

A DYNAMIC RELATION TO GRAVITY

VOLUME I - THE ELEMENTS OF STRUCTURAL INTEGRATION

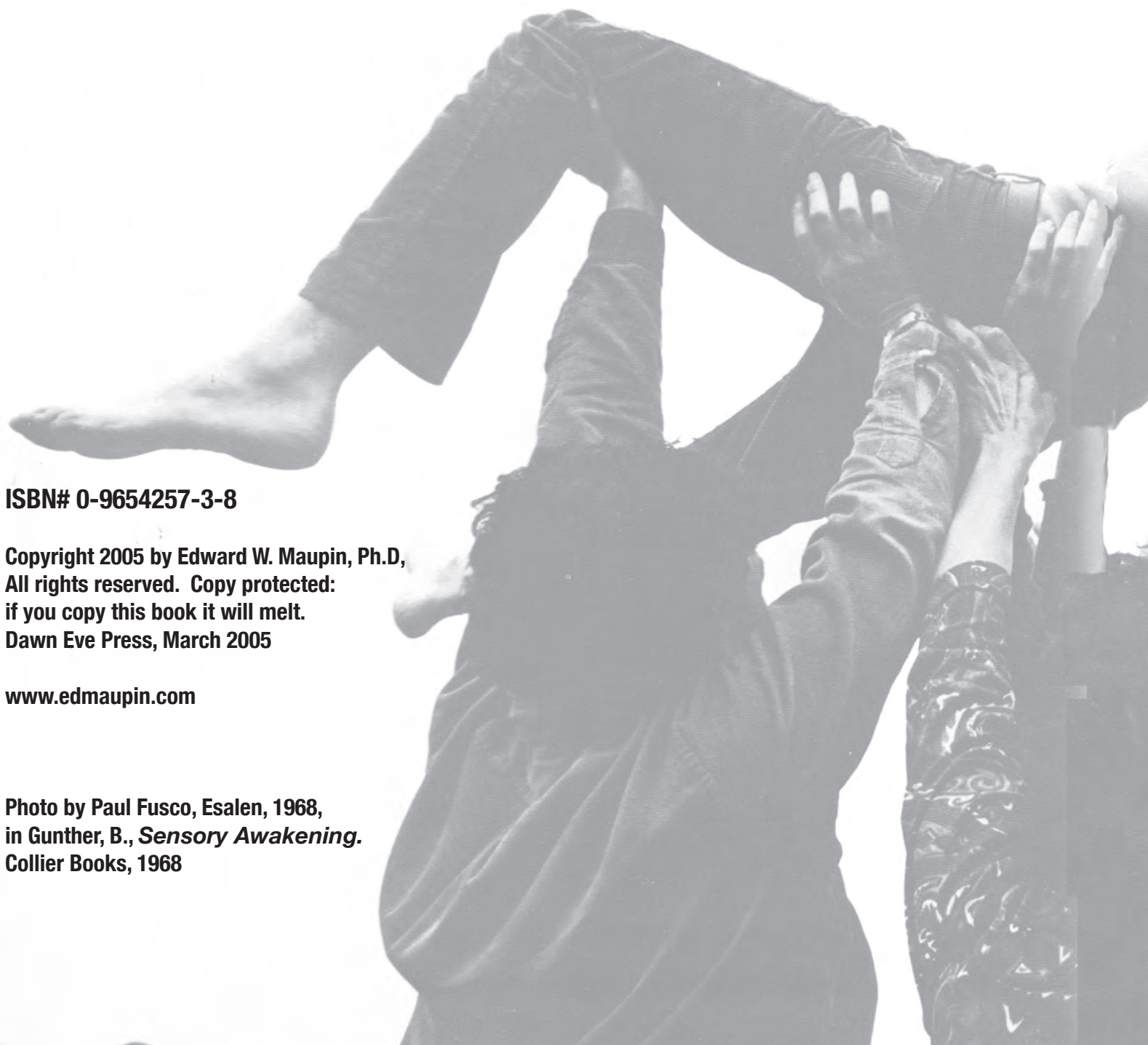
Edward W. Maupin, Ph.D.

WITH HENRY KAGEY AND RON ARBEL

A DYNAMIC RELATION TO GRAVITY

VOLUME I
THE ELEMENTS OF STRUCTURAL INTEGRATION

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**Photo by Paul Fusco, Esalen, 1968,
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Collier Books, 1968**

A DYNAMIC RELATION TO GRAVITY

VOLUME I – THE ELEMENTS OF STRUCTURAL INTEGRATION

EDWARD W. MAUPIN, PH.D.
WITH HENRY KAGEY
AND RON ARBEL

DEDICATION

To the **Human Potential Movement**,
that perennial dream of fully realized life.

To **Dick Price and Michael Murphy**
who hosted the dream at Esalen, and to
George Leonard who helped give it form,
substance, and a name..

To **Fritz Perls** who enlivened Esalen
with his rendition of a Zen master / *infant*
terrible, a thoroughly real and courageous
man,

And to **Ida Rolf**, who brought to Esalen
a grounded vision of the human potential
realized in the human form..

Prologue, an image

"How do you know but ev'ry bird that cuts the airy way, is an immense world of delight, clos'd by your senses five?" [William Blake, *The Marriage of Heaven and Hell*, Plate 7]

"If the doors of perception were cleansed everything would appear to man as it is: infinite, for man has closed himself up, till he sees all things thro' narrow chinks of his cavern." [Plate 14]

Imagine that the body exists to bring hands and feet into contact with what it needs in the world. All the rest of the structure functions to get them there. The core stabilizes, the shoulders and hips transmit expansion, and every joint opens to bring about that approximation of palms and soles with world.

Imagine too that the hands and feet are sensory organs, which listen as well as act, receiving stimulation which feeds the entire rest of the body. Most of the sense anyone has of a surrounding world comes from only six sources, and palms and soles are four of the six, the other two being the head and the pelvic floor. The hands and feet especially feed the core with vital information, not least of which is auditory, for the palms and soles can hear.

A body receiving vibration like this feels spacious inside, a vibrating volume. The outside and the inside are not so strictly distinguished, because outside is being experienced inside. Every joint is open, flexors and extensors balanced so that the expansion takes place out from the center. The external surface of the body is no longer such a barrier to feeling, and one is no longer looking out at the world through chinks in a cave wall. Such a body is already a world of delight, because it is capable of pleasure.

This body, which is the achievement of the toddler phase of childhood, has an astounding characteristic: *the upper body is continually positioned by how much the legs are pushing against the ground.* The entire body is expanding omnidirectionally in space in response to the gravitational surface on which it moves. The configuration of the pelvis creates a polarity between down and up, and any movement of the top is supported and counterbalanced by the lower body. The legs are expanding

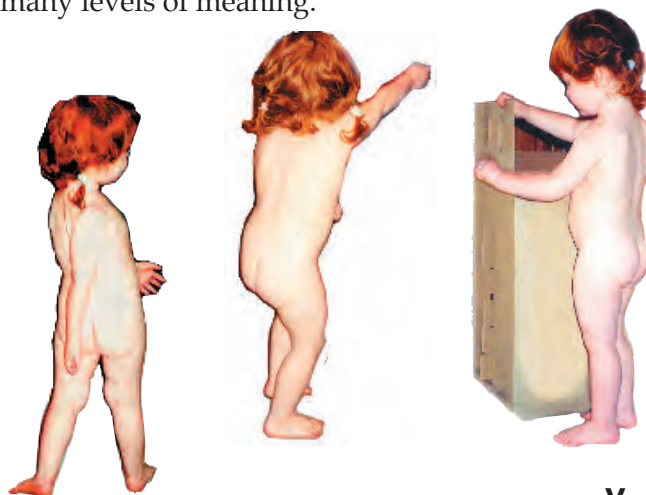
out *through* the pelvis, rather than from it. The arms are expanding out from the spine *through* the shoulders, with clear support from the diaphragm and lower body. There is a two-way exchange between the core and the soles and palms. Through them the core is able to reach out (yang), and from them, as sensory receptors, the core receives its sense of world (yin).

What is that child doing? She is reaching out with her hands and feet, making contact with her world. Is it 'an immense world of delight'? Well, most of the time.

What happens when the omnidirectional expansion is blocked? Then the unitary movement of the body, its structural integration in space, is compromised. If we want to reconstruct the expansional balance, we must find where the two-way exchange of palms/soles with core is broken. This leads to three main questions.

1. Are the hands or the feet withdrawn from contact?
2. Are the legs or arms contracted into the pelvis or shoulder girdle?
3. Can the client feel (and move) from the core?

This is only one possible image of what guides the work of structural integration. It gives unusual prominence to the hands and feet – much more than Dr. Rolf did – but it is instructive and perhaps others will find it useful. Most of the goals and strategies in her "Ten Session Recipe" can be approached in this way. But of course they can be approached in other ways as well. They are a conceptual jewel of great brilliance, encoded with many levels of meaning.



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PREFACE

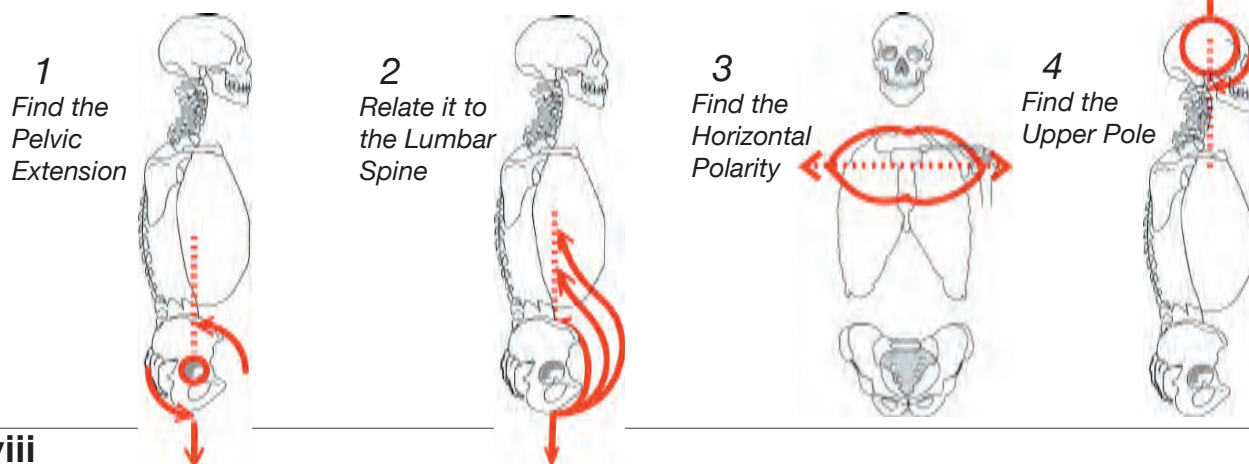
In a sense, Ida Rolf asked me to write this book. Actually, she asked me to write about Rolfing in 1968, when I was finishing my practitioner training. I am nearly incapable of writing when I have nothing to say, so for a good many years after that, I could only struggle to understand the work, not write about it.

Now I have been practicing the method as long as Dr. Rolf had when she taught me. I feel I understand enough finally to describe it in print. I have practiced the ten session series long enough to understand it as a comprehensive form for reorganizing the body in gravity.

My hope is to produce a classroom manual which can support accurate and effective transmission of Dr. Rolf's creative legacy. Many schools are beginning to teach structural integration now. This is good: the work is real, down-to-earth, and tied to fundamental things, like gravity and the shape of bones. It could be the basis of a folk-healing method, with a structural bodyworker in every neighborhood. It is profound and yet oh, so simple.

Dr. Rolf's concepts ranged from the anatomical and physiological to the spiritual and energetic. She was many-sided, original, and evocative. She expected that several 'schools' would grow out of her work, each with its own emphasis. In her conveyance agreement with the Rolf Institute she required that plans be made "within two years" for including other schools within its umbrella. For various reasons this never happened, but the idea of an informal 'university' of Rolf Structural Integration remains. It would include many schools, with different emphases, each contributing to a more inclusive knowledge of the work.

THE FOUR PARTS OF EXPANSIONAL BALANCE



In this manual, our emphasis is strongly upon movement. Dr. Rolf taught that the core layer of the body expanded in gravity, and that the body is designed to draw energy from gravity. But it was only when I encountered a dancer, Michael Neadon, that I felt I understood the full significance of her view. There is nothing essentially *different* here from what Dr. Rolf taught, but certain principles she implied have been more fully realized. We all stand on her shoulders as we make our new discoveries.

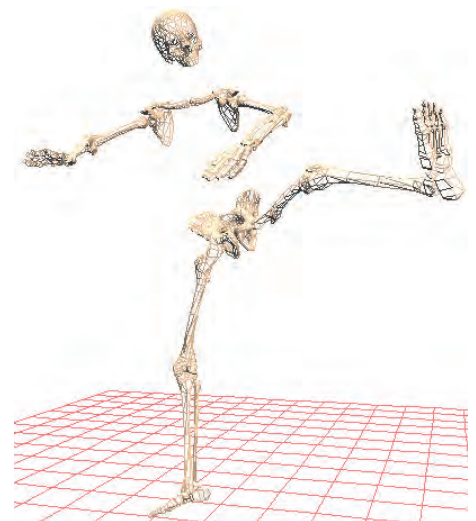
Other schools have their own rather different emphases, and I have learned from them all. From the Rolf Institute comes excellent anatomy, physiology, and the understanding of different *patterns* of response to gravity. The Guild for Structural Integration maintains the *full range* of her thought, across spiritual and energetic dimensions as well as the purely physical transformation of human structure. Tom Myers has extended our understanding of anatomical connection with his excellent book, *Anatomy Trains*.

The anatomy in this manual is a dancer's anatomy, a great deal subordinated to the geometry of skeletal movement. I think Myers' fascial 'trains' will curve and spiral nicely inside our little geometric boxes. In a word, we recommend them both.

As more and more schools offer courses in "Structural Integration," many of the original Rolfers can only hope that they will get it right. Structural Integration is a very radical vision.

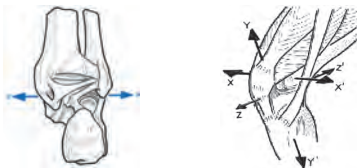
My hope is to present a text from which new bodyworkers can appreciate Dr. Rolf's original vision of a truly *evolutionary* work while at the same time gaining many useful strategies for dealing with the challenges they encounter in practice.

Volume 1 is intended to convey the principles of structural integration. It introduces the elements of gravity, geometry, movement, fascia and touch, together with enough practical maneuvers to begin doing the work. It is the basic information needed to approach Dr. Rolf's Ten Session Series, presented in Volume 2.



About the Illustrations

Without visual images this book could not occur. Neither the body nor its movement can be described in words alone. The internal movement sense ("kinesis") must be rendered in visual terms before it is understood. Feeling can become visual. It is for this reason that I have borrowed unabashedly from the classics as if they were gifts and promises left on the path to assist me in my quest to understand this work. I am sincerely grateful to all of them, and in most instances I am in compliance with the laws of copy right.



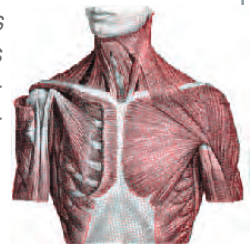
Kapandji's *Physiology of the Joints* contains analytical drawings of great precision essential for understanding skeletal mechanics. Where I have used them, I have redrawn them.

Permission for this usage has been requested.

has

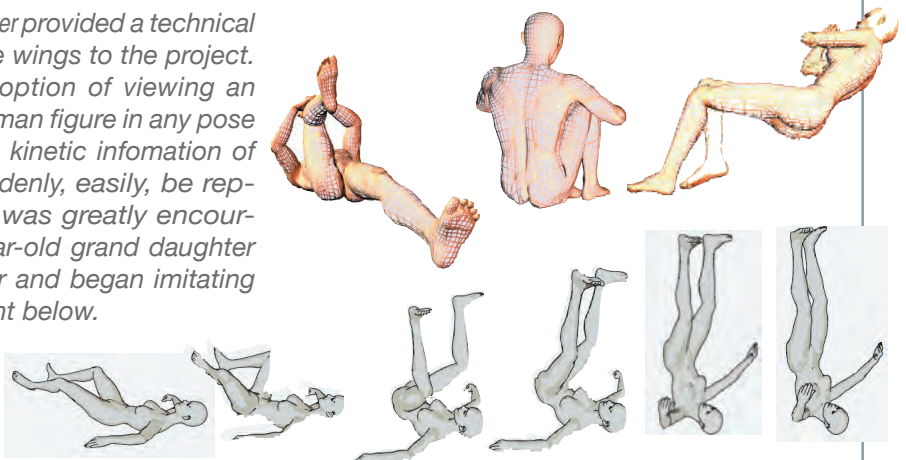
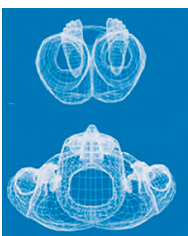


The amazing Grant's *Atlas of Human Anatomy* and Lockhart's *Human Anatomy* had basic illustrations we changed and re-drew for our own purposes.

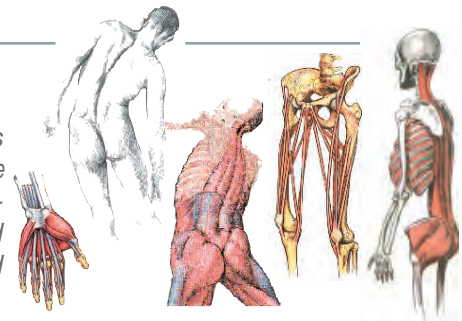


Ida Rolf's book, *Rolfing*, includes many drawings by John Lodge, all expressing a highly conceptual element in her way of seeing structure. I borrowed gratefully, considering it part of the Rolf Lineage.

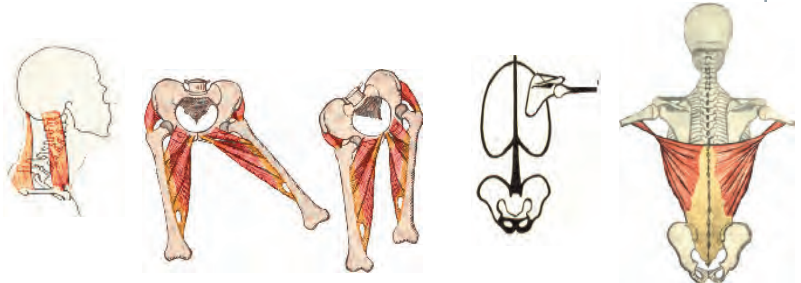
Curious Labs' *Poser* provided a technical revolution which gave wings to the project. Suddenly I had the option of viewing an infinitely malleable human figure in any pose from any angle. The kinetic information of movement could suddenly, easily, be represented visually. I was greatly encouraged when my 2-year-old grand daughter lay down on the floor and began imitating the figures on the right below.



John Hull-Grundy's drawings in *Human Structure and Shape* are a cross between Michelangelo and Vesalius, sensuous and analytical.



I found his book on a remainder shelf in Amsterdam and recognized it as a miracle. Here was a medical illustrator obviously in love with his subject, and with an inquisitive, varied approach. I borrowed copiously from him. Permission has been sought.



Mollier *Plastische Anatomie*, Berlin, 1932. This artist's anatomy text fascinated all of us who saw it laid out for us in Dr. Rolf's classes. It is vintage German physical culture with a lot of good movement analysis. It is also in the public domain.

INTRODUCTION

Grace and ease are the natural condition of the human frame in space. Millions of years on this planet have brought us to a standing posture uniquely human, one which *uses* gravity as a positive energy flow to create expansion in three dimensional space. The deepest mechanism of our skeletal form is expansion in gravity: “expansional balance,” a three-dimensional expression of the *human potential*.

For most people, of course, expansional balance is only a potential, never fully to be realized. From toddlerhood to early childhood our bodies are clearly evolving toward expansional balance: bowed legs straighten and arches form. That process lasts into adulthood and beyond. Some dancers, athletes, and exceptionally graceful people completely evolve an expansional balance and retain it all through their lives. Most of us, *including* dancers and athletes, never fully gained it or else lost it somewhere along the way. Accidents, even minor unremarkable ones, broke our continuity, and the body compensated for small, but crucial displacements. Unbearably traumatic experience caused us to freeze; fear kept us contracted; shame made us want try to hide and be invisible; rage, or the fear of rage, led us to harden. We identify with dysfunctional patterns of moving, accepting the strange pelvic tensions and distorted shoulders of those who were our models. Above all, we become externalized. We avoid feeling the body, especially on the inside. We live in a visual, conceptual world which is largely defined by others, forgetting the core feeling of ourselves. Vision replaces kinesis, and feeling is lost.

It is no accident that Dr. Rolf began her expanded teaching of structural integration around Esalen Institute, the seminar center in Big Sur, California. Esalen was a focal point of the “Human Potential Movement,” and she had a method which not only restored the body to its natural relationship with gravity, but also brought a person closer to her/his potential as a human being. She thought feeling ‘secure’ must depend upon feeling secure in gravity. To find one’s way to a secure relationship with gravity is to discover a deeper reality within one’s own existence. To become ‘integrated’ is to become whole.

Rolf Structural Integration is a hands-on bodywork method of reorganizing the body, but it is first of all a theory of movement. Reorganizing means knowing the body’s full potential for movement. Dr. Rolf worked from a theory of movement which was essentially the same as what is offered here. She knew about a dynamic relationship with gravity; her concepts of “the line” and the segmented body are

attempts to communicate it. She was not a dancer, though, and the message was not always clear. It was eight years after my training with her (1968), that I met Michael Neadon, a dancer who was teaching 'expansional balance.' From him I came to understand what she had been trying to get across. His concepts, and the exquisitely precise movements he used to convey them, became basic to my evolving grasp of Dr. Rolf's work.

Expansional balance is very much at the center of this approach to structural integration. Other schools may not emphasize it so much, but this is what I think is fundamental. For one thing, the very essence of structural integration – what makes it different from other deep tissue manipulation – is Dr. Rolf's principle: "Hold things (fascial structures) where they are supposed to be and induce movement." The client's movement, in other words, is what establishes the new pattern. Each tiny, gentle movement used to organize an individual joint in the body is consistent with a much larger, overall pattern of expansion in gravity.

The movement is used with concepts of geometry (lines and planes) which help us analyze movement in space. Every joint has its balances across vertical, horizontal, and transverse planes. The openness of core expansion is found through the balance across these planes. When every joint is open, an integrated feeling of the whole body is attained. This is only natural: it is how we are 'supposed' to be, the function of our native design.

Ideally, an expansional relationship with gravity could be taught entirely in movement classes. But such classes would have to be extremely precise, tailored to each individual student, and go on for a very long time. Any repeated movement, of course, changes the body. Swimmers, tennis players, gymnasts, ballet dancers, modern dancers, and chair-bound computer workers, evolve typical bodies. Some are superbly competent; others are destroyed by the experience. The advantage of a hands-on approach is that the distortions of soft tissue can be worked out, manually, long before the stubborn flesh would yield to instruction alone.

Expansional balance breaks down into four major components: "find the pelvic extension; relate it to the lumbar spine; find the horizontal polarity; find the upper pole." It is simple; it can be pursued in any kind of activity.

Fascia must change to support this movement. Fascia holds everything in place, creating the form of the body. Most important, fascia *can change!* The body can change its structure through movement *because fascia changes with movement.* Dr. Rolf made a Copernican shift to see fascia as the 'organ of form.' Before her, fascia mostly ignored

and in the background; muscles and bones were much more to the fore.

She discovered that she could *hold things where they are supposed to be and induce movement* and that would shift fascia and alter structure. And so, “enter the hands.” This book is about organizing the structure of the body with touch. It is an introduction to Dr. Rolf’s concept of Structural Integration (Expansional Balance) and a great many practical approaches to particular parts of the body.

This brings us to an important distinction between ‘Structural Organization’ which uses various procedures included here to remedy physical problems, and ‘Structural Integration,’ which pursues the much more radical goal of *integrating* the whole body in a unified, dynamic relationship with gravity. Both applications are valid and useful. You can apply bits and pieces of the work to specific problems and do a great deal of good in the world, but you should not lose sight of the fact that *Structural Integration* reorganizes the whole body in the gravitational field. This is far more radical than repair and remediation.

Structural work like this is a ‘somatic’ technique. That is, it does not consist simply in mechanical rearrangement, by force, of the myoskeletal form. ‘Somatic’ means that the *experiencing* being within the body is important. Any method is ‘somatic’ if it (1) emphasizes the experience of the subject, (2) respects the organic wisdom of the body, and (3) uses awareness as a major tool. (Maupin, *Body Epiphany*, 2000) Structural Integration uses the experiencing subject as a partner in the process. It assumes a fundamental wisdom in the body which can participate, seeking to find its optimal pattern. Awareness, the body’s own experiential awareness, is what makes the change.

This touches on the profound psychological aspect of the work: it is an engagement with native awareness. To be present to the touch is to be present in the body and to be aware in the present moment.

Who is it, though, which is aware? That ‘who’ is deeper than the conscious self, and it is the very source of vitality and process. Awareness makes the change. Awareness is the responsivity of the body. Awareness is what beats the heart, transports molecules through cell-barriers, and makes gurgles in the gut when something appealing occurs. Part of this method includes learning how to touch the awareness rather than just the body.

We use the term ‘contact’ instead of ‘procedure,’ ‘maneuver,’ or ‘technique.’ It means touching in an exploratory, receptive manner rather than executing maneuvers. It means training the client to participate in the communication. It means learning to work with the body awareness and being willing to be led by it.

It all comes to this:

A bodyworker who understands expansional balance in his/her own body can transmit that understanding to clients

An aware bodyworker can contact any part of the body, and by imagining functional geometry across its skeletal anatomy, can hold it "where it is supposed to be" and ask the client to move.

The client, having been instructed in functionally "straight" movements and knowing how to interact with the bodyworker's touch, can reorganize that part. Awareness, the deep body awareness of the client, is what makes the change.

It is not easy, but it is simple. It can be learned.

Five Elements of Structural Integration

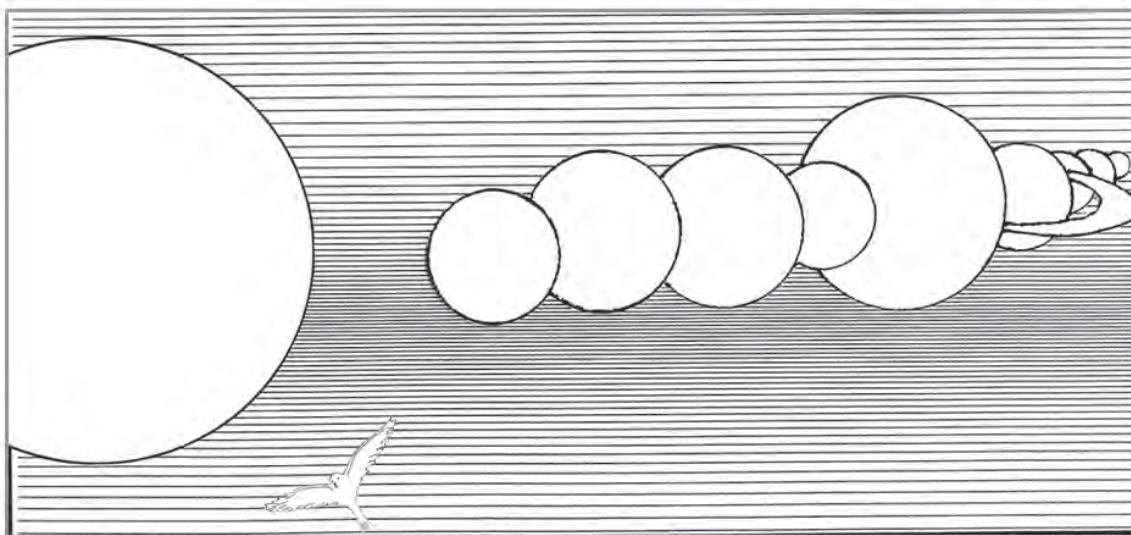
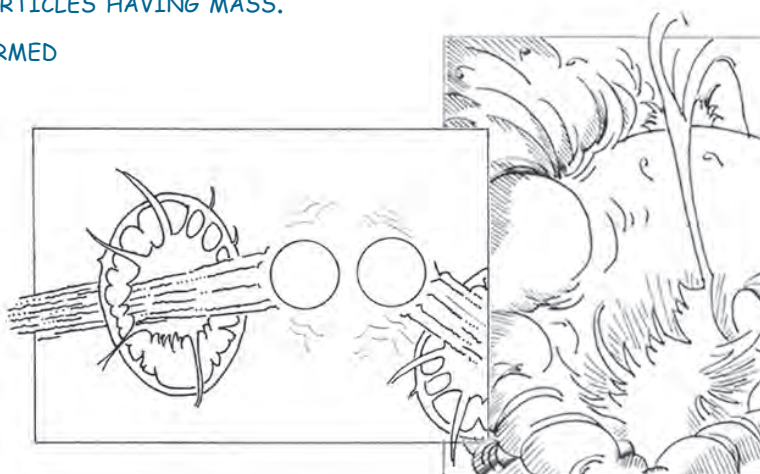
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Gravity:

THE ATTRACTION BETWEEN ANY TWO PARTICLES HAVING MASS.

GALAXIES, STARS AND PLANETS ARE FORMED
BY THE ATTRACTION OF GRAVITY.

GRAVITY MAY BE THE VERY
ENERGY OF CREATION.

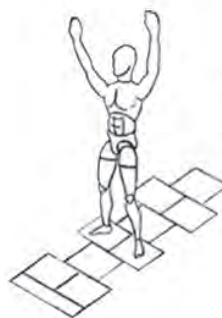
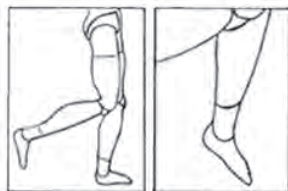


ALL PLANETARY LIFE - PLANT OR ANIMAL
- HAS ITS OWN RELATION TO GRAVITY.



THE HUMAN ADAPTA-
TION IS VERTICAL,
A VERY INTERESTING
PHENOMENON

ROLF: "There
is certainly a
'something' that
pulls living mat-
ter up against
gravity"



A GOMEZ 2003

Element One: GRAVITY

IN THE BEGINNING there was gravity, a force which draws particles of matter toward one another. Every particle exerts an attraction on every other particle. Dust motes, meteors, stars, and planets each attract according to its mass.

Wherever one can stand on our planet earth there is a line of attraction from the core of the planet extending out straight to the farthest reaches of space.

Because of these radiating vertical lines, which identify what is 'down' and what is 'up', space is defined on this planet. Because there is a vertical dimension, there can be two horizontal dimensions, call them north, south, east, and west to define the planetary surface, or front, back, left and right in reference to a smaller body.

Gravity so influences the evolution of life on this planet one might almost call it the 'energy of life' or the 'energy of creation.' Some kind of 'first mover.' Every species of plant or animal has evolved its own relationship with gravity. Birds fly, snakes crawl, cats, dogs and elephants walk on all fours. The human species has evolved a vertical relationship to gravity.

The human skeleton, although morphologically related to other mammals and primates, has clearly shifted to support verticality. Many changes took place to make this work. The calcaneus, for instance, migrated downward to become the heel bone, enabling a front-back balance across the middle of the foot. The spine, which is like the roof beam in a four-legged animal, is upended to become a space-making bow, in a complex set of relationships with the front of the torso and the front of the spine. The cranium rotates on the atlas to face forward, thus creating a front-back balance at each cervical vertebra.

Ultimately, the system one uses must adapt somehow to the constant force of gravity. To the extent that the adaptation is efficient, gravity will work on that person's behalf. To the extent it is not efficient, much effort will be required simply to stand and move, and ultimately, gravity will tear that structure down. Gravity, like nature, "bats last."

A proper understanding of efficient adaptation to gravity, then, is essential for successful human living. Dr. Rolf's contribution began with her grasp of the *primary* importance of gravity in human structure, and culminated with a developed *method* for physical reorganization.

The Human Adaptation to Gravity

"The Line"

One way to analyze a body's relation with gravity is to see how its major segments are disposed around the line of gravity passing through the earth where the body is standing. Dr. Rolf made "The Line" very important to her concept of the work. She argued that the major segments of the body should be aligned so that the line of gravity passes through the center of the pelvic floor, up forward of the spinal column, and out through the crown of the head.

This version of "The Line" is a rather static view. It implies that the body is like a tower of blocks with their centers of gravity aligned vertically.

Two Layers of the Body: Core and Sleeve

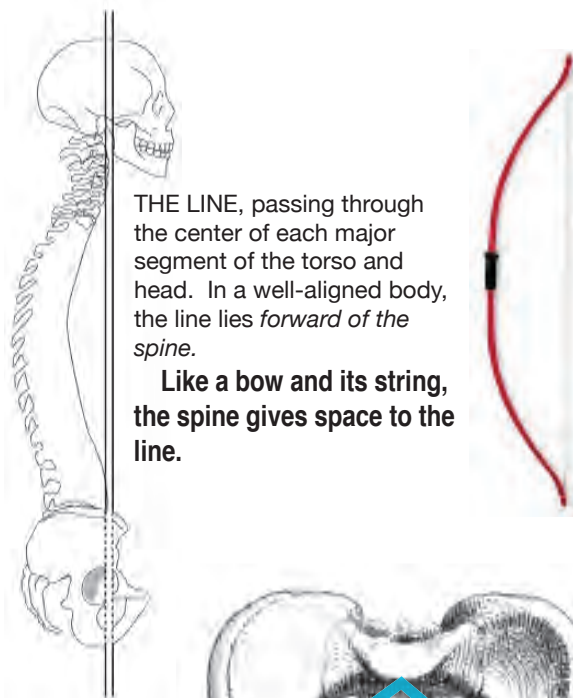
However, Dr. Rolf's concept of "The Line" was not as static as this plumb-line model suggests. She was well aware that effective human bodies are not stacked like blocks, but lengthen in response to gravity. To explain this phenomenon she introduced the idea of two layers, one of which expands against gravity.

The inner layer, which Dr. Rolf called "the core" consists of small "postural" muscles, in intimate relationships with the skeleton which produce expansion.

Organizing the core to function properly is the key to expansional balance.

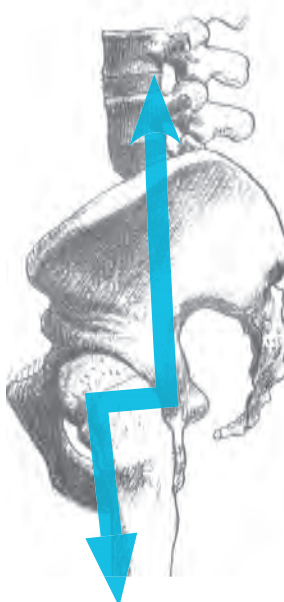
The core is a spring-loaded, segmented, tensegrity mechanism designed to *expand in all directions* when in contact with a gravitational surface

Dr. Rolf called the outer layer of the body "the sleeve," The outer layer consists of "voluntary" muscles we use to carry out action. We contract them to do our bidding. Antagonist muscles must also lengthen to support this process. The organization of the sleeve consists in expanding it to make room for the inner layer, and teaching people to extend antagonists when agonists contract.



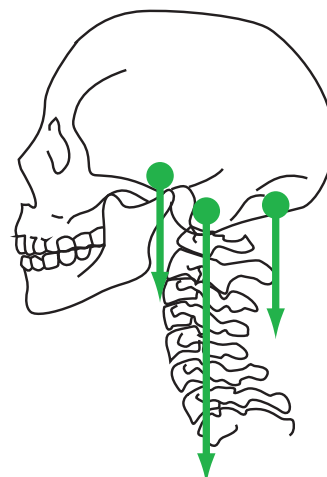
THE LINE, passing through the center of each major segment of the torso and head. In a well-aligned body, the line lies *forward of the spine*.

Like a bow and its string, the spine gives space to the line.



A LEVER IN THE PELVIS

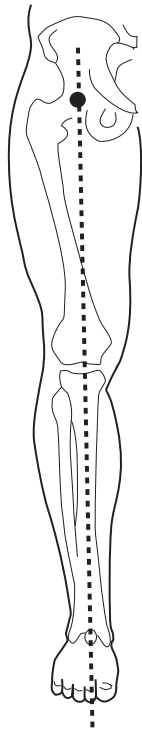
When the line remains forward of the spine, the hip socket is more than an inch forward of the anterior sacrum, forming a lever which allows a separation and expansion upward.



A LEVER ON THE ATLAS

The head is designed to balance fore-and-aft on the atlas, causing a complex set of reflexes to extend the neck upward.

KAPANDJI



SOLID AND FLEXIBLE ELEMENTS BALANCE ACROSS THE THIGH

(Left) A sagittal plane through the hip socket passes through soft tissue in the thigh. These hard and soft tissues develop a complex balance which permits expansion.

(Right) With the muscles reduced to lines of force, it is easy to think of the bones as spacers, and the tendons and ligaments as limits on expansion. This is how a tensegrity structure maintains its form.



HULL-GRUNDY

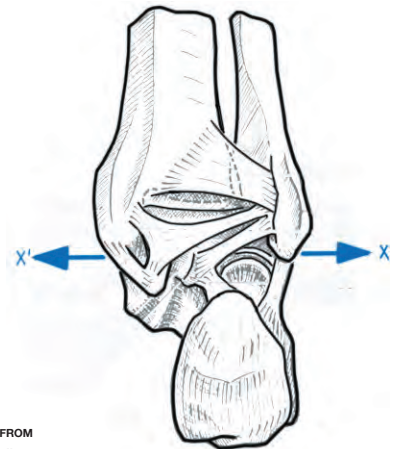
The skeleton, together with its tendinous straps, can be considered a "Tensegrity Structure" (see page 20), in which solid members (bones) span space and flexible elements (tendons and ligaments) limit extension. Together they ensure that the structure maintains its shape. The fact that the straps can also shorten and lengthen adds further dynamic complexity



THE FOOT ON THE ANKLE has a bony side and a flexible one. If the tendons of the medial calf lift the medial malleolus properly, a medial arch is created in the foot.

The Goals of Structural Integration

1. Open the "sleeve" layer to make room for the function of the "core."
2. Teach the "sleeve" layer to move so that "when flexors flex, extensors extend."
3. Organize the "core" so that its expansional functions can take place.
4. Integrate the two layers so that the voluntary actions of the "sleeve" take place outside and without interfering with the expansional function of the "core."



REDRAWN FROM
KAPANDJI

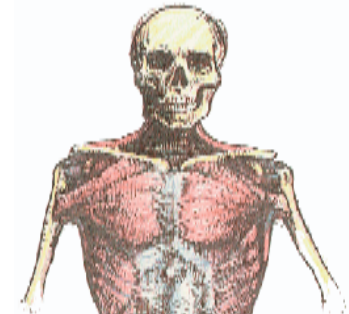
What is Core?



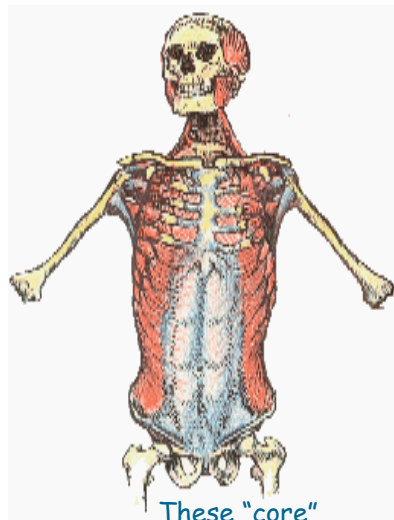
THREE LAYERS OF THE TORSO

In the simplest sense, "Core" refers to the torso, and "Sleeve" refers to the limbs. Dr. Rolf referred to the latter as the "motor system", involved with 'doing' while the torso was involved with 'being.'

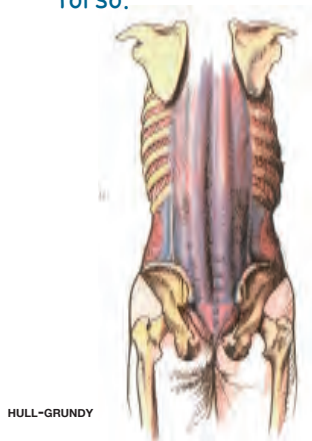
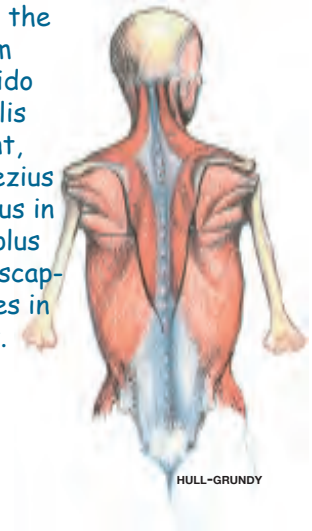
But when we examine the torso, we find that the outer layer of muscles is primarily involved with use of the arms. This outer layer, then, has to be included with the "Sleeve."

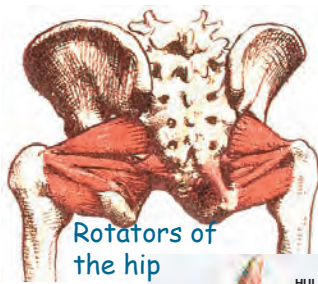


"Sleeve" muscles of the torso: from sterno-cleido to pectoralis in the front, from trapezius to latissimus in the back, plus all the subscapular muscles in the armpit.



These "core" muscles of the rib cage and abdominal wall stabilize the torso.



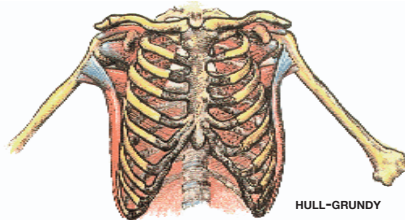


Rotators of the hip



Iliacus and psoas

**CORE IS THE BALANCE
ACROSS THE ABDOMINAL
CAVITY**



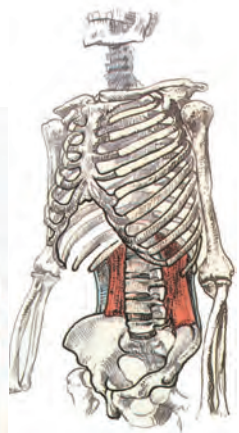
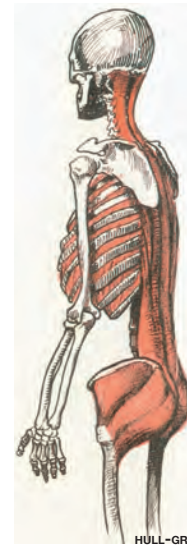
MOLLIERE

Dr. Rolf considered that 'a person's characteristic sense of himself IS the balance between psoas, rectus, and diaphragm.'

**CORE IS DESIGNED TO
EXPAND THROUGH THE
DYNAMIC INTERACTION
OF BONY LEVERS AND DEEP
POSTURAL MUSCLES**

Another "core" layer, deeper yet, serves to balance the spine (psoas, spinal erectors, diaphragm)

Quadratus lumborum



Erector spinae

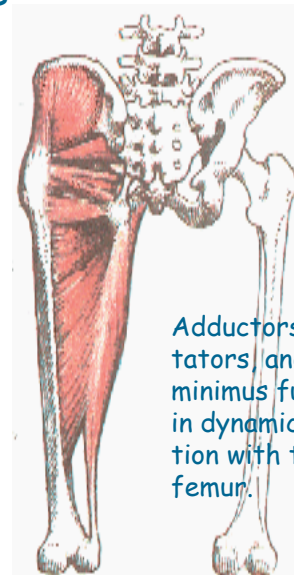


CORE IN THE ARMS AND LEGS

The arms and legs themselves have an inner and outer structure.

In contractional balance, muscles like the adductors of the thighs, or subscapularis, are used undifferentiated from the sleeve in general contraction.

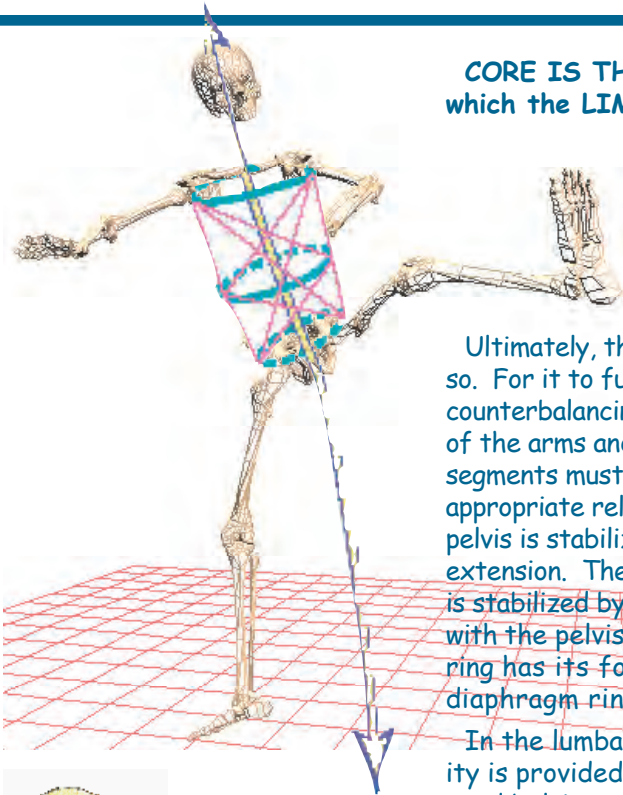
In expansional balance, such muscles are used in a more dynamic interplay with the outer layer.



Adductors, hip rotators, and gluteus minimus function in dynamic interaction with the bony femur.

HULL-GRUNDY

CORE IS THE STABILIZED TORSO, from which the LIMBS can MOVE



Ultimately, the core is the torso. For it to function in its role of counterbalancing the movement of the arms and legs, the major segments must be brought into appropriate relationship. The pelvis is stabilized by the pelvic extension. The diaphragm ring is stabilized by its relationship with the pelvis. The shoulder ring has its foundation in the diaphragm ring.

In the lumbar area, the stability is provided by the multi-layered belting of the abdominal muscles. This outer belting must be organized with full participation of the anterior spine (psoas, quadratus) if it is to be flexible and differentiated.

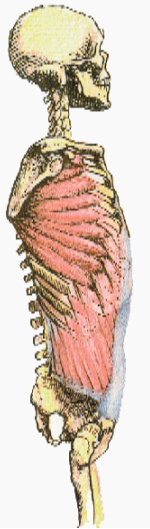
THREE TRANSVERSE RINGS OF THE TORSO.



ABDOMINAL WALL ABOVE L3



HULL-GRUNDY



MUSCLES OF THE ABDOMEN AND RIB CAGE.



HULL-GRUNDY

"Core is that which you can't live without." - Rolf.

THE BOW & THE STRING:
bones as spacers,
fascial straps as limiters.



Integration: Core and Sleeve

In an integrated body the core is free to expand, more or less effortlessly, against gravity, while the sleeve can execute voluntary action. The sleeve “rides” on the core. The core is unobstructed by the contractions in the sleeve.

There is a vast difference between the “doing” of the Sleeve, and the “being” of the Core. If I am standing up and someone suddenly pushes me backwards, my feet will execute quite complicated movements to regain my balance. I will not have a sense of actively doing these movements; rather I will have “let” them happen. In fact, if I actively try to do them, they will not be nearly as accurate, complex, or successful. While I can attempt to control my relationship with gravity, the outcome will be greater tension in my body, and I will have shifted the effort to the external layer, using the wrong muscles to do the job.

Sometimes I will be using the right muscles, but in the wrong way. The adductors of the thighs are a good example: they can be used either in contraction, as part of the extrinsic system, or in extension, to support the expansional balance of the legs and pelvis. This latter action is felt as part of the overall movement of expansion rather than a clearly voluntary use of the muscles.

Dr. Rolf theorized that the difference between the sleeve and the core might actually represent a difference of electrical charge, like a battery: the active (yang) sleeve being the positive pole, and the receptive (yin) core being the negative. On an experiential level, at least, the sleeve is engaged in ‘doing’ (yang) and the core is involved in ‘being’ and ‘letting’ (yin).

More precisely, the outer layer must be released to come into a balance with the inner layer. Then voluntary action in the sleeve takes place with the core in expansional balance. If you have ever had a second wind experience while running, you have experienced a

sample of this balance. The initial running has stressed and fatigued the exterior muscles until they release and allow the core to expand and come into play. Then you have the delicious experience of the “running which runs itself.” It is a characteristic of the core that we experience it as non-effortful.

Integration is something that can be felt. In a disorganized body, every part is felt as a separate effort. Holding the head up is separate from moving the feet. Legs are pulled into the pelvis, and arms are pulled into the shoulders. Neither has an immediate connection to the other.

When the body is structurally integrated in gravity, on the other hand, there is a sense of physical unity. The legs press against the ground, and the expansion is felt all the way up into the lumbar spine. The head lifts as a function of the feet thrusting. Arms and legs come from the spine. Everything is balanced around the diaphragm. The body is integrated to the extent that the slightest shift in any joint produces a shift in every other joint.

Disordered Bodies

Of course, most people do not exist in this kind of integrated unity or relationship with gravity. Although the mechanism for expanding in gravity exists as a potential in most bodies, it is rarely realized. The full development of an efficient upright balance is really an evolutionary ideal, which only a fortunate minority of people achieve spontaneously. They are often the great athletes and dancers, or people who are recognized for their grace and effective movement. They are closer to achieving their full human potential in this domain of balance and gravity.

Evolution, Immaturity, and Core Expansion

Structural integration in gravity is a potential given to us by evolution, but it is the product of maturation. Newborn babies are already actively exploring movement. When they first begin to stand, their legs are not straight, but bowed. They are incredibly active in stretching their legs, which eventually straighten as a result. The pelvis-leg connection takes longer to evolve and so the lumbar balance is a long time developing. The full development of core gravitational expansion takes years, perhaps more than twenty years.

In a sense, then, many problems of disordered bodies are really due to immaturity. Something has blocked the full development. There are other factors as well, such as accidents and congenital deformities, or patterns of movement which are adopted by identification with parents, or emotional attitudes reflected in the physical frame.

Contractile Balance

In disorganized bodies, the whole body must move through a system of contraction because the arms and legs are pulled in rather than expanding out from the spine. In contraction, the torso must anchor the load by bracing in various ways, and effort replaces ease. In structural bodywork we spend a lot of time coaxing the body out of contraction in order to function around an expanded core.

Fear is one factor that produces contraction. Consider: the earliest fear in infancy is fear of falling. When support is withdrawn, the newborn infant contracts its arms and legs into the torso. This becomes the physical pattern of response to all fears later on. Persistent negative emotions, such as fear, cause some people to adopt defensive patterns of contraction.

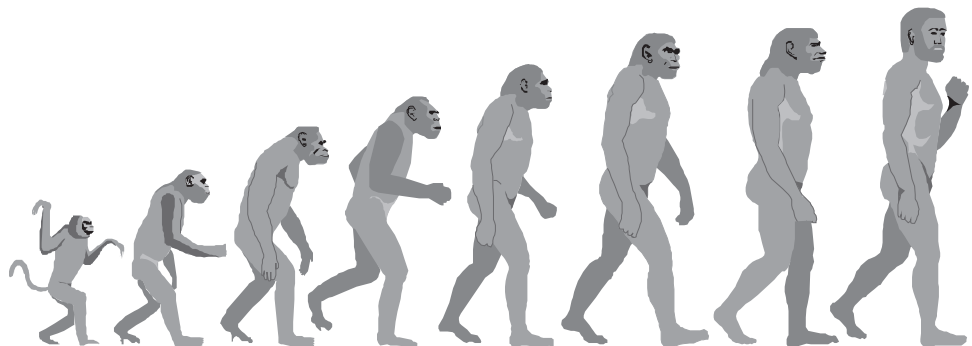
Misguided habits of exercise tend to strengthen external muscles without regard to maintaining core expansion. It is easy for joints to become muscle bound, unable to move fully, because the internal layer is ignored. Few weight lifters really know how to stretch, and fewer still actually do it.

Rotations

Because the major segments are given length by the skeletal bones, which are, after all, spacers, the length must go somewhere if the overall pattern is contraction. The result is twisting: the pelvis twists on the lumbar, the thorax on the diaphragm. There is twisting especially in the legs and arms, where shortening on one side of a plane will cause rotation of the segment on the neighboring segments. The result is 'bowlegs' and 'knock-knees' and a host of distortions in arms so frequent and unremarkable they have no names.

Rigidity and Collapse

When the core expansion is not established, the body has to struggle to stand and move in gravity. You can see this most easily in the way the spine and torso are carried. One person's carriage is rigidly straight, the thoracic curve barely visible, shoulders back, head stiff. Another person has given up, and the head sags, the chest and belly drop. For both, the easy relationship with gravity is not found, and gravity will eventually pull them down.



Element Two: GEOMETRY

Since we are constantly attracted by the earth there is one dimension which is fixed for us: the vertical, *Y axis*.

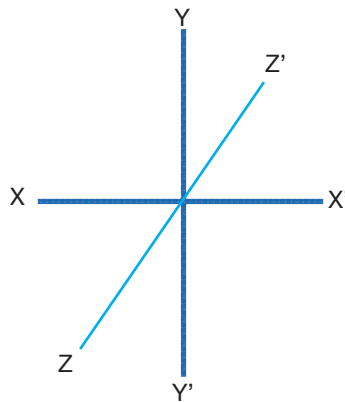
Because there is a vertical, there can be a side-to-side, *X axis*, and a front to back *Z axis*.

Presto! If we are physical beings, having weight and mass, we are three-dimensional objects in a gravitational field. Each one of us lives in a personal space having an up and a down (*Y*), two sides (*X*), and a front and back (*Z*).

Because of gravity's pull, the body needs to be more or less efficient in balancing its weight, and the best way of analyzing balance is think in terms of planes created by the axes: Sagittal planes, *YZ axes*, running front to back in the body, Coronal planes, *XY axes*, running from side to side.

Furthermore each body *part* has its own three dimensions, its balance, its efficiency. All of this can be understood by looking at planes.

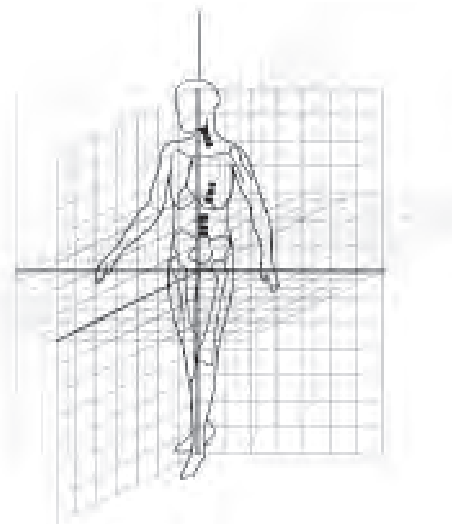
THREE DIMENSIONS



The three dimensions, *X-X'*, *Y-Y'*, and *Z-Z'*.

Any two dimensions define a plane. These planes can be used to analyze any segment of the body.

THREE TYPES OF PLANES



The figure is shown in a space defined by a sagittal plane (*YZ*), a coronal plane (*XY*) and a transverse plane (*XZ*).

Plane Geometry: analyzing structure

Planes enable us to analyze the balances taking place within the body. If we look at someone's back and imagine a sagittal plane running through the midline, we can see clearly where the spine departs from symmetry between the two sides. The bisecting planes help us understand the organization of legs.

In practice we use certain planes particularly often:

1. Sagittal Planes

Sagittal planes are vertical planes running front-to-back. They may be drawn at any point, but in practice we use two major planes.

a. The Central Sagittal Plane

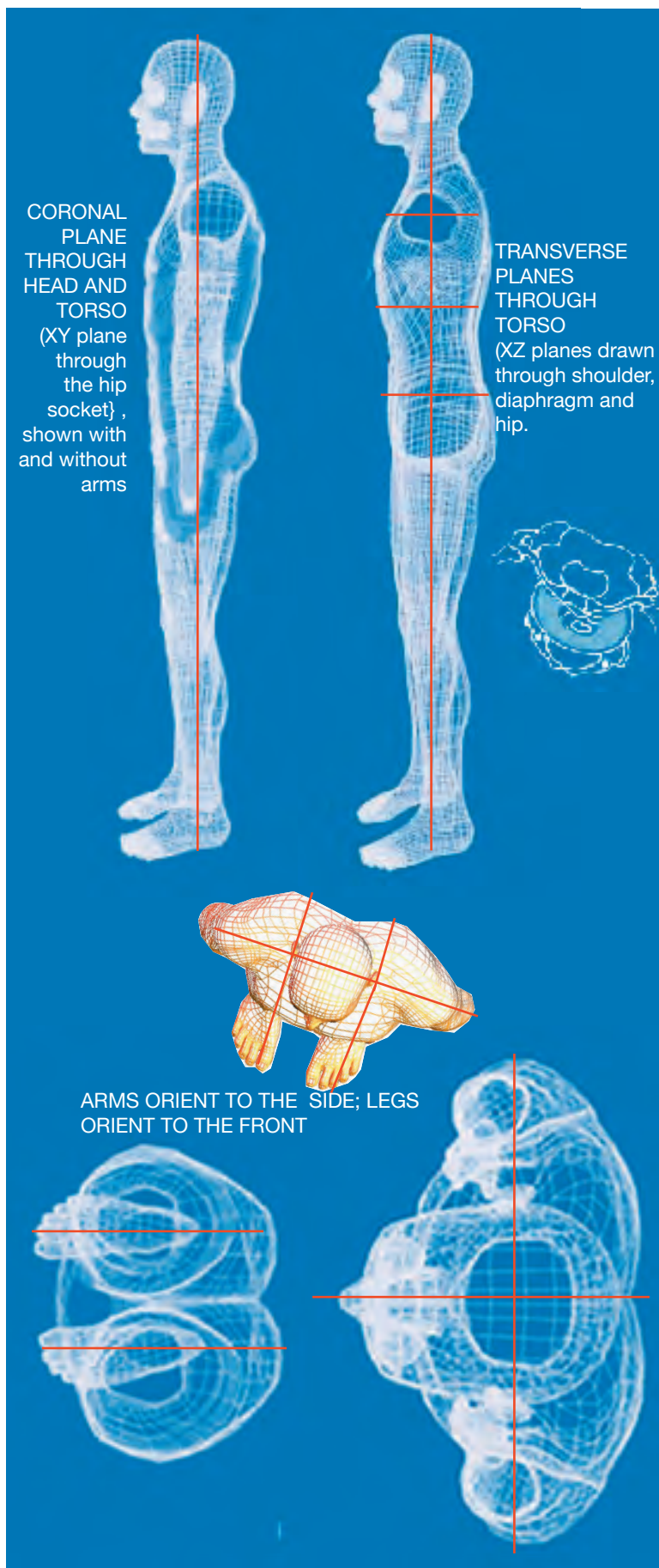
The midline of the body enables us to see the balance between the two lateral sides. **It is the plane of bi-lateral symmetry.**

b. Bisecting Planes of the Legs

These planes of the legs are probably the most useful of all. A secure leg has all of its joints hinging on the same plane. The same plane should bisect the center of the hip socket, knee, ankle, and divide the foot into medial and lateral halves. Where we observe deviations from the plane, we can infer imbalances in the connective tissues around the joints.

We also observe whether the planes of the two legs are used in parallel, for this has ramifications for the pelvis.





2. Coronal Planes

Vertical planes running side-to-side.

a. Side Plane of the Torso.

Defining a coronal plane passing through the hip socket enables us to see clearly the front-to-back balance of the torso.

b. Bisecting Plane of the Arms

It is useful to organize the arms on the side plane, with the elbow hinge moving straight out to the side. This creates an alignment of the shoulder socket, the elbow and the side of the hand. The anterior and posterior structures of the shoulder can come into balance across that plane.

3. Transverse Planes.

Horizontal planes bisecting the body at various levels.

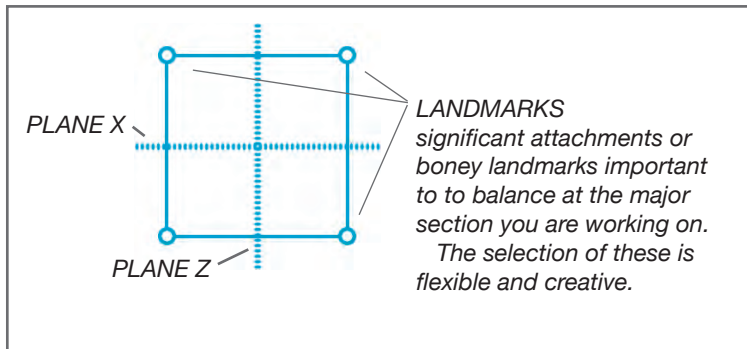
a. Shoulder Ring

b. Diaphragm Ring

c. Pelvic Ring

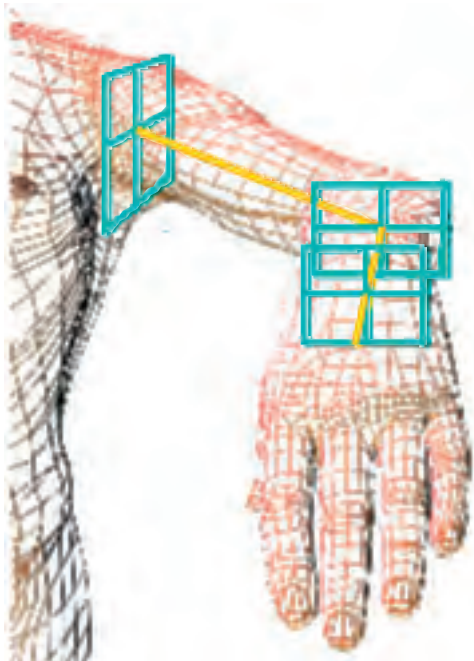
These planes are extremely useful for understanding events within the torso. If we see each of these major areas in cross-section, we can understand imbalances which may be taking place. There are also important relationships between these areas. For example, the relationship between the ring of the pelvis and the ring of the diaphragm determines the strength of the lower and middle spine. The diaphragm serves as the foundation for the shoulders if the relationship between them is well organized.

Transverse Planes: Four-Corner Balance



ANY TRANSVERSE SECTION OF THE BODY CAN BE ORGANIZED USING THIS FOUR-CORNER IMAGE

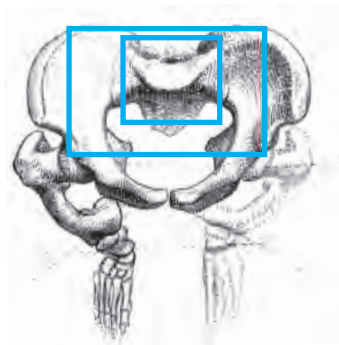
The corners represent four significant points - parts of the skeletal or fascial structure which seem involved in the balance of the transverse section you are addressing. Landmarks balance each other and are more or less on the same plane.



FOUR-CORNER BALANCE THROUGH THREE JOINTS

Here the Four Corner Image is used to find balance through the shoulder, elbow and wrist.

The Four Corner Image could also be applied at any other transverse section of the arm or hand.

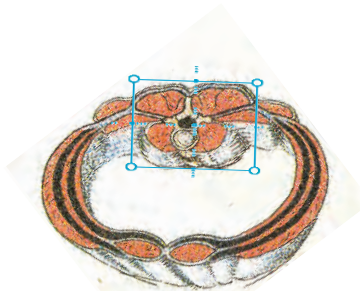
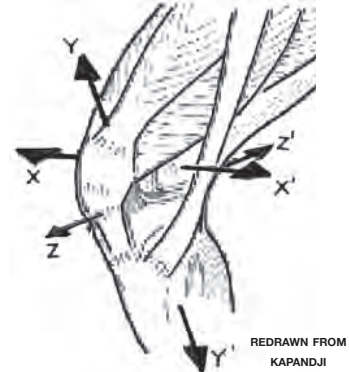


Different Squares may be useful at different times on the same plane.

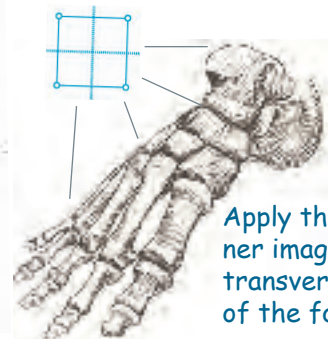
LOOK FOR IT EVERYWHERE. The Four Corner Image helps you to think about balance across the two dimensions (X and Z) of the transverse section.

Don't be too literal about finding the exact corners of the square. Many times there will be several squares, squares within squares, like the sacral table within the pelvic ring.

GEOMETRY OF JOINTS



Abdominal Wall above L3. The Four Corner Image could be applied to the outer wall as well as the structures around the spine.



Apply the four corner image to all the transverse joints of the foot.

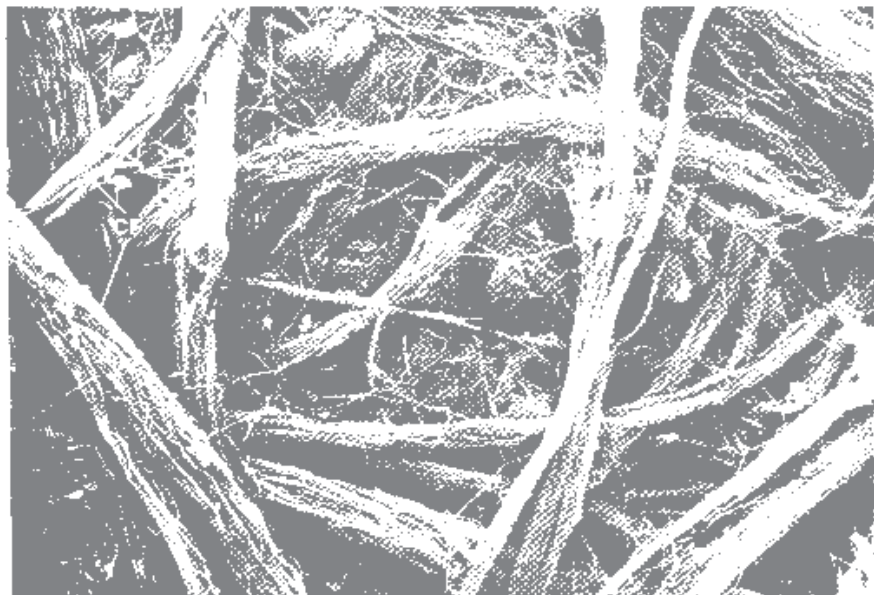
Element Three: FASCIA and BONES

Human structure is a complex interaction between the bones and the fascial structures which hold them in balance. Later this will be seen as a 'tensegrity structure', but first, what is fascia?

"Our goal is to establish a new point of view, a new way for a man to understand himself...The core of this new understanding is a different and more specific appreciation of the role played by the connective tissues, especially the fasciae, as a very significant working system of the physiological man." (Rolf, 1977, p. 37)

Ida Rolf's understanding of the central importance of the fascial system in shaping the body amounts to a Copernican shift in viewing physical structure. Muscles and bones were so much more apparent that the early anatomists tended to dismiss the fascia with a few paragraphs and or speak of it only in reference to muscular structures.

From this new standpoint the connective tissue system can be seen as the *prima materia* of the body. The fasciae from this point of view are the most basic and wholistic system in the body, both connecting and separating all other elements. In the embryo the third layer of cells, the mesoderm, is destined to evolve into the entire system of muscles, connective tissues and bones. This matrix of collagen substance differentiates into white fibrous tissue bundles, called tendons, ligaments, or aponeuroses, where tensile strength is required. The same substance develops into cartilage with the addition of chondroatin sulfate. Bone develops where calcium phosphate and other mineral salts are laid down in the matrix.



A view of fascia through an electron microscope,

Most important for our purposes is the ubiquitous network of fascia which forms casings of colorless, translucent sheets around virtually every functional unit of the body. Each muscle is a complex mixture of muscle fibers and their surrounding sheaths of fascia. Each muscle is enveloped in its own fascial envelope which permits adjacent muscles to slide across one another with movement. At the superficial level, the entire outer form of the body is encased in an especially flexible envelope of fascia, the superficial fascia, just below the skin. This external layer is very important in organizing the body and in maintaining tone. Chronic tension or scarring, which reduces its flexibility at any point, will be reflected in changes all through the structure, much as if a balloon, pinched in one place, reflects the local shortening with strain across its entire surface.

The deeper fascia, "a dense, tough, bluish white fibrous tissue devoid of fat, surrounds each muscle in a fascial sheath continuous with that of neighboring muscles, with the perimysium round individual muscle bundles and with the fine endomysium round individual muscle fibres. The deep fascia, well-marked in the thigh and leg as a tubular investment, affords additional attachment to muscles and passes between muscle groups as definite septa attached to bony ridges and prominences. The fascial beds transmit vessels and nerves and also determine the course of effused fluids which may trek considerable distances from their sources to the regions where they 'point' superficially. It facilitates the gliding of adjacent structures freely upon each other..." (Lockhart, 1971)

Let's step back from this language to generate an image. Picture the deep fascia as a pervasive network of ropes and guy wires and sheets of fabric to which adjacent muscles attach, and which are anchored to the significant protruberances of the skeleton. Through it everything is ultimately attached to everything else. Minor alterations in any portion of the network affect the distribution of tension throughout. Long lines of fascia work together. For example, shortening in a long muscle in the thigh will pull in long lines down the fascial sheets and affect muscular alignment below the knee and into the foot. This network has various layers of depth, rather like an onion. Since the body as a whole must relate effectively to gravity, and since the distribution of tension in the fibers of this network is responsible for shaping the body's way of coping with its universal environment, gravity, the system is holistic indeed.

In addition to this thick, strappy network, there is a finer webbing of clear fascia around every muscle fiber which supports, positions and tones all muscular tissue down to the cellular level. A paper by Oschman² summarizing research on fascia actually extends this network through smaller and smaller fibers down to the individual cells - virtually all cells - across cell membranes to connect with structures within the cells, and on into the cell nuclei. Truly ubiquitous!

And then all of this is wrapped in an external sheath, the superficial fascia, completely enclosing the body beneath the skin layer in an elastic network which supports and tones the structures it surrounds.

The system is inherently unitary, transcending specific areas and binding them into a whole. Jan Sultan discusses this as "fascial continuity:"

"Our understanding is greatly enhanced by the recognition of fascial continuity. The connective tissues, collectively, are the medium of transmission of kinetic energy across segments; they are a system unto themselves that also have the roles of maintaining position and structural relationships, and that the visceral organs, contractile elements of the locomotor system, bones and neural tissues are all packed in, and invested by, various kinds of connective tissues. Taken as a whole system, the connective tissues resemble nothing so much as a 3-D body stocking or union suit with a "place" for everything in it.

"The fascial continuity implies that there are no truly local effects or events in the system. When this idea of continuity is coupled with a working knowledge of musculo-fascial anatomy it gives the practitioner an eye for the interrelatedness of the elements in the system. (1989)

The entire system is also serving as a pump, distributing the fluids which bathe individual cells, and intimately involved in water metabolism. To organize the fascial system is thereby to alter the flow of fluids and therefore the delivery of nutrients to cells throughout the body.

The deep fascia can thicken and lose flexibility in response to chronic tension in muscles. Where this tension is caused by unbalanced use of the skeletal system, the thickening in the fascial system will harden to support the customary movement much like a splint is wrapped around a weakened limb. Since the system is holistic, and since a host of minor injuries may unbal-

ance the skeletal system, this progressive distortion is the ongoing adaptation to multiple causes. Scar tissue tends to be shorter and less flexible than the original fascia, so surgery or other traumata also alter the balance of the network. Fevers, chemicals and hormones can alter the collagen substance, causing muscles to be come glued together and unable to slide across each other in order to work independently.

Ida Rolf's solution to disorganization of the fascial system was to "hold structures where they are supposed to be and induce movement." By putting the body through appropriate movement, the system can be brought to proper organization, layer by layer, as structures closer and closer to the skeleton are influenced. The external sheath, the superficial fascia, can be organized first, and then deeper and deeper fascial sheets become available for organization.

I must confess that, as a fledgling practitioner, I did not entirely believe I was working on fascia. It seemed sufficient to imagine bones and muscles. What changed my mind was the observation that, when change occurred, I could feel a slow wave of letting go where I applied pressure. This did not feel like the sudden relaxation of a muscle. Rather, it was as if a semi-elastic sheet became fluid for a brief moment. To the client, these moments of fluidity often feel as if sensation were being referred through internal corridors of the body. Clearly something deep is shifting and more than muscle is involved.

Actually Ida Rolf did not base her theory of change on fascia alone: she referred to the "ground substance" in which the fascial fibers are embedded. This medium can be either fluid or solid, like gelatin. Mechanical pressure adds energy which causes the ground substance to become fluid. This is consistent with what is known about colloidal substances in physics. It is this change in the ground substance which we feel as release in the fascial network. This additional element was necessary to account for the fact that the changes she observed in her work were more rapid than the fascial fibers were actually capable of.

More recent publications (Schleip, 2003) have focused on the relationship between the nervous system and the fasciae, specifically the dense innervation of the connective tissues by mechano-receptors such as golgi, ruffini, paciniform, and interstitial receptors. The rapid changes in the viscosity of the fasciae with manual pressure, which the bodyworker clearly feels

even as a novice, have been experimentally shown to be too swift to be accounted for by a change in the ground substance alone. This newest research points the way to a truly wholistic and demonstrable physiological interpretation of Ida's original work.

The intimate relationship between fascia, nerves, and water metabolism gives obvious importance to the relation of fascia to ground substance, and the nervous system communication between them. All our experience with the movement of the body in our work with connective tissue supports the idea of this interaction. There is evidence that fascial fibers vary considerably in their characteristics according to how wet the surrounding substance is. Oschman also adds that the fascial fibers are essentially crystalline in structure. Crystals generate electrical impulses when subjected to pressure, a process known as piezoelectrical activity. This could perhaps be the basis for the experience of "energy flow" by clients undergoing bodywork.

Lockhart, H.D., Hamilton, G.F., and Fyfe, F. W. *Anatomy of the Human Body*. Philadelphia: J. B. Lippencott Company, 1971, p. 152.

Oschman, James L. "The Connective Tissue and Myofascial Systems." Unpub. manuscript, the Aspen Research Institute, 1430 LeRoy Avenue, Berkeley, CA 94708, 1981.

Rolf, Ida P. "Rolfing." Dennis-Landman, Santa Monica, 1977.

Schleip, Robert, "Fascial Plasticity." *Journal of Bodywork and Movement Therapies*, January, 2003.

Sultan, Jan. "In and around the Pelvis." *Massage Therapy Journal*, Spring, 1988.

The Tensegrity of Fascia and Bones

Buckminster Fuller's concept of 'Tensegrity' is useful for understanding the action of fascia and bones together.

Spacers and Stabilizers

A tensegrity structure maintains its shape by a relationship between compressional elements which give space (such as bones) and tensional elements which stabilize (such as fascia). Together they insure that each element is held in stable relationship with every other element.

Fuller's more comprehensive definition is on the far right of the next page.

Tensegrity



A Tensegrity model built of sticks and rubber bands. The rubber bands are all in tension and paradoxically have the dual roles of holding the sticks apart, and the structure together, in a flexible and stable equilibrium.



BONES
(compressional members)

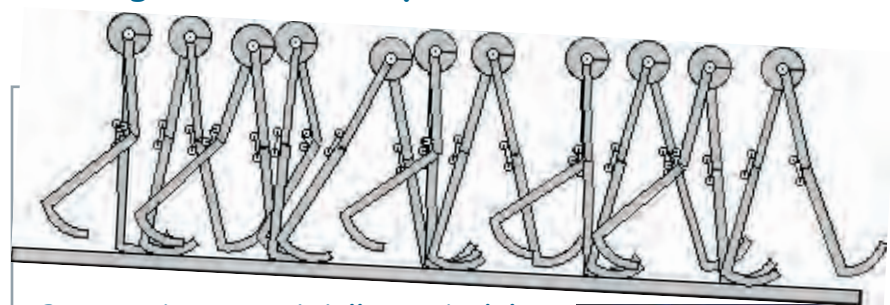
FASCIAL SYSTEM
(tensional members)

A Spring-loaded Anti-Gravity Device

The skeleton (the spacer) is elegantly designed for expansional balance. Many bony landmarks permit leveraged action which gives length. The fascial system brings expansional balance of the entire body by balanced tension across these bony landmarks.

The Walking Model (right) suggests that the skeleton permits walking by its very design, even without muscular effort.

Walking is in the Shape of the Bones



Passive Dynamic Walking Models

Researchers at Cornell University have constructed models which 'walk' down an inclined plane without muscular effort. They have knees, soft heels, and even counterbalancing arms (right). Everything depends upon relationship and balanced weight.

Can we conjecture that the human frame, with similar relationships, is designed for standing and walking with minimum effort?



What about Muscles?

The entire myofascial system serves as the tensional member of the body's tensegrity. Muscle tissue is only a part of what we might call 'myofascial straps'. Muscle cells are invested in them to provide variable length.

Straps which provide stabilization and support, such as the fascia lata, consist mainly of thick fascial sheets with relatively little range of contraction. On the other hand, straps designed to provide extrinsic movement, such as biceps, have more muscle tissue and greater range.

Structure itself comes not so much from muscles as from the overall balance of the fascial webwork across the bones they stabilize.

People get too caught up in muscles. Bodybuilders isolate muscles to contour their forms. Bodyworkers, who have learned all about the origins and insertions of muscles, need to be retrained to look deeper, into bones and skeletal mechanics.

In structural work we need to "Think Bones." When someone is too focused on myofascial anatomy, I always suspect they don't really understand movement.

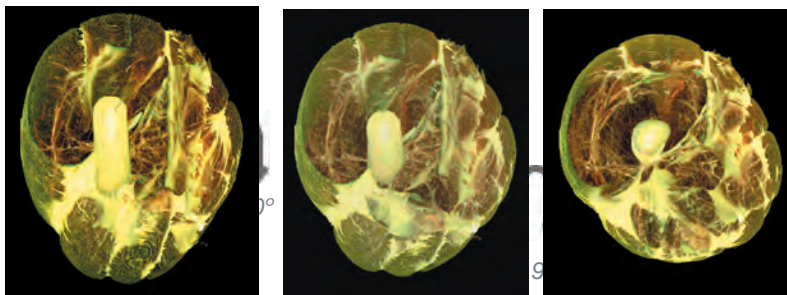
How muscles expand is just as important as how they contract. Contraction is more consciously controlled whereas expansion must be "allowed" rather than "done." Balanced movement requires that "when flexors flex, extensors extend." Regaining this extension is essential.

Looking Down into a Transparent Thigh

From pictures of slices of thigh (Visible Human Project) With the muscles 'removed' the web work of fascia and bone is revealed. Sheets of fascia divide the thigh into compartments and form a tensional web work between bony landmarks.

From Jeff Linn, using the Visible Human Project data. Colors altered to assist three dimensional interpretation of image.

Lateral Side, mid-thigh



Hundreds of slices of the Visible Human's thigh. (Muscles erased)

BUCKMINSTER FULLER DEFINES 'TENSEGRITY'

700.011 The word tensegrity is an invention: it is a contraction of tensional integrity. Tensegrity describes a structural-relationship principle in which structural shape is guaranteed by the finitely closed, comprehensively continuous, tensional behaviors of the system and not by the discontinuous and exclusively local compressional member behaviors. Tensegrity provides the ability to yield increasingly without ultimately breaking or coming asunder.

700.02 The integrity of the whole structure is invested in the finitely closed, tensional-embrace network, and the compressions are local islands. Elongated compression tends to deflect and fail. Compressions are disintegrable because they are not atomically solid and can permit energy penetration between their invisibly amassed separate energy entities. As a compression member tends to buckle, the buckling point becomes a leverage fulcrum and the remainder of the compression member above acts as a lever arm, so that it becomes increasingly effective in accelerating the failure by crushing of its first buckled-in side. The leverage-accelerated penetration brings about precessional dispersal at 90 degrees.

700.03 Tension structures arranged by man depend upon his purest initial volition of interpretation of pure principle. Tension is omnidirectionally coherent. Tensegrity is an inherently nonredundant confluence of optimum structural-effort effectiveness factors.

700.04 All structures, properly understood, from the solar system to the atom, are tensegrity structures. Universe is omnitensional integrity.

SYNERGETICS :
Explorations in the Geometry of Thinking

Segments

The body is not simply a fluid wave of expansion; the expansion occurs across segments. Why is this important? Because it is what enables expansion in the first place

ARMS, LEGS, AND THE COUNTERBALANCING CORE.

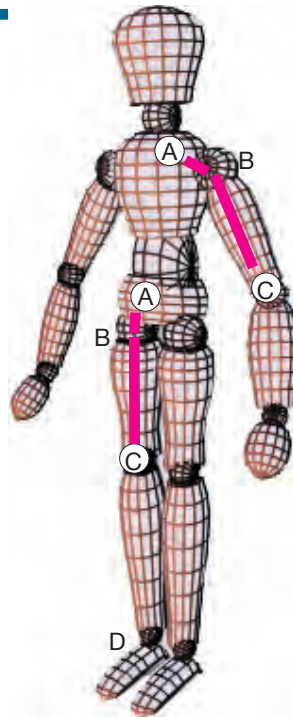
The expansion of the arm begins with the elbow (C) moving away from some part of the core (A) through the shoulder girdle (B). The upper arm and the core hinge apart at the shoulder; they counterbalance each other. Because of segmentation, the hinge is stable.

Then, as the expansion continues, the wrist (D) hinges away from the shoulder joint (B) across the elbow (C), and so on, in alternating sequences, out through the fingertips.

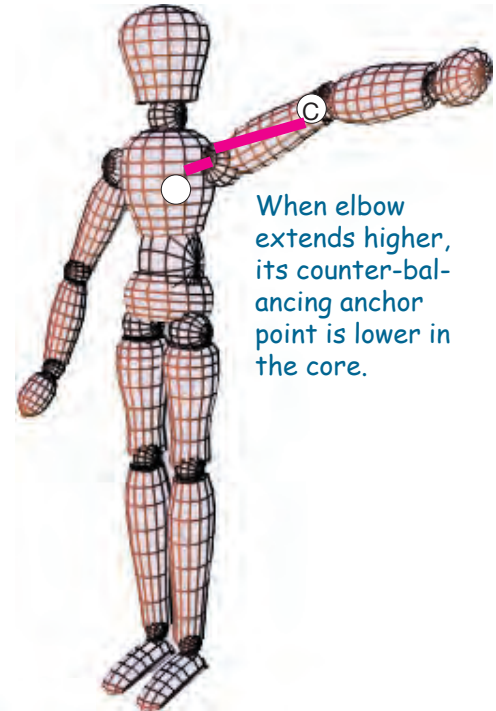
The legs are the same, knee (C) expanding from sacrum (A) through hip (B), ankle (D) from hip (B) across knee (C), and so on through the various hinges of the foot.

BINDING

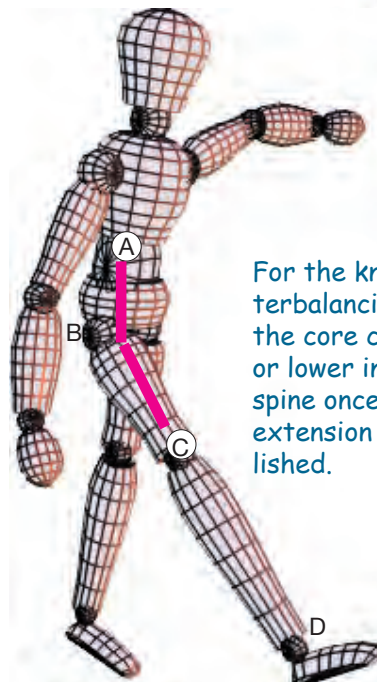
'Contractile Balance' can be understood as **binding across the joints** which interferes with the freedom of their hinges.



The first extension is from the elbows and knees from the spine. (A-C) Secondly, the wrists extend from the shoulders across the elbow, and the ankles the same from hips across knees. (B-D)



When elbow extends higher, its counterbalancing anchor point is lower in the core.



For the knee, the counterbalancing point in the core can be higher or lower in the lumbar spine once the pelvic extension is established.

Segments of the Core

The core is also segmented; pelvis, lumbar, thorax, neck and head are the major segments, but the lumbar has its mini-segments, and so do the thorax and neck.

Segmentation of the core makes it possible for many different points in the torso and neck to become involved in the counter-balancing process.

SEGMENTS OF THE CORE.

Top, middle, and bottom of the neck

Top, middle and bottom of the lumbar



SEGMENTS IN THE THORAX

The different ways in which ribs attach to the sternum offers one kind of segmentation.

Rib I attaches to the manubrium

Ribs II-VII attach to the sternum

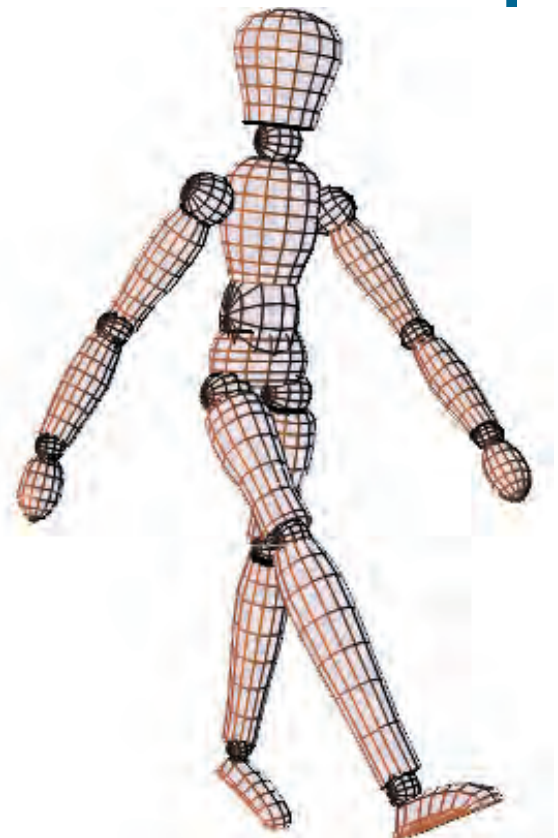
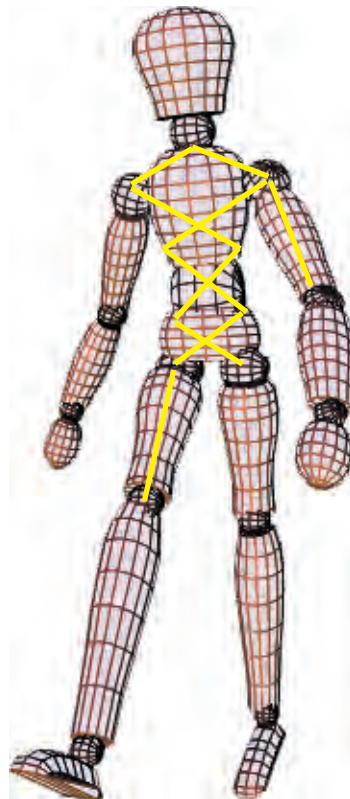
Ribs VIII-X attach to the sternum via cartilage

Ribs XI and XII are 'floating ribs'



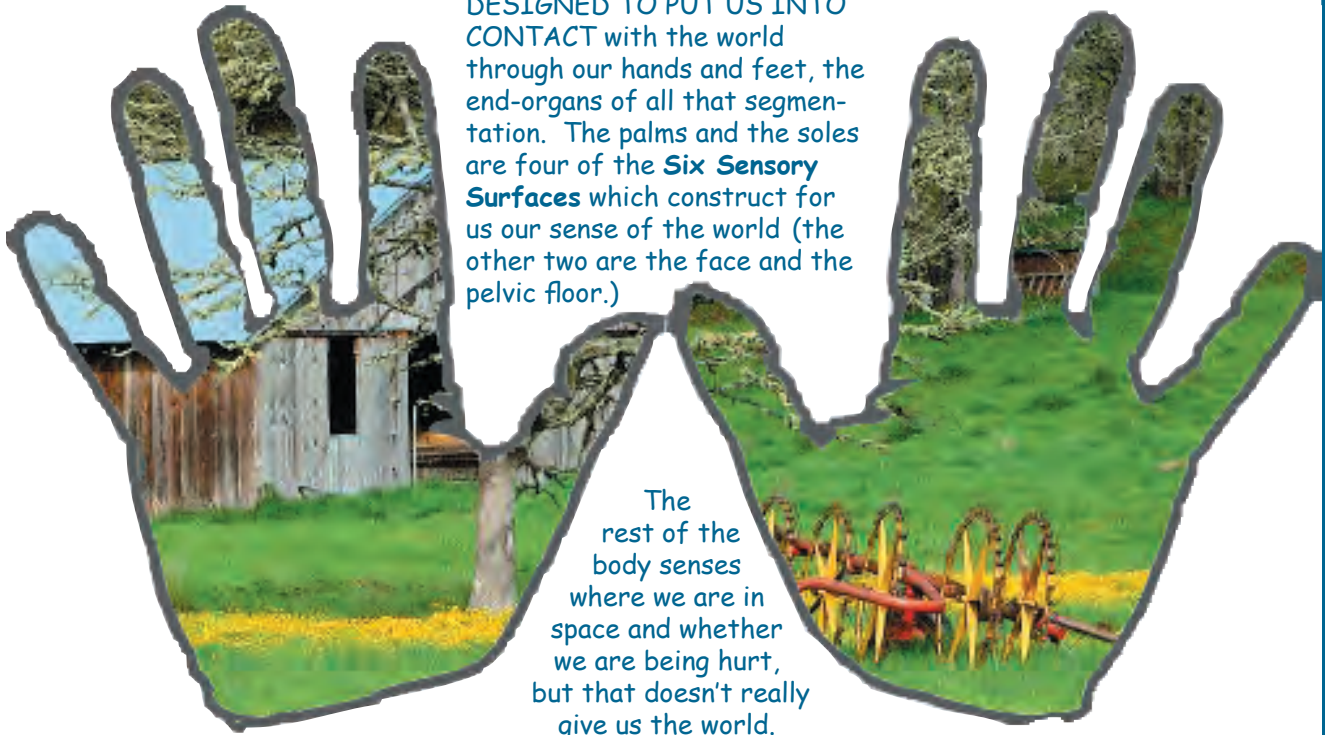
THE DORSAL HINGE

The Main Hinge of the thorax is in the middle, at T6/7.



The Final Segments: HANDS & FEET

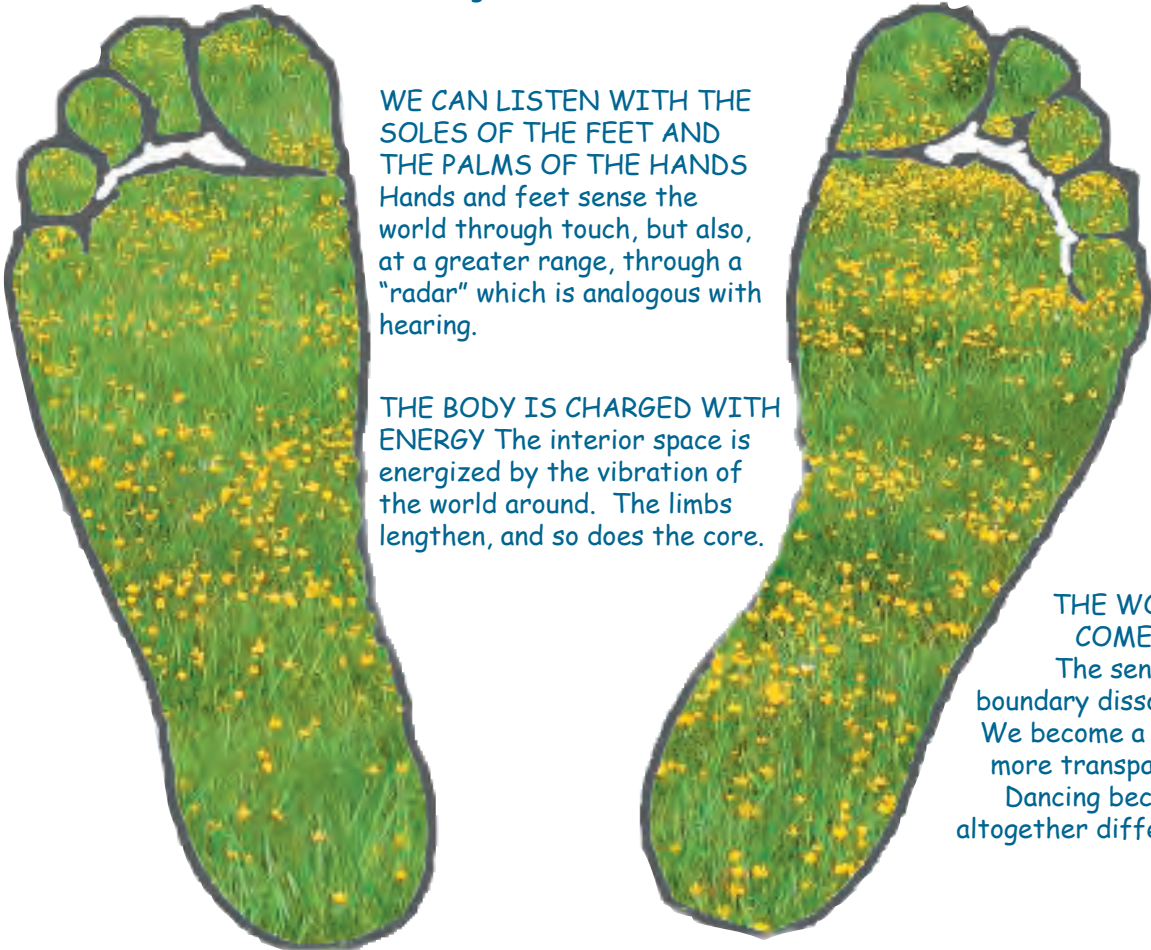
THE ARMS AND LEGS ARE DESIGNED TO PUT US INTO CONTACT with the world through our hands and feet, the end-organs of all that segmentation. The palms and the soles are four of the **Six Sensory Surfaces** which construct for us our sense of the world (the other two are the face and the pelvic floor.)



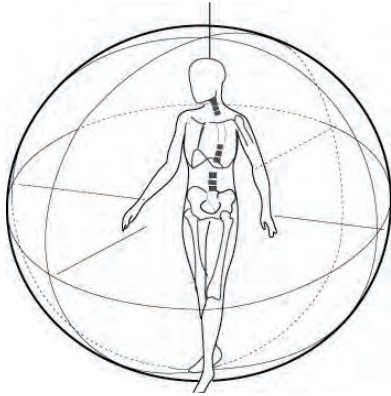
The rest of the body senses where we are in space and whether we are being hurt, but that doesn't really give us the world.

WE CAN LISTEN WITH THE SOLES OF THE FEET AND THE PALMS OF THE HANDS Hands and feet sense the world through touch, but also, at a greater range, through a "radar" which is analogous with hearing.

THE BODY IS CHARGED WITH ENERGY The interior space is energized by the vibration of the world around. The limbs lengthen, and so does the core.



THE WORLD COMES IN
The sense of boundary dissolves.
We become a little more transparent.
Dancing becomes altogether different



Michael Nebadon's concepts of Expansional Balance and Polarity give emphasis to the dynamic aspects of Dr. Rolf's vision.

Dr. Rolf's concepts of Core and Sleeve give anatomical specificity to Expansional Balance.

Together they help to define the goals of Structural Integration.

Element Four: MOVEMENT

Expansional Balance and the Concept of Dynamic Polarity

A dancer, Michael Nebadon, formulated some concepts of movement which, for me, have made structural integration a great deal clearer. His idea of expansional balance was already implicit in Dr. Rolf's concepts of core and sleeve, I think, but she did not fully communicate the dynamic aspect of her vision. Often her students attempted merely to establish "The Line" from a very static perspective.

In the mid-seventies I attended a series of dance classes with Michael in which he demonstrated the principles of expansional balance in movement. I felt I finally understood what Dr. Rolf had been talking about. Here was an overall concept of structural integration of the body in gravity which could guide and inform every step of the work.

Later Nebadon published a critique of the Rolf perspective (Journal of Structural Integration, 1982) in which he pointed out from before- and after-pictures of a client who had undergone the ten session series, that the result was a *compression* rather than an expansion. The client's integration lacked "Expansional Balance."

Expansional Balance

"EXPANSIONAL BALANCE is the free extension of the skeletal frame to all directions in space. A human being is in this state when the force which he creates to lift himself in the field of gravity is equally distributed through the whole of the body, producing one equal tensional field of force. This one equal tensional field expands the body omnidirectionally in space and is the result of the balanced polarization of two forces, one vertical and the other horizontal." Nebadon, 1975.

Nebadon's way of finding expansional balance was through extremely meticulous attention to the inner feeling of movement at each joint. He found that when a joint, the elbow for example, is held within a certain range of movement, it is possible to find an inner expansion— "like fluid through the center of a tube." When the elbow is hyper extended, however, that inner feeling is lost, and one is more aware of the sides of the "tube." This internal sense of expansion, involving all the joints of the body, he called "The Form."

"The way in which a human being embodies balance is to begin to understand the relationship of the whole body moving three-dimensionally. This means perceiving the centering of all the joints of the skeleton in every moment of movement. Moving in balance is the act of moving with no resistance within oneself. . . . [Any resistance emerging in consciousness will be released into a closer balance of the whole." (1982)

He also makes clear that this has the most profound psychological and spiritual implications:

"Balanced movement is the only experiential physical reality that will allow each human being to understand how, through the perfection of mechanics, one can unify one's thoughts, feelings and actions into the fullest expression of the Self. The Form is the eternal moment

of transformation that merges the Self with the continual movement of life. The Form is the art of presence, the art of becoming the absolute intelligence that revolves the human being to the fulfillment of his divine destiny. His destiny is to become like God, and in his transparency, merge once again with the Creator.” (1982)

These are amazing words. To move without resistance in an expanded form is to transcend internal division, become transparent, and merge with the spontaneously unfolding movement of one’s destiny!

Michael has pursued The Form in movement to such a degree that he has explored beyond where most people are afraid to go. He has said that there is a point at which one releases tensions which are the accustomed shape of the ego, and this involves fear, or even terror. I think his experience is a difference in degree, not in kind from Structural Integration. Each step in Structural Integration is a move toward opening that has this possibility at its furthest extreme.

“The Line” becomes a Polarity

The body, according to Nebadon, expands omnidirectionally due to the balanced tension between two polarities, one vertical, the other horizontal. Dr. Rolf’s concept of “The Line” has thus become decidedly dynamic. No longer a plumb-line, it has become “The Vertical Polarity.” As I see it, this is not radically different from Dr. Rolf’s original conception. Jeff Maitland, of the Rolf Institute, attempted to capture this aspect of her model with the word “palintonic,” which means essentially the same as polarity. The Line is a mutually expanding polarity from heel to crown, provided it is unbroken.

Expansional Balance as the Goal of Structural Integration

The average person lives with a contracted balance in which the anti-gravity expansion is reduced or impaired. There are various degrees of being ‘muscle-bound’ so that the outer layer interferes with expansion.

Mostly, people simply don’t know how to find core expansion. There is a lot of confusion about posture, about strength, and about the interior feeling of the body. Structural Integration is an efficient system for teaching the dynamic polarities of expansional balance.

Dynamic Polarity

NEBADON: "A human being is in this state [of Expansional Balance] when the force which he creates to lift himself in the field of gravity is equally distributed through the whole of the body, producing one equal tensional field of force. . . .the result of the balanced polarization of two forces, one vertical and the other horizontal."

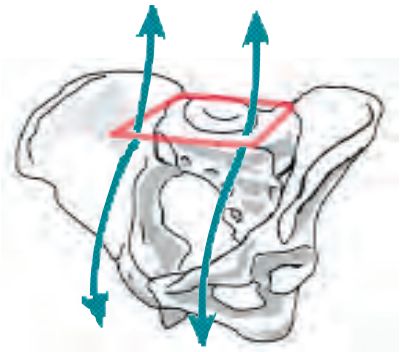
VERTICAL POLARITY

When we lift ourselves in gravity the force can be equally distributed in all directions.... under the right circumstances.

Vertical Polarity and "The Line" are closely related concepts. "Polarity" implies a more dynamic system, while "line" can suggest segments which are stacked vertically in gravity.

Pelvic Extension creates Vertical Polarity

That's the lift - the lift of the anterior spine created when the waistline is brought back - which turns the downward thrust of the feet into the upward thrust of the spine.



Polarity starts with the lift of the spine in the pelvic extension.

Vertical Polarity

Horizontal Polarity

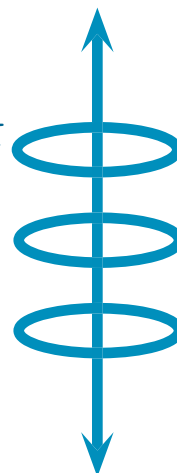


Vertical Polarity must pass through three "rings"

The head can expand upward because the feet are expanding downward.

But first the torso must be balanced around the "Line" of that polarity passing up through the center of the body. The polarity must pass through THREE RINGS OF THE TORSO.

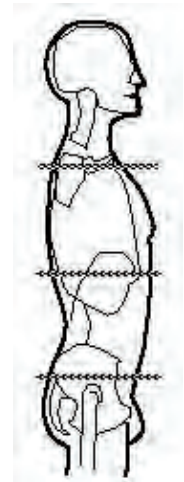
These three transverse sections are particularly important for balancing the torso around the Line.



SHOULDER RING:

DIAPHRAGM RING:

PELVIC RING:

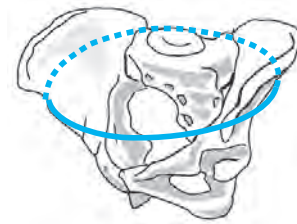


Dynamic Polarity, continued

EACH RING MUST FIND A BALANCE

PELVIC RING

With pelvic extension, the pelvic ring becomes horizontal, with perineum in the center of the balance.



PELVIS, WITH RING

DIAPHRAGM RING

As the vertical polarity is brought upward the lumbar torso is balanced across the two planes and the Diaphragm ring comes into a parallel relationship with the pelvic ring.

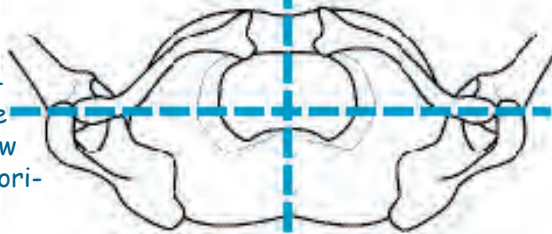


Diaphragm

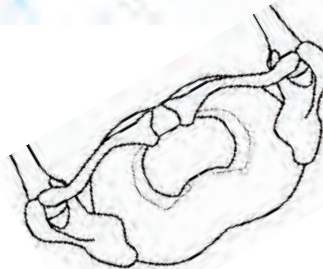
REDRAWN FROM
KAPANDJI

SHOULDER RING

The stabilized diaphragm becomes the foundation for the shoulder girdle, which can now find balance (releasing the Horizontal Polarity).



x

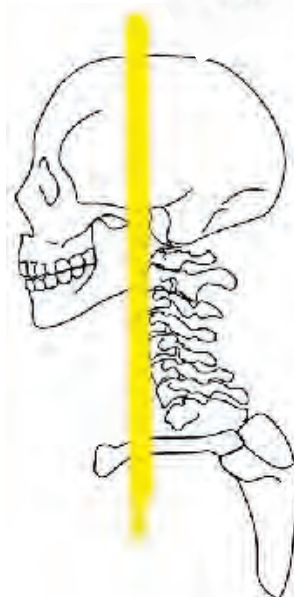


Shoulders forward and back of the side plane, displacing the central line.

THE UPPER POLE

The head coming up should be no more effort than finding a balance.

If the head can find a balance on the Atlas, the hinge which allows the head to nod, then the neck can release to a balance between front and back all the way down into the upper chest.



"Neck free to let the head come forward and up" (Alexander Technique)

As the Shoulder Ring balances in 3 dimensions....



HORIZONTAL POLARITY

The shoulders and arms must expand horizontally for the shoulder ring to balance and permit the extension of the upper pole.

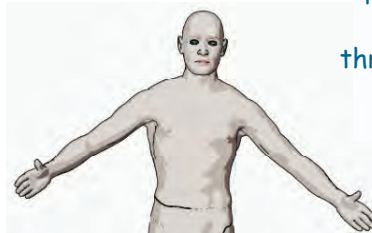
The elbows extend from the spine through the shoulder sockets, not from them.

ARMS - extremely light, because they are extending out rather than being lifted up.

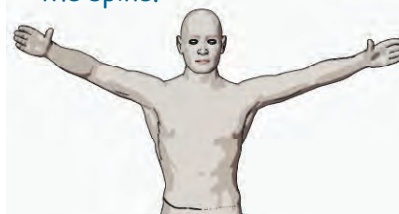
SHOULDER RING - has diaphragm ring as foundation.

PELVIC RING - grounded through Pelvic Extension.

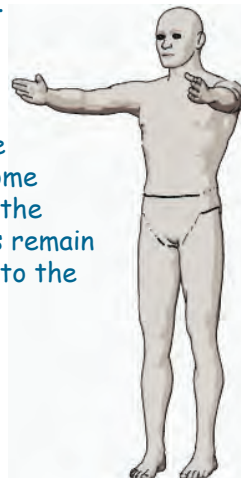
DIAPHRAGM RING - stabilized by Pelvic Ring (lumbar balance).



When the elbow is low, the extension will be felt from higher in the spine.

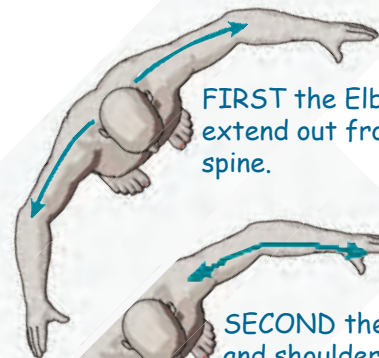


When the elbow is high, the extension will be felt from lower in the spine.

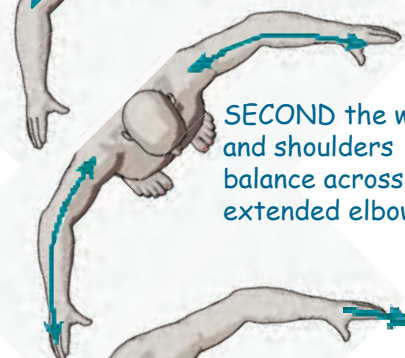


When the elbows come forward, the shoulders remain balanced to the side.

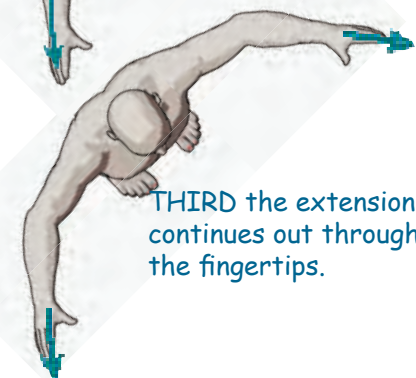
THREE STEPS OF ARM EXTENSION



FIRST the Elbows extend out from the spine.



SECOND the wrists and shoulders balance across the extended elbows.



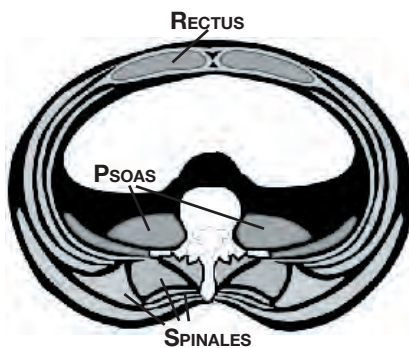
THIRD the extension continues out through the fingertips.

Dynamic Polarity, continued

GIRDLES

"floating intermediaries"
between limb and core -

Every expansional movement of the limbs is counterbalanced by a point within the core from which the movement expands.



LUMBAR BALANCE AT L3
Three Layers
Anterior Abdomen
Anterior Spine
Posterior Spine

THE COUNTER-BALANCING CORE

Every expansional movement of the limbs is counterbalanced by a point within the core from which the movement expands.

One of the advantages bestowed by the system of girdles is an extra set of hinges between the arm or leg going out and the core from which it comes. In expansional movement, core is not static, but balances limb movement with stabilizing counter-action.

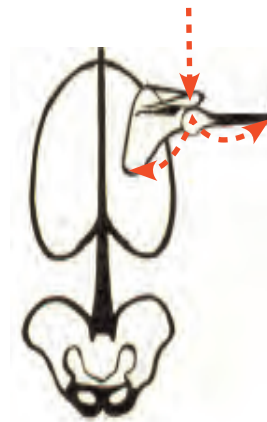
For example, the arm goes out from the core through the shoulder girdle. It goes out from the chest first of all, and then (in a complex series of unfolding hinges) from the remainder of the torso counterbalancing the chest. The counterbalancing is done from shifting points within the torso.

Or the leg goes out from the lumbar spine through the pelvic girdle. The Lumbar spine, stabilized by abdominal muscles, hangs back across the pelvic hinges. The rest of the torso counterbalances that movement.

Strength is important. The torso can be strengthened for highly differentiated movement (flexibility) if the lumbar balance is maintained. The muscles can be strengthened in relation to the whole system.

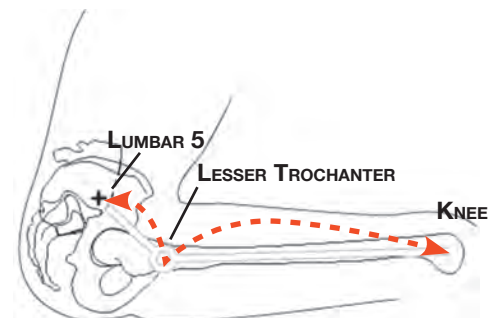
SCAPULAR EXTENSION

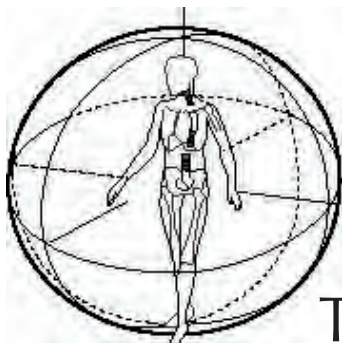
The inferior angle of scapula goes down, the humerus rotates, and the elbow extends out.



PELVIC EXTENSION

The knee goes out, the fifth lumbar goes back; the hinge-point is the lesser trochanter. This can be practiced sitting, standing, and lying down.





THE FOUR PARTS OF EXPANSIONAL BALANCE

Can Dr. Rolf's 'core expansion in gravity' be broken down into manageable chunks? Can the 'omni-directional expansion' described by Michael Nebadon be approached in simple steps? In other words, 'Where do we start?'

We started with movement – all kinds of exercise, dance, t'ai chi, and fitness routines. The model of core expansion guided the exploration, and 'structural integration' was always the goal.

What emerged was a simple set of 'directions' for finding integrated balance. They can be used in any activity. They are the 'Four Parts of Expansional Balance.'

1. *'Find the Pelvic Extension'*
2. *'Relate it to the Lumbar Spine'*
3. *'Find the Horizontal Polarity'*
4. *'Find the Upper Pole'*

Both in bodywork and in movement practices of all kinds the 'four parts' can be used to find structural integration via expansional balance. What could be more simple, in concept, than relating the body to the six directions - down, front-back, side-side, and up?

In the pages that follow we have attempted to break each of the 'four parts' into its skeletal anatomy and movement physiology, with suggested movement experiments.

Expansional Balance is a major change for most people, but it is consistent with good dance theory, with efficient athletic performance, and with advanced exercise physiology. If we have learned it in our own bodies, we have something to teach.

Our bodywork can communicate a different relation to gravity, whether we are simply helping them with a specific problem, or going for more complete structural integration.

Four Parts of Expansional Balance

1 FIND THE PELVIC EXTENSION



Waistline BACK,
Tail UNDER
Legs DOWN:
the pelvic extension
positions the pelvis
between the feet and
the torso.

2 RELATE IT TO THE LUMBAR BALANCE



Bring the ANTERIOR
SPINE into relation with
the downward thrust of
the legs. DOWN is trans-
lated into UP.

The Four Parts of Expansional Balance are 'directives', things to keep in mind in movement and exercise, in body mechanics, and in doing structural bodywork with clients. Together, they relate the body in all six directions, beginning with "Down".

Overall, they must be developed from the ground up. The pelvic extension is fundamental to the lumbar balance, which establishes the diaphragm as the foundation for the arms. The upper pole, the head and neck cannot be free without the horizontal polarity. The Four Parts are not a fixed sequence, though. In practice they are pursued together in a cycling order.

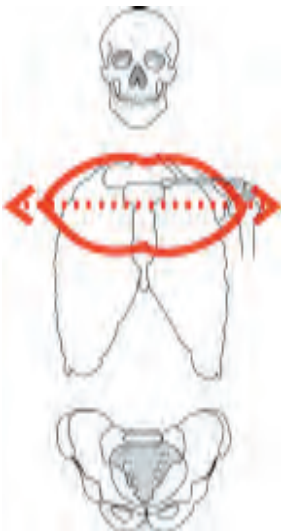
IN MOVEMENT AND EXERCISE

Keep these four steps in mind while you are exercising, and your workout will result in expansional balance. In a fitness club, a consideration of the four steps will have you using exercise machines in completely new ways - often very different from how the trainers say to use them. In running, bicycling, and walking, look for the pelvic extension and relate it to the lumbar spine. Find the four steps when you are walking. Any exercise carried out with expansional balance will enhance the order of the body, and any exercise without it will obscure that inherent order.

IN STRUCTURAL BODYWORK

Every session, every procedure, every contact - everything we do in structural bodywork is pursuing one of the four steps. The steps help to make movement sense out of any hands on intervention. In the rest of this book, every hands-on procedure will have its reference to one or more of the 'Four Parts.'

3 FIND THE HORIZONTAL POLARITY



OPEN the shoulders and arms out to the side

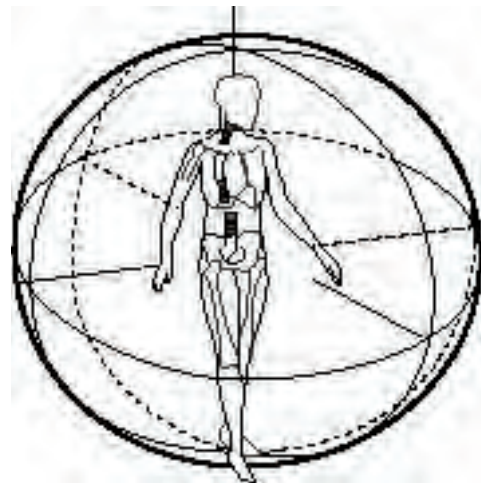
4 FIND THE UPPER POLE



BALANCE the cranium on the atlas and let the head come up.

IN BODY MECHANICS

In doing bodywork, how you use your body is as important as what you are doing with your client. Keeping the four steps in mind will help you find ways of organizing your body position so that you do not strain and disorganize yourself while doing the work. Only by careful attention to body mechanics can the bodyworker keep from being torn down by doing sessions. Otherwise the result is injury and burnout.



Expansional Balance



PART I. FIND THE PELVIC EXTENSION

The Pelvis is a kind of universal joint connecting the spine with the femurs. It is the first joint of the leg. When it is aligned in a proper balance, the downward thrust of the feet against the earth is transmitted upward past the *sacral table* (see illustration), permitting a polar separation between the downward expansion of the legs and the upper expansion of the torso and head. "What goes down can come up."

Pelvic Extension refers to the free extension of the legs from the spine *through* the pelvic girdle. Finding the alignment of the pelvis which permits this extension is required if there is to be a vertical polarity.

We are not looking for a fixed position in which to hold the body. Pelvic extension is a floating balance which permits stable relationship between up and down, front and back.

The most crucial balance is anterior/posterior. Frequently the pelvis is tipped forward (lumbar lordosis) with the pelvic flexors shortened and the lumbar spine pulled forward. To make the connection down into the legs, the pelvis must be rolled back at the waistline (sacral table), turning the tailbone under, and releasing the legs to extend downward. This places the center of the pelvic floor, which was previously pulled backward, directly in line with the ground.

A different use of many muscles on all sides of the pelvis is required. Many of Dr. Rolf's Ten Sessions are devoted to producing this result by approaching first one and then another aspect of the pelvis.

The Line and the Horizontal Pelvis

In Dr. Rolf's language the center line of gravity ("The Line") needs to pass through the center of the pelvic floor and remain forward of the spine from bottom to top. She spoke of "horizontalizing the pelvis." This means that the pelvis, floating among its attachments on all sides, should be approximately horizontal around the belt line.

Today there is some question whether the horizontal pelvis is optimal for all bodies. Some seem to require a greater slope of the sacral table for the fifth lumbar vertebra to balance securely upon it. It seems to me that the concept of pelvic extension answers this objection by focussing on the *relationship* between spine and leg rather than the *position* of the pelvis in between.

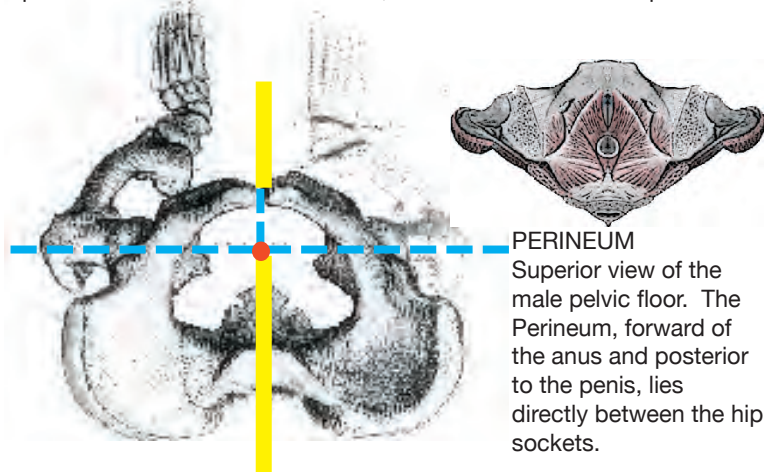
BACK, UNDER, DOWN

For most people Pelvic Extension means coming BACK with the waistline (5th lumbar vertebra) UNDER with the tailbone, and DOWN with the knees.-



THE LINE

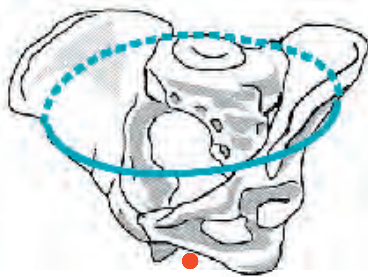
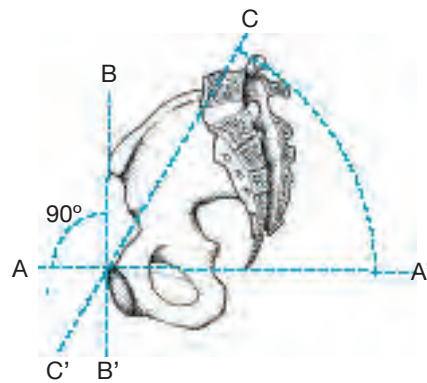
passes through the perineum and, because of the offset between the hip sockets and the anterior sacrum, remains forward of the spine.



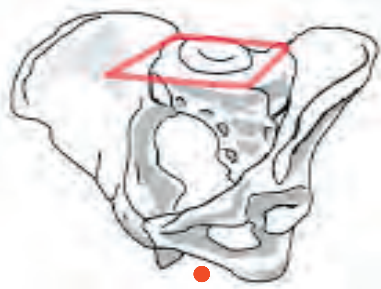
PERINEUM

Superior view of the male pelvic floor. The Perineum, forward of the anus and posterior to the penis, lies directly between the hip sockets.

THE HORIZONTAL PELVIS
(midsagittal section) The tip of the coccyx remains approximately horizontal with the top of the pubic bone. (A-A' The pubic symphysis is directly below the leading edge of the ASIS (B-B') and line C-C' is at a 60° angle with A-A'.

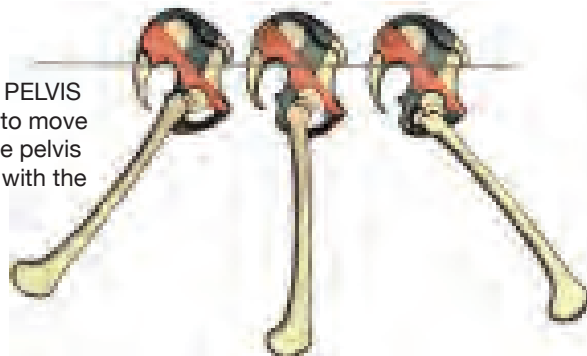


HORIZONTAL PELVIC RING
The "belt line" remains parallel to the ground when standing in pelvic extension.



THE SACRAL TABLE
The two attachments of Psoas at L5 (anterior) and the two posterior corners of the sacrum form a table. When this is approximately horizontal, the perineum ● is centered below, and the pelvis is stabilized.

THE STABILIZED PELVIS
The legs are free to move without pulling the pelvis out of its relation with the lumbar spine.



The Sacral Table

Useful for understanding pelvic balance within the pelvic bowl is the concept of the "sacral table," a rectangle formed by the two sides of the top of the sacrum posteriorly, and the two attachments of psoas on L5 in the front. This "table" is more or less horizontal in pelvic extension, which brings the spine back behind the line, and places the perineum in the center of the line down below.

The Stabilized Pelvis

Another related concept is that of the "Stabilized Pelvis" in which the pelvis remains balanced and the legs can move freely without pulling the pelvis out of its functional alignment. This is a great concept if you can already feel it in your body. Otherwise it can be interpreted rigidly. *Something* needs to be stabilized, and better the pelvis (via a floating balance across the sacral table) than the hyper extended knees which many people use instead.

The 'anterior sacrum'

Not all deviations are the same as the pattern described above. Sometimes the pelvis is thrust forward so that the lower back is flat, the knees often hyperextended, and the upper back curved. Somewhat rare, the pattern is often associated with pain in the lower back, sciatica and other ills. Here the client needs a 'deeper lap': pelvic attachments must be shifted to bring the pelvis back in line with the vertical polarity between feet and head. Often the usage of the hamstrings and gluteals is a cause.



Finding the Pelvic Extension in Movement



Remember when you learned to swing?

All of the movements of pelvic extension are variations on the theme of the child on the swing. In the pelvic lift you are reclining with your knees up. Hinging at the Lesser Trochanter, you are seated. When you un-roll you are standing.

Pelvic Lift

The Pelvic Lift is the pelvic extension, applied in a reclining position. The instructions are important, clear messages to the body. "Just turn your tail under; now reach through the knees; now let your waistline come down in the back (and on down)."

PELVIC LIFT



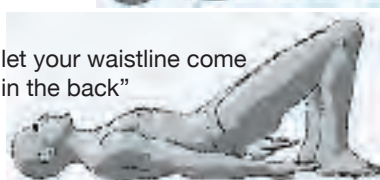
"Just turn your tail under"



"Now lift up and reach through the knees"



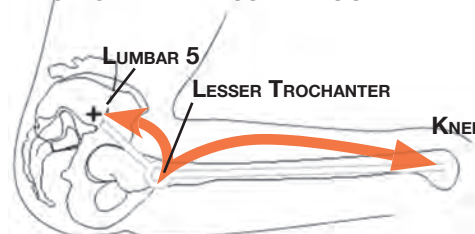
"Now let your waistline come down in the back"



Hinging at the Lesser Trochanter

A variation on the pelvic lift. The lesser trochanter is singled out as the hinge point between the medial knee and the sacral table. Practice it sitting, standing, lying down: the knee goes out, the sacrum stays back, the hinge at the lesser trochanter opens.

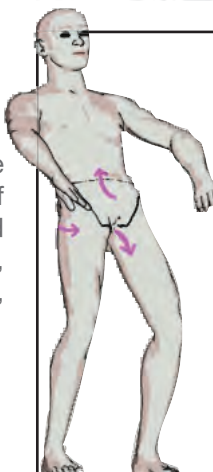
HINGING AT THE LESSER TROCHANTER



The knee goes out, the sacral table goes back; the hinge-point is the lesser trochanter. You can practice this sitting, standing, and lying down.

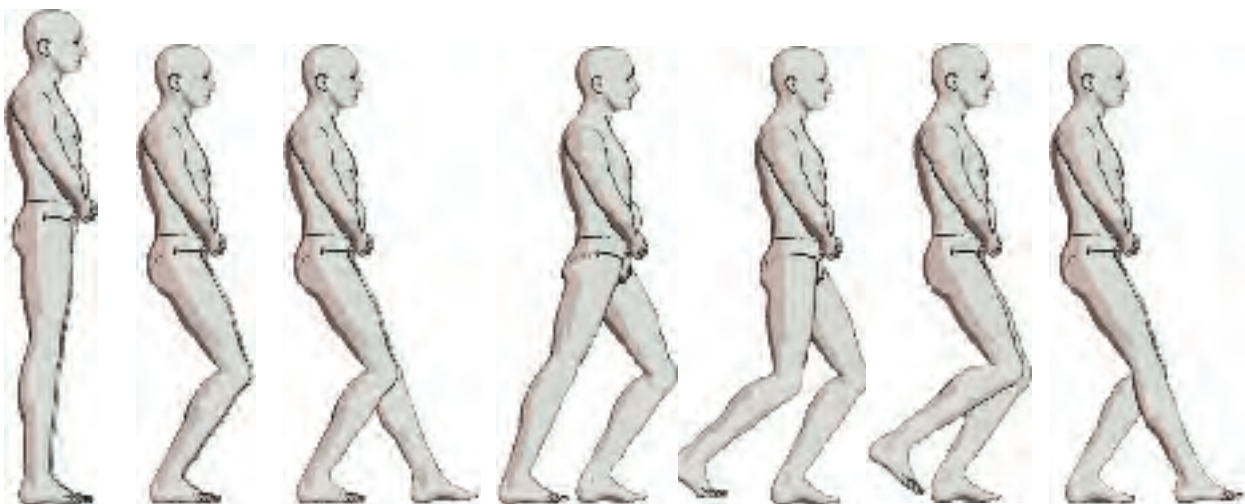
Water Position

This is a wonderful way to separate the lower lumbar from the downward thrust of the legs. It isolates the sacral table and establishes a separation between the legs, thrusting down, and the lumbar spine, reaching up.



WATER POSITION: Stand with your feet shoulder-width, knees bent. Lean back on your heels and let your elbows float up to balance you. Connect the reflex downward thrust into your heels with the sacral table. There should be a stretch across the anterior pelvis, not a strain in lower back.





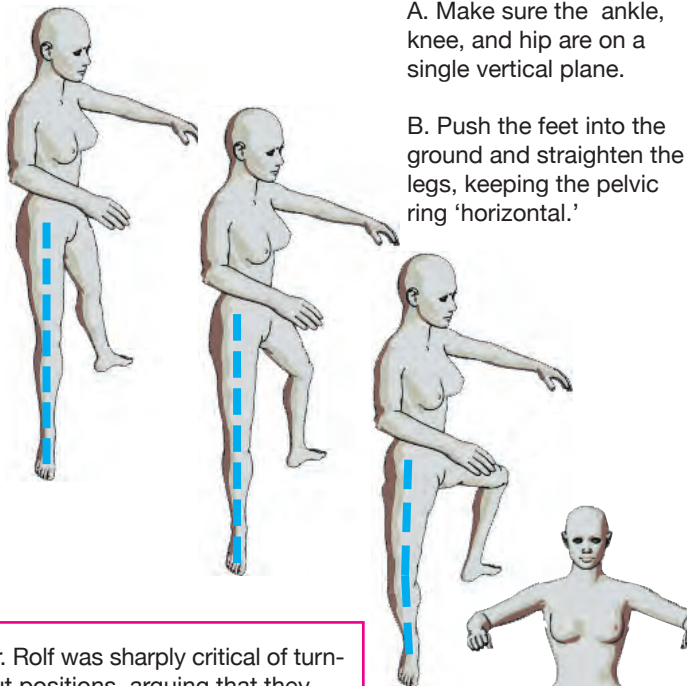
DRAGON WALK.

Any of the T'ai Chi Chuan movements can be practiced with the ring of the pelvis horizontal.

MOVING WITH THE STABILIZED PELVIS



PLIÉ IN SECOND POSITION,



A. Make sure the ankle, knee, and hip are on a single vertical plane.

B. Push the feet into the ground and straighten the legs, keeping the pelvic ring 'horizontal.'

Dr. Rolf was sharply critical of turn-out positions, arguing that they destabilize the lumbar balance. However they are useful in opening the pelvic extension. It is necessary to balance turn-out with exercise in which the planes of the legs are parallel.

Other movements supporting pelvic extension are those in which the pelvic ring is kept horizontal while the legs move, usually in plié position.

Here the steady horizontal position of the pelvis forces the small muscles of the legs to adapt, producing release and extension.

Dragon Walk

Another approach to establishing the pelvic extension is used in the Dragon Walk, and in T'ai Chi Chuan. Sinking into the knees while keeping the waistline horizontal, then shifting the weight from foot to foot results in a different relationship between the pelvis and the legs. Small muscles at the groin must shift and release to maintain the horizontal pelvis.

Plié in Second Position

Here is another example of keeping the pelvis horizontal and moving the legs. In this case the knees are turned out with the feet directly below the knees. Sink, bending the knees, and then push into the feet and straighten the legs, keeping the waistline back and maintaining the stretch in front of the pelvis. It is not nearly so important how far down you go as how you come up, with the anterior stretch and the waistline back.





PART 2. RELATE IT TO THE LUMBAR BALANCE

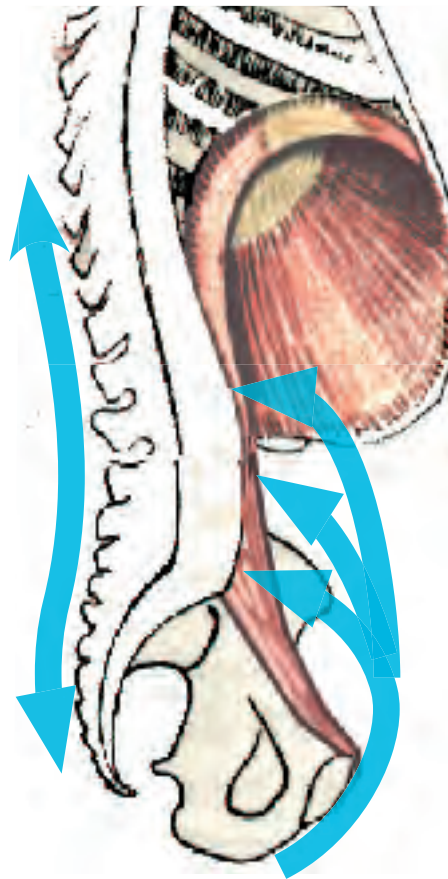
If the Pelvic Extension is established, then it becomes possible to connect its downward thrust to the core of the lumbar. The lumbar can form a three dimensional balance around The Line, which continues upward forward of the spine. This lumbar balance involves three crucial hinges of the spine itself, and three layers front-to-back. The vertical polarization between 'down' and 'up' begins at L1, the sacral hinge, and continues through L3 and L1, the lumbo-dorsal hinge, where it stabilizes the diaphragm by bringing it into relationship with the pelvis.

Three Hinges of the Lumbar Spine

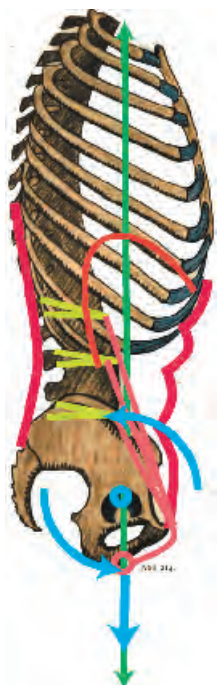
Three major hinges in the lumbar spine allow the torso to bend forward and back. The **Sacral Hinge** takes place at the 5th Lumbar Vertebra where it joins the top of the sacrum. The **3rd Lumbar Hinge** is conveniently located behind the navel, and the **Lumbo-Dorsal Hinge** lies between the lumbar spine and the rib cage (Vertebrae L1 and T12)

When any spinal hinge is used to flex the torso, the posterior spine should extend. This requires the *anterior* side of the spine to come back into the hinge.

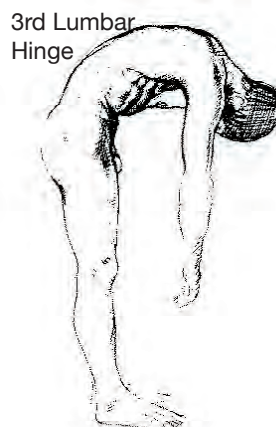
One of the goals of Structural Integration is to create enough awareness of the anterior spine to allow it to participate in the use of the three hinges.



THREE HINGES



Lumbo-Dorsal Hinge



3rd Lumbar Hinge



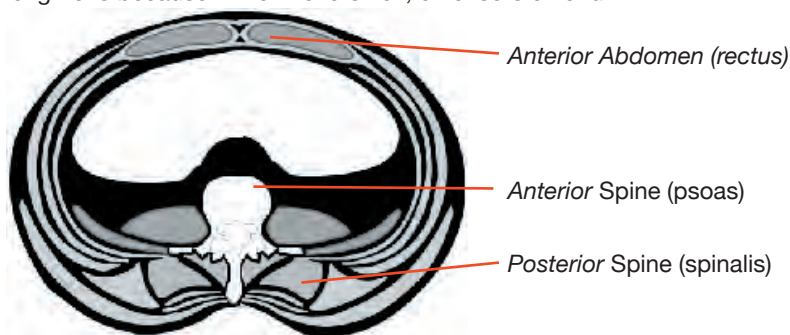
Sacral Hinge

THE LUMBAR BALANCE RELATED TO
THE PELVIC EXTENSION
Pelvic Extension is in blue
The Lumbar Hinges are in yellow
Psoas and Diaphragm are in red.
Rectus Abdominis and Spinalis are in maroon

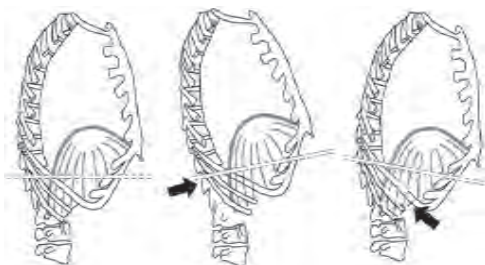
THREE LAYERS OF THE LUMBAR

TRANSVERSE SECTION OF THE TORSO AT L3

There are three layers in the lumbar balance: in addition to the front and back of the torso, the anterior spine plays an essential role in coordinating the spinal hinges. When it does, the rectus abdominis, together with other muscles of the abdominal wall, *lifts back* into the anterior spine rather than simply shortening. The posterior layer lengthens because "when flexors flex, extensors extend."



THE LUMBO-DORSAL HINGE



REDRAWN FROM
KAPANDJI

Three Layers of the Lumbar

Torso has an anterior layer (Rectus Abdominis), a middle layer, at the anterior spine (Psoas), and a posterior layer (the Spinal Erectors in back of the spine)

Any bending of the torso must take into account all three layers of the lumbar in order to maintain lumbar balance in its relationship with the ground. It is extremely common for people to emphasize strengthening the rectus and the spinalis muscles and completely ignore the anterior spine. However, if there is to be extension of the back when the torso is flexed forward, there must be a sense of finding the hinges of the anterior spine.

The rectus muscle plays a subsidiary role in lifting up and back toward the anterior spine. Any attempt to produce the movement simply by tightening the rectus will fail to produce extension of the posterior spine and result in a loss of flexibility.

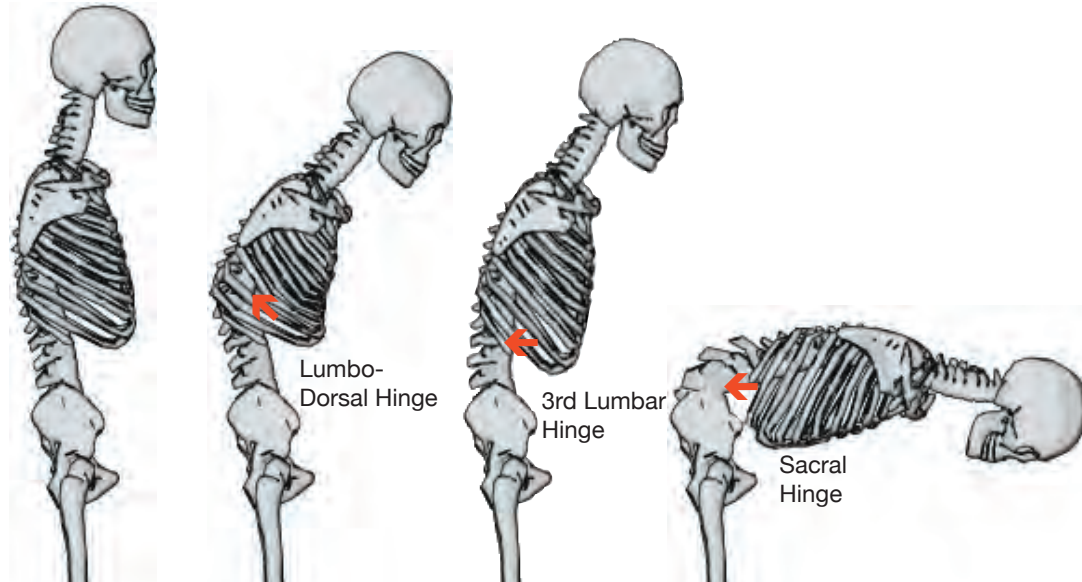
The Stabilized Diaphragm

When the pelvic extension is carried up through the balanced lumbar, the diaphragm is stabilized with respect to the pelvis. Then it can serve as the foundation for the shoulder girdle and the further extension of the head and neck. This is the core strength which permits the freest possible movement of the entire body. Ultimately, the diaphragm is the center of movement in expansional balance.

Finding the Lumbar Balance with Movement

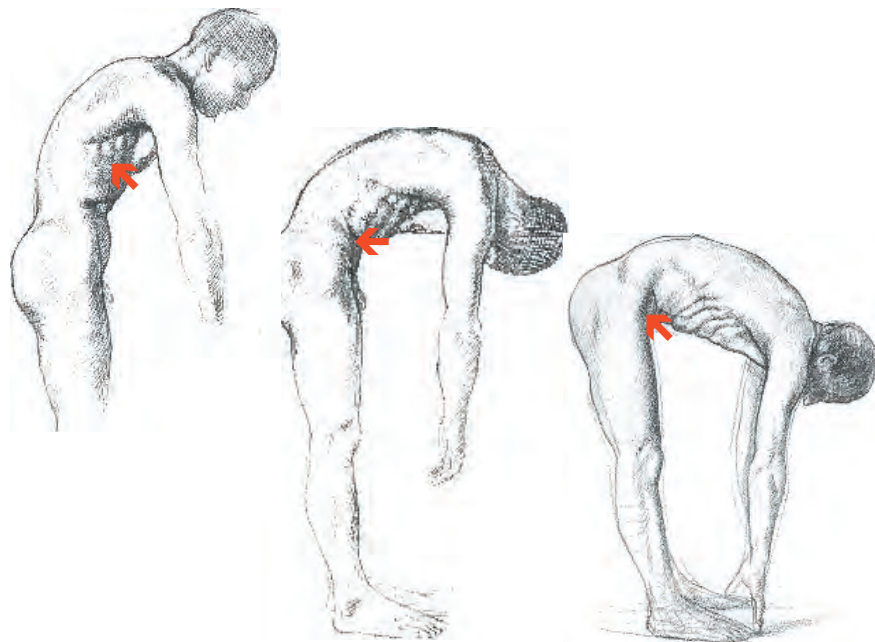
THE THREE LUMBAR HINGES

Isolate the movements of the anterior spine to engage each hinge.



ADD THE ABDOMINAL WALL

Lift the rectus abdominis at three separate points to assist each of the three hinges.

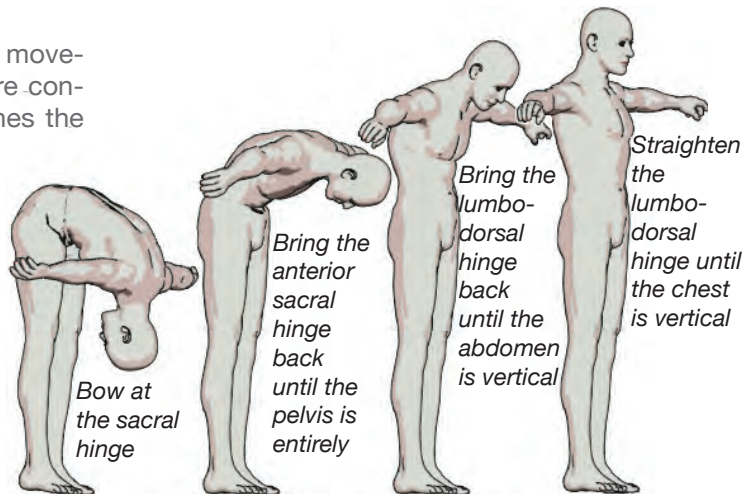


RELATING THE PELVIC EXTENSION TO THE LUMBAR SPINE

Unrolling

Unrolling is basically the same movement as the pelvic lift, only you are continuing the extension until it reaches the diaphragm and beyond.

Standing



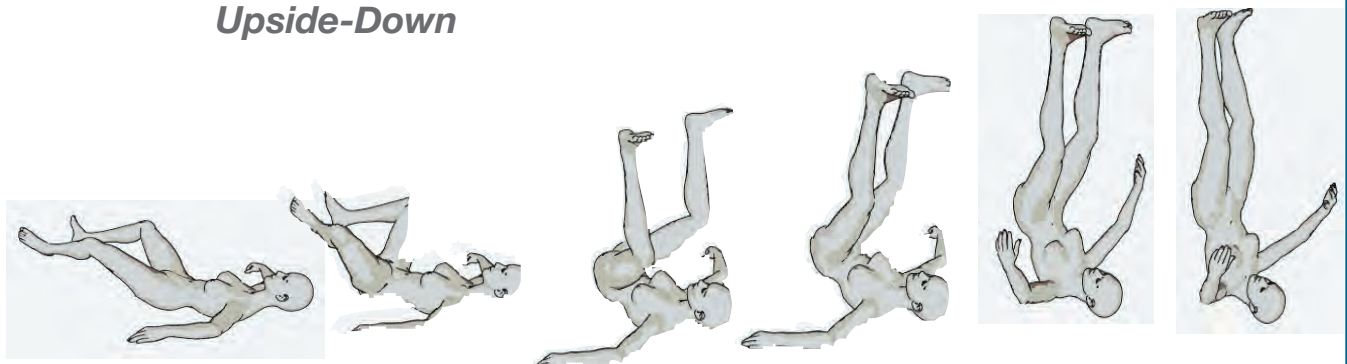
On a Swing



On a Bench



Upside-Down





PART 3. FIND THE HORIZONTAL POLARITY

The Horizontal Polarity defines the side dimension of the body. It rests on the foundation of the dorsal hinge, and its free extension to the side is essential to the upward extension of the head and neck.



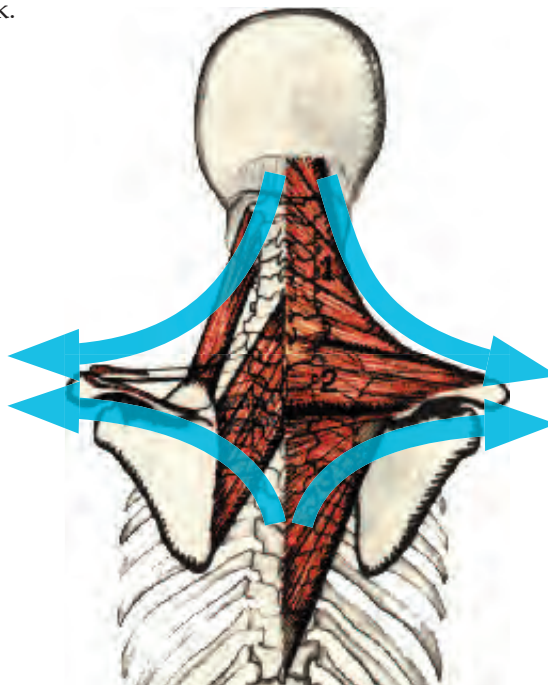
The first step is to find a relationship between elbows and spine, an extension clear through the shoulder that is not obstructed by contraction there. Then the remainder of the arm can find a core extension out through the finger tips.

Scapular Extension

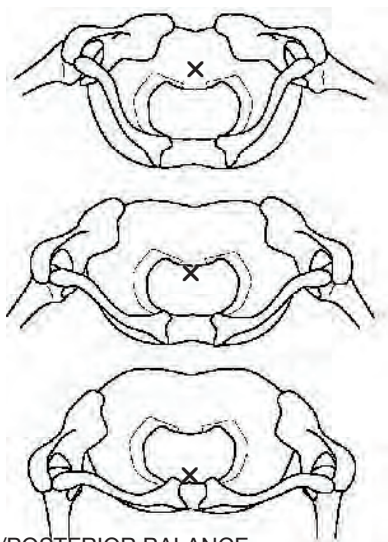
Nowhere in the body is it so essential to find a balance between the intrinsic action of the core and the balance between flexion and extension of the sleeve. For most people, the discovery of how to anchor the bottom of the scapula (down and in) is a significant step in releasing the arms into a side extension. This allows the upper portion of the scapula to drop and the arm release to the side. This scapular extension is similar to the pelvic extension.

Anterior/Posterior Balance

It is essential, too, that the shoulders find a balance across the side (coronal) plane. In this way the shoulder sockets allow for a balance – up/down, forward/back – to be found, thus allowing an 'out-through' extension.

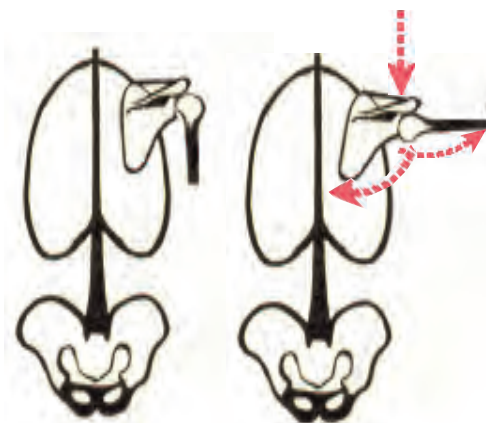


SCAPULAR EXTENSION, PART 1:
Establish control of the inferior angle of the scapula. This reduces the need to control scapula from above.



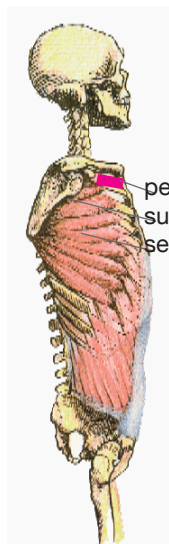
ANTERIOR/POSTERIOR BALANCE

As the shoulders are moved forward or back on the rib cage, the center of gravity (X) is shifted in the upper chest. A centered position permits the vertical polarity to pass up through the head and neck.

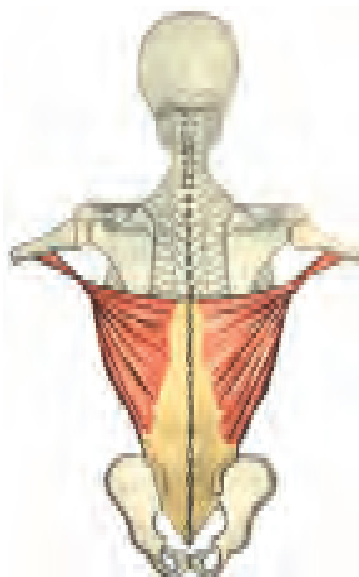
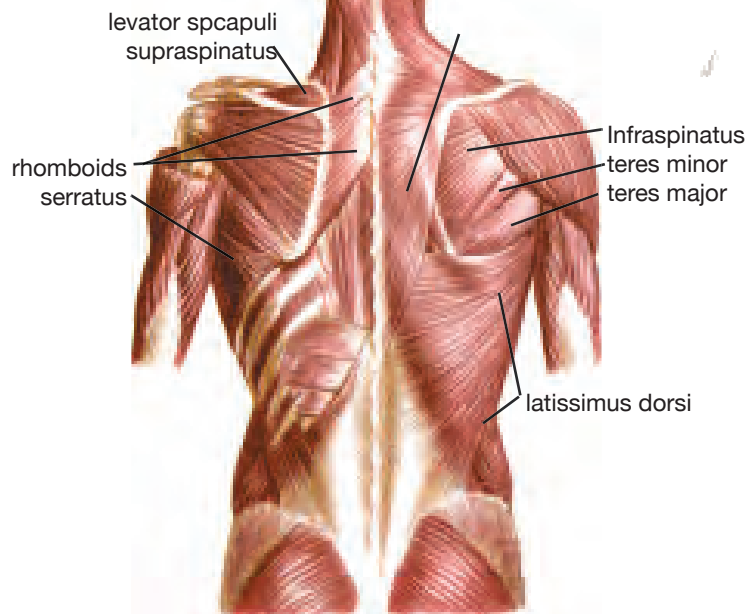
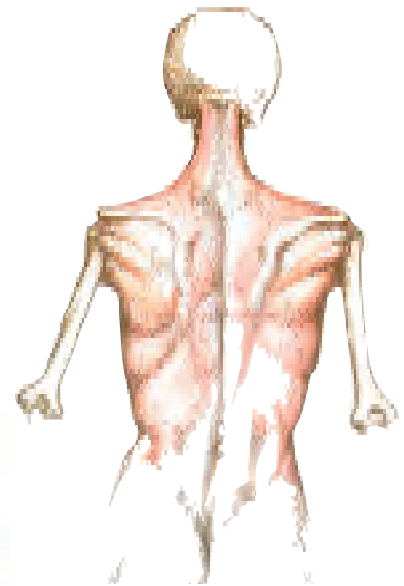


SCAPULAR EXTENSION, PART 2:
Establish independence between humerus and scapula

THE MANY MUSCLES WHICH GOVERN THE SCAPULA.



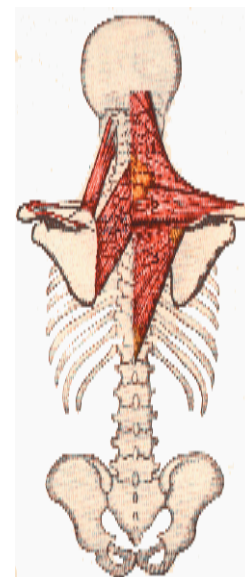
pectoralis minor
subscapularis
serratus



TRAPEZIUS (right), LEVATOR SCAPULI, and RHOMBOIDS (left) supply four directions of movement to the scapula.

LATISSIMUS DORSI crosses from the spine and lumbar fascia to the inferior scapula and on to the humerus.

Moliere, 1932



Finding the Horizontal Polarity in Movement

THE SCAPULAR EXTENSION

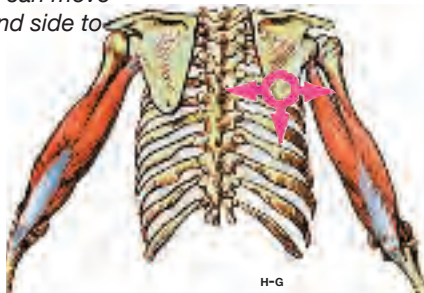
For the shoulder girdle to coordinate between torso and elbow, independent movement between humerus and scapula must be established. The scapula comes DOWN, humerus rotates AROUND, and elbow extends OUT.



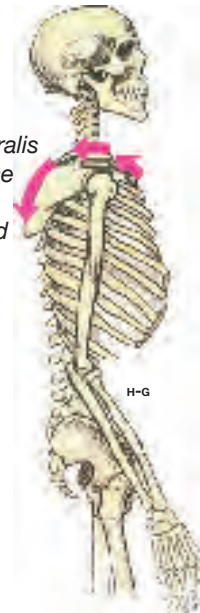
Many muscles which balance across the inferior angle.
(Trapezius removed on the right)

Anchoring the Inferior Angle of Scapula (DOWN)

The inferior angle of scapula can move down and side to side

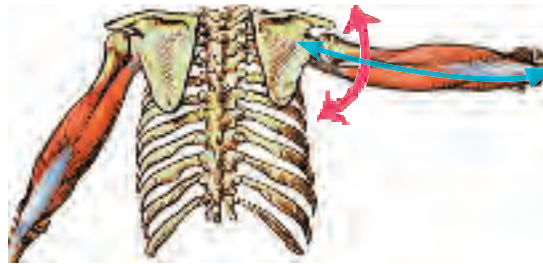


Anchoring the scapula down requires pectoralis minor to release the coracoid process up and back.

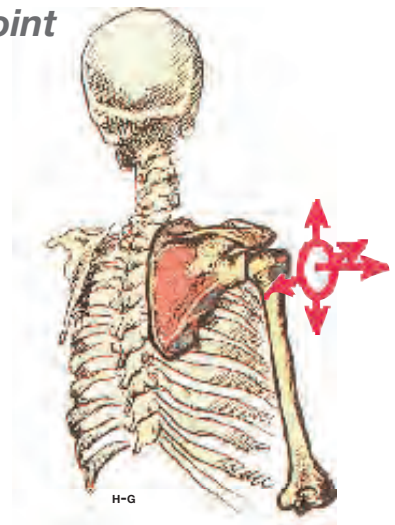
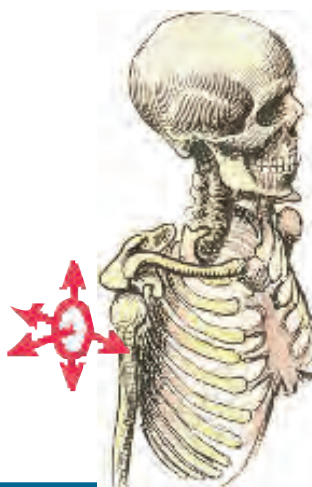


Isolating Humerus from Scapula (AROUND)

RIGHT: Humerus rotates on the shoulder socket. Notice that triceps must lengthen to allow this to happen. (Redrawn after Grundy)

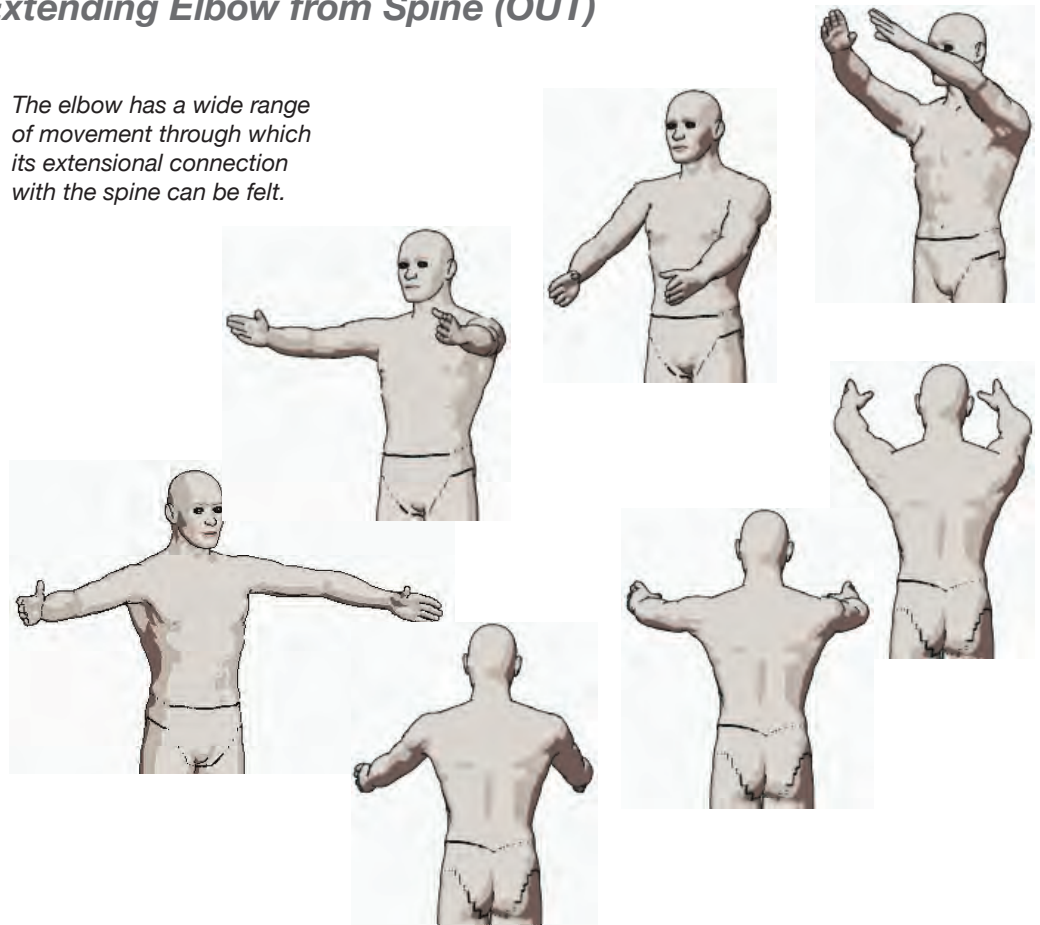


Finding the Center of the Shoulder Joint (up-down, forward-back, and OUT)



Extending Elbow from Spine (OUT)

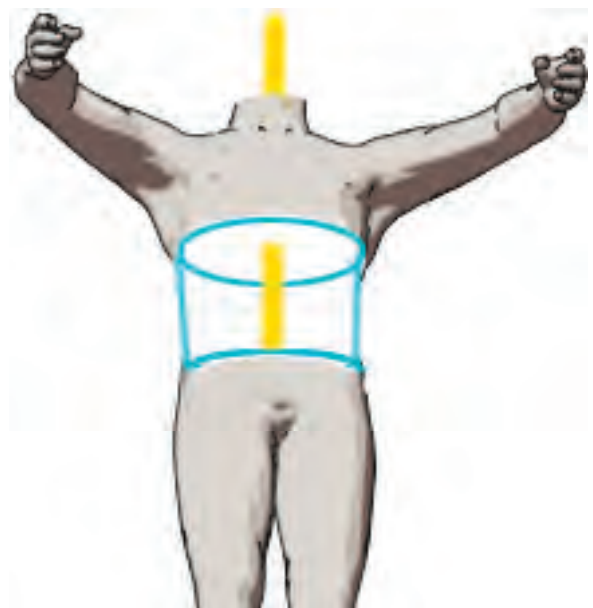
The elbow has a wide range of movement through which its extensional connection with the spine can be felt.



RELATING SHOULDER GIRDLE TO DIAPHRAGM

Ida Rolf's advice on how to see shoulder girdle balance (pg. 225, Rolfing):

- “1) Does the shoulder girdle show horizontal lines both anteriorly (clavicles) and posteriorly (spines of scapulae)?
- 2) Does the shoulder girdle fit as a free and balanced yoke above the ribs?
- 3) In raising the arms, are the shoulders independent? Do they remain down unless specifically directed to rise?
- 4) Is it clearly apparent that arms and shoulders move with little participation of the spine?
- 5) Can the spine move independently of arms and shoulders? Can it stretch upwards while the shoulder yoke, particularly the scapulae, move lower?”
(see pg. 79, “seated neck extension”)





PART 4. FIND THE UPPER POLE

The upper pole completes the Vertical Polarity. Because the feet press down, the head can come up. It is a mutually expanding polarity once the torso is organized in between.

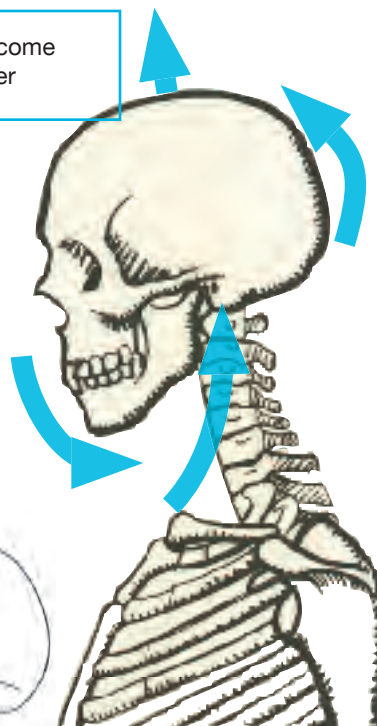
Upper extension is not an effortful movement..

It involves finding a certain balance of the cranium on the atlas. That initiates a lengthening brought about by an extremely elegant system of leverage all up and down the neck. The result is a flexible carriage rather than a frozen position of the head.

Nodding on the Atlas

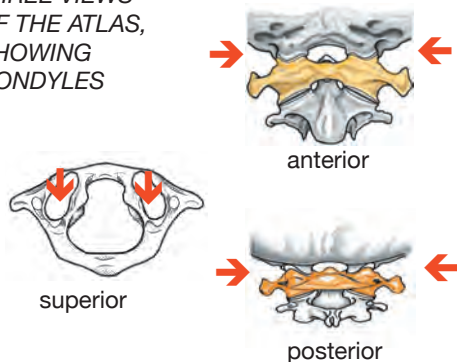
A critical event in extending the upper pole is finding the balance of the cranium, forward and back, across the Atlas, which permits the head to nod on top of the neck. When this is found, each cervical vertebrae finds an anterior/posterior balance across its lateral processes in a chain of linkages all up and down the neck. It is a system of leverage which automatically lifts the head.

"The neck is free to let the head come forward and up." - F. M. Alexander

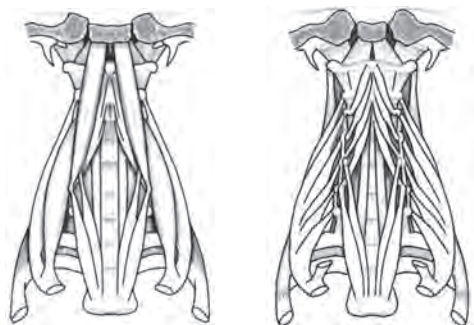


THE HEAD NODS ON THE ATLAS

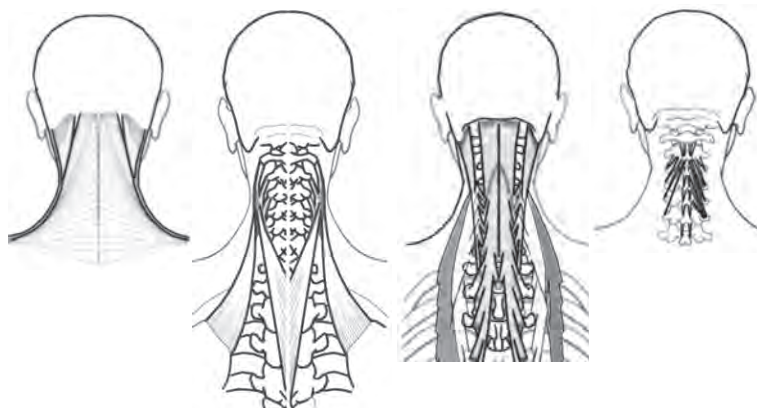
THREE VIEWS
OF THE ATLAS,
SHOWING
CONDYLES



THE PRE- AND POST-VERTEBRAL MUSCLES COME INTO BALANCE

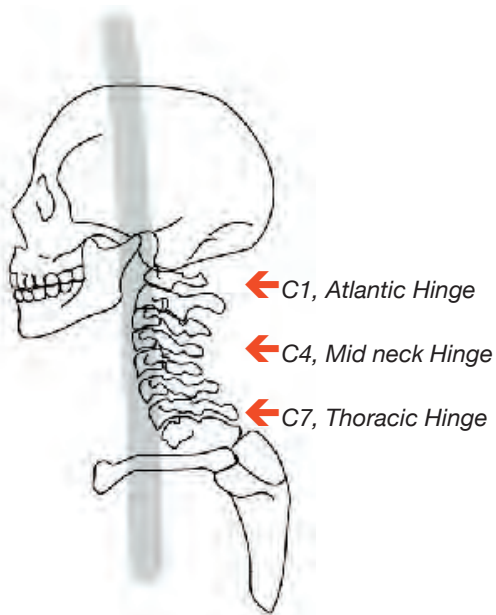


Two layers of prevertebral muscles



REDRAWN FROM
KAPANDJI

Multiple layers of postvertebral muscles



Distinguishing the Hinges

The head on the Atlas forms a hinge at C1 (Atlantic Hinge), the neck on the thorax forms a hinge at C7/T1 (Thoracic Hinge). These are the two major hinges of the neck. Differentiating these hinges and using them with awareness helps to extend the upper pole. Awareness of the front of the spine at these hinges is necessary to finding extension in the posterior vertebrae.

A third hinge is in the middle, around C4. Generally we want to minimize use of this hinge in favor of the other two. It often serves as a point of collapse when the extrinsic muscles of the neck are too short.

Sensing the Crown

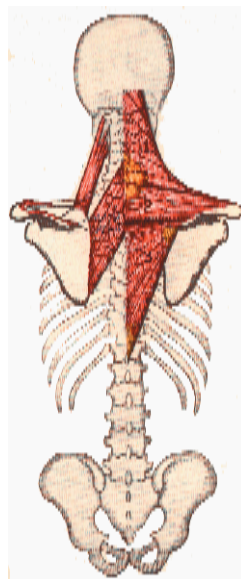
Extending the upper pole also involves a shift of body awareness to include the crown of the head and beyond. Human living makes us emphasize our eyes and mouths. We reach through them *forward*, out through the face. This exterior projection obscures the upward line out toward the sky. With the upper pole we return to a core feeling of the self, which need not be lost in exterior perception.

RELATION WITH THE HORIZONTAL

EXTENSION OF THE UPPER POLE
REQUIRES HORIZONTAL EXPANSION OF
THE SHOULDER GIRDLE

This diagram makes clear how Trapezius, Levator Scapuli, and Rhomboids knit the head and neck with the shoulder girdle.

M



The Neck and the Shoulder Girdle

If the shoulder girdle is not released to the side, the neck and head will not be able to extend. It is extremely common for the shoulder girdle to be drawn upward toward the neck by extrinsic muscles such as trapezius, levator scapula, scalenes, and sternocleidomastoid. This lifting places a burden on the neck, which bends and shortens with the weight.

It is useful to maintain expansion in the horizontal polarity while moving the head and neck. Only then will the movements effectively organize the upper extension.

Finding the Upper Pole in Movement

SIX MOVEMENTS OF THE HEAD AND NECK

Differentiating these movements is a first step to organizing the upper pole.

The Cranial Hinge: Flexion and Extension: Nodding

The head on the neck. The hinge is precisely between the cranium and the atlas,



The Thoracic Hinge: Flexion and Extension

The neck on the shoulders



Lateral Flexion

The neck on the shoulders



Rotation

A spiral, involving the neck from shoulder to axis.



THE INVOLVEMENT OF THE SHOULDER GIRDLE

The arms are oriented to the horizontal polarity by rotating the elbows to the side and reaching down through the finger tips. Only then will the movements of the head and neck have the effect of organizing the upper pole.



THE ARICA NECK SERIES

Head Circles

Forward Flexion, Lateral Flexion, Extension, Lateral Flexion, Forward Flexion



Side to Side

Rotation



Camel

Flexion and Extension, Thoracic and Cranial Hinges



High Lung Breath

Flexion to Rotation



The Movement-Oriented Bodyworker

You use your own body to know what to do with another's.

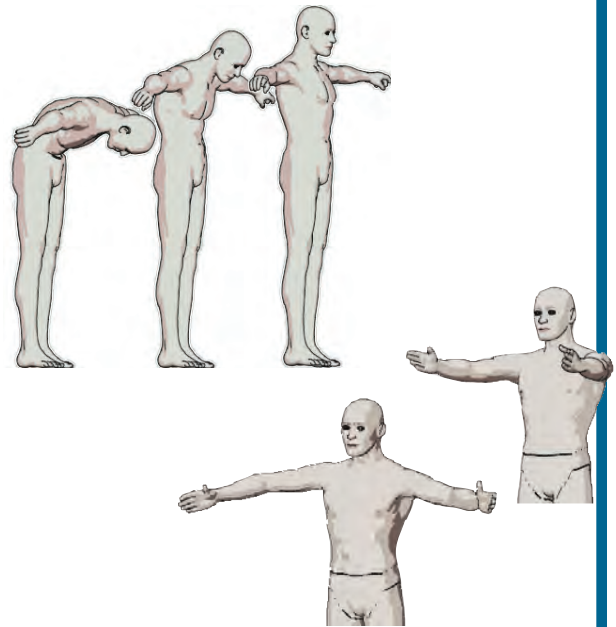
It is your sense of expansional balance which guides your work. When you are working with the pelvis or legs, you are feeling for your own pelvic extension. Your sense of horizontal polarity guides your work with arms and shoulders, your upper pole with head and neck.

Your body gives you the sense of what to work toward.

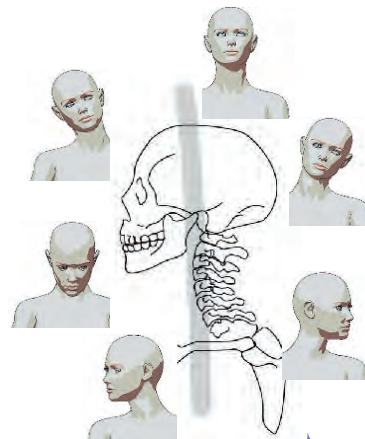
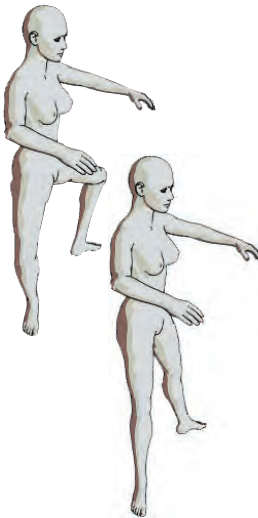
The ideal of expansional balance, embodied in your own physical awareness, helps you to find your client's potential.

But are you simply imposing some external ideal? No, your hands are giving patterned information which your client's body makes use of to find its own mode of expansion.

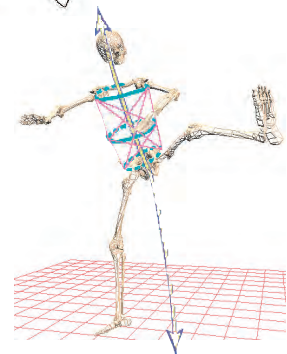
We can benefit people who, by damage or defect, are very far from the "ideal" state. Your manual communication of organization and balance can bring them closer, internally, to the classical form they will never exhibit externally. Each body can respond to the work, and find its own way to utilize it.



As you evolve your own sense of Expansional Balance, you will communicate it more clearly and with greater confidence to your clients.



We are not trying to fix what is wrong with the client's body. We are looking for its best possibility, its potential. Our sense of that comes from the Expansional Balance of our own bodies.



Element Five: TOUCH AND AWARENESS



***Touch
to Know***



***Awareness
Makes the Change***

The fascial web work is rich with nerve receptors for pressure, body position, and movement. It is a system of body awareness which can respond to deep pressure by either resisting or letting go. This letting go is a definite experience for the client, and a very interesting one. It feels voluntary, as if the body has *chosen* to allow the change. It is interesting for the bodyworker as well, since the slow wave of letting go one feels in the fascia is quite different from the release of muscle tension.

Let's step back and define some terms. "Consciousness" was first used by the philosopher John Locke to mean reflexive awareness: awareness of being aware. "Awareness" on the other hand is much more broad. Anything you can respond to is part of your awareness, but most of your awareness lies outside your consciousness. Your rumbling guts are surprisingly aware of many things, including human voices, but it takes training to become conscious of your gut awareness.

The fascial part of body awareness operates on the outer edges of consciousness. It does not need to be conscious to play its vital role of orienting you to space, weight, and motion. You can be conscious of it if you pay attention. If not, it remains in the background. Areas of deep tension are generally outside of consciousness entirely, until they reemerge as pain.

The bodyworker can choose either to work mechanically, using force to try to make the body change, treating it as a purely physiological object – causing a lot of pain – or to work with awareness. The latter approach assumes that the client's body awareness is what is going to make the change. The bodyworker is touching awareness and not just a body – touching awareness, which responds, guides, participates. This is *touch communication*.

Touch communication requires two things:

1. The bodyworker needs to focus on touching the client's awareness and a way to improvise technique in response. This we call "Touching to Know."
2. The client must learn to participate by paying attention and allowing the deep body awareness to come forward. We call this "The Client's Four Steps of Participation."



The Bodyworker's Awareness: "Touch to Know"

The bodyworker can focus upon touching the awareness of the client rather than the body itself. Then a receptive touch will find ways to improvise in response to what it feels.

What happens when we simply wait and pay attention to the experience of touching *this person, this body*? What if we simply want to 'know' it, to know more about it, to see what is there?

The most active, 'yang' thing the bodyworker does is maintain a focus on geometry, bone, and skeletal movement. The rest is getting to know what is there, making contact with the body awareness, *communicating, not forcing*. The bodyworker is touching to know rather than to make something happen

Touching Awareness

If the client's awareness makes the change, then awareness is what we are working with. One very good way to approach this in any specific contact is to press in to the point you feel a barrier or point of resistance. Then back off a wee bit and wait for the client to respond. Then you will feel a softening as the client draws you in and uses movement to respond.



THE PRINCIPLE OF AWARENESS

PERLS: "Put your attention where your awareness is, and the next gestalt will take place."



Touch to Know
rather than to make
something happen

"Awareness Makes the Change"

The deep body awareness of the client ultimately 'decides' to permit the fascia to melt, shift, and realign. In a sense the bodyworker is not so much touching the body as the awareness *in* the body. Once contact is made there can be a deep set of interactions between the body and the bodyworker which we call "Touch Communication."

Touch-Press-Move as a way to improvise.

Let's break our contact down into its components. Touching, Pressure, and Movement are like flashlights we can shine into the dark volume of someone's body. Each one can be approached separately. First touch, feeling all the subtleties which are there for you to sense, like vibration, pulsing, and a host of other things. Then Press: another set of perceptions, such as pressure, depth and direction. Then passively or actively move the bones.

For Structural Bodywork, "Think Bones."

"What you Imagine is what you Touch." What system you focus upon will be what the client will feel. For this kind of deep structural bodywork, imagine the bones in their matrix of fascia. Don't get caught up in the skin layer, or in the muscles except as a kind of general 'fabric.'

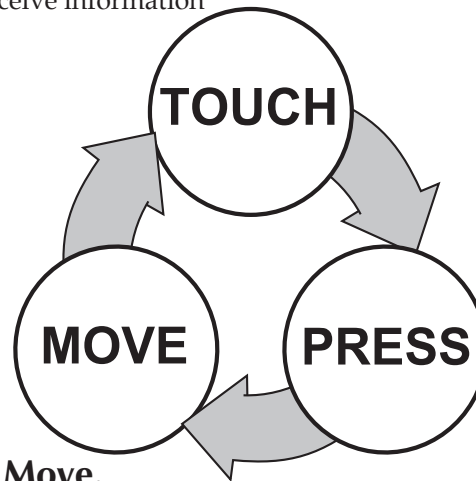
"Technique Follows Perception"

Even though you know procedures, you are always inventing them anew in response to *this experience in the present moment* of what you are touching. Your technique becomes an improvisation in response to what you are touching. All the techniques, all the experience, all the practice, are in the here and now as original, creative responses.

USING TOUCH-PRESS-MOVE TO EXPLORE

Touch.

Simply touch. Touch is like a flashlight you shine into your client's body. Use it to feel and receive information



Press.

Pressure gives a different kind of information, about resistance, texture, and hidden actions. It, too, is a flashlight you are shining into this person's interior.

Move.

Move the bones: passive joint movement rather than superficial strokes across the skin. The movement will tell you whether the bones are held by deep tensions or whether they can move freely.

Touching to Know . . . What?"

Your open-minded awareness permits you to be aware of many things: the feeling of the flesh, the patterns of holding, the energetic vibration of the body, and the energy which you can feel inside your hands, and more subtle things: the "being" of the client, images and feelings that come up in the contact, and many other things. A strange phenomenon appears: when you become aware of something in the client, the client often becomes aware of the same thing.

How deep your awareness can go depends upon how far the client's body is letting you in. At one time you may only be aware of holding patterns on the surface. As the work progresses you will be aware of deeper phenomena in the body and even intimate states of feeling, psychological events, and, upon occasion, highly intuitive sensing.



The Client's Four Steps of Awareness

This is a systematic way for the client to learn how to participate in the touch communication.

At the beginning, most clients assume that their role in the bodywork process is simply to lie down and receive. Often they go to sleep in the comfort of being touched. However there is a much more valuable way in which they can participate—one which can mobilize the deepest levels of the body awareness to become involved in the touch communication.

These four steps are the most promising conceptual process we have found for making any bodywork session (structural or not) a genuine somatic and psychological growth experience.

Step

The First Step:

Pay Attention to the Contact

"Pay attention to my hands. When your mind wanders, keep coming back to the sensation of my contact." Some clients find this very hard to do: they are inclined to drift. Touch in itself is likely to produce an altered state of consciousness, because moving into interior sensation is a change from ordinary awareness of the outside world. Nevertheless, as in meditation, they can patiently, repeatedly, over and over, bring attention back to the touch. When they seem to be drifting off to sleep or losing contact, I call them back.

1 "Pay Attention to my Hands"

This is the first and fundamental step in learning to participate in the bodywork process. The client is not encouraged to daydream or to snooze. Rather, as in meditation, the task is to return, patiently, again and again to the touch experience.

Step

The Second Step:

Draw Me In

This step asks the client to become receptive in the process. Receptivity in the body feels like making a space which attracts. Tell them "Draw me in like a sponge, or a magnet." For many clients the sponge image is sufficient to find a way to pull the touch deeper into the body.

Some clients find it difficult to conceive of what this means; so work with them persistently until they can do it. For some it can be a major change in their feeling of themselves. When these people learn to do it they discover a whole new territory of experience. It is a major life change.

2 "Draw me in"

Next, the client must learn to become receptive to the touch. Receptivity means 'making a space' into which the touch can be absorbed. For some this is easy, for others the bodyworker must find words which enable the client to find the way to become receptive.

There are certain clients, usually very active athletes, who say "You can press harder." They often don't have very much interior experience of their bodies. They are used to pressing and pushing, exerting and striving, but they don't know how to be actively receptive. Our answer is "You can draw me in harder." When they learn how, they make a major discovery both in the use of receptive energy, and also in greater interior awareness.

Step

3 “Pay attention to pleasure”

When the client pays attention to the pleasurable quality of the touch, the feeling level is engaged and an important aspect of body wisdom is invoked. Pleasure is a fundamental clue which guides the natural creature through life. To be inattentive to pleasure is a form of body alienation.

Step

4 “Use my hands”

At this point the body awareness is engaged on a very deep level, and how a client might “use the hands” can vary. Frequently the client will use movement to draw you in. The balanced movements you have asked for now become a kind of pleasurable improvisation the body uses to interact with the contact.

At other times the body will pull the hands toward significant areas which need to be touched and/or organized.

The Third Step:

Pay Attention to Pleasure

“Does this feel good?” “Is this interesting?” “Does this make sense?” “Do you like it?” The sensation has many ‘flavors’ so get them to describe whether some points in the body feel different from others. Even when we are touching sore and painful areas it is possible for them to find a kind of pleasure in it.

This step engages the client on a feeling level. A person can be perfectly aware of the sensation of touch and yet not really ‘feel’ it. Feeling is an evaluation of an experience, and one has to connect with the sensation from somewhere in the core to do it.

The body is guided by pleasure. Thomas Hanna called it “sarcial pleasure,” the fleshy enjoyment of touch and movement. It is very deep in our instincts, this pleasure. When the client can attend to pleasure, we have reached a whole new depth of contact. **The core body awareness is now engaged.**

The Fourth Step:

Use my Hands.

This step is highly variable, because, now that the core body awareness is engaged it will make use of the touch in various ways.

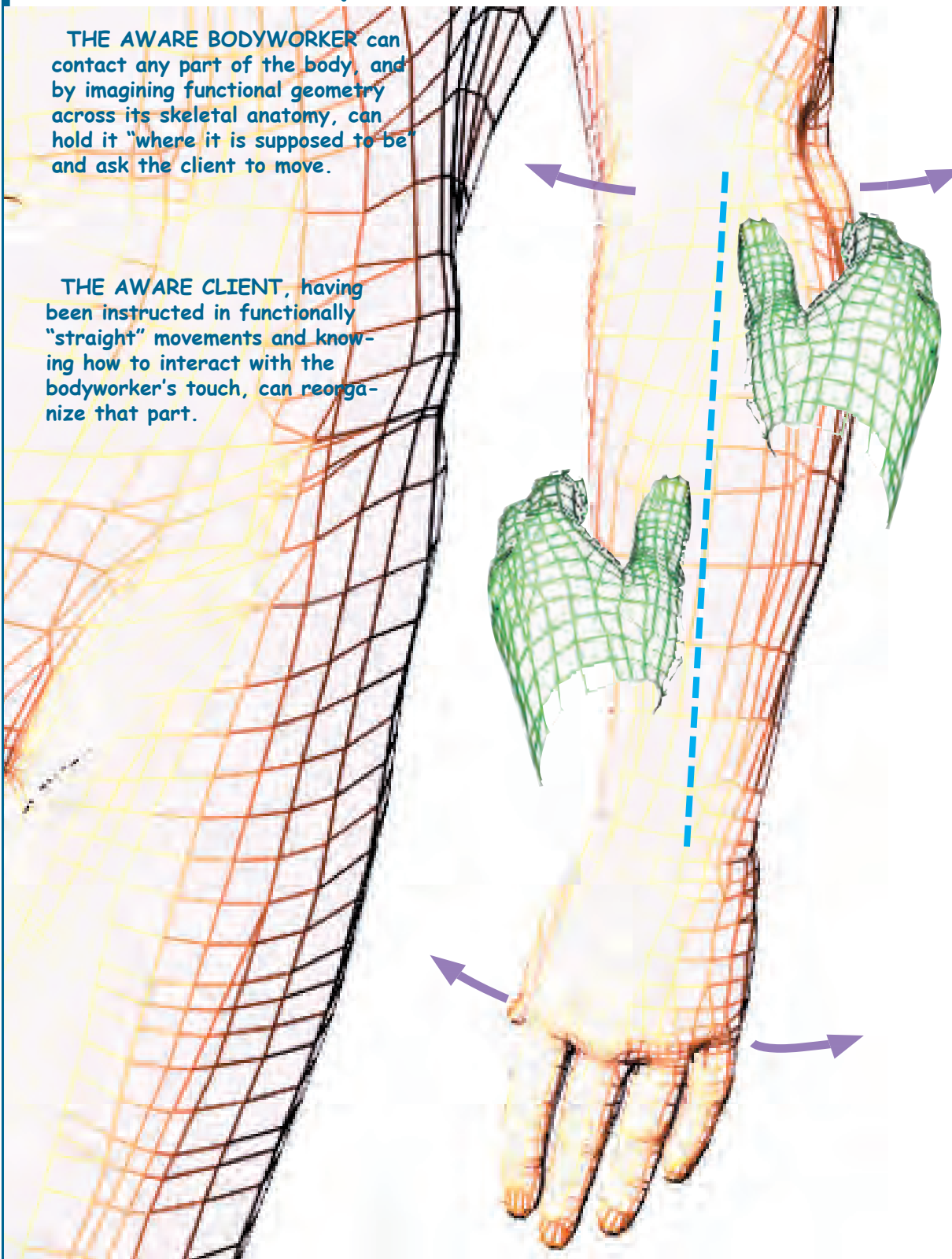
Here’s where the small structural movements come in. Ask the client to “use the movement to draw me in.” - or to improvise with several different movements in order to “use my hands to organize your body.”

At this stage the body itself begins to participate in a deeper way. The improvisation becomes more spontaneous, and the bodyworker is guided *by the body* in the course of the work.

The Aware Bodyworker and the Aware Client

THE AWARE BODYWORKER can contact any part of the body, and by imagining functional geometry across its skeletal anatomy, can hold it "where it is supposed to be" and ask the client to move.

THE AWARE CLIENT, having been instructed in functionally "straight" movements and knowing how to interact with the bodyworker's touch, can reorganize that part.



AWARENESS, the deep body awareness of the client, is what makes the change.



Enter the Hands

Now we can turn to the topic of hands-on bodywork. We can apply the principles of Gravity, Movement, and Geometry to the task of actually bringing about change in someone's body with our hands.

How does Structural Bodywork Work?

Fascia

The body is held in its shape by a system of connective tissue called "fascia." Fascia envelops every muscle and every muscle fiber. It merges into similar connective tissue around bones (periosteum) and around organs. Fascia is the "organ of form." Fascia adapts itself to the way the body is being used. When muscles are being fatigued and overworked by disorganized habits of movement, fascia shortens and supports them. The habits, however inefficient, come to be shaped in the fascial fibers, which are continually forming and re-forming, like a slow-moving river. Getting structure to change does not involve getting muscles to relax. The fascia tissue which supports the muscle system must be reshaped.

"Hold tissues where they are supposed to be and induce movement"

Fascia has been organized by habitual movement, and it can be reorganized by appropriate, physiologically efficient movement.. Holding tissues and inducing movement was the basic principle of structural organization, according to Dr. Rolf.

Geometry

Physiologically efficient movement adheres to the actual structure of bones in three-dimensional space. It must BALANCE IN SPACE. We imagine planes in all three dimensions. The bones and fascia are meant to move along these planes. In practical terms, if we pay attention to the balance of bones and soft tissue across these planes, especially around joints, we can hold tissues, induce movement, and thus reorganize fascial fibers.

"Think Bones"

This becomes a matter of imagining the bones, the 'spacers' in the three dimensional volume of the body. We hold things where they are supposed to be and ask for movement. The soft tissue shifts around the bones when they move.

Awareness

It isn't simply a matter of mechanics. You are touching *Awareness*. The innate body awareness is feeling the process. *It* has to find its own way to a new organization. Complicated, isn't it? And yet so simple, a matter of *touch communication*.

Structural Bodywork and Structural Integration

This approach can be used to pursue two main goals:

(1) The Integration of the Whole Being in Gravity

(2) The Organization of Parts

Structure and function are two faces of the same thing.

Everything works better with better organization. Improve physical structure, and function is improved. This includes all kinds of functions, psychological as well as motor. Even visceral organs work better if the space in which they function is better organized.

This book is about structural organization of parts.

It will enable you to straighten out a lot of physical difficulties, but it is not yet “Structural Integration.” Included here is much of the material from Dr. Rolf’s first three sessions, contacts intended to open the “sleeve” layer of the body and prepare for the organization of the “core.”

“Structural Integration” is a much larger project, enabling the body to function as a whole with full expansional balance. For that, the additional “core sessions” and “integration sessions” of the full, systematic, ten session series are needed

Yet there is much practical virtue in this material. A host of ills can be addressed with these contacts and procedures. There is enough here about the hips and flanks to help a lot of lower backs, and this approach to armpit, anterior arm, and lateral shoulder will help address a world of shoulder problems. Think of it! – by considering the expansion, the anatomy, the geometry, and the movement of any part, we can bring order into the disorganized and painful parts of almost any body.

In this more limited and specific work the larger perspective of structural integration, the fully unified body in gravitational space, still serves as a guide. The order of the ten-session series suggests much about the order of work in these smaller projects. The deeper layers must be approached through the more superficial. The part is seen in terms of its relation to the whole.

Fixing things with “Structural Organization”

Lots of people who will never get the whole “Ten Session Series” have wrists and backs, necks and ankles, hips and jaws which need attention. This is what many Rolf practitioners ambivalently call “fixing things.” The fact is, most of us do some “fix-it.” It is irresistible: the approach works! Not all clients can pursue the greater vision, but better organization, freer balance, and more ‘room’ can help with almost any injury. Ida Rolf herself could not resist fix-it work at times either.

Integration must not be lost from view in the urgent need to find immediate remedies

But Structural Integration can lead to something much larger than a few good remedies. It is a practical and concrete means of approaching humanity's fullest potential – a dynamic, unified, graceful relationship with gravity. This is our birthright, a destiny far greater than the fixing of specific ills. This larger goal should always guide the work

With that caution in mind, we can proceed with our introduction to Structural Bodywork.**Look for expansional balance**

Feel in your own body how expansional balance works.

Apply geometry to the situation

Find the four-corner balance across joints; look for the planes involved in the segments

Work up and downstream from the problem

Almost always the point of distress must be relieved by working elsewhere, “up and down stream,” on related structures in larger systems. The sense of where else to work comes from understanding the whole-body perspective of Structural Integration.

Using the Client's Movement

ROLF: "This is the first law of Rolf: 'get it where it should go and make it move. This is the fundamental basis on which this [work] operates'"

The movements we use in structural bodywork are fairly simple: they all involve balanced movement around joints. They follow the main possibilities of each joint. For example, the hip has three movements, forward and back, down, and side to side in rotation. Clarifying and balancing each movement shifts the tissue around the joint until open extension becomes possible through the center of the joint.

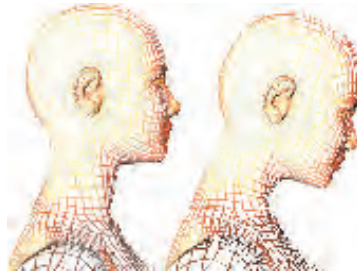
Approaching the Whole by Organizing the Parts

The principle is to 'hold tissue where it is supposed to be and induce movement.' We are organizing the balance of individual joints as a way to approach the whole. At first, only individual parts are affected, but as each joint moves closer to balance movement, the whole body begins to open and respond. In the final integration sessions much wider portions of the body are brought into relationship.

From Outside to Inside

We use the same basic movements again and again. As the client releases outer layers, deeper structures become available. In the earlier sessions only the sleeve layer of the body is shifted. As the outer layer becomes more organized, the next layer becomes available, until the bones begin to shift in their beds of connective tissue, and the intrinsic layer is involved. The movement stays the same, but the effect moves deeper and over a broader area.

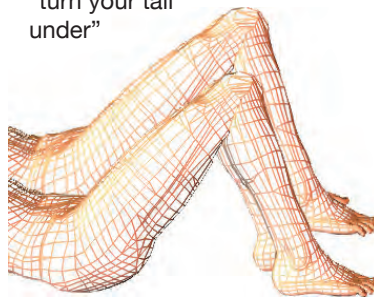
Thoracic Hinge



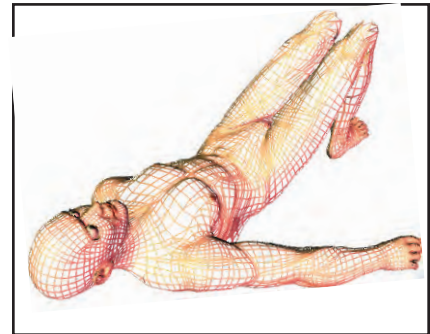
Cranial Hinge



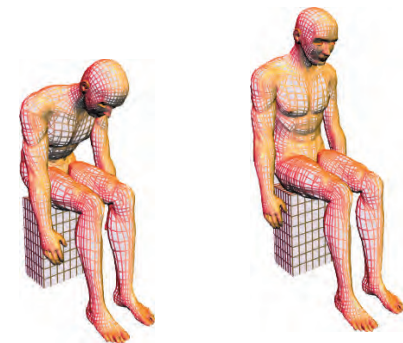
Sacral Extension
"turn your tail
under"



The Spinal Hinges



Bowing at each
lumbar hinge



Head Rotation

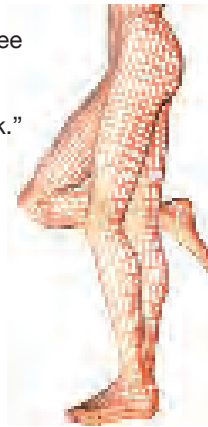
"Rotate your head to the side [around a perfect axis]; now rotate back to the midline."



“Use the Movement to Draw Me In”

The client participates in the work by moving. At first the movements may be somewhat mechanical, but later, as more core structure becomes involved, the movements become supple, more in touch with inner sense. The movement becomes a way for the body to guide the hands, drawing them in and making use of them.

“Let your knee go straight forward and straight back.”



“Roll your leg out like a cylinder. Now roll it in.”



Three Movements of the Hip

INTRINSIC AND EXTRINSIC MOVEMENT

Rotate the head to the side around a vertical axis. The first part of the movement is easy. Then, at a certain point one has to engage additional muscular effort to go farther. This is a shift from intrinsic muscles, deep within the neck, to extrinsic muscles. It is core and sleeve again, except that the muscles working in the ‘easy’ part are intrinsic to the neck: they connect within the cervical column. When the effortful part begins, muscles which attach *across* the neck, such as Sternocleidomastoid, Trapezius, Levator Scapulae and the Scalenes come into play. They are extrinsic to the neck and clearly part of the sleeve.

It isn't too important to pursue the anatomical distinction between intrinsic and extrinsic muscles, but this shift from easy to effortful is very important, and it is easy to observe. We are generally not involved in pushing out into the effortful area (that would be a stretch) but in *widening the range in which the movement is effortless*.

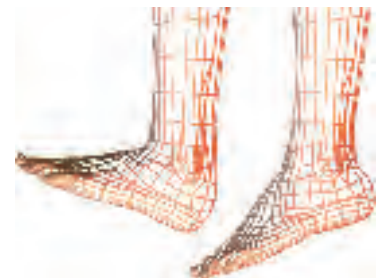
“Reach down with your foot; make your leg long (all the way from your hip.)”



Toes



“Heel down, ball down”-



Movements of the Foot and Toes

At the very beginning of a movement extensors can extend before the flexors flex. For example, in walking, the knee can move straight forward about 3-4 inches before the flexors of the pelvis engage to lift it upward. In that beginning movement, the back of the lumbar, pelvis and thigh *lengthen*. It is another example of intrinsic movement. We can contact with various structures, such as the lumbar fascia and encourage them to lengthen during the initial movement.

"Let the outside of your elbow go straight out one inch. Now let the Inside of your elbow go straight in."



"Reach Down with your fingertips."



Three Movements of the Shoulder

"Move the arm on the side plane."



Hand Side to Side on the Wrist



Hand up and down on the wrist



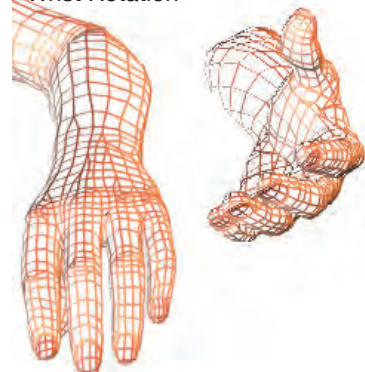
the Elbow on the Spine

Elbow Rotation

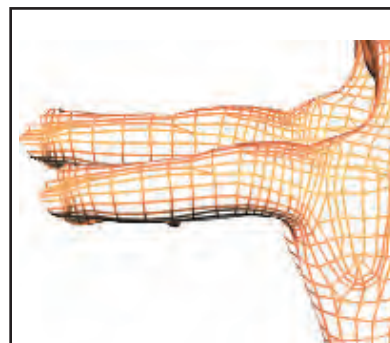


...the Hand on the Wrist

Wrist Rotation



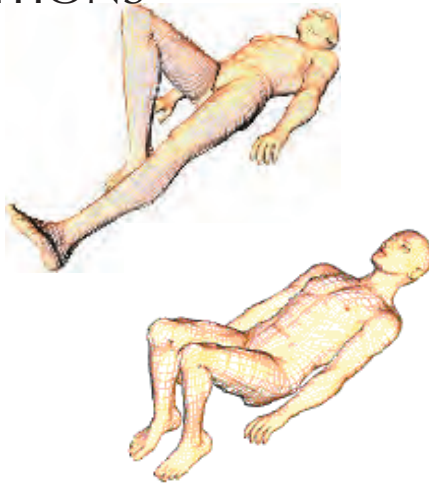
Thumb Circles



BASIC POSITIONS

SUPINE

At least one knee is generally up in order to maintain continuity of feeling through the pelvis.



STANDING

Useful for organizing ankles and knees with movement of knees forward and back..



RECLINING ON SIDE

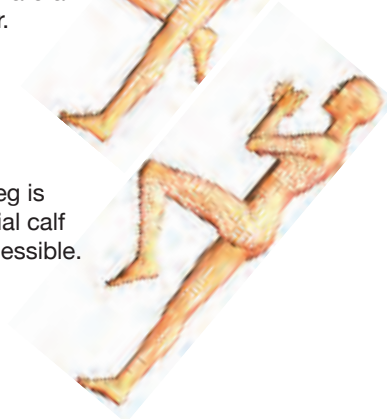
When the knees are bent in this position they help stabilize the body accurately on its side.



When the upper leg is straight, knee movement will help organize lateral pelvis and lumbar.



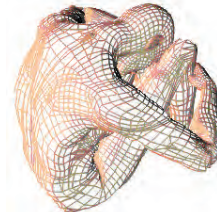
When the lower leg is straight, the medial calf and thigh are accessible.



SEATED ON FLOOR

Fingers clasped in front of the knees, elbows extended to the side.

Head on knees



Head up



Used for organizing shoulder girdle, upper pole.

SEATED ON BENCH

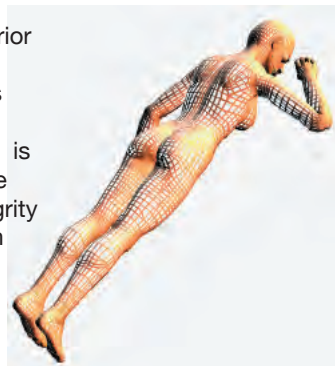
Ischium on bench, knees and feet parallel.

Excellent for organizing front/back balance across torso.



PRONE

Good access to posterior legs, pelvis and back. Because the spine has a tendency to move anteriorly, this position is used sparingly until the body has enough integrity to maintain connection through the pelvis.



SOME MIDLINE CONTACTS

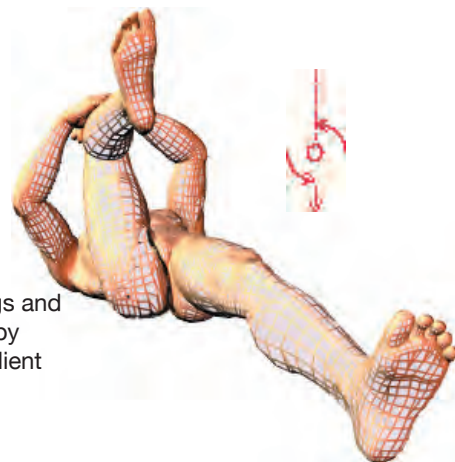


SEATED BACKSTROKES
You can iron down the spinal erector muscles while the client bends forward. This is an important contact for organizing the anterior/posterior balance of the torso.



PELVIC LIFT

You can help the client extend the lower back by guiding her through a movement of pelvic extension.



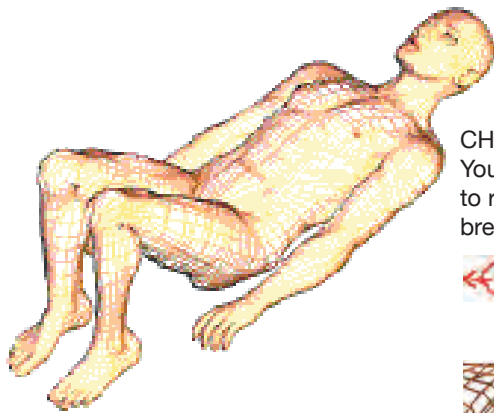
HAMSTRINGS

You can lengthen the hamstrings and release them from the ischium by pressing into them while your client pulls the knee towards his ear.

ANTERO-LATERAL THIGH

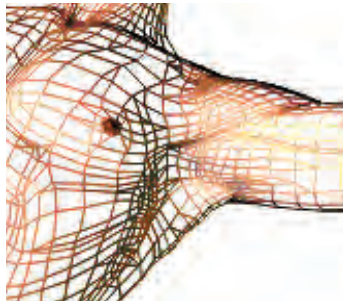
You can release quadriceps by pressing into the antero-lateral thigh, which reduces pressure from the pelvic flexors on the lumbar spine and often relieves low back pain.





CHEST

You can contact the chest front and back to release the sternum and back for freer breathing.



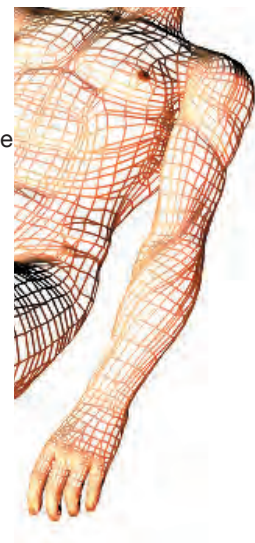
ARMPITS

You can contact the area under the shoulder girdle, front and back, to release contracted shoulders and restricted breathing.



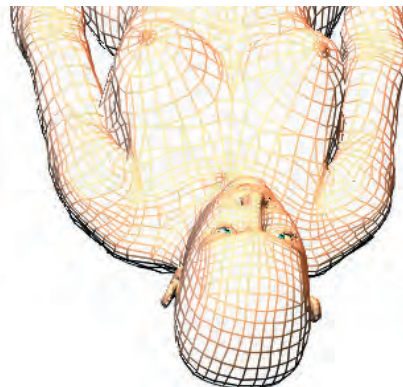
ANTERIOR ARMS

You can organize the entire arm by guiding the wrist and elbow through movements on the coronal plane.



TRAPEZIUS ORGANIZATION

You can contact the trapezius and iron it downward while the client moves his elbows up and down.

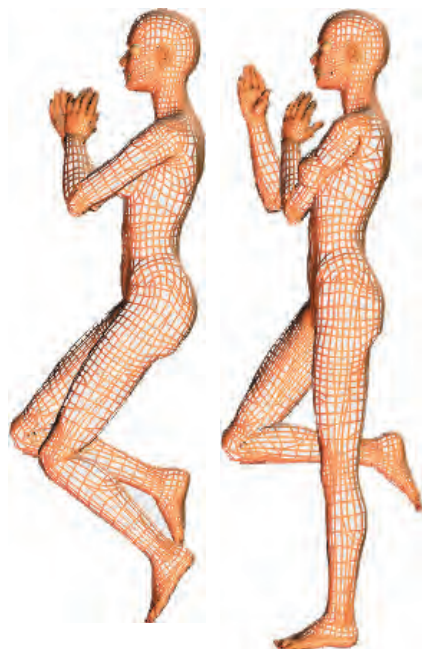


HEAD AND NECK

You can organize the extension of the head and neck by contacting various places on the base of the cranium, the neck, and the thoracic outlet and asking for movement.

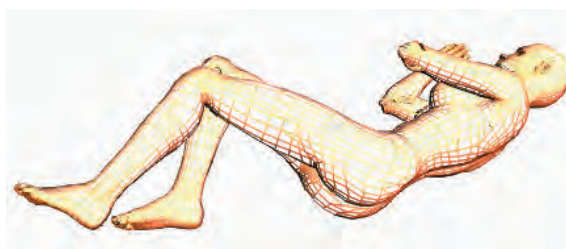


SOME SIDELINE CONTACTS



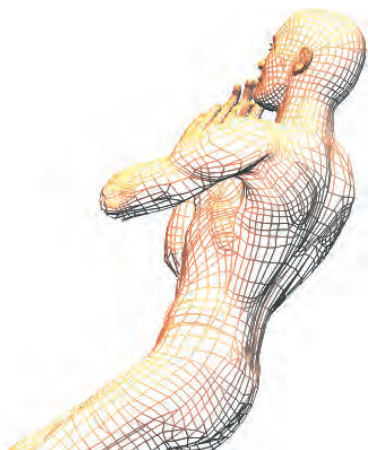
LOOSENING GREATER TROCHANTER

You can free the movement of the hip on the pelvis by making deep contacts in the tissue around the greater trochanter and asking for knee movement.



FASCIA LATA

You can lengthen fascia lata by making a deep contact with it, pulling downward from the greater trochanter.



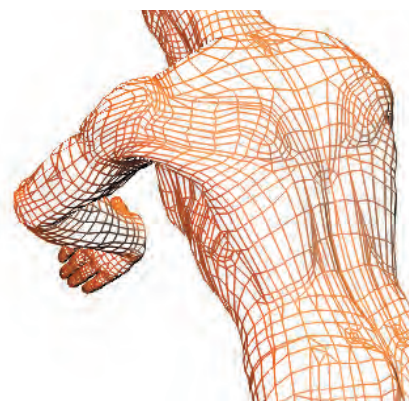
LATERAL TORSO

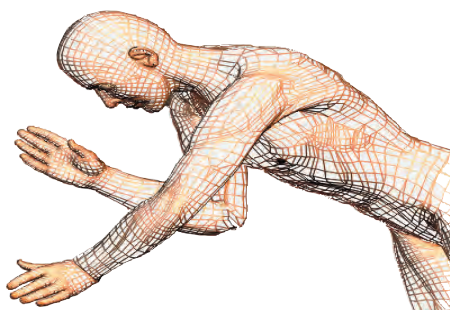
You can define the side plane of the torso by making contacts up the center line.



LATISSIMUS DORSI

You can draw back the anterior borders of Latissimus Dorsi, which helps release the shoulder girdle.





HUMERUS/SCAPULA

You can free the humerus to move on the scapula by defining the border between them and releasing teres and infraspinatus.



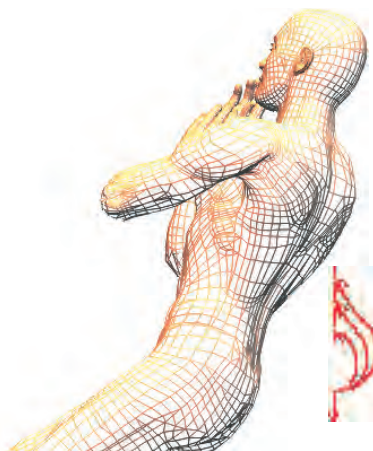
RHOMBOIDS

You can organize the movement of the rhomboids by deep contacts along the scapular border and the posterior processes of the spine.



SPINAL ERECTORS

You can lengthen spinalis by sliding contacts across the lateral margins toward the spine. This helps balance the lumbar.



LUMBAR FASCIA

You can lengthen the lower lumbar in the back by deep contacts in the area above the iliac crest and asking for knee movement.



What is a Contact?

A contact is not a stroke; it is an interaction.

The contact begins with a receptive attitude, touching to know. At the point of contact you explore using touch/press/move.

You approach your client's body with an idea of how it is supposed to move in expansional balance.

You think of bones and the geometric planes which describe their movement.

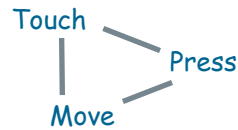
EVOLVING GOALS

At first, you will define and differentiate the tissue around bony landmarks.

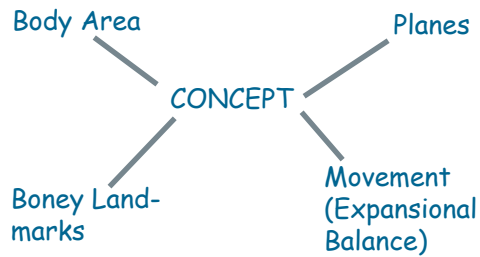
Next you will organize movement, by holding something where it is supposed to be and getting it to move.

Finally, in later sessions, you will integrate the body by organizing movement across larger and larger portions.

TOUCHING TO KNOW (technique comes from perception)



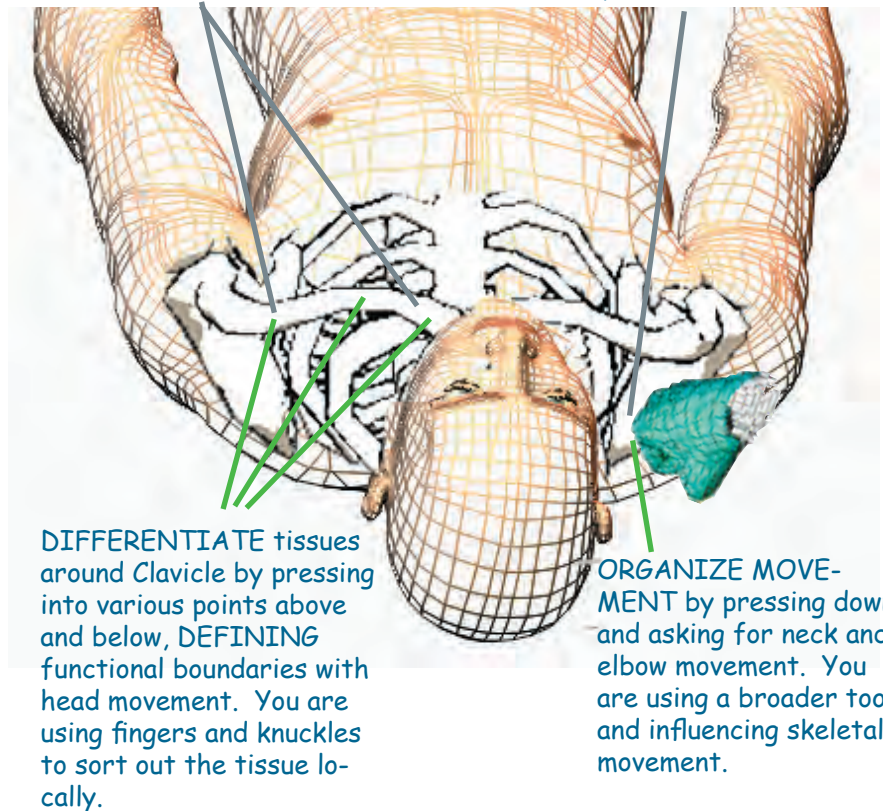
THE CONTACT is guided by A CONCEPT



SAMPLE CONTACTS

CLAVICLE, a bony landmark coordinating neck arm and chest tissues.

SCAPULA, upper angle and medial border. Insertions of levator scapula and rhomboids



Dual-Hand Contact

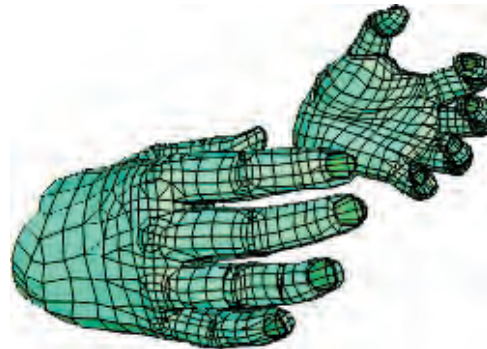
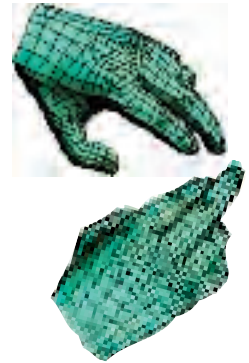
USING TWO HANDS,
ALMOST ALL OF THE TIME

Experienced practitioners nearly always use both hands in any contact.

THE FIRST HAND is the yang hand, more obviously working, pursuing objectives, defining, releasing, manipulating.

THE SECOND HAND is the yin hand and can do many things, such as:

1. define a part and give a sense of its volume,
2. guide a movement or imply a release,
3. add strength to the first hand,
4. diffuse pain by giving a larger context.



Seated Bench Work: The Back in Motion

Here is one of the most basic contacts in structural integration. It is done in nearly every session by most practitioners, and in each session it is different. It evolves in depth as the client opens up and finds core movement.

The hands are on the back, encouraging the long spinal erectors to lengthen downward. The client is bending forward, coordinating with the contact. But extension in the erectors must be coordinated with flexion in the anterior spine. We never lose sight of the three lumbar hinges, or of others in the thoracic spine as well. We coax as much core movement from our clients as they can manage.

This contact is an excellent first lesson in structural bodywork, because it combines several basic elements: receptive touch, awareness of skeletal movement, client participation, and instruction in core movement. With luck it can give both of you an early glimpse of a more integrated body. Integration, like enlightenment, is both sudden and gradual in its development.

Anatomy

We are focusing on the long bundles of spinal erectors which run from neck to sacrum. They cause the back to arch, and they should extend when the torso bends forward. If they are chronically short, the back will have flat places when the person bends. There are two bundles, which are formed of many individual muscles originating on each rib and inserting on the sacrum and the lumbar fascia. If they are shortened, it is probable that they have widened, so our objective is to shift them downward and in toward the spine, or medially as well as caudally. We also want this lengthening to be coordinated with the client's movement of flexion in the front.

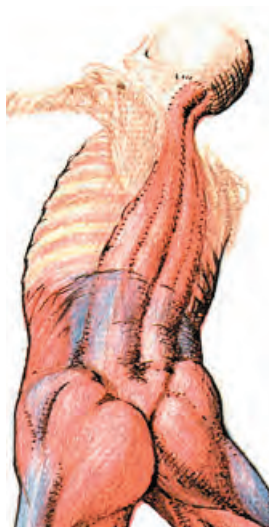
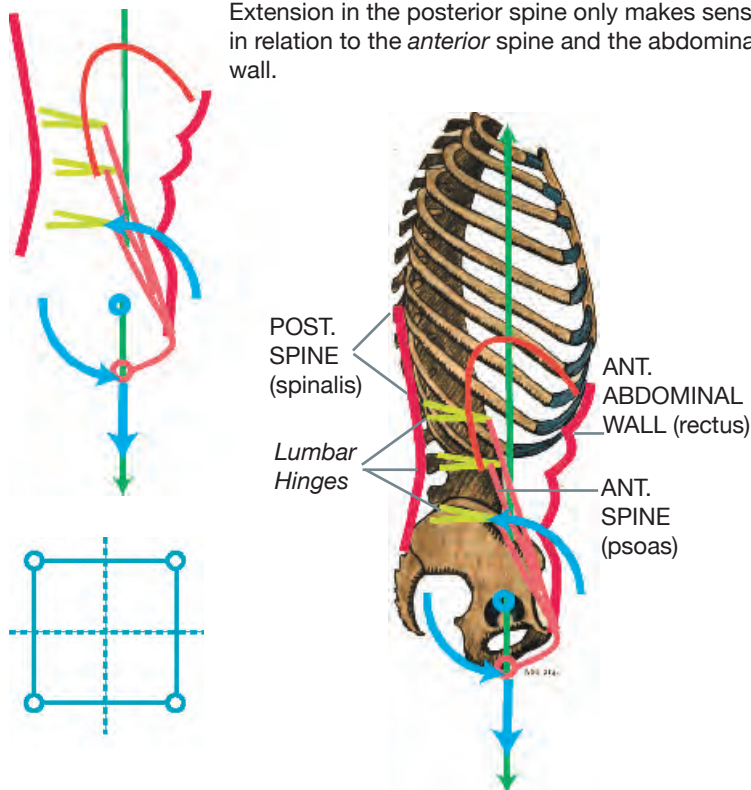
Movement

The movement varies. At first the client may only "curl down from the top." This helps to pull some of the shoulder 'mantle' to lengthen down. It is a first approximation to the lumbar hinges, especially if the client works to find awareness of the anterior spine at these point.



THREE LAYERS, THREE HINGES

Extension in the posterior spine only makes sense in relation to the *anterior* spine and the abdominal wall.

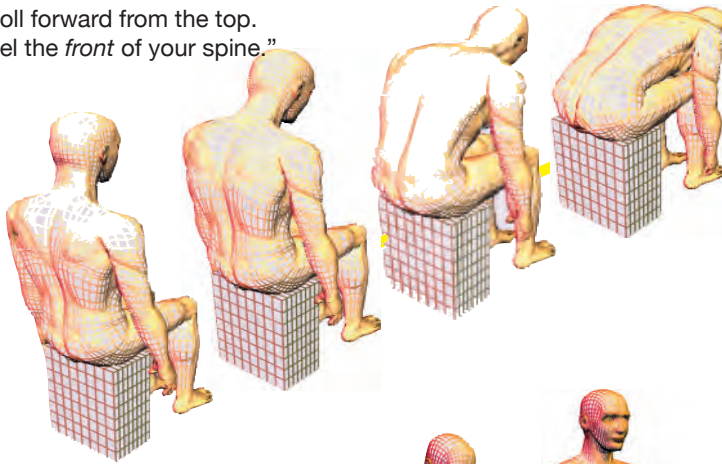


ERECTORS

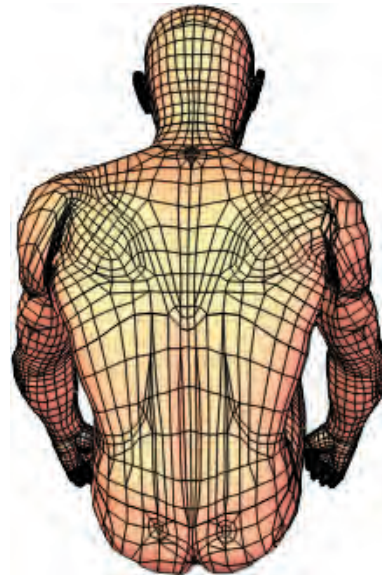
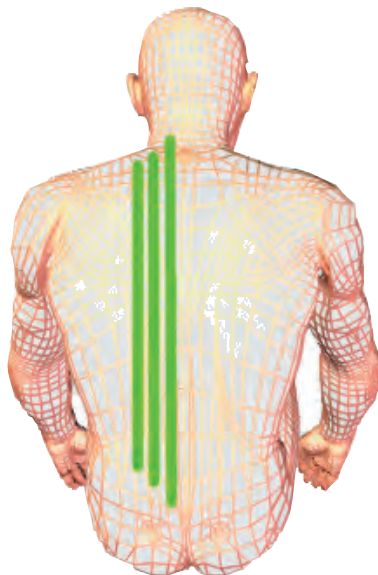
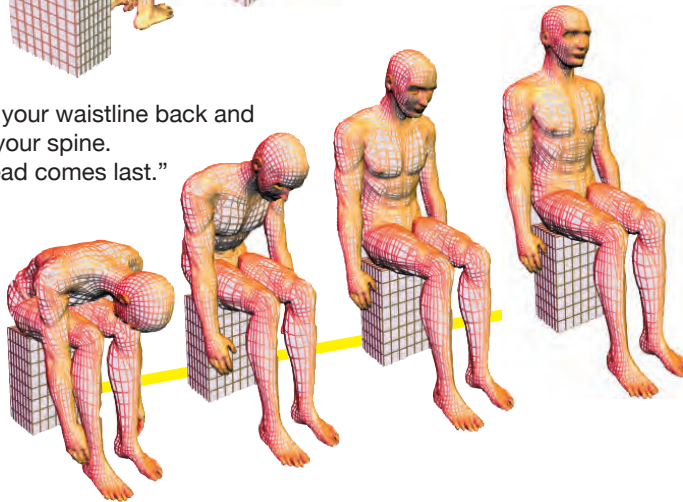
The spinal erector muscles are arranged in two large bundles. Notice that each rib has attachments for individual muscles within the bundles.



"Roll forward from the top.
Feel the *front* of your spine."



"Bring your waistline back and
unroll your spine.
The head comes last."



As the core becomes more coordinated the focus can be more completely on the hinges, including the cranial, thoracic, and dorsal (mid-thoracic) as well as the three lumbar hinges. Pushing the front of the spine back into the hands at each hinge point engages the hinges. Pushing backward that way requires the ground to push against, and so the pelvic extension comes to be connected to the lumbar balance. It is important have the seat high enough so that the clients knees bend at approximately 90 degrees, or just slightly greater.

Contacts

1. With a broad tool contact the lateral edge of the lateral bundle of spinalis on each side and ask for movement. Hook into the tissue and pull slowly downward, maintaining a push medially toward the spine as well. Continue past the sacral hinge.

2. Contact the lateral edges of the *medial* bundles of spinalis on each side. Continue as in Step 1.

3. With a narrow tool (knuckles of index fingers?) contact the medial edge of the medial bundles along the posterior processes of the spinal vertebrae. Hook into the tissue and pull slowly downward to the sacrum.

Pelvic Lift

A pelvic lift is given at the end of every session of structural integration to integrate the work. It also appears to have some powerful effects in regulating the autonomic nervous system, bringing it into balance and normalizing such things as heart beat. Dr. Rolf attributed this to contacting the “Ganglion of Impar” (sacral plexus) just forward of the sacrum.

The Pelvic Lift is *the* movement of pelvic extension, and the bodyworker’s task is to guide the client through it with ever increasing differentiation and clarity.

Stacey Mills, one of Dr. Rolf’s early students, wrote an essay on the pelvic lift entitled “What are You Doing Under There?” She listed thirty different things she might be doing in a pelvic lift, which shows how complex and evolving this contact really can be.

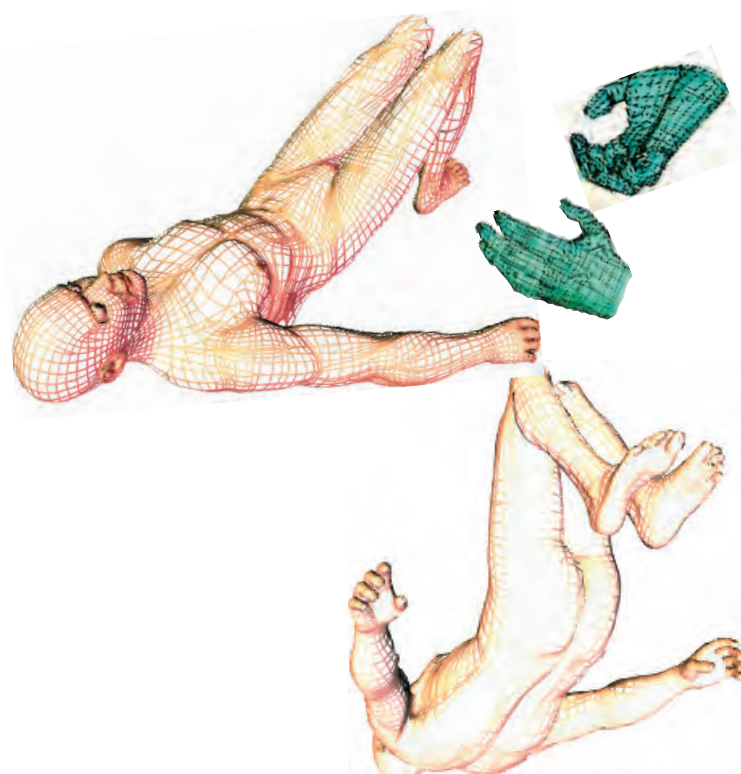
The Contact

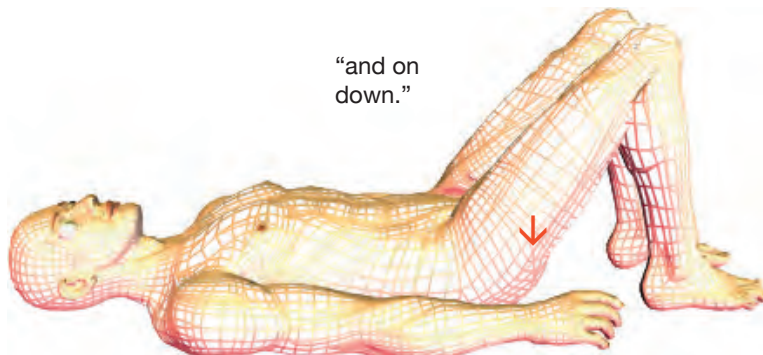
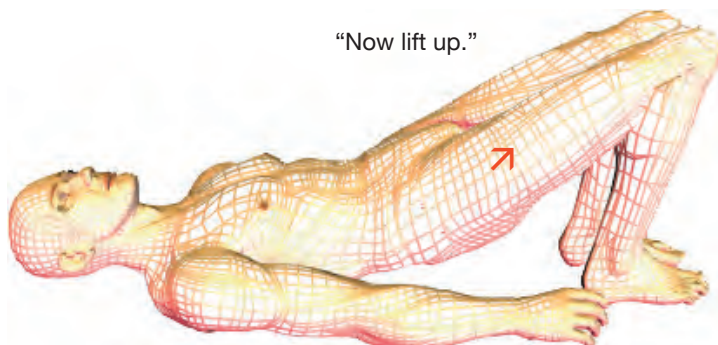
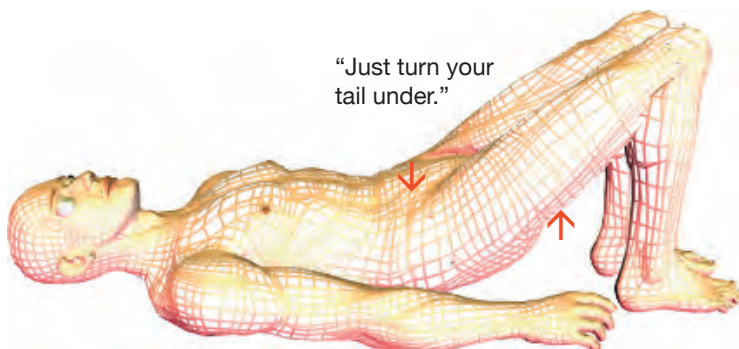
Place one hand on the lower abdomen to define the hinge at L5. Ask the client to “turn your tail under” and “now lift up,” at which point you slide your *other* hand under so that your fingertips touch the top of the sacrum and the rest of the tail is cradled in your hand.

The upper hand continues to press precisely into the anterior sacral hinge while the under hand pulls the tail gently, coaxing it into lengthening further as you say “Now let your waistline come down in the back.”

Variations

1. The under hand can reach all the way up the mid-back and guide the entire spine down in the “waistline down” step.
2. The under hand can sculpt more vigorously into the posterior sacrum, if there appears to be bunching of tissue around it.
3. The under hand can cup the sacrum receptively, intentionally contacting the entire sacrum and the nerve plexes around it.
- 4.. The fingertips of the under hand can remain very precisely on the joints of the posterior sacrum, repeating the “just turn under” and “waistline down” movements in small increments until the sacrum flattens





out. Repeat this at each segment of the sacrum all the way down to the coccyx.

The Movement

Your first concern is to separate the "tail under" and the "now lift up" steps. Many clients will attempt to combine them, but you want the tail to turn under and the sacral hinge to come back before the lift. Your hands are continually signalling length in the lower back and lift in the anterior spine.

You also want the lift to come from extension into the knees (true pelvic extension) rather than from contraction of the rectus and abdominal wall (flexion). With some clients you need to do a good deal of training before they can relax the anterior abdomen and simply allow the spine to hang back from the knees 'like a chain.'

Basic Neck Work



Some work is also done on the neck at the end of every session to integrate what has been done with the upper end of the spine. This also evolves over time and may include many different kinds of contacts.

Contact: Sternocleidomastoid

In the beginning you will want to lengthen one particular extrinsic muscle, the sternocleidomastoid (SCM) at both the top and bottom of the neck. This muscle is often overused and shortened, which crowds the proper function of the smaller, intrinsic muscles.

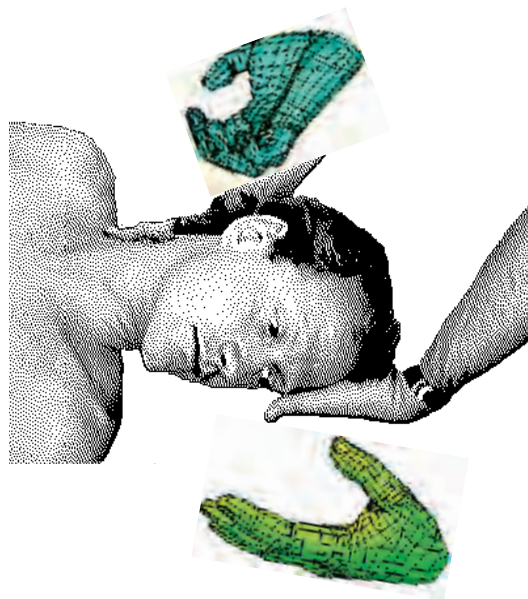
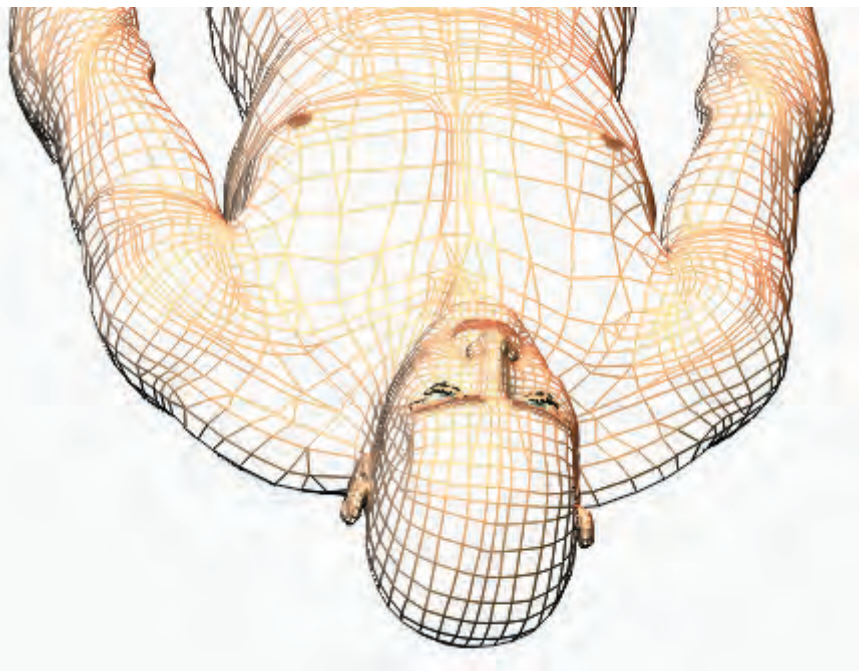
From the bottom you can hold the SCM attachments along the clavicle, immobilizing the muscle while the head turns to the opposite side.

From the top, you can cradle the head in a rotated position with one hand while you sculpt into the attachments of SCM along the mastoid and occiput. The cradling hand can move the head in various ways to uncover precise areas of holding for the sculpting fingers.

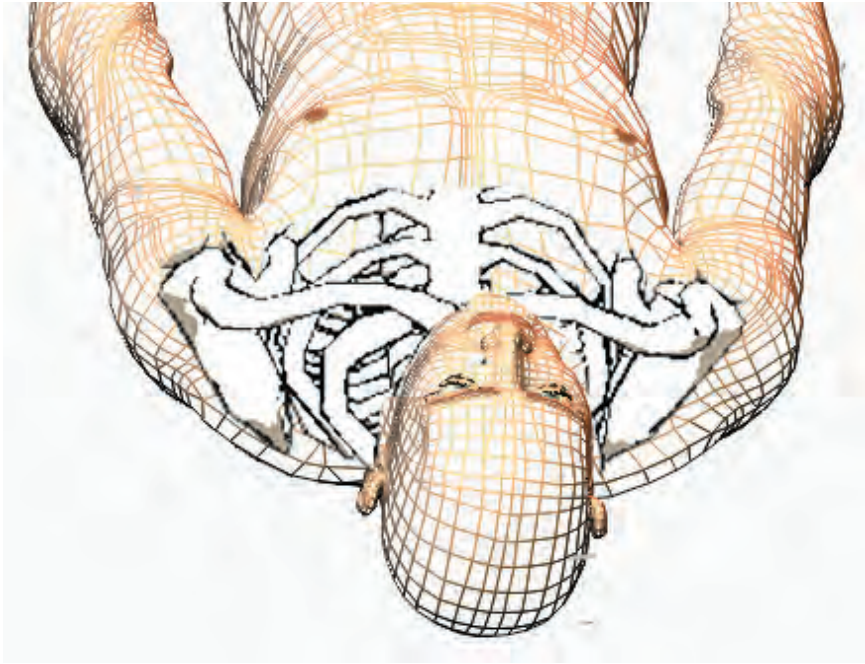
Contact: Levator Scapula

Levator scapula is another extrinsic muscle of the neck, running from C2-4 to the medial superior border of the scapula. When it is shortened, the lifted shoulder girdle becomes a burden to the neck. You can sculpt into the origins on C2-4 in much the same way as you did with the SCM in the previous step, using the cradling hand to supply movement and access.

At the lower end, you can put your fist over the attachments on the scapula, pressing down while you cradle the turned head and apply traction.



Thoracic Outlet

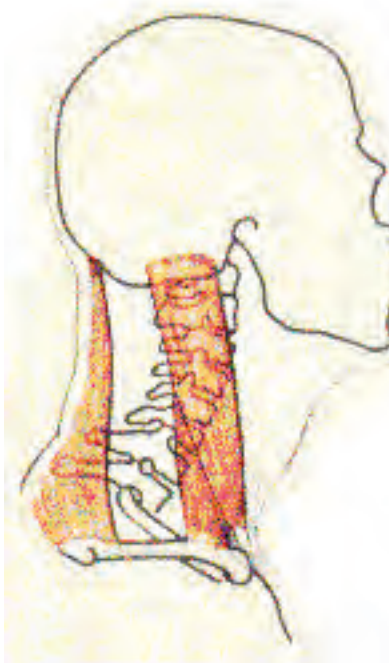


Other Contacts

In fact, compressions anywhere in the thoracic outlet combined with head rotation can be useful in freeing strictures in the client's movement. Often the causes of quite severe limitations can be found in very small contractions in the fascia in this area. You can use fingertips for precise and delicate work, or broad fists or knuckles to organize levator scapuli or trapezius above the scapula.

Movements: head and elbow

In addition to rotations of the head, you can ask the client to move the elbow straight out to the side (about an inch), and back in. This orients the shoulder girdle to the side plane and makes geometric sense of what you are attempting to do with your hands.



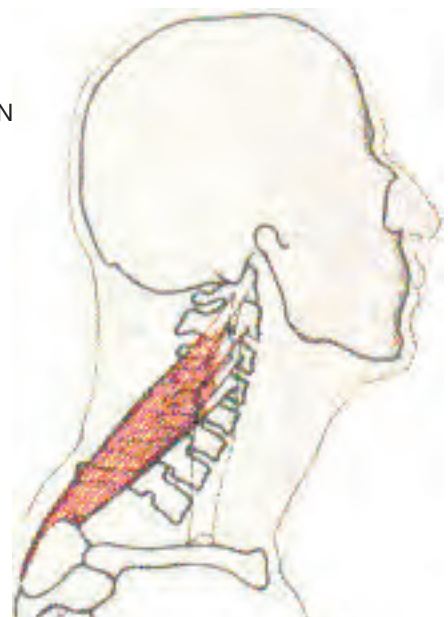
EXTRINSIC MUSCLES OF THE NECK CAN INTERFERE WITH CORE EXPANSION OF THE UPPER POLE

Left: Sternocleidomastoid and Trapezius

Right: Levator Scapuli

Not shown: Scalenes

From Mollier.



Trapezius



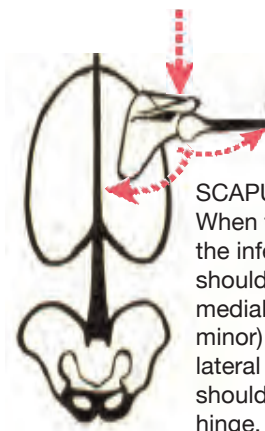
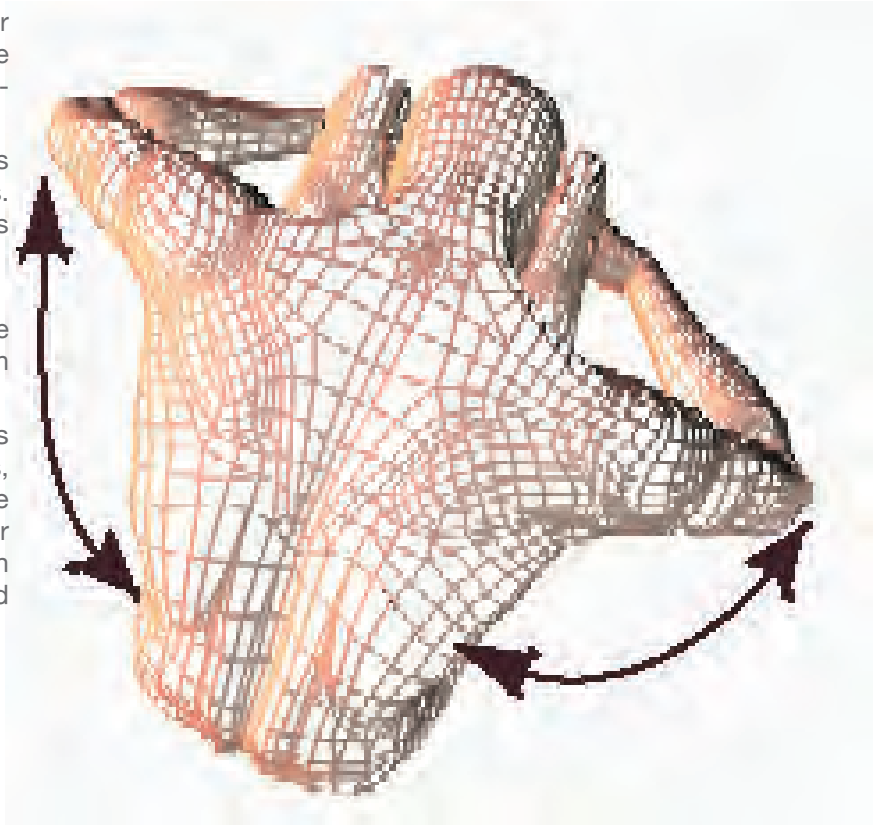
Here's another approach to the shoulder girdle which frees the upper polarity. The trapezius tends to migrate up the back creating a load on the neck.

The client is seated on the floor, knees up, fingers intertwined in front of the knees. The forehead is resting on the knees, or as close as it can get to them.

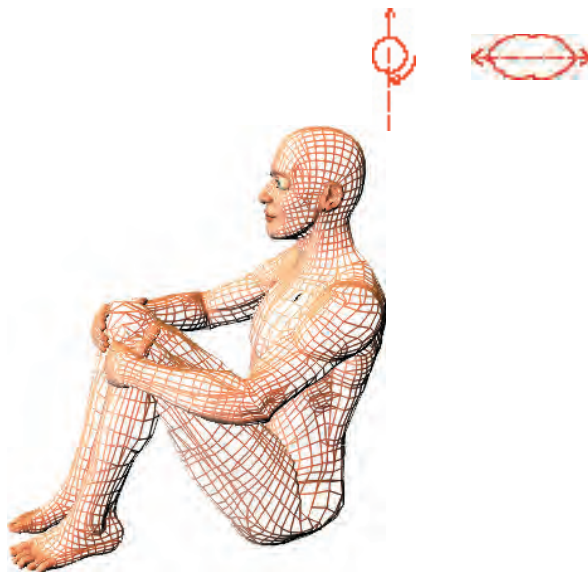
Contacts

The goal of this contact is to hold the trapezius down while the client rotates both elbows out *without raising the shoulders*.

Fists are a good tool. You can press into various points in the upper trapezius, vector down, as the client executes the movement of the elbows outward. Feel for where the shoulders tend to lift rather than allow a separation between humerus and scapula.



SCAPULAR EXTENSION,
When the elbow goes out,
the inferior angle of scapula
should move down and
medially (release of teres
minor) and the superior
lateral angle of scapula
should drop, as if into a
hinge.



Seated Neck Extension

Here's another contact in the seated position on the floor. Again the knees are together and up, and the fingers are in front of the knees. The elbows can remain extended out without raising the shoulders.

The goal is to free the upper pole from the load of shoulder girdle.

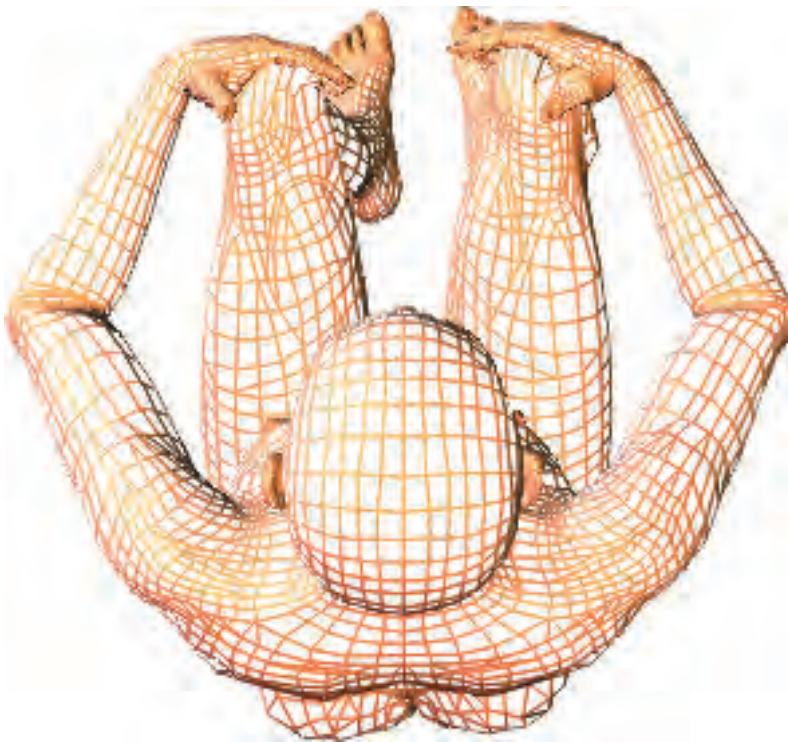
Contacts and Movements

Hold the shoulder girdle down as the head goes through its various possible movements, especially rotation, forward flexion, and extension. Little nods of the head on the atlas are also very useful.

Here again, your fists are the best tool. Press down into the scapula from above, immobilizing trapezius and lengthening levator scapuli while asking your client for movement.

Don't expect much true extension of the neck unless the client has a well-organized core (for example, after the first six sessions of the series). Otherwise the client will attempt extension by arching the thoracic spine rather than extending within the neck itself. This isn't too useful, but the other movements of nodding, forward flexion and rotation can be highly organizing even in the beginning.

If you can elicit extension within the neck, so that the head actually gets farther away from the shoulder girdle, then try a contact very close to the top thoracic vertebra. Sometimes a tendency to 'dowager's hump' can be corrected because the *scalenes* get mobilized by the extension.



Anterior Arms



This arm work is an excellent way to get a feel for combining pressure with movement to get skeletal change.

Concept

We want the horizontal polarity to release freely to the side. The arms, of course, are an essential part of this. But what if they are exerting an unbalanced pull on the shoulders? Typically, exercise or hard work exerts the extrinsic muscles on the front of the arm (biceps and muscles across the elbow), shortening this entire side up into the shoulder. This distorts the shoulder girdle in its anterior/posterior balance across the same plane. We want this side of the arm to lengthen, and we want the length to be related to the side plane.

Arms and legs: if the feet or hands are withdrawn, the entire limb is affected all the way back into its girdle. It is as if the hands and feet must make open contact with the outside world in order for the limbs to extend out from the torso. For legs, the necessity of having the feet on the ground keeps the legs somewhat extended, but arms have no such demand, and so they can become very short and twisted.

The Position

The position here of the arms in the supine position is somewhat different from the usual anatomy pictures, which attempt to treat the inside of the elbow as the anterior side of the arm. For the arm to relate to the side plane without rotation the outside of the elbow must be to the side. Without rotating the wrist on the elbow, the hand lies naturally palm down, and the side plane passes down through the ulna and the little finger.

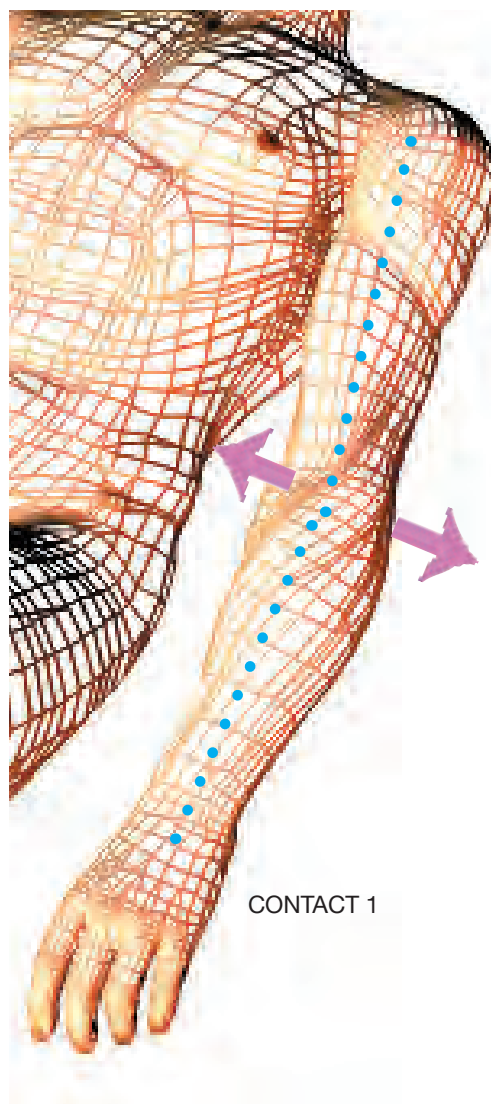
The Contacts

I. Lower Arm, elbow to the side and back.

You can press into the anterior lower arm, contacting the interosseus membrane and keeping the radius and ulna in a steady side-by-side position while the elbow moves. Start down at the wrist and make successive contacts up to the elbow, tracking the movement on the side plane.

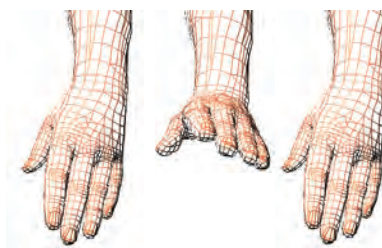
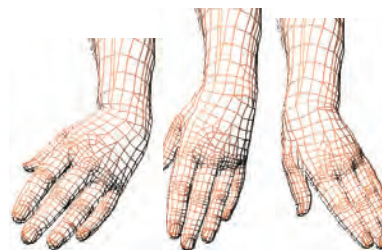


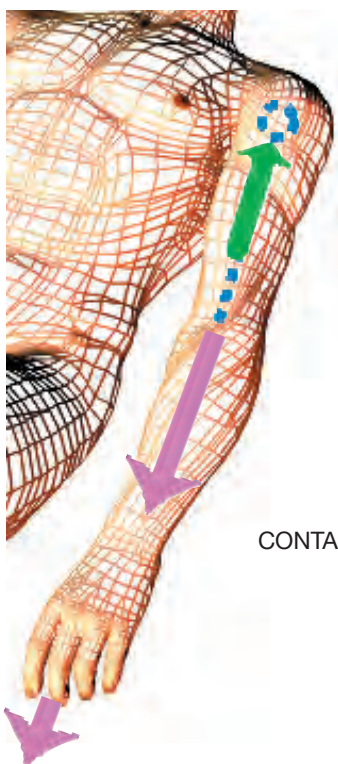
Relating the Arms to the Side Plane



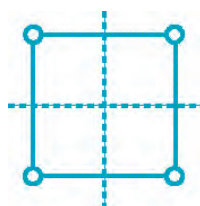
CONTACT 1

CONTACT 2





CONTACT 3



2. Lower Arm, with wrist movement on two planes.

Make similar contacts beginning at the wrist, as the client moves the hand on the primary (up and down) and secondary (side to side) hinges of the wrist. Organized, geometrical movement here can go a long way to clarifying the wrist joint and permitting the hand to open 'out through' in extension.

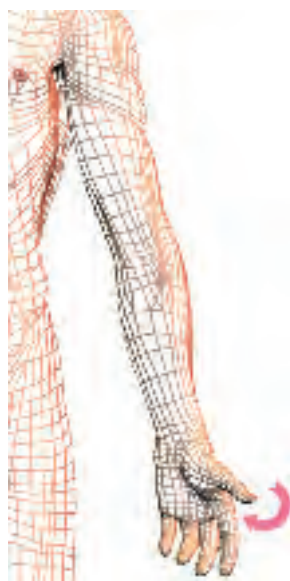
As you move up the lower arm you will become aware how much of the twisted, tense distortion of the lower arms is because of disorganization in the movement of the hand on the wrist.

3. Upper arm, with humerus extending.

Hold the external layer of the upper arm, against the downward extension of the arm. The connection is rather like holding the sleeve while someone puts on a coat, like helping someone put on a wet-suit. The anterior arm can gain more room, and, when you reach up as far as the coracoid process, the biceps can lengthen and allow the shoulder to fall back.

4. Lower arm, with rotation and thumb circles.

The lower arm especially shortens on the side of the radius. With the wrist rotated you can help lengthen attachments on the inner edge of the radius by pressing into them while the client moves the thumb in a circle (extend, flex forward, flex up).



CONTACT 4

Midline Chest, Front and Back

Dr. Rolf often began Session One with this dual contact. It is both subtle and profound to touch someone on the front and back of the chest, and you can spend a lifetime learning how to do it. Your emphasis should be on sensing, not doing. Feel what is in your hands.

Warm up:

Both hands in back, finger tips along the spinous process. Think Bones, and feel the breath. Get a sense for the rib cage and where it is being held. Is there a particular place which draws your attention?

Front-Back Contact

Slide the far hand under the rib cage until your fingers touch next to the spinous processes on your side of the vertebrae. This *may* be the place which drew your attention, or you may start low on the ribcage. Put your near hand on the front so that your fingertips touch the sternum opposite (on the same rib) to where your hand in back is touching.

variation 1: sensing

Feel everything you can about what is between your hands. There is breath, heartbeat, temperature. If you press the chest back and forth between your fingers you will sense where the ribs move freely and where they do not. Don't try to go too deep: even though you can feel the bones move, your intention should focus on the external fascial sheath (EFS).

variation 2: expanding EFS

The fingertips in back can hook into the external fascia next to the spine and draw it laterally.

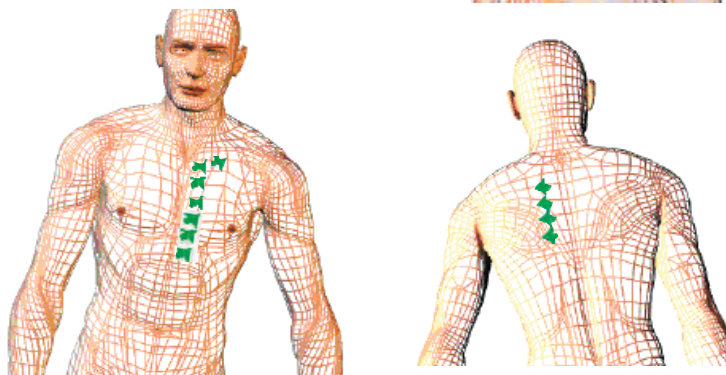
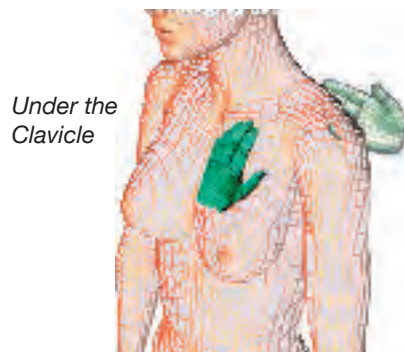
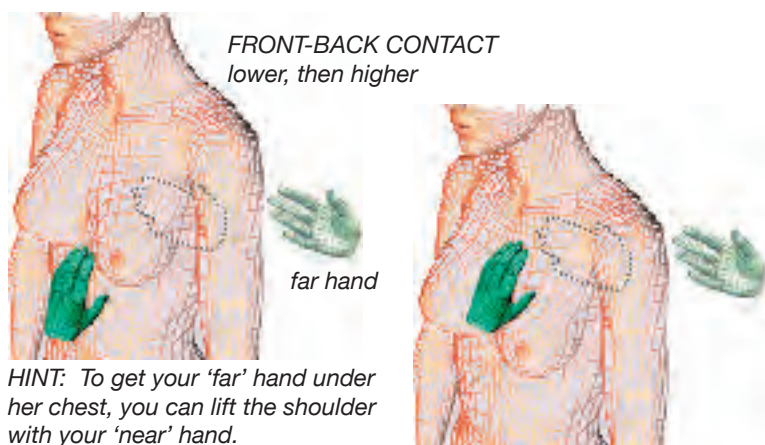
The fingertips in front can hook into the external fascia on the sternum and lift it upward and laterally.

Sometimes you will focus on the front, and sometimes on the back.

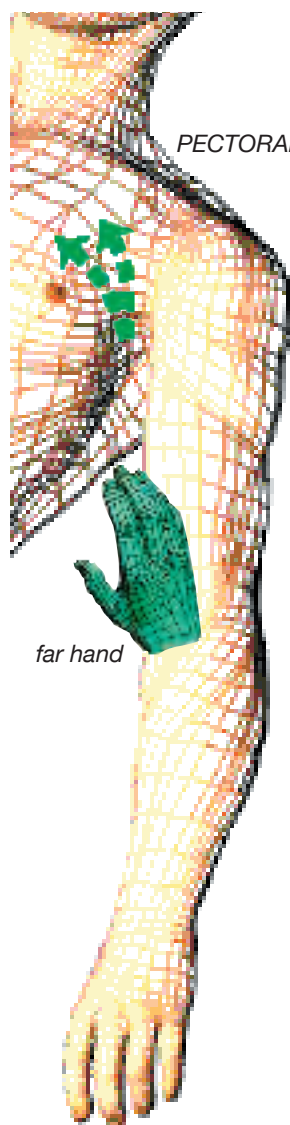
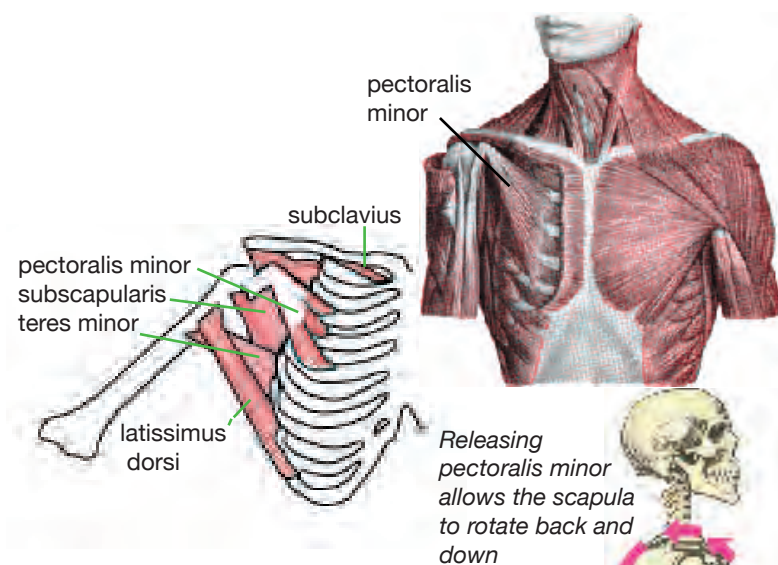
Repeat the contact a few times higher on the ribcage.

variation 3: under the clavicle

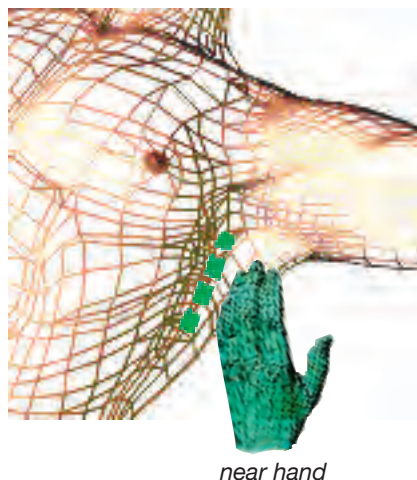
Explore across under the clavicle looking for ways to lift it from the sternum and upper chest. Ask for head rotation.



Lifting the EFS laterally from spine, headward and laterally from the sternum.



SUBSCAPULARIS



Armpits

You can gently free the contracted arm from the ribcage by contacting pectoralis minor and subscapularis. Feel your way into these contacts slowly, letting your client draw you in.

Pectoralis Minor

Pectoralis minor can pull the coracoid process of the scapula forward so that the shoulder is rounded and the scapula lifts. Releasing it allows the scapula to rotate back and down.

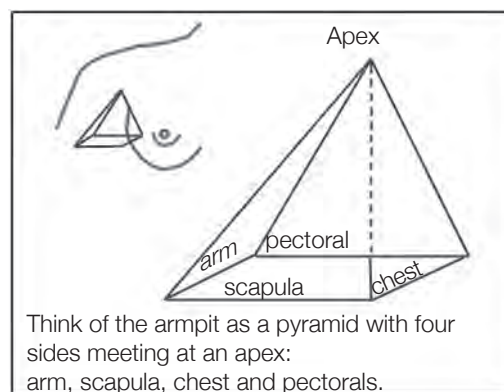
With your 'far' hand, reach under pectoralis major along the ribs until you contact thickened attachments of pectoralis minor on ribs 2, 3, and 4. Press lightly and wait for your client to find the release. Ask for head rotation.

Use your 'near' hand as a dual operator on the shoulder or arm.

Subscapularis

Subscapularis can bind the scapula to the humerus, interfering with the scapular extension.

With the fingertips of your 'near' hand reach up toward the apex of the axilla and define the margin between the ribcage (serratus) and the scapula (subscapularis). When you encounter a transverse bundle, press gently and wait for your client to let the arm release to the side. The 'far' hand is a dual operator, contacting the shoulder or elbow. Ask for head rotation.



Hips and Lateral Thigh

If the pelvis is to be a universal joint transmitting force from leg to spine, or spine to leg, then it should not be bound up or unable to move freely within its limits.

The first approach to a contracted pelvis is from the side, addressing the greater trochanter, which sits in a fan of muscular attachments connecting it to the iliac crest above, the sacrum behind, and the knee below via fascia lata.

The anterior-superior iliac spine (ASIS) is another focus. Muscles of the leg such as quadriceps, tensor fascia lata, sartorius attach at or under ASIS, easily joining with other pelvic flexors to hold the pelvis fixed in a crouched position. This distorts the front-back balance of the pelvis from the front.

Contact 1

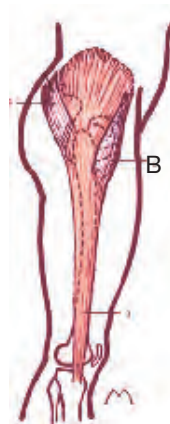
Compress above and below the greater trochanter (GT). The blades of your ulnas work, just under the elbows. Press in, make subtle circles with the GT, keeping the rest of the pelvic bones in mind. Wait. Feel. Remember that you are touching your client's awareness, not simply a physical body.

Contact 2

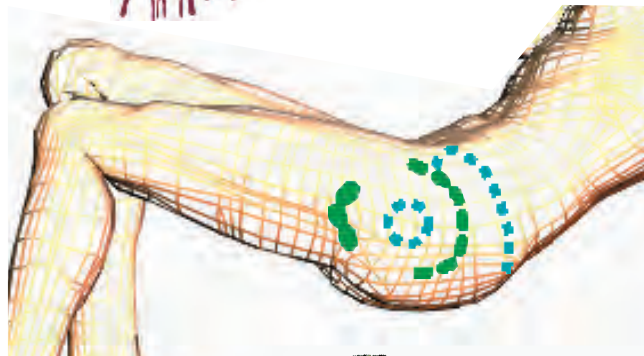
Press farther down the fascia lata, waiting for the knee to release away from the GT. The other elbow remains above the GT, so that the release is guided away from the hip.

Contact 3

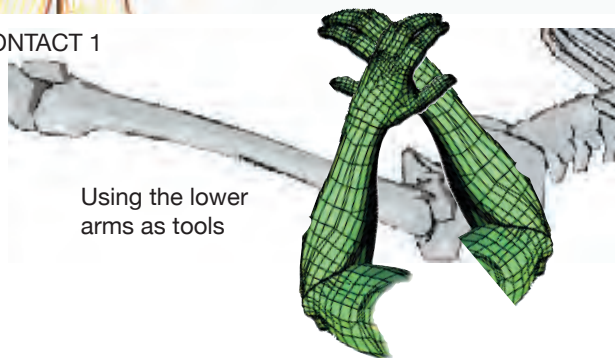
Angle an elbow so that it presses back into the tensor fascia lata under the ASIS. Maintain a secondary contact somewhere above the iliac crest. Wait for release.



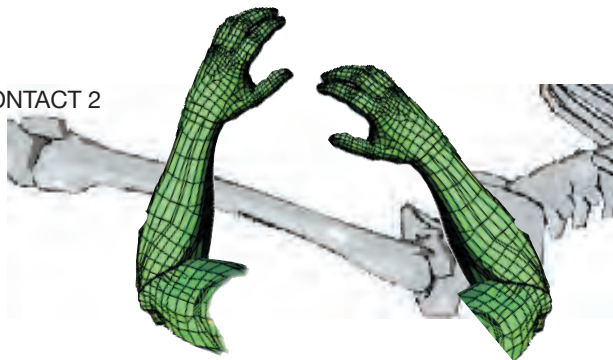
Fascia Lata (A) with tensor (B) and gluteus medius (C). This drawing from Mollier shows the considerable lordosis considered proper in German physical culture at the time (1932)



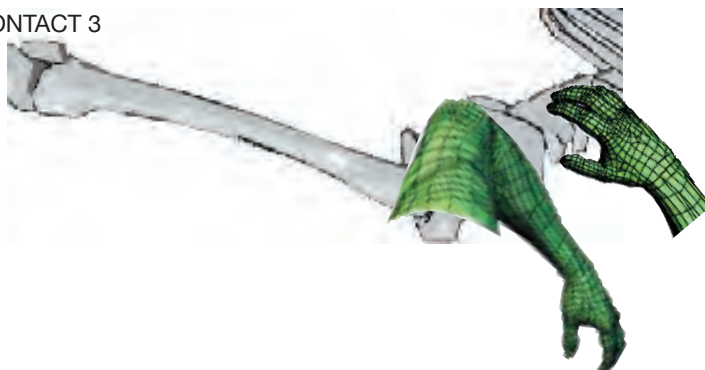
CONTACT 1

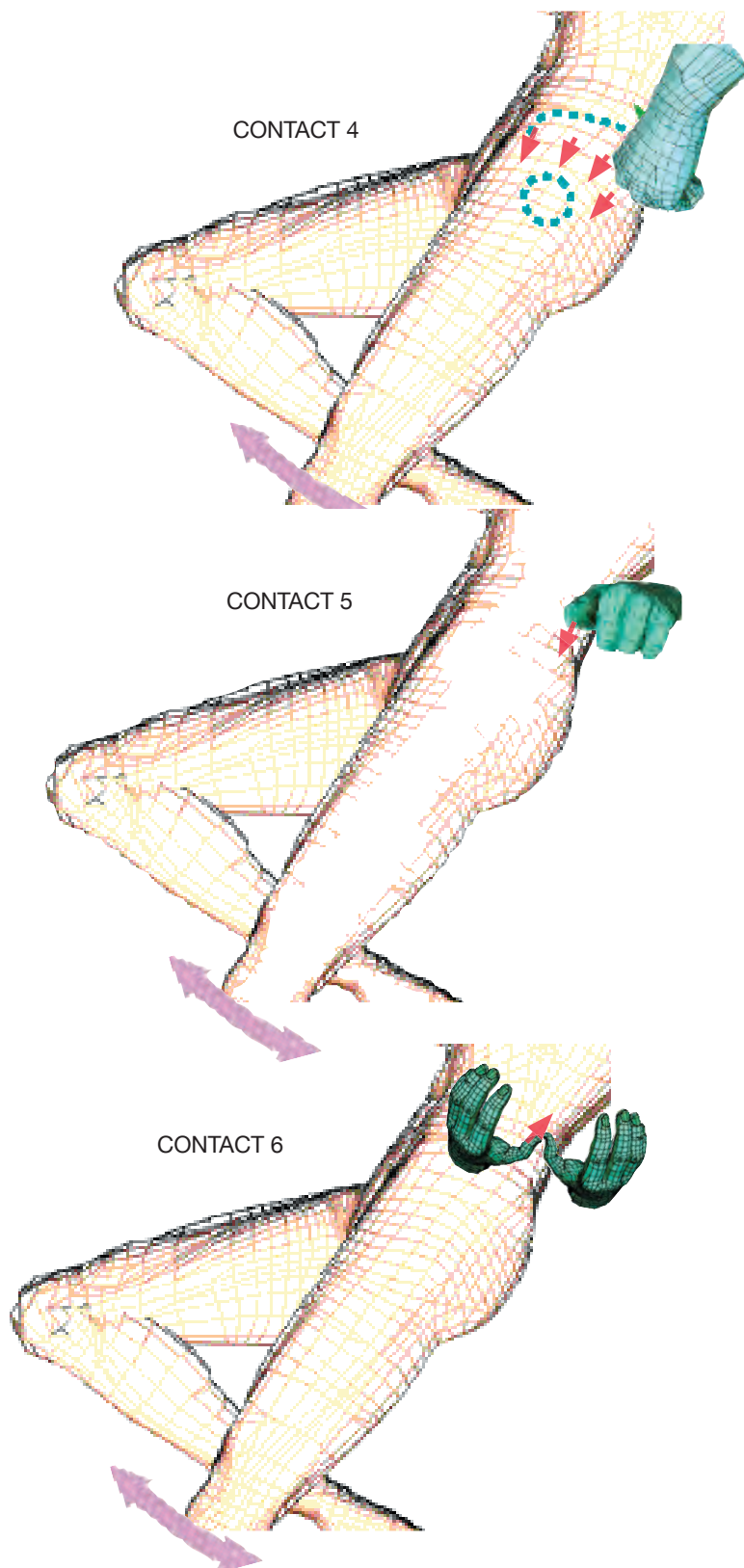


CONTACT 2



CONTACT 3





Contact 4

With the upper leg straight, make several compressions around GT and ask for movement of the knee straight forward and back. Press systematically above, in front of, and behind the GT, expecting the knee movement to produce lengthening in the back without shortening in the front.

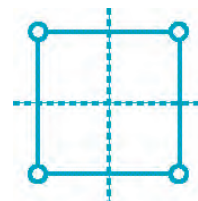
Contact 5

Press (with a knuckle or two) above the Posterior Superior Iliac Spine (PSIS) down toward the sacroiliac joint. Ask for knee movement and feel for lengthening down the lower back.

Contact 6

Find the under side of the 12th rib. Ask for knee movement and feel for lengthening in the lower back.

[CONCEPT: in a well-organized body, walking with core expansion, the knees swing forward in a wave-like motion all the way from the 12th rib]



Hamstrings

The hamstrings have major influence on antero-lateral pelvic balance from the back. Releasing them to allow the knee to move without dragging the ischium along is another part of freeing the pelvis on the femur.

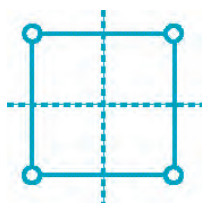
Contact

With fists on either side of a midline drawn from center knee to ischial tuberosity, *hold* the hamstrings while the client pulls knee away from pelvis, towards their same side ear. This is not a sliding stroke, but a series of compressions. The client supplies the lengthening by keeping the tail on the table and pulling the knee straight back toward the ear.

The medial fist can proceed as far as the pelvic ramus to provide a shift in the alignment of the pelvic floor. Remember, the momentum is provided by the client's pull on the knee.



Balance between the hamstrings and quadriceps.



The two bundles of hamstrings suggest a balance across the bisecting plane.



Your fists are holding the hamstrings while the client pulls. The tail stays on the table, and the binding between leg and pelvis is released.





Anterior Thigh and Knee

On the opposite side from the hamstrings are the flexors of the pelvis and thigh. When they are chronically short they immobilize the pelvis in a crouch, pulling the lumbar spine forward and pulling the knee upward into the hip. This introduces various twists between the hip and knee, so that the leg cannot move easily on the bisecting plane.

Contact 1

Compress the antero-lateral thigh around where the tensor fascia lata joins the fascia lata. Ask for extension into the heel. This reduces the pull on the lower lumbar and can often relieve serious lower back problems.

Contact 2

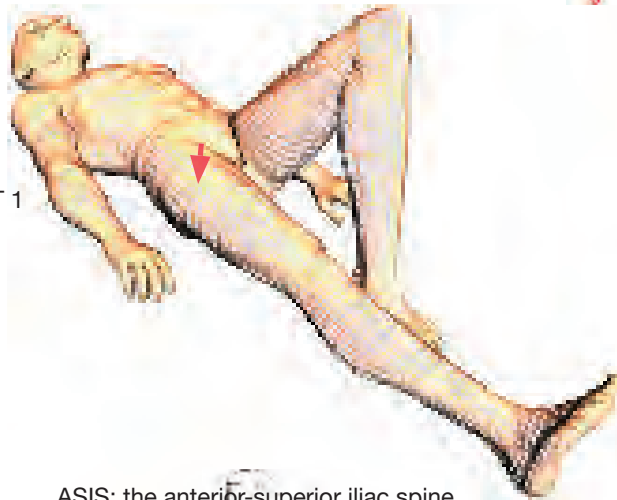
With the knee bent, compress various places above the patella, observing flat spots where the vastus lateralis or other parts of the quadriceps are pulling on the kneecap. Ask for movement of the foot up and down on the ankle.

Serious injuries to the leg, which often result from chronic unbalanced stresses on the knee, can often be prevented with this procedure.

Contact 3

Iron further up the vastus lateralis, over the tensor fascia lata toward the ASIS, while the client turns tail under and extends into the knee. This can reduce binding of the lateral leg and help differentiate the leg from the pelvis.

CONTACT 1



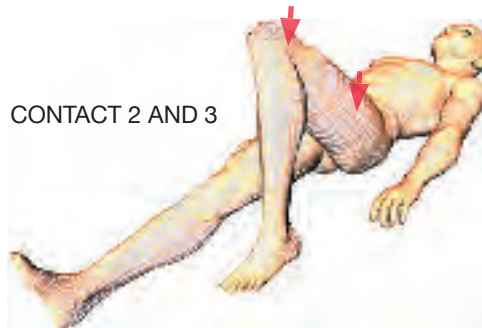
ASIS: the anterior-superior iliac spine

CONTACT 1

CONTACT 2

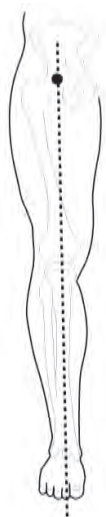


CONTACT 2 AND 3



Foot Notes for a Structural Foot Session

ANKLE HINGE ON THE BI-SECTING PLANE

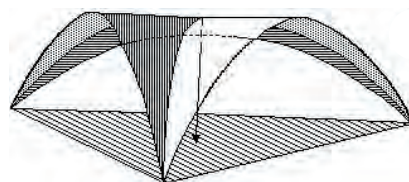


In a well-organized leg, all the hinges work on the same bisecting plane. The goal of the session is to organize the foot and ankle so that they hinge on that plane.

THREE ARCHES

The foot is a system of three arches, distributing weight between three points of a triangle: heel, ball of the big toe, and ball of the little toe. This system permits a great deal of weight to be borne lightly, on springs.

The bisecting plane of the leg passes through the heel point and somewhere between the second and third toes.



The foot is a triangular arch resting on three points



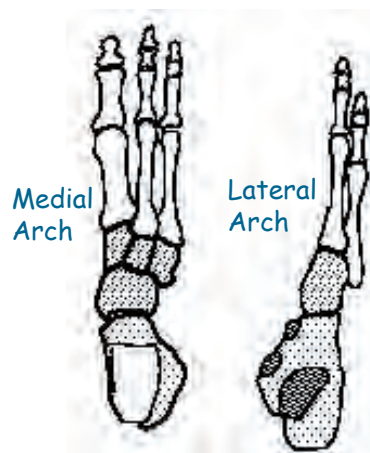
MEDIAL AND LATERAL ARCHES

The foot is already designed to balance across the bisecting plane. It is composed of two semi-independent units, the medial and lateral arches.

The medial arch: the first three toes and metatarsals attach via the cuneiforms and navicular to the talus.

The outer arch: the last two toes and metatarsals attach via the cuboid to the calcaneus (heel).

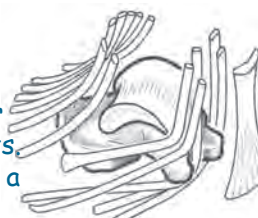
The transverse arch really comes into being when the medial and lateral arches are in correct relationship.



Medial Arch in place on the Lateral Arch

The talus, forming the actual hinge of the ankle, rests on top of the calcaneus. The inner arch thus depends on the outer arch. If the heel should move laterally, the inner arch collapses and the feet are flat.

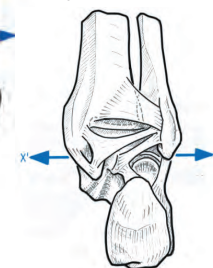
Talus has no muscular attachments. It is purely a bearing for the joint.



REDRAWN FROM KAPANDJI



Anterior ankle joint: tibia, fibula, talus, calcaneus



Posterior ankle joint: tibia, fibula, talus, calcaneus.

MEDIAL/LATERAL BALANCE.

It is important to understand that the ankle is not simply a local, horizontal fact, but a result of the balance of the entire leg across the (vertical) bisecting plane. The arches of the foot require so much strength that the muscles creating them cannot be contained within the foot. The bodies of these muscles reside in the calf, with long tendons passing on either side of the ankle joint to the sole of the foot. Therefore the balance of these tendons is of special interest to us.

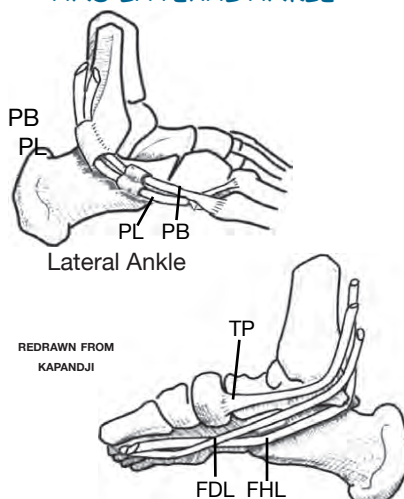
On the lateral side we have the two peroneal muscles, and on the medial side the tibialis posterior and flexor hallucis longus and flexor digitorum longus.

Our "vertical" interest in the balance of the ankle continues into the foot. Examining how the five calf muscles insert into the foot should make it clear why:

1. **Tibialis Posterioris** and **Peronius Longus** have an interesting balance: portions of TP cross under the foot and attach to the rear of the second, third, and fourth metatarsals (the fourth being part of the outer arch), while PL crosses under and attaches to the rear of the first and second metatarsals (the medial arch). In other words, the middle of the medial arch is controlled by a muscle coming down the outer calf and crossing the sole, while the middle of the lateral arch is affected by a muscle coming down the inner calf and crossing the sole.

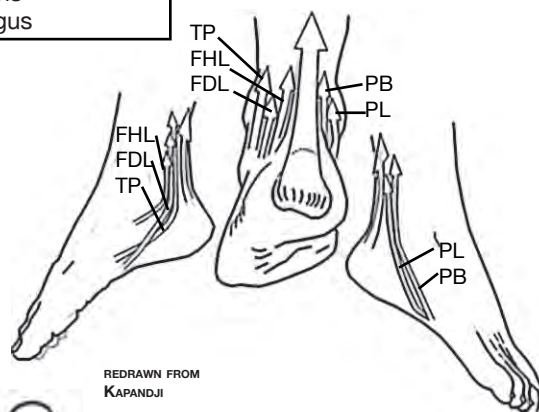
2. **Flexor Hallucis Longus** comes down the inner calf and attaches to the ball of the big toe, while **Flexor Digitorum Longus** comes down the inner

TENDONS OF THE MEDIAL AND LATERAL ANKLE



Medial Ankle

TP - Tibialis Posterioris
FHL - Flexor Hallucis Longus
FDL - Flexor Digitorum Longus
PB - Peronius Brevis
PL - Peronius Longus



Insertions of the ankle tendons across the sole of the foot

REDRAWN FROM
KAPANDJI

calf and crosses under the sole to attach to the balls of the first four toes.

3. If **Peronius Brevis** limits the movement of the fifth metatarsal to which it attaches, then the hinge is unbalanced.

4. If any of these five muscles should be shortened in the calf or at the ankle, then the hinging of the foot on the ankle will be limited.

5. If the more superficial flexors of the sole of the foot are shortened, then the action of the ankle hinge will also be limited.

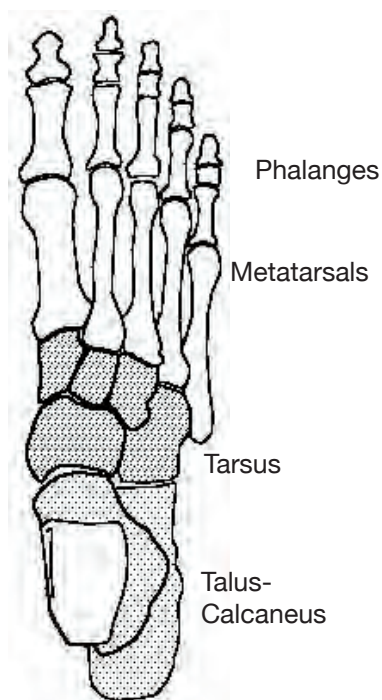
TRANSVERSE JOINTS OF THE FOOT

Thus far we have demonstrated the medial-lateral division of the foot. But as the weight shifts from heel to toe there are subtle shifts in several transverse joints allowing the arches to spread. The Calcaneus/Talus in the rear join with a middle section consisting of navicular-plus-cuneiforms (for the inner arch) and cuboid (for the outer arch). This middle section is called the tarsus. The tarsus joins the next section, the metatarsal bones, which join with the phalanges, or toes.

If the client is standing you can feel the movement of these joints as the knee moves back and forth, shifting the weight on the foot. It is a good way to get a functional understanding of the bones of the foot. It is possible to bring about structural change in the feet and legs using this procedure, but that belongs to much more advanced work.

ANTERIOR-POSTERIOR BALANCE ACROSS THE ANKLE

There is one final balance to be considered between the front and back of the ankle. The actual hinge, where the tibia moves on the talus, is about a third of the distance from the rear of the heel toward the heads of the metatarsals. The foot, then, is a teeter-totter, with muscles attaching to the top of the heel balancing muscles of the top of the foot and front of the shin.



When the calf muscles fail to release as the foot is flexed, the anterior muscles must work excessively, causing soreness and even shin splints. Sometimes the foot can hardly flex, the client merely hyper extends the toes. Then the sole of the foot must be released and lengthened from ball of foot to heel.)



Cross-section of ankle. The tendons maintain balance across several directions.

A CLASSICAL FOOT SESSION

Uncovering the anti-gravity extension of the lower leg.

Imagine you are holding a rock tied around with a long string. You hold the other end of the string and drop the rock. The rock falls, and the string straightens. If you drop your foot to the ground, your leg will straighten. You are holding the other end of the 'string' in your lap.

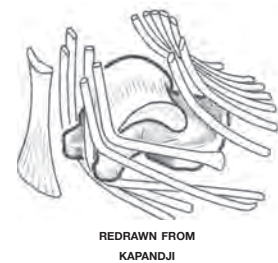
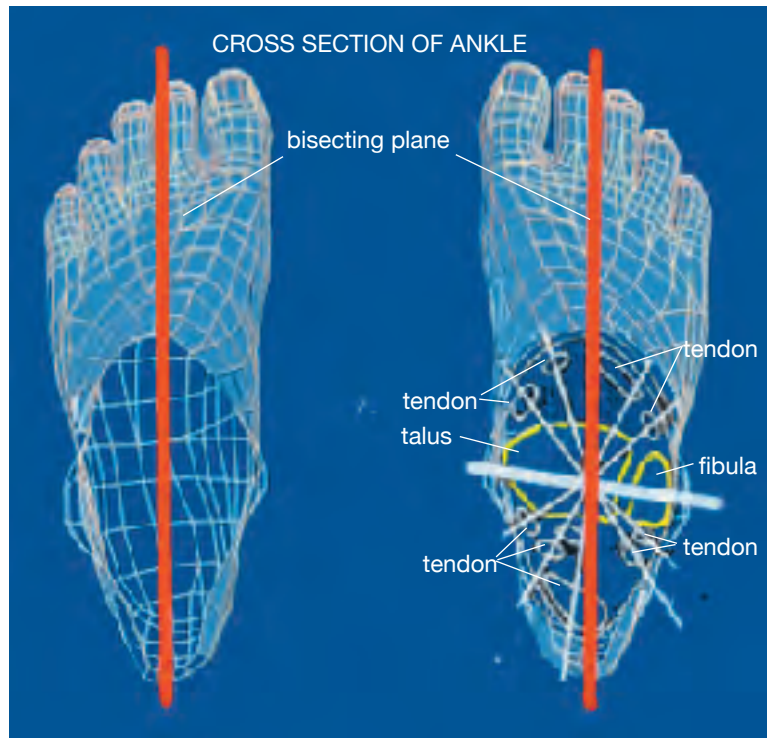
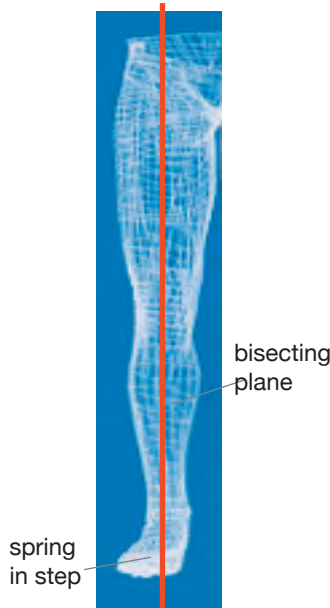
That is how the downward extension feels – feet in a balanced relationship with the ground – hip and knee joints open.

This is my version of the original foot session Dr. Rolf taught in her classes in 1969-70. It's a good, thorough approach to the foot.

Balancing the ankle joint

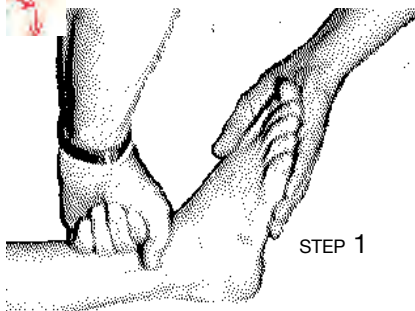
The goal is to establish balanced movement of the foot on the ankle – balanced across the bisecting plane of the leg. Work on other hinges – phalangeal, metatarsal and tarsal – is intended to support this goal.

Organizing the feet releases length up the back; so it is well to finish this process with long strokes down the back.

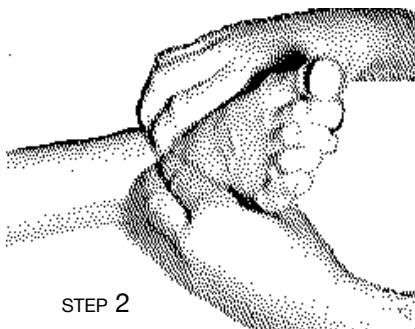




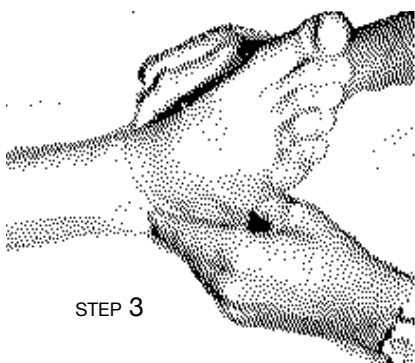
A Classical Foot Session



STEP 1



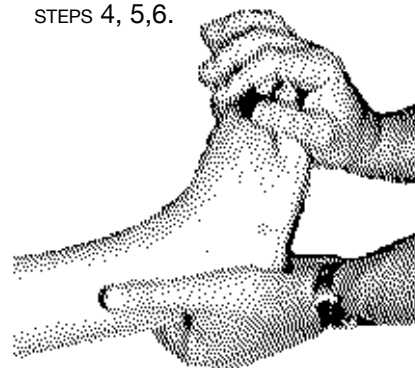
STEP 2



STEP 3



STEPS 4, 5, 6.



Goal: to organize the hinge of the foot on the ankle with respect to the bisecting plane of the leg.

Movement:

Foot flexes and extends on the ankle. ("Now bring your foot straight up. Now bring your foot straight down.")

Contacts:

(1) Loosen the retinaculum by pressing above the ankle. Induce movement.

(2) Define the anterior hinge of the ankle by pressing in while inducing movement.

(3) Hold the ankle on both sides of the joint, pressing in while inducing movement. This is somewhat difficult to learn. The key is to "think bones" and try to imagine what would be balanced movement across the hinge. You are *touching* external fascia, but *thinking* bones.

(4) Cup the heel in one hand, pressing the lateral side of the heel with your fingers while inducing movement (or while moving the foot up and down on the same hinge. This is a very effective passive joint movement.)

(5) Cup the heel in the other hand and press the medial side of the heel while inducing movement (or while moving the front of the foot up and down.)

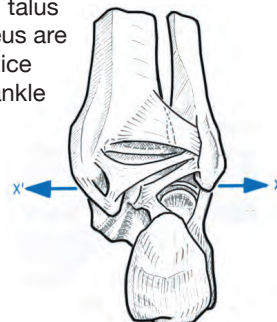
(6) Release distortions above the heel and in the Achilles tendon in the same manner.



STEP 1

STEP 2, 3

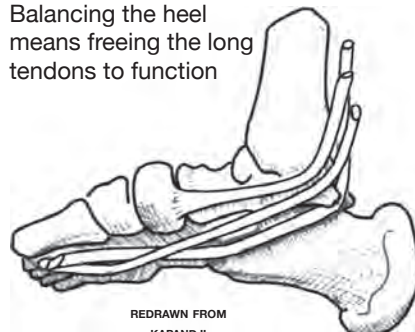
ANTERIOR ANKLE.
Tibia, fibula, talus and calcaneus are shown. Notice the axis of ankle movement



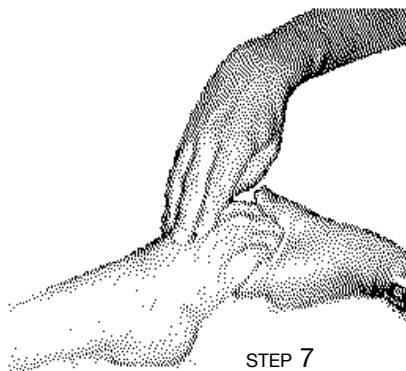
REDRAWN FROM
KAPANDJI



LATERAL ANKLE
Balancing the heel means freeing the long tendons to function



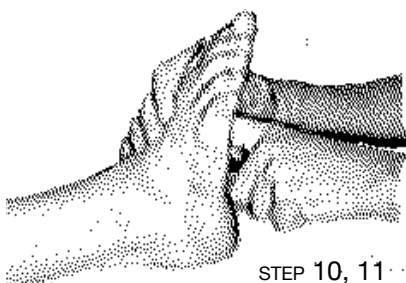
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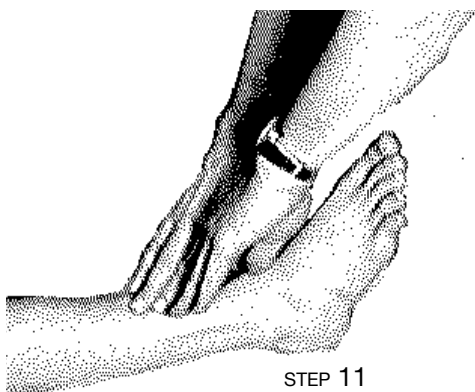
STEP 7



STEPS 8, 9.



STEP 10, 11



STEP 11

(7) Grasp the toes in one hand, bending them down while inserting fingers of the other hand into the grooves between the metatarsal bones on the top of the foot.

(8) Grasp the toes with both hands, fingers on top of the foot and thumbs pressing the ball of the foot back. Inducing movement is sometimes useful.

(9) Holding the foot in the same way, use the thumbs to press into the sole where the movement of the foot on the hinge seems to be distorted. Induce movement when useful. Support the outer arch of the foot. Expect to take a long time with this step: it is your primary opportunity to organize the plantar fascia.

(10) Holding the foot with one hand, press knuckle into sole where dorsiflexion is blocked. Induce movement when useful.

(11) Establish a sense of the bisecting plane by sliding a knuckle along the midline of the sole from under the tarsus to the calcaneus. Ask for dorsiflexion.

(12) Insert fingers between the shinbone and tibialis anterior, inducing movement of foot. Repeat up leg to knee.



STEP 7



STEP 8



STEP 9, 10.



STEP 11



STEP 12



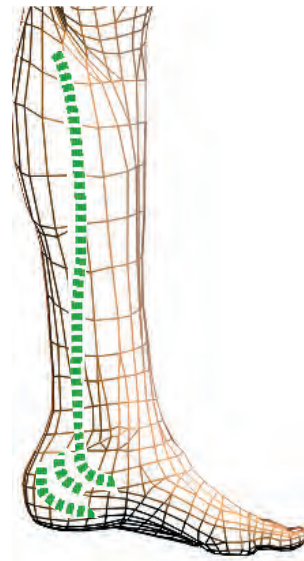
More on the Legs and Feet

Lateral and Medial Leg

Sometimes the lateral heel needs more attention than we can give it in the ordinary foot session. For example, a sprained ankle may need to be 'stacked up' calcaneus under talus under tibia/fibula to regain its full function. Think of the lateral heel as having three concentric arcs: under the malleolus, under the talus and peroneal tendons, and one across the body of calcaneus.

Ask for straight movement of the foot on the ankle and make exploratory contacts with mild pressure, lots of intention. You can carry the contacts up the posterior fibula as well.

The Medial heel can be approached in the same way. Be particularly sure that the movement is straight on the hinge: evert-ing the foot in this instance can weaken the inner arch. Contact the calcaneus, the tarsus, and the first metatarsal at various points to monitor the action of the inner arch. You can also follow with contacts up the posterior margin of the tibia to organize the tendons of hallucis longus and brevis and tibialis posterioris.



The Foot in Prone Position

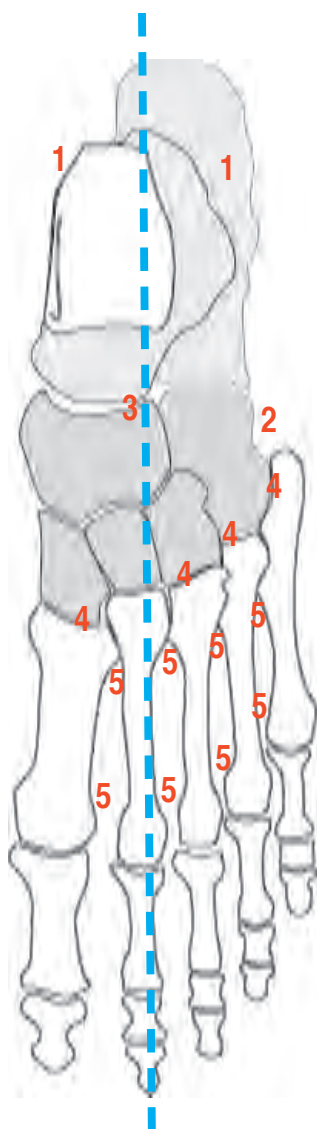
Having the client lie belly down, feet extending over the end of the table, is another good way to access the plantar surface. Getting flexibility in the outer arch is easier this way.



The Standing Leg Experiment

Because your client is standing, any movement of the foot or leg which aims for balance across the bisecting plane will effect the entire limb in an integrative way. But you can also disorganize feet with inaccurate work; so just explore and keep your contacts light.

The knees move straight forward and back, as if client were about to sit down. The ischia remain directly above the heels, the torso vertical above the pelvis. This means the knees are moving from a stabilized sacrum. Look for the most effortless movement.

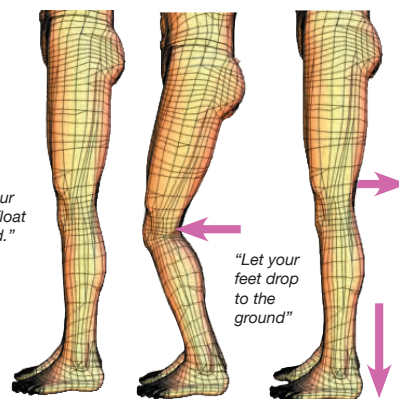


STANDING LEG MOVEMENT

It is essential that the ischia stay over the heels, so that the knees are moving forward out of a deep lap. The waistline stays back.

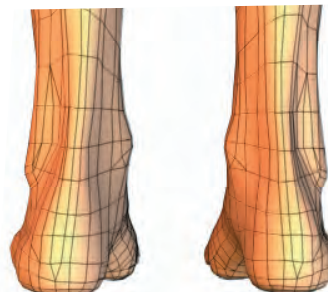
"Let your knees float forward."

"Let your feet drop to the ground"



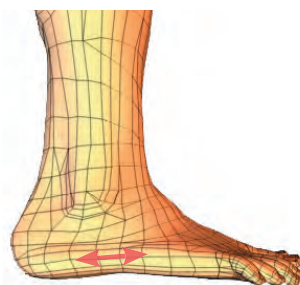
Contact 1

Hold the two sides of the heel, feeling how it balances across the bisecting plane. Extra high arches will tilt the calcaneus toward the lateral side. Low or fallen arches will tilt calcaneus inward.



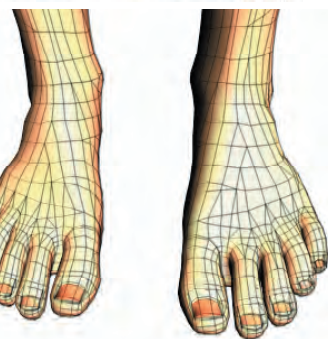
Contact 2

Press into the area behind and above the fifth metatarsal, feeling for flexibility in the outer arch when the weight shifts as the knees go forward.



Contact 3

Press directly into the anterior ankle, at the joint. Though the anterior tibialis may tend to push you out, try to establish the sense of the precise front of the hinge, balanced on the bisecting plane.

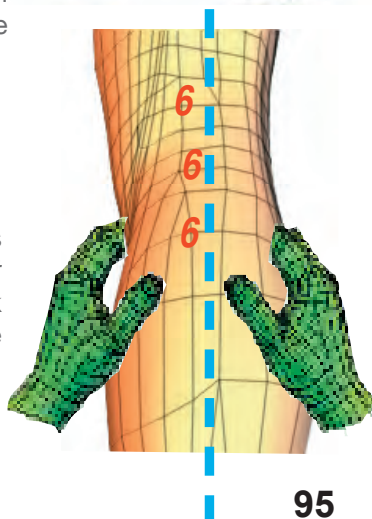


Contact 4

Explore the tarsal-metatarsal joint from the first to the fifth metatarsal.

Contact 5

Explore the subtle movements between adjacent metatarsal bones both at the proximal and the distal ends.



Contact 6

hold the knee firmly on both sides and guide it through a *straight* movement front and back. 'Think Bones' and you may feel them slide into alignment

Posterior Shoulder and Back

Goal: "Define and Differentiate"

Awareness makes the change, and so a contact which explores some bony landmark, some functional boundary or differentiation is likely to enhance awareness.

This shoulder and back work is a good way to learn differentiation. The outer sleeve of the body may be shortened, the muscles used in contraction rather than expansion. What is needed is a sense of margins, of separations, of where things are.

The posterior shoulder has three segments which must separate in order to function properly. The humerus needs to move freely on the scapula, and the scapula needs to be released from lifting by the rhomboids.

These contacts systematically move the scapular muscles away from the humerus and toward the spinal margin, define the margin around the rotator cuff, create span across the rhomboids, and lengthen the spinal erectors.

The position is on the side, elbow out.

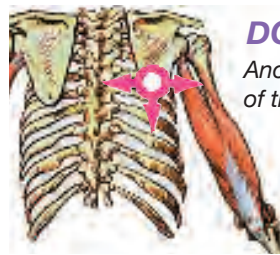


The elbow and wrist are on the same plane as the shoulder ring. In order to get there the humerus must rotate out of the scapula, teres remaining back when triceps extends out.

Most clients will elevate the shoulder to make this movement, but the shoulder should remain down. Then the elbow can extend forward through the shoulder socket, opening the back in the area of the rhomboids.

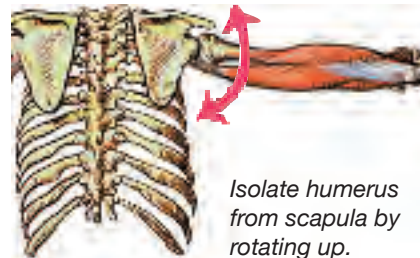
A lot of this work with your client will be movement training. Ask your client to anchor the scapula down, to rotate the humerus up, and to extend the elbow forward.

Three Movements for Finding the Horizontal

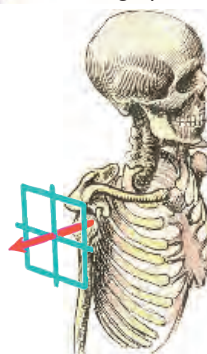


DOWN

Anchor the inferior angle of the scapula down.

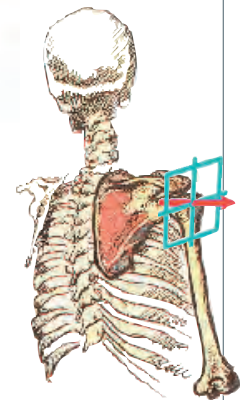


Isolate humerus from scapula by rotating up.



The elbow extends out from the spine, *through* the shoulder. There is an open balance of the shoulder joint across the planes.

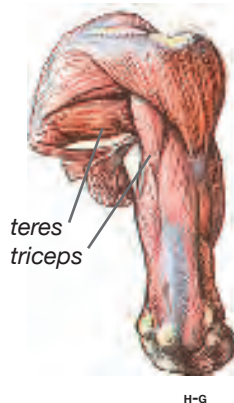
This is what you are attempting to bring about in this series of contacts.



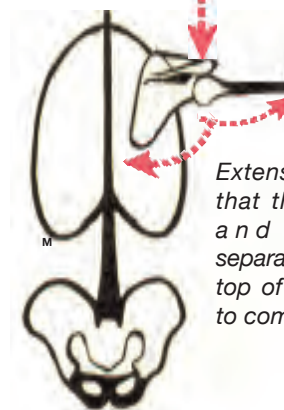
OUT

Find the center of the shoulder joint and extend out through.

Isolating Humerus and Scapula



A great many muscles cross at this functional boundary. If they can't differentiate, the shoulder is muscle-bound.



Extension requires that the underarm and scapula separate to allow the top of the shoulder to come down

Contact 1

Press into the teres and infraspinatus bundles moving toward the spine. Go slowly. Next, define the medial border of the scapula.



Defining Functional Boundaries

It is enough to be there. You are not trying to mold something into place, but only calling out awareness. A fist coming down across the spinal border of the scapula can clarify the muscles on both sides of that bony landmark.

In Contact 1 you can iron teres and infraspinatus medially across the scapula.

In Contact 2, separating the two sides of the rotator cuff will define the margin. You can go slow. You can wait for your client to catch on.

In Contact 3 you are bringing awareness into the rhomboids at the scapula, the center, and the spine.

In Contact 4 you will define the lateral margin of the spinalis, and you will cross over the body of the muscle creating length for the spine.

Contact 2

Define the boundary between humerus and scapula. Differentiate the muscles around the rotator cuff.



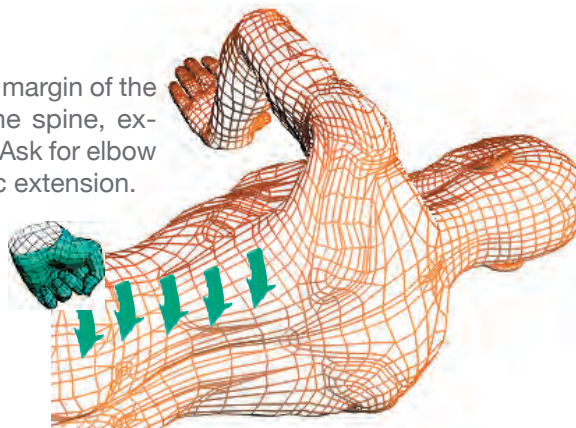
Contact 3

Differentiate scapula from spine by pressing across the rhomboids moving downward - a. along the medial edge of the scapula, b. across the bodies of the rhomboids, and c. along the rhomboid attachments at the spine. Ask for elbow extension.



Contact 4

Iron across the margin of the spinalis toward the spine, exploring for length. Ask for elbow extension or pelvic extension.



Hands, a special session

SIX SENSORY SURFACES connect us with our world: face, crotch, feet, and . . . hands.

The hands are like suckers which the arms bring into contact with whatever we want to touch (our 'goals'). The arms exist to make this happen, multi-jointed cranes issuing from the core.

TOUCH IS NOT LIMITED TO ACTUAL CONTACT

Hands can reach out toward anything. This is an act of imagination: when you reach, you imagine. We do not end at our fingertips.

Hands can listen, feel the vibration of sound. Touch and sound can blur into a single thing. Again, hands connecting us to world.

YANG AND YIN, ACTIVE AND ATTRACTIVE

Hands are both. They feel and they act. Both aspects are essential to being in contact.

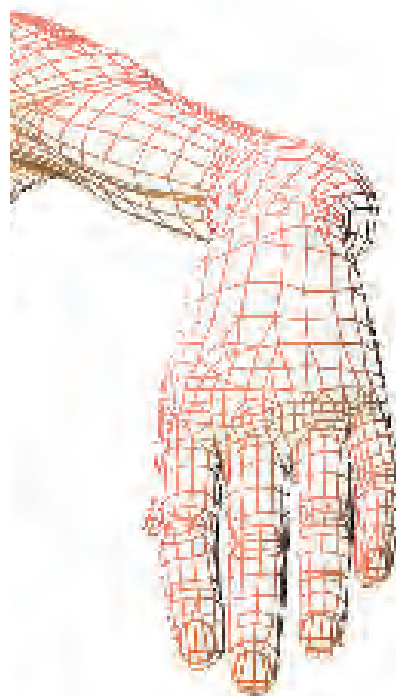
HANDS CAN WITHDRAW

When elderly people withdraw, they often do so with their hands and feet. Hands become tense and preoccupied. Some people wring their hands constantly. There is much more to be learned about this.



CAN THE HANDS CONNECT?

You can use a "touch to know" approach to the wrists and hands to open them out into contact with the world around.



CONTACT 1

DIFFERENTIATING THE CARPAL AND METACARPAL BONES

Begin with the posterior wrist, bending it down while applying pressure to various points on the carpal bones, feeling for binding. Proceed to the margin between carpals and metacarpals.

Contact the spaces between the metacarpals in the same way, feeling for binding.

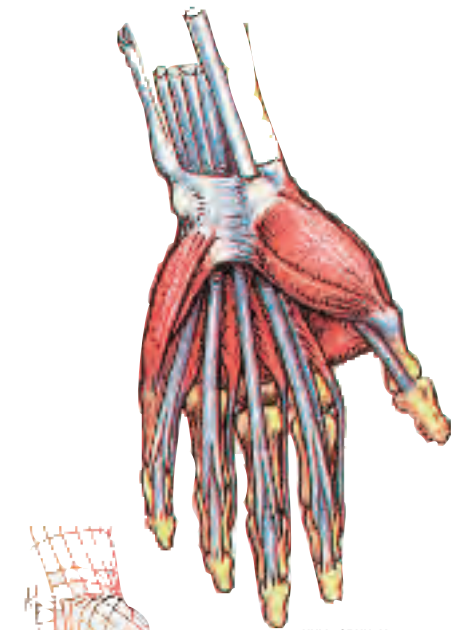


HULL-GRUNDY

CONTACT 2

DIFFERENTIATING PHALAN- GES FROM PALM

Apply pressure on the middle finger at the distal side of the metacarpal/phalangeal hinge. Ask for the hand to open. The fingers should stretch out from the metacarpal head, releasing the binding. Repeat for the ring, index, and little fingers.



CONTACT 3

DIFFERENTIATING THE PALM FROM THE METACARPAL HEADS

Apply pressure to the proximal side of the 3rd metacarpal head and ask for the hand to open. Hold the palmar fascia into the center of the palm as the finger extends outward. Repeat for the 2nd, 4th and 5th fingers.



CONTACT 4

DIFFERENTIATING PALM FROM CARPUS

Ask for the palm to open as you slide from 3rd metacarpal head to carpus. Wait for additional hinging between metacarpal and carpus. Repeat for the 2nd, 4th and 5th fingers.



Where Do We Go from Here?

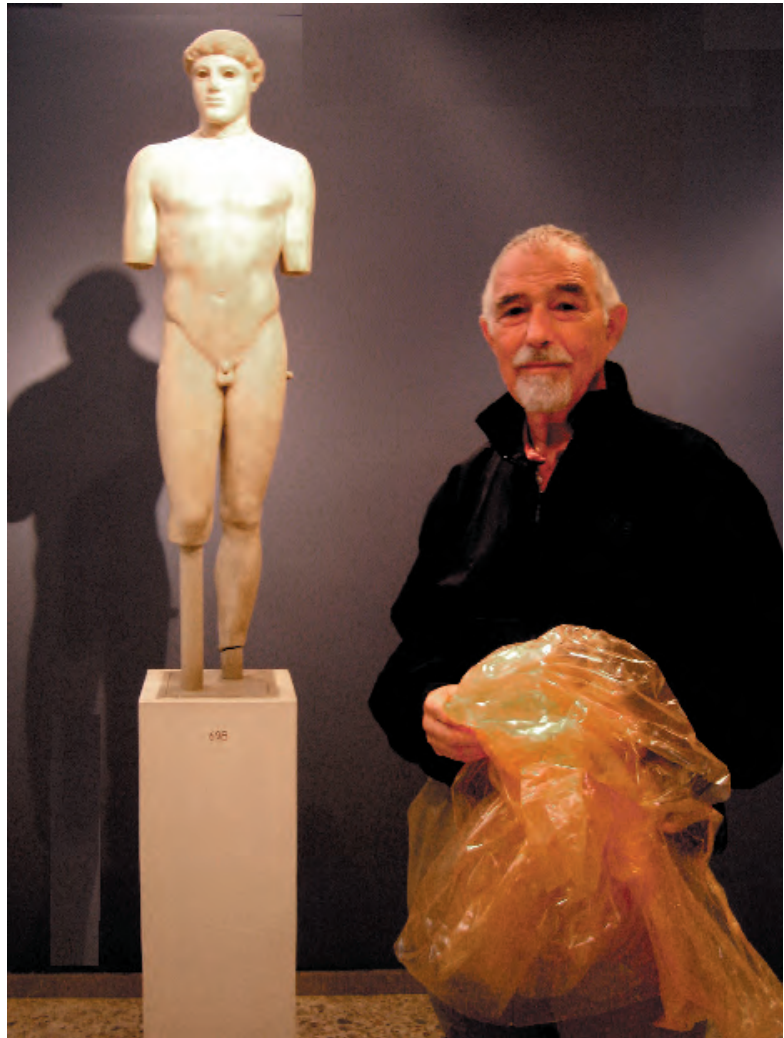
Organizing Parts . . .

What you have learned in this book is an introduction to Structural Organization. These principles can be applied to and enormous variety of physical problems.

“Putting Geometry through Bones”

If you know how to imagine the plane geometry which defines the movement of bones at any particular joint, you can ‘hold things where they are supposed to be and induce movement.’ With this you will be able to bring order and relief to much skeletal disorganization, pain and chaos.

Wrists, ankles, elbows, low backs, necks, hips and shoulders; you will be able to bring relief to all. If you see your work on these parts in terms of the larger whole – the overall picture of expansional balance – then your work on these parts will be accurate, and you will bring larger areas of the body into relation with the problem areas. Still, you can confine yourself to the short-term goal of remediation.



“Kritios’ Boy,” with author in the Acropolis Museum in Athens. Kritios was the first sculptor to move beyond the archaic style to a life-like, ‘humanistic’ representation of a human being.

We have used him here to symbolize the straightforward approach of Structural Organization to the remedy of myofascial ills, to the ‘fixing’ of parts.

. . . vs. Integrating the Whole

But if you want to pursue the larger goal of Structural Integration, you will probably want to learn the Ten Sessions of Structural Integration. Dr. Rolf devised these ten sessions as a systematic way bring the body into a unified relationship with gravity.

The first three sessions release the outer layer of the body, 'the sleeve,' so that it no longer interferes with the core's intrinsic response to the force of gravity. Then, the inner mechanism being released in the next four sessions, integration now becomes possible. The last three sessions integrate the sleeve with the core, so that the two layers act together. Now the voluntary actions of the sleeve can ride upon on the expansional reflexes of the core.

It is no coincidence that Volume 2 of this book covers these same Ten Sessions of Structural Integration. What you have learned in this, Volume 1, is absolutely essential for carrying out that work.



"Nike of Samothrace," a statue of the goddess of victory presently in the Louvre Museum in Paris. In contrast to Kritios' Boy, she is a deity, not a humanistically portrayed human being.

We have used this image to denote the much more ambitious goal of Structural Integration. Rather than seeking to remedy the pain and disorganization of specific parts, Structural Integration pursues a fully integrated human body, unified in its relationship to the gravitational field. This goal exceeds the fixing of parts like a goddess transcends a human being.

CREDITS

Just like in the movies, the credits come at the end.

First, my collaborators:

Henry Kagey has worked with me for seven years, first as an apprentice and later as my teaching partner at the International Professional School of Bodywork (IPSB). A graduate of the Guild as well as IPSB, he has helped to develop much of the material presented here.

Ron Arbel is our third faculty member, and a vital support both in the classroom and with the book.

Jeff Linn, who began his structural career long ago at IPSB, has supplied valuable information from the taped archives of Dr. Rolf's work to ensure consistency with her vision, especially in the ten session series.

Annette Gomez and Archie Underwood contributed illustrations. Deborah Weidhaas volunteered to proof read the first volume and offered very sophisticated advice on style and text. Rosemary Feitis, Ray Bishop, Tom Myers, and Carole Osborne-Sheets wrote reviews of earlier drafts. Their generally favorable comments were very encouraging.

A *Dynamic Relation to Gravity* is a real contribution to the theoretical and practical basis for the expanding field of Structural Integration. Ed Maupin was one of the first rolfers trained at Esalen, and has practiced Structural Integration since 1968. He has pondered the world opened up by Ida Rolf and her work for many, many years, and we can be glad that the work has now gelled enough for him to have his say. A unique human document emerges which has much to offer the longtime practitioner as well as the beginner.

Tom Myers, author of *Anatomy Trains*

Wisdom and clarity blossom over time. A book that harvests that understanding into a cohesive expression can take decades to manifest. Since my time as his apprentice in the mid 70s, I've been waiting for that book from Ed Maupin. *A Dynamic Relation to Gravity* is worth the wait.

Text and graphics pulse with the magic of real dialogue that relates practitioner and client as they are buoyed by the invisible reality of life's forces. It's a book that demonstrably informs while enticing a deeper exploration of the Self that manifests in the world as a somatic practitioner. Both aspiring and seasoned practitioners will relish the foundational understandings and the practical hands-on contacts it offers. Ed's life quest for insight, spiritual and physical evolution, and alive educational exchange has reached fruition in this book... and we're all the richer for it.

Carole Osborne-Sheets, author of *Pre- and Perinatal Massage Therapy* and *Deep Tissue Sculpting*, co-founder International Professional School of Bodywork (IPSB), San Diego, CA.

"Ed, these are very nicely done books. I appreciate the clarity and beauty of both of them. Thanks for putting them into the world."

Valerie Berg, Faculty, Rolf Institute.

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Edward W. Maupin, Ph.D.

A clinical psychologist (U. Mich., 1962), he became interested in body-oriented methods of psychotherapy after a Zen-inspired body epiphany while still in graduate school. As scholar-in-residence at the Esalen Institute in Big Sur, California, he underwent Structural Integration at the hands of Dr. Ida Rolf in 1967, was trained by her in 1968, and has practiced Rolf Structural Integration ever since.

He teaches this work at the International Professional School of Bodywork (IPSB San Diego) where he was once President and is still, from time to time, President-Emeritus.

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