# Movement Intelligence

***Our Personal Compass for Navigating Optimal Movement***

— **Ruthy Alon, PhD**

- Walk Tall — free-standing and self-supporting
- Look & Feel Younger
- Move as Nature meant, with involvement that engages your entire self
- Restore and Mature your innate flexibility, freedom, balance, movement rhythm & harmony, and Biological Optimism

*Streamlining Ergonomic Posture and Movement Efficiency*

*An innovative approach to movement reeducation based on Dr. Moshe Feldenkrais' principles of somatic learning*

*Health-related movement processes to cultivate flexibility, coordination, and bone strength*

*Submitted December 2012 by Ruthy Alon, Ph.D., in fulfillment of requirements for her thesis doctorate program in Mind-Body Medicine and Holistic Psychology from Mind-Body Medical University*

Edited by Doug Boltson, 12-17-2013

# Contents

# Introduction

Movement is not something that human beings should take for granted. Unlike living creatures that are able to stand on their feet and walk immediately after birth, the human baby is responsible for learning the skill of movement all by himself. He does this through a process of trial and error, exploring many options, until he finally arrives at movements that serve his needs and satisfy his urges. Beyond accomplishing his aims, these autonomous quests also sharpen the growing infant's personal judgment mechanism, and develop in him a *Movement Intelligence* that becomes his ever-faithful compass for navigating coordination throughout a lifelong journey filled with unforeseeable events.

Civilized man, living under the minimal physical demands of modern society, has discontinued this quest, and instead relies upon a set of pat routines, which, though they may not be optimally efficient, serve his existence, albeit on a sub-par level. In time this compromised way of life, characterized by less-than-perfect body management, can lead to some serious health complications. In truth, modern man is no less exempt than his infant self from the need to continually invest in his physical being. In order to *not* deteriorate, the human body — unlike the upkeep of inorganic machinery — needs to be used constantly, and to its fullest potential. The inescapable law of nature applies: *What you do today becomes easier to do tomorrow; what you don't do becomes more difficult.* To maintain adequate function, a grown-up must persist in perfecting his quality of moving, as well as in nurturing his passion to do so. Physical fitness is a dynamic, ongoing process. It is less like stashing your hard-earned cash away in a bank's safe-deposit box, and more like having the ability to raise capital whenever it's needed, coupled with the know-how to invest it wisely and sensitively throughout a lifetime of unpredictable twists and turns.

An infant's innate skill for acquiring movement is most impressive. He is born into the world virtually helpless, with poor motor control and with a poor degree of differentiation for coordinating his body. Yet after only one year he can stand freely with a sufficient degree of balance and mobility to begin walking about on his own. In offering his solutions for the deteriorating quality of modern man's movement, Moshé Feldenkrais, Doc.Sci. [1904–1984] modeled his strategies on the auto-didactic processes that occur naturally in the human baby. He deciphered the ingredients of the formulae for developing functional fitness from the way that this happens spontaneously, in nature, and applied these same organic principles of original habit formation to modifying and upgrading a matured man's lifetime accumulation of ingrained, dysfunctional habits.

## The Feldenkrais Method: *The Somatic Learning of the Subconscious*

Feldenkrais' main observation was that the natural development of movement skill during the early stages of life occurs in a totally autonomous, self-directed way — in the primal, pre-verbal layers of the brain, without reliance upon any external guidance. Acquisition of movement skill results from the dialogue between a specific internal urge (its motivation) and the qualitative sensory feedback that accompanies a child's attempts to satisfy this urge. The organism arrives at an acceptable pattern of moving only after a period of trial-and-error, during which it explores a range of options, comparing and contrasting the sensory feedback from these "experiments in how to best organize itself." In order for a particular pattern of coordination to congeal, take hold, and become adopted — stored into functional memory for future use as a dependable habit — the organism first needs to be convinced that this new pattern adequately serves its intention. This determination is only arrived at after a personally experienced sense of *comfort* and *safety*, validating criteria which confirm that a desirable coordination has indeed been achieved not just satisfactorily, but also satisfyingly. The qualitative "how" is as important as the quantitative "what." This principle, of *trusting the organism's auto-selection process*, is what sets Feldenkrais' approach apart from other methods of somatic inquiry and fitness development. In contrast, more conventional approaches prescribe — and even impose — a pre-ordained "right" model, intending to cultivate movement potential through the adoption and incorporation of external principles and paragons, rather than by encouraging individuals to evolve themselves uniquely, from within, without imitation — in a more natural, dignified, and significantly less authoritarian way.

Feldenkrais applies this method — of a baby's autonomous learning — to mature adults, including those who suffer from a wide range of functional disturbances and limitations. His students are guided to deliberately explore numerous ways of coordination — variations on select movement themes — and in so doing clarify the full range of their anatomic possibilities. This kind of open exploration, conducted safely and within a student's comfort zone, does not directly pursue a "correct" solution, but is instead intended to *awaken the organism's innate judgment mechanism* — transcending the superficial layer of habit, and leading it to trust in, and rely upon, its own deeper internal resources. Our fundamental instinct for survival — with which each creature is endowed — knows unerringly, through direct sensation, how to select from among its choices those most useful and supportive. It seems that this vital key for evaluating existence — a determined and assertive impulse to attain satisfaction in whatever it does, and without which a living creature simply cannot survive in the wild — is a capacity

that has all but vanished in contemporary culture. Perhaps it has atrophied from lack of use, given the relative comfort afforded by our civilization, which, through advances in modern medicine, has lowered the threshold needed for survival. But for some reason our internal guidance mechanism has become lost, neglected, or forgotten — buried beneath layers of dysfunctional habits — and, as individuals, we have suffered impairment. Our original nature has become blocked, overridden by restraints that have parasitically attached themselves to our movement patterns with the intensity and tenacity of an addiction.

Indeed, improving the movement habits of adults is very similar to the challenge of weaning them from an addiction. Even the most well meant discipline and coercion have difficulty in eliminating such unhealthy obsessions as smoking, drinking, and overeating. On the other hand, attaining competence by emulating the natural way of the baby — who relies upon the internal resources provided him by nature to sustain his existence — is an option open to us that restores optimal function in a gentle, non-violent, and non-coercive manner. As an added benefit, this approach rekindles an appreciation and aspiration toward learning itself; it also boosts feelings of self-reliance and self-esteem within an individual, who, as a result, acquires a noticeably greater degree of self-trust.

Distinct from a baby's innate learning process, the adult's *re*-learning process — of this non-verbal "functional" language — occurs simultaneously at the levels of cognitive awareness and subjective sensation, i.e., in both consciousness and sub-consciousness. Only after he is guided to explore unused options that loosen his rigid patterns of physical behavior — ones his body has been relying upon for years — is a grown-up's subconscious ready to accept the possibility of organizing itself differently. Refining the management of body movement in this manner reconnects the student with the primal wisdom within that already knows how to seek out behavior best suited for life; it also redirects a mature human being to the ongoing search for improvement, harkening back to when he was a child. The upshot of this process is not just a simple local change — of having made a better choice among several options, in a particular instance — but often represents, in a revolutionary way, a more global transformation — a complete psychic overhaul in consciousness, personality, and attitude. In essence, the newly evolved state signals a metanoic shift from having to compromise one's self (both one's stated aspirations, and one's unspoken "unavowed dreams") in order to tolerate a dysfunction — one that adamantly resists change — to finding an openness to make daring new choices, based solely upon inner sensation and one's native Movement Intelligence, i.e., relying upon instinctive "gut-level" decisions made at a preverbal level, beyond words, not unlike those made by an animal in the wild.

**The Self-Correcting Organism**

Improvements that emerge spontaneously from the subconscious often come as a surprise, even to the student himself. These improvements are quite distinct from deliberate, externally driven corrections consciously adopted for the approval, judgment, and evaluation of others. Instead, they are more like the primal process of unconsciously selecting a particular coordination based on one's inner sensation, after a thorough course of experimentation. This approach results in an unconscious shift that casts its gestalt all at once, as a fully engaged pattern, in which all components of the body spontaneously and simultaneously organize themselves in a harmonious manner — without conscious manipulation to perform in accord with any external criteria, or to please the expert eye of some outside authority. In fact it is impossible for our intentional, cognitive resources to calculate and control the complex juggling of so many factors. It is only our unconscious resources that are capable of orchestrating the multi-layered processes and components involved in such harmonious coordination. Guiding a mature adult to successfully modify his policy of movement management, and to upgrade its quality, can be accomplished effortlessly by recapturing, re-enacting, and recapitulating nature's primal mode of learning, as seen in the developing infant, and as modeled in the approach first pioneered by Feldenkrais.

**Integration — The Key to Organic *Re*organization**

Feldenkrais also borrowed from nature the organizing principle most characteristic of organic life: the quality of integration. From the perspective of integration, the living body coordinates its activity through a network of interrelationships in which each part both affects and is affected by all the others. According to the integrative approach, the ability to change — and restore function in — a specific isolated area (especially a problematic, "suffering" one) relies upon a global re-configuration that recruits the harmonious support and cooperation from every other part of the body, and presupposes the ability and readiness of these parts to adjust themselves accordingly.

Another brilliant Feldenkrais insight was to base the configurations for his guided explorations on evolutionary patterns of locomotion, those that had survived millennia of screening (the maladaptive, ineffective ones having long since been filtered out). In contrast with man-made, artificial and arbitrary "conceptualized" movements — e.g., stretching, and other exotic acrobatics and contortions — the patterns of locomotion derived from nature have proven their efficacy, efficiency, and "problem-solving" survival value throughout the course of evolution.

# The Bones for Life Program

***Cultivating Bone Strength and Weight-Bearing Posture***

For many years I was a classical Feldenkrais trainer, conducting professional courses worldwide, and certifying teachers to spread the Feldenkrais ideology — a practical philosophy that has enabled recent generations to upgrade the efficiency of their movement habits and enhance the quality of their lives not by brute force, but by more wisely following the strategies of nature. After 30 years teaching in the top echelon of the Feldenkrais world my attention was drawn to the medical problem of *Osteoporosis*. In response to the growing incidence of bone deterioration and fracture throughout Western society I began searching for a movement-based solution to this debilitating dysfunction, of lifestyle origin.

My initial impetus to create the *Bones for Life* program came from a medical doctor — a relative, in fact — who asked me, quite directly, "Can Feldenkrais help with the problem of osteoporosis?" I answered straight away that we are engaged in improving the basic attributes of natural functioning, which support life in *general*. I told him that the Feldenkrais method relates to individual problems only from a *systems* perspective, by reorganizing the coordination of the entire body. Upon hearing this the doctor responded: "It's a pity, because the medical establishment organizes itself around specific illnesses, and the particular problem of osteoporosis — its deterioration of bone tissue, its fracture rate, and the replacement of hip joints — is going to become *the* number-one financial burden on the healthcare industry."

Upon hearing this I began to give the matter some serious thought. How would it be possible to apply the Feldenkrais perspective, which supports the organism in its entirety, to address the specific problem of bone deterioration? The main obstacle I saw was a conflict in style. I knew that bones, in order to acquire strength, need an anti-gravitational, vertical impact of rhythmic pressure, whereas the Feldenkrais "laboratory of coordination" is conducted almost entirely on the ground — freed from the responsibility of maintaining equilibrium and stability, without any commitment to rhythmic repetition, and geared to use only minimal effort. These conditions are all necessary to discover the subtleties that lead to a more appropriate, integrated coordination, and — partnered with awareness — are all required in order to arrive at a higher level of function in terms of posture and movement efficiency.

Yet, often enough, the discovery of optimal coordination is *not* put into spontaneous real-world use; this is especially true when the context of the

activity is particularly challenging, and dynamic. And so, in order to develop resilient bones, it simply might not be enough to improve coordination under the "greenhouse conditions" of gentle movement, performed while lying passively on the ground. To train bones to assume their proper role — providing sufficient strength so that our body mass does not give in to gravitational forces, and collapse under its own weight — requires that bones be trained within a relevant context, one that engages them with force. But the intense activity needed to stimulate bone strength directly conflicts with the preconditions for learning that characterize the Feldenkrais Method — slow, gentle movements, conducted at a personal pace, with minimal effort, no stated objective to pursue, and little confrontation with gravity. Contrastingly, a style of learning that stimulates the skeleton to fulfill its function demands a more *active* physical language — of pressure and rhythmic springiness, as in the repetitive impacts of real-world walking — and is best conducted upright, in the real-world vertical field of gravity.

In creating the *Bones for Life* program my intention was to reconcile these two complementary needs — gentleness, for somatic learning in the horizontal plane, and forcefulness to support real-world standing in the vertical plane — and somehow blend them together.

**Communicating with Bone through the Language of Pressure**

Underlying *Bones for Life* — the Movement Intelligence program first to debut, whose focus is on strengthening the skeleton — is the neurological connection between activity, and the development of competency. In short, demand evokes supply. The more we challenge our bones with practices that demand a high degree of resistance, the more they are supplied with that very resistance [cf. Wolff's Law]. If we don't offer our bones the opportunity to exercise their potential, our organism infers that there is no need to supply them with any additional resources, and so they deteriorate; the metabolic incentive to strengthen them declines — or disappears, altogether — and they atrophy. Notably, these deteriorating bone conditions cannot be reversed with a simple-minded, if well intended application of force; due to their now fragile state, caution is in order. When designing an effective bone building program it needs to be remembered that there must always be an appropriate balance between the challenges undertaken and an individual's capacity to respond to them. This helps bypass any further physical damage, as well as any psychic frustration — i.e., a demotivated state that lowers interest, and undermines new learning.

I thus had to find a way to take our organism's autonomous learning principles, employed in the Feldenkrais Method, and apply them in a completely different

context. How could I guide powerful activity — such as forceful stamping, that resonates throughout every bone — without omitting the inner explorations that promote quality? How could I be faithful to movement harmony — which can yield inner transformation, in a self-corrective way — while engaged in dynamic, challenging tasks? How could I incorporate intense, rhythmic activity without having students fall into the traps of mindless ambition and excessive effort, and at the risk of sacrificing their self-awareness . . . ignoring all the subtleties that supply our organism with its cues for self-correction?

In answer to my quandary, I recalled that Feldenkrais began his quest for movement efficiency when he practiced Judo — a superb test of coordination: precise technique, interwoven with resourceful improvisation while coping with an unpredictable partner, acting in the vertical plane, and responding in real time. The recollection of this collection of attributes — of a combative martial art being the catalyst for the creation of a gentle method of movement re-education — encouraged my daring to develop a process of inner discovery, oriented toward self-improvement, that did *not* rely on the "greenhouse conditions" of lying on the floor, but would be conducted upright — in a true-to-life, non-artificial position where students would bear full responsibility for managing their own balance and posture. Yet somehow I needed to devise a substitute for the indulgently comfortable Feldenkrais learning conditions — surely one more dynamic and demanding, but also one that would keep the level of *noise* to a minimum in order to still hear the subtleties that hallmark the harmony of optimal self-mobilization.

**The Movement Intelligence Program's "Greenhouse" Learning Conditions**

As an alternative to avoiding direct confrontation with gravity — by lying horizontally on the floor — and minimizing the investment of effort (as in the Feldenkrais Method), I developed three effective auxiliary tools to facilitate learning while standing upright, in the vertical plane, under ordinary, everyday conditions of gravity and impact. The three tools that the *Bones for Life* program employs to strategically enhance an upright learner's improvement are the use of a wall, his hands, and a *Wrap*.

**Using a *Wall* to Support Learning**

When leaning against a wall with his hands, or back, a student is freed from maintaining balance, and is more open to exploring, without fear of falling, new possibilities for self-organization. The unfamiliar position liberates one's behavior from the bounds of habit, and awakens in the individual an inner resourcefulness that can navigate optimum movement, and encourage its adoption. With the

support of a nearby wall a student can step in place rhythmically, or bounce on his heels, with a degree of impact and pressure that is greater than that ordinarily used in everyday activity, and can thereby load his body with force in ways that safely and gradually increase skeletal resistance. The unwavering, objectively vertical wall guarantees that a person's posture remains intact throughout all these activities; it ensures that his posture does not become compromised or deformed, as might normally be the case when moving with increased force. The wall also assists the transmission of force from foot to head. This force, channeled up from the ground — from the stepping foot, and through the axis of standing — is parallel to and safely supported by the wall, which helps streamline a person's overall posture. When this pattern is enacted within the context of integrated, full-body walking it has a lasting effect on a person's ability to align his bony parts in a way that easily transmits dynamic force in a *domino effect* trajectory, coursing upward, unimpeded, through his entire skeletal frame.

Given the protective "greenhouse" conditions provided by the wall, it is possible to safely perform intense, powerful movements while standing upright in the gravitational field. For some people this novel experience registers itself in the brain as not only feasible, but as a major breakthrough. The more a student repeats these energetic stepping movements — reinforcing the improved alignment he easily attains at the wall — the more likely his organism will adopt this posture for everyday use. *Each action affirms and reinforces the structural context in which it is performed — for better, or for worse.* Pairing structural improvement with dynamic movement — in this case the fundamental pattern of harmoniously integrated, full-body walking — creates a *winning formula*.

**Redesigning Structure through *Self-Touch***

A student can use his hands to clarify the *orientation* of a postural idea, or a specific movement *coordination*. Hands thus help introduce a mechanically desired change, i.e., the reorganization of a particular part.

> For an example of how self-touch can help students introduce an improvement, place your hand on your chin, gently coaxing it closer to your throat, but *without* lowering your head. This backward translation brings the neck into better alignment with the rest of the spine. Your neck becomes straighter and longer — a poised position it is usually unable to assume by itself, especially in a way that feels natural and comfortable. In this configuration, where the neck carries the head in greater continuity with the trunk, standing requires no conscious muscular effort since the body effectively rests upon itself — bone balanced upon bone, stacked all the way down to the ground.

> Moreover, if you next attach the back of your other hand to your lumbar spine, then the spreading of your fingers can guide the blind vertebrae of your lower back to separate from each other, passively, relieved of their usual compression.

This subtle change frees your lower back from its tendency to contract with each step. Allowing a smooth, unimpeded transmission of locomotive power from foot to head in a way that does not get "caught" in the lower back makes walking not only easier and more pleasant, but also reinstates into your movement repertoire the natural bone-building pattern inherent in a safe, yet vigorous and energetic walk. In this way, precise self-touch helps bypass habit, and facilitates a corrective shortcut that immerses you in the "gestalt" of an anatomically accurate and organically integrated pattern of use.

**Using the *Wrap* as a "Loan" of Well-Organized Posture**

In order to perform demanding activity, well-aligned posture is essential. Apart from its visual appeal, functional posture — with which one can not just turn about oneself, easily, but can also safely withstand greater-than-usual pressure — is a prerequisite for securely undertaking any form of dynamic movement.

In the Movement Intelligence programs one of our most effective tools for configuring posture into a resilient weight-bearing structure, suitable for bone strengthening challenges, is the *Wrap*. The *Wrap* is a strip of ordinary cotton cloth, approximately seven meters long and one meter wide. Fastened in the *Wrap,* the body is held together in one firm unit, securely girded to prevent any postural deviation or collapse. In this secured position it is possible to safely load the body with force, and perform vigorous, dynamic activities of increasing intensity such as walking, bouncing on the heels, and even jumping.

Movement, by definition, entails some degree of flexibility to open the angles of our joints freely, if not to the extremes of our full anatomic range. But in the real world there also come times when another approach to movement, *without* flexibility, is needed. For example, in cases where we directly confront gravity — such as rising from a chair, climbing steps, bouncing on our heels, or jumping — instead of flexibility we actually need our joints to fasten together firmly, into a single, solid, streamlined unit, one that has sufficient strength to transmit increased power along its axis, without distorting or collapsing our posture.

The *Wrap* provides just such a loan of unified self-use, enabling us to imprint upon our self-image a postural ideal that is organized to safely withstand the

intense force generated by any number of anti-gravity activities. When you tighten the *Wrap* around your body and pull its ends down, a relatively simple task, the pulling *down* creates a counter-reaction that hoists the body *up*. In this way the *Wrap* automatically rights our posture; it bypasses, confounds and contradicts the conventional wisdom that associates straightening up with effort. In 2005, in Kansas, I demonstrated the *Wrap* at a NASA conference, where I was offering a poster presentation. When the officer trying on the *Wrap* experienced the spontaneous lift in his posture that came from pulling down its ends, he cried out in astonishment, "Only Israelis could devise such a thing!"

In the *Bones for Life* program the multi-purpose *Wrap* is used in several ways. Its primary function is to solidly fasten the body together by adding the support of additional "external spines" — from behind, as well as in front. These external spines, like flying buttresses, maximize the safety of the body's architecture. The *Wrap* guarantees that the body's less stable joints [e.g., hips, lumbar & cervical vertebrae] do not deviate, compress, or distort when they are confronted with real-world impacts, loaded with greater-than-everyday force. This experience serves as a corrective for impaired joints that are prone to destabilize with sub-optimal body use. The *Wrap* channels the body's alignment, enabling it to experience reverberant bone-strengthening impacts without it being jolted out of place, recoiling, and thus foisting adverse effects on misaligned joints — damage from friction and shearing stress.

Among its other functions in the *Bones for Life* program, the *Wrap* is used as protective padding, as a rope for pulling, and also as a braided crown — which helps cultivate the ability to carry weight on the head, just like people from many indigenous cultures around the world who transport jugs of water and other heavy objects long distances . . . an easily disregarded accomplishment that guides one's posture ever upward, to the height of perfection.

**Strategies for Safety and Learning**

In addition to providing shortcuts to improve coordination and posture, a significant portion of the *Bones for Life* program is devoted to protecting fragile joints. Some of these strategies are derived from Feldenkrais' method, and have been translated to the vertical plane to manage power in the context of dynamic movement. In the *Bones for Life* Teacher's Manual many strategies for inspiring the organism to correct itself are spelled out for each of the program's ninety processes. Here is a list of many of these strategies:

- Applying power only when posture is safely aligned, in a way that channels a streamlined "domino effect" transmission of mobilizing force
- Improving the quality of a specific movement task by performing it with a consistent, non-jerky rhythm — one that is easy to detect, and easy to change
- Introducing corrections through indirect, passive movement, as a way of circumventing resistance from impaired, dysfunctional programming
- Addressing the healing of a suffering part with a systemic "family therapy" approach that includes the adjustment of corresponding, non-cooperative body parts
- Training the body to safely accept heavy loads, and to move with a higher degree of power, by first practicing optimal positions and mobilizations in *non*-weight-bearing contexts
- Synchronizing body parts in different patterns: simultaneously, in opposition, in alternation, and sequentially (one after the other in an imitative, canon-like sequence)
- Using our Sphincter Network as an internal anti-gravity lever
- Maneuvering body surfaces to evoke new options at a deeper level of coordination, awakening a flexible, continuously adapting movement intelligence
- Weaning compulsions through the intentional exaggeration of counterproductive patterns, done with awareness — a deliberately paradoxical approach (doing the "wrong" thing) which helps loosen the hold of habit
- Incorporating extra dimensions of movement [additional degrees of freedom] to more fully realize our potential
- Reinforcing a desirable configuration by enacting it while in motion
- Healing a disturbance in stages: protection (inhibiting movement); stabilization; controlled activation; adjusting all the other body parts; functioning back out in real-world contexts
- Demonstrating, by visual example —"live" through the senses, rather than from the "dead words" of conceptualized, abstract theory
- Selectively inhibiting activity in an overworked, suffering part, while introducing more mobility in a correspondingly stiff part
- Refining the transitions, from one position to another, to render their quality smooth and reversible
- Applying resistance to increase clarity, and to develop power
- Training in the dynamics of basic everyday functions, such as turning, bending, reaching, pushing, pulling, climbing, creeping, crawling on all fours, walking, running, jumping, going up and down stairs (or inclined slopes), getting up and down from the floor, applying resistance, and falling without injury
- Risking balance in a controlled way to develop the resourcefulness to restore equilibrium
- Deciphering the relationship between posture and the focus of pressure in the foot
- Correlating different activities with different breathing patterns
- Using self-touch to introduce mechanical change and clarify the self-image
- Utilizing "Neurological Diplomacy" by deliberately simulating a counterproductive pattern on a well-functioning, problem-free side, to provoke a spontaneous correction on the "suffering" problematic side
- Eliciting sensory feedback (awareness) to verify that our action matches our intention

- Reversing a joint's usual proximal and distal relationships to evoke unused potential
- Working on only one side, which pioneers learning for the entire body from an Integration perspective — highlighting the harmonious interdependency between all body parts, as a key to optimal, organic, and anatomically correct functioning
- Enhancing understanding through comparison and contrast
- Re-enacting phylogenic, primal movement patterns from early evolution to prompt our ontogenetic resourcefulness to invent new and appropriate solutions
- Going *with* the current biases of the body — fulfilling its need, and thereby rendering a fixed holding pattern unnecessary, rather than forcing a correction upon it — so that the body can learn without encountering any resistance
- Creating a comfortable "greenhouse" environment for learning — free of threat, frustration, competition, effort, prejudice or judgment
- Providing padding and props whose surfaces stimulate the grounding reflex, allowing unnecessarily held body structures to release extraneous tension and rest into support
- Using Paradox to awaken us from automatic habit patterns
- Taking an effortless ride on our "righting" (and other) reflexes
- Accessing our innate wisdom to make its best choice after first exploring a variety of options
- Utilizing Metaphors, and Guided Imagery, as shortcuts to discover optimal function

**Neurological and Mechanical Effects**

Movement skill can be improved by many means. As an alternative to cultivating competency through mindlessly repetitive rote drill, we can instead leverage neurological processes to which our organism responds with an appropriate action, ones that are designed to instinctively satisfy an organic need. For example, during an intense walk our organism is challenged with the need to withstand a high degree of impact, and our bones are driven to activate their primal function — resisting collapse, and maintaining our uprightness in gravity — so that mobilization can easily occur. Thus, stamping the foot on the ground — in a springy, rhythmic manner — simultaneously improves our posture. The remarkable effect the stepping foot has on the rest of the body derives from its being a prime component of the long-standing, holistic formula of walking, whose integrated coordination has developed over time and — having had its flaws filtered away during the course of evolution — been screened to perfection.

In addition to our stepping foot's capacity to improve our bone strength, the rhythmic pulsations of walking — which vibrate the tissues of our entire body, down to the cellular level — also stimulate blood circulation. This, in turn, has a crucial effect on the quality of our gait. In fact, the repetitive muscular contractions of our blood vessels, which occur with each step, drive all our internal fluids to an upward rebound. During a vigorous rhythmic walk, the rate of

blood exchange — its pressure and flow — is also elevated. This contrasts sharply with a sedentary person's relative lack of movement, where blood flow becomes sluggish and weak, and the heart must handle the entire pushing and pumping of blood throughout the body all by itself. Thus the stepping pulsations, loaded with the strong impacts employed during a vigorous walk, are essential in assisting our heart to fulfill its biological function.

Increased circulation encourages blood flow into the tiny capillaries at the extremities — zones of transition, from arteries to veins — where nutrients carried by the bloodstream can be absorbed into the surrounding body tissues, and nurture them there. Only after arriving at a baseline pressure does the blood have sufficient force to flow, in full volume, through the narrow passageways of the tiny capillaries. Once it does break through their walls, it penetrates the body tissues to provide oxygen and other healthful nutrients.

In particular, the phase of circulation when the blood returns from the extremities to the heart, against gravity, largely depends upon the support it receives from vigorous muscle contractions. The pulsations from walking, especially when loaded with impact, rebound the blood, coaxing it upward and channeling it toward the heart with each energetic step taken. Walking thus spares the heart a significant portion of its pumping — in the most difficult segment of the circulatory cycle — by driving blood up from the furthermost tips of the downward-hanging arms and legs, and back to the heart. Nature took care of this difficult return phase — the jumping of blood up against gravity, and back to the heart — by equipping the veins with one-way valves. In response to the pulse created when each heel strikes the ground, the resulting counter-pressure sends the blood higher, to the next venous way station, as the valve beneath it immediately locks and accumulates fluid, which at the next pulsation will be sent further on up, to its next way station, on the blood's journey back to the heart.

There are significant health aspects to both facilitating the difficult pumping of blood, up against gravity, and enabling free flow into its capillary endpoints, where nutrients are absorbed into the entire body. In contrast to arterial blood — which is assisted by gravity in its downward flow, from the heart to the extremities, providing fresh oxygen and nourishment — the venous blood that returns to the heart, up against gravity, carries away from the body tissues the residue of metabolic processes. When the rate of anti-gravity cleansing lags the rate of accelerated nurturing, toxicity may accumulate in the tissues, and trigger system-wide illness.

From this perspective a direct, interdependent relationship between movement and health can readily be seen. When thinking-oriented civilized man abandons his opportunities for physical activity in daily life — preferring instead to travel by automobile, to hunt down ever-closer parking spaces, and simply not be bothered using his legs to walk — he actually places the burden of pumping blood entirely on his heart, and, further, risks the remainder of his body tissues deteriorating from not being adequately supplied with nutrients, and accumulating toxicity. If his overworked heart tires — understandably, given its difficult task — and functions in a less-than-perfect way, the toxic residue stuck in his body has the potential to trigger a number of serious health risks.

**How can out-of-condition people learn to perform dynamic movement?**
The most crucial issue addressed in the *Bones for Life* program is how to best guide people who are poorly organized — people suffering, in decline, whose posture is prone to collapse at personally vulnerable joints with each walking step; people who have neglected their physical fitness for many years, and have become used to a compromised way of living in their bodies. How can such people carry out dynamic movement, loaded with power, *without* harming themselves further, *without* hurting their vulnerable joints, and *without* causing their deteriorated posture to deteriorate even further? These people, who unfortunately comprise a significant portion of our adult population, are, more than anyone else, the very ones most in need of an intelligent way to benefit from power-laden corrective movement.

And this is where the unique contributions of the *Bones for Life* program come to the fore, offering *neuro-motor* strategies that safely secure the body-in-action, and presenting *learning* strategies to awaken from within new choices for reorganizing, restructuring and redesigning posture. The program offers many simple, focused "shortcut" processes that bypass dysfunction, and safely grant students the real-world experience of "anti-gravity" vertical activity, loaded with power, and carried out in dynamic contexts that speak to both bone and heart tissue, and support and strengthen their functioning.

***Themes to Cultivate Bone Strength and Upright Posture***
**a) Bouncing on the Heels — Pulsations of Pressure Build Bone**
"Vibro-gymnastics" [www.spidersport.com/vibrogymnastics_en.php] was a rebounding technique invented by Russian space engineer Alexander Mikulin to increase blood flow. By bouncing on his heels from a height of only 1 centimeter he found that the increased pressure in his legs aided circulation; it helped pump blood up through his veins, against gravity — reducing his heart's workload, and preventing

blood from stagnantly pooling in his feet and legs.

At age 50 Mikulin was afflicted with severe complications from a weakened heart; lying in a hospital bed, his odds of survival were rapidly dropping. Looking around with the eyes of an engineer he noticed how doctors treated the human body as a machine, and he came up with his own mechanical means to assist the function of his sick heart. He realized that by stamping his heels on the floor he could evoke an equal-and-opposite reaction. This counter-reaction would jump his body fluids upward, against gravity, stimulating venous return, and thereby help pump blood back up from his legs to his heart. Using this insight Mikulin healed himself, and went on to live for many more years, even playing tennis at the age of 83.

The *Bones for Life* program uses this very same strategy — of rhythmic pulsations, loaded with short bursts of intense pressure — to accomplish three aims: to stimulate blood circulation, to build bone, and to optimize posture. "Bouncing on the heels" is our foundational, bread-and-butter exercise. We revisit it throughout the program in a range of variations that satisfy the body's need for novelty, as well as its need for continuous and repeated "feedings." Each new refinement in postural re-organization that the program introduces is affirmed by literally *stamping* it into our consciousness, using the dynamic context of heel bouncing. However, in contrast to Mikulin's prescription of 30 consecutive bounces, spaced one second apart, our heel bouncing is done in double-pulses — "pum-pum, pum-pum . . . " — iambic taps that echo the "lub-dub" rhythm of the heartbeat, a familiar pattern heard first in our mother's womb, which makes them more palatable for our organism to absorb, accept, and assimilate.

As an integrated "total body" movement, heel bouncing strengthens not only our heart, but also the resistance of our bones throughout our entire skeletal system, enabling them to withstand increasingly powerful impacts. Heel bouncing also promotes stability in our body by organizing our bones more sensibly — stacked one atop the other, into a better aligned posture; generates a joyful feeling — as in "jumping for joy"; and, in a more general, indirect way, globally refreshes and revitalizes the physiological functions of the entirety of our bodies.

Because tapping our heels on the ground loads our skeleton with impacts whose intensity exceeds the pressure normally produced in walking (and even running), it increases bone density in a way that gradually builds sufficient resilience and strength to withstand more than earth's everyday gravitational force. Further, this activity is easier to perform than either walking or running; most anyone can bounce on his heels. Even people who have difficulty moving, or who have

balance issues and are concerned — if not fearful — about losing equilibrium and falling, have ready access to a wall or furniture to support themselves while they bounce, albeit lightly, and can still profit from its healing effect. For all these reasons, bouncing on the heels is the *Bones for Life* program's essential exercise, sine qua non, and it is regularly assigned for home practice. As evidence of its benefits, we have documented numerous case histories of improved bone density after only several months of heel bouncing. Clearly, bouncing on the heels heals.

SAMPLE PROCESS: **Bouncing on the Heels**

*– While standing, lift your heels very slightly from the floor; then drop them, with a very light bump, back down to the ground.*

*– Invite your body to remain firm, acting as single, one-unit block.*

*– You might to hold on to some support, to relieve yourself from concern with your balance.*

*– Bounce your heels with double-taps, in a heartbeat rhythm, as you say aloud: "Pum-Pum, Pum-Pum . . ."*

*— When you have had enough, stop, stand, and appreciate the difference from when you began. How is your posture? Your attitude? How long can you remain like this, in comfort, with an attitude of acceptance for your new way of standing?*

**b) Postural Alignment — Prerequisite for Safe, Dynamic Movement**

There is no pill for posture; there is no drug that can remedy the way you stand. Your relationship with gravity is a personal calling card, your postural fingerprint, which, like your handwriting, presents to the world, beyond all pretense, the characteristic details of your unique way of being in the world. People read each other's posture through an inborn, nonverbal, yet biologically significant "sixth sense." The way your posture is perceived by others stems from the same primordial system that guides survival in the wild — a vital orientation to the environment, a "gut reaction" that rapidly reads a situation and reacts before the slower conscious mind even has time to realize what's going on, and respond.

From a physiological standpoint, a streamlined posture is the safest structure with which to produce springy, powerful, bone-building movement. Only when our posture is properly aligned can a dynamic force, generated by stamping the ground, transmit unimpeded from one end of the skeleton to the other — without deviating, losing power, or compressing hyper-mobile, vulnerable joints. Only when the skeletal frame is well organized is it possible to use movement to vibrate our bones with a force strong enough to enhance their resistance to withstand pressure and prevent collapse. Unfortunately, optimal posture cannot

be fashioned through imitation, by simply re-positioning oneself in accord with some external authority. Instead, in order for it to be adopted and put to use in a meaningful, lasting way, ideal posture needs to be *discovered* by the organism — which selects it unconsciously, from within, based on a personally felt quality of "usefulness to life" directly determined through its own sensation.

In early childhood the acquisition of ideal natural posture is random, if ultimately successful, but, given our later habituation to the unnatural, man-made world, it is often lost or forgotten as we age. Fortunately, the re-discovery of this optimal state can be encouraged and accelerated through devices and procedures that immerse our organism in experiences that bypass the blind limitations of our fixed, counterproductive habits. When introduced to new possibilities, our organism instantly recognizes, from within, if these options feel threatening and unpleasant, or safe and supportive. If safe and supportive, then they stand a chance for acceptance. Thus it is not through effort or imitation that improved alignment is restored to our movement repertoire. Of course, as in the acquisition of any new skill, there is always room for improvement, and need for repetition. But the more that rehearsals are carried out within our comfort zone, accompanied by awareness, the better the chances that the proposed postural upgrade will take root, persist, and flourish.

A significant part of the *Bones for Life* program is devoted to aligning posture in a precise, yet fluidly adaptive, way that serves the body in dynamic motion. In reality, posture is not static; it is the result of the sum total of our movement range and quality. A transformation in the way in which we carry ourselves is best facilitated by an integrated cooperation between the totality of the many body parts involved in our movement. Attending to the factor of integration — which is the most significant characteristic of any organism — allows us to affect change in a specific area while awakening the readiness of the corresponding partners to adjust themselves, globally, to the locally desired change. When we take the entire body into account, so as to secure harmonious interaction among all its components, optimal posture is actually in effect each moment we're in motion. Thus, with ideally well-organized coordination, all our daily activities become means of strengthening our bones.

SAMPLE PROCESS: **Aligning the Neck's Cervical Vertebrae**

*– While sitting, put one hand behind your neck and explore its shape with your fingers. Locate the deepest point in your cervical curve.*

*– Place the opening of your other hand at your chin: thumb on one cheek, index*

*finger on the other.*

*– With this hand gently guide your chin closer to your throat; to maintain the verticality of your face, you may open your mouth.*

*– See if you can bring your wrist to your sternum, and attach your pinky to your collarbone. You may also rest your forearm and elbow on your chest.*

*– With both hands in place, repeat the withdrawing of your chin and head several times.*

*– Feel the change in your neck with the hand behind you. See if you can interpret this as a straightening of your neck, which is now better aligned and more continuous with your spine.*

*Confirm this change by performing an activity in this position:*

*– As you get up to stand, maintain a fixed distance between chin and chest; the position of your hands blocks any articulation in your neck.*

*– As a result, other larger segments of your spine are recruited for this anti-gravity task.*

*– Still coaxing your chin back with your hand . . . holding it closer to your chest to straighten your neck while you move . . . step in place, from one foot to the other.*

*Movement always reinforces the configuration in which it is carried out.*

*– Finally, take your hands away, and feel how your body chooses to stand. Listen to the statement your posture now makes.*

SAMPLE PROCESS: **Decompressing the Lower Back's Lumbar Vertebrae**

*– Stand in a "step position" — one foot ahead of the other (as if taking a step) — and allow your knees to unlock.*

*– Put the back of the hand on the same side as your back leg at the curve of your lumbar region: the little finger at the sacrum, and the thumb resting just above your waistline. Bend your knees slightly.*

*– Allow your fingers, attached to the tissues of your lower back, to spread open the spaces between them; they encourage the elongation of the lumbar spine, which occurs in response to a change in the position of the pelvis.*

*– Repeat this several times.*

*– Each time you straighten your knees, your fingers approach each other; acknowledge your lumbar spine getting shorter. Each time you bend your knees, your fingers separate, dragging along with them the tissues they touch; acknowledge your lumbar spine getting longer.*

*– Now keep your knees unlocked all the time. Put your other hand on your belly:*

*your little finger at the bottom of your belly, your thumb above your navel.*

*– Squeeze together the tissues of your belly, your hand in front bringing the thumb and little finger together as, with your hand in back, you feel the response in your lumbar spine. Realize that shortening your front leads to the release and lengthening of your back.*

*– Repeat this several times. Maintain the squeezed position, and confirm the elongation of your lumbar spine by stepping in place, from one foot to the other.*

*– To further enhance the decompression of your lumbar region, bend both knees with each stepping foot. Do this minimally, in a way that corresponds with your natural way of walking.*

*– Finally, stand and feel what has changed in your posture. Perhaps you notice that your pelvis hangs lower than usual. Maybe you discover that your knees no longer tend to lock, compulsively, as in the past; they might even be like springs.*

*– Walk around to experience the new sensations in your lower back.*

**c) Basic Patterns of Locomotion: *Wave* and *Axis***

The *Bones for Life* program differentiates two modes of mobilization: "Wave" and "Axis." The flexible, undulating *Wave* style is used for swimming, crawling and walking. The *Axis* style — which firms up the skeleton into a single, solid unit — is used for anti-gravity tasks like jumping. Underscoring the distinction between Wave and Axis clarifies our movement management, and sharpens our comprehension of these two complementary modes. When we stand upright, Wave movement — which smoothly serpents the spine for flexibility — serves *horizontal* propulsion; in contrast, Axial movement — which lifts our body weight to outsmart gravity, as in jumping — functions in the *vertical* plane.

Our joints are designed for flexibility. Each neighboring pair of bones has a given degree of freedom, and opens to an anatomically prescribed distance; in aggregate, they facilitate our total body locomotion. But our joints also have another role. In certain functions they lock — tightening bones together, one to its neighbor, binding them into a single unit — and so they must also be able to forgo their ability to articulate. In this opposing function, our joints serve stability, rather than mobility; they fasten our bones to each other, and are responsible for aligning our skeleton in a continuously streamlined, firm and unbendable Axis — a unified structure that can safely bear the increased work of lifting our entire body weight. This "locking phase" of our joints positions our bones to their best mechanical advantage — where they are able to withstand a high degree of pressure and resist collapse in the gravitational field. Functioning in this stabilized

Axis mode trains our bones to fulfill their destiny, and form the strong, solid structure that shapes and supports our body architecture from within.

Moving in the one-unit *Axis* mode is less familiar to civilized man; it demands a sophisticated neuromuscular control and finely regulated management of power. Though part of the *Bones for Life* program is devoted to cultivating *Wave*-like proportional flexibility among our joints, it is as essential to learn to configure the spine into a firm, solid *Axis.* In addition to teaching a fixed arrangement of the skeleton that does *not* articulate — enabling the body to defy gravity and perform vertical movement, as in jumping — the program also teaches students to make a smooth transition between the easy-flowing *Wave* and the steadfast *Axis*, shifts in mode that occur regularly, back and forth, with each springy step of a vigorous, bone-building walk.

The *Axis* mode is first learned lying on the floor — in safe, comfortable "greenhouse" conditions — where one leg or hand pushes a wall gradually, and sensitively. It is then possible to feel how the entire body becomes loaded with streaming force — though never to the degree that breathing is disturbed. The body becomes straighter, and better aligned, as the spinal curves begin to flatten toward the objective horizontal plane of the floor. Another protective set of "greenhouse" conditions for learning to load the *Axis* with determined force comes from standing near a wall. In addition to being able to lean on it, for support in the upright plane, the wall also offers an objective vertical model for more optimal alignment. Improved posture is further cultivated by practicing various joint permutations, combinations and sequences, all conducted while maintaining contact with it.

To safely experience *Axial* stability and activity in the vertical plane *away* from the wall, the *Bones for Life* program makes use of the "Wrap" — a cloth strip 7 meters long and 70 cm wide, which is used to girdle the body in numerous ways. The general purpose of the *Wrap* is to organize the body in an efficiently streamlined posture which ensures that the rebounding impact of a stepping foot gets transmitted directly up to the head, without any postural distortion or collapse. With use of the *Wrap* the body is enabled to perform powerful, anti-gravity movements — of sufficient intensity to build bone strength — in a safe, secure manner, without risking injury. We thus describe the Wrap as a "loan" of weight-bearing posture. Harnessing the body with the *Wrap* limits deviations of the joints when the body performs particularly intense movements. Stabilizing the joints with the *Wrap* provides the appropriate sensations and textures with which the body can safely carry out powerful "anti-gravity" activity without risking injury.

A simple tool, the *Wrap* enables us, when faced with demanding real-world tasks, to avoid the trap of falling back on our conditioned tendencies and using habitual configurations of our body — which are likely to be inefficient, if not harmful. As if by magic the transformation of posture emerges, all by itself, after practicing only a few basic movements while harnessed in the *Wrap*. The change comes spontaneously, from within, as a surprise. Better yet, this discovery of optimal posture is repeatable, any time you choose to use the *Wrap* to recreate the experience. And, as in the Feldenkrais method, the improvement in quality arrives through a revelation authenticated by personal sensation, not through imitation.

**d) Protecting Vulnerable Joints — Safety First**

If the vertebrae of the neck are excessively sunken and compressed under the weight of the head; or some upper back vertebrae are too stiff; or a specific vertebrae in the lumbar spine is too loose; or a combination of any of these . . . what chance does the lower back have *not* to react with an exaggerated, friction-filled recoil with each walking step, despite one's best efforts — without success — to try to avoid any strong impact with the ground?

Similarly, if the hip joint, which connects the leg to the trunk, has deviated from optimal alignment — either too tight, or too loose — what chance is there to walk confidently, and in balance, without, with each step, receiving a painful signal from the groin on the same side as the deviated hip when it tries to engage in dynamic, bone-building activity?

If a knee suffers each time it flexes, or, more likely, when it straightens up to lift and support the weight of the body (which, in its entirety, rests upon it, alone) — a situation that occurs each time the opposite foot detaches from the ground to take its next step — what chance is there for any springy and rhythmic activity that embodies and is characteristic of a lively, joyous, uninhibited, care-free walk?

What chance is there to walk willingly, and pleasurably, when with each step one aching ankle cries out its memory of a former trauma?

Such limitations are widespread, and quite common in contemporary society. Before setting out to increase bone strength, by stimulating skeletal resistance to gravity, we need to secure the safety of all our vulnerable joints, and to involve them in movement as best we can. As its main contribution, the *Bones for Life* program offers a comprehensive set of unique strategies to address each area of joint instability, in order to ensure the safety and efficiency of all participants.

From this perspective it can be seen that, to accomplish its mission of *safely* strengthening bone tissue, this program — as a protective precondition — entails a reorganization and healing of the biomechanics of the entire body.

**e) The Water Carrier's Walk — Developing *Immunity* to Bone Fracture**

The phenomenon of women who transport heavy loads on their heads has been the subject of numerous studies, some of which have shown that they can carry up to 70% of their body mass — with corresponding, if economic, increases in energy consumption related to the borne weight.* More surprisingly, research has also shown the comparative bone fracture rate of these water carrying women to be only 1% of the fracture rate of women in the west** — this in spite of their average bone density not being any higher than that of their western counterparts. This finding leaves us with a curious puzzle: If it is not the *quantitative* density of bone cells, the mass per cubic centimeter, that is significant in preventing bone breakage, then what might be the *qualitative* factors that grant the water carriers their apparent immunity to skeletal fracture?

We may find the solution to this puzzle among these indigenous peoples' unique and consistent way of functioning. Certainly they have conditioned themselves to carrying heavy loads — up to and exceeding half their body weight — through a gradual and constant process of presenting their bones with increasing challenges. No doubt these challenges — carried out day after day, over long distances, since childhood — have developed the resistance of their bones to withstand heavy pressure.

But there are additional factors that may be related to the ability of the water carriers' bones to resist fracture — in particular, their style of walking. The rhythmic and graceful pattern of self-mobilization they employ flows in an economic, undulating *Wave*, one that radiates effortlessness as it recurs in regular harmonic cycles. Their smooth, continuous movements attest to the utility of organizing posture in an efficient way, congruently aligned with skeletal design, channeling their mobilizing forces in a functional, streamlined trajectory that is both simple and elegant.

No less amazing is the water carriers' skill to sensitively alter the balance of the load atop their heads. Employing a finely-tuned resourcefulness to maintain their equilibrium, they navigate ever-changing, unpredictable terrain while continually readjusting their posture, like self-righting gyroscopes.

The most important insight for us, however, is that all of these qualitative factors can be learned. The mission of the *Bones for Life* program is to decipher the individual components of this walk — which cultivates an apparent immunity to bone fracture — and teach this pattern to people looking for an autonomous way to secure their bone health, improve their posture, and enhance their personal ecology.

* http://www.nature.com/nature/journal/v319/n6055/abs/319668a0.html
**Energetic cost of carrying loads: have African women discovered an economic way?**
G. M. O. Maloiy, N. C. Heglund, L. M. Prager, G. A. Cavagna & C. R. Taylor
*Nature* 319, 668–669 (1986)

** http://onlinelibrary.wiley.com/doi/10.1002/jbmr.5650110720/abstract
**Low bone mineral content is common but osteoporotic fractures are rare in elderly rural Gambian women**
Aspray TJ, Prentice, A., Cole, TJ., Sawo, Y., Reeve, J., Francis, RM
*Journal of Bone and Mineral Research* 11: 1019–1025 (1996)

### f) Primitive Patterns of Locomotion — Our Functional Movement Archive

When observing the coordination of animals in the wild we discover a vast storehouse of sophisticated patterns of movement efficiency that have survived millennia. Adopting even a fraction of one of these natural formulae for mobilization is like listening to the first few notes of a long forgotten song, and, having been reminded of the tune, picking it up again and singing it by heart.

In the entire suite of Movement Intelligence programs there are never any intense stretches or acrobatic twists, no goals to pursue and measure, nor prolonged or extreme, statically sustained positions. Our programs promote function, not achievement. Their aim is to restore the profound underlying bio-dynamics that constitute evolved patterns of locomotion, patterns whose purpose has been to serve life directly, and whose keys can be found in the wild, among the natural world — in contrast with, and distinct, from the less survival-oriented world of domesticated animals.

This kind of primal, naturally integrated movement can be experienced by creeping in the prone position, face down on the ground:

> Lying face down on the floor, first drag one knee up while bending it to the side — a preparatory position from which to launch a creeping step forward, where the organization of the entire body is brought into play. The pelvis is called to turn to one side, and, with it, every segment of the spine spirals

> accordingly: one shoulder lifts while the other moves in the symmetrically opposite direction — relative to the foot that pushes the ground. Meanwhile, the toes of the other foot, those of the dragged knee, become emptied of pressure, since they need to slide ahead. To complete a full step forward in space from this preparatory creeping position, the legs next exchange roles: the toes of the bent knee firmly anchor to the ground, where they generate sufficient pressure to straighten their same side's knee. This is synchronized with bending the other leg, untwisting the spine, and spiraling it to the other side . . . after which a cycle of one step forward has been completed.

To succeed at this complex and well-tuned orchestration, all body parts must be proportionally synchronized, save for the head, which retains its freedom to turn independently, irrespective of the twist in the spine, and to maintain sufficient command over the environment. This enables response — by retreating or approaching, in any direction — to an unpredictable predator, prey, or other environmental event [e.g., a falling coconut!].

The transmission of force that propels the forward step streams through the skeleton from foot to head, surreptitiously outsmarting gravity as it mobilizes the entire body without losing power, deviating, or compressing any vulnerable joints. After cultivating this creeping pattern for only a few minutes, people are astonished to discover, once they stand back up on their feet again, the improved posture that has been cast into their skeletal organization. Without fail, learning in this way — from primordial patterns — yields consistently superb results.

When following in nature's footsteps to better mobilize ourselves, we benefit not only from the specifics of a newly acquired configuration, with the flexibility and management of power it entails. We also awaken our innate talent to create pragmatic harmony, one that more generally serves every other movement in our lives. It is this innate talent for orchestrating coordination on a global level that we call *Movement Intelligence*.

We know Movement Intelligence exists because it is beyond the human cognitive faculty to focus on more than one thing at a time, whereas the subconscious organism can perceive, simultaneously, an entire gestalt of interrelationships. In natural, well-integrated movement no body part functions in isolation. It is only the organism, which can take in a complex system all at once, that is able to derive conclusions based on its sensations, and to modify its programming to arrive at a satisfactory interaction. So in order to successfully administer self-correction people first need to be guided to patiently clarify — through

movement, accompanied by awareness — one single aspect of coordination at a time, and then to assess, from an integrationist perspective, its harmonious correspondence with the rest of their body.

The tools needed to restore natural movement are a willingness to listen to our own sensations, and the patience to evaluate the level of support that a particular gesture receives from the rest of the body. This direct, personal sensory feedback loop — of performance, accompanied by evaluation — works well to interrupt unhealthy patterns, and to reactivate the innate Movement Intelligence that has been buried beneath our habit-dominated automatic reactions. Unfortunately, its spontaneous guidance is often neglected due to the many labor-saving devices and modern conveniences of civilized life, which have lowered the minimum threshold necessary for our survival. It is at our peril that we ignore the helpful, precise and immediate internal feedback from our bodies, and instead defer to the belated external reports of experts — like a diagnosis of heart disease or bone loss — at which point it may be too late to alter our fate. Our birthright, however, is to attend to ourselves, and our own well-being, by allowing for the self-regulation that occurs naturally when we tune in to sensory feedback. It is the enriched vitality that emerges from learning to restore our original nature — an assertive approach that notices immediately when something is amiss, and unsupportive, and negotiates to correct it right away — which explains the enthusiastic reception that Feldenkrais has received from his many adherents.

SAMPLE PROCESS: **The Evolutionary Function of Creeping**

*– Stand, and imagine a string hanging from the top of your head all the way down to the floor, with a small weight suspended at the bottom, like a plumb line. Where does this string fall in relation to your feet? Is it centered, or closer to one foot than the other?*

*– Continue exploring how this objective vertical line projects onto your spine. Does it go through your tailbone? In other words, is your head carried by the axis of your spine? Or is it out of line with your spine, so that your muscles hold it up?*

*– Store this picture of postural assessment away for later, when we will re-visit it it, and re-evaluate your posture; let go of it, for now.*

*– Lie down on your stomach, near a wall, resting on the floor with your knees bent, your lower legs and feet leaning on the wall. Rest your head on your hands.*

*– Anchor the bottoms of your toes to the wall, and begin applying a little pressure into the wall as you exhale. Feel how the rebounding pressure transmits through your body, all the way up to your head.*

*– Release the toes of your left foot, to slide it down the wall as you drag your left knee to your side, where it bends on the floor. Push the toes of your right foot into the wall, which helps turn your pelvis, and lifts your left hip from the ground; this makes room for your knee to further bend to your side.*

*– Allow your entire spine to twist. Your head turns to one side, as your shoulders move in the opposite direction; every part of your body helps bring the knee to this position . . . the starting stance to launch a forward step.*

*Repeat this preliminary organization several times.*

*– To mobilize your body along the floor you first firmly anchor the toes of your left foot into the ground, and then push against the floor. This push generates a force that straightens your left knee, and moves your body one step ahead.*

*At this point you exchange the roles of your legs: As the left leg straightens, the right leg bends on the right side, ready to anchor its toes to the ground in preparation for taking your next step.*

*– Repeat launching yourself one step away from the wall, with each leg, several times. Then take a good rest on your back.*

*– To release any residual tension in your lower back, bring your knees to your chest, then cross your hands and place them between your knees; hold your palms behind your calves, fingertips pointing upward. Your knees can open wide, to your sides, approaching your chest; you can raise your lower legs up to the ceiling, and also cross your ankles. In this fixed position rock ever so slightly from side to side, in one unit, pressing down only on your spine, as if ironing each vertebra back into place; do this without rolling onto your ribs. Acknowledge the opportunity this creates for your lower back to flatten to the floor, and relax.*

*Take another full rest.*

*– When you are ready, get up, stand, and sense your overall posture. Then, more objectively, return to the image of the plumb line. How does the string relate to your spine now? Also notice where the projection of the top of your head falls, in relation to your tailbone.*

*– Take a moment to appreciate the learning potential that comes from emulating Nature's early forms of life.*

**g) Hip Joints — Aligning the "Wheels"**

The connection of the legs to the pelvis, at the hip joints (and including the femoral neck), is the most common site of bone fracture; protecting this vulnerable area is of primary concern in the *Bones for Life* program. Whether a hip joint fails because of deteriorated bone tissue, or from an unfortunate fall as

the result of poor balance, or a trip, its fracture poses a statistical threat to longevity. In a vicious downward spiral, the lengthy period required to repair damage and restore function is undermined by the joint's very lack of mobility — a limitation which frustrates attempts to perform pressure-loaded healing movement. It is a kind of double-bind, since pressurized movement is exactly what is needed to encourage a renewal of bone tissue, and rehabilitate the joint; you must move to improve, and yet you feel you can't. The road to recovery begins by properly aligning the joint, so it may once again feel safe enough to walk upon.

For bipedal man, stabilizing the hips is like aligning the wheels of a car. Fastening the femur into its proper place in the pelvis marks the beginning stage of a recovery process that gradually restores efficient functioning to these joints, whose origin lies, after all, at the root of our legs. As an initial procedure, stabilizing the hips acts like a bandaging "first aid" treatment that inhibits any over-articulation of too-loose joints — ones that have deviated from their optimal position — in order to minimize disturbance when walking, and avoid further aggravating any existing injury.

Following this "selective neutralization" of a suffering hip — which, to be sure, also involves the totality of the body in movement, and trains each leg to align more precisely — the *Bones for Life* program proceeds to the next level of rehabilitation by offering processes that relate to each joint's asymmetrical behavior when walking. We first need to discover if our suffering hip is too tight, or too loose, so that we can treat it accordingly. Only after mastering all the preliminary stages can we arrive at a place where we are ready to safely explore these joints' full anatomical range.

In the *Bones for Life* program the model for taking the hip joint through its entire range of movement derives from the evolutionary use of our legs in "primal swimming." By observing and emulating Nature's ways, we can learn a functionally integrated and coordinated use of our bodies that harks back to an earlier era, and has stood the test of time. From the Primal Swimming process we learn how the joints of our leg — from toes through ankle, knee and hip — are all programmed to participate in any activity with a harmoniously proportioned distribution of labor.

Picturing the movement that occurs in the lower limbs when swimming the breaststroke helps clarify the ideal correspondence between the legs and each segment of the spine. Restoring harmony in the total organization of the body is

typically the biggest challenge. For example, the vertebrae of the upper back, which have become used to walking without even coming close to their potential range of motion, might find it extraordinarily difficult to give up their stiffness in order to accommodate a change in the hip. With their tendency to hold on to a familiar pattern of immobility, the vertebrae of the upper back — abetted by a latticed network of approximately 100 joints throughout the thorax — will thus, in turn, counterproductively conspire to inhibit full movement in the hip.

Each local gesture has its roots in many partners throughout the rest of the body. To restore movement harmony thus becomes a matter of dealing with relationships and adjustability, and of obtaining clues by listening to our internal sensations. Indeed, this can be as complex as altering the lines of expression in our face. Yet, using strategies from the Feldenkrais method, it is nevertheless possible to succeed at this challenging task. It requires patience; a suspension of ambition to accomplish short-range goals; exploring unused options in order to de-program ingrained habits; and then a final leap of faith: letting go, and trusting our organism to make its best choice, and arrive at its own conclusion.

The ultimate stage in restoring full function to a previously-injured hip depends upon the readiness of the rest of the body to accept and adapt to the entire anatomic range of this now-healthy-joint's behavior. The vertebrae of the upper back, clinging together from force of habit, are the most stiff, resistant, and unresponsive partners of the hip joint. As long as the dorsal spine is incapable of participating — both physically, and attitudinally — and, until it is ready to accept being involved with and supporting the correction, the hip joint is bound to return to an unhealthy state, and continue eroding and wasting away as it overworks against an uncooperative trunk. The rehabilitation of a damaged joint can only be accomplished by establishing a proportional distribution of labor among *all* body parts, as when walking. This challenging task — of weaning the body from its dysfunctional addictions — is what the *Bones for Life* program is all about. It provides people with a road map for regaining system-wide mobility, whose success results in an elegant, confident gait — free of disturbance, with a spring in its step — that not only promotes healthy bones and joints, but also proclaims a person's renewed esteem and trust in his existential physical self.

SAMPLE PROCESS: **Securing the Hip Joint — A Simple Example**

Note: This process can be adapted for either hip — whichever side is suffering. So instead of guiding you in terms of right and left, the following text references your "satisfactory" hip joint and your "learning" hip joint.

*– While standing, sense how your weight is distributed in your feet. Do you lean more on one leg? [For now let's assume it's your right]*

*– With both hands trace your waistline and feel the top bones your pelvic crest. Slowly slide your hands down along the sides of your hips, until you feel a "stopper" . . . your Greater Trochanters . . . which are bones of your legs.*

*– At this place your fingers point to your groin, and your thumbs point back to your buttocks. They are more or less at the level where your legs connect to your trunk.*

*If you slide your hands around, backward, your thumbs can find the dimples at the bottom of your buttocks, which correspond to the location of your hip joints. This crucial conjunction is well protected, deep inside you, and is not actually reachable by direct touch.*

*Repeat this tracing several times to cultivate the image of the actual anatomical location of your hip joints.*

*– Now stand behind a chair, your hands supported by its back. Slowly shift your weight to one foot [right], without lifting the other one from the floor. Is this the same side you felt before as taking more of your weight?*

*Sense the experience of your hip joint as it stands on its leg. Then shift your weight to lean on the other [left] leg. Is there a different sensation there? Is one leg less comfortable when taking on your body weight? Remember that the capacity to walk is related to the capacity to stand on one leg, however briefly.*

*– To increase the challenge of this pre-test, return to leaning on the first [right] leg, and begin moving your pelvis in a circle, projected it over your heel.*

*Move very slowly, first clockwise, then counterclockwise. Assess the degree of comfort in that hip. Also notice the shape of the circle, the smoothness of its outline.*

*– Then shift to lean on the other [left] leg, and make circles on that [left] side. Come to a decision: which hip joint would you like to improve? This will be the joint on which you will apply the process [left] . . . unless the problem there is too severe, in which case it might be safer to let your brain first learn the idea on your better, more functional leg.*

*– Shift your weight to lean on your more satisfactory [right] leg. Put the same side hand on the chair's back. Start to step with the foot of your learning [left] hip, taking one step forward, and one step backward. In this way your satisfactory [right] leg remains in place . . . emphasizing the strength of your stable axis . . . while your learning [left] leg practices its mobility.*

*– Now place your free hand on the hip of your moving [left] leg. But this time*

*position the hand with your thumb to the front, and all four fingers behind. Like this slide your hand down your hip, until you can grab the trochanter in your palm. Your thumb, in front, is at the level of the groin; the index finger points, along the thigh bone, to the knee; and the three remaining fingers rest behind the trochanter. Also, and most importantly, attach your wrist to your pelvic bone, in a way which welds the leg to the trunk. Holding the leg tightly together with the pelvis helps inhibit a too-loose joint from deviating while it performs a challenging movement. It does not absolutely neutralize the articulation of the joint, but it can moderate a habit that regularly avoids or misses this alignment.*

*– In this way your [left] hip joint is now protected from deviating while moving, and you attend to your well-being with your own hand. To each step, forward or backward, add a slight bending of your knees. Allow yourself to rotate your front in harmony with the movement, until this movement becomes rhythmic and pleasant. All this time your learning [left] leg undergoes an actual experience of making a springy step without taking on or encountering any unwelcome risk.*

*– Move away from the chair, and look for the effect this has had on your standing. Shift your weight to now lean on your learning [left] leg, the one you wish to improve. Grab its trochanter in your palm, stabilizing it as before, and support yourself on the back of the chair with the same [right] hand you used previously.*

*– Start stepping with your functional [right] foot . . . one step forward, one step backward . . . bending your knees with each step, as well as straightening them, slightly, at the transition point between stepping forward and backward.*

*– In this exchange of roles you foster reliable stability in your standing [left] leg. Feel how you load the axis of your posture with force. Sense how each step of the other [right] foot reinforces your tolerance and determination to maintain a firm axis when standing on your learning [left] leg. Recognize how the hand at your hip assists your stability. Do the movement gently; it is not the degree of effort that obtains results, but rather the revolution in organization, whose novel configuration awakens within you a healing, health-promoting insight.*

*– When you feel you have had enough, move away from the chair and explore your way of standing. How much weight does your body now place on your learning [left] leg? Also test this leg with a movement challenge: outline a circle with the hip joint you wanted to improve [left], projecting it over your [left] heel. What is the size of that circle now? What is its shape? How consistent is the smoothness when circling this heel?*

*– Slowly walk around the room. Do you feel a difference? What has changed? Use your hands to fasten both hip joints, grabbing the trochanters with your palms. Don't forget to also tighten your wrists to the pelvis . . . as if the bones of the legs*

*and the pelvis were a single unit . . . and walk around like that.*

*– See if you are willing to acknowledge this style of walking as a safety measure that spares your hip joints from over-using their capacity to articulate, and aggravating any existing problem.*

*– As you walk gradually lighten the grip of your hands, until you remove them altogether . . . but continue walking as if your hands were still there.*

*Notice if your body has learned to apply this protective pattern of walking . . . able to remember this specific organization on its own. Give yourself appreciation for learning to help yourself by acquiring a self-touch strategy able to overcome a limiting habit.*

*– Of course this process needs to be repeated many times in order to achieve lasting results. But you need not always walk like this. It is only a "first aid" remedy, to be used in time of emergency, when you experience hip joint discomfort that blocks your desire to walk . . . since walking itself offers you your best chance to heal.*

In the *Bones for Life* program you will find a progressive series of hip joint processes. They range all the way from restricting movement in order to avoid painful disturbances, to involving the hip joints in advanced bone building movements that are dynamic, impactful, and anatomically free.

**h) Lifting Weights Wisely**

Lifting weights is a well-established way to develop bone strength. The *Bones for Life* program introduces this activity in a manner that is quite different from the conventional model; it follows a wiser path than the lifting of dumbbells seen in the neighborhood gym. With its commitment to *safety first*, the Movement Intelligence approach to weightlifting is undertaken only after your back is first supported by a wall — with extra padding for the lower back so as to prevent any sudden jarring of the lumbar vertebrae, keeping them from overreacting under the strain of excess exertion. Further, the trajectory of the weightlifting arm spirals around its own axis. In this way your entire spine becomes engaged progressively, one vertebra after another; the effort is distributed proportionally, throughout your entire back, without posing a threat to any specific point, or joint. Lifting weights in this gradual manner achieves a carefully measured strengthening of bone — well within the bounds of safety — while simultaneously filling you with a self-empowering feeling of confidence and competence.

Wearing ankle weights is a proven strategy that also restores equilibrium as it builds bone. By going about your everyday activities with weights on your legs,

you turn daily life into a means for accelerating the development of your bones' resilience and strength.

**i) Falling Without Injury — Becoming Desensitized to the Fear of Falling**

The ultimate test for bone strength is in our skeleton's ability to withstand falls and resist fracture. In the real world this occurs accidently, least when you expect it, and when it may already be too late to avoid injury. With regard to falling, the *Bones for Life* program has dual aims: securing equilibrium to prevent falls, and preparing you to fall by learning to do so purposely, in a safe, deliberate manner that precludes harmful damage.

Concern with losing balance is a major inhibitor of a rhythmic, dynamic gait. Our fear of falling is a primal, inborn warning signal whose proper functioning directly impacts our survival. But this critical, biologically-based fear is not immune to modification. We can learn to moderate this fear's counterproductive effects by recalibrating our assessment of reality so it is not distorted. We can also learn to reduce our level of panic — which, though secondary, also often gets triggered, only compounding the interference that the fear of falling has upon our gait.

We cannot fully extinguish this instinctual and legitimate fear, nor do we wish to. What we can do is cultivate our resources to efficiently restore equilibrium from any imaginable position of deviation. Stability is a process, not a position. True stability does not come from maintaining a single static posture; instead, it comes from our ability to risk balance, and, dynamically, to recover it. In the *Bones for Life* program, under safe, supportive "greenhouse" learning conditions, you develop an increasingly friendly attitude to the ground. You gradually learn to both descend and ascend, slowly and elegantly — from standing to sitting, or to lying on the floor, and the reverse — all in a smooth, continuously flowing spiral.

Eventually, you also learn to fall. You explore strategies for falling safely, without incurring damage, practicing all the many details on a well-padded floor. The group dynamics encourage you, since the sharing of this activity takes people beyond their everyday inhibitions, helping them overcome the limitations embedded in their usual self-image. Our level of self-confidence rises sharply when learning to fall. The room experiences a distinct change in mood as participants' initial apprehension transforms into satisfaction and pride.

The feedback we receive from program graduates, sometimes long after they've completed the course, attests to many successful and spontaneous responses to accidental falls that they survived without injury. It is unlikely that they fully

recalled all the many technical details of the efficient falling procedure, nor would they have been aware of what they were doing at the time. More likely, they relied upon a resourceful attitude that had been recorded somewhere in their functional memory — from their experience of safe falling in the course — and that was brought out when needed, spontaneously, at the appropriate moment. The more time and effort that people invest in the training, under safe "greenhouse" conditions, the better their chance, out in the real world, to spare themselves from serious damage. Having once experienced a ground-breaking — and *not* bone-breaking — revolutionary model that demonstrates the possibility of a solution to the problem of falling, they might respond to an actual fall less with the panicked attitude of a victim, and, instead, more resourcefully, with a pragmatic and practical attitude geared to coping with the event, i.e., in a way that incurs less harm and extracts less penalty.

**j) The Sphincter Network — A Primordial Lever for Anti-Gravity Mobilization**

The *Bones for Life* program brings to light our internal and integrative network of sphincter ("ring") muscles, which it uses as a lever to support a wide range of everyday anti-gravity functions. The sphincters generate a mobilizing force that is found in the most primal pattern in which nature expresses itself: the contraction and expansion that occurs in every living cell. More specifically, this pattern involves an active contraction, towards the center, followed by a passive expansion that returns to the periphery.

In the complex human body there remain parts that still act in accordance with the primordial pattern of the ring muscles. These comprise the tubes of the digestive track, including the mouth and the anus at its endpoints; the genitals; the urethra; the eyes; the fists and feet — all of which are sites of major sphincters. The specific advantage of these ring muscles is in their interrelationship, as they tend to synchronize in harmonious correspondence with each other, and, as such, serve as built-in agents of integration.

In the *Bones for Life* program students map out the integrative network of sphincters, and then learn to use them as a trigger, prime mover, and internal lever for jump-starting a number of anti-gravity activities, including rising from a chair, engaging in a springy walk, and jumping itself. This ancient source of inner power seems to have been lost or forgotten amidst a culture that emphasizes external, mechanical means for mobilization. But people looking for a way to spark their own liveliness from within, and who are ready to invest in a little learning, will find through the use of their sphincters an innate and rich source of resilient vitality that we call *Biological Optimism*.

## The Chairs Program — From Trap to Tool, from Fixity to Mobility

Parallel to *Bones for Life* under the Movement Intelligence umbrella is a program specifically designed to address our culture's widespread, if unhealthy, phenomenon of chair sitting. The *Chairs* program benefits people who have difficulty going down to, or getting up from the floor, as well as those who sit for many hours at work and feel the need, every so often, to refresh their bodies — yet who are unwilling to devote much time, or create any special conditions, to obtain this refreshment.

Chairs provide us with a fixed platform, located halfway between standing and sitting on the floor, on which to perch. By enabling us to sit mid-air, they spare us the second half of the complete sitting journey — spiraling all the way down to sit on the ground. Despite this seeming advantage, when using chairs people tend to forget to spiral during the first half of the journey — going from standing to chair height, and then rising back up again. This creates problems when we take into account nature's organic law for development*: The human body is the only machine that, to maintain its function, must be used constantly, and to its fullest capacity. What you don't do today becomes increasingly difficult to do tomorrow.*

The Chairs program offers concise, focused processes that rapidly transform chair use from a *trap* that promotes degeneration into a *tool* that helps restore posture and harmonious coordination. Students discover that, even while seated, they can direct dynamic force — originating from impactful steps on the ground — up through their entire skeleton in an efficient headward trajectory, and carry out powerful movements that increase the ability of their bones to withstand pressure, avoid collapse, and spontaneously align and strengthen.

### SAMPLE PROCESS: **A Shortcut to Spontaneously Refresh Your Sitting**

*– Sit on a chair without leaning back, and assess your degree of comfort.*

*– Cross your ankles, and push your feet into the floor. As you do this, firmly fasten your knees to each other. Acknowledge how your midline "Axis" becomes loaded with an elevating force. Repeat this several times, then rest. Uncross your ankles, and notice the change in your sitting.*

*– Place your fists on the seat of your chair, behind you. Gradually apply pressure from your fists into the chair seat. Recognize the lift your upper back receives. Repeat this several times, then rest. Notice any further differences in the way your body sits now.*

*– Next activate both feet (ankles crossed)* and *fists, pushing them* all *down*

*simultaneously. Don't forget to tighten your knees to each other, to centralize the elevating force that runs up your midline. Repeat this several times, then rest.*

*– Feel the distinct difference in the way your body now chooses to sit, on its own. Realize that simply assuming an improved position, as you may have done countless times before, is insufficient to establish change. Your organism also needs to prove to itself that it can* function *comfortably in this new position.*

*– Once again activate feet and fists, pushing both down simultaneously; your knees cling tightly to each other, your torso elevates.*

*– Maintain this configuration, and begin bouncing on your chair seat, making quick, light, rhythmical taps. When you have had enough, let go and rest.*

*– Feel the Gestalt of the entire pattern now cast upon you. What does this refreshed body language convey? Notice how long your body is willing to remain in this new, spontaneously upright position.*

# The Walk for Life Program

**For Health, Posture and Self-Empowered Propulsion**

If prehistoric man were unable to walk long distances in a rhythmic and economic way — with a springy propulsion, and with the participation of all parts of his body harmoniously synchronized, in optimal coordination — he would not have survived . . . and we would not be here today. [This is equally true of running, an even more crucial test of survival.]

The *Walk for Life* program is devoted to deciphering and conveying the complex components of optimal walking, unpacking its survival-proven functional factors in a structured, gradual, and evidence-based way.

The program pursues two parallel tracks: an indoor "laboratory" component — consisting of somatic experiments to improve the connections and coordination of a quality gait — and an outdoor "experiential" walking-in-nature component — where indoor learning is given a real-world test drive. The themes this course explores include the dynamics of Propulsion, Impact, Alignment, and Rhythm. The course also covers pole positioning and timing in order to produce optimal impact, as well as strategies to reorganize posture, stimulate vitality, and maintain stamina.

Throughout this program walking poles are not just used to establish equilibrium, but to revive our arms' primal function — extending their reach to the ground, in a way analogous to the forelimbs of quadrupeds. With every step we take, the

rebounding force transmitted upward by the poles helps engage our shoulder blades, alternately thrusting them backward to the spine where they help restore flexibility in this typically stiff, least-negotiable area of our upper backs.

Because the poles effectively lengthen our arms to reach the ground, our upper limbs are also able to take up some of our body weight, thereby relieving our pelvis of some of its habitual load. Our pelvis then "hangs" more passively, suspended from the lumbar spine — which, in turn, decompresses, having been freed of excess tension and vulnerability. Using the poles to transform us into a virtual quadruped — taking weight off the pelvis, and releasing our lower backs — represents a significant advance for civilized man, who's bipedal gait typically exaggerates his lumbar curve with each pounding step that he takes.

Walking with them, we find that the poles also transmit a powerful, upwardly rebounding ballistic force. By pushing the poles into the ground with a backward vector, a well-timed, economic investment of energy is capable of generating a stronger propulsive force, with greater resulting forward momentum, than our bipedal human gait can achieve when, unaided by the poles, our legs work alone.

In sum, *Walk for Life* students learn to master the complex components of *both* walking and running. They broaden the use of their feet and toes; restore springiness to their knees; align their legs with their spine; balance their hip joints; streamline their posture; recruit their internal network of sphincter muscles; embody effective primal patterns of locomotion; enhance their stability; explore different styles and rhythms of walking; adjust the rhythm and pace of their breathing to correspond with varied degrees of activity; practice strategies to cope with uneven terrain; and acquire a broad range of techniques for post-ambulation relaxation and recovery.

SAMPLE PROCESS: **Preparing the Posture for Dynamic Movement** [*pole needed*]

*– Stand and assess your posture. Imagine a string, suspended from the top of your head, that reaches all the way down to the floor. Would such an objective, vertical plumb line be congruent with your tailbone, and your heels?*

*– Place a hand behind your lumbar area, to sense its current shape. Start walking in place from one foot to the other. Feel the quality of the articulation in the vertebrae you are able contact — Is it smooth, harmonious, and pleasant? Or fragmented, threatening and sharp?*

*– Place your little finger at the sacrum, and your thumb slightly higher than the*

*waist, attaching the back of your entire hand as tightly as possible against your lower back. Spread the fingers of your hand, and fix the distance between them, as if to limit any articulation between your lumbar vertebrae; form your spine into a firm, reliable axis that offers stability when you walk.*

*– While maintaining this fixed lumbar support, step in place from one foot to the other; lean your lumbar spine directly into the support of your hand. Then stop, and stand freely. Listen to the way you are standing; do you notice any difference?*

*– Now take one pole in your right hand, and step forward with your right foot. Anchor the pole behind you, in line with your left toes.*

*– Each time you step forward with your right foot, push the pole backward into the ground, at the same place. Allow your right shoulder blade to draw backward, thrusting toward your spine, which also articulates. Fully perceive your foot stepping forward, while its same-side (right) shoulder moves back. As you do this, feel what happens in your lumbar spine. Does it tend to arch inward, and shorten?*

*– Now place your left hand on your lumbar vertebrae, protecting them as before: spread the fingers and tighten the entire back of your hand to support your lower back, firmly and reliably bridging your chest and pelvis, and guarding against any activity there.*

*– Repeatedly step forward with your right foot. After several times stop, and sense your way of standing. Do you detect a slight change? Something different?*

*– Make a loose fist with your left hand and place it behind you on your spine, slightly higher than your lumbar area.*

*– Push the vertebrae upward, away from your lumbar spine, on both sides. They might make some sounds as they articulate.*

*– Add a slight flexion of your knees each time you return; straighten them each time you step forward, as you also push the pole back, and draw the spine up.*

*– Sense how you defy any compression of the lumbar area when you step forward. Let go, stand freely, and feel anything new that your body has acquired from your hands' interference.*

*– Reach your left hand to the upper vertebrae of your spine, contacting them below the base of the neck, if possible. Your hand reaches from above your shoulder, with your wrist firmly attached to the back of your head.*

*– Hook these vertebrae upward with your fingertips, pulling them away from your lumbar area. Repeat this several times, flexing your knees slightly with each pull.*

*– Add to this a stepping forward . . . straightening your knees as you pull the*

*vertebrae up with each step, and also push the pole behind you into the ground.*

*– Repeat this several times. Become fully aware of this combination, where the responsibility for your upper body weight is not borne by the lumbar spine, as usual, but where, instead, the arms take it on. Stop, and stand freely. Listen to what your body has concluded from this experience.*

*– Place your left hand behind the pelvic wall, loosely fisted at your sacrum. With each step forward drag your sacrum downward, gently stretching it away from your waistline, defying the tendency of your lumbar spine to over-arch.*

*– Add a slight flexing of your knees each time you drag your sacrum down, and push your pole backward. Notice the possibility to alter the position of your pelvis.*

*Stop, stand freely, and feel what new change your body has taken on from the interference of your hands.*

*– After dragging the sacrum down, maintain this position as you step in place. Notice the possibility of suspending the placement of your pelvis.*

*– Let go, stand freely, and feel what your body has acquired, this time, from the interference of your hands.*

*– After treating your other side to this same experience, stand and sense what has changed in your standing. Where does the projection of your head fall now, in relation to your tailbone, and to your heels?*

*– Walk around with your left hand tightly fastened to your lumbar spine, constantly limiting any excessive articulation in its vertebrae. Each time you step forward onto your right foot, push your right pole backward, to produce propulsion and loosen the stiffness in your upper spine.*

*– From time to time shift your left hand to pull another segment of your backbone away from your lumbar region, further releasing the length of your spine.*

*– Take a number of steps in each arrangement. Then walk around freely, without your hand shaping your spine. Feel what your body has learned from exploring all these options.*

*– Appreciate the power of your hands to teach your body to correct its posture . . . something difficult to do intentionally without them, and their selective guidance.*

The complete *Walk for Life* program is taught in two parts, over a total of 8 days. For written or DVD instructional materials, or to review research on this program conducted by the University of New Hampshire, please visit:
www.movementintelligence.co.il www.walkforliferetreat.com

## Mindful Eating — *The Inner Game of Chewing*

Eating and moving are interdependent; we must eat to move, and we must move to eat. Thus they share the ability to either support or sabotage each other. As an example of sabotage, excessive eating all but eliminates the motivation to move, in the best case, and makes moving practically impossible, in the worst. And although lively, springy, easily flowing movement has the ability to overcome the unhealthful consequences of having ingested too much food, cycles of overeating and weight-loss exercise have nowadays become a prevalent and all-too-common trap, particularly in Western culture.

In the *Mindful Eating* program I talk neither about healthy food, nor counting calories; not a word is spoken about food combining theories, or how the world population's average glycemic rate (reflecting fat-making insulin) is at an all-time high. I don't teach how certain foods disrupt the pH balance and — in the body's process of reestablishing homeostasis — trigger an impoverishment of bone tissue in order to compensate for it. Nor do I bring up the pro-and-con arguments about genetic engineering, or battling with the food industry regarding their additives, chemical fertilizers, systemic pesticides and hormone sprays on fruit. I don't present charts of statistics correlating lifespan with body weight; neither do I discuss food supplements, or organic produce. And never is there even a brief mention of maintaining a healthy weight, or following a disciplined diet.

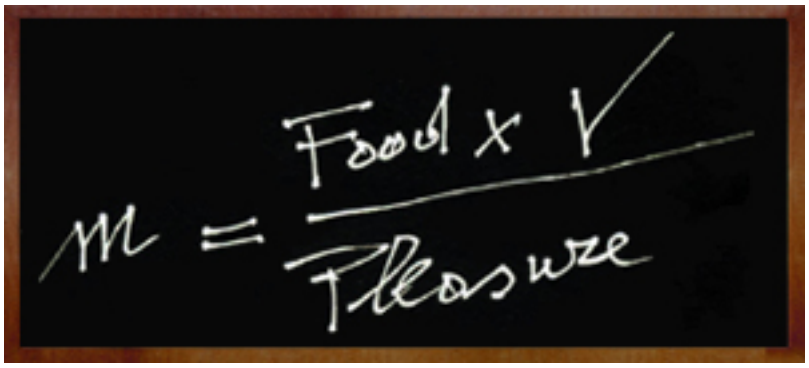
What I *do* do, instead, is to talk through the actual mechanics of eating, carefully guiding the process as people ingest a meal in real time. In particular I explore their eating *style* — the habitual sets of behavior and movement patterns (including gestures, pace, and intensity) with which they consume their food, and which both conceal and reveal the confining counterproductive obsessions that keep people trapped in their routine eating habits.

There is an insight to be gained by watching wolves as they crowd around their prey. Each wolf is programmed to grab as big a piece of meat as possible, to swallow it as quickly as possible, and to continue craving for more. [Hence the expression "wolfing down" a meal.] Because food can be scarce in the wild, nature, for the purpose of survival, has wired the wolves to hunger ceaselessly, without ever arriving at a point of satiation, or satisfaction.

I tell people that if they choose to eat in the style of wolves, then, given the easy availability of food in the supermarket, they will manage to take in more and more food, incessantly, and yet they will forever remain hungry; their craving will

continue. In short, they will *never* be satisfied. This kind of strong, biological "survival instinct" programming is hard-wired, and ironclad; it defies all logic, and easily overrides an individual's resolutions, or attempts at mustering willpower.

However, if you are interested in extricating yourself from this vicious cycle, you *can* learn to change your behavior when handling food. The basic formula that I offer is




Which means: Your body weight ["m" for "mass"] is as large as the quantity of food you consume, *multiplied* by the speed with which you eat it ["v" for "velocity"], and *divided* by the amount of pleasure that you derive from chewing it. Thus, the *more pleasure* you extract from eating, the *less mass* your body takes on. (We do need to agree that "pleasure" is a personal experience that exists only in the here and now. Pleasure is the immediate joy we receive when we truly taste what we eat, and acknowledge this — in real time — as it is occurring.) On the other hand, the *more food* you load onto your fork, and the *quicker* you swallow it, the *less pleasure* you allow yourself to receive, and the *more mass* your body takes on.

In effect what we accomplish in the *Mindful Eating* program is learning to accumulate as many moments of acknowledged satisfaction — from the actual taste of the food, while it is in our mouths. We also learn to detect our body's initial, if subtle, signs of satiety, its signal of "Enough" . . . something which might not have been recognized and respected during our formative years, when we were growing up.

This program is not about presenting you with yet another frustrating theory, as impossible for your organism to follow as the last one at which you failed. Instead, it is about transforming mechanical patterns, which, like any other addiction, can be overcome *not* through a disciplined struggle against deeply rooted habits, but, on the contrary, by mindfully generating signals of *pleasure* that in turn satisfy the hunger of the primordially powerful subconscious — which

is only sated by a convincing, actual organic experience of gratification.

In so many words this workshop points to the futility of trying to effect meaningful, long-lasting change through so many words. Distilling the essence of this experiential program into the shortest possible phrase, the best I can come up with is **"**Clean Hands" or, as they say in Italy, *Mani Pulite.* Apart from its reference to the 1990s cleansing of corrupt Roman politics, in the context of eating this Italian phrase, taken literally, means that — if only for a few minutes, during mealtime — you eat with the agreement that you can eat *whatever* you want, and *however much* you want, but with the sole condition that each time that there is food in your mouth *your hands must be free* [mani pulite] of holding on to anything. Not a fork, not a piece of bread. Whenever you chew, you agree to empty your hands, and give yourself the opportunity to truly feel, smell, and taste what's in your mouth.

You will be amazed to realize the extent to which the intention of your hand, while holding a fork, triggers a compulsion to take another bite . . . and, in so doing, robs you of the immediate satisfaction you might otherwise be experiencing. This is because the moment food enters your throat, the opportunity for pleasure has already passed; occasionally there may even be discomfort (e.g., difficulty swallowing, or even choking).

This process is not as easy as it might sound. To try for yourself, you might explore a strategy we play with during this course: interfering with the mechanical aspect of chewing. As you do this, feel how you directly confront your habits, attitudes, and your personal archive of early-life lessons — all of which are ingrained into, and betrayed by, the physical dynamics of your self-feeding / self-nurturing routine. You might ask how it is possible to endure this deliberate frustration of habit, without losing your nerve. The answer comes from the increased pleasure you receive, the pure delight derived from the food — moments that accumulate and ultimately build to a natural point of completion. This all-too-often ignored satiation point is when the "Enough" signal appears, and you know viscerally, by listening to yourself, that you simply don't want any more. By way of this this hands-on [and "hands-off"] approach you discover that the remedy for the habit of unhealthy eating lies in the fact that it is impossible to argue with our self-regulating pleasure instinct; we need only tune in, listen, and be guided by it.

To obtain a DVD of the complete Mindful Eating process, please visit https://www.movementintelligence.co.il/

# Movement Solutions for Individual Dysfunctions

***Neuro-motor Strategies to Improve Self-Organization***

At the highest professional level of the Movement Intelligence curriculum is the **Movement Intelligence Specialist** *Graduate Program***.** Experienced *Bones for Life* Teachers and Trainers are all eligible to take this course. Teachers and Trainers of other Movement Intelligence programs [*Walk for Life, Chairs, Mindful Eating*] can, after fulfilling additional prerequisites, also attend this training. The extensive material comprising the **Movement Intelligence Specialist** program prepares its graduates to teach groups, as well as one-on-one, guiding people with special needs to apply movement solutions that uniquely address their particular dysfunctions.

This *Specialist* program offers a vast number of practical solutions to specific problems, each through the general integrative lens of "intelligent" movement re-organization. Though the solutions are global, a person's initial understanding of his particular dysfunction is often identified myopically, in terms of a problem area such as his lower back, knees, hip joint, shoulder, feet, neck, posture, equilibrium or asymmetry. While this program expands the *Specialists'* teaching toolkits and deepens their level of understanding, it also broadens their global perspective.

Teaching people to eliminate their dysfunctions through verbal guidance is especially exciting for "knowledge sharers" because it empowers their receivers to master the acquired solutions on their own — preparing them for autonomous independent use, free of any supervised instruction. Our Trainers are encouraged to teach people to fish for themselves, rather than to simply hand them the fish. From personal experience, I recognize that respecting the dignity of your students to receive shared material, without having them feel imposed upon by an outside authority, fills your heart with satisfaction, and fills your life with meaning.

**The Biological Optimism Inherent in Optimal Movement**

My vision is that all the MI programs will one day become well known and popular, and their knowledge will reach the many people who need and can make good use of them. I hope that these programs, and their material, will be adopted by academia, and taught and studied in established schools; I believe that this is their rightful place.

The current *Movement Solutions for Individual Dysfunctions* program certifies Specialist trainers to teach both individuals and groups, guiding them to awaken

their inborn compass for Movement Intelligence. This innate, if dormant, potential holds the key for enhancing health, strength, and movement harmony as well as for rekindling society's ebbing supply of visceral wisdom and resilience that I like to call Biological Optimism.

Movement Intelligence Specialists empower their students with a toolkit of self-help strategies to solve their idiosyncratic functional difficulties and deficiencies. These unique strategies can all be seen to refine movement quality and restore its natural coordination in the service of life's most fundamental activity, the *dynamic walk,* which, when carried off intelligently, is inspiring and vibrant — brimming with energy, free of limitations, and borne aloft by a reliable, buoyant, "anti-gravity" posture.

In turn, for its graduate teachers, the advanced *Movement Solutions* program offers the singular satisfaction that comes from empowering other people by conveying the Movement Intelligence knowledge that they themselves have absorbed, and to which they have added their own resources. Like bees that collect and transform pollen and nectar into honey, these Trainers similarly bring to their students a teaching that has been assimilated personally — processed by their involvement and discoveries, and embodied in their own unique movement.

To provide people with tools to independently resolve their idiosyncratic dysfunctions, to share the knowledge of how to reverse deterioration and loss of ease in moving, and to see their students shift from the compromised "no-choice" attitude of a victim into one of a healthy, self-regulating, self-healing organism, invigorated with new hope . . . this is its own reward — a gratifying privilege that fills one's life with true satisfaction and meaning.

## Where can these programs be learned?

*Bones for Life* and the other Movement Intelligence programs are taught worldwide, in over 30 countries. At the end of 2012 there were over 800 Teachers and 200 Trainers throughout North America, South America, Europe, Israel, Australia, New Zealand, Japan, Korea and Taiwan.

Graduates of the *Bones for Life* Trainer Training are authorized to certify new teachers, and charged with mentoring them as they begin teaching on their own. Trainer Trainings have already been presented in the United States, Israel, Australia, Japan and Europe, and many of the second-generation Trainers now offer programs to the general public, as well as to aspiring professionals.

Teachers and Trainers of Movement Intelligence, whose names can be found on the *Bones for Life* website [http://www.bonesforlife.com Menu – Certification, Find a Teacher/Find a Trainer], operate under the oversight of the countries in which they teach. These instructors, and their students, receive certification from their respective country directors, whose contact information is presented below.

## Table of Worldwide Directors

| Country | Name | Email | Phone |
|---|---|---|---|
| Argentina | Diana Sternbach | felbar@bariloche.com.ar | +54-2944-435279 |
| Australia | Jenny Groves | backbone@bonesforlife.com.au | +61-2-6684-2738 |
| Austria | Noana Goerig | seminar@noana-goerig.at | +43-676-311-8893 |
| Brazil | Marcia Martins | mmdeo@uol.com.br | +55-11-5572-6738 |
| Canada | Rosa Murnaghan | rfm@cyberus.ca | +1-613-820-2546 |
| Canada | Anna Haltrecht | anna@bonesforever.com | 250-537-5681 |
| Chile | Marisol Madrid Jofré | bonesforlifechile@gmail.com | +0056 09/773-1295 |
| Croatia | Ingrid Kecerin Kasumagic | ingrid@prirodakretanja.eu | +385/1 4637 719 |
| England | Adam Ward | adam@thebonesforlife.co.uk | +44-7855-745-512 |
| Finland | Terhi Summa | terhisu@gmail.com | +358-50-4671256 |
| France | Lara Liu | llblffr@gmail.com | +05 53 04 49 17 |
| Germany | Anna Maria Kleinhuis | kleinhuisanna@arcor.de | +49-171-530-9130 |
| Ireland | Raymond Smith | raysmithrolfing@gmail.com | +353 86 8077367 |
| Israel | Nancy Aidelman | nami@hanita.co.il | +972-4-985-9563 |
| Italy | Isabella Turino | iturino@alice.it | +39-0574-595-813 |
| Japan | Rika Fujii | rika.f@jp.bigplanet.com | +81-75-963-4108 |
| Korea | Junghee Lee | jhlee6667@hanmail.net | +82-031-712-0501 |
| Korea | Hong Jo | Ihj57@sungshin.ac.kr | +82-010-5210-3678 |
| Malaysia | Dawnna Wayburne | dawnnawayburne@hotmail.com | +852-2869-8630 |
| Mexico | Mina Perez | gminapo@gmail.com | +52-312-313-2239 |
| Netherlands | Ria Heuvelman | ria_heuvelman@hotmail.com | +31-180-590966 |
| New Zealand | Elke Dunlop | elked@paradise.net.nz | +64-4934-9005 |
| Poland | Ewa Lawreszuk | ewa_law@yahoo.com | +48608334902 |
| Spain | Nancy Aidelman | nami@hanita.co.il | +972-4-985-9563 |
| Sweden | Christina Schon-Ohlsson | christina.bonesforlife@gmail.com | |
| Switzerland | Geneviève Quartenoud | jenny@jennyfit.ch | +079-381-62.00 |
| Taiwan | Levin Lee | bonesforlife.taiwan@gmail.com | +886-910-239-941 |
| Thailand | Amanda Kealy | mandymoves@gmail.com | +66-76-288-508 |
| Turkey | Betül İpekçioğlu | betuelipek@gmail.com | +491637008781 |
| Uruguay | Claudia Bejar | cbejar@internet.com.uy | +598-2-707-3752 |
| USA | Foundation for Movement Intelligence [FMI] | info@movementintelligence.org | +1 (207) 239-0260 |