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Lines-of-Movement and Imagery

One important aspect in the use of imagined movement as an ideokinetic technique for postural improvement is that the image be correlated with the pertinent line-of-movement. The lines-of-movement derived from the first study presented in Chapter 17 locate and designate the direction of change required in the relative position of the parts of the skeletal framework to bring it into better alignment. Movement of any skeletal parts or part is brought about by muscle action patterned at the subcortical level of the central nervous system in response to concentration on movement in an imagined situation. Hence for imagined movement to be successful, the image and the movement which occurs in it must relate closely to that which is needed in each line-of-movement.

The Empty Suit

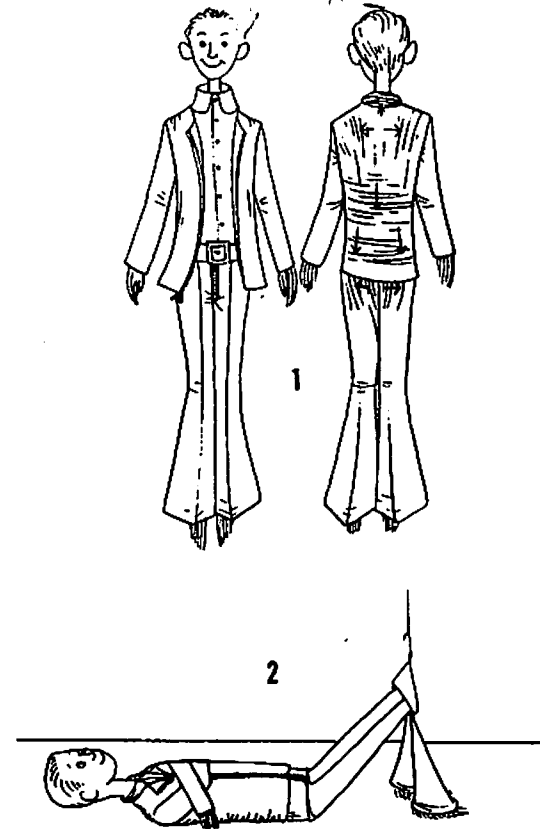
In the Constructive Rest Position (CRP)

The image of the "empty suit," which is actually a composite of many images, contains all nine lines-of-movement and offers a good vehicle for continuity from the simple to the more difficult. It is used for locating and directing imagined movement in your body. In your mind's eye, *you are the empty suit*.

The suit is made up of trousers with a zipper on the front, bell-shaped trouser legs, a belt, a coat with a circular neck but no collar, and a zipper on its *upper* front. In addition there is a soft shirt collar inside the coat neck, an *empty* head, and the feet imagined as tassels. [1]*

In the CRP, the trousers are supported at the knees by the cross-bar of an imaginary hanger suspended from the ceiling; the arms of the coat rest across the front of the coat. The suit is in a disheveled condition. [2]

*The boldface numbers in brackets refer to the uncaptioned drawings in Chapters 21 and 23.



To straighten out this much wrinkled suit, you must visualize, in your mind's eye, the following movements as if they were occurring in the empty suit, which is *you*. Now and then in the following description, parts of the empty suit are located for you by reference to a part of the body. Rest and concentrate; do not give help to any imagined action. Inadvertently, this actual movement may occur without your realizing it. Insofar as it does, you forfeit the results the imagined movements are designed to promote.

The Trousers

1. Watch the upper part (thigh) of the trouser leg collapsing together as its knee is supported over the cross-bar of the hanger.
2. Watch the crosswise crease at the level of the thigh joint sinking to rest on the *empty* seat of the trousers, noting particularly the sink-

- ing of the *inner edge* of this crease. Concentrate on one trouser leg at a time.
3. The trouser leg is twisted to the outside from the knee to the level of the thigh joint, which means the long crease which should be at mid-front is likewise twisted to the outside. Watch the trouser leg being twisted *inward* across the front until the long crease is on the mid-front, that is, in line with the center of the knee and the center of the thigh joint. This imagined twisting is a very important, but also a very difficult imagined movement.
 4. Watch the bell-shaped lower trouser leg sagging together in folds that are flimsy. Imagine their looseness.
 5. The foot is a tassel, made up of different lengths of thread or yarn (long toward the toes, shorter at the heel) which are tied together around the top at the level of the ankle joint. This circular binding is loose, allowing the *inside* vertical strings to fall inward away from the center of the ankle. Watch the circular binding tighten to draw the vertical threads on the inside of the tassel toward the center of the ankle joint.
 6. Repeat all imagery in the other trouser leg and tassel.
 7. The seat of the trousers has many vertical wrinkles, making it look as though it were accordion-pleated. Watch these pleatlike wrinkles being smoothed away, from center outward, to produce a much broader seat. (This will not give you a broader seat; but, oft repeated, it will give you a better hip line.) Pay special attention to the center pleats which are the deepest and most firmly set, and therefore need the most smoothing outward from center.
 8. Now that the seat of the pants has width and no longer pulls the trouser legs into a twisted position, *watch again* the sinking of the crosswise crease at the level of the thigh joint, also the trouser leg being twisted inward across the front, preparatory to closing the zipper.
 9. You are now ready to watch the closing of the front zipper of the trousers. This is hampered by trouble at the lower end of the zipper where all the difficulties you have ever experienced with zippers are combined. Stay with it in your imagination until you finally see the troubles overcome and the zipper slowly sliding up the mid-front to bring together the two sides of the front of the trousers.
 10. Finally, to complete the movements to be visualized in the trousers, watch the belt buckle sinking to rest on the back of the coat.

The Coat

1. Watch all parts of the coat slumping as far as they can toward the floor until all the front, sleeves included, have collapsed on the back of the coat.

2. Watch crosswise wrinkles on the back of the coat being smoothed downward. The wrinkles in the low back are being smoothed first, and then the imagined downward smoothing action progresses slowly upward. In the area of the upper back the wrinkles are large, deep, and firm; they need attention with repeated downward smoothing, especially if you have a "dowager's hump" and/or a forward head. Finally, the entire back is free from wrinkles and the coat tail reaches beyond the seat of the empty trousers.
3. There are also vertical wrinkles on the back of the coat, but only in the *outer region* of the shoulders. They are especially deep at the *inner borders* of the shoulder blades. Imagine these being smoothed outward until the coat becomes very broad shouldered. At the center back between the shoulders of the coat, however, crosswise wrinkles persist and must be smoothed downward again. Alternate the outward and downward smoothing in the upper back of the coat.
4. Now imagine the zipper at the *upper* mid-front of the coat being closed to make the circular, collarless neck meet at center-front. With this zipper you run into trouble in the last inch of its upward movement. Stay with this until the difficulties are overcome and the zipper is completely closed with sufficient upward force so that the front does not sag downward, as the front of the coat on a very round-shouldered man often does.

The Soft Collar

There is a soft, tall collar inside the neck of the coat which has so many crosswise wrinkles in back that it has almost disappeared within the coat. Imagine these wrinkles being smoothed *upward* until the top of the collar reaches the base of the head—a long distance.

The Empty Head

Visualize your head as a large, empty ball. In your imagination, look around at the emptiness inside, noting the great distance from side to side between the ears, and from front to back at the level of the upper jaw bone, which is on the level of the base of the skull. Above all, visualize the *emptiness* of the head.

In conclusion, note that upward motion toward the head is limited to that in the soft collar on its *back side*, and to the two zippers on the *front*; otherwise, imagined movement is downward toward the heels, or outward from center on the back of the trousers seat, and on the back of the *outer part only* of the shoulders of the coat.

If your imagined work has been given exclusive attention, you will have spent 20 or 30 minutes in the rest position. The size of the areas of contact of your body with the floor will have increased, and your low back will be

closer to the floor. If these changes have not appeared on your first trial with the empty suit, look for them with repetition of the experience of being an empty suit, but never voluntarily make them. Try to become aware of, and remember these areas of contact with the floor and their size, for future reference at the beginning and end of a period of rest on the floor. These are some of your best indicators of progress.

At the close of the rest period get up slowly in the manner previously indicated (see p. 219); and if any area of contact with the floor should hurt, rub it with a circular motion for a few moments.

In the Sitting Position

For the sitting position the empty suit needs some inside support: (1) a centered upright rod on which the head sits, and (2) a crosswise rod at the level of the shoulders on which the coat hangs.

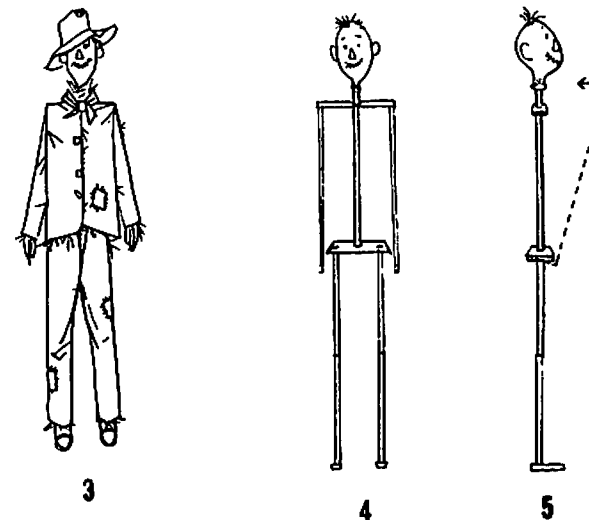
Sit on a chair in which the back is vertical, forms a right angle with the seat, and is low enough for your feet to rest easily on the floor. Place your "hips" as close as possible against the lower part of the chair back so that you sit on your bony rockers, the tuberosities of the ischia (see p. 34), and not on the back of your pelvis or part way up your spine.

All movement imagined in the empty suit in the constructive rest position can be used in the sitting position as long as you maintain the position of the inside supports in your imagination. Thus you can ease your body any time your mind is free from attending to other things.

In Standing and Walking

Most people are familiar with the scarecrows the farmers set up in their fields of grain, hoping they will frighten crows and other birds away. In the standing position, you, as the empty suit, need inside supports similar to the scare-crow. [3] In the pelvis there is a level board extending crosswise, half way from front to back, to support the vertical rod for the head and the crosswise rod for the shoulders of the coat. [4] Unfortunately, this board tends to tip downward in front in everybody, and this tipping means that the top of the vertical rod which it supports will be far out in front of the base of the head, not under it. [5] In your mind's eye watch the crosswise board moving upward in front to place the board in a level position (do not help), and bring the top of the vertical rod back under the center of the head. The crosswise board is supported in turn by a vertical rod under each end. These rods extend to the ground through the trouser legs. In your imagination pay attention to the inner supports; then use any imagined movements in the empty suit that appeal to you.

As you walk while being an empty suit, pay no attention to the trouser legs; concentrate on movement in other parts of the suit (your trunk and head), and walk *naturally*.



Imagery to Promote the Lines-of-Movement

In working with imagined movement as a teaching tool, people do not respond uniformly to all images. Yet there are some images to which most people respond favorably, regardless of age, sex, activity, or occupation. Just as subjects respond differently to different images, however, they also respond differently to images which activate the various lines-of-movement. This is a rather important observation, because it leads the teacher to start with a line-of-movement in which response to imagined action is universally easy to attain, and then to progress to those where response comes more slowly.

The following lines-of-movement have been arranged in the order of their increasing difficulty in response to imagined movement on first exposure. Under each line-of-movement images are given which have been found to be generally useful. The position or positions in which each image should be practiced is indicated after its description.

To Lengthen the Spine Downward

The first line-of-movement releases tightness of muscles of the back, especially of the low back. For an explanation of why persistent tightness in these muscles is completely unnecessary, see p. 63.

1. Visualize the buttocks as unbaked loaves of dough and watch them slide downward to the back of the heels. (Standing) [6]

2. Imagine yourself lying on a flat toboggan so that its curved-up end presses against the back of the thighs. Watch your seat slide or lengthen downward to fit into the curve of the toboggan, thus to increase the pressure

of the curved end against the back of the thighs and sharpen the angle on the front between the thighs and the abdomen. (CRP) [7]

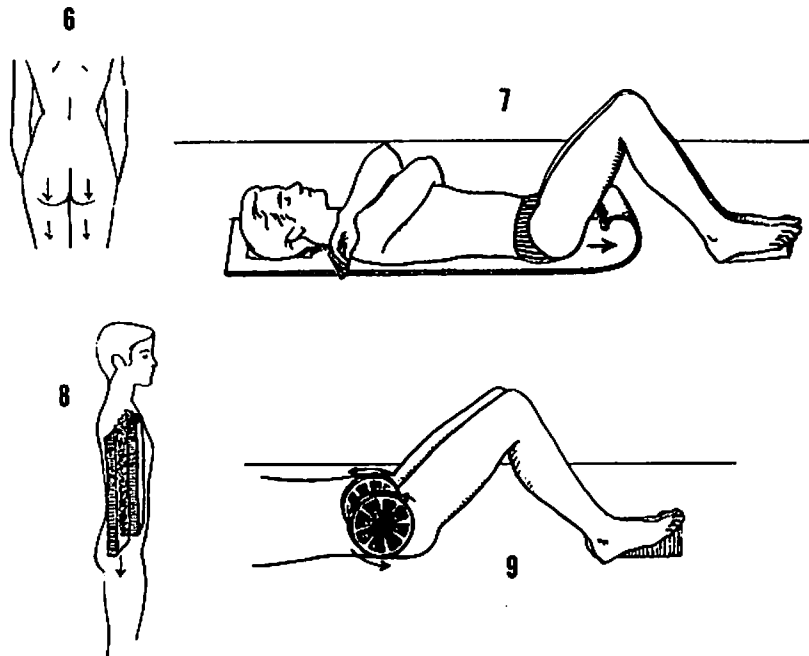
3. Visualize the trunk as a sandwich in a vertical position with a back layer, a middle layer of filling, and a front layer. Watch the back layer sliding downward. (Sitting, standing) [8]

4. Imagine each side of the pelvis as a paddle wheel, such as is used on a Mississippi steamboat, revolving to move their lower sides downward toward the heels, their upper sides upward toward the head. They are turning on an axle extending crosswise through the pelvis. The movement of the paddle wheels is somewhat like continued rotation of the pelvis to move it up in front and down in back. Watch the movement; put forth no effort. (CRP) [9]

To Widen Across the Back of the Pelvis

The second line-of-movement releases tightness of the muscles on the back of the pelvis—muscles whose tightness interferes with free flexion of the thigh joints in walking, sitting, and most activities.

1. Imagine the pelvis as a toy accordion with handles on either side and vertical pleats on the front and back. Watch the accordion being opened

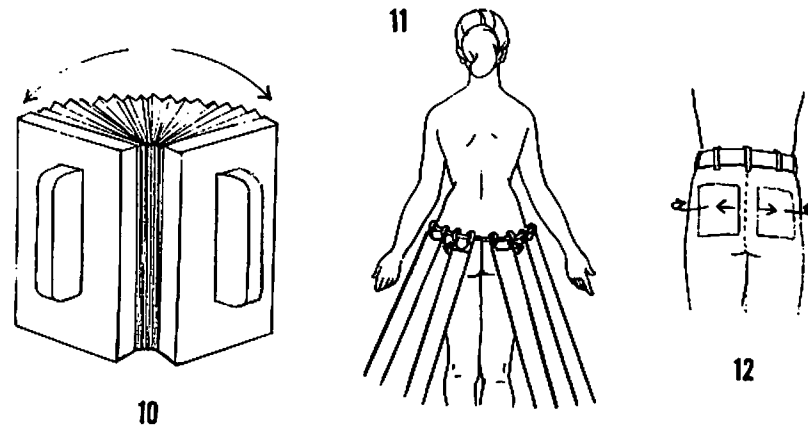


wide in back to remove all pleats. (Any position, also walking) [10]

2. Imagine the pelvis as a circular shower curtain ring with two hanging curtains on the back of the rim. Watch these curtains separating at center-back and moving around to the front. (Standing) [11]

3. Watch the buttocks as separate loaves of soft, unbaked dough flattening down on the floor from their own weight and flowing sideways away from each other to widen the space between them. (CRP)

4. Watch hip pockets on the back of the pelvis moving around to the front. (Any position, and walking) [12]



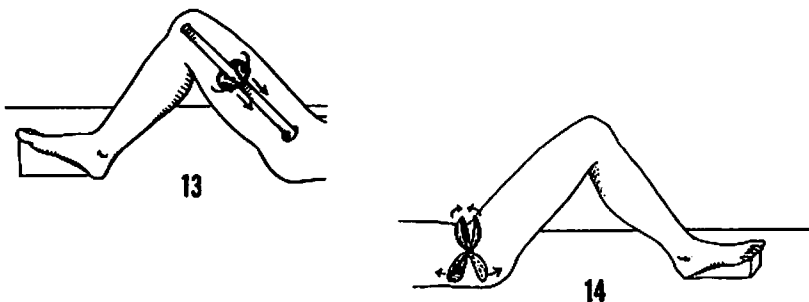
From the Center of the Knee to the Center of the Femoral (Thigh) Joint

The third line-of-movement promotes control of the thigh close to the pelvis, somewhat like the control of a whip or fishingpole at its handle. It also helps to center the femur in its socket and balance the muscle action around the femur and femoral joint. To get this result such muscles as the pectineus, iliopsoas, adductor brevis, and adductor longus must take a stronger part in the coordinate work of muscles which control and move the thigh.

1. Imagine a rod the size of a broomstick extending from the center of the knee deep into the center of the thigh socket. (Place a finger over this socket to help you localize it in your thinking.) You will tend to point the lower end of the stick to the outside of the socket, and fail to sink it deep enough. In your mind's eye move the lower end of the stick inward, then sink it deep into the center of the socket. Visualize an uncooked doughnut on this pole at any chosen

level—perhaps half the distance from the knee to the socket. The doughnut has been pulled apart on the inside. [13] Watch it being molded to close the gap on its inside, simultaneously keeping the outside edge of the doughnut from sagging downward against the stick. Then watch the doughnut being moved slowly and carefully downward to the bottom of the rod without destroying its form. Give constant attention to the *inside* of the doughnut to keep it from pulling apart and to keep it moving downward on the inside as fast as it moves downward on the outside of the stick. (CRP)

2. Pretend the thigh has been molded of clay but has two bad defects in its contour. It has a prominent bulkiness extending from the outside diagonally inward and downward on the front; also, there is a diagonal gap between it and the low front of the trunk where it should be continuous with the front of the trunk. Watch the clay being molded from the outside bulge diagonally inward and downward across the front to give a good contour to the thigh and fill in the diagonal gap between the thigh and the trunk on the front. The distortion of the contour of the thighs, often seen in the male and sometimes in the female dancer, indicates a lack of centered control at the thigh joints. No voluntary movement will change this distortion; the movement must be visualized. (CRP)
3. Imagine two clam shells in crosswise position, back to back, in the center of the thigh joint. Imagine the one on the front in the process of closing while the one on the back is opening. In your mind's eye keep the inner end of each clam shell touching at the back so that the opening of the one on the front looks upward; that on the back looks downward. (CRP and standing; if the back clam shell opens in standing, there will be a release of tightness in the hamstrings.) [14]



4. Imagine that the round head of the femur is a ball sunk deep into the femoral socket. In your mind's eye watch the ball rotating inward so that an eye painted on its front would be turning to look at the other femoral head. Next, imagine the ball rotating so that the eye on its front looks toward your head. (CRP)

Note: In most positions other than the CRP, this line-of-movement is secured by other lines-of-movement.

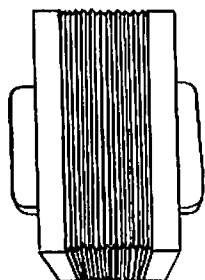
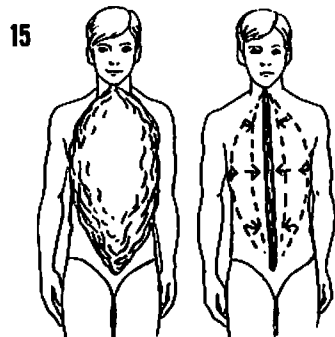
To Narrow the Rib-Case

The fourth line-of-movement releases tightness of muscles between the shoulder girdle and the spinal column, and of those muscles which have been contracted either to achieve a "high chest" or in response to "pull-up" of the trunk or "stretch-up" to a taller position. The imagined action recommended for this line-of-movement produces a more flexible shoulder girdle and more flexible ribs, with increased range of movement for freer breathing.

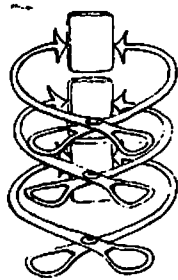
1. Visualize the rib-case *inside* the shoulders as a large fat prune, extending from the base of the neck to the level of the lowest ribs. Watch it wrinkle repeatedly all over to shrink away from the shoulders toward the center, until its circumference is reduced to that of a broomstick. (Any position) [15]
2. Imagine the rib-case as a toy accordion with handles on each side just under the arms and vertical pleats on the front and back. Watch the accordion closing inward away from the shoulders and toward the center until it is no wider than the neck. Pay particular attention to the closing movement of the pleats on the back, especially the center-back. (CRP, sitting, standing) [16]
3. Imagine the rib-circles as tongs which can close in against the bodies of the vertebrae in back as if they were small barrels. Watch one pair after another of the tongs (rib-circles) closing in back to dig deep into the barrels. As they close, they are putting more space between their sides and the shoulders. (CRP, sitting, standing) [17]
4. Visualize glove fingers or tight-fitting sweaters on the back part of the ribs on either side of the spine. In your mind's eye watch these covers push toward the spine just as one would push on the finger of a glove. Between each two ribs, imagine the same action as would be used to push the base of a glove finger against the crotch between fingers. Strong inward action toward the spine is needed between the ribs. (CRP) [18]

To Narrow Across the Front of the Pelvis

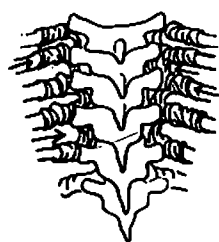
The fifth line-of-movement aids other lines-of-movement in the central part of the body in promoting a better position of the pelvis. It would seem



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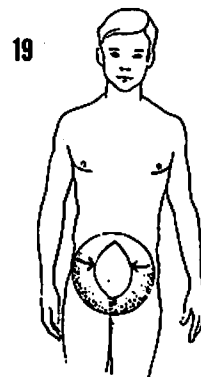
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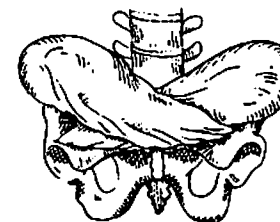
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that the transversalis in particular would be coordinated with the work of the iliopsoas and other inner deep muscles of the thigh in response to suitable imagined movement to close inward across the front of the pelvis.

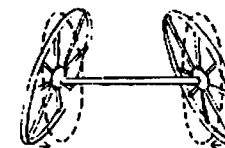
1. Visualize the pelvis as an accordion with handles on the sides and vertical pleats on the front and back. This time watch the *front* pleats closing together. (CRP, sitting, standing, walking)
2. Visualize the pelvis as a basketball whose vertical opening at the center-front of the pelvis must be laced together. Watch the sides of the opening being pulled together as the lacing proceeds from below upward. (CRP, sitting, standing) [19]
3. Visualize the ilia on either side of the pelvis as elephant ears. Watch them being folded tightly across the front of the pelvis. (CRP) [20]
4. Imagine the ilia as wheels on an axle extending crosswise in the pelvis. The wheels slant outward at the top (front of pelvis). Watch them moving to a vertical position so that their hubs give even pressure against the axle. (CRP) [21]



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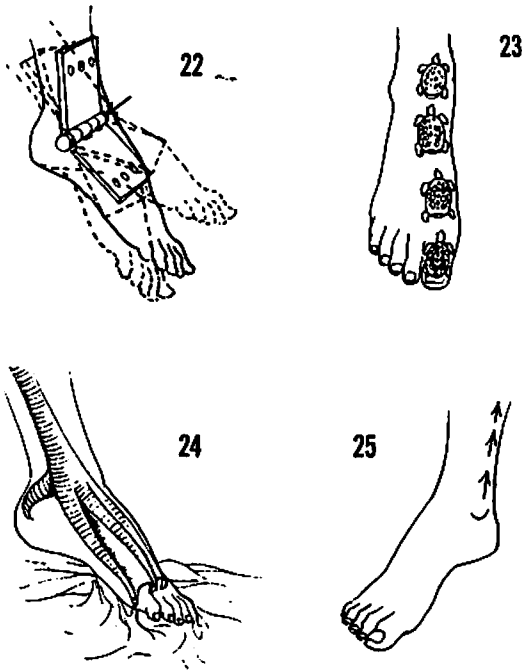
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From the Big Toe to the Heel

The sixth line-of-movement aids in reducing pronation and eversion of the foot by promoting better integration of the foot to support the thrust of superimposed weight centered at the ankle joint.

1. Visualize the ankle joint as a hinge, like a door hinge, with the pin which holds the two leaves of the hinge together extending *crosswise* through the ankle joint. One leaf of the hinge extends upward into the lower part of the leg; the other extends diagonally downward and forward into the foot. Note that the pin fails to connect the two leaves of the hinge completely because it has moved toward the *other* ankle joint. Watch it moving crosswise toward the outside of the ankle joint until it completely connects the leaves of the hinge. (CRP, sitting, or any position without weight on the feet) [22]
2. Watch the big toe, as a small turtle if you wish, crawling back slowly to the inside of the heel. (Any position without weight on the feet) [23]
3. Imagine the foot as a duck's foot stuck in the mud. The duck's leg is centered in your leg; the webbed toes extend outward in the direction of your toes and heel. Watch the foot being pulled out of the mud, the toes leaving the mud last. (Any position without weight on the feet) [24]
4. Imagine the internal malleolus (inner ankle bone) moving up the inside of the leg, something like a rooster's spur extending upward from the inside of the ankle joint. (Any position without weight on the feet) [25]

Note: When weight is being supported on the feet or they are to be used in walking or running, integration of the foot is encouraged more specifically by proper use of the feet through pointing them straight ahead. In standing, try to locate the center of the ankle joint in your imagination. If you are successful in doing so, the axis of weight thrust moves backward to the center of the ankle joint and causes loss of balance backward. If the central nervous system is making no mistake in response to ideation in this instance, then ideally the ankle, knee, and thigh joints should be in vertical alignment in the standing position, even though this may never occur with any degree of consistency.



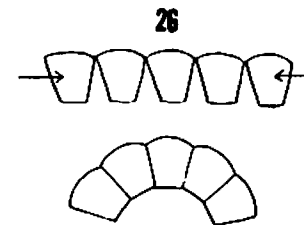
To Shorten the Distance between the Mid-Front of the Pelvis and the Twelfth Thoracic Vertebra

To help you locate the twelfth thoracic vertebra, note that its body projects forward into the trunk at the level of the lower end of the breast bone. It marks the change of the backward curve of the thoracic spine into the forward curve of the lumbar spine.

If the relationship of the front of the pelvis to the lumbar spine were good, all other problems of body alignment would tend to be minor. The

importance of the position of the pelvis in posture and movement has long been recognized, and a good deal of effort has been expended in developing ways to reduce the anteroposterior tilt of the pelvis through *voluntary effort*. These efforts, unfortunately, often compound the existing difficulties. For instance, "tucking the pelvis under" tends to reduce the forward curve of the lumbar spine so that its upper part becomes a continuation of the backward curve of the thoracic spine down to the level of the third or fourth lumbar vertebra. In the person who has assiduously practiced "pelvis tucking," the resulting alignment of the bodies of the vertebrae leads to a degree of distortion (mechanical strain) in the shape of the lumbar vertebrae and in their intervening discs. This distortion is next to impossible to improve very noticeably with any amount of work in the posture laboratory. The beauty of the slight forward curve on the surface of the low back is apparently lost forever. The adverse effect of "pelvis tucking," however, extends even beyond structural alignment. Its practice requires the voluntary contraction of the abdominal muscles and this interferes with their pattern of coordination with all other muscles of that area (see p. 149). With advance in age, muscles become less firm; and the ability to contract the abdominal muscles voluntarily begins to weaken. This weakening results in the sagging of the abdomen into a "pot belly."

1. Imagine that the lumbar spine is made up of wedge-shaped blocks, wider at the front (or top) and narrower at the back (or bottom). There are great spaces between the bases of the wedges. Watch them being pressed together to close these spaces and thus form an arch whose upper surface reaches almost to the abdominal wall. (CRP) [26]



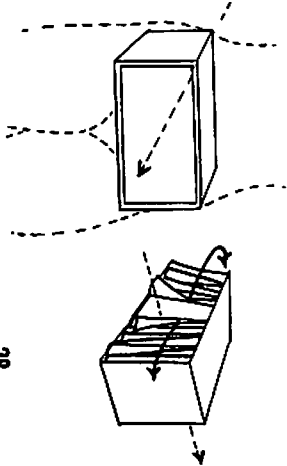
2. Imagine the bodies of the lumbar vertebrae are the segments of a large worm with its head located at the fifth lumbar vertebra, or even hanging over the sacrum into its inside hollow. The tail segments of the worm lie in the area of the twelfth thoracic vertebra. The worm's feet rest on the floor; it is stretched out with its back flattened down. Watch it begin to work to pull its segments together in preparation for movement, arching its back high to almost touch the abdominal wall, but leaving its belly parallel with the floor. In this manner it integrates itself for movement. (CRP) [27]



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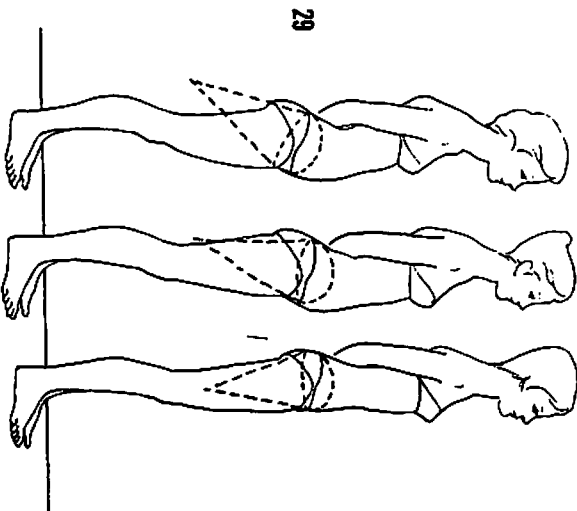


3. Imagine the pelvis as a box camera with a glass front and black curtains in back. Watch the black curtains opening from the back center sideways so that the photographer can see through the front glass. Then, in your mind's eye, watch the camera moving up in front so that it is level for taking pictures directly ahead — not on the ground. Play back and forth on these two movements: curtains separating in back; camera moving up in front. When you think the camera is right for picture taking directly ahead, walk forward *naturally*, concentrating on maintaining the position of the camera with open back curtains. Keep the camera directed forward in your mind's eye, so that you do not get a panoramic view in your pictures. (Standing, walking) [28]



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4. Imagine the pelvis as the rim of an ice cream cone. It tips down in front so that the ball of ice cream bulges toward the front and places pressure against the mid-front of the rim of the cone. Watch the front rim of the cone moving up to a level position to allow the ball of ice cream to fall back into place within the rim. Finally, watch a sugar plum at the level of the twelfth thoracic vertebra moving forward to the center-top of the ball of ice cream. (Standing) [29]



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From the Top of the Sternum to the Top of the Spine

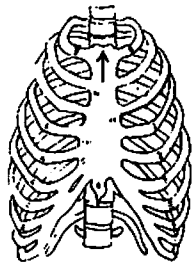
The top of the spine must be located for the student at the center base of the head on the skeleton, or on pictures. It can be found by placing a finger of each hand in a *horizontal* position under the opening of the ear and pointing inward. If the fingers were extended toward the center from each side they would meet at the center base of the head at the top of the spine. Indeed, the center base of the head is on a level with the *upper jaw bone*.

This line-of-movement is especially important for the person with a forward head. Since the head sits on top the spine, the forward head indicates that the top of the spine is too far forward in relation to the rest of the spine. Though the entire spine needs to be better balanced, the pivotal area for backward movement of the top of the spine is probably in the center of the thoracic spine.

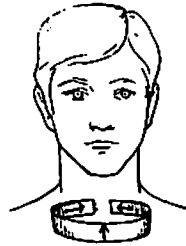
1. Watch the top of the breast bone moving up in front, or imagine it is a sliding rule and visualize one part of it moving upward out of the other part. (CRP, sitting, standing) [30]
2. Visualize the first rib circle as a bracelet deep within the base of the neck. First watch it closing in back, then see it moving up in front toward the head, to a vertical position if in CRP, or to a horizontal

position if the trunk is upright. (CRP, sitting, standing, walking) [31]

3. Visualize a skull cap on the back of the head. Watch it moving over the top of the head to reach the level of the eyebrows. (CRP, sitting, standing) [32]



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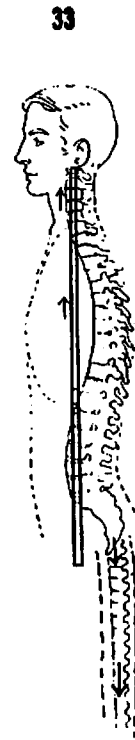


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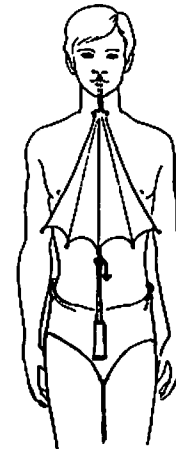
To Lengthen the Central Axis of the Body Upward

The body can be no taller than its height as achieved by the best balance of its skeletal framework. To try by voluntary effort to make it taller than this means more muscular work than is necessary for the upright position, and is a direct interference with the balance of the anteroposterior curves of the spine. Voluntary effort to stand tall also increases the anteroposterior tilt of the pelvis and the slant of the lower limbs to move the ankle joints farther back of the line of gravity.

1. Imagine the *central axis* of the trunk as a sliding curtain rod, and watch it being elongated upward to raise the head to a higher position. This should be alternated with watching the spine lengthening downward in back like a kangaroo tail. Both ideations favor better alignment of the pelvis and spine and a better position of the head. (Standing) [33]
2. Imagine the central axis as the center pole of an umbrella, the partially open umbrella being the rib-case *inside* the shoulders. The bottom of the center pole (the handle of the umbrella) is within the pelvis, the handle of the umbrella, and the upper end of the umbrella pole supports the head. The cloth of the umbrella is gathered around its center pole at the level of the base of the neck. To close the umbrella, watch the center ring to which the framework of the umbrella attaches being moved downward, with difficulty because it is too small for the size of the center pole. Simultaneously, as often



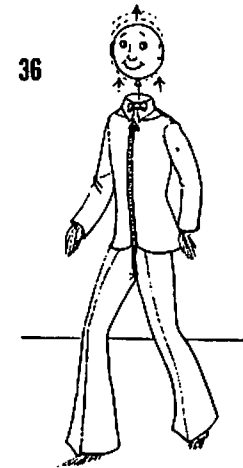
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occurs in reality when closing an umbrella, the center pole is moving upward as the center ring is moving downward. (Standing, sitting) [34]

3. Imagine your neck growing like an Alice-in-Wonderland neck to raise the head higher and higher. (Standing, sitting) [35]
4. Imagine that the head is a helium-filled balloon which, being lighter than air, rises. (Sitting, standing, walking) [36]

Ancillary Responses to Imagined Movement

Given the complexity of the human body and its many interdependent functions, it comes as no surprise that the response to an imagined movement is not limited to change in the specific location of the imagined movement, but is complemented by ancillary responses which may have far-reaching effects on skeletal alignment. Thus some images, although used primarily to change particular skeletal relationships, simultaneously produce other changes of a type that occurs with other lines-of-movement. This phenomenon is most frequently observed when imagined movement requires recoordination of muscle action rather than a relatively simple lengthening or relaxation of muscles.

These ancillary responses which occur with the recoordination of muscles can be explained rather simply. Through the operation of the principle of *reciprocal innervation*, muscles which are antagonists to the imagined movement will lengthen in proportion to the shortening of the agonists which produce the movement. Thus, some imagined movements, insofar as they are successful, lengthen some of the muscles whose lengthening has been provided for by other lines-of-movement. For instance, when images narrowing across the front of the pelvis are operant, antagonistic muscles across the back of the pelvis must lengthen in the same manner as they would in response to imagery to widen across the back of the pelvis.

In view of the above, one might well question the necessity for any lengthening lines-of-movement. Experience in the posture laboratory indicates that the lengthening of tight, overdeveloped surface muscles as required in recoordination of muscle work is limited by their lack of suppleness. Hence, for satisfactory progress, special emphasis must be placed on imagined movement which will lengthen such muscles and give them more suppleness for response in reciprocal innervation. Relaxation of these muscles does not mean a loss of any of their power; it means only that they can and do relax when their contraction is not needed. They become more supple, and hence give less resistance to movement.

The greatest number of ancillary responses is induced by the imagery used to shorten the distance between the mid-front of the pelvis and the twelfth thoracic vertebra. Any satisfactory change in skeletal alignment in this area is possible only when muscles which must lengthen in the process of recoordination are supple enough to give full response, as dictated by the law of reciprocal innervation.

Remember, however, that the law of reciprocal innervation works in one way only; that is, contraction of agonists is accompanied by diminishing contraction of antagonists to movement, but diminishing contraction of antagonists (relaxation) is not necessarily accompanied by increasing con-

traction of agonists. This phenomenon explains why relaxation of muscles will not produce a better skeletal alignment but instead places more of the stress of weight support against the ligaments. To increase movement efficiency there must be *recoordination*, not release, of muscle action to effect a better skeletal alignment with less stress on ligaments, more balanced work of muscles around joints, and better control of parts of the body close to the center of gravity.

A second explanation for the ancillary responses to imagined movement stems from the fact that the central nervous system communicates with the muscular system throughout the body. It integrates and coordinates all movement toward the ideal accomplishment of man's goals, provided man does not interfere with the process through unfavorable voluntary action. Therefore, the subcortical patterning of neuromuscular coordination in response to ideation can be communicated to all parts of the body by the central nervous system. Also, its patterning of outgoing messages changes constantly in response to its sensory input, which keeps the central nervous system informed of all that is going on as movement proceeds. The central nervous system deals with man as a whole, never in parts, nor as the sum of parts.

Finally, favorable responses to imagined movement in the skeletal framework in the areas above and below the pelvis will be reflected immediately by an ancillary response in the position of the pelvis and the lumbar spine. Often no satisfactory progress can be made in changing the alignment of the pelvis until the skeletal alignment in the rib-cage and shoulders and/or in centering the femora in their sockets has also begun to improve.

Images for Specific Positions of the Body

As stated above, many images for muscular recoordination to effect skeletal realignment can be practiced while sitting, standing, or walking. The maximal benefit from any image is attained only if there is a full awareness of the ideal skeletal alignment and a clear concept of the problems of balance in these positions. The role of imagined movement, then, is not only to produce better alignment, but also to provide increasingly greater stability in the improved alignment. *Stability* is invariably a function of continued practice to put firmness into the newly evolved neuromuscular patterns of work.

Sitting

A person may sit on a table in the laboratory with the feet on a stool, or on a stool with the feet on the floor. The position is as follows: the knees are slightly above the level of the thigh joints, knees and ankles are in the

sagittal plane of the thigh joints, the feet point straight ahead, the shoulders hang loosely, and the hands rest easily on the thighs.

The movement of sitting down and rising from sitting seldom proceeds evenly on the two sides of the body. The pelvis, thighs, and knees tend to weave laterally; they seldom move through a direct path. Thus the pelvis as it moved up or down from a chair goes through a spiral motion which is slight or marked, depending on the degree of bilateral asymmetry of the skeletal alignment in the standing position (see Chapter 17).

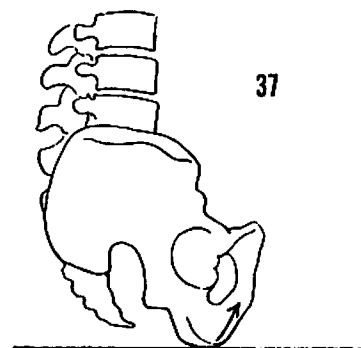
To overcome this certain element of clumsiness in standing up, the mechanics of using the legs and feet must be improved (see Chapter 22). One very reliable image toward this end is for the person to imagine that his supporting stool is positioned on a very slippery surface. The trick is to sit down and rise without pushing the stool backward and without falling forward on the face. As the individual thinks of this challenge, invariably the feet will be placed in a step position, and the trunk will lean forward by bending at the thigh joints. The individual should then actually try several times just enough of the movement to lift his weight from the stool and transfer it *simultaneously to both feet*. He may also be able to reduce the oscillations of the pelvis by visualizing a rough wall on either side of the pelvis, then moving into or out of the seat without scraping the sides of the pelvis against the imaginary walls.

Before discussing further imagined movement in the sitting position, various skeletal features should be reviewed to support imagined movement. We know that the tuberosities of the ischia project downward the farthest of any part of the pelvis. Their base is shaped like a rocker, and they should make contact with the chair seat at their centers so that their front and back ends are equidistant from the seat of the chair (see Chapter 5). When they are in the correct position, the coccyx never rests on the chair seat. The thigh joints are in line with and just above the tuberosities so that in sitting the tuberosity and the thigh, knee, and ankle joints on each side should be in the same sagittal plane to reduce lateral movement and save time and energy. If it has not been done in earlier teaching, the position of the front of the first rib circle and the top of the breast bone should be related to the degree of backward curve in the thoracic spine, especially in its upper part. (This can be done by voluntarily rounding the back and noting how this lowers the top of the breast bone.) Any upward movement of the front of the first rib circle will mean reduction of the thoracic curve. All these facts should be demonstrated on a skeleton, if possible; then the student should visualize their location in his body and voluntarily try to center his weight on the ischial tuberosities.

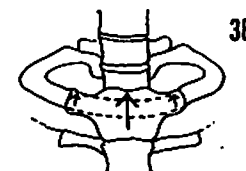
The imagined movements of greatest importance for sitting are those for centering weight on the pelvic rockers, moving the first rib circle up

in front, and moving the twelfth thoracic vertebra forward toward the center of the trunk.

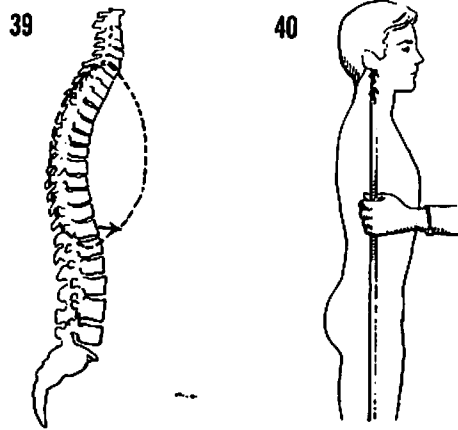
1. Even though you have tried to center the weight on the pelvic rockers, visualize them as if they are tipped too far forward. Then watch the front end of the rockers moving upward to bring the center of the rocker in contact with the chair seat. [37] (In view of the fact that contracting muscle pulls equally strongly on both its attachments, if the ischial rockers are already in a good position the effects of the imagined movement will be transferred to the lumbar spine to produce and stabilize its forward curve.)



2. Watch the front of the first rib circle moving upward to a horizontal position. [38]



3. Watch the twelfth thoracic vertebra (at a level just below the end of the breast bone) moving forward to center. [39]
4. Note, in the mind's eye, the imaginary central vertical axis with the head resting on top. To stabilize the imaginary rod in a vertical position (it usually buckles backward), see a strong open hand reaching from the front to close around it and keep it from bending backward. Then imagine the axis lengthening upward like a sliding curtain rod to raise the head to a higher position. [40]



5. When the knees tend to fall apart, especially in men, watch hands in hip pockets moving the pockets around to the front. Also, imagine that the knees are the heads of two horses, each with reins from either side extending back to either side of the femoral sockets. Watch the inside reins being shortened to pull back on the inner side of the horses head at each knee.

Standing

In using imagined movement in the standing position, remember the location of the sacral table on which the spine with its superimposed weight sits, the location of weight transfer into the thighs at the front of the pelvis, and the strategic function of the Y ligament on the front of each thigh joint. In itself, the idea of the amount of weight supported at the back of the pelvis, and of letting this weight sit, will ease tightness of back muscles and give the Y ligaments a chance to anchor the pelvis to the thighs in front enough to counteract the downward pressure at the back. Thus, the ligaments will help to balance the pelvis on the thighs (see Chapters 6 and 7).

The images which follow contribute to all lines-of-movement in the central area of the body to produce better skeletal alignment in standing. It is important (1) to reduce the anteroposterior tilt of the pelvis and (2) if the person is a "pelvis tucker," to move the twelfth thoracic vertebra forward; (3) to center the weight thrust at the thigh joints; (4) to improve the postural function of the psoas major muscles; and (5) to get a better balance of the spine and better positioning of the head.

Any image which disturbs the habitual relationship of the low spine, the

pelvis, and the proximal femora will invariably cause a person to lose his balance backward. When this happens, quickly visualize a force moving forward at the level of the twelfth thoracic vertebra and/or at the top of the breast bone. If this image fails to re-establish equilibrium (and it frequently will), take a step and then repeat the imagery.

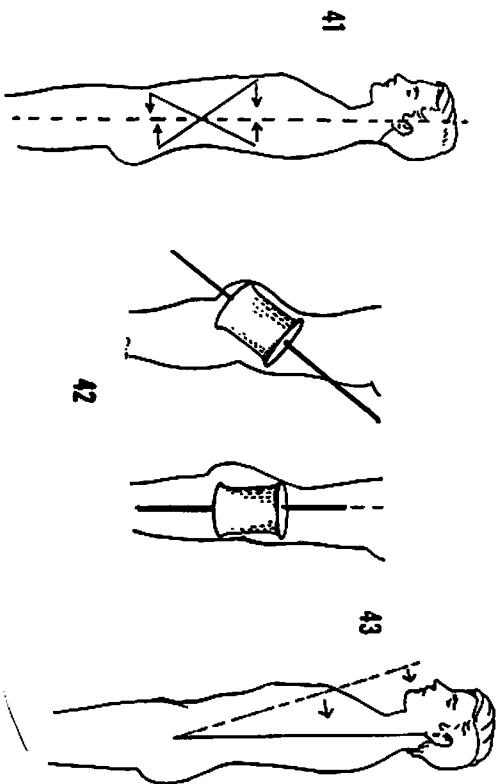
Using imagery in the standing position need not be confined to a special room or to any particular place. Any few moments when one is standing, regardless of where this may be, imagined movement can be practiced—the more often, the better.

In addition to the images given under the discussion of lines-of-movement, the following have been found useful.

1. Visualize an X in the median sagittal plane of the trunk, one of its lines extending from the inside of the lower end of the breast bone to the front edge of the sacral table; the other extending from the front of the twelfth thoracic vertebra to the inside of the pubic symphysis at the mid-front of the pelvis. Watch the lines of this X closing together at the top and bottom to form a vertical line in common with the imaginary central axis of the trunk. If you lose your balance, concentrate on watching forward movement of the twelfth thoracic vertebra and/or a force pulling the top of the breast bone forward to stabilize the body. [41]
2. Visualize the pelvis as a large spool with a small rod through its center opening. The spool is tipped so that the top of the center rod is outside in front of the body and the bottom of the rod is outside the back of the body below the level of the pelvis. Watch the rod moving to a vertical position to coincide with the central axis of the trunk. As it moves, it will place the spool in an upright position. This image, too, will invariably result in loss of balance backward: therefore; one should try to retain balance as long as possible by imagining forward acting forces as indicated in the previous image. Then take a step, and repeat the imagery. [42]
3. Imagine the top of the central axis far out in front of the base of the head; the bottom of the axis at the center-base of the pelvis. Watch the axis moving to an upright position as its upper end moves backward to center under the head and give it support. [43]

Walking

While walking, you will not need to worry about loss of equilibrium (61). It is maintained automatically even as imagined action is changing the subcortical patterning of muscle coordination toward this end. In walking emphasize voluntarily pointing the toes straight ahead, letting the shoulders hang, and allowing the arms to swing freely. If the shoulders

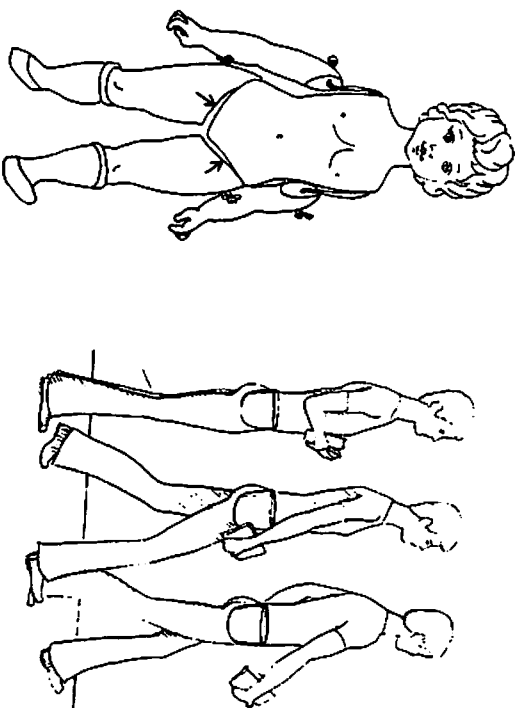


are tense or stiff, imagine the arms sagging out of their sockets at the shoulders to dangle in space as the arms of a doll would when the rubber holding them in place has lost its elasticity. [44]

The image of the box camera is especially suitable for realignment in the pelvic area and for a smoother gait (see p. 246). Pay particular attention to opening the curtains on the back of the camera, and to taking pictures straight ahead instead of trying to get a panoramic view, as would result from horizontal rotation of the camera in walking. In the mind's eye only, the camera remains level and facing straight ahead. This imagined steadiness will tend to reduce pelvic movement to that which is a necessary reaction to change in weight support from one limb to the other in walking.

Another image which adds to ease and balance in walking is that of the pelvis as a level bowl full of water. First, in the standing position, visualize the bowl moving up in front to a level position; then walk forward at your usual speed (not slowly), keeping the bowl level in the mind's eye only, so that water does not splash out the front or over the sides. [45]

Regardless of how useful and important the utility of imagined action is to improvement in neuromuscular coordination in the upright position, its overall effect can only be rated as supplementary to that attained in the lying position—especially the constructive rest position which does not require muscle work for balance and uses props of various kinds to overcome the tight muscles which would pull parts of the body out of good alignment.



The practice of imagined action as a specific ideokinetic procedure, irrespective of position, works toward greater neuromuscular efficiency with improved skeletal alignment and concurrent change for better overall contours of the body. The changes do not come easily. The recoordination of muscle work in all movement for greater efficiency requires not only the complete understanding of the rationale for imagined movement but also the discipline of persistent practice. For some the pursuit of this technique may seem too much bother, and they are the poorer for it, because they will never know the rewards inherent in its practice—persistent efficiency in movement and the release of tensions.