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# Research Report

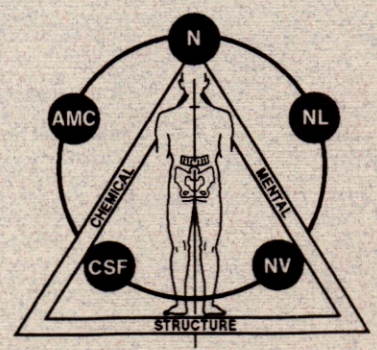
George J. Goodheart, D.C., DIBAK

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International College of Applied Kinesiology®-U.S.A.

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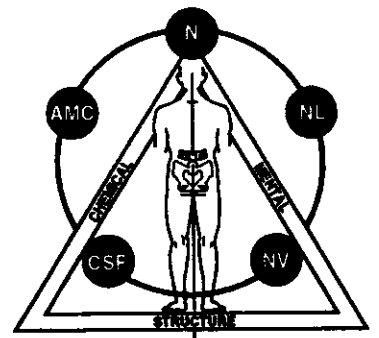
International College of Applied Kinesiology®-U.S.A.

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# Dr. Goodheart's Research Tapes - Tape 134

## The Sacral Distortion

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**T**he sacral distortion is very difficult to analyze. The cardinal principle in the sacral distortion is the acute pelvic twist with small lateral pelvic movement. There is extreme tension and elongation of buttocks, and a feeling of extreme weakness of the back while the patient stands. If you examine the patient in the standing position, you will see a single or double crease in the ribcage at the 11th and 12th ribs, possibly mirrored on the opposite side. The more dominant crease at the 11th and 12th rib is usually an indication of a sacral inferiority on the opposite side. A lower buttock, with the patient in the standing position also indicates a sacral inferiority on the same side.

The indication for a sacral fixation is bilateral weakness of the neck extensors when tested individually (i.e., right and left neck extensors are both weak individually), an iliac fixation is unilateral weakness of the neck extensors, and a lumbar fixation is a weakness of the neck extensors bilaterally when tested together.

One of the indications for a sacral subluxation is nuchal ligament tension on the lesion side. The only exception to that is the rare bilaterally inferior sacrum. In that case, the nuchal ligament is tense bilaterally. There will be palpatory pain on the either side of the external occipital protuberance, quite prominently down to and occasionally further than the third cervical lamina, very close to the midline.

A sacral subluxation is distinct from a sacroiliac or innominate subluxation. The sacrum is truly a mystery of the human body. It sits forward of its iliac articulation, yet supports the entire body weight. Whenever the nuchal or external occipital protuberance to third cervical ligaments are painful to palpation, a sacral subluxation must be corrected before results can be expected. The sacral subluxation more accurately explains the so called disc lesion than do any other combination of lesions.

The sacral articulation surface projects itself into the receptacle of the ilia much like a cork in a bottle. The iliac surface is the female part of the articulation and the sacral surface is the male portion of that union. The serrations of the sacrum must fit correctly into those of the ilia for correct and stable weight bearing function.

For example, the sacral base is superior on the left and inferior on the right. The sacral apex is to the left. The left sacroinnominate articulation is open and gives the appearance of a true saddle type lesion. It is impossible in this lesion to adjust the left innominate into position with the left sacral articulation, so this must be listed at all times as a true left superior sacral base and a right inferior-anterior base. The pelvis will rotate to the right or low side giving this patient the appearance of a true right sacroiliac muscular distortion. The diagnostic point is the extreme nuchal ligament pain on palpation. The left mastoid and first rib tubercles will be negative. The fifth lumbar will be inferior on the right, but the right styloid will be negative, or both styloids will be extremely painful. The dorsal spine will scoliose to the left, and the right leg will be long in the prone position.

Leg measurement in the prone position is an important indicator. Perform this on every patient. Measure at the medial malleoli. The leg is long on the posterior ischial side and short on the side of posterior superior iliac spine.

**Nuchal-Sacral Reflex:** Palpate the medial side of each posterior superior iliac spine (PSS). The painful side is the sacral reflex fixation side (99% correlation with sacral involvement either inferior or posterior). In the case of palpatory pain in the nuchal area just inferior to the external occipital protuberance, make contact

with the left thumb at the nuchal ligament and right thumb to the left PSS area, (99% of the time the pain will be greater at the nuchal area) and hold this until the reflex balances, similar to a neurovascular technique.

**Treatment example:** the prone patient shows a long right leg and short left leg. The doctor stands to the short leg (left) side of the patient. The right thumb contacts over the right ischial tuberosity with the thumb pointing headward. The left thumb contacts over the left posterior superior iliac spine, the thumb pointing footward. Give light traction-type thrusts with the ischial point footward and posterior superior iliac spine contact headward 10 times (similar to a Category I challenge). Then hold the right contact with a footward pull and left contact with a headward pull, and have the patient inhale and exhale three times. The third inhalation is prolonged and the exhalation is forced. As exhalation nears termination, give a headward traction with the left thumb and footward traction with the right thumb. Remeasure the leg length and if now equal, the sacral respiratory balance has been established.

Nuchal ligament is a band of embryonic ligamentous tissue. Pain here indicates a sacral lesion. Sacrum will generally be inferior on the long leg side and posterior on the short leg side. For the inferiority hold your thumb on the sacral base medial to PSS and with other hand flex the patient's leg (bending the knee) slowly until the patient complains of anterior thigh pain or lumbar pain. This moves the ilium like a wheel lifting the sacrum with it while the doctor maintains the contact on the sacrum/PSS. Hold the leg flexed to patient tolerance with a slight headward pressure until you feel both ilium and sacrum rise. When ilium rises, hold it caudally with your thumb and quickly flex the leg an inch or two to let sacrum "slide by" the ilium. Thumb contact should be firm but not heavy.

With nuchal pain on short leg side, position the patient side-lying on short leg side facing away from doctor and flex the long leg on posterior sacral side and tuck toes behind opposite knee. Extend top (right) shoulder back and hold doctor thumb against sacrum on the posterior (right) side while patient maintains flexed thigh parallel to the floor. This is to keep an opening between sacrum and ilium. If you let the leg go up too high, it closes the sacroiliac posteriorly. If you let it fall too low, it closes the sacroiliac anteriorly. You need the ability of the sacrum to move in a forward direction. Use a stiff thumb contact to sacral ala on the long leg side. Pull patient elbow back and push the sacrum forward with your thumb until you feel a tension, then thrust forward on the sacrum. The nuchal ligament tension should now be released after correction of an inferiority or anteriority. This is based on some of the early DeJarnette technique.

To challenge for an inferior sacrum, contact the ilium on the same side and then challenge the sacrum superiority, and test the hamstrings for weakening.

To challenge for a posterior sacrum, stabilize the ASIS on the side of suspected sacral posteriority with the patient prone, then challenge the sacrum from posterior to anterior with the other hand.

Coordinate these sacral techniques with the PLUS pattern, especially useful in the prone position. Have the prone patient extend the head and chest with their hands on the face section of the table. The right piriformis must weaken under these conditions. A Category I lesion may accompany this sacral distortion. Correct the Category I if present. Correct the sacral subluxation and use the nuchal ligament long leg flex technique. Use a raw veal bone supplement at three times a day. AK's understanding of origin-insertion technique helps explain the success of Logan basic technique.

## Femur Head

The piriformis originates from the anterior two-thirds of the sacrum and inserts into the lesser trochanter. It externally rotates the femur, produces abduction in a non-weight bearing position and an abduction force in a weight bearing position. This abduction and external rotation by the piriformis is balanced by the quadratus femoris, which originates from the anterior portion of the ilium and inserts on the linea alba at the posterior portion of the femur. The femur head is the axis of a pulley. The piriformis goes up and over the pul-

ley. When it contracts, it pulls in an upward direction when the pelvis is in a side-lying position. The quadratus femoris is the other extension of the pulley, pulling it down. The external obturator and superior and inferior gemelli are also in this balance. Getting the sacrum at zero defect is very important before you can treat the position of the femoral head.

Lawrence Jones, an orthopedist in the 1950's and 60's, was a pioneer in his observations of radiographic measurement of the pelvic position changes and how the pelvis relates to the entire postural complex. He felt that pelvic position was influenced by changes in the foot. Convincing evidence confirms that postural defects in the lower extremities correspondingly transmit to the pelvis. Pelvic problems can also transmit themselves to the lower and upper extremities. There are two different types of problems. 1) Leg length differences produced by disturbances in pelvic, femoral head, sacral, and iliac level cause lateral angulation. 2) Internal rotary imbalances cause anterior and posterior displacement with the pelvis being regarded as a wheel, rotating on the "axis" of the acetabulum.

Measure the leg length with the patient in the supine, then sitting positions. If there is a difference in leg length, this indicates femoral head disturbances. The iliacus has an attachment to the sacrum, whereas the psoas does not. Any time one calls the muscle the iliopsoas, it is designed to call attention to the insertion on the lesser trochanter of the iliacus, but fails to call attention to the iliacus attachment to the sacrum, which is a very major portion of the PLUS pattern. The sacrum has a movement with flexion and extension. Walking causes the sacrum to go back and the ilium and fifth lumbar to go forward on the side of the forward leg. There is a shuttle action with the sacrum moving in the opposite direction as the ilium and fifth lumbar. However, when the patient flexes forward, the sacrum goes backward on the right and not on the left. The same is true when the patient extends. The iliacus cooperates on this function that Illi first observed. Illi did not mention the iliacus, but there is no question as to its sacral attachment.

The acetabulum and femur head is covered with hyaline cartilage and has no nerve supply. There is total coverage except for the attachment at the top of the femur head for the teres ligament, a retention ligament that aids in the maintenance of the femoral head in the acetabulum. The ball and socket joint of the hip is further dependent upon a thick marginal band of fibrous tissue, the cotyloid ligament, which spans the cotyloid notch, surrounds the head and aids in holding it in place by suction. That capsule arises from the margin of the acetabulum and the cotyloid ligament and extends downward around the neck like a sleeve to be attached to the region near the anterior intertrochanter line in the front, and near the middle of the neck medially. The synovial membrane is reflected onto the neck from the capsular attachment and envelopes it up to the margin of the articular cartilage.

An excellent book to consult is *Myofascial Pain and Dysfunction, The Trigger Point Manual, Volume II*, Travell and Simons. Chapter 4 talks of lower leg length inequalities and compensatory C and S curves. Several drawings discuss structural alterations mentioned here.

Synchronous rotary movements of the foot and leg are linked to changes in the pelvis. Postural errors in this system are more commonly caused "from the top down" contrary to popular opinion of "from the bottom up". We consider changes in the spinal cord, column, and pelvis influencing the acetabulum and femoral head much more than the foot does. The pelvis can move centrally on the hip joints, much like a wheel, with the "axle" of the femoral heads being eccentrically positioned. The acetabular cartilage is devoid of nerve supply according to Gray's anatomy. The ilium and ischium must counterrotate equally. The iliacus is the "sleeping" factor. The fan shaped attachment of the iliacus narrows to a thin tendon passing anterior to the pubes just lateral to the symphysis, angling sharply to insert into the medial trochanter. Strong internal rotation of the upper end of the femur will pull directly on the upper pelvis surface. The forward pull on the ASIS is from the rectus femoris and sartorius, and if they are weak, there is a backward direction to the ASIS. These obvious forward and backward movements of the ilia can be measured radiographically. The more common forward movement of the pelvis causes the sacral base to press forward on the terminal roots of the cauda equina which is a major cause of localized back pain. The iliacus involved changes the position of the ilium. As the ilium is pulled forward above, there is relative backward movement at the pelvic base



with sciatic nerve pressure by altering the sacrospinous ligament, closing the lower aperture of the sciatic foramen.

Postural leg length change can be seen left and right as well as front and back. Many supine patients with TMJ pain show temporalis pain. Illi said that many of these patients have their pelvis in a position of "rest" with their spine in a position of "walking" or vice-versa (1951). Temporalis pain may be relieved by raising right leg and left arm or vice versa while applying palpatory pressure. We have found a high percent of pain relief with raising the left leg and right arm, and eventually that the pain responded to right arm movement independent of left leg movement and not the reverse. Also the left leg draped off the table in extension also relieved the pain in a high percentage of patients. Many other types of palpatory pain were also relieved and patients could help themselves by getting into one of these positions (right arm forward or left leg backward). Exercise of putting left leg back while pointing toes to the arch of the right foot will detorque the patient after correction and remove the persistent subluxation wherever it may be.

Low back pain is statistically more prevalent than sciatic pain. Pronation problems are a factor, however muscle balance of the femoral head and pelvis is very important, they contribute just as much to the patient's symptoms and ultimate rehabilitation. Pelvic angle increase and lumbosacral angle change can reflexively cause posterior tibial pain, which is most often associated with the pronated foot. An iliacus which tests weak "in the clear" or upon on RMAPI (repeated muscle activation patient initiated) may be seen or a common reactive muscle pattern between the iliacus and posterior tibialis ipsilaterally. If the iliacus is the cause, this problem must be approached from top down rather than bottom up.

Every muscle has a rib pump involving intercostal nerve movement of spinal fluid. In normal walking activity, the axis of pelvic rotation is balanced by the counter rotation of thorax around T7. Interestingly, the rib pump point for the iliacus and the piriformis is at T7. This offers new understanding of why T7 subluxation is so frequently found and how this can affect these muscles.

Iliacus is tested at 45 degrees hip flexion (supine) with femur in extreme external rotation. Stabilize the opposite ASIS and contact the medial malleolus. Line of test is directly down through sagittal plane toward table. Rib pump is at T7 within 2-3" laterally requiring manipulation or strain/counterstrain treatment with respiration, spreading spindle cells in the belly of the intercostal muscles with fingers on deep expiration.

Iliacus minor originates at anterior inferior spine of ilium, inserting into the iliofemoral ligament at the lesser trochanter. Rib pump is at 8th intercostal space from 3-4" lateral to the transverse process and is treated as above. Muscle test is again flexion to 45 degrees with the line of drive at 15 degrees laterally. Treatment usually with origin/insertion or strain/counterstrain. Also test quadratus femoris, piriformis, and obturator externus.

Obturator externus is almost same as quadratus femoris except the hip is flexed higher to 110 degrees. Rib pump is further lateral near the upper outer border of scapula at level of T3.

Quadratus femoris origin arises at the anterior upper border of the ischium and inserts into the posterior upper femur at the linea quadratus. The rib pump area is unusual in that it is just below the clavicle at the upper, anterior portion of the axilla, near the upper end of the middle portion of the deltoid. This is usually very painful and found bilaterally. The quadratus femoris is in direct opposition to the angle of the piriformis. The test position is with the patient supine and the femur is at 75 degrees, then stabilizing the ipsilateral knee which is flexed to 90 degrees, the ankle is taken directly lateral with the opposite hand. 90% of patients seen that have limited hip adduction have a weakness of the quadratus femoris which puts the piriformis into a hypertonic state. This is observed through restricted adduction and increased abduction of the hip on that side which leads to a compensation of the opposite side and produces changes of rotation from the top down, from the femoral head down, not from the pronated foot up.

The superior and inferior gemelli are tested with the patient prone. The inferior gemellus is tested with the knee flexed 90 degrees with the hip 15 degrees in flexion by taking the leg off of the table, pressure is

exerted on the ankle into abduction while the stabilizing hand contacts the opposite buttock. The rib pump area is between the 7th and 8th ribs, about 3-4" lateral to the costovertebral area. It is treated by manipulation or strain/counterstrain with expiration. It frequently accompanies the weakness of the quadratus femoris. The gemellus superior arises from the same outer surface of the ischial spine, but is higher than the gemellus inferior, and inserts into the medial superior surface of the greater trochanter. It has a neurolymphatic reflex at the 10th intercostal space, 3-4" lateral from the spine, but you may find it closer to the transverse process. It responds to manipulation or strain/counterstrain to remove the pain. The gemellus superior is tested with the patient prone, knee flexed to 90 degrees and the hip flexed off the table to 35 degrees. The ankle is then pressed into abduction while the stabilizing hand contacts the opposite buttock. These two muscles complicate the limited adduction of the hip, change PLUS patterns, Walking Gait Configuration, sacral patterns, femoral head patterns, and contribute to the perpetuation of sacral subluxations with corresponding changes in the ilium (Categories I, II, III).

The drawings for testing of these muscles were supplied by the work of Alan Beardall and Human Biodynamics Organization in Portland. Dr. Goodheart does not always agree with Alan in that the reflex points were rib pump areas and not neurolymphatic reflexes.

Lawrence Jones, The Scientific Exhibit, The National Convention of the American Medical Association, and the Sciatic and Low Back Pain Division, in San Francisco, 1946; "Fatigue and Various Neuralgias", published 1948; "Nerve Tension and Inflammation", Atlantic City 1949 and Los Angeles 1951: "Through the action of the iliacus, strong internal rotation of the upper end of the femur would pull directly on the upper surface of the pelvis, the force being most strongly exerted at the anterior superior iliac spine." He is stating that it is coming from the bottom up. The sartorius and rectus femoris (especially in sleep vs. awake patterns) may also aid in the crest of the pelvis forward, and consequently a corresponding backward movement of the pelvic base, producing a posterior ischium, the LLL. This movement can be measured radiographically, as was done by Jones. The patient is standing with the feet in a supinated position and the sacral angle will change from 60 degrees to 40 degrees. Dr. Goodheart states that this can just as easily occur from the top down, the ilium moving and causing a corresponding rotation. To document this relationship of the top down, test the posterior tibial (main muscle preventing pronation) and iliacus in a reactive pattern with the iliacus tested first and the posterior tibial tested second. The posterior tibial will weaken in a high percentage of cases of pronation. This says that there is hypertonus of the iliacus. Iliacus origin-insertion technique is appropriate in order to reduce the tonus. If the iliacus tests weak with RMAPI, there is stupid body wisdom, and paradoxically the treatment is origin-insertion technique to tighten it.

Pelvic angulation, absent any leg length differences, the general elongating nerve tensions that have the observed start at the ankle, are aggravated by double shortening pressures that accompany the pelvic shift. The upper component, frequently a forward movement of the pelvic crest, causes the sacral base to press forward on the terminal roots of the cauda equina. This is a major cause of low back pain. This is what Jones stated in 1951. The lower component, or backward movement at the base of the pelvis exerts pressure in the sciatic nerve by elevation of the sacrospinous ligament and closes the lower aperture of the sciatic foramen. The same movement that produces low back pain can cause sciatica, thus the combined mechanism explains their frequent association.

**Example:** patient with arthritis pain and disability of the left wrist. There was evidence of a sacral subluxation through tenderness of the nuchal ligament, an increased blood pressure (patient was instructed not to take medication that day), and diminished adduction of the right femur. This pattern was evident in the supine, sitting, and standing positions. Ask the question, "Why is that?" The ischiofemoral ligament may have to be stretched as was discussed in the last tape. The patient showed a need for correction of mastoid point C to reduce blood pressure. Upon correcting the right femoral head, all of the pain, limitation of motion, and disability in the left wrist disappeared.

Test the quadratus femoris. If it is strong, have the patient therapy localize the neurolymphatic point on the anterior and most upper portion of the axilla ipsilaterally. Retest the quadratus femoris, if it weakens, this is

a 51%er. This puts the piriformis into a hypertonus. The piriformis has to let go when the patient takes a step forward. When there is a hypertonus in the piriformis, it makes it hard for the piriformis to let go. The iliacus crosses the sacroiliac joint and is attached to the sacrum, as is the coccygeus. The iliacus may be strong or a 51%er. Test the external obturator against the rib pump point and correct if present.

Patients infrequently pass the Freeman-Wycke One Leg Standing Test. This indicates something wrong in the cervical column, costovertebral and sternocostal joints. In the femoral heads information transmits from the femoral head to the cervical, costovertebral, and costosternal joints, where a good deal of equilibration takes place rather than in the vestibular branch. The costovertebral and costosternal joints also have input into the cerebellum. This has far reaching effects in disturbances of the extensor muscles, which affects how we stand.

The piriformis, iliacus, and superior gemellus all have a rib pump reflex at the 7th thoracic.

The rib pump reflex for the gluteus maximus is at the 10th thoracic. The muscle may test strong, but weaken with therapy localization to the 10th thoracic. Especially common in patients who walk with a strong outward rotation of the lower limb, the weakness will be on that same side. This can occur unilaterally with one foot that flares out, or bilaterally with both feet flaring out and having the Charlie Chaplin gait. Treat the rib pump at the 10th thoracic by having the patient prone, raise the hip into extension to take the pain out of the rib pump reflex, and have the patient hold expiration while you spread the point apart with your fingers. If the gluteus maximus, a leg-puller-upper, is a 51%er, the tensor fascia lata acts as an unopposed leg-puller-downer, which then has a tendency to limit leg adduction in the supine, prone, and standing positions, and leads to pelvic problems.

Limited adduction and increased abduction on one side often shows a weakness in the quadratus femoris, external obturator, iliacus. The opposite side will show limited abduction and increased adduction and may have a piriformis-rib pump. Make these corrections to normalize femoral head activity.

If you have a patient with pain, limitation of motion, disability, etc. in a joint, first make your corrections to the femoral head. Then sharply stretch the hip into adduction several times and test a muscle that is related to the joint that is involved (i.e. wrist, neck, foot, etc.) and you will note that adduction of the hip will weaken the muscle related to the involved joint. Have the patient therapy localize the neurolymphatic reflexes for the adrenal glands and repeat the stretching of the hip into adduction. The muscle related to the involved joint will now test strong. Correction is adrenal neurolymphatic reflex activity. This is usually enough to stop the stretch reaction, but sometimes adrenal tissue nutritional support is necessary.

Once you have made all of your corrections, be sure to check for SST (Sagittal Suture Tap technique). Have the patient therapy localize the sagittal suture and you will note return of the limited hip adduction. You do not have to recorrect the femoral head, but it indicates that the sagittal suture must be spread apart and the anterior fontanel tapped.

Quoting Lawrence Jones from his text, *The Postural Complex*, chapter 15, Charles C. Thomas Publishing Co., 1955: "It must again be emphasized in the great majority of cases, the foot, the primary cause of serial distortion, is a silent factor, in that in and of itself, may not be painful. Quite as important is the fact that symptoms may not arise from a definite fault in posture. Many patients who have excellent physiques by the most exacting standards have a complete set of symptoms, whereas others with multiple defects of considerable severity may be relatively symptom free. It must be emphasized that in the vast majority of the cases, the foot is the primary cause of serial distortion." In the course of clinical discussion, the statement has been made with tongue in cheek that his investigation was based on two major discoveries. 1) The foot is attached to the leg. 2) The spinal cord is a continuous structure. This is of course a persuasive argument reduced to absurdity. The first of these, the simple connection of the foot to the leg is a distinct oversimplification. The following analogy has been found to be more pertinent to the understanding of the specific phase of the postural problem. It has been amply demonstrated that internal rotation of the foot causes an exact corresponding shift at the ankle, knee, and hip, with demonstrable changes at the lumbosacral level.

Relative inequality of weight in joint surfaces may be compared to uneven wear on the automobile tire that can only be terminated by correction of the wheel alignment on the axle. Without this preliminary change, attempts at repair are a waste of effort. The second portion concerning the spinal cord as a unit emphasizes a general favor to recognize this simple fact but actually conceals a much greater error. The spinal cord is only a segment of the complete unitary structure that comprises the brain, spinal cord, and peripheral nerves and the sympathetic and parasympathetic nervous system. A mechanical lesion or even tension at any number of critical points can considerably affect the entire interdependent system to disturb the fine balance of stimulation or inhibition which is essential to normal function.

Quoting from Applied Kinesiology, 1994-1995 Workshop Procedure Manual: *From time to time I have talked about the absolute classic book by DuCrouquet "Walking and Limping." In the section where they discuss the beginning of walking they say: It is the gluteus medius that maintains the relative horizontality of the pelvis. The lateral abdominal muscles (on the opposite side) act with the gluteus medius in close synergy. It's this action performed by these two muscular groups that permits the harmonious transfer at the thoracic center of gravity in the frontal view. Sometimes the opposite abdominal muscle will preserve the pelvic horizontality by the action of suspension. In normal walking the lateral inclination has two purposes: to transfer the thoracic level of gravity laterally and to reinforce the action of the opposite lateral abdominal muscles by the separation of their pelvic and thoracic insertions."*

Quoting from an article that Dr. Fred Lee spoke about in 1971 at the European Chiropractic Union: *Look at this walker, he's not lifting his body by the extension of the foot but now look at the same walker from behind, with each step his pelvis makes an excursion towards the side of the carrying leg. This sideways movement of the pelvis changes the trochanteric angle of incidence on the side of the carrying leg. The angle becomes more acute, therefore the pelvis lifts up on the respective side. The gluteus medius muscle stabilizes the entire ilium at this moment, at the level of the carrying leg. So now the inclined leg should come back to the horizontal and higher level. Thus the other leg, (swinging leg) is automatically lifted over the ground. The effect of gravity is displaced with each step. The oscillation of the body upward and downward is therefore the result of the alteration of the trochanteric angle of incidence and the work of the gluteus medius. (GJG side note: Also it's the effect of the opposite lateral abdominal.) In normal forward stepping, the sacrum is pulled upward by the sacrospinalis on the forward-stepping side, so that the scissor-like sacroiliac articulation closes at the top. If the torsion is blocked on this forward stepping side the sacrospinalis never-the-less contracts rhythmically with each step. Its contraction reduces its own length and the spinous 'gives-way' on the other side. This is also the reason for the painful contracted psoas (partly antagonistic) on the left side. The gluteus medius on the right side must provide help by contracting more than normally. It also becomes painful. When the gluteus medius fails on the right side, for example, the stabilization of the pelvis in the horizontal place also fails when the left foot swings forward. The oscillations of the pelvis for the purpose of rhythmic change of the trochanteric angle of incidence continues to exist. The movement of the limb's inward rotators at the time of the right step forward also pulls the pelvis sideways at the same movement time towards that side. When the right gluteus medius is paralyzed, the pelvis is not lifted. Of course with the trochanteric angle of incidence the left leg has no freedom to swing forward. In other words, when the gluteus medius is paralyzed, the whole pelvis is subjected to incorrect rhythmical movement, the spine moves in the direction of the paralyzed or weakened gluteus medius. Now that we know how to test this by RMAPI, it is very interesting to see how many people have a medius that isn't working correctly. We have muscles that rotate the leg internally and muscles that rotate the leg externally. The relation of the strength between the external and internal rotators is 155:50. When a person steps forward the internal rotators normally rotate the leg medially, as a muscle bundle acting antagonistically. Therefore, the ilium rotates posteriorly on this side. At the same time the weight bearing leg is rotated externally but the foot is stabilized on the ground and acts as an axis so the ilium can rotate forward in its turn. With each step, the ilium makes a small counter torsion backward and vice versa. When the weight-bearing leg is behind, the ilium turns forward on that side. This reduces to a minimum the torsion made rhythmically by the pelvis. The trochanter leads with each step with the projection becoming smaller and smaller. The sacroiliac articulation naturally becomes involved. It lies between the immobile spine and the mobile*

*femoral head. There are only two other movements that need to be defined. 1) The rhythmic movements to and fro of the pelvis. 2) The complication of the fifth lumbar, which is not suitable. Due to the perfect work of the internal rotators and gluteus medius the pelvis remains horizontal for a major portion of the time. The pelvis' rhythm ensures that the spine will not be involved in its false movement. This means that the compensation of walking is affected by the sacroiliac articulation.*

The femoral head and acetabulum is covered with hyaline cartilage and has no nerve supply, but has a high level of mechanoreception due to the very size of the femoral head and the relationship to the acetabulum and the muscles surrounding it. When you check the adductive ability of the right and left hips, you find a high preponderance of limited adduction on the right hand side. You categorize and catalog the muscles that are associated with that and test them in the clear and as a 51%er (quadratus femoris, gemelli superior and inferior, obturator externus.) When the right femoral head has trouble keeping in balance, the left femoral head will have a piriformis problem with rib pump. When you unravel it and reduce the changes in the angle of incidence in the trochanter, you markedly reduce the reflex activity that the femoral head seems to have on structures all over the body. Correct the ischiofemoral ligament. Hyperadduct rapidly several times the femoral head (stretch it) that you just corrected and if it weakens a muscle in a target joint, contact the neurolymphatic reflex for the adrenals, an inch out and two inches up from the umbilicus, and this will neutralize the muscle weakness in the target joint. Treat with adrenal neurolymphatic activity. Many of these patients also will fail the PLUS pattern, most commonly there is failure of the left upper trapezius and right sternocleidomastoid to weaken when the patient is in trunk flexion or extension. Many times this is due to dural involvement and simply opening the mouth will stop this reaction, showing the attachment of the dura to the pterygoid processes of the sphenoid bone. A large percentage of patients who show restricted adduction of the right femoral head will also show therapy localization of the right and left femoral heads in turning off the left upper trapezius and right sternocleidomastoid with the patient in flexion or extension in the PLUS pattern. If you have already corrected the muscles about the femoral head as described, this indicates that there is an outstanding nutritional fault, a need for pyridoxine (B6) 50 mgs. with niacinamide (B3) 10 mgs., at a dose of three per day. This helps to maintain the integrity of the femoral head correction as well as any other reflex fixations and subluxations.

*Quoting from Applied Kinesiology, 1992-1993 Workshop Procedure Manual: Runners do not run in a straight line. Every runner moves laterally and vertically as he runs. At first glance, this sideways and up and down movement doesn't seem like much, but once you measure those extraneous movements in slow motion and multiply them by the number of strides in a race, it soon becomes evident that every runner runs much farther than required. A runner takes approximately 1,000 strides per mile. This means that every error, no matter how small is magnified 1,000 times every mile, and 26,200 times during a marathon. Once you realize this, you can begin to look at running as a high skill sport, much like tennis. And as with tennis, the runner who makes the smallest number of errors often wins the contest. In the accompanying photos, Hussein and Petersen have been captured at the moment when each has full weight on one leg. If you drop a line through the center of their hips (midline) and one through the center of the weight bearing leg in order to measure their cross-over (i.e. how much their leg crosses over toward the midline), you can see that Hussein crosses over only 3 degrees. This is actually quite a bit for him. His cross over is usually 1.5 degrees. Petersen, on the other hand, crosses over 10 degrees. He crosses over not only toward his midline, but well beyond it. His time in 1987 was 2:12.03 or approximately 132 minutes. But he was adding 6 inches of lateral travel to every stride he took. That adds up to a total of 2.5 miles over the course of the marathon. At approximately 5 minutes per mile, that's 12.5 minutes he could deduct from his time by eliminating cross-over. Without cross-over, he would have finished in under 2 hours, put his name in history and put millions in his bank account. Hussein crosses over only 1 inch per stride or .42 miles of lateral travel over the whole race. That means that Petersen ran 2.08 miles farther than Hussein. By running just as efficiently as Hussein, Petersen could have cut 10.4 minutes off his time for a 2:01.60, a world record. He would have beaten Hussein by more than 9 minutes instead of losing to him by only 60 seconds. Crossing over toward your midline is also extremely hard on the muscles and joints of the legs. Anything above 3 degrees crossover is almost invariably associated with shin splints, knee injuries, hamstring pulls, hip pain, and*

*back problems. The reason that your legs get sore is simple to demonstrate. With your weight on your left leg, lift your right leg straight up and down. As your foot lands underneath your hip, it doesn't need to roll in to make contact with the ground. Now swing your leg over to your midline and plant your foot. You have to roll the foot in to make contact with the ground. To control this aberrant inward motion, the leg muscles have to contract but also stretch at the same time. As a result of this constant trauma, the muscles become sore and small microfibers form in the connective tissue between them, binding them together so they can heal. Unfortunately, these fibers don't go away after the muscles have healed. Thus runners with cross-over get progressively stiffer, even if they don't suffer a debilitating injury. How can you reduce cross over? Runners cross over because they are stiff. Surprisingly, the stiffness responsible for cross over (and injuries) in runners is mostly in the shoulders. Every time a runner takes a stride, his arm extends 60 degrees behind his trunk. Yet most runners (especially distance runners) do not have 60 degrees of extension flexibility at their shoulders. As a result, when they run, the extension of their arms causes their upper body to twist or torque to that side, throwing their other arm across their midline as well. You can clearly see this upper body torque in the photos of Hussein and Petersen. Hussein's arms are going straight back and forth while Petersen's are going in a lateral circular motion. You can readily transfer this information to the Freeman Wycke one leg balance test we routinely use on all patients.*

Reiteration: the iliacus may be reactive to the posterior tibial, which leads you to believe that the pronation of the foot is the problem and need for orthotics. But it is really coming from the top down.



# Dr. Goodheart's Research Tapes - Tape 135

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**This tape will cover the functional hallucis limitus and AK gait problems, and postural complex general considerations.**

**P**eople with chronic musculoskeletal pain often present a complex clinical picture; it's a difficult thing to manage. A seldom thought of etiology has recently come to light involving the biomechanical functions of the foot and the remainder of the body. Minor, subtle and easy to overlook functional abnormalities, when repeated thousands of times a day in the course of normal ambulation, need to be considered in order to effect successful management. The difficulty in clinical management has been to quantitatively evaluate these abnormalities so you can rule out an apparent abnormality from a true malfunction. Some new concepts concerning the effects of lower extremity malfunction on the rest of the body and especially these words, vice versa, will be described. It's for this reason that the material on the sacrum, including Ili's observations, are included as well as the nuchal ligament interaction. Additional information on the femoral head with special attention to the iliacus is also included because of this interaction of the foot to the pelvis and vice versa. Some of that material on the femoral head you have on the last double tape.

In the early fifties, Lawrence Jones, an orthopedist, tried to make an observation about the postural complex. The diagrammatic presentation he made consisted of two large concentric circles. You'll note that both the inner and outer circle constitute a distinct but related unit. Together they form a series of serial shifts with a change in position at the bottom of each part of the circle which is communicated to the parts of the intermediate and distant superstructure. I.e., as above, below and as from the bottom up. The figures to the left are accompanied by ten matching captions on the right. In the center are two skeletal figures that summarize the series of changes that are depicted in the circle. That's nerve tension for the inner series as you can see on the material that accompanies this tape, and nerve release for the outer one. The bottom figures of the serial distortion demonstrate the extremely important synchronized rotation of the foot and leg. This mechanism of angulated pressure will be analyzed later. The inner circle represents the unitary shift of the vertical segment of the lower extremity, the leg and the thigh, as exemplified by the patella and the knee joint movement as well as the inward rotation. The point of all this is that it can occur from above to below as well as vice versa.

RMAPI of the iliacus major and minor is a frequent structural cause that requires origin and insertion technique, increased hydration/water intake and a source of wheat germ oil 185 mgs. three times a day. The pictures are self explanatory. Evidence is going to be presented that will correlate the fact that the synchronized rotary movements of the foot and leg cause corresponding changes in the pelvis and vice versa. The spinal column and its contents are affected and the spinal cord effecting the structural component is affected neurologically. It should be noted that the pelvis is mounted centrally on the hip joints when the mode of suspension is considered. Movement of the pelvis must be of a type corresponding to a wheel mounted on an axle. Now we're talking about a single wheel because there can be a forward movement in one position or a backward movement in another. But when we're talking about the pelvis as a unit, when the top moves forward, the base must move backward in exactly the same arc and degree. Incorporated in that figure you'll see the attachment of the iliacus muscle to the internal anterior surface of the iliac wing. That wide-spread fan-like muscular fiber activity at the origin unite into a narrow tendon which passes over the anterior surface of the pubis just lateral to the symphysis and then angulates sharply backwards to finally insert in the inner upper surface of the femur at the projecting inner trochanter. This medium produces a strong inter-



nal rotation of the upper end of the femur that will pull directly on the upper surface of the pelvis, that force being largely exerted on the region of the anterior superior iliac spine. Many times it's the iliacus minor that we have to be concerned with. There are undoubtedly other factors acting in that same area: the sartorius, rectus femoris, and a few others which may aid in pulling the crest of the pelvis forward and consequently cause a backwards movement of the pelvic base. The iliacus is often involved and requires accurate diagnosis. Quite frequently it will be the iliacus minor. You'll notice on the second in that pelvic series, the inner circle illustrates that this movement can actually be measured radiographically. Such pictures are taken in the standing position and Jones talked about that. Now, the last of that triad of the inner circle illustrates the important clinical effects of that pelvic angulation, namely the generalized elongating nerve tensions that start at the ankle or can start at the pelvis and are augmented by the double shortening pressures that accompany a pelvic shift. That upper component, with the forward movement of the pelvic crest causes the sacral base to press forward on the terminal roots of the cauda equina. This is one of the major factors in the causation of low back pain. The lower component or backward movement of the pelvis, the ischium going backwards, exerts pressure on the sciatic nerve by elevation of the sacrospinous ligament that closes the lower aperture of the sciatic foramen. These are more or less the words that Jones used to describe this whole pattern. In short, the same movement that causes low back pain may produce sciatica, but this combined mechanism explains their frequent association. Recall now too that this can come from above to below as well. In the center you see two skeletal figures, one labeled nerve tension and the other named nerve release. Nerve tension arises from the composite effect of the serial deviations of the inner circle. In the companion picture, nerve release correspondingly portrays the result when correction at the base, at the foot, relieves the serial distortion or when correction in the pelvis or higher up relieves the foot and therefore reverses the serial distortion of the superstructure and vice versa. The numbers attached to the central figures, one for the ankle, two for the sciatic foramen and three for the lumbosacral junction, represent the order of their appearance from below upwards, but are not indicative of their respective importance. It just so happens, in light of our present knowledge, that the one, or the ankle component, is quite important, but the pressure at the lumbosacral area is considerably more important than that occurring at the sciatic area. This conclusion is based on some of the observations Jones made. Both clinical and statistical observations of low back pain as a neuralgic symptom not only outnumbers sciatica statistically but almost invariably precedes it for a long term interval. Since the central nervous system is a continuous structure, tension in one area must be transmitted in various degrees to all others. Correspondingly and conversely for the same reason, relaxation of tension may cause corresponding release at distant points. Structure determines function. This material came from Lawrence Jones, MD, and Orthopedic doctor, scientific exhibits at the National Convention of the AMA Sciatic and Back Pain, San Francisco, 1946, Fatigue and the Various Neuralgias, Chicago, 1948, Nerve Tension and Inflammation, Atlantic City, 1945-49, and Los Angeles, 1951. So it's something we've talked of before and we've included copies of those diagrams in many of the lectures we've made.

**1990-1991 Workshop Procedure Manual:** the unique relationship of the functional hallucis limitus and the relative relationship to gait efficiency was discussed. The author, Howard Dannenberg, DPM, is an editorial consultant to the journal of Podiatric Medicine Biomechanics. The following material represents quotations from that 90-91 AK Workshop Procedure Manual, pages 100 to 102. Dr. Dannenberg describes a new method of viewing gait efficiency and presents a new entity not visible even to the most trained observer in gait. New theories regarding methods of understanding propulsion efficiency and the symptomatic conditions are discussed. Following the 1980 Olympics, and for the four years I remained on the team, we did many projects. There is a device called an electrodynogram put out by the Langor group which uses a number of very thin sensors on the bottom of the foot and one indifferent one on the calf. A computer measures the length of time the foot is on different parts during a weight bearing activity during a normal step. In the 1953 edition of the *British Journal of Anatomy*, Hicks described the so-called "windlass effect" and the automatic, completely mechanical method of raising the arch with each step. It simply involves the extension of the great toe on the first metatarsal which functionally shortens the plantar aponeurosis. This creates a decrease in the distance between the plantar aspect of the calcaneus and the first metatarsal pha-

langeal joint. The mechanical arch raising and external rotation of the lower leg result. The windlass however was thought to be an ineffective method, especially for stretch out in flat foot. Data from the electrodyne-gram made by the Langer group seems to indicate that it is the functional inability of the great toe to extend, i.e., the reason for the title, Functional Hallucis Limitus, rather than the ineffectiveness of this wind-lass that is responsible for the failure of the arch to be raised. It's the belief of the author, Howard Danenberg, that it's the functional inability of the hallucis extension that accounts for so much of the mechanical pathology. That's what we're going to talk about.

I interview each patient, review all previous x-rays and lab work which have been sent by another AK doc-tor whose having difficulty with this type of patient. Normally I look at the patient's posture both at rest and in motion, viewing both A to P and P to A. I perform the usual posterial exam and make the usual observa-tions. Every patient walks on a treadmill to allow observations of variations in heel lifting on one side and the other. It may take some time to realize the difference. I am looking for weakness of the extensor muscle, the extensor hallucis which dorsiflexes the big toe. In addition, I look for the extensor digitorum which dor-siflexes the other toes. We have them stand on the plumb line and face me and then turn around and face the other way. Often I have them walk in place on the plumb line and sometimes we have them walk on a treadmill especially if it's been a difficult pattern. I make the usual observations for the exam of the patient's blood pressure. All the rest of the physical exam has been done and an analysis of the films has been made. I am able to get right to the heart of the problem. I test the extensor hallucis and the extensor digitorum muscles with the patient supine. In a certain percentage of patients you'll find a weakness right away. I'd say perhaps maybe a third of the patients will show that. Frequently, I have them sit up and press the fibula and tibia together just below the knee to compress the tibia and fibula. The most common cause of the weakness of the extensor hallucis of the big toe (which causes a corresponding spasm of the flexor hallucis interfering with the gait) is a pressure by the inferior retinaculum just above the ankle. This causes pressure on the deep peroneal nerve causing weakness of both the extensor hallucis and also the extensor digitorum. If pressing from side to side at the tibia and fibula at the knee eliminates this rather common weakness, we simply have the patient lie on their side and then make a high velocity thrust on the lower malleoli, compressing the malleoli together like you would when the patient has carpal tunnel. We then retest both the left and right extensor hallucis if it was bilateral, or the one that we found if it was only uni-lateral, and it should remain strong. Then tape the ankle with 3M tape (a fabric tape "elastoplast" which dries rapidly and doesn't cause any adhesive dermatitis) and leave it in place for about a week. That's the first thing done and sometimes that alone is enough to take the weakness of the hallucis out. If the muscles are weak and the approximation of the tibia and fibula doesn't seem to help, test the origin and insertion. Most often there will be a weakness of the extensor digitorum. More frequently the extensor hallucis and a simple origin and insertion pressure will quickly relieve it. That's not too uncommon. The 1990-91 manual states that there is a rib pump activity at dorsals 4 and 5 and that has to be treated by using strain/counter-strain. Sometimes a nutritional fault seems to have a varied pattern. There hasn't been one that seems to be consistent, although there is a high frequency of a need for both potassium ions and cobalt ions. In some patients with a history of infection, we very often find the thymus to be involved. But at this point the nutri-tional component seems to be very limited because the response to origin and insertion and the use of the approximation seems to be very effective. The obvious RMAPI would be a factor and therefore that would be again origin and insertion as well as increasing the hydration and putting the patient on a source of wheat germ oil. We use a pearl that contains 385 mgs. of cold pressed wheat germ oil. That seems to be a minimum amount, but every patient is a little bit different.

Now if the extensor hallucis and the extensor digitorum test strong, and you feel this is a situation you want to investigate further, test them weight bearing. You simply have the patient stand up on the high/low table, or simply have them stand and observe for a limited range of motion. If there is any flexor spasm, the large toe, which usually has quite a good amount of freedom, has a very limited movement and is literally limited to zero. If that range of motion is limited, test all the above responses that you find, i.e., if you found the muscles weak and if you haven't taped the patient yet, or if you perhaps have made the approximation of the fibula and tibia but you haven't taped, test the patient literally for walking backwards. When you test the

patient and you find a weakness, usually the patient has just walked into your office. Sometimes having them walk backwards temporarily will neutralize any weakness that you find. Unfortunately, it only lasts for about sixty seconds. Then, the minute the patient starts to walk forward again for about sixty seconds, you get the muscle weakness again. I know sixty seconds is a long time, but we found that is a way of demonstrating a factor usually coming from gait. So you have the most common feature, a separation of the fibula and tibia. Another more common one is RMAPI. When the patient is weight bearing and they have limited motion, the treatment is the same, origin and insertion. The response to origin and insertion is very good. There's an extraordinary improvement in range of motion. Sometimes there can be a failure of the extensor muscle to work properly because its part of a disturbance in the liver meridian. If you find weakness, you can test it against the liver alarm point which is at liver 14. Even after you've done origin and insertion, you can still double check it against the alarm point liver 14 and, if it weakens it, then have the patient therapy localize to liver 3 on the dorsum of the foot just behind the large toe. If that is the case, stimulate liver three by tapping vigorously at one hertz to ten per second. You can use, if the law allows, an acupuncture needle at that area, or you can use a laser for five or ten seconds on that point. Testing the muscles against compression manually at the tibia and fibula is the most common thing we do. Tape them and leave the tape in situ for at least a week. We sometimes give the patient some extra tape if they need it. Then we use a triangular pad, a orthotic felt, the chiropodist felt, a quarter inch in thickness, two inches long and about an inch and a half high. We support metatarsals two, three, four and five temporarily, and if necessary, you can add that to the bottom of the orthotic surface that they're wearing. Check and correct both the nuchal and sacral fault that you find using nuchal tension as an indication of sacrum, pelvic and femoral heads as per the instructions that we give you. Then check the iliolumbar and sacrolumbar ligaments as by the instructions. Then as a final feature, therapy localize the sagittal suture and see if it's positive for an extensor hallucis weakness. Return and use SST, the sagittal suture spread and tap.

The so called functional hallucis limitus can be defined as an inability of the proximal phalanx of the hallux, the closest one to the first metatarsal head to dorsiflex, i.e., to come up during the stance phase of gait. Functional locking can vary in terms of the time. And it can be less than one hundred milliseconds, which is what is normal. We found that all the best athletes during their gait patterns had less than one hundred milliseconds of time on that portion of the foot. It is extremely important to note that the full range of motion may be present in the first metatarsophalangeal (MTP) joint during a non weight bearing exam. Symptoms of pain may not be present in the joint and the patient's chief complaint may not be associated with it at all. Not very many of the patients complain of pain associated with the first MTP joint. When the great toe reaches the ground, it no longer moves, and motion at that MTP joint is created by the foot flexing over it. During visual examination of the gait, any first MTP joint dorsiflexion can only be visualized as related to heel lift. Heel lift is accomplished by the first MTP joint dorsiflexion, and therefore, if functional hallucis limitus is present, heel lift in general can be delayed or be totally restricted. The net effect would be to hide the etiological functional hallucis limitus and can explain why this entity has gone virtually undetected in visual examination of gait. When that extensor hallucis is weak, the flexor hallucis gets tight. It actually limits toe flexion and sets up all types of aberrations in gait. It's just as if you have a wheel barrow full of cement on a building site. You're trundling the wheel barrow and the wheel of the wheelbarrow hits a two by four on the building side and stops but the cement keeps going.

In the original article published by Howard Danenberg, DPM, Malcolm Laughton, Ph.D., MD, and Richard Napoli, DPM, they describe a large cohort of patients with the primary complaints of: 22% of the patients complained of cephalgia, TMJ and neck pain; another 22% complained of low back pain; another 22% complained of hip pain; 34% complained of knee and leg pain; and none of them complained of foot pain. You can observe the posture both at rest and in motion as on the flow chart. But it takes a great deal of skill and sometimes having the patient walk at different speeds on the treadmill to see that alteration in the heel lift is one of the hardest things to spot. I didn't see it for a long time until I finally had Howard as a patient. He unfortunately had the problem himself. He needed help in addition to the orthotic and the other material that he had prescribed for himself, and which had worked very well for others. He needed rib pump activity as well as structural correction. But if you test the extensor hallucis and the extensor digitorum muscles,

you at least start to see the relatively high frequency that this muscle pattern is weak in the average patient population. When you find the muscles weak, you can use appropriate five IVF factors and RMAPI factors, but the most usual thing is the extensor hallucis is weak. It responds to origin and insertion technique. The nutritional supplement for that is non-heat processed veal bone. But if it only weakens on repeated use, that's RMAPI treatment, include wheat germ oil and origin and insertion. If it weakens on stretching, that means fascial flush. If it weakens on maximum contraction, that means put that particular muscle in a relaxed position and work on the spindle cells. If the muscles test strong and you're having trouble with the patient understanding some problems, you can test during weight bearing and have the patient stand on one foot and then stand on the other foot. It's astonishing how many have a very limited range of motion when they're standing. This really means there is a great amount of contraction in the flexor hallucis which itself may occasionally require origin and insertion technique. That's relatively uncommon, but many times in a persistent one you have to take that into consideration. If the range of motion is limited in one way or another, or muscles are weak, just have the patient walk backwards for about sixty seconds and everything that you find will disappear, but unfortunately only temporarily. That's another way of confirming that it's coming from gait. You can have the patient resume forward walking momentarily and the weakness and range of motion changes which disappeared so nicely come roaring back. You then test for the response to the alarm point at liver 14 and see if the muscle will respond to that. It will also respond to therapy localization of liver three on the dorsum of the foot just behind the big toe. That requires stimulation of liver 3, tapping it, putting a needle in that point if that's within the limitations of the license where you're practicing, or you can use momentary laser technique, which is very useful. This is a relatively common pattern. Test the muscles against a manual compression of the fibula and tibia as I mentioned earlier and use a high velocity compression adjustment for the proper approximation of the ankle joint. Then be sure to tape it after manipulation. Most patients need the effective taping. With some patients, I leave it on for two weeks rather than the one week that I suggested. Then you can get a metatarsal pad that will allow you to support two, three, four, and five. You can put it on the bottom of the patient's foot. Obtain the metatarsal pad from your usual supply source or from podiatric supply. The pad can be placed under two, three, four, and five and you can put it under the orthotic lower surface if they're already wearing some. Be sure to correct the nuchal, sacral and femoral head faults, as we will talk about, and then clear the iliolumbar and sacrolumbar ligaments if you find them (that's following David Leaf's flow charts, on which he's done such a good job and I highly recommend you get). Then therapy localize the sagittal suture. If it's positive for the return of the weakness of the extensor hallucis, use sagittal suture spread and tap.

We sometimes call one type of a cranial fault a universal cranial fault. Many times this is like a universal foot fault, but the interesting thing is hardly ever does the patient complain of foot pain. They generally complain of something else as I mentioned on that table of percentage of patients and the patients complaints. 22% complained of cephalgia headache, TMJ, and neck pain, 22% complained of low back pain, 22% had hip pain, and knee and leg pain came out to 34%. None of them complained of their foot. So as a result, you're not given a clue as to the source of the patients pain problem if all you do is depend on where they complain. But if you do muscle testing, especially in both weight bearing and non-weight bearing, you see an awful lot of extensor hallucis, and in some instances, the extensor digitorum. It responds very well to your approximation technique, to taping and also to origin and insertion. The nutritional support I mentioned may be ionic cobalt or ionic potassium or sometimes thymus, but that doesn't seem to be often needed. Generally the origin and insertion technique plus the taping seems to do it as well as the stimulation of liver 3.

In the 1983 Workshop Procedure Manual (page 82) nuchal tension and sacral problems were discussed. Preceding this was the discussion of the sacral base line called the true sacral base. In this discussion the sacral base x-rays were compared to standard 14x17 x-rays in the same case and it soon became apparent that the level of the sacral base was not consistent with a line drawn across the superior aspect of the sacrum when we use the Barge sacral x-ray technique. Barge did a study at the Logan College and found a very high percentage of sacral anomaly, much more common and, in fact, much more constant in the female.

Sometimes pain may be the complaint that patients will have. They'll complain of neck disturbances (nuchal tension), but if you look at the occiput you'll find a tilting that doesn't seem to become evident if you test the muscles that are normally associated with head level or shoulder level. If you challenge the sacrum you'll generally get a negative challenge to the usual basic type of activity using your thumb on the sacrum, but if you hold the ilium down with one thumb with the patient prone, then challenge the sacrum upwards, you'll get a positive response. Now that usually shows sacral inferiority to exist on the side of the nuchal tension, which you establish first by palpation, and second by simple observation when the patient is standing. Generally the head is low on that side and sometimes the head is tilted up slightly. When you have unilateral nuchal tension with the patient prone, it means a posterior sacrum on the short leg side. When you challenge the posterior sacral position on the short leg side, you may have to vary the challenge angle slightly. Sometimes it doesn't challenge directly lateral if you have a posterior, slightly superior, slightly inferior angle, as well as posterior to anterior. Unilateral nuchal tension with the patient prone on the same side of the long leg means a sacral inferiority. Bilateral nuchal tension with the legs even in the prone position means a bilateral sacral inferiority. Correction is by a bilateral knee bend while you hold the thumbs on the ilium. Bilateral nuchal tension with the legs uneven is the most common pattern in the prone position and means an oblique sacrum with the inferiority on the long leg side and a superiority on the short leg side. Challenging confirms this. When you find an inferior sacrum, you hold your thumb on the ilium, flex the knee and let the sacrum slide by. You do the same thing with the oblique sacrum on the long leg side. You then have a posterior sacrum on the opposite side and you treat that by just adjusting it. You make two adjustments based on nuchal ligament tension and also leg length differences. That's pretty straight forward. In the oblique sacrum you'll generally find an anterior dorsal in the mid thoracic area. Correct it. In the oblique sacrum, the patient will show knee problems, especially in the posterior popliteal area. Inspect that and treat it properly. Check especially for a bilateral popliteal weakness which as you know indicates a lower cervical fixation. Correct it. The anterior dorsal subluxation is generally corrected prior to the oblique sacral correction, all things being equal.

Bilateral nuchal tension with uneven legs in the prone position indicates an oblique sacrum. That bilateral nuchal tension should be there. Now sometimes because of how the nuchal ligament is organized, there's both a posterior and anterior segment. If you don't find it but you suspect it's present, have the patient flex and extend the head while they still therapy localize and this may now reveal it. Check for the potential inferior position on the one sacral side and the superior sacral position on the other side. Rule out the piriformis and the iliacus by using the PLUS pattern in case that's a perpetuating cause. On the inferior sacral side, use the flex leg on the long leg side, hold the ilium down and adjust the inferior sacral pattern by holding your thumb down. That takes care of the inferior side of the oblique. You may have on the other side posterior superior or just straight superior. You can challenge for that by holding the thumb contact on the ischium and the other thumb contact making a superior sacral change. When you make the proper sacral adjustments, if the total nuchal pain doesn't diminish by 95% be sure to recheck for the anterior dorsal. A lot of these patients have iliac respiratory fixations and they accompany sacral subluxations. You can rule out the iliac fixations by therapy localization of either the left or right sacroiliac joint. Test the ipsilateral neck extensors in the prone position, and you can correct by appropriate respiration. If inspiration abolishes the therapy localization of the ipsilateral neck extensor, adjust the posterior superior iliac spine (PSS) from lateral to medial while the patient takes a deep breath. That's how the PSS moves. If expiration abolishes it, adjust it from medial to lateral on expiration.

In difficult problem patients, always double check the nuchal patterns in both the sitting and standing positions. Correct in the position that produced the weakness when changing from prone to sitting or standing. Correct it if possible in the appropriate position. Be sure to finish it off with SST, the sagittal suture spread and tap. Give a strong tap at the bregma to allow any adjustment that you made to hold. Don't forget the potential for the sacral wobble and the need for appropriate correction. You can find that in section SP6 of the title sacral wobble in David Leaf's flow chart for 1995. Naturally always check for evidence of category one or two or three by observation and therapy localization of the pelvis by appropriate technique. You'll

often find a category one will be present with a chronic oblique sacrum. Check for a possible lumbar involvement. In real difficult inferior sacral problems, you may have to use a heel lift when you see persistent signs of an inferior sacrum. Correction of the femoral head imbalance as we discussed in the last tape, #134 parts one and two, is highly recommended.

**DeJarnette, 1964, page 25:** "Whenever the left or right innominate is in an anterior subluxation, the sacral border on that side moves forward and upward and this begins the oblique subluxation. When the opposing innominate is caused to compensate for the anterior subluxated innominate it will, like a fellow pushing an immovable object, brace itself and in so doing reverse its position in relation to the first subluxated innominate and now we have the true sacrum with the mid dorsal pain and the axis fixation complex..."

Naturally you check for the block technique and a category one. Many times you may find upper cervical fixation and lower cervical fixation which may accompany the oblique sacral and category one combination. An anterior thoracic, incurred from trauma, needs correction by adjusting the segment. Do this by putting a pad below the anterior segment and either have the patient supine or standing, using an extension move to let the anterior dorsal come back.

When you see the sacral fault, you'll find that veal bone and the vitamin E derivatives are very useful as well as the appropriate E-Poise or Electron Plus material if it keeps coming back on treadmill walking.

The nuchal tension that is prolonged is really an attempt at self correction of the oblique sacrum. That's what lays the groundwork for the patterns of both the upper and lower cervical fixations in the oblique sacral situation and the anterior thoracic component is always a factor to consider. There will always be pain in the anterior thoracic just at the most inferior tip of the spinous in the mid thoracic area. The only random thing that takes place in the body is the effect of trauma on the body and hence the variability of the response. Here again the innominate position both left and right would allow the RMAPI of the iliacus, psoas and piriformis. Whenever the right or left innominate is in an anterior subluxation, the sacral border on that side moves forward and upward. This begins the oblique subluxation. Then the opposing innominate is called upon to compensate for the anterior subluxated innominate and will, like a fellow pushing on an immovable object, brace itself, and in so doing will reverse its position in relationship to the first subluxated innominate. Now we have the true oblique sacrum with the mid dorsal pain, the axis fixation, and sometimes the lower cervical fixation. That's a relatively common thing. Origin and insertion technique may be necessary to restore balance to the piriformis. It should be really difficult to do origin and insertion on the piriformis unless you're going to use intrarectal pressure, but attention to the insertion requires application only to the greater trochanter insertion. Naturally, regular testing as well as aerobic and anaerobic testing should be used in difficult problems. The use of a RMAPI gives an additional dimension to this biomechanically highly important muscle.

The Logan basic sacrum contact therapy is an established method of treatment but it has never yielded consistent diagnostic criteria for its well regarded use in therapy. We found the best indication for its use is a contact based on anterior and posterior palpatory pain in the neck, both subjective and objective pain in the cervical column and the pain extends from around C1 through T8. It can be both unilateral or bilateral. You don't contact on the sacrum but in the gluteal muscle with your thumb to reach the crossing of the sacrotuberous and sacrospinous ligament. This gives astonishing pain relief on palpation quickly and it seems to be independent of the actual sacral bony position. Experience with the pseudo-category two has helped us to solidify this opinion. In many cases it responds very simply to sacrotuberous and sacrospinous ligament pressure to diminish cervical pain on palpation both in an objective and subjective fashion, in active and passive motion, and in cervical compaction. A therapeutic trial is both the best diagnostic effort as well as a simultaneous therapeutic response. Testing and correcting the piriformis muscle activity doesn't preclude a trial of the sacrotuberous, sacrospinous technique approach. Many times you can slightly vary the sacrotuberous, sacrospinous contact if you're not getting all the pain out; sometimes taking the thumb slightly higher, slightly lower into the gluteal muscle/perineal area. This is remarkably effective for this type of anterior and posterior neck pain, both subjective and objective, and greatly increases the range of motion. It

has done very well on the lecture platform which is one of the hardest places to fix things because you have to either put up or shut up. That's the kind of thing I enjoy.

You can get the information on the Barge method from Tortipelvis, 1980, Third Edition. He's responsible for Logan College's study on 125 patients. Of 125 sacral base x-rays, the sacrum was low on the right in 32%, low on the left in 39.2%, sacrum was level in only 28.8%, the sacrum low on the left or right 71.2%. Out of the 125 sacral base x-rays that showed other guidelines, transverse surfaces, and notches that correspond reasonably well with the level of the sacral surface, adequate correlation was 46 out of 125, 36.8%. Inadequate correlation 63.2%. Of the 125 sacral base x-rays, 82 or 65.6% were found to have plateaued sacrums. Of the 32 that were plateaued sacrums, (plateaus develop of unequal height one side or the other), unequal plateaus were 36 which is 43.9%. Of the 125 sacral x-rays, 76 were males. Of the 76 male x-rays, there was no sacral plateau in 51.3%, 39 of them. Low sacral plateau was 32, 42.1%. High sacral plateau was 5. Two of the five were young men with scoliosis. All males with a plateau high or low was 37 which is 48.7%. Of the 125 x-rays, 49 were female. No sacral plateau- 4, 8.2%. Low sacral plateau- 23, 46.9%. High sacral plateau- 22, 44.9%. All females with a plateau, sacrum high or low- 91.8%. That speaks for itself and many times is a reason why you're having trouble with some of your patients.

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# Dr. Goodheart's Research Tapes - Tape 136

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**O**ctacosanols, found in wheat germ oil, are useful substances for recurring fixations. We refer to them as antigravity substances. This gave us a clue later on when we found that Repeated Muscle Activation Patient Induced (RMAPI) would cause weakness. We thought that wheat germ oil would be helpful and it proved to be, when taken three times a day. The concentration has been changed from 185 mgs. to 385 mgs./capsule in the brand I use.

People use lemon juice to inhibit the color change in potato salad. This represents the activity of a very useful enzyme, phosphatase, to keep calcium in solution. One of the reasons that raw veal bone, rather than heat treated products, are so useful in correcting both Golgi Tendon and spindle cell activity is that the muscle action produced by the microavulsion or by the spindle cell being taken unawares by a sudden stretch all do very well with the elements of phosphatase from non-heat processed veal bone. Phosphatase is also useful for teething children. A piece of raw potato seems to satisfy them and that's an old fashioned idea that has a new fashioned background.

My father taught me that iodine thins secretions. If your saliva is too thick, you have sinus problems, or dry mouth as in Sjogrens syndrome, iodine and vitamin A help. People with thick secretions as thick eye secretions, granulated eyelids, chronic sinusitis or that seem to cry readily, regardless of gender, need organic iodine, either the tablet or liquid form. These patients have chronic trouble literally because their secretions are so thick. This can prove to be disastrous when the biliary secretions are thick. They're susceptible to selective dehydration in certain parts of their body and iodine helps this because it has a tendency to thin the secretions. Very often these people are usually colder when other people are warmer. They state that they don't like to be observed when they learn to do a new thing. They often say that their get up and go has got up and went. Iodine seems to keep all the glands working. A lot of people are not aware that not only thyroid function is related to iodine, but so is the function of every gland. The Layhee clinic was the site where a very interesting observation was made by Perkins and his associates. They gave both male and female dogs lugol solution (potassium iodide) by stomach tubes to insure correct amounts of normal protein bound iodine. They removed the thyroids from the male dogs and the PBI dropped by 90%. The same procedure on the female dogs produced a drop of only 10%. Later, when they removed the females' ovaries, and repeated the procedure, the PBI dropped the same amount as it did in the male dogs. It appears is that the female dog has a different pattern for the use of iodine than the male. Sometimes when the secretions of the vagina are thick and when there are recurring vaginal infections of one kind or another, the female patient will need a pledgette of cotton tampon soaked in an iodine solution and inserted into the vagina. The soaking solution should contain a single drop of the Ioaquasol from John Thie's father's company in an ounce of water, or fifteen drops of the dilute solution of the potassium iodide from Biotics. Have the patient follow this regime for three weeks on and one week off, during her menstrual period. That improves glandular and thyroid function. This can also be useful in women with high cholesterol.

When you stretch a muscle the muscle should strengthen. Rocky Calavito used to play for the Indians and he was famous for hitting home runs out of Tiger stadium. He used to put a bat behind his back with his elbows bent and stretch his chest muscles and then get up to the plate and hit a home run. Stretching a muscle certainly shouldn't weaken it. There is agreement among many authorities that a stretched muscle should actually get stronger rather than weaker. When you stretch a muscle and it weakens, that indicates the need to fascially flush the muscle, going along the direction of the fascia. This is a very important factor that a lot of people fail to recognize and include in their treatment regime. It also indicates the need for



B12, which should immediately neutralize the stretch weakness. Sometimes you're not absorbing the B12 so you have to think about the small intestine malabsorption which we'll talk about later on.

There has been a lot of conversation about a particular element that we talk about and very often its seen in anemia. A bilateral tensor fascia lata (TFL) weakness in the clear is often associated with a lack of iron. Many times it will respond to a form of iron and quite often that can be the element. However, the reason can also be the malabsorption of iron or its improper utilization. There seems to be a miniature representation of the TFL along the lateral portion of the tibia and fibula. If you find the TFL sensitive up near the femoral head, there may be a corresponding place up near the fibula head. If the sensitivity is in the middle of the TFL, then it will be in the middle of the area of the tibia/fibula. Sometimes that's a useful thing to fix in addition to the usual manipulation we do. If you get a blood test back with a microcytic anemia where the cells are smaller than average, that's the best indication for iron. Another indication for iron is a single muscle weakness on repeated use. When you see the patient with the macrocytic anemia and the cells are larger, that's usually a sign that the patient needs folic acid/B12.

Sometimes you'll see plantar warts under a disturbed metatarsal. This will requires investigation of the foot structure. This is seen especially in younger people whose nutrition may not be appropriate. Sometimes you see plantar warts in people who can't walk such as in cerebral palsy, etc., where you can't logically say that it comes from the weight on the foot. A source of organic trace minerals is useful in these cases. The tissue of the body is basically nitrogenous. Warts have been blamed on a rather ubiquitous virus, but it probably is ubiquitous because more people have trace mineral deficiencies rather than are exposed to some virus you get from an athletic shower room floor. First have the patient shave down the wart with a razor blade, then sand it down and then apply a drop or two of nitric acid on a small Q-tip. Advise caution since the sharp blade can be dangerous. Also caution the patient that the area will change color getting much more yellow and dark. When you use the local treatment along with ingestion of trace mineral, it will usually stop the wart. Another factor I see in warts is a protein deficiency.

This especially in true in young women who become vegetarians, usually for emotional reasons, and they end up diminishing their protein intake. Protein gets a bad name for a variety of reasons. The apologists for the non-meat position say that if we feed the corn to people and not feed it to animals we'd have more food for people, etc. That may or may not be true. Nothing makes flesh like flesh as they say. Some people don't have to borrow the energy of the animal to make protein. There's nothing wrong with that. I see a lot of good protein levels and good albumin/globulin levels in people who are vegetarians. But I also see the opposite. Sometimes the ingestion of animal protein, rare especially, seems to help people, especially children and young women who have recurring bouts of this wart pattern. Sometimes you may have to use something around the wart to relieve pressure on it if there's any irritation. The level of globulin should not be higher than 2.8 and any time you see a 3.0 or 3.2 with a normal total protein level you generally have a situation where you're digesting yourself. Sometimes you make Swiss cheese out of a joint or you'll denature different areas of tissue. Very often, increasing the protein and the enzymes necessary to digest protein, fat and carbohydrates along with investigation of the possible Neuroenteric Hologrammic small intestine absorption pattern is a good thing to remember in these cases. There are a large percentage of people who have this problem. Sometimes the reason that protein gets a bad name is because people fail to follow a compatibility diet. They're consuming high starch with high protein and many times that causes digestive distress. As a result, some non-protein regimes get a reputation for helping. If you watch the food combinations, a lot of the distress is eliminated.

When you have patients who don't therapy localize (TL) because of medication or drugs etc., the body has lost the memory of it. In a case where you expect to find a specific muscle pattern based on your experience, for example you're attempting to find the tensor fascia lata or liver TL in a case of psoriasis, but it is not revealing itself, put some RNA in the patient's mouth while testing. This helps the body regain the memory of what is happening. RNA also unlocks the cell door so that thyroxine can get in and cause normal metabolism. Many people who need thyroid or iodine help are greatly helped by RNA. Some patients with low body temperature show the Achilles response of a hyperthyroid which is paradoxical, and that's

common. The thyroxine is all out in the blood stream and not in the cell and they need RNA. That's the cause of the paradoxical thyroid test. Patients with failing memory sometimes need RNA. I have them stand on one leg with their eyes open first, and then with their eyes closed. If they wobble a lot, I keep adding RNA until they stabilize. If they stand with their eyes closed and they wobble a little bit and the RNA makes them worse, that means they need just homeopathic amounts of RNA throughout the day. Give them just a pinch.

People with nightmares, or the night terrors that children sometimes get, often show a higher blood pressure lying down; as much as ten or fifteen millimeters higher than when they're standing. Yet there are no other signs of adrenal dysfunction other than the fact that the blood pressure is higher lying down than standing up. This is especially seen in the systole. Diastole doesn't seem to change. Naturally you have to rule out and differentially diagnose an adrenal disturbance. Signs of adrenal dysfunction are the Ragland effect (blood pressure dropping on standing), dilated pupil, and an exaggerated second heart sound, which doesn't require any form of cardiographic equipment. All you have to do is listen. You hear lub DUP lub DUP, especially in the pulmonary area, and you hear that second sound very exaggerated. These people have weak sartorius/gracilis muscles, etc. But when you have someone who has nightmares and crazy dreams, quite often this means that the kidneys are not clearing out all the waste. That usually means they'll have a double psoas weakness that will be present when they're laying down, but not standing up. Another way to test for a double psoas, when they are strong in the clear, is to have the patient touch the occiput and that will weaken the bilateral psoas muscles. This usually means there's a lateral occiput sideslip, left or right. You test for a lateral occiput against a convenient muscle like the pectoralis clavicular or sternal. Test them bilaterally for weakening against a tongue thrust left and right. The tongue thrust lets you diagnose an occipital subluxation because the posterior pharyngeal wall is attached to the median raphe of the occiput and when the occiput goes left or right by subluxation, you get that unusual tongue pattern. When a child has this condition, it is very disturbing. They have been sleeping well, and then when they're three or four years old they suddenly start having nightmares and they want mommy to sleep with them. You get the kid to sleep and the minute you leave the room the kid starts to holler again. That's a need for homeopathic costicum, which is old fashioned lye, but in a homeopathic concentration. 6x costicum puts those kids to sleep like they've been hit with a sledgehammer and they couldn't care if there's anyone left in the world. That's something that all the Goodheart grandchildren seem to have and I've also seen it in my sister's children. It's very useful.

People who yawn a lot very often have a very acid salivary pH and they need alkalizing agents. It usually means a lack of alkaline minerals. There are not absorbing it so quite often it is small intestine malabsorption problem. They do well with organic mineral sources, potassium especially is useful and it doesn't require very much. They do well on high sodium foods such as zucchini, string beans, celery and squash. The yawning can sometimes represent a change in the digestive gradient, and you should investigate that.

Sometimes older people with capillary fragility bruise easily, especially on the back of the hand, and should be tested for a need of buckwheat and for sources of calcium normalizing factors. Many times this need is a sign of malabsorption. Some women will get the capillary fragility only with the onset of menstruation. Their levels of vitamin C and the petechiometer results will be normal. They will be malabsorbing and will often need folic acid.

People who have allergies, asthma, or hay fever should be tested for adrenal insufficiency and acid/alkaline imbalance. Many of these people need more acid calcium. The body goes into an obligatory acidosis to keep the salivary secretions and the other secretions a little more acid so that they can absorb calcium. You have to use some retrospective observation and very often you find they have malabsorption. Many times you'll see the small intestine/quadiceps muscles or the abdominal muscles weakening against the neurolymphatic reflex starting at the xiphoid down to the mid-axillary line on the anterior, and between eight and twelve interspinous transverse processes posteriorly. Sometimes the neurolymphatic reflex for the rectus abdominis on the medial thigh that needs treatment. The rectus and the other abdominal muscles are

related to the small intestine, in addition to the quadriceps. They will have a very acid pH and they'll need beginning and end (B&E) technique, tapping of the little finger on the jaw for the B&E of the small intestine. This situation is sometimes very quickly neutralized by supplementing with parotid tissue three times a day. After you've given the parotid and it has neutralized the weakness of the small intestine meridian and also the neurolymphatic reflex of the small intestine, have them wash their mouth out with neutral pH water and then recheck salivary pH. You will be surprised, it'll be quite alkaline. The patient will be quite pleased with that. It doesn't last forever and you have to keep supplementing with parotid for about a month. Much of that information is in the 95-96 Research Manual, which if you don't have, I suggest you get because there's a lot of good information in it.

The breathless patient who sighs a lot and seems to get a lump in their throat at the most inconvenient time, sometimes by very minimum emotion, is generally a sign of overactivity of the sympathetic nervous system and sometimes they are acidotic. On the other side, the patient with alkalosis may exhibit arthritis, bursitis, neuritis, and sciatic neuritis especially. Often that patient shows a need for an acid calcium.

Some eye trouble is related to the liver or the kidney function, and both vitamin A and vitamin F help those patients as well as the eye protomorphogen. Hawkins, in a book that was printed 30 years ago and then reprinted, said that 70% of all the patients they tested at the University of California Dental School had vitamin A deficiencies because of the number of dental problems they had. Supplement the patient with a multiple source of vitamin A, such as animal, kidney fat, fish liver, vegetable or lemon grass oil. It should be a multiple source because some people don't respond to the single liver source. A natural multi source of vitamin A helps with bladder infections. The bladder membrane gets like a dried up river bed and it should be like thick newly piled velvet. You need more A and better assimilation. It helps to acidify if the urine is alkaline and alkalize if its acid. Be sure to clear out the bowel in those conditions.

Manganese is an element that is sometimes associated with psychological changes. Manganese is the mineral of choice when dealing with a disc lesion, granted that all other things are equal in terms of your structural management of this. The original idea came from the fact that an early Canadian researcher observed perosis in chickens and other fowl that had their feet steamed. He noted that there had been a loss of manganese and a loosening of the ligaments and they couldn't walk because their knees would bend backwards. This was observed in the early fifties and led to my observation in disc lesions that manganese seemed to be a factor because the ligaments seemed to be relaxed. It's still a good thing to add to your treatment of disc lesions. There is a great deal of information that would validate the fact that manganese would add tone to ligaments and, therefore, it's useful any time you see evidence of a relaxed ligament. Dr. Ballantine, a fine MD, has published a very excellent text on diet and nutrition subtitled *Holistic Approach*, published by Himalayan International Institute in Hunsdale, Pa. And he spoke to us at an ICAK meeting in Philadelphia. He cites the evidence that manganese is one of the least toxic minerals. Occasionally you see manganese poisoning in miners who work with manganese ore. It's characterized by a very unusual psychiatric disorder and its followed by a crippling neurological disease similar to Parkinson's. An interesting fact is that the Parkinson's syndrome resulting from taking powerful tranquilizers has been reversed by manganese supplements. To round out the paradox he says that schizophrenic patients have often been treated with manganese supplements and quite often they show definite improvement. So very high or low levels of manganese seem to produce very similar pictures in the body that psychiatrically resemble schizophrenia and neurologically resemble Parkinson's disease. This has been recognized by homeopaths who produced Parkinson-like syndromes more than a century ago by giving small doses of manganese acetate. Therefore they use homeopathic doses of that same manganese acetate to ameliorate the symptoms in patients that have Parkinson's syndrome. A lot of physicians, including myself, feel that patients who have allergies respond well to manganese supplements. That's what Dr. Ballantine observed in patients who were manganese deficient. In schizophrenics, manganese seems to restore balance when the histamine that is released during allergic reaction is either too high or too low. Furthermore, in those schizophrenic patients where the serum copper is elevated, it is reported that manganese along with zinc seemed to lower the copper and promote its excretion, which is followed by a general improvement in the psychosis.

There is plenty of information about the need for B6. The wedding band syndrome is the most common where the patient has one finger that seems to enlarge. I know there are some people who are interested in polarity techniques that represent the need for one finger to be either positive or negative and that's not what I'm talking about. Here, a single finger will sometimes get swollen at either the proximal or distal joint and that often responds to 50 mgs. B6/10 mgs. niacinamide, three times a day. It takes about a week for that to get a response. The wedding band syndrome means you can't get the ring off, which is from local inflammation, and B6 helps that quite a bit. An accompanying factor that is very often present is a snapping finger, or there's a stenosing tenosynovitis in either the thumb or one of the other fingers where the finger gets stuck in a flexed position and you literally have to manually put it back and it snaps. I see that in a lot of artists. I had a group of nuns that were all art teachers that had that. I started with one who was helped, and soon I had dozens of nuns. They had taken the vows of poverty, chastity and obedience, so we never charged them. But they used to pray for me. I'm sure that I needed it. Right after they did some good praying following the correction of their snapping thumbs, a patient that I had known for many years left me a sum of money that allowed me to put a down payment on a condominium up north which we used for many years, teaching not only skiing, but AK. Testing homocysteine is one way you can test for B6 and will also help to diagnose a folic acid or B12 deficiency. Excess homocysteine is a byproduct of improper metabolism of methionine. When you break down methionine, instead of producing cysteine you produce homocysteine. Putting a small amount of homocysteine should not cause any weakness especially in muscles related to the patient's area of complaint. I carry a small bottle of homocysteine around in my pocket because I see this problem so often. I urge you to check your patients for B6, folic acid and B12 deficiency. Nutriwest produced a quantity of homocysteine and, if Paul White is out of it, ask them to make some more, because the production of this tape may stimulate more of its use. It's a good way to find out if there is nutrient deficiency, if it is failing to be absorbed or perhaps both. Patients who have trouble flexing the fingers and have swelling with possible numbness and tingling need B6. Dr. Ellis' latest monograph on B6 and diabetes says if you can't flex your fingers and touch the pad of your hands that's a sign of B6 deficiency.

A bilaterally weak pectoralis clavicular, sometimes accompanied by a temporal bulge, means that the patient needs priming with hydrochloric acid (HCL). People that have a recurring temporal bulge (what we used to call a banana head) many times have a HCL deficiency. These people are allergic. Quite often carbonic acid anhydrase is the substance that puts hydrogen and chloride together to make HCL. Carbonic anhydrase is zinc dependent. Vitamin B is helpful as well as an accompanying factor. The temporal bulge should be corrected by cranial technique. You can then prime the pump with some HCL. Giving them some vitamin B and zinc allows the body to make the deficient HCL. Incidentally, deficient HCL is a factor in a hiatal hernia where the patient is taking antacids because of all the heartburn. What really is wrong is that they don't have enough HCL. If the HCL doesn't relieve the symptoms of the hiatal hernia, pressing in on the soft part of the abdomen just below the bifurcation of the ribs on the left hand side and pulling downwards is the way to get the stomach back out of the hiatus. Another possibility is the stomach can't flush its own lymphatic toilet and needs neurolymphatic activity. Often this indicates the need for anterograde lymphatic technique to make sure the lymph is draining into the subclavian vein, especially on the left side. To determine if anterograde lymphatic technique is needed, have the patient lie down, raise their head and test their anterior neck flexors. If the neck flexors are strong, but when they hunch their shoulders forward and contract the pectoralis minor, the neck flexors weaken, this indicates the need for the anterograde lymphatic technique. A previously strong pectoralis clavicular and subscapularis will likewise weaken when the neck is flexed and the shoulders hunched. This occurs when the pectoralis minor interferes with the median cephalic vein entrance to the subclavian where the thoracic duct enters. There's a semilunar valve there, and if that is blocked off by the pect minor muscle, the normal sucking pressure of the subclavian is diminished. The lymph starts to back up and very often the stomach gets swollen. To do the anterograde technique on the pectoralis minor, do origin and insertion technique or the fascial flush for a stretch weakness, and then treat the neurolymphatic reflex located on a parallel with the xiphoid process at the mid nipple line.

Leg cramps at night sometimes calls for calcium and/or magnesium. Sometimes its due to foot problems and you want to make certain the patient isn't pronating too much or doesn't have an anterior talus on one

side or both sides. Sometimes there seems to be a peculiar type of pattern in some people where they either pass gas occasionally or burp and when they do that they don't seem to have any leg cramps. When they don't do that they have cramps consistently at night. That generally means you want to give them digestive enzymes to aid in digestion, which somehow seems to cause, not gas, but what I would consider some type of gaseous disturbance in the muscle. The minute you give them the digestive enzyme, along with the calcium and/or the magnesium, that situation resolves itself. Sometimes its a foot problem. You have to make that choice.

An open ileocecal valve (ICV) can be diagnosed by therapy localization and is then challenged by pressing up towards the opposite shoulder. Dr. Still, who founded osteopathy, used to tell people the way to help that was to eat some raw bacon. In a recurring open ICV that defies correction, in addition to the reduction of roughage and all the other irritating factors in the diet, it's a good idea to use some fat soluble chlorophyll three times a day. The water soluble chlorophyll has the magnesium taken out of it.

Some of these things occur so regularly that it indicates that it must be connected with the general population. If you have a recurring posterior ischium, the long leg pattern in the category two or a consistent pattern in the category one requiring the block technique and also a persistent pseudo-category two, those patients respond very well to vitamin E with selenium (relatively small amounts, 2 IU of E with selenium).

When you see calcium precipitation in the spinal joints, acromioclavicular joints, humeral head, glenoid joints, knee or ankle, generally that's caused by alkalinity of the tissue and generally these patients paradoxically need an acid calcium such as Cal-Amo or some of the other acid calciums that are available. Many of these patients have been told to avoid calcium because of the calcium deposit. You want to check the fatty acids because the vitamin F tells the calcium where to go.

Patients who have muscle cramps that are variable (shoulder, arm, leg, wrist, ankle, more often one place than another), who have a generalized weakness and some weight loss many times have a hypercalcemia. Their calcium is too high and that means they're not getting enough sodium. The two oppose each other. That can come from people being too assiduous on a particular type of diet pattern and avoiding some things that would increase the sodium such as zucchini, celery, string beans and squash as well as actually taking some sea salt. Generally as a rule, when there's a sodium/potassium imbalance, think adrenal. In dysfunctional adrenal syndrome, the sodium excretion is high and the potassium is low and very often treating the adrenal will help a lot of the sodium/potassium patients because that's what generally is at the base of it.

The energy index is a measure of the blood pressure taken sitting, standing and lying down, add the highest levels and the lowest levels and take an average, and then multiply that by the pulse rate. That's a good system for testing if the patient is either sympathetic or mimetic or parasympathetic or mimetic. This is described in my book, *You'll Be Better*, chapter 29, page 8. I say measure the sitting blood pressure, but in some tough cases I found they're different when they're standing and laying down, so on tough patients we average it. Measure the blood pressure sitting, add the systolic and diastolic blood pressures and multiply them by the pulse rate. Example: 120/80 added would be 200 and the average pulse rate would be 72 and multiplied would be 14,400 which is within the average levels. The normal is 16,000. So anything below 12,000 is parasympathetic and anything above 18,000 is sympathetic. Usually those patients at 12,000 or below need sources of potassium, pancreatic materials, B1, choline, magnesium, manganese, pantothenic acid, B2, B3, E2, calcium, vitamins C and E to improve that pattern whereas those who are 18,000 or above need calcium, phosphorus, vitamins C, F and B6, and copper. The one thing that varies a lot is the relative pulse rate, a little faster in the sympathetic, and also the relative elevation of the systolic creating a larger number in the index. If you take the time to look up chapter 9, page 8, the third paragraph has an error in it. It says: *to improve that overdominant sympathetic activity*. It should have been *parasympathetic activity*.

When a cell breaks down, it's RNA and other tissue fragments are picked up by the blood stream. It eventually goes to the thymus and they decide to have a garage sale. If the tissue contains some toxic elements, the body tries to get rid of it. The thymus is an autoimmune gland and it analyzes the RNA to decide if it should be kept or thrown away. One of the indications of the unique capability of the thymus is as a xenobi-

otic sensor and if anything is foreign, it tries to get it out of there. When they do organ transplants, even though the organ is pretty well matched from the donor to the recipient, either the thymus has to be heavily irradiated or the patient given a lot of cyclosporin to prevent the rejection of the donated organ. The thymus processes RNA to reuse it like recycling aluminum cans. It processes it and passes it on to the parotid for reuse and recycling, and the parotid then coats our food with it so as it passes down the alimentary tract, it is absorbed by the intestinal villi. There's the reuse of the RNA configurations necessary in the construction of the tissue that has recently been broken down. That's really how we retain and regain tissue memory. There is both chemical and neurological memory. The chemical memory is aided by the addition of RNA, and is also mediated by the thymus and the parotid glands. The neurolymphatic reflex for the thymus is at the right fifth interspace, the right fifth interspace transverse and also at the twelfth. We thought it was only at the fifth, but you keep learning things as you go. For example, a recent anatomy book showed that females have a cremasteric muscle and not everyone has a pyramidalis muscle. It appears that the pyramidalis is absent in the Japanese. So there are some model variations. The thymus neurovascular, which was discovered by my good friend John Diamond, is at the angle of Louis, and the acupuncture point is immediately below that. The thymus is really a single gland even though it has an isthmus and dual structure like the thyroid, whereas the parotid is really a dual gland with one on either side. We found that the thymus and the parotid together seem to play an important part in the neutralization of many left and right brain activities. The inference is that some patients may only have function of one adrenal in terms of repair, or one kidney, or one side being active and the other being inactive. The thymus/parotid seems to control the capacity to repair or rebuild both sides. The addition of thymus and parotid is a useful thing. Some companies do make a combination product, or you can just give it separately, which is what I do very often. So, in difficult cases such as Crohn's disease, colitis, asthma, chronic recurring, relapsing conditions and "autoimmune" diseases, check the hyoid for both left and right, up or down positions, challenge the neurolymphatic reflex at the right fifth interspace, challenge the neurovascular at the angle of Louis and challenge for the acupuncture alarm point just below it. Many times you'll find that correction of the neurolymphatic reflex at the right fifth interspace will also correct the concomitant glandularly related patterns such as the piriformis with the gonads, or the sartorius/gracilis with the adrenal glands. It won't correct the quadriceps for small intestine or the peroneus for the bladder indicating the highly selective position the thymus has for glandular reproductive tissue. In many instances, lingual receptor activation by the thymus alone won't correct it, nor will the parotid lingual receptor activation correct it, but it will be corrected with the combined lingual receptor activation by both the thymus and parotid in the form of the individual ptylotrophic or thymotrophic tissue. Other tissue combinations that may work in this condition are parotid, thymus, adrenal and spleen material or thymus, parotid and spleen material from other sources such as Nutriwest. In any condition involving tissue repair, tissue maintenance or restoration, be sure to check the thymus and parotid in their nutritional and structural relationships to the problems involved. The use of the thymus/parotid combinations quite frequently neutralize difficult left/right brain problems which persist despite normalizing hyoid balance and pre- and post-cordial tap. It's a very useful method of insuring proper bilateral adrenal function, proper bilateral kidney function and proper bilateral function of any area of the body, especially the glandular system. Remember that Limbic Technique has an effect on left and right patterns. Naturally you're not going to neglect the primary switching patterns, umbilical/K27 which we often find, nor a Neuroenteric Hologrammic pattern of the quadriceps against the small intestine with the eyes open and closed. The parotid and the thymus relate to a much finer subdivision of the body. You shouldn't get the cart before the horse, but you should pay attention to those primary switching patterns.

In the text of *You'll Be Better*, a patient once asked my father how long they would have to keep coming. My father said "Until I get someone to take your place." This represents a dichotomy of thought which sometimes exists from both the doctor's and patient's point of view. The doctor's basic interest is in the help he can provide and the patient is interested in the duration and the economics. Both are a concern. Concern for the patient should be paramount. The aphorism is "take good care of your patients and they'll take good care of you." It was true then and is true now and will remain true; that's part of the answer.

We measure the oral pH of every patient. It should be 7.6-7.8. I used to think it should be 7.2-7.4, but I've learned in some patients it has to be 7.6-7.8, 7.6 for adults and 7.8 for children. In a university dental school, Hawkins found that children with no cavities had a 7.8 pH and the same was true of adults. My own has stayed at 7.6 and works for me. Many times that's a sign of a failure to absorb the alkaline materials in the diet. The use of the parotid will turn that around, and sometimes parotid and thymus is used together, as I have indicated. In patients with good assimilation, a good rule is to increase the natural fats and oils. Many people have poor assimilation, they have weak quadriceps and weak abdominals against the neurolymphatic reflex, and giving parotid on the tongue lingual receptor simply stops it. I have the patient chew the parotid while I stimulate the neurolymphatic reflex and the B&E points for the small intestine. Over a period of time, taking the product for about a month, it turns it around and the patient does really well. I rarely see an alkaline pH in a patient who has a lot of symptoms. I sometimes see it in an athlete who comes in to increase his/her function. Gastric hypoacidity, a common thing that occurs the longer we live, causes reduced pancreatic enzyme level, poor mineral absorption, and basically a lack of ionization. Hypoacidity causes protein putrefaction which then leads to protein deficiency and guanidine poisoning. This can be helped by chlorophyll administration. It's good to get that pH as good as you can. Again, you might have to support the lack of HCL.

A patient that sweats at night, has blood shot eyes, jerks when they fall asleep at night, and has hypochlorhydria, may need vitamins B2 and B3, riboflavin and niacin. I wrote an article back in 1967 on nutritional factors in chiropractic, produced by AK Classics and edited by Fred Weiner. I said that many doctors and patients suffer from deficiencies in riboflavin and niacin factors of the B complex. Symptoms of riboflavin and niacin deficiency are excessive moodiness, worried, apprehensive, suspicious, depressed, frequent crying for no cause (independent of hypothyroid), bright red tip of the tongue, irritated mucous membranes throughout the digestive tract (you can't see them but you can see the tongue). Lack of digestive juices may inflame the entire digestive tract. Females with prolonged irritation of the rectum can also have irritation of the vagina. The strawberry tongue sometimes has a purplish tint if the riboflavin deficiency is prominent. Cracking of the lips, cheilosis at the corners of the mouth is a well known riboflavin/niacin deficiency. A common problem you may see is a loss of the upper lip substance in which the lip may progressively diminish and disappear. I see that in a lot of old maid schoolteachers who get a smaller and smaller lip, and get meaner and meaner as time goes on. The primary tissue that suffers from the riboflavin/niacin deficiency is the endothelium of the capillary system with a loss of tone and function. Thus the strawberry tongue is a result of capillary dilation and a sluggish blood flow. The lips are the highest tissue in capillary numbers which gives them the red color, so it's reasonable to assume that signs of wrinkling and cracking are signs of a riboflavin and niacin deficiency. The sign of riboflavin/niacin deficiencies are observed in highly specialized mucocutaneous structures in the mouth, rectum, and vagina. Loss of capillary tone also produces a blood shot eye due to a vasospasm of the vasovasorum which supplies the blood vessels. It seems paradoxical that you need something to dilate the eye blood vessels when it looks like the eye blood vessels are already too dilated. The association of the eye with the riboflavin and niacin complex is interesting. Riboflavin and niacin are water soluble like their partner thiamine, but thiamine is readily soluble in alcohol and the riboflavin and niacin complex is not. This is the key to the different functions in the enzymes that catalyze chemicals. The riboflavin and niacin complex are catalysts that trigger enzymes for the oxidative processes. They transfer hydrogen and oxygen to suitable receptor molecules and are critical to the eyes for proper function. The lack of oxygen transport that can occur in the riboflavin and niacin deficiency syndrome produces photophobia, itching and burning eyes and blepharospasm. Some people don't know this, but the cornea can absorb oxygen directly from the atmosphere. But the lack of riboflavin and niacin can interfere with the oxygen utilization. Some people see better when they're outside where there's more oxygen. If there's not enough riboflavin and niacin, it interferes with absorption and utilization of the oxygen. Stagnation at the capillary level of the eye is easy to see as the blood shot eye or can be observed in a finer, less discernible way by examining the cornea for the circumcorneal vascularization that follows minor irritations. Normally these blood vessels are not seen. They can appear following chemical or mechanical trauma and quickly disappear. When they persist, it's a sign that

more riboflavin and niacin should be included in the diet. This is something I see a lot and is the primary reason I carry around an ophthalmoscope. A severe manifestation of the riboflavin and niacin pattern is when the patient complains that objects come into vision and disappear. They may only see a part of the printed word. There's often a pallor of the temporal or outer half of the optic disc when you examine it with an ophthalmoscope. This is a valuable sign that is often overlooked. The riboflavin and niacin complexes are associated with oxygen transfer and fat metabolism. The thiamine factor is more related to the nervous system. The difference between them was first noted when riboflavin and niacin factors were precipitated out by alcohol from the beri beri preventing factors in food. The riboflavin and niacin factors were identified as protein in character and enzymatic in action. So those riboflavin and niacin complexes also act as a go between in the sugar metabolism crucial to the function of the nervous system which utilizes only carbohydrate as its energy source. Glucose is not directly oxidized but is subject to a series of stepwise changes until pyruvic acid is formed. The proper metabolism of glucose requires the amount of B complex that is normally contained in unrefined complex carbohydrates.

The myelin sheath produces the neurotransmitter acetylcholine with the help of the B and E complexes. This neurotransmitter substance helps transmit the nerve impulse. This is why chiropractors should be interested in this phase of nutrition and its effect on our basic therapy. Once acetylcholine has been produced by the action of riboflavin, niacin and vitamin E complex, it is just as rapidly destroyed by the enzyme cholinesterase. This is like a make and break circuit (put the bridge down across the moat in the castle and then pull it back up again). The body, with its innate intelligence, provides cholinesterase to facilitate this purpose. The action of cholinesterase is like a two way street to rapidly convert the acetylcholine in the nerve sheath to active form and just as rapidly degrade it into acetic acid and choline. So the absence of cholinesterase can cause lack of function when it's needed. A characteristic of riboflavin and niacin deficiency is a sudden muscle jerking when falling asleep. This is due to failure of inactivation of the residual acetylcholine caused by a lack of cholinesterase. Conversely a patient may inadvertently drop something. I've seen people drop a glass of scotch or glass of water. The dropping of objects represents a lack of cholinesterase failing to inactivate the acetylcholine normally stored in the nerve sheath. The spastic action caused by the deficiency of the riboflavin and niacin complex leads to blood shot eyes from angiospasm. This doesn't only occur in the eye. A good, very useful, but rather late severe symptom of this deficiency is seen in the abnormal placement of the second heart sound. It comes late and too close to the next oncoming first sound embarrassing the blood supply to the heart by not allowing enough time for the circulation to take place. The normal one third to two third relationship of the first and second sound becomes one half to one half. This is only when it's very aggravated. Other spastic reactions that occur when there's a failure of sufficient cholinesterase to neutralize the necessary but dangerous acetylcholine are well known, such as gastritis and stomach ulcers. These are medically treated by anticholinergic drugs. However, the interference in the nervous system is often due to an inadequate production of cholinesterase resulting from a riboflavin and niacin deficiency, sometimes because of inadequate uptake. Depending upon what organ system is involved, you can see that such spasticity can cause a resulting difficulty as well as the dysfunction in the nervous system. The back-up of acetylcholine provokes vasospastic explosions in various parts of the body with little apparent provocation because this particular form of dynamite comes precapped and ready to blow if it's not defused regularly. Without cholinesterase, there's little chance for the vitally necessary nutrient choline to accumulate in the tissues. Ingestion of natural fats aid in the production of choline, which comes from the partitioning of lecithin. Lecithin is a complement of many fats. The splitting of the lecithin is accomplished by lecithinase, which is found in large quantities in riboflavin and niacin rich foods. That's why we want to increase the quantities of natural fats, just the opposite of what they're telling you these days. The accumulation of acetylcholine produces arteriosclerosis which defies correction until these factors are taken into consideration. Most important is the atherosclerosis you see even in young individuals in their coronary arteries, probably the most active artery in the body. This coronary atherosclerosis is one more example of the acetylcholine biological dynamite which can be defused by knowledge and use of proper dietary regimes. The unavailability of choline interferes with proper liver metabolism which in turn produces digestive disturbances, failure of detoxification of sex hormones and a bewildering complex of other conditions.



In the south they had a lot of pellagra not seen in the west. One of the differences was they drank tea in the south and coffee in the west. Coffee is a good source of riboflavin and niacin when it's freshly ground. So not everything that you hear about coffee is bad. The three D's of pellagra are diarrhea, dermatitis and dementia, but there are many subclinical effects that occur. The nerve normalizing effects of B1, thiamine, should be complemented by the vasodilating, antispasmodic and lipotropic actions of the riboflavin and niacin group. These should be in their natural state rather than a synthetic form. Too much thiamine can aggravate the riboflavin and niacin syndrome, so an intelligent appraisal of the patient's history and nervous system work-up is necessary. Certain foods are high in the riboflavin and niacin complex. Riboflavin is high in yeast, milk, egg white, liver, kidney, heart, and leafy vegetables. Niacin is high in liver, kidney, adrenal, yeast, whole grains, mushrooms and peanuts. Calf brain and sprouted grains are especially helpful in the production of cholinesterase as some authors have reported. Treat the whole patient and watch the whole response.

There are many good sources of manganese, but a good one is the source ions that Dr. Isaacs originally used. They're distributed by Viotron International, Ada, Michigan. Simply do a leg turn in/out, sprinkle three or four of the tiny ions on the patients tongue, and observe a remarkable change in range of motion. Patients usually respond within a few days or a week, and then you can switch them over to less expensive nutrients. Seldon Nelson brought himself out of a very difficult arthritic condition by the use of these ions. I've never met him but had long phone conversations with him over mutual patients. I told him that most of the trace mineral substances were so big molecularly that it was like trying to put a bowling ball through a keyhole. What we need is something that has ionic penetration and that's why the ion granules are so useful.

Vitamin B stimulates thyroid while suppressing liver function and it's also antagonistic to vitamin A. A lot of people don't know that. Harold Hawkins, who wrote the transcendent book *Applied Nutrition*, talked about that and the interactions, especially if there's any type of synthetic material. Because of these interactions, it's another reason for using the very low content and concentration of natural sources of vitamin B. When you see patients developing symptoms of night blindness or liver dysfunction, in addition to the normal courses and causes, sometimes it's from what they're taking. Some people think vitamins are as innocuous as wrinkles.

Sometimes you'll see clotting time increased by lack of vitamin K. Symptoms are constant nosebleeds, when they cut themselves it takes a long time to stop, and especially a lot of nausea during pregnancy. Usually sources of vitamin K are useful. It is found in chlorophyll products, however, for this use, the water soluble chlorophyll is not as good as the fat soluble.

The portal system is a gateway to the liver. All the material that passes through the inferior vena cava has to go through the liver. Portal congestion is sometimes caused by excess vitamin B. This condition first requires liver decongestion, sometimes helped by collinsonia herb, and a judicious observation of liver function. Drowsiness after meals and nocturnal urination with no frequency during the day, tight banded feeling around the head, poor breath holding time (the normal is 40 seconds, the highest normal is in Japanese pearl divers at four minutes), frequent yawning, fatigue, bloating, having to loosen your belt after a meal, lack of appetite, muscle soreness after exercise and burning soles of the feet are all signs of a vitamin B deficiency. Usually you see changes in the pH of the mouth accompanied by a slow heart rate (which will be in the fifties) and also a low body temperature. You will often see an axillary temperature of 97.2 degrees. That indicates a problem with the thyroid, but it also indicates a need for vitamin B which stimulates thyroid function. You think of iodine and sometimes you forget that vitamin B is also a factor. Other vitamin B indicators are spider nevi that sometimes accumulates behind the knee, a lack of retention sense (forgetting things you were just told), intolerance to noise, and an inability to stay asleep. If you can't fall asleep you need ionic calcium or an acid form of calcium, like calcium lactate, but inability to stay asleep is a vitamin B deficiency. We used to do a starch Lugol's test to see how much amylase was in the saliva. The directions for doing that are in my Collected Reprints. But failing that, the slow pulse rate, low body temperature, and muscle tests are a good way of checking the need for B. Sometimes you need a combination of both calcium and vitamin B. One use for synthetic vitamin B, 5-20 mgs. as high as 100 mgs., is in a

severe neuritis. Along with the calcium, you want to use some synthetic B for a short period of time, just long enough to get the pain down, then shift to a more natural form of vitamin B. Synthetic vitamin B will eventually cause fatty degeneration of the liver.

When you have to keep fixing a cranial fault over and over again it usually means a lack of zinc. There is good clinical response to supplementing it. We found a correlation between the zinc taste test and anorexia nervosa and bulimic patients. The serum zinc was normal but the patients couldn't taste a saturated solution of zinc. We found that many patients were acting as if they had a zinc deficiency after administering the taste test. It appears that the body temporarily tested as if it needed zinc and showed cranial faults right after tasting the zinc solution.

With elevation of lactic acid dehydrogenase on a SMAC 21 or 24 blood analysis, you want to think of using a natural form of thiamine.

If you give vitamin F from Standard Process, which has quite a bit of iodine in it, you might suppress thyroid function.

Remember when you see all the signs of an overactive thyroid, nervousness, tachycardia, diarrhea, weight loss, etc., that measurements of T3 and T4 simply represents the transport system and not the thyroid function. It doesn't mean if they're normal that all is well. Sometimes there is a need for both vitamin A and thymus in hyperactive thyroid patterns. Try supplementing these in almost every case where there is thyrotoxicosis or hyperthyroidism, especially where the use of an atomic cocktail to lower the function is contemplated. A trial of vitamin A and thymus is good if you have a way of measuring its effectiveness.

Fevers in children who fail to respond to usual measures for countering a virus or infective process, represent a lack of calcium lactate and vitamin F, especially when they're cutting teeth. In some of the childhood diseases, taking calcium on an empty stomach and then as needed is helpful.

A lot of night blindness is caused by people not getting enough fats. If they don't respond to increased fatty acids in a few days, give them silver ions. They often have trouble seeing a restaurant menu in a dark restaurant or trouble adapting to leaving bright sunshine and going into a dark theater. They find themselves sitting on people. Sometimes its failure to absorb and you have to think of a small intestine problem. Many times using the silver ions helps that come along much faster. You may find a pectoralis sternal weakness and if you fix that, they get better from the improved lymphatic drainage of the liver.

People who bite their fingernails and chew their hair, and kids that eat dirt have pica. This usually means a need for trace minerals. Organic Trace Minerals is a good one to use, but you may have to use the ionic form. Very often the main mineral they need is potassium, and the secondary one is often calcium. Any sign of calcium deficiency that doesn't respond to calcium is usually a magnesium deficiency. An article by Dr. Sid Baker from the Princeton Bio Center in Skillman, New Jersey, describes the many symptoms that are a result of magnesium and trace mineral deficiency. (*Magnesium in Primary Care and Preventive Medicine: Clinical Correlation of Magnesium Loading Studies*, Magnes Trace Elem., 1991-92; 10:251-262. Editor in chief: B.M. Altura, NY. Publisher: S. Karger AG, Basel, Switzerland.) The signs of a magnesium deficiency are a little unusual and most people are unaware of them. Symptoms and signs of magnesium deficiency are muscle twitches, cramps, tension, soreness, a ubiquitous kind of a backache, neck pain, tension headache and TMJ dysfunction. They say they can't take a deep breath and have to think about breathing. More signs of magnesium deficiencies are kids that are always sighing, constipation, urinary spasm (they can't urinate or can't get it started), menstrual cramps, difficulty in swallowing (which is often associated with potassium), globus hystericus (when they want to swallow, can't, and get hysterical about it, often the result of sugar), when driving at night they have difficulty adjusting to oncoming bright headlights (in the absence of any eye disease), loud noises makes them jump because of the stapedius muscle is under tension, insomnia, anxiety (they're always moving and are restless; restless legs are seen in vitamin E and/or B deficiency but are also seen in magnesium deficiency), panic attacks (when, for example, the patient can't stand in line in a grocery store, fear of closed rooms, etc.), menstrual irritability, breast soreness, numbness, tingling, and they

get some kind of zips and zaps (they'll be sitting there and all of a sudden they just jerk a little bit like you see in riboflavin and niacin deficiencies). Other symptoms are cardiac related such as palpitations, arrhythmias, a vasospastic angina with hypertension. That's helped by the G factors but it has a tendency to return and is usually diagnosed as mitral valve prolapse. They crave salt, but it makes them worse. They crave carbohydrates and that's what causes them to have jumpy symptoms. They have an intolerance to carbohydrates. What works best are the magnesium ions from Dr. Seldon Nelson's lab Viotron International.

Patients with bone pain and who perspire from their head, especially at night and only from their head, when calcium doesn't work and you've tried vitamin F, generally need vitamin D and calcium. They may also need thymus which is a good source of silicon and that often helps calcium utilization. People that have soreness in the morning not related to exercise, and it doesn't go away after moving around during the day, or they wake up with a backache and have it all day long, generally need a check of calcium metabolism, thymus and parathyroid function. You can check the levator scapula with parathyroid substance (Calma Plus). Placing parathyroid substance on the tongue will take the pain out of palpation when the parathyroid is at fault.

In regard to all the talk about sunscreen, to me, it is a simple lack of fatty acids, and can be helped by a source of vitamin F and other fatty acids. Fever blisters from too much sun or restlessness from increased amounts of vitamin D from the sun, with or without sunscreen, need vitamin F and calcium lactate. This is accompanied by an anterograde lymph drainage problem that needs succussion. Naturally you do the origin and insertion technique of the pectoralis minor. Then do the succussion. Press the chest while the patient takes a breath and keep the chest from expanding and then suddenly let it go and that sucks that lymph back into the vein despite the obstruction. Zinc or trace minerals and vitamin A helps this condition.

For the nutrients to be properly utilized, they have to be absorbed. This may require NEHT, thymus, parotid and sometimes RNA. Sometimes in a dual organ like the kidney, one is asleep. You can check that against the neurolymphatic activity and only one weakens when the patient closes their eyes. The same is true with the sartorius/gracilis test. Having the eyes closed is another way of showing the unilateral weakness.

Remember in reactive muscles you want the phosphatase material from raw veal bone or raw potato or both. In some patients, when they have excessive sugar and it disturbs them for several days (four days), it means they need calcium. But they won't see a result for about four days, so don't make haste.

A patient with a sore back, stiff and achy until moving around, you want to check the bowel. The unfriendly bacteria have taken over. They need an enema after a bowel movement, a quart of water and two teaspoons of salt or the juice of lemon, either one, regardless of how good their bowel movement is just to change the bacterial population. They also need a source of acid calcium.

When the patient has a painful bursitis, femoral head, humeral head or olecranon bursitis or a painful knee, ankle, or toe, they need an acid calcium, one every hour until they yawn, and 2 IU of vitamin E with selenium, four to six a day. Immobilize the joint for three or four days. If it's in a shoulder, put them in a sling. Also have them bend forward so their back is almost horizontal with the floor, and then with the other hand, move the bad arm up and down to keep the joint loose because the joint capsule has to maintain a normal function. If you don't keep it moving, it will tighten up. Have them do that four or five times a day.

Aerobic weakness needs iron and the anaerobic needs pantothenic acid.

If patients are dehydrated, overweight, eating too many fatty foods, and are a little too tense in their attitude towards things, they need some help in thinning the bile. This is over and above simple hydration. We give them vitamin A and F and betafood which causes the gallbladder to contract and flush itself.

People who have frequent urination with small volume may need vitamin B, especially if its at night. This is in women who don't have prostate or cystitis or a man who urinates at night but not during the day. It's obvious it's not the prostate, it's a deficiency of vitamin B needed for the tone of the muscle.

If you're checking for glandular dysfunction always cross-check other endocrine areas by therapy localiza-

tion to make sure you're not getting a bicameral or multicameral relationship. Sometimes you have to do more than one if they exist.

If your nose runs when you lean over a patient (some chiropractors have to take vasoconstrictors to keep from spilling onto patients), bile salts and iron rapidly thicken the secretions.

A way to find a need for calcium is to listen for an absent heart sound (a lub and no dup). That's a calcium and vitamin F need.

An increased heart sound usually means the need for more sodium and adrenal. Take the time to listen.

People who get nauseated easily, get irritated, or get tired when they take a long car ride have a need for orthophosphoric acid. It also helps the thyroid function as well.

If you get bloated and have to loosen your clothes or have episodic diarrhea unrelated to food intake, you usually need HCL and probably zinc.

When people have gas fifteen to thirty minutes after a meal, you want to loosen up the interscapular area on the left side especially and pull the scapula as far away from the spine as possible with the patient sitting up. Get under the scapula and stretch it out. Then give them bile and AF Betafood. If they have gas later than that (an hour or longer after eating) it's usually the lower digestive area and they need lactic acid yeast to help the bowel or some digestive enzymes that are basically pancreatic because they contain the lipolytic, amyolytic and proteolytic enzymes.

When you measure the pH you can use bromthymol blue or pH hydrion paper. When you have an acid bowel, it causes atonia resulting in a dilated, atonic colon. When it's an alkaline bowel it causes spasm. Many times that's the difference between an open and closed ileocecal valve. Bromthymol blue is available from your local pharmacy. It changes color with pH.

Lastly, a frequent occurrence in people as they get older is pruritus ani which usually requires hydrochloric acid and zinc, local help for the irritation, and sometimes some help for the liver.



# Dr. Goodheart's Research Tapes - Tape 137

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The original diaphragm technique was indicated when the patient had a vital capacity below 85% on the vital capacity meter (the McJesson bellows device), or with decreased breath holding time. Decreased lateral expansion of a rib cage is due to hypertonicity of the psoas on the same side. This represents a confluent reaction between diaphragmatic crura and the psoas. Therapy localization is performed just below the xiphoid. Occasionally there was disturbance in the heart meridian alarm point. If a strong muscle weakened while the patient forcefully inspired and expired, in addition to looking for cranial faults, the diaphragm may be involved. Therapy localize the diaphragmatic reflexes at the sternum and tenth rib one inch lateral to the spine, and the sagittal suture for the vascular circuit, and correct those reflexes involved. Following correction, there is increased rib cage expansion. That was a fairly effective technique, but did not encompass or release all the problems.

The diaphragm is the major muscle of respiration. When the diaphragm contracts, it diminishes the anterior to posterior dimensions and increases the lateral dimensions. To breathe in requires contracting the diaphragm. As the individual fibers contract or shorten, the whole double dome contracts and flattens, and this creates a vacuum in the chest. The lungs, which are soft spongy tissue containing air, expand as the pressure outside the lungs increases. As the inside of the lungs expand, its pressure drops below the pressure of the atmosphere and then the outside air actually pushes air into the lung. Air is not sucked into our lungs, it's really pushed in. In addition to the diaphragm, the external intercostals alternately contract to lift and expand the rib cage. This increases the vacuum in the chest and more air is pushed into the lungs. Exhalation is accomplished by relaxing the diaphragm and intercostals, and the diaphragm ascends again to its original position increasing the pressure in the chest. The intercostals also relax and the rib cage shrinks in size, also increasing the pressure in the chest, and the increased pressure squeezes the lungs which expels the air. The air in our lungs can be more forcibly expelled by contracting the antagonists to the diaphragm. These are the abdominal muscles (rectus abdominis, obliques and transversus), the chest muscles (internal intercostals, pectoralis major, serratus anterior), and the back muscles (serratus posticus inferior and serratus posticus superior). The list of muscles that perform exhalation is much greater than the ones that perform inhalation.

Measure the circumference of the trunk at the level of the umbilicus, at the top of the costal arch at the level of the xiphoid, and also at the nipple line. Athletes, especially swimmers, can increase these measurements by stretching the muscles that oppose inhalation. To do this have the patient use a stretch called "pullover." The patient lies supine with their head just over the edge of the table, takes about eight or ten pounds in each hand, let the arms hang down, and stretch the ribs and stomach by inhaling as much as they can and then exhale completely with ten repetitions.

Recall the relationship between the downward pull of the relatively unsupported viscera and weak abdominal muscle pattern. That is tested by either a stretch or contraction, and the correction of fascial flushing/B12-folic acid, or strain counterstrain/glycine, fatty acids, or RMAPI/wheat germ oil. Follow the correction with the abdominal stretch exercise for an extended period of time.

Another indication of diaphragm problems is a weakening of test muscles with the supine patient in a position with the upper body in slight flexion, approximately 20 degrees, with rotation to the left and right accompanied by deep inspiration. Therapy localization of KI27 anteriorly and BL10 and BL12 posteriorly would temporarily negate this weakness. The tight leg turn parallels these observations. Deep manipulation of KI27, BL10, and BL12 would balance leg turn in, chest expansion, and diaphragm function.

This next element of diaphragm function has far reaching effects. This can identify diaphragm disturbances on patients with abnormal as well as normal or even above normal vital capacity. With the patient supine, doctor on the right side of the patient, place your right hand over the lower border of the patient's left rib cage and the left hand over the same area on the right rib cage. Move the rib cage from left to right with the right hand and right to left with the left hand. It has been consistently found in two hundred patients that the function of moving the rib cage from right to left is greatly restricted. My partners, associates, and I have, in fact, not yet found any disturbances on the left, although we expect to as more patients are examined. Measurement of the rib cage movement is also performed when the patient is standing on the high low table. Sometimes this rib restriction is found in the weight bearing position when it doesn't show in the resting supine position. Rarely is it seen in the prone position but not in the supine or standing. A parallel of the rib restriction is not always an absolute corollary with other diaphragm indications. Sometimes there would be an apparent leg turn in coincident with failure of the chest to move from right to left, but not consistently. This must represent a different type of diaphragm activity than what was previously shown in diaphragmatic problems.

Upon testing the abdominal muscles, there is a consistent pattern in the average patient of weakness or repeated muscle action. The external obliques are usually strong, however, testing the transversalis reveals weakness. The transversalis is tested by placing the supine patient in a comma position, for example, the patient's head and feet to the right and the hips to the left, with their legs elevated about ten or twelve inches above the table. Then push the extended feet and legs from right to left while pushing the pelvis in the opposite direction. Neurolymphatic activity on the right medial thigh would neutralize the transverse abdominal weakness found on testing (as above) and would greatly increase range of movement of the right rib cage moving right to left.

When the baby is coming down the birth canal, it continues to get its oxygen from the umbilical artery and vein. The umbilicus is cut when its pulsations cease. The diaphragm then starts to move and the first inspiration is accompanied by a cry. Based upon that concept, and through trial and error, we found a definite relationship between the umbilicus and the diaphragm. Therapy localization with the thumb in the umbilicus and a simultaneous four finger contact just below the xiphoid produces weakness. This does not seem to be a neurolymphatic reflex. The preliminary treatment for this requires that the doctor press from anterior to posterior and cephalward on the umbilicus and from anterior to posterior with the four fingers at the xiphoid contact. This technique is taken from Dr. Robert Fulford, a 92 year old osteopath, who was a contemporary of my father. Dr. Fulford notes that using the technique seemed to work better on women if the doctor positions himself to the left of the patient and to the right with males. This appears to speed up the treatment effects. It takes a little bit longer doing it from the right side on female patients, but that's not too significant. The earlier methods of identifying the lymphatic reflexes for the diaphragm are still done. The sternal neurolymphatic reflex is located over the sternum with more sensitivity usually at the aortic sinus area. The rib pump is at the tenth rib, just an inch lateral to the spine. You perform the rib pump technique on the same side as the failure of rib expansion. The effect of this on vital capacity is excellent.

With the patient supine, passively check the humerus range of motion in abduction. The range of motion is frequently diminished, and is accompanied by weakness of the middle deltoid. (The patient may be able to increase the range of motion actively by changing the direction of abduction anteriorly or posteriorly slightly.) Using a fascial flush from the deltoid dimple upwards for about a minute, or by using the Fulford percussion hammer, you get a change in the gel pattern. This is sort of a "molasses in January" concept in the hollow tubules of the fascia. This treatment produces a remarkable change in the passive range of motion of the humerus and seems to influence the motion of the chest. The muscles mentioned above that expel the air also seem to be a factor in the movement of the upper rib cage, the upper chest, and the upper four ribs. These patients seem to have a mental dullness, a lot of fatigue, and their vital capacity isn't abnormally low, usually 85% or slightly higher. When the diaphragm problem is corrected, neurolymphatic activity for the transversalis is performed, and attention paid to fascial flushing or percussion of the middle deltoid, there's

a remarkable increase in the motion of the diaphragm, vital capacity, and the motion right to left, and the patient immediately says "Oh, I can breathe so much better."

There seems to be a type with chronic patients, long standing hiatal hernia, etc. Have the patient take a few deep breaths and if it the pattern returns, you need to repeat the technique, use wheat germ oil, and pay more attention to origin/insertion. This is the exception.

Another thing that you'll see for the upper four costal segments are the subscapularis, serratus posticus superior and inferior, and occasionally the serratus anterior. When you stretch those muscles, they weaken dramatically, and require fascial flushing or the Fulford percussion unit. Fulford uses it to achieve his result based upon what he feels is the piezoelectric effect. I find that the percussion unit accomplishes fascial flushing as easily as the hand and doesn't require any lubrication. By altering the frequency of the unit you can use it on very thinly muscled individuals, to small children and infants. It's very pleasant, reliable and requires less time on muscles requiring fascial flushing. The usual nutrients for fascial flush, vitamins B12 and folic acid, and for strain/counterstrain, folic acid, glycine, or fatty acid factors are still necessary. The folic acid and B12 are appropriate for the trigger points, and folic acid by itself is good when the body has forgotten how long the muscle should be.

When the patient takes a deep breath, it may torque the patient and effect pelvic and cranial faults. Place the patient in a standing or sitting position with feet apart as wide as the shoulders and test passive rotation of the patient to the right and left. Look for one side to be more restricted. Nine times out of ten it's to the right. The latissimus dorsi on that side will show a stretch weakness requiring fascial flushing of the whole latissimus. The latissimus fibers at the humerus are normally twisted so that the lower and upper fibers from below are reversed at the upper attachment at the humerus. The opposite latissimus (left side usually) will often show a compensatory hypotonus with a contraction weakness requiring strain/counterstrain. The strain/counterstrain is done on expiration with a wide contact on the belly of the latissimus. This is often seen in recurring dorsal fixations and subluxations, helps chronic symptom patterns in adults and children, and chronic lumbar and pelvic lesions. This is common enough to check on the average patient and is a common accompaniment of the new diaphragm technique just described, but may occur separately. Use of the appropriate nutrient helps prevent recidivism. I've never had to repeat the technique more than twice.

The diaphragmatic problem and the decreased range of motion of shoulder abduction usually occurs on the right, rarely on the left. You may find the arms affected on both sides, but so far none on the left without the right occurring.

The percussion unit I use is from the Fordham Electric Co., 16 Stony Hill Road, Bethel, CT., 06801, tel. 203-792-8622, fax 203-790-9832. The cost of the Fordham unit (the 973, portable one) was \$450. The unit is different than the standing unit that John Diamond gave me for use, but it's an excellent unit.

It seems to fit the pattern called myogelosis described by Janet Travell in her original text with David Simons, Volume 1, *Myofascial Pain*, chapter one introduction. Circumscribed firmness and tenderness to palpation in muscles is called a myogelosis, a name derived from the concept that the regions of circumscribed firmness was due to a localized jelling of the muscle protein. Focal tenderness and palpable taut muscle fibers are also characterized and are characteristic of myofascial trigger points. Most patients diagnosed as having gelosis would also be diagnosed as having myofascial trigger points. In Travell's original text there are several different references on pages 3, 7, 9, 10, 16, 35, 58 and 64 where she talks about this pattern. You should read especially page 64 on low back problems as it may give you a new opinion on what may be involved.

The difference in the texture of the fascia lata before and after treatment is very evident to the fascia hollow fibers and sometimes they have the pattern of the gel. When you do the fascial flushing or use the percussion unit you get the change from a gel to a sol.



Check for very slight joint motions: ankle, fingers, in flexion and extension, or in small motions of the patella. In the supine patient with the feet in normal position, measure the distance of the posterior malleoli from the table. You'll be surprised how many times the posterior malleolus (the lateral fibula portion) will be closer to the table even though the foot is not in that position. Use the percussion unit around the ankle at the extensor of the large toe or the attachments of the flexor muscles on the sole of the foot. This is helpful especially in a plantar fasciitis. The change in the relative position of the fibula and tibia from the table top become more even. These small movements seem to be a source of great disability. It's always accompanied by the same pattern of the muscles involved showing weakness on stretching.

I don't know of a source of the Fulford tapes, but I'm going to be meeting him soon through the good graces of Dr. Diamond and I'll report on that to you in the future. Dr. Fulford has an excellent book called *A Touch Of Life*, by Pocketbooks, available through bookstores. Andrew Weil, MD, Author of a New York Times best seller, *Spontaneous Healing*, says in the introduction that "Readers will not only learn the personal history of a remarkable healer but will also discover many practical secrets of health and vitality from the importance of proper breathing to the value of simple stretching exercises as a superior tonic for nerves and muscles. Now in his nineties, Bob Fulford embodies and exemplifies his own wisdom about health and healing. He has led a remarkable and vigorous life without need for medical interventions. His emphasis on vital energy and healing power of nature concepts that animated medical inquiry from the time of Hippocrates throughout the last century is completely missing from medical education today. If medicine is to come back into alignment with the great healing traditions, satisfy the needs and desires of those who are sick, it must rediscover the truths that Bob Fulford expresses in these pages." I remember my father speaking of him.

One of the exercises Fulford mentions in the section on exercises on page 178, exercise 4, is to keep the lower part of the body pliable. You sit on a chair with thighs parallel to the floor, lower legs perpendicular to the floor, bend over, place your elbows on the inside of your knees, your hands between your feet, turn your palms away from each other, touch your fingers under the arch of each foot with your thumb over the top of your foot, and let your spine fully stretch in this position. Breathe fully and slowly for five minutes. Do this once a day and you'll notice that walking is much easier, you can stand up straighter, and your back feels lighter. If you're limber enough to stand up and do this exercise it's OK, but don't let it aggravate a pain in the sciatic nerve. In patients who weaken on split brain activity or who are continually/chronically switched and require cross crawling and so forth, this exercise works better than cross crawling. That's only one of the exercises.

The book is excellent. The exercises are something that Fulford does but doesn't give much explanation for. On close examination of what he's done, it fits very nicely with the concepts of AK, especially the diagnostic value of the need for fascial flushing. The type of patient that seems to find the value in his particular form of treatment, the division of patients who weaken on stretching and contracting muscles, fit nicely into his ideas.

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