Bare Attention?
>
> Bare Attention is the clear and single-minded awareness of what actually happens to us and in us, at the successive moments of perception. It is called 'bare' because it attends just to the bare facts of a perception as presented … attention or mindfulness is kept to a bare registering of the facts observed, without reacting to them by deed, speech or by mental comment which may be one of self-reference (like, dislike, etc), judgement or reflection.

In his Instructions for the Practice of Mindfulness of Breathing (108), Nyanaponika reiterates a

> warning not to interfere with the breath in any way: in Buddhist practice, there should be no holding or stopping of the breath, no deliberate deepening nor attempts to force it into a definite time rhythm. The only task here is to follow the natural flow of the breath mindfully and continuously, without a break or without unnoticed break. The point where one should fix one's attention is the nostrils against which the breathing air strikes, and one should not leave that point of observation because here one can easily check the entry and exit of the breath.

Discussion

Mindfulness practices in this project involve minimal effort and difficulty, adapting practices that were part of "a course of strict meditative practice according to the Satipatthana method" (87) that was held in Burma and that Nyapanonika apparently attended. The course involved complete immersion of the practitioner in a lifestyle of Mindfulness — that is, living like a monk.

In the monk lifestyle, Mindfulness is present throughout the day, often during routine activities.

> The initial purpose of this general application of Mindfulness is the strengthening of awareness and concentration to an extent enabling the meditator to follow the unceasing flow of variegated mental and bodily impressions and activities for an increasingly long period, and without a break of attention or without an unnoticed break. It will count as 'uninterrupted mindfulness' if the meditator is not carried away by his stray thoughts and if breaks of attention are noticed at once when they occur, or soon after. (94)

Formal practice requires a particular place, a particular seat, a particular posture. An easier exercise than mindfulness of breathing (set forth above) is used to introduce the beginner. Feelings in the abdomen from breathing movements are easier to follow than feelings of air in the nostrils.

> Now one turns one's attention to the regular rising and falling movement of the abdomen, resulting from the process of breathing. The attention is directed to the slight sensation of pressure caused by that movement, and not by visually observing it. This forms the primary object [] of mindfulness, in the course of practice described here.
>
> … It should be well understood that one must not think about the movement of the abdomen, but keep to the bare noticing of that physical process, being aware of its regular rise and fall, in all its phases. One should try to retain that awareness without break, or without unnoticed break, for as long a period as possible without strain.
>
> … Though it is the breathing which causes the abdominal movement, the attention directed to the latter must not be regarded as a variety of the Mindfulness of Breathing []. In the practice described here the object of mindfulness is not the breath but just the rise and fall of the abdomen as felt by the slight pressure.

I suggest that modifications of a prana yoga practice lead to a practice of mindfulness of abdominal movements.

The prana yoga practice discussed above is a practice of mind control where a conscious feeling of air hunger starts a movement of inhalation. An external beat helps mind to control movements. Breaths are as deep and as slow as possible. Belly breathing, chest breathing and shoulder breathing are distinctly articulated.

In the Buddhist practice, in contrast, breathing is not controlled by the mind or by a beat. In ordinary life, the body breathes on its own most of the time, but the mind can seize control to a certain extent. A prana yoga practitioner acquires certain skills in controlling breath with mind. In Buddhist practice, the mind is conscious of a capacity for control but does not exercise control. In other words, mind only observes the "slight sensation of pressure" in the abdomen while the body breathes on its own. An immobile body in a meditative position needs only a small amount of fresh air and the small breath pattern reflects that condition. Belly, chest and shoulder movements are not articulated during such a small breath.

A practitioner previously trained in prana yoga might also observe a feeling of air hunger just before the sensation of pressure in the abdomen. Thus, I have an impression of a residual air hunger that is not ordinarily noticed but that is observed during prana yoga practice — and also in mindfulness practices. In mindfulness practice, I have the further impression that breathing patterns of the body tend to remove the residual air hunger in a few minutes, once it has been observed. Some residual mind control apparently remains, even if indirect. This appears also from the Buddhist teaching:

> 'Calming the bodily function (of breathing), I shall breathe in', thus he trains himself; 'Calming the bodily function (of breathing), I shall breathe out', thus he trains himself.

Prana yoga breathing and mindfulness breathing are two distinct practices; it is possible for a practitioner to switch between them through an exercise of mind control. Such a capacity is a new form of freedom of the will. Exercising freedom, will first seizes and then relinquishes control of the breath. When will relinquishes control, the body exercises freedom on its own.

Another practice from the Burmese method teaches that the student may find relief from excessive pain, numbness and tiredness that occurs in sitting meditation by "*mindfully walking up and down.*"

> In doing so, one has to be aware of the single phases of each step. … It is sufficient to notice three (A) or two (B) phases. For fitting into a two-syllable rhythm it is suggested to formulate them as follows: A. 1. lifting, 2. pushing, 3. placing; B. 1. lifting, 2. placing, of the foot. Whenever one wishes to walk somewhat quicker, one may use the twofold division;

> otherwise the threefold one is preferable as affording a closer sequence of mindfulness, without a gap.
>
> …In the Discourses of the Buddha we meet a frequently recurring passage, saying: 'By day, and in the first and third watches of the night, he purifies his mind from obstructing thoughts, *while walking up and down or sitting*'. (Nyanaponika at 96.)

With the addition of the practice of walking up and down, mindfulness practices reach beyond the domain of mind control. Movement of the body produces momentum, which means that the movement continues until it is stopped or changed by an external force or by friction. In walking, momentum can be added or subtracted during each step. A series of steps involves a series of adjustments to momentum. These adjustments are produced in the spine as part of the actual movements. They are not produced in the cerebrum. The cerebrum can observe movements and command whole-body movements; but people do not control their walking through mental commands directed at individual steps.

5. Feldenkrais exercises raise into consciousness certain qualities of movement that improve production of complex movements.

In developing his exercises, Moishe Feldenkrais (1904-1984) had a background of jujitsu, judo, engineering and physics, along with recovery from his own injuries. The exercises have been adopted as medical treatments. His chief publication, *Awareness Through Movement: Health Exercises for Personal Growth* (1972), includes "Twelve Practical Lessons." Teachers of his methods offer a plethora of additional lessons, many in online formats.

As with other practices, I borrow and modify features from Feldenkrais for the construction of nataraja yoga. So far in this project, actual movements have been minimal — stationary positions, wobbling, breathing and slow stepping. Feldenkrais exercises have a higher activation but only one step up.

Qualities of movement in Feldenkrais practices.

Feldenkrais uses observational methods that resemble Buddhist mindfulness, namely, raising into consciousness images of what he is actually doing while minimizing mental control. He also interprets images by means of concepts of science and technology. An exemplar of his observations is that:

> **Reversibility is the mark of voluntary movement**
>
> If we simply move the hand from right to left and back again, at medium speed, we shall all agree that the movement is satisfactory if it is possible to interrupt and reverse it at any point, to continue it again in the original direction, or to decide to make some altogether different movement instead.
>
> This quality is inherent in the simple type of movement described above even if we do not know it, and it is found in all fully conscious, deliberate movements; we shall refer to it as reversibility. (85-86.)

Feldenkrais discusses standing and sitting and different ways to rise from a chair. (78-83). A desired movement is performed "by moving your hip joints until your seat rises from the chair and you are standing, but without a sudden increase of effort in the legs at any stage of the movement." (83.)

Light and easy movements are good (title on p. 86.)

> When we considered ways of getting up from a chair, we saw that a good deliberate movement is produced when there is no conflict between voluntary control and the body's automatic reaction to gravity, when the two combine and aid each other to perform an action that appears to have been directed by a single center. Voluntary control is usually effective with relatively slow movements…

> We saw also that the simple movement of the hand was good without any prior knowledge of what constitutes good movement. Light and easy movements are good ones, as a rule. It is important to learn how to turn strenuous movements into good ones—that is, into movements that are first of all effective but also smooth and easy. (86.)

Qualities of "satisfactory" movements and "good" movements are used to establish goals of development.

> The more an individual advances his development the greater will be his ease of action, the ease synonymous with harmonious organization of the senses and the muscles. When activity is freed of tension and superfluous effort the resulting ease makes for greater sensitivity and better discrimination, which make for still greater ease in action. He will now be able to identify unnecessary effort even in actions that formerly seemed easy to him. As this sensitivity in action is further refined, it continues to become increasingly delicate up to a certain level. (87.)

Sensitivity and delicacy develop without control by the will. "To the extent that ability increases, the need for conscious efforts of the will decreases." (58.)

> If you rely mainly on your will power, you will develop your ability to strain and become accustomed to applying an enormous amount of force to actions that can be carried out with much less energy, if it is properly directed and graduated.
>
> Both these ways of operating usually achieve their objective, but the former may also cause considerable damage. Force that is not converted into movement does not simply disappear, but is dissipated into damage done to joints, muscles, and other sections of the body used to create the effort. (*Id*.)

General Observations introduce the Lessons in *Awareness Through Movement*, including:

> **To understand movement we must feel, not strain**
>
> To learn we need time, attention, and discrimination; to discriminate we must sense. This means that in order to learn we must sharpen our powers of sensing, and if we try to do most things by sheer force we shall achieve precisely the opposite of what we need.
>
> …
>
> In the course of the lessons the reader will find that the exercises suggested are in themselves simple, involving only easy movements. But they are intended to be carried out in such a way that those who do them will discover changes in themselves even after the first lesson.

Sharpened discrimination

"A fool cannot feel," said the Hebrew sages. If a man does not feel he cannot sense differences, and of course he will not be able to distinguish between one action and another. Without this ability to differentiate there can be no learning, and certainly no increase in the ability to learn. It is not a simple matter, for the human senses are linked to the stimuli that produce them so that discrimination is finest when the stimulus is smallest.

…

The exercises here are intended to reduce effort in movement, for in order to recognize small changes in effort, the effort itself must first be reduced. More delicate and improved control of movement is possible only through the increase of sensitivity, through a greater ability to sense differences.

Thinking while acting

In my lessons the student learns to listen to the instructions while he is actually carrying out an exercise and to make the necessary adjustments without stopping the movement itself. In this way he learns to act while he thinks and to think while he acts. This is a step up in the ladder of ability from the man who stops thinking while he does something and stops acting when he wants to think. (An experienced driver can easily carry out instructions while he is driving, while a beginner has difficulty doing this.)

Freeing an action of wasted energy

An efficient machine is one in which all the parts fit together accurately; all are properly oiled, with no grit or dirt between adjacent surfaces; where all the fuel used is turned into kinetic energy up to the thermodynamic limit; and where there is no noise or vibration, that is, no energy is wasted on useless movement that cuts down the effective operating power of the machine. … The exercises we are about to begin are intended to achieve just this, to gradually eliminate from one's mode of action all superfluous movements, everything that hampers, interferes with, or opposes movement.

DISCUSSION

In prior developments in this construction, hatha yoga practices were based in mental control that objectifies movements and feelings. Buddhist mindfulness practices restrict mental control and detach certain independent residential movements and feelings of breathing and walking while maintaining continual consciousness of objectified aspects.

As part of this construction, I suggest that Feldenkrais further applies methods of Buddhist mindfulness to certain classes of voluntary movements, chiefly movements that require minimal exertion and that are continuously reversible. Movements in Feldenkrais exercises are slow and smooth, excluding, e.g., sudden forceful movements of combat sports such as judo or karate.

Qualities of movement cultivated in Feldenkrais exercises resemble qualities of habits described by William James and quoted in part A of this project:

> James concludes that "habit simplifies the movements required to achieve a given result, makes them more accurate and diminishes fatigue" … Through practice, "habit economize[s] the expense of nervous and muscular energy."

On the other hand, Feldenkrais teaches a mindfulness approach contrary to that of habit, where, according to James "habit diminishes the conscious attention with which our acts are performed."

By restricting classes of movements and narrowly directing consciousness, Feldenkrais constructs a domain in which new movements are learned and then occur on their own like habits, all the while being observed from a detached perspective. As before, learning comes from doing and from repeated practice.

For purposes of constructing nataraja yoga, Feldenkrais practices involve ***coordination*** of different kinds of movements. First, breathing movements are coordinated with movements based in the spine.

Feldenkrais provides extensive instructions for breathing. Lesson 4 is titled "Differentiation of Parts and Functions in Breathing" and Lesson 12 is titled "Thinking and Breathing." General Observations include:

> **Breathing rhythm during the exercises**
>
> …The speed of the exercise should always be adjusted to the breathing rhythm. As the body gains in organization, breathing will automatically adjust itself to the various movements.

"Coordinating breathing and movement" is observed in a movement of arm and hand. (93) "When the movement has been repeated a number of times you will

find that it is becoming coordinated with the breathing rhythm." In another exercise: "Let your lungs fill with air as your knees return to the neutral position; breathe out as they sink down, so that each movement is completed in one breathing cycle." (110.)

A student lying on the back performs a series of exercises and is instructed:

> In order to achieve a degree of accuracy raise the arm just as you begin to expel the air from your lungs. Then raise your leg as you begin to breathe out. Finally, move both arm and leg as you breathe out. This will improve coordination between the two limbs. (95)

In preparation for the first actual exercise in Lesson 1, "What is Good Posture?" (76), Feldenkrais notes that an unmoving

> pendulum remains at rest in the stable position; it can be moved by the application of a minimum of force applied in any direction other than the vertical. This is equally true for any body in a state of equilibrium. Thus, for instance, a tree that has grown upright will bend its top in whatever direction the wind is blowing. In the same way good upright posture is that from which a minimum muscular effort will move the body with equal ease in any desired direction. This means that in the upright position there must be no muscular effort deriving from voluntary control, regardless of whether this effort is known and deliberate or concealed from the consciousness by habit.

The first actual exercise is titled "Swinging while standing."

> Stand and try to let your body swing lightly from side to side, as though it were a tree being bent by the wind. Pay attention to the movement of the spine and the head. Continue to make 10 to 15 small and quiet movements like this until you can observe a connection between these movements and your breathing.

Perhaps while I perform the exercise, the connection between movement and breathing is that I inhale on a swing to the left and exhale on the next swing to the right and that I continue inhaling while swinging to the left and exhaling while swinging to the right.

It is easy to switch from inhaling while swinging left to inhaling while swinging right. I pause at one end of the range of motion while going through a half-breath.

A possible variation involves a whole breath during each swing, e.g., inhaling while moving from the right to the center and exhaling while moving from the center to the left. In such a variation, the movement tends to pause at the center, in

contrast to the initial exercise in which movement is fastest at the center. In other words, when movements and breathing are coordinated, both tend to pause at the same time. It is possible to maintain a smooth movement through such a reversal of breath but I need deep breathing and very slow movements.

I interpret "swinging" in the first exercise to mean "swaying" as a tree bending in the wind, without twisting of the spine. In Feldenkrais Lesson 10 titled "The Movement of the Eyes Organizes the Movement of the Body," exercises use "swinging" to include twisting of the spine. (145-46) These mentally controlled movements require more effort than the mostly residential movements of Lesson 1. Feldenkrais' instructions for Lesson 10 presume substantial experience with previous lessons.

> Movement to the right and the left while standing
>
> Stand with your feet slightly apart and swing your body to the right and to the left with your hands hanging limp at your sides. As you swing to the right, your right hand moves to the right behind the back and the left hand moves to the right in front of the body, as though it were trying to overtake the right elbow. As you swing to the left, your left hand moves to the left behind the body, and the right hand moves to the left and overtakes it in front.
>
> Continue the swinging movements of the body and close your eyes. Make sure that the movements of the head are smooth. At each change of direction see what starts to turn back first: the eyes, the head, or the pelvis. Make many such swinging movements, from right to left and back again, until the answer is clear to you and you can observe all your members during the movement without stopping at the beginning or the end of the swing.
>
> Open your eyes and go on swinging as before. Note whether your eyes continue to look toward your nose, as when they were closed, or whether they do something else—and if so, what are they doing? Do they anticipate the movements of the head? Do they skip parts of the horizon of vision?

Continuing previous themes, Feldenkrais maintains independent residential controls and remote controls in a variety of ways, including ways that resemble Buddhist mindfulness. As for contrasting features, Buddhist mindfulness is fixed on a single residential object, e.g., breathing, while Feldenkrais also uses mind to start and stop movements that are suited for observation. The emphasis shifts from training of the remote mind to training of the residential body. A new element is

introduced, namely, that specific improvements result when movements are also controlled through mental adherence to certain ideal qualities such as reversibility; slow, light & easy; sensitivity, delicacy and feeling; freedom from wasted energy.

A new exercise of variable coordination adapts aspects of Feldenkrais exercises — "see what starts to turn back first: the eyes, the head, or the pelvis" — during a swinging movement and develops them into a quality of ***leading***. It also uses a higher level of activation than exercises in *Awareness Through Movement*, which mostly involve stationary positions and supported movements. The new exercise acts as a bridge between Feldenkrais exercises and upcoming qigong exercises.

Movements of variable coordination and leading

1. Stand upright with feet parallel and a foot or two apart. While facing straight ahead, raise one arm and point straight ahead with the index finger. Look straight ahead, sighting along the index finger. This "pointing straight ahead" position is the "home position" for the exercise.

2. Next, starting from a position of pointing straight ahead, turn the body until the index finger points as far in the backward direction as you can reach comfortably. Let the eyes follow the index finger. While maintaining an erect posture, relax the body so that you can feel twisting in the ankles, feel twisting in the knees, feel twisting in the pelvis, feel twisting in the abdomen, feel twisting in the shoulders and feel twisting in the neck. If you can point directly behind, this is far enough; but any partial twist is sufficient for the exercise if you have lots of feelings. This twisted position is the "stressed position."

3. Practice moving between the home position and the stressed position. Add coordinated breathing. Breathe out as you twist from the home position to the stressed position. Breathe in as you twist from stressed position to the home position. Breathe slow and deep with a full yoga breath. Slow your twisting to synchronize with your breathing. Pause at the end of each twisting movement and relax in the position. Start slowly, as in the prana yoga practice.

4. Next, try different kinds of twisting movements. In each kind, a different body part ***leads*** the movement, either the pelvis, the shoulders, the head or the eyes.

Perhaps you introduce a conscious modification in the twisting movement so that the pelvis leads the movement from home position to stressed position. In other words, the pelvis moves first and contributes to movements of the shoulders and neck that are also produced on their own; shoulders and neck muscles produce less force but are partially dragged as they ***follow*** the pelvis. The leader has to work harder and the followers don't have to work as hard as when they were independent.

5. With eyes closed, practice leading and following with the pelvis, then with the shoulders and arm and then with the head. All movements are slow, reversible and synchronized with slow, deep breathing.

6. Finally, open the eyes and practice the prior movements first with eyes as followers and then with eyes as leaders.

6. Qigong and tai chi practices develop diverse repertoires of intentional repetitive movements that are coordinated with conscious breathing.

According to Steven Kuei & Stephen Comee, *Beginning Qigong* (1993) at 8:

> There are many systems involving Qigong techniques taught in China. They can be roughly divided into five categories: Taoist, Buddhist, Confucian, medical and martial-arts related.

As discussed in §1 of this project, qigong is part of a group of practices that includes push hands, tai chi and gongfu. In a practical pedagogy, qigong is primary and other practices develop skills first acquired through qigong. Later practices require more powerful activations and more extensive repertoires of movements. As stated in Klein, *Movements of Magic* at 9: "Chi-Gung is the core of T'ai-chi-Ch'uan."

In all Chinese practices, a central and primal focus is on ***Qi*** — which is experienced as a primal and universal source of movements and feelings.

> The word *qi* is used by practitioners of Qigong and the martial arts to mean "internal *prana*," life force, or biophysic internal energy. … When Qigong exercises are said to build up Qi, it is this internal Qi that they build up. … The word *gong* means "effort" and is used in the word Qigong to indicate the diligent practice of exercises to help Qi to function properly and efficiently within the body. (Kuei & Comee at 7-8.)
>
> . . .
>
> Another basic principle that all Chinese exercises share is concentration upon the lower abdomen. In Chinese medicine, this area is called the *dantian*, and is seen as the main storehouse of Qi, the life-force energy that flows throughout the body and maintains health. Qi can be stored up and then used in conjunction with the martial arts, giving greater power to the punches of the master who employs it. (*Id*. at 17.)

"The original meaning of the word Qigong is 'breathing exercises.' … Through Qigong training, you can gain physical and mental benefits by regulating the breath. To do this, you must imagine that when you inhale air, you are actually inhaling essential Qi from Nature." (*Id*. at 110.)

Keui & Comee's exercises "facilitate the free flow of Qi throughout the body and also build up your storehouse of Qi." (*Id*. at 17.) The diligent student seeks "the correct performance of the movement in conjunction with proper regulation of the breath and the flow of Qi." (*Id*. at 18.)

A Fledgling Receives Nourishment is an exercise of coordinated arm movements and regulated breathing that is preparatory for nataraja yoga**.**

A Fledging Receives Nourishment *(Youniao shoushi)*

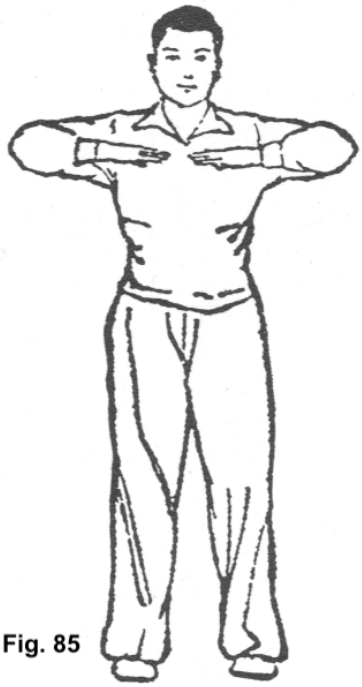


Fig. 85

Fig. 86

[***Preparation***]

Straighten both legs, and let the arms hang naturally at your sides.

[*Movement*]

1. While inhaling, raise both elbows as you lift both arms such that the lower arms are almost parallel to the ground, the hands are held in front of the chest about an inch apart, and the palms are facing down (Fig. 85).

2. While exhaling, press down with the palms until the hands come to just slightly below waist level, keeping the hands parallel to the ground and slightly bending the knees (Fig. 86).

When raising the elbows, relax the shoulders and do not let them rise up. Also when doing this exercise, you should strive to unite your awareness, the movement, and the breath. This is a Taoist breathing technique that will help you to utilize the exercise as a method of training to promote the joining of motion and stillness.

Repeat 3–5 times.

Similarly, in nataraja yoga, a practitioner "should strive to unite your awareness, the movement and breath" during a stream of spontaneous movements.

A **Preparation Pose** (*Qi shi)* is performed at the start of many exercises:

> Stand erect with feet about shoulders' width apart. Hold your arms at your side, but raise the hand slightly. [] Relax and drop the shoulders and chest (rounding them), and look straight ahead; keep your mouth closed, with the teeth slightly touching and the tip of the tongue lightly touching the upper palate. Place your attention upon the *dantian*, or lower abdomen, and gently contract the anal sphincter.

Special Breathing Exercises concentrate on internal feelings. "As you exhale through the mouth, imagine your Qi sinking down to the Huyin point (on the perineum, at the base of your torso) … Then lead the Qi down further, directing it through the thighs, the knees, the ankles and all the way down [to near the toes]." (*Id*. at 113.)

A beginner's Warming-Up exercise is **Pressing Down Your Qi** (*Ya dantain*). (*Id*. at 24-25.) Breath, Qi and *dantian* oscillate together in full body movements.

> Return to the Preparation Pose. When you have relaxed and calmed the mind, suddenly extend the knees and raise both arms up high so that the palms face each other and the fingers point up to the sky. As you do this, inhale slowly but deeply, completely filling first the lower abdomen and then the chest, and inhaling through the nose. Keep the back as straight as possible, and bend the head so that your looking up. Reach up high, and as you do, allow the heels to come up off the ground slightly. [] While holding this position, allow the stretch on the abdomen to pull the lower abdomen in, and keep your anal sphincter contracted, imagining Qi rising from the toes to the hands and from the base of the spine up to the head. Hold your breath for about 3–5 seconds.
>
> Then, as you slowly exhale through the mouth, lower the arms, keeping them bent with the hands placed in front of and to each side of the waist. As you do this, lower the heels back on the ground, bend the knees, and sink into a squatting pose, making sure to keep the back perfectly straight and the head erect. [] As you do this, imagine the Qi being pulled into your body and visualize it sinking down into the *dantian*, being pressed down by your hands. When all breath has been expelled, stop breathing for 3–5 seconds. Relax the whole body—including the anal sphincter—after you have done this.
>
> Repeat 3–5 times.

Kuei & Comee provide instructions for many other exercises, including Everyday Stretching Qigong ("among the best known in China"), Life-Prolonging Qigong ("restored to its original form and developed by the famous proponent of Qigong, Dr. Wang Ziping") and The Thirteen Grand Preservers ("founded on an ancient system of Taoist breathing exercises … Dr. Wang Ziping, passed the secret teachings of the form to a few people starting in about 1965"). The final Grand Preserver, titled **Brandish a Weapon and Split a Stone**, is a series of 8 complex movements involving multiple body parts coordinated with 4 inhalations and 4 exhalations. (*Id*. at 104-109.)

One of the Life-Prolonging exercises, **A Talkative Man, a Sleeping Dog**, is useful to develop coordination of breathing movements and pelvic movements. I see it as a step up in energy level from the swinging exercises of Feldenkrais.

A Talkative Man, a Sleeping Dog *(Luohan fuquan)*

Fig. 118

Fig. 119

[Preparation]

Straighten both legs, face forward, and place your hands on your waist at both sides. This time, stand with the feet about 2 shoulders' width apart.

[Movement].

1. While inhaling, bend the right knee, and keep the left leg straight, shifting your weight to the right (Fig. 118). While exhaling, return to the preparation position.

2. While inhaling, bend the left knee and keep the right leg straight, shifting your weight to the left (Fig. 119). While exhaling, return to the preparation position.

This represents one repetition. Repeat 3-5 times.

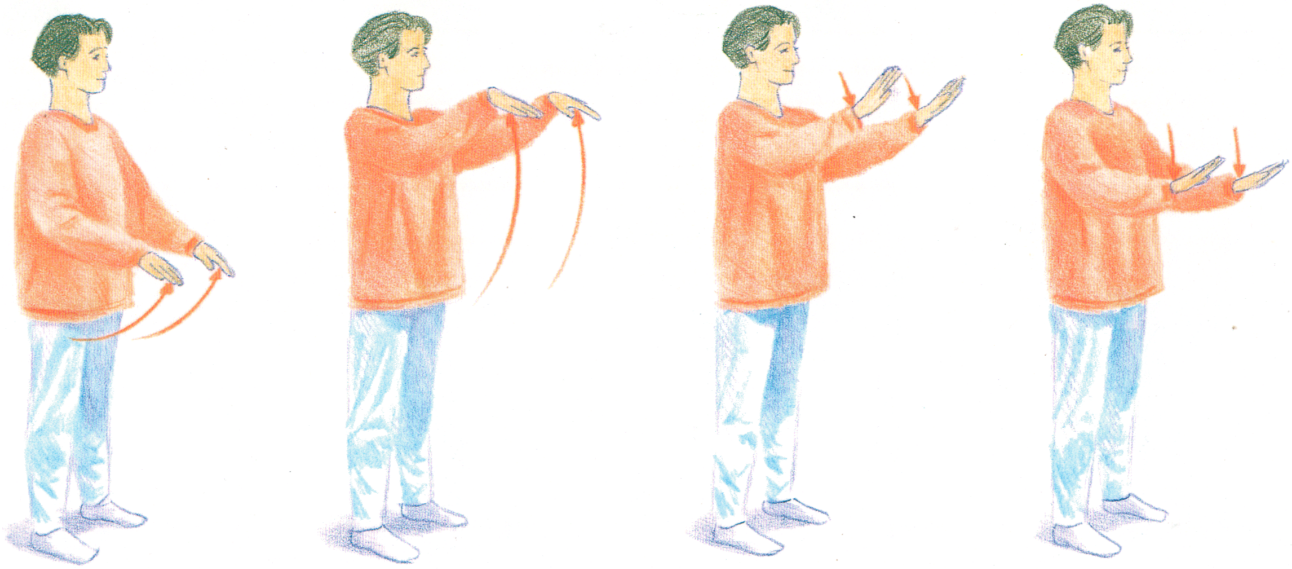
A fluid quality is manifest when qigong exercises develop into tai chi exercises. *The Harvard medical school guide to tai chi: 12 weeks to a healthy body, strong heart, and sharp mind* (2013) by Peter Wayne, Ph.D. with Mark Fuerst teaches that a co smic principle of alternating yin and yang appears in flowing movements of animals and human beings. "The yin-yang symbol, now a very popular symbol in the West as well, depicts two complementary polar opposites that, together, create a dynamic, balanced, integrated, and inter-dependent whole."

A fluid quality is developed by a Pouring Exercise.

> The very simple exercise of Pouring, or shifting the body from side to side with awareness, illustrates the connection of cognitive, active ingredients of Tai Chi. They play a key role in all Tai Chi movements and related exercises—heightened body awareness, focused attention and greater integration of mind and body.
>
> . . .
>
> FOLDING INTENTION INTO TAI CHI POURING
>
> In the Tai Chi Pouring exercise, once students settle into, become aware of, and make contact with the entire body, I add intention to the awareness. I might enrich or elaborate with various images or simple metaphors.
>
> . . .
>
> I suggest sensing body movement more as a pouring, wave-like phenomenon rather than as a solid object changing shape or position. Tai Chi Pouring also exemplifies the genius of Tai Chi, which is that slow, conscious movement (in comparison with stillness) helps you to become aware, sense, and feel what is happening within your body in the present moment. Often, I'll start with a focus on the dynamic sensations in the soles of the feet. "Begin to pour your weight gently from side to side, and notice the sensations in the soles of the feet. As you shift and pour your weight from side to side, tune in to your liquid nature or inner ocean. How juicy do the soles of your feet feel? Does one foot feel juicier than the other does? Is the arch or toe region more sensitive or aware of being bathed by this inner ocean than the heel? Are there parts of your feet where you do not feel any juiciness at all?"
>
> After dwelling in the feet for a minute or so, we move to other parts of the body, using the subtle movements generated by Tai Chi Pouring to sense and explore the ankles, knees, hips, abdomen, spine, neck, head, and arms. This initial exercise serves as a kind of scanning or inventorying of the whole body, like an internal roll call.

Step-by-Step Tai Chi (1994) by Master Lam Kam Chuen with drawings by Gordon Munro teaches 18 "Fundamental Movements," 18 exercises for "Strength and Motion," 8 exercises for "Balance and Movement" and 15 positions and movements that make up a "Small Circle Form" of Tai Chi. A useful example is the Fundamental Movement titled "Painting the Wall." It recalls "Paint the Fence" scenes in the movie *The Karate Kid* (1984).

PAINTING THE WALL



1. Stay in the relaxed standing position with your feet facing forward, shoulder-width apart. Imagine that your hands are paint brushes that are held by your wrists and that your fingers are the bristles of the brushes. Start to raise your hands.

2. Raise your hands gently up as if you were painting a wall in front of you with long vertical strokes. Your hands move smoothly, like brushes. Keep your shoulder relaxed as your arms move. As you brush up breathe in gently.

3. The upward stroke is complete when your hands are at head height. Then start to lower your wrists so that your hands are like paint brushes, are tilted upward ready to begin brushing back down.

4. Brush back down the wall, finishing at about waist level. As your arms come down, breathe out. Your fingers and wrists should be as flexible as possible. Complete six raising and lowering movements of the arms. Then stand still for a second or two at the end of the exercise.

DISCUSSION

A review of hatha yoga, Buddhist mindfulness, Feldenkrais exercises, qigong and tai chi identifies chief features that will be adapted and combined in nataraja yoga. Hatha yoga, mindfulness and Feldenkrais have simple principles and limited repertoires of movements while qigong and tai chi manifest a myriad of individual exercises that resist rigid classifications and provide diverse examples.

1. Breathing exercises are a chief common feature. Ordinary breathing occurs without awareness or conscious control. In Buddhist mindfulness, "Bare Attention is the clear and single-minded awareness" of breath but without conscious control. Prana yoga develops awareness into mental control of breath. Feldenkrais and qigong teach multiple breathing exercises, some that resemble Bare Attention and others that are mentally controlled.

In connection with brain anatomy discussed in § 6 of part A (actual life), I attribute awareness to the residential nervous system in the spine, brain stem and cerebellum and suggest that awareness of breathing is due to heightened activity in the residential nervous system. I suggest that breathing originally occurs on its own in the residential system and sometimes appears in awareness, e.g., during heavy breathing after strenuous exertion. We are aware of heavy breathing in such an event but do not try to control it, while the body restores itself to readiness.

I attribute conscious observation and control to the remote nervous system in the cerebrum. I suggest that Bare Attention is a practice of bodily consciousness that observes breathing that occurs in awareness. Functions of consciousness that start and control movements are inoperative during a practice of Bare Attention. When mental controls are imposed, as in prana yoga, awareness of breath becomes an instrument of mind control and is developed for greater sensitivity and versatility.

2. Major classes of movements correspond to levels of activation set forth in Table 1 where four levels of activations are assigned: stationary positioning activations, steady activations, saccadic activations and shimmering activations. Lower activation levels are classified according to stationary, steady and saccadic classes of movements. Mental energy levels are classified according to kinds of freedom, with holistic improvisational freedom at the apex. This project focuses on movements with low bodily energy (stationary and steady) which can be adapted for improvisational nataraja yoga. Qigong exercises extend into saccadic movements, e.g., the instruction to "suddenly extend the knees and raise both arms up high" in **Pressing Down Your Qi**. Kicking and punching exercises developed in qigong and gongfu are neglected here.

Long-range goals of development include investigations of shimmering activations. Possible means of investigation include continuously wobbly or fluttery movements that can shift in multiple directions and that perform continuing adjustments according to sensations and other inputs. Such movements include techniques of tremolo and vibrato in playing the violin. (Part D, Music practice and performance, § 1.) Some sculptors, painters and writers become obsessive polishers, continually touching up the work. In anticipated investigations into the actual lives of animals (part A), predatory stalking appears to be a likely application for shimmering movements, e.g., in a watery domain.

At the low-energy end of Table I, movements began with stationary positioning movements of asana yoga. I suggest that the remote nervous system can produce stationary postures according to intention by specifying muscular forces. This suggestion is modeled by Wriggler I, an engineered organism (part C). In contrast, adjustments in stationary postures to relieve stress or fatigue fit into the residential class. A conflict is created when mind imposes a rigid posture and bodily feelings of pain urge relief through relaxation. Moment by moment, the conflict persists and mind prevails — until suddenly things change and collapse occurs.

Steady movements are produced by steady forces in cyclical applications. Steady forces under mental control are chief subjects of practices in this project, appearing in prana yoga, Feldenkrais, qigong and tai chi. Primal applications also include residential movements in animals, e.g., wavy locomotion movements of eels.

Saccadic movements are sudden and tend to concentrate power at the commencement. Saccadic movements include kicks and punches and also common movements of eyes. Some saccadic movements use maximum power. Others, as in Wriggler I, modulate power so that the movement comes to rest at a desired end point.

3. Closely connected to breathing exercises and levels of activation are feelings of energies that flow in the body. Prana is an energy applicable to feelings generated in stationary positions. Qi is applicable to feelings generated during multiple kinds of movement, e.g., gongfu. Anticipated investigations of saccadic movements suggest another kind of energy, which I call ***Kiai***, adapting the name of a yell or shout uttered by a sudden attacker in karate and similar combat sports.

In qigong and tai chi, many exercises mimic natural movements of animals and movements of people who are engaged in common activities of agriculture and labor. Such movement are said to be a source of Qi. It is taught that, prior to mental intervention, human and animal bodies perform optimal movements out of their own nature.

Qigong and tai chi practices develop mental imagery for energy. Instructions for **Pressing Down Your Qi** (above) include "imagining Qi rising from the toes to the hands and from the base of the spine up to the head" and suggesting that you "imagine the Qi being pulled into your body and visualize it sinking down into the *dantian*, being pressed down by your hands." The Harvard medical school guide liquefies Qi and folds intention into Tai Chi Pouring, asking "Does one foot feel juicier than the other does? … Are there parts of your feet where you do not feel any juiciness at all?" The student is instructed to use "the subtle movements generated by Tai Chi Pouring to sense and explore the ankles, knees, hips, abdomen, spine, neck, head, and arms."

4. Stationary practices of qigong and tai chi include ***crouching stances*** with variable levels of activation. The lowest level of activation appears in erect stances of Preparation Poses of Kuei & Comee and the "relaxed standing position" of Master Lam's Painting the Wall. Master Lam teaches higher levels of crouching stances, namely, the Wu Chi (wuji) position and the Horse Riding Stance. In moving from an erect stance to a Wu Chi position, the focal movement is: "Slowly bend your knees so that you lower yourself by about 2 inches (5 cm)." (page 42.)

The Horse Riding Stance begins in the Wu Chi position. "Gradually bend your knees, lowering your backside as if you were sitting down on a chair. Lower yourself about 4 inches (10 cm). If you cannot go that low to begin with, then gradually work toward that goal." (page 68.) Serious practitioners of Qi development spend long periods of time in a stationary Horse Riding Stance, strengthening muscles of thighs, back and abdomen. Storehouses of Qi are enlarged and filled, ready for action.

Klein writes of **The Body as a Spring** rooted to the earth through breath. (*Movements of Magic* at 10-12.) "Before you can develop internal energy, you must learn to take your breath from the ground—to breathe from the earth. It feels as though the breath is absorbed up from the earth, through the feet and into the body." "A spring is able to absorb and use force by compressing and expanding. … Rather than being damaged, the spring merely stores the force that hits it, to be released later." "Push Hands … is the ultimate art of playing with another person's energy. There is very little that can phase a Push Hands player. The T'ai Chi temperament has often been likened to a large ocean wave. It is gentle and soft, but who can stop it?"

Thus, with adjustable crouching stances and breathing practices, levels of readiness and internal flows of energy are shifted up and down to adapt to circumstances. Another technique of intensification is taught by instructions in Kuei & Commee to "gently contract the anal sphincter" and to "keep your anal sphincter contracted."

Anal movements and imagery are closely connected in human bodies with anger and aggression; and anal contraction exercises may tend to amplify such tendencies. Some people renounce anger and aggression altogether but many others incorporate in their personalities some readiness to manifest anger and aggression in postures and gestural expressions. Acquisition of skills in adjusting such postures and expressions to momentary circumstances requires substantial practice. Push Hands and competitive sports and games provide means of practice.

7. In nataraja yoga, the body produces slow fluid movements that are first defined by a formal routine and then improvised in three synchronous cycles: slow deep breathing movements; variable steady pelvic movements; and variable wavy movements of shoulders, arms and hands. Synchronized and improvised movements also appear as internal imagery of the whole body exercising freedom in a mental theater of bodily awareness.

- **a. nataraja yoga: a conscious dance of freedom**
- **b. a tree metaphor**
- **c. improvisation**
- **d. constructing movements of nataraja yoga**
- **e. accompanying music provides structure for a practice session**
- **f. imagery of nataraja yoga**

a. **nataraja yoga: a conscious dance of freedom**

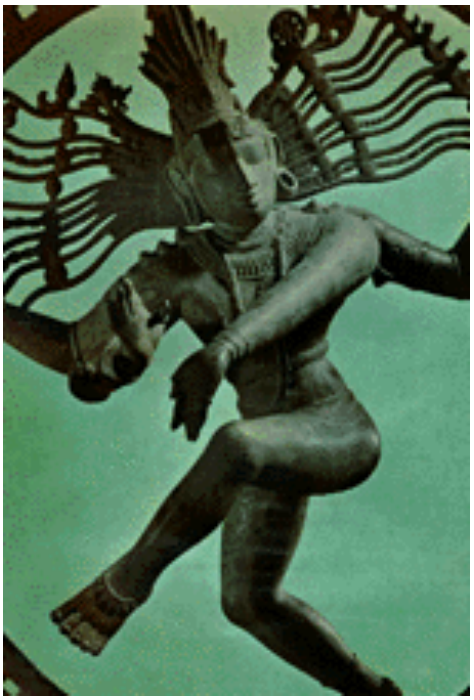
Many people exercise freedom while dancing at parties and in clubs. The body moves spontaneously in response to the beat of the music and the moods of people on the floor. Some people enjoy freedom so much that they dance themselves into exhaustion. The mind may or may not direct dance movements, apparently wandering away from many dancers. Perhaps wandering minds account for the neglect of party dancing in discussions of "free will."

In a fully realized dance of nataraja yoga, movements are produced and controlled by multiple means, chiefly, habit, invention and intention. Habits and inventions occur in the body guided by feelings; intentional control is limited to whole-body supervision, maintenance of deep breathing and occasional direction from an observing mind.

Dancing in nataraja yoga resembles performance by a pianist of a work of counterpoint. Multiple lines of movement are produced simultaneously. Each line is distinct; but many shared and overlapping features lead to momentary emphases and adjustments.

The dancer becomes absorbed in the practice. Multiple fluid movements are continually changing. Some movements take the lead and others follow; and then the lead is taken over by fresh impulses.

Siva Nataraja
Lord of the Dance



12th century bronze figure
[from Hermann Goetz, *India: Five Thousand Years of Indian Art* (1959).]

Movements of nataraja yoga are adapted from movements learned in prior practices. Prior practices have also developed imagery that includes awareness of the body, consciousness of feelings and concepts of energy moving in the body.

Multiple kinds of movements and imagery are unified through synchronous cycles into imagery of the whole body, including moving parts and momenta. Observed by mind, the whole body and all of its parts unite in a single self that is full of feelings, self-awareness and consciousness of the integrity of freedom.

b. **a tree metaphor**.

A tree is rooted in the earth and appears above the ground in separate, interacting parts, namely: unitary trunk; splitting into limbs; ramifications into branches; and sprouting of twigs and leaves. Development in this project has followed a similar plan and the construction is arranged in the shape of a tree, suggesting a metaphorical organism. The metaphorical aim of the construction is observation of the leaves of the tree waving collectively in the breezes of freedom.

The ground of such a metaphorical tree is actual life, the foundation of all that grows. Hatha-yoga practices, like a tree trunk, provide a solid, unitary first step, defining domains of mind control in which the body obeys instructions. A scale of energy levels starts with savasana. Body parts are organized in maps (yoga nidra) and in practiced stationary positions (asanas). Prana yoga practices of breath control train the body to maintain purposeful movements guided by feelings.

Distinctions appear during practice of Buddhist mindfulness, where the mind ceases to control the body and is detached from movements of the body. Breathing movements revert to the uncontrolled mode. Uncontrolled breath movements are naturally minimized by the body, in contrast to controlled breathing with exertion.

In the construction, a split occurs between mind control practices of yoga and mindfulness practices of Buddhism: the former is mind-centered and the latter is body-centered. There are now two kinds of practices. Nataraja yoga adapts and combines features of both kinds of practices, with mind controlling some movements and detaching from others (which then occur on their own).

Additional complexity occurs when Feldenkrais exercises are added to the construction. Movements of legs, pelvis, abdomen, chest, arms, hands, neck and eyes are like different branches of a tree that also move together. Breathing movements remain fundamental and are coordinated with skeletal movements. The practitioner produces and brings into consciousness qualities of movement (e.g., easy, light, reversible) that guide further development. Investigations lead to a quality of leading that organizes complex coordinated movements.

In the final level of the metaphor, qigong and tai chi practices, like twigs and leaves, grow in all possible directions, with details that adapt to circumstances, yielding under cultivation a multitude of exercises and a vast repertoire of energy conversions.

c. improvisation

As discussed above, Feldenkrais stated that a "good upright posture is that from which a minimum muscular effort will move the body with equal ease in any desired direction." Qigong and tai chi exercises develop such a capacity for free and easy movements. Invoking concepts of energy, I introduce a definition: movements that can be produced in such an ideal posture make up a repertoire that is ***equipotential*** in the sense that the body can produce any movement in the repertoire with ease. The body is ***ready*** to make any such movement.

An equipotential posture is a basis for improvisation, especially if the body can easily return to an equipotential posture at the end of each movement. The body selects easy movements from the repertoire, first moving in one way and then moving in another way and so forth. For example, successive musical tones produced by a practiced singer or instrumentalist are easily made; they connect to each other, creating phrases of melody in a song. Movements of musicians improvising variations in melodies suggest other kinds of improvised movements.

Here, the practitioner starts with floor exercises on hands and knees and attains an equipotential posture that enables the pelvis to move with freedom in multiple ways, e.g., side-to-side, back-and-forth and in circles. Movements are slow and easy. In this posture, improvisation is simple to produce and observe.

I start with traditional yoga postures. Other paths of development – e.g., vinyasas and vinyasa flow – also start with such postures. Many vinyasa practitioners explore improvisation. However, vinyasa movements require athletic abilities and stamina that are unnecessary for nataraja yoga and an easier path is taken here.

Development begins with the fact that important traditional yoga postures are not equipotential. Rather, a yoga practitioner relaxes into a traditional posture; effort is required in many cases to move out of the traditional posture and attain an equipotential posture where multiple movements are possible. An example is the child's pose shown below. The focus is different here and readiness replaces relaxation, requiring a higher level of activation. Readiness in nataraja yoga resembles that of qigong exercises and tai chi exercises.

The images below are copied from pocketyoga.com, which provides apps and teaching for yoga practitioners. They show traditional yoga poses that will be modified for purposes of this construction and developed into an easy and mobile equipotential posture that has large repertoires of possible movements. The pocketyoga site provides detailed instructions for performing the poses below.

The tabletop pose is the most mobile of the poses shown and is the starting point for modifications that lead to the desired equipotential posture. Initial repertoires

of movement based in this pose include (1) side-to-side tilting (stiff limbs, knees alternately lifting, pelvis tilting so one hip goes up); (2) side-to-side shifting (weight is on both knees and the pelvis moves parallel to the floor); and (3) sitting (the pelvis moves towards and/or away from the feet). Hands and knees move no more than slightly during these movements.

I avoid stresses on my wrists and modify the tabletop pose by forming my hands into fists, lightly closed and distributing weight over large finger bones, with arms and hands held straight so that forces run from my shoulders through arms, wrists, stiff hands and finger bones to a cushiony mat without twisting or bending. I adjust my pelvis to reduce the weight on the hands.

Cushions or pillows under my shins is another technique for stress reduction. Weight is distributed over the whole lower leg rather than concentrating at the knee and the foot. The foot dangles down at the back of the cushion.

Tabletop Pose

Sphinx Pose

Extended Puppy Pose

Child's Pose

Next, I modify the tabletop pose by bending the elbows and lowering the chest until weight is distributed over the forearms. Similar forearm weight-bearing is shown in the sphinx pose. However, different from the sphinx pose, the elevated pelvis of the tabletop pose is maintained while the chest is lowered.

The cushioned back half of the body and the lowered front half of the body lead to a back bend. An extreme back bend is shown in the extended puppy pose. The desired equipotential posture is easier than the extended puppy pose; the pelvis is pulled back so that the upper half of the body and the arms are nearly mobile. Also, the elbows are pulled in closer to the torso so that the hands and forearms can be pressed against the floor and provide light and controlling forces.

The purpose of an equipotential posture is to maintain a large repertoire of slow, easy movements. Experiments with arm placement, etc. will lead to such a posture. As with other practices, regular sessions, sensitivity and diligence lead to progress in feeling, expanding and controlling the repertoire of movements.

Another method of development uses imagery. Imagine that an idealized goal of the exercise is to produce movements of the pelvis that resemble those of a hawk or airplane pilot exploring a terrain by flying over it in various patterns, e.g., up and down, right and left, clockwise and counter-clockwise, diving and soaring and maybe also twisting and bending. Many movements and variations are possible.

For development of imagery, feelings of the pelvis are brought into consciousness, especially feelings of pelvic parts that are at the highest elevation in this exercise, feelings that are based in the buttocks and that are called ***the butt***. Slow large movements help to objectify feelings of the butt; a mental image moves with the butt, following and observing repetitive movements. Or images lead movements of the butt according to a free will based in the cerebrum, with its list of up and down, right and left, etc. First circle clockwise and then circle counter-clockwise.

Let breath movements lead butt movements. Slow large movements and slow deep breathing have been practiced in previous exercises, showing that conscious deep breathing easily synchronizes with slow repetitive movements. Use the beginning of inhalation as a trigger to start movement of the butt and likewise for the beginning of exhalation. Slow the butt's movements so that exhalation and inhalation are complete before the butt comes to rest.

Position the butt at the point of highest elevation, called "the peak." With the butt at the peak, inhale fully. Then, as exhalation starts, push the butt delicately towards the left, still at high elevation. Reach the extreme point of the motion at the same time as exhalation is complete. Smoothly reverse, returning the butt to the peak as inhalation finishes. Then mirror the movements to the right. Practice deep breathing in coordination with various slow movements in the repertoire.

The butt is not the only moving body part. Consciousness can expand to include the whole body and all of its parts, from delicate but controlling movements of the hands, forearms and lower legs, through the torso and on up to the butt.

For purposes of improvisation, I use a musical accompaniment. A current favorite is the slow movement from Bach's Violin Concerto No. 1 in A minor. After many practice sessions, the butt knows the beat in this music and moves on its own. Long musical phrases take many beats; slow butt movements imitate the phrases; matching is not forced and the butt follows its own phrasings. Movements wander through the repertoire perhaps with occasional reminders from a list in the mind.

d. constructing movements of nataraja yoga

Recall coordinated movements of breath and pelvis in the qigong exercise **A Talkative Man, a Sleeping Dog**. Man/Dog movements start in a preparation position with knees straight and feet parallel in a broad stance (twice the width of the shoulders, according to instructions) and with hands on hips. Then:

> While inhaling, bend the right knee, and keep the left leg straight, shifting your weight to the right. While exhaling, return to the preparation position.
>
> Next, produce a mirror movement to the left.

I modify the Man/Dog form into a primal elemental movement of nataraja yoga. It becomes an ***equipotential movement*** that extends the concept of equipotential posture introduced above. An equipotential movement can be shaped and developed into multiple variations that change easily into each another.

For example, the Man/Dog exercise coordinates breath and movement with a form that states: "inhale while moving away from center, exhale while returning to center." It is easy to change the form. Stop the movement at an extreme position, exhale without moving; then inhale while returning to center. The form is now: "exhale while moving away from center, inhale while returning to center."

To start my practice, I stand near a table that I can hold on to for support if needed. In a simple preparation pose, I practice deep breathing and relieve residual air hunger. Soon breathing slows and air hunger is only barely discernible. To heighten the energy activation, I introduce crouching, lowering the dantian while exhaling and lifting the dantian while inhaling.

Then I change over to performance of a modified Man/Dog. Slow skeletal movements synchronized with deep breathing movements help to sustain bodily feelings and raise them into consciousness.

The Man/Dog stance is narrowed for modified movements. To set the new stance, I stand on my right leg so that nearly all the weight is carried by the right leg; the right thigh, knee and foot pretty much line up perpendicular to the floor. In the modified position, the left foot remains parallel to the right foot and rests lightly on the floor; it is barely mobile — or can be made mobile by a slight shift of weight. The feet thus define the stance (subject to adjustments).

In a mirroring movement, when I pass through the centered position and then stand on my left leg, the right foot becomes almost or barely mobile. The feet stay on the floor during cyclical movements while the body shifts from standing on one leg to standing on the other leg.

With a narrow stance, an outward movement need not stop when the weighted leg is perpendicular; the hip can press further out while the body bends and the torso tilts towards the center. Extended hip movements are a source of variations.

The mobility of the un-weighted foot is another source of variations, allowing for foot rotations and for stepping to one side or forward or back. During Man/Dog movements, the pelvis faces directly ahead; twisting is another source of variations. While standing on the right leg, a practitioner easily twists the pelvis through an angular range, especially with support from the left foot resting on a rotating heel and, perhaps, from a hand on the table. More complex patterns alternate and combine Man/Dog shifting movements and twisting movements. Following the general principle, a breath cycle should be coordinated with a movement cycle.

A different variation adds crouching to the position at the center of the Man/Dog cycle; both knees are bent to a variable extent that generates noticeable sensation but that is also easily maintained. Positions at the end of the range of movements continue to have one straight knee. The dantian is lower in the center and higher at the ends of a full movement. During the movement, Qi moves up and down.

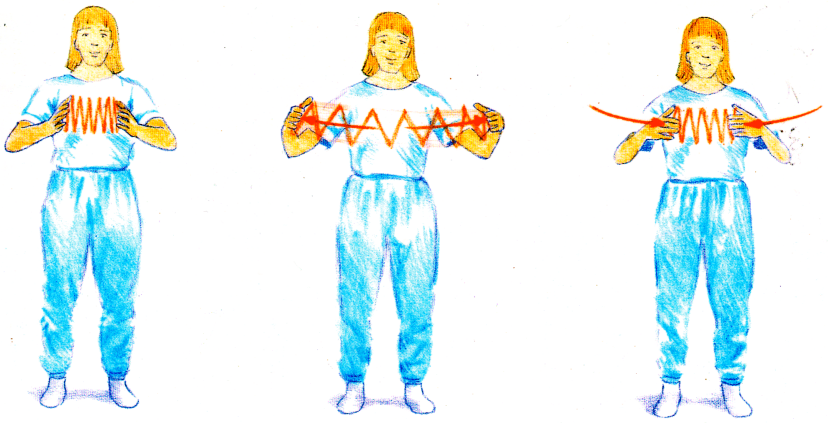
Coordinated "vertical" movements of breath and arms/hands are practiced in the qigong exercise **A Fledgling Receives Nourishment** discussed in § 6. I start with the traditional form and then vary it by gradually deepening my breath and extending the upward hand movements until the arms reach towards the ceiling and fingertips are touching each other at the maximum elevation. During exhalation movements, I slowly return my hands to my sides and to the original preparation pose. Exhalation movements of arms and hands are easily varied, perhaps dropping close together near the torso, perhaps reaching maximum distances from the torso on either side with sweeping outward arm movements.

Other vertical movements are practiced in **Painting the Wall**, discussed in § 6. It is easy to interweave movements from the two kinds of vertical movements. The conclusion of a downward movement is carried through to the beginning of an upward movement even if the upward movement is different. A playful mind can construct a variety of patterns of different vertical movements.

In the following two exercises from the book by Master Lam and artist Gordon Munro, the hands hold to equipotential positions and to "horizontal" equipotential movements. It is very easy to shift from one set of horizontal movements to the other, to reverse movements and to combine pieces of different movements to construct a variety of patterns.

Combining pieces of vertical movements and pieces of horizontal movements leads to more variations.

Playing the Accordion

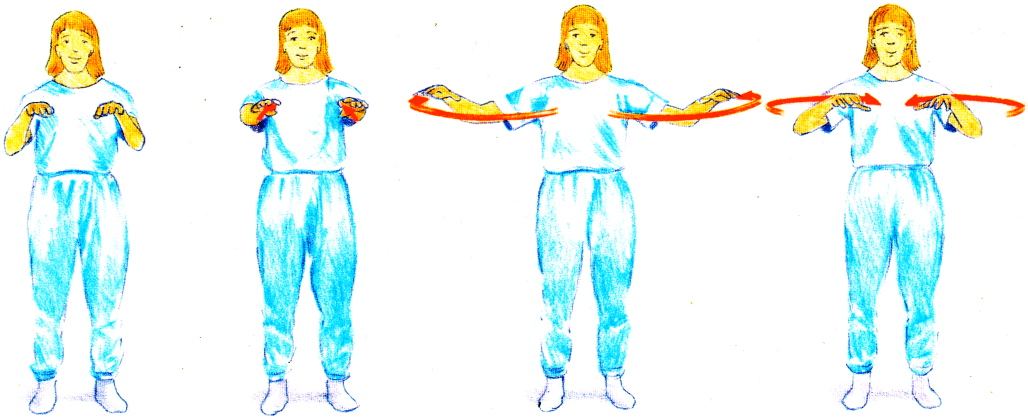


1. [Preparation.] Raise your hands gently up in front of your chest as if you were about to start playing the accordion.

2. Move your arms gently outward as if you were opening the bellows of an accordion. Breathe in as you do this.

3. Bring your arms gently back in as if you were closing the bellow. Breathe out as you do this. . . .

Swimming on Land



1. [Preparation.] Raise your hands gently up to chest height as if you were about to begin to swim using the breast stroke. Breathe in.

2. Extend your arms forward as if you were moving ahead in the water. Keep your movement very smooth and calm. As your arms move forward, breathe out.

3. As in the breast stroke, your arms move apart from each other after they extend forward.

4. Complete the breast stroke movement by bringing both hands back toward your chest in gentle circles. Breathe in . . .

A pianist might learn a piece of sheet music by first practicing just the right-hand part, then practicing just the left-hand part. After enough practice, each hand plays its own part with little mental attention. Then, in the next step, both parts play together and the two streams of music fit together as intended by the composer.

In nataraja yoga, the first practice is breath and pelvic movements; the second practice is breath and arm movements. Fitting together is achieved by means of synchronous movements led by breathing. The mind supervises the breath and the pelvis and arms follow along in habitual ways, at least prior to improvisation. Unity of movement is achieved by the unified body/mind.

My practice begins with habitual movements that combine deep breathing movements under mental control, modified Man/Dog movements and full-range Fledgling movements with outward sweeping arm movements on exhalation.

In the next stage, arms and hands maintain steady Fledgling movements, which follow leading breath movements. Mind progressively detaches from pelvic movements; the pelvis exercise freedom on its own with improvisations such as those previously described and is then constrained by the leading breath.

Next, arms and hands exercise freedom. Pelvic movements return to the modified Man/Dog form. Mind gradually detaches from arm movements while maintaining supervisory control over cycling breath movements and pelvic movements. Perhaps arms move horizontally with frequent changes and combinations; perhaps vertical movements and circling movements are introduced. Perhaps arms and hands flutter to the sides. Additional movements can be learned from books and teachers. Personal invention can find something new.

Finally, all three movements participate in equal shares. To start, deep breathing movements set the slow pace and provide clear endpoints for synchronization of movements. Pelvic movements start with modified Man/Dog movements but are ready for multiple kinds of improvisation. Pelvic movements are smooth and steady, repetitively shifting from one side to the other, perhaps guided by feelings of Tai Chi pouring discussed above.

Movements of arms and hands start by waving up and down, or back and forth, or horizontally or in circles. Soon they follow the beat set by breath and pelvis. As movements repeat, variations appear spontaneously. Impulses arise in the pelvis and reach to the fingertips. A heightened energy activation sustains an initial impulse and carries it to the limit of a range of motion. A reversed movement allows for repetition or for another variation. Movements continue moment-to-moment and breath-by-breath. Mind progressively detaches and the whole body and all of its parts move together in a unified exercise of freedom.

e. accompanying music provides structure for a practice session

I practice nataraja yoga in a small space in my bedroom with familiar furniture available for support. The room is dimly lit and I mostly keep my eyes closed.

Musical beats are incorporated in later stages of the session; and particular music is used to define three stages and their distinct characters. Here, the music is Rag Madhuvanti by Shivkumar Sharma on santur and Zakir Hussain on tabla, Nimbus Records NI 5110 (1988), discussed in § 5 of part D (Music Practice and Performance). The santur is a percussive string instrument in the class of box zithers; tone-producing strings resemble those in a piano or harpsichord and the performer strikes them with small handheld metal hammers. Shivkumar's music, expressed in the improvisatory Raga form, has great speed and fluidity.

In the first stage of Rag Madhuvanti, the santur performs solo, with a background of tambura drones that define the harmonic scale. The santur performs without a beat for the first 6' 30". Correspondingly, the first stage of the nataraja yoga session involves the progressive incorporation, under mental control, of deep breathing movements, pelvic movements and arm movements (which include movements produced by torso, shoulders, arms, hands and fingers).

At 6' 30", the santur begins to produce a beat, starting the second stage of the practice session and initiating a process of progressive detachment of mind from movements. The butt quickly picks up the beat and begins to move on its own in various ways that are detached from the mind. Perhaps the butt wants to party; however, intentional leading with the breath restrains butt movements while improvised movements take over the brachial domain. Then, improvised movements spread to both butt and brachial domains, while mental control continues to monitor and deepen breathing movements, which slow down the other movements. Finally, mental control monitors and occasionally touches all three kinds of movements while habit and improvisation exercise freedom of the body.

The tabla (drummer) appears in the third stage of the raga, entering at 14' 50". The tabla often controls the beat thereafter. Perhaps butt movements follow the tabla beat and brachial movements follow the santur. New bodily movements appear spontaneously and then repeat a few times before being replaced. Sometimes mind suggests replacements or modifications of movements (e.g,, "add some pelvic twisting"). Occasionally, tabla and santur trade the lead back and forth; and then butt and arms make similar trades.

f. imagery of nataraja yoga

Each practice in this project combines particular kinds of movements and particular kinds of focal images and surrounding concepts. I use the word ***imagery*** to refer collectively to any and all such, e.g., feelings, experiences, memories, ideas, plans and leadings. In this project, particular repertoires of movement interact with particular kinds of imagery, e.g., with bodily feelings, qualities of movement such as light and easy, and flows of prana and Qi.

Nataraja yoga combines movements that have origins in various practices and that have been modified and adapted for new purposes. Diverse kinds of movement are unified in a dance of the whole body. Different kinds of imagery are also unified. Unification of imagery occurs in a central nervous system that is absorbed in producing multiple kinds of bodily movements, all synchronized around a breath cycle. The conscious effort to slow and synchronize movements sharpens awareness and adds a layer of objectification.

Images appearing at the lowest levels of the construction are sharpened during the practice of savasana. Parts of the stationary body become objects of consciousness that the practitioner aligns according to a form set forth in words. Bodily tensions also become objects of consciousness and are released when so noticed. Following instructions, relaxation of tension extends over the front of the body, the back of the body and the entire body. Acquiring the art of relaxation, the body follows instructions from the mind and then relaxes on its own. A savasana practitioner aims for serenity and tranquility, quieting also the mind.

Imagery of body parts is more sharply articulated during the practice of yoga nidra. Although the body maintains a whole-body condition of relaxation, a mental focus shifts from one body part to another body part, carrying a readiness for movement that first attaches to a body part and is then released when the mental focus shifts. Two kinds of practice investigate concepts of will. In traditional yoga nidra, the instructor's will shifts the mental focus while the practitioner's will enters into a passive hynogagic state. In a practice adapted for nataraja yoga, the practitioner's will becomes active, turns off the instructor and carries out the mental shifting on its own, repeating the sequence of shifts taught by the instructor or improvising.

Asanas generate actual bodily feelings. Feelings appear to be secondary in traditional asana practice while the arrangement of body parts is primary. In the asana practice modified for nataraja yoga, slight feelings of stretch are of central importance while bending is adjusted to control the feelings. Increasingly, this project focuses on bodily feelings. Another departure from traditional asanas is the introduction of small movements around a position, called "wobbles." Intentional wobbles are based on feelings and are used to further investigate "free will."

Movements and feelings of breath make up the next level. Skills of breath control developed in prana yoga apply to all practices and are of central importance in nataraja yoga. Prana yoga practice in this project revolves around a feeling of air hunger, which arises during each breath cycle as a cue for a fresh inhalation. Mind is continually required to attend to air hunger. A more general intention is to deepen and slow the breath cycle, aiming for a full breath in three distinct stages (belly, chest and shoulders). A concept of prana suggests an energy that is moving through the spine and the body; and feelings of moving energy guide the practice.

Buddhist mindfulness practice opens up a new perspective. Activity of mind is restricted to observing uncontrolled breathing movements and walking movements, which occur through material processes and habits. Mind detaches from movements of breathing and walking that occur on their own.

Feldenkrais exercises investigate certain bodily movements with observational methods similar to those of Buddhist mindfulness but adapted to mechanical and thermodynamic principles of efficiency and smoothness. Investigations focus on slow and reversible movements of skeletal muscles coordinated with breath. Training revolves around development of sensitivity of feeling and delicacy in action. During an advanced exercise of self-image with eyes closed, "you can observe all your members during the movement without stopping at the beginning or the end of the swing." A concept of leading is developed for variable control of complex movements involving many body parts. Such movements are easily changed; and variations are explored by changing the body part that is leading a coordinated movement.

Repertoires of movements expand enormously when qigong exercises are added to the construction. Various practices aim for disparate religious, medical or martial-arts applications. Imagery is based on flows and stores of Qi, e.g., storing Qi in the dantian. Tai chi practices introduce a concept of pouring that connects successive movements, an advance from the repetitive form of qigong exercises. Other practices based on Qi (push hands and gongfu) provide useful perspectives although outside the present domain of investigation.

Thus, movements in nataraja yoga carry with them clouds of imagery with multiple layers that can be distinguished by the detached mind and that include feelings arising from body parts and their movements, feelings associated with energy flows, the grooves of habits, intentions, readiness, mental control, mental forms and holistic experiencing. Different sources of imagery have variable influences on movements that change spontaneously every few cycles. The resulting imagery is unique and non-reproducible.

Slow controlled breath movements lead and synchronize spontaneous pelvic and arm movements in whole-body flows. Muscular movements carry clouds of imagery that merge with movements into a single flow.

Each of the practices investigated in this project has overall goals and aims, such as release from the cycle of re-births, relief from bodily tension, mental serenity, better health, personal growth, stronger body, stronger mind or more fighting power. Goals and aims of this project are to investigate exercises of freedom in practices of bodily consciousness. I suggest that nataraja yoga manifests freedom of a person moving with a fully integrated body and mind.

Nov. 2022