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Aids for Control in the Adjusting Procedure

By Larry Schrock, D.C.

The purpose of this paper is to give you some aids in developing the kinesthetic sense of controlling your center of gravity while practicing the adjusting procedure. Control of your center of gravity is essential in allowing your lower back and pelvic musculature to relax sufficiently for maximum pelvic angulation. Also, these aids will help you to more easily determine if you have achieved the goal of each phase.

The description of the mechanics of each phase is in *The NUCCA Course: Adjusting the Atlas Subluxation Complex* by Ralph R. Gregory, D.C., and in the article by Lloyd Pond, D.C., *Mechanics of the Approach Phase,* Monograph, Vol. 5, No. 3, April 1993: 3-6, so I will only briefly describe these.

APPROACH PHASE

Goal: To set up the base of support for the adjustment procedure.

Procedure: Stand with your back to the wall. Necklock should be performed. The heel of the outside foot is placed against the wall. The inside foot is placed away from the wall (approximately five inches) so that the head of the femur of the inside leg is slightly behind the heel. The plantar reflex should be performed. At the same time that the inside foot is placed, the trunk should be dropped forward slightly. Both sides of the back of the pelvis should lightly touch the wall without leaning on it. More weight should be on the *outside* foot at this time. The outside foot is advanced and the trunk is dropped more forward simultaneously. This action is accomplished by acting as if you have a sore big toe on the inside foot. This gives a sort of "skipping" action as you advance the outside foot. At this point, the trunk is still somewhat upright and not parallel to the ground. Your weight should be on your outside foot. The plantar reflex for the outside foot should be performed.

Rationale: As you go through the steps of the approach phase, both sides of the back of the pelvis are lightly touching the wall. This will help you develop the feedback necessary to know when your pelvic lever is parallel to the horizontal resultant. It will also help you develop the skill of placing the outside foot without walking forward and losing the acute angle between your trunk and inside leg.

SETTLEBACK PHASE

Goal: To turn the pelvic lever and shoulder lever to a more vertical plane, so that the action lines are more aligned to the Notch-Transverse Resultant.

Procedure: Follow the same procedure as described for the approach phase, except do not start with the pelvis touching the wall and place the inside foot one or two additional inches (approximately six or seven inches total) from the wall. The action in the settleback is as if you are moving backward down an inclined plane, keeping the spine at a right angle to the Horizontal Resultant. As you settleback, the pelvis should move toward the wall until both sides of the back of the pelvis touch lightly and equally. This action will bring your trunk more forward. You should not bend forward at the waist and then move your pelvis toward the wall. The pelvis leads in the action.

Rationale: This procedure will help you know if you are able to increase the acute angle between the trunk and the inside leg, because the pelvis will touch the wall and the inside foot is away from the wall. It will also help you develop the feedback for keeping your spinal lever at a right angle to the Horizontal Resultant. As you settleback, your spinal lever should go straight back toward the wall and the hip-lock should keep your pelvic lever parallel to the Horizontal Resultant, so both sides of the back of your pelvis should touch the wall equally. If they do not, then you have either allowed your pelvis to move toward your inside leg, which will cause your spinal lever to not be at right angles to the Horizontal Resultant, or you have not kept your hip-lock, which will cause your pelvic lever to not be parallel to the Horizontal Resultant.

Variations: 1. If you want your settleback to attain more pelvic angulation, follow the above procedure, except increase the A-P foot spread as you advance the outside foot. You can also increase the distance between the inside foot and the wall.

2. If you want to only work on the feedback of moving your pelvis down an inclined plane while controlling your center of gravity, stand about twelve inches away from the wall. While standing on one leg with the other foot slightly off the floor, push your pelvis back toward the wall and try to lightly touch the wall. Stay in control of your center of gravity, do not lean on the wall. As you do this, try to keep your spine upright while letting your pelvis lead in the action. This is the action of going down an inclined plane.

TURN-IN PHASE

Goal: To put the episternal notch over the contact point.

Procedure: Follow the same procedure as in the settleback phase. The center of motion for turning in is in the ankles. You should keep your mind on turning from the outside ankle, so that more of your weight will stay on the outside leg. The tip of the sacrum should not swing out more than two inches. Turn in until your episternal notch is over the contact point.

Rationale: Since you have accomplished the settleback phase with your pelvis lightly touching the wall, when you turn in, the tip of the sacrum should not move out along the wall more than two inches. This will let you know if you are keeping the center of motion in the ankles. If your pelvis slides along the wall too far, or especially if your pelvis comes away from the wall, you will lose pelvic angulation and, thus, control of your action lines.

Variation: You can settleback with your outside shoulder and hip about one to two inches from the wall. As you turn in, the wall will prevent you from swinging the pelvis out too far.

CONVERSION PHASE

Goal: To align your action lines to the plane of the Notch-Transverse Resultant; to return your episternal notch to the settleback point and your spinal lever at a right angle to the Horizontal Resultant.

Procedure: Follow the same procedure as in the Turn-In Phase, except place the inside foot one or two additional inches (ap-

proximately seven to nine inches total) from the wall. The amount depends on your ability. Start small at first to gain control and correct feedback. The conversion phase is an extension of the settleback phase. The trunk moves along a plane from the outside shoulder to the inside hip. The pelvis leads in this action and should move toward the wall and lightly touch it. Once the pelvis touches and stops, the shoulders should not move farther out along the Horizontal Resultant. This will result in bending the spinal lever with the action lines not aligning to the Notch-Transverse Resultant.

Rationale: This procedure lets you know if the trunk is moving backward, resulting in faster conversion. If your pelvis does not touch the wall, then you are simply turning out with no conversion.

PELVIC LEVER PHASE

Goal: To obtain greater angulation of the pelvic and shoulder levers.

Procedure: Follow the procedure described in the conversion phase. Once you have your pelvis lightly touching the wall, pick up the inside hip from a center of motion in the acetabulum of the outside hip. The pelvis will slide up the wall. The trunk should act as a unit. Shoulder and pelvic angulation remain equal.

Rationale: This procedure will let you know if you are rocking forward in order to lift your inside hip. This results in less angulation and in your action lines not aligning with the Notch-Transverse Resultant.

CONCLUSION

Controlling your center of gravity is the key to performing the phases correctly. Using the wall will aid you in gaining that control and in knowing if you have correctly performed the phases.

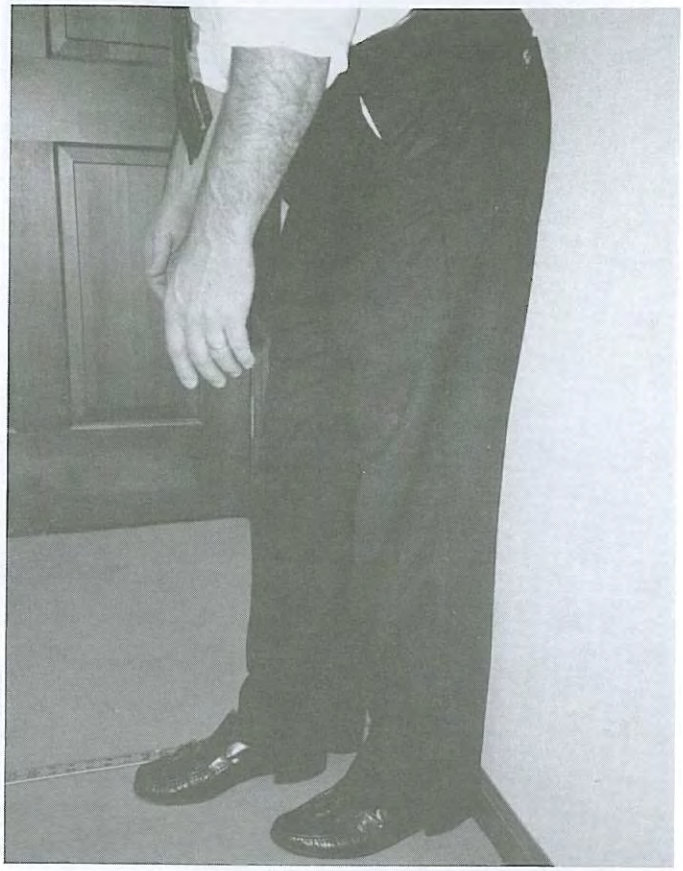
The Approach Phase is the foundation for all the phases. If you master this one, the others become less difficult.



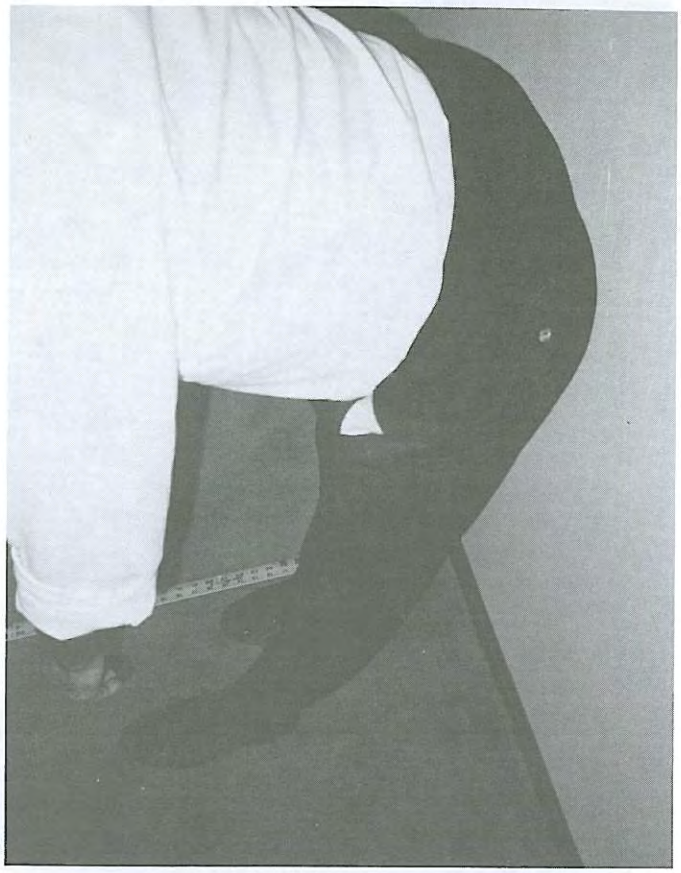
Approach Phase #1



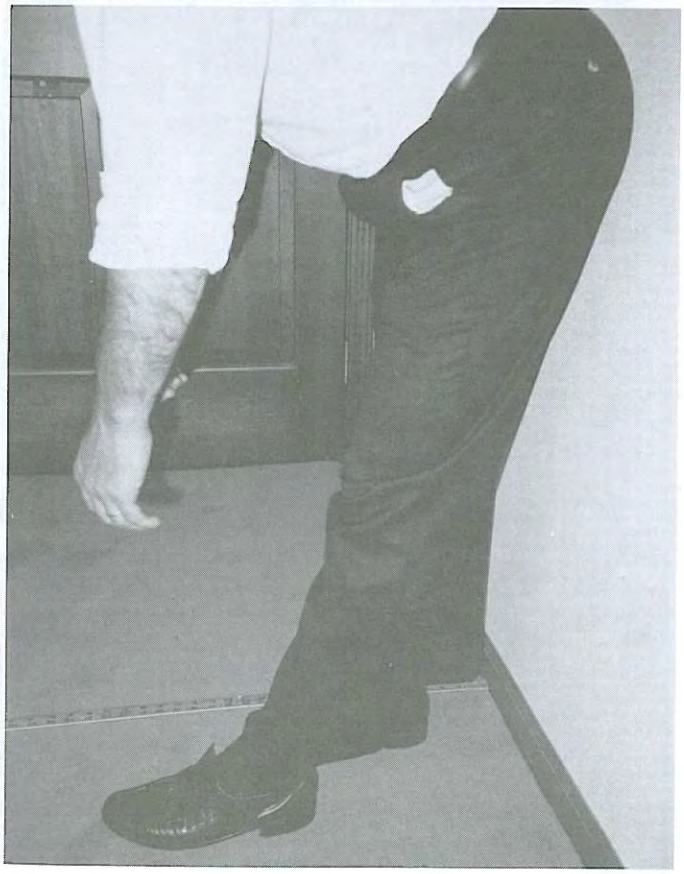
Approach Phase #2



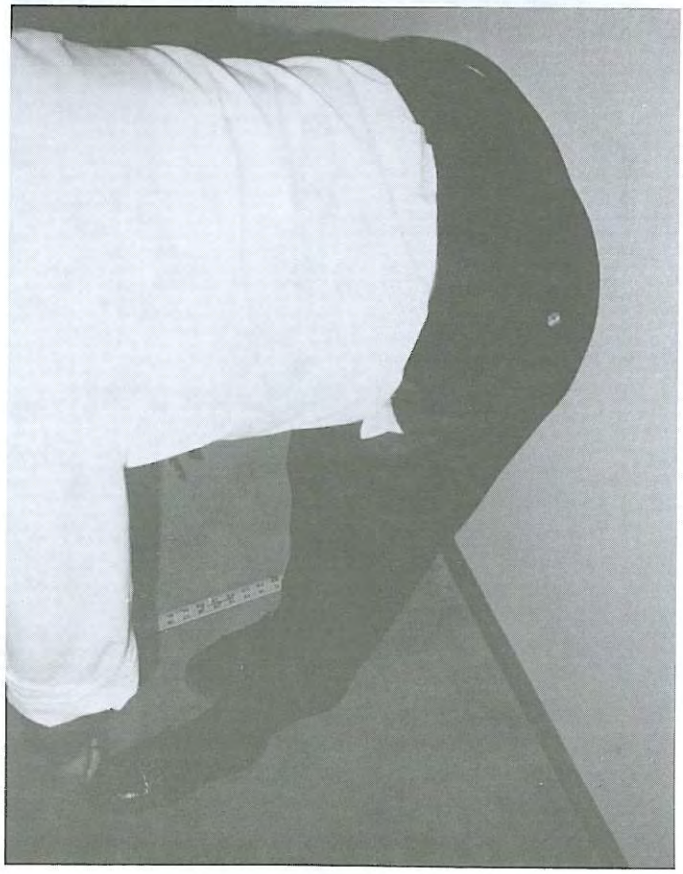
Approach Phase #3



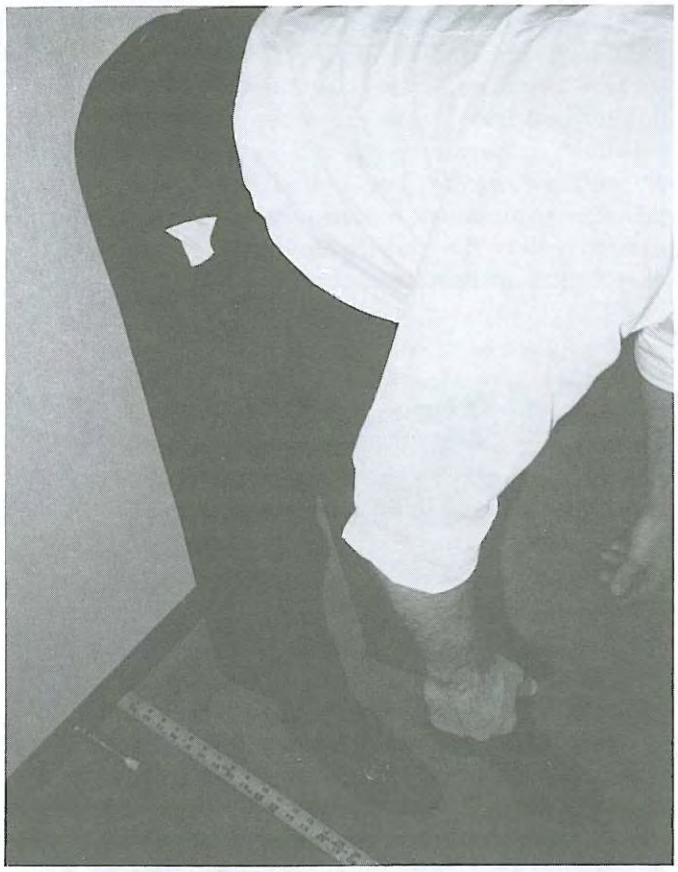
Approach Phase #4



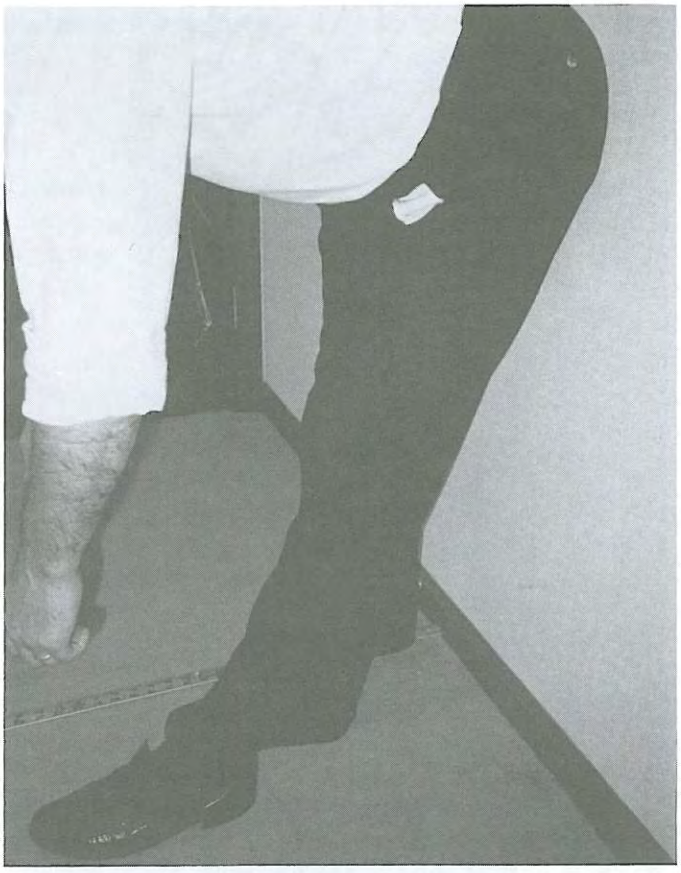
Approach Phase #5



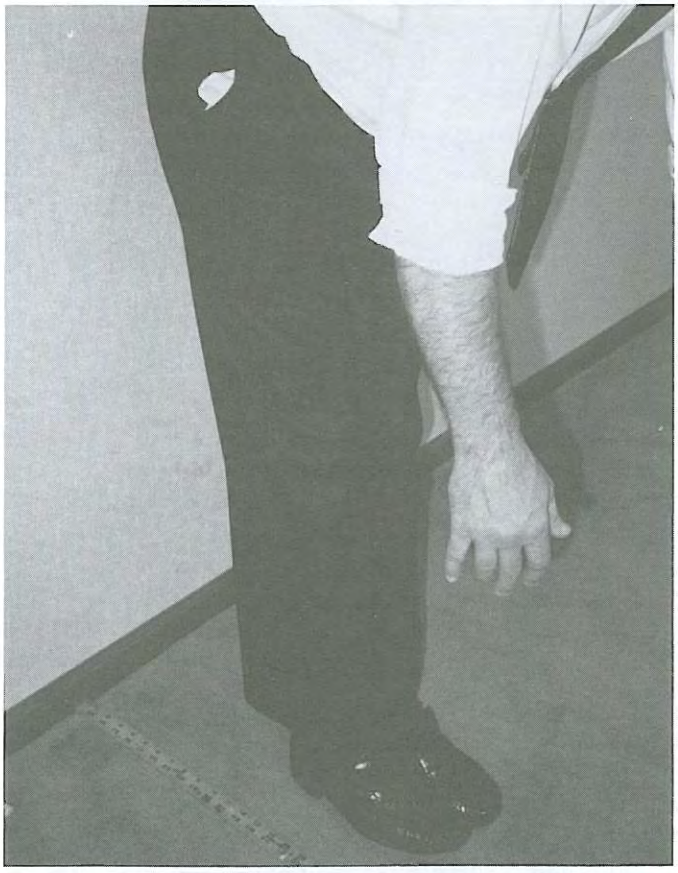
Approach Phase #6



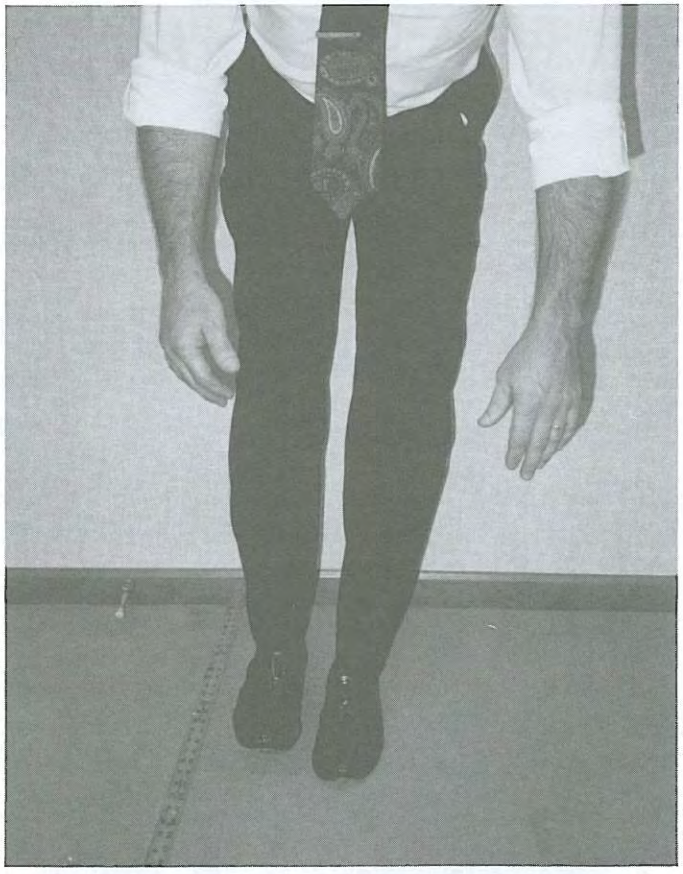
Settleback



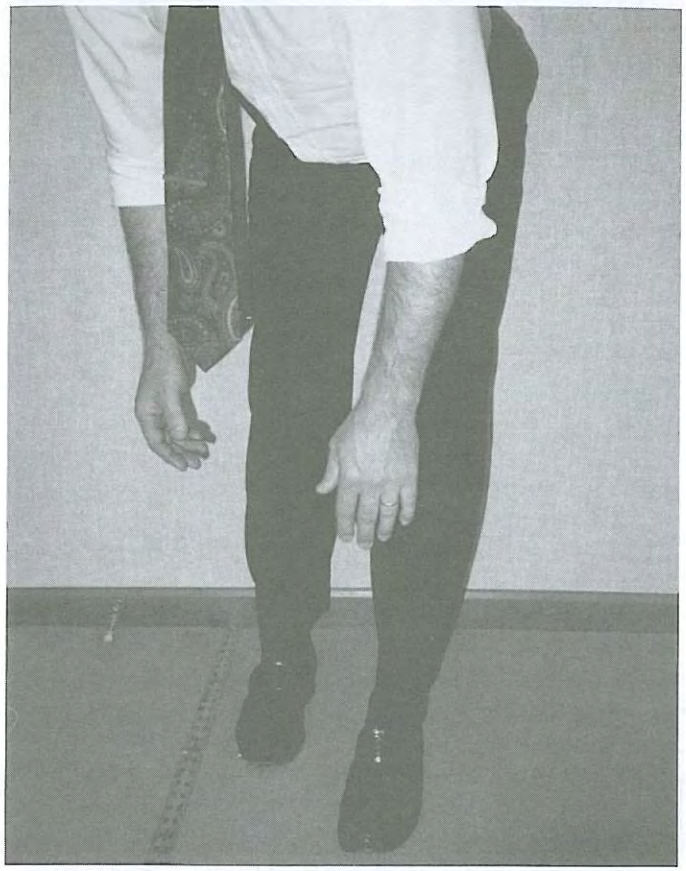
Settleback



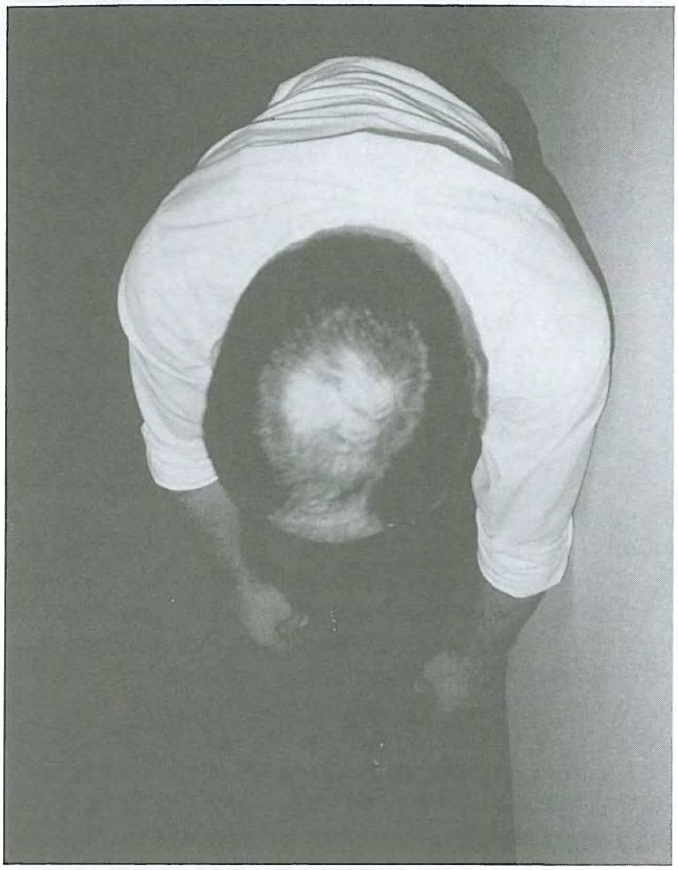
Settleback (Variation)



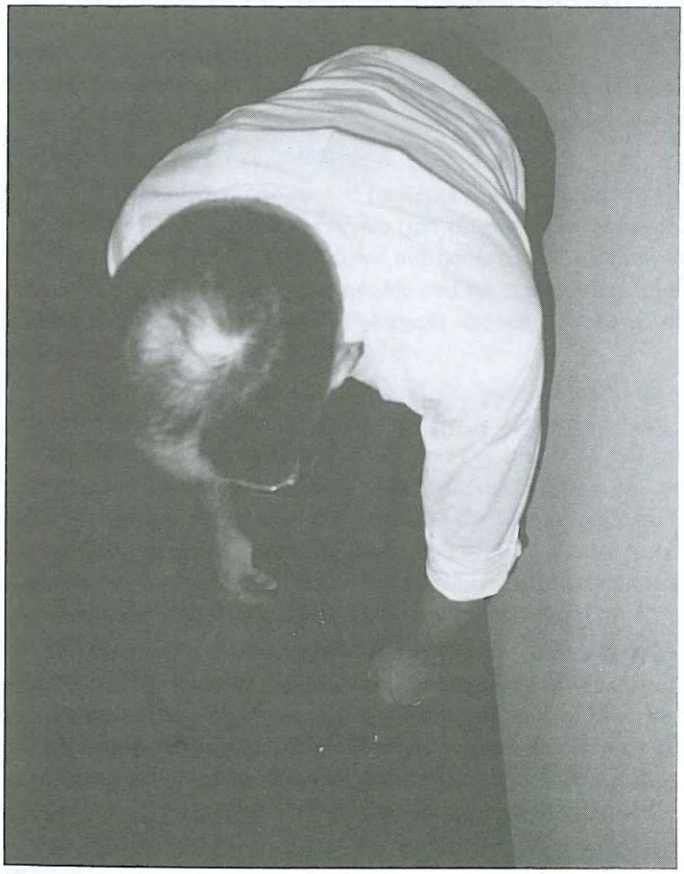
Settleback (Variation)



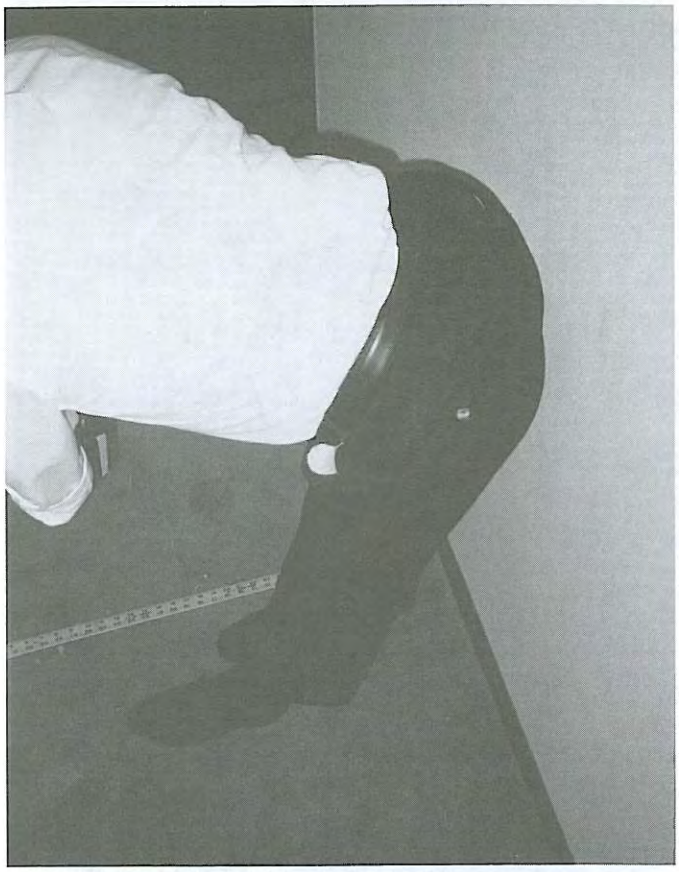
Turn In



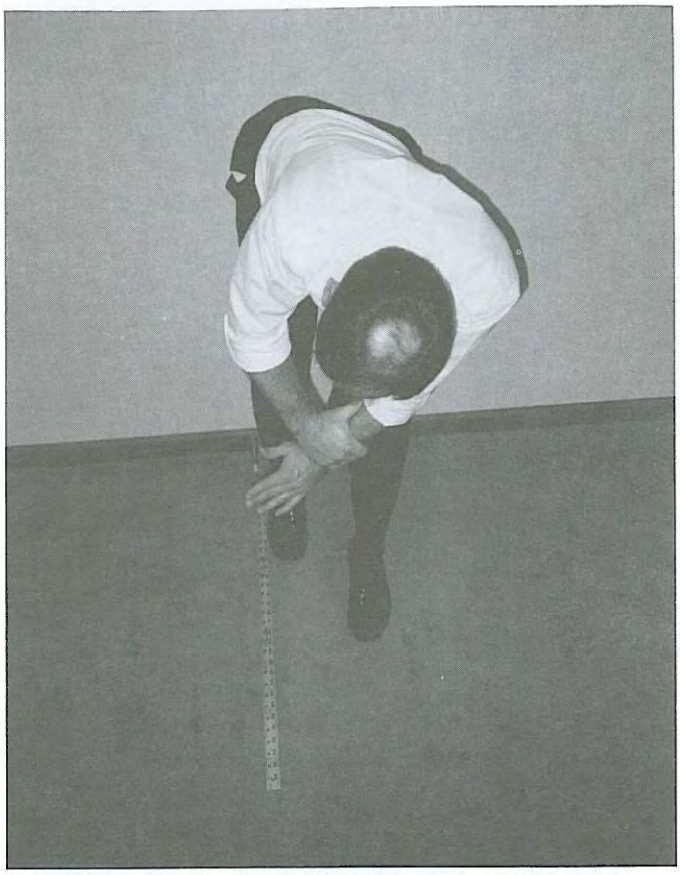
Turn In (Variation #1)



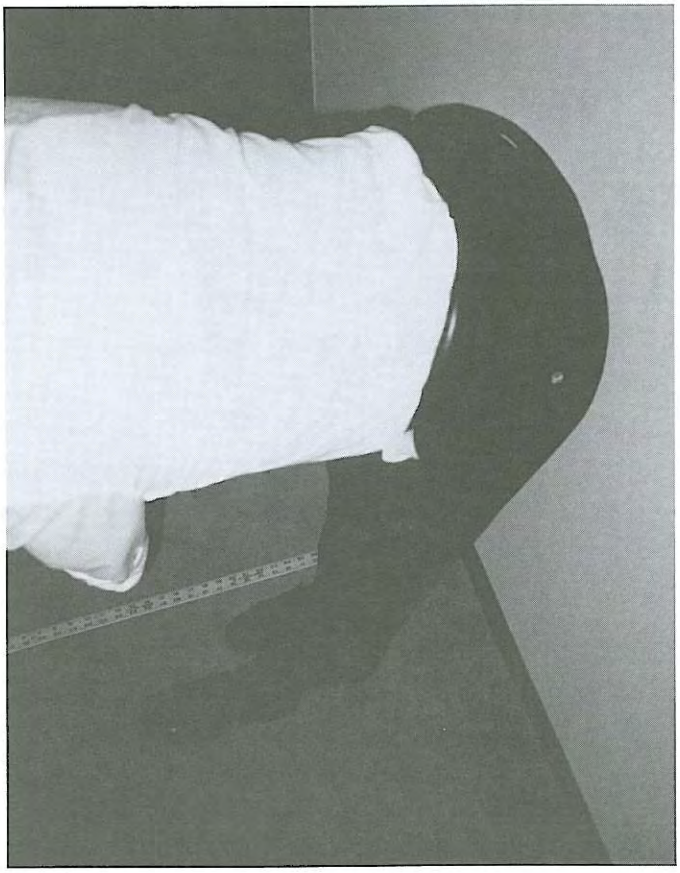
Turn In (Variation #2)



Conversion #1



Conversion #2



Pelvic Lever

The Physical Sciences and Chiropractic

(Part 1 - printed by permission of the Ralph R. Gregory Trust)

Looking back over fifty years of chiropractic practice, one can observe many changes in the profession. How one views these changes is a matter of opinion based on personal experiences, the individual's chiropractic education, and, to a great extent, the times in which he/she lived. It is not my intent to discuss the schisms that presently exist in chiropractic today but rather to argue how advantageous it would have been if orthodox (Palmerian) chiropractic had started out more closely aligned to the physical sciences. Such an alignment, in my judgment, would have produced a profession that today would enjoy a better relationship with the scientific community, with other healing arts, and one based on indisputable procedures. Had we developed along more scientific lines, we might ninety years later have been a more united profession, less confused, more separate and distinct, and met with greater acceptance.

A parallel between the early days of chiropractic and the ancient Greek philosophers may be drawn. Depending on deductive reasoning—rational proof—rather than on the empirical methods of testing their hypotheses, the ancient Greek philosophers attempted to observe and investigate natural phenomena by reasoning deductively. This was the proof of Socrates.

When some of the later philosophers—the so-called "natural philosophers"—turned their minds outside themselves and investigated natural phenomena by testing their hypotheses in support of their reasoning or in rejection of it in whole or in part, if the experiments failed to validate the hypotheses, they gave birth to what in the late nineteenth century became known as "science," a word taken from the Greek meaning "to know." This procedure has grown and is universally adopted throughout the scientific world today because it does validate or invalidate theories beyond reasonable question.

Orthodox chiropractic started on deductive reasoning on too theoretical a basis. Even today we find practitioners who subscribe to many theories that have not been tested adequately, theories whose roots are questionable and are accepted on faith. These theories fly in the face of physical science, and the world knows better.

So today we might look at a few of the basic physical principles that apply to chiropractic and how they apply to orthodox chiropractic, look at our terminology and examine why it is not acceptable, what we should do with terms like subluxation, fixation, nerve interference, adjustment, and the like to make them acceptable; in short, look at the basic essentials of a more scientific practice procedure, how to move chiropractic from an art form toward a science.

The discussion will be based upon NUCCA practices, because that is the chiropractic system that I know best and have spent many years clinically testing. The general approach, however, is applicable to all systems of chiropractic practice. Some may not have a sufficient background in the physical sciences so some comments in general about the relevant principles are in order.

The function of physics is to explain *why* things happen. First, however, a description of what happens is essential. To describe means to define; it is the act of making something definite or clear from its properties. We speak, for example, in chiropractic of the vertebral subluxation, but can we describe it adequately in its technical sense? An acceptable description requires all the details and the meaning of its behavior, mechanically and neurologically, including its measurable effects on the human body. When we can do this, we have described the term subluxation and given it meaning; we have defined it. The fact that we fail to adequately describe any term we use and its properties or characteristic features weakens our position in the scientific world, and, incidentally, is one of the basic causes of intra-professional disagreement.

Observation, description, measurement, and prediction are the four essentials that help to build an acceptable scientific system. We have briefly defined description as the act of making something definite or clear from its properties, detailing it, finding the meaning of its behavior. Measurement in chiropractic is of the displacement factors of the vertebral subluxation and the effects of the subluxation on the body and on the patient. This essential will be examined later when we discuss measurement procedures. Predictability defined is the ability to forecast the results of our analyses and our adjustic procedures in advance of the performance of the adjustment, to make known in advance the outcome of an action. This essential sets a standard that must be achieved if our actions are to be stamped as scientific procedure.

For example, the predictable outcome of an adjustment depends on the accuracy with which several factors are performed by the chiropractor: the alignment of the X-ray machine, the placement of the patient on the X-ray machine, the analysis of the X-ray films, the placement of the patient on the adjusting table according to the basic type required, distortion-free films, the establishment of true vectors, and the delivery of the adjustment along the reduction pathway prescribed to restore the subluxation to normal position. If errors are made in any of these factors, the prediction standard of 95% is lowered, and a scientific procedure is not achieved. That standard in chiropractic is based on the correction of all vertebral segments that are displaced back to normal or the vertical axis of the body.

Malformations of vertebral structure are rather rare. If such exist, compensation usually occurs in adjacent osseous structures. A short condyle, for example, will be balanced out by an enlarged lateral mass or an enlargement on the superior articulating surface of C-2. In any event, malformations do not cause neurological involvement.

Clinical testing of the accuracy of the many factors required to achieve the prediction rate of correction have gone on in NUCCA for several years on thousands of cases. Verification of the procedures has been made by post X-raying patients immediately following the first adjustment and related post-checks of a biomechanical nature. Throughout these procedures, the subluxation has been observed, described, measured in all its aspects, and predicted.

The prediction percentage is based on biomechanics. As stated, if the correction predicted is 95%, it stamps the procedures leading up to the prediction as scientific. This is the universally accepted standard, except in chemistry which is 100%.

The prediction level is based on biomechanics, not on symptomatology. Predicting symptomatic results has little scientific meaning; they are variables. Some validity of the system is apparent when the alleviation of the symptoms can be correlated with the biomechanical correction of the subluxation. Because Mrs. Jones is relieved of her migraine headaches following adjustments does little to prove that the treatment is efficacious. If, however, several cases of migraine respond favorably to a system, and the vertebral correction satisfies the prediction standard, the conclusion is fairly acceptable that the treatment had some effectual part in the recovery.

However, it should also be noted that temporary relief can result from manipulative treatment that does not correct the subluxation, because such treatment may have blocked the sensory input to the brain and thus not been interpreted there as pain.

Physics is the basic physical science. It is subject to experimental investigation and to theoretical inquiry. Its goal is the formulation of comprehensive principles, or laws, that summarize disparate (different in kind) phenomena in the most general possible ways. It uses observation, description, measurement, and prediction.

The study of the motion of objects and their interactions is within the field of physics as comprehended by basic physical principles. In chiropractic, we observe motion in the displacement of vertebral segments, and we measure them and their interactions with adjacent vertebrae, the skull, and the pelvis. For example, the abnormal displacement of the cervical spine as it moves as a unit into one of the two frontal planes causes the cervical spine vertebrae subjacent to C-2 to rotate into the transverse plane of motion. These interactive motions which occur in over ninety percent of the cases produce C-1 laterality, displacement of the skull from its normal position, and cause a displaced gravital line from the skull, which in turn causes further interaction with the spinal column. The interactive effect of the abnormal motion of the cervical spine into the frontal plane produces rotation of the cervical and subjacent vertebrae into the transverse plane proportionate to the degree into which the cervical spine has deviated into the frontal plane, and C-2 has rotated.

Supportive evidence of the effect of the interactions occurs when the corrective adjustic force is applied. An example would be seen when it was necessary to deliver an adjustic force down and around the superior articulating surfaces of C-2 so as to restore the cervical spine from the frontal plane and correct the vertebral rotations. As C-1 moves down and around the superior articulating surfaces of C-2, this motion interacts with the cervical spine by normalizing its position which restores the rotations of the cervical and subjacent vertebrae to normal. C-1 is used as a lever in all cases, the effort being applied to the transverse process.

The same interactive effect is observed in those cases in which the adjustic force must be applied so that it moves up and around the superior articulating surfaces of C-2. Because the superior articulating surfaces of C-2 act as a support for C-1 and the skull, they are referred to in NUCCA as the base of support.

In less than ten percent of the cases examined, the interacting forces were initiated from skull displacement and the effects of the gravital line from the skull. In these cases, no movement or motion of the cervical spine as a unit was observed into either frontal plane. Therefore, no rotation of the subjacent vertebrae occurred which is supportive proof that cervical spinal rotations in the transverse plane result solely from the abnormal motion or excursion of the cervical spine into one of the two frontal planes.

Whether a C-1 vertebra rotates anterior on the side of C-1 laterality or posterior on that side is dependant on the interaction of the skull and the relation of the skull to the vertical axis. This position dictates the displacement of the skull's center of gravity, and where the gravital line passes downward through C-1 and C-2 and determines C-1 rotation. If the gravital line is to the side of laterality, C-1 will rotate in the transverse plane anterior; if the gravital line passes downward to the side opposite C-1 laterality, C-1 will rotate posterior on the side of laterality.

This gives some idea of how the C-1 subluxation can be observed and described and, to some extent, measured. It gives meaning to what happens and why it happens. These interactions within the subluxation constitute the internal forces that can and do produce the recurrences of a corrected subluxation because they are capable of acting whenever the resultant of all the acting forces and the sum of all the torques about an axis divert from zero, or a condition referred to as equilibrium does not maintain itself following the adjustment.

In a sense, all of physics may be regarded as mechanics. Many of the mechanical principles can form the basis of chiropractic practices. Kinematics is concerned with the description of the motion of an object, whereas dynamics is concerned with the object's motion in relation to the forces acting on it. Statics concerns systems of objects in equilibrium, and we are faced in chiropractic with the problem of equilibrium—why adjustments do not hold long enough for healing to take place. (Incidentally, mechanics was the first of the exact sciences to be developed.)

Mechanics, therefore, is the science that is concerned with the motion of bodies under the action of forces, including the special case in which a body remains at rest.

Thus, chiropractic is really a branch of mechanics. As chiropractors, we are dealing with the motion of bodies, displacements of vertebrae, the skull, and the pelvis, a motion that results from forces applied in accordance with mechanical principles. If this were not the case, we would be utilizing some other form of energy other than mechanical, i.e., chemical, electrical, heat, nuclear, et cetera to restore vertebral displacements.

I am aware of the statements that vertebral misalignments or displacements cannot be restored to normal; also, of the comments that no one knows where normal position is. Well, we will show you later the NUCCA system of finding normal position for vertebral segments, the skull, and pelvis which has stood up under clinical examination for twenty years without exception. In the meantime, let us show some before and after X-ray films of displaced vertebrae that have been restored. We could show you thousands.

We briefly spoke of the three branches of mechanics: Statics, which we defined as being concerned only with forces acting on

and in a body at rest. It is the equilibrium mechanics of a stationary body. Kinematics, which describes the geometrically possible motions of a body or a system of bodies such as we find in C-1 subluxations, and kinetics, which deals with laws to predict the motion that will occur in a given situation such as the effect of gravitational stresses acting on the skull or other bodily structures that affect the spinal column. We sometimes find the terms kinematics, which means motion, and kinetics, which means pertaining to or producing motion, included under the term dynamics.

Dynamics is in this sense a synonym for mechanics. The study of vertebral displacements that can occur are to some extent at present predictable. James F. Palmer, M.S., from the University of Toledo and a consultant to NUCCRA, points out that although the musculature controls and defines the limits of motion of the occipital-atlanto-axial spine, the architecture is of primary importance within the limits of normal and abnormal motion (subluxation motion). The architecture is more than just shape and form, it is also the purpose: C-1 and C-2 have intrinsic geometrical/inertial properties and these properties are important to their motional behavior. (Geometrical/inertial properties include cross-sectional areas, orientation of principal axes, location of centroidal axes, moments of inertia, and products of inertia.) These properties are inherent in the vertebrae and are not dependant on the orientation of the vertebrae.

Alternatively, mechanics is divided according to the kind of system studied. The study of chiropractic is a more complicated system, that is, one in which the motions of the objects (vertebrae) involve two or more objects that exert force on one another and may undergo forces exerted from outside the system by other bodies, such as traumatic experiences, adjustments, et cetera.

The first concern in the problem of motion in the subluxation system concerns the forces that the vertebrae exert on each other, internal forces. Given the forces, we seek to know the manner in which the vertebrae move under the action of the forces. This is the subject matter of mechanics proper, and, incidentally, one of the reasons why we post X-ray every case immediately after the first adjustment, to learn how the vertebrae that were displaced, as seen in the pre X-rays, moved under the external force of the adjustment.

For practical purposes, motion may be defined as a change of position of a body with respect to some suitably chosen reference point or system. The reference system used in NUCCA examination of vertebral displacements is the vertical axis of the orientation planes of motion or the "Z" coordinate.

Many professionals use the orientation planes. The following references can be checked in most libraries:

1. Kinesiologists:

   References: *Kinesiology and Applied Anatomy,* Rasch, Philip J./Burke, Roger K., 1974, Lea & Febiger, Publisher, Philadelphia.

   Kinesiology, Wells, Katherine F., Second Edition, 1955, W. B. Saunders Company, Philadelphia and London.

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3. Medical: (orthopedic and general)

   References: *Textbook of Anatomy and Physiology,* Catherine Parker Anthony, M.S., 1967, C.V. Mosby Company, St. Louis.

   Clinical Biomechanics of the Spine, White, Augustus A., M.D., and Panjabi, Manohar M., Ph.D. Harvard and Yale Professors, 1978, J.B. Lippincott Company, Publishers.

   Moments of Inertia and Center of Gravity of the Living Human Body, Technical documentary report No. A.M.R.L.-TDR-63-36, May 1963, Behavioral Sciences Laboratory. 6570 Aerospace Medical Research Laboratory, Aerospace Medical Division, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio.

Let's discuss now the orientation planes from which the vertical axis originates. The position of a point in space can be expressed mathematically by stating its distance from another fixed point or from three planes that are perpendicular to each other which contain this point.

The vertical axis is the normal position for the axis of motion for each vertebra when that vertebra's axis is aligned, including the skull and the pelvis. It is the intersection of the frontal and sagittal planes and runs perpendicularly from above downward. It is often referred to as the gravital line of the body or the line of symmetry. It is the "Z" coordinate of the orientation planes.

The intersection of the transverse plane with the sagittal plane generates the "X" coordinate—a line from forward to backward. The intersection of the transverse plane with the frontal plane is the "Y" coordinate, directed from left to right. The intersection of the frontal and the sagittal planes produces the line running perpendicularly from above downward, which is the "Z" coordinate or the vertical axis.

Three planes lie at right angles to each other and they intersect producing three lines that are all perpendicular to each other and which serve as coordinates of the three coordinate system. The center of gravity of the body is defined as that point at which the three planes intersect each other.

Three axes of motion exist: (1) the vertical axis perpendicular to the ground; (2) the frontal or lateral horizontal axis which passes from side to side; and (3) the sagittal or antero-posterior axis which passes horizontally from front to back.

A rotatory (axial or angular) movement of a vertebra occurs in a plane and around an axis. The axis about which the movement takes place is always at right angles to the plane in which it occurs.

Because the vertical axis divides the body into equal halves and is the gravital line of the body, a vertebra's axis or center of motion must align to the vertical axis. If it does not so align, the

vertebra is subjected to gravitational stresses, one of the internal forces that cause recurrences of a subluxation. Whenever the vertebral axis is displaced from the vertical axis, the vertebra cannot perform a normal range of motion. To execute a normal range of motion, vertebra's axis of motion must squarely align with the vertical axis of the body.

Consider that the vertebral column is the longitudinal axis of the body, its support and its dividing line. It must, therefore, align to the "Z" or the coordinate formed by the intersection of the frontal and transverse planes to be in normal position, free of gravitational stresses, and architecturally balanced and functioning healthfully.

Consider also that the architecture of the spine is such that only when the spinal vertebrae are aligned can they articulate naturally with each other and perform a normal range of motion.

The NUCCA vertical axis is erected from the first or second dorsal vertebra straight upward. Evidences of its accuracy are seen in the angular rotation of the subjacent cervical (dorsal) spine into a frontal plane. The greater the degree of angulation, the greater the degree of cervical rotation into the transverse plane of these segments which may be slightly influenced by the rotation of C-2.

Another supporting evidence of the NUCCA vertical axis line is observed in the third basic type in which no angular rotation takes place; therefore, no transverse plane rotation can be measured in these cases. The cervical spine rests on the vertical axis. No exceptions to date have been found.

Still another supporting evidence of the NUCCA vertical axis line can be observed in the post X-rays. When the cervical spine is restored to normal position following the adjustment, corrected back from the frontal plane, the cervical and dorsal vertebrae, previously displaced, lie on the vertical axis line.

The purposes of the NUCCA vertical axis line are to: (1) differentiate and identify the basic types; (2) to show the normal position for all the displaced vertebrae, skull, that comprise the A.S.C. and, therefore, the objective of the adjustment or the basis for making the prediction; (3) help to determine if the subluxation is in pattern by examining the characteristics of the basic type; and (4) help determine direction which is the relationship by which the alignment or orientation of any position with respect to any other position is established.

According to D. C. Seemann, Ph.D., a member of the NUCCRA research board for seventeen years, approximately 10,000 different C-1 subluxations occur, each requiring its specific adjustment. These have been reduced to four basic types according to their biomechanical setups, headpiece placement, and control of adjustic direction in relation to the vertical axis. Each basic type has its individual characteristics that identify it and show what the adjustment must accomplish in terms of correction; the vertical axis shows the way, so to speak. It is, therefore, very important to the NUCCA practitioner.

To repeat: Observation, description, measurement, and prediction are the basic essentials for building an acceptable scientific system. The atlas subluxation complex, composed of skull, displaced C-1, C-2, and all the displaced subjacent vertebrae, is observed and described and measured by examination of the patient, by X-raying the patient in all planes of motion, by analyzing the films through measurement of the vertebral displacements, determining the correct vectors through measurement, correlating the vertebral displacement factors to the patient's physical distortions or the physical effects of the subluxation on the body (neurological and mechanical). At this point, a prediction can be made re the outcome of the adjustment. In conclusion, we have observed, described, measured, and predicted and can understand the subluxation's behavior.

If the result is 95% correction, we have sufficient evidence of the accuracy of the analysis and the adjustment. The post X-ray shows that the behavior of the subluxation was understood due to the preciseness of the system. Any errors committed at any point, from the taking of the X-rays through the adjustment, become apparent in the posts, lowering the prediction percentage. All vertebral displacement distances must be measured very accurately, and the adjustic force and direction correctly delivered if the prediction rate is sufficient to satisfy the percentage standard.

Displacement defined is simply distance and direction from some starting point or origin of coordinates. In both analyzing and positionally correcting subluxated vertebrae, the vertical axis or "Z" coordinate, or gravital line of the body is the starting point. It is the normal point from which the subluxated vertebra displaced; therefore, it is the point to which the vertebra must be restored. This must be established at the time of the analysis because it becomes the basis of the prediction standard. Obviously, it dictates the exact direction that the adjustic force must go. So vectors, the quantity specified by a magnitude and a direction, are essentials in the analysis because they point out which way to go with the adjustic force; they give the direction in space.

The most basic of all vectors, i.e., the quantity that defines the properties of a vector, is displacement, which we defined as distance and direction from some origin of coordinates or starting point. If we don't know the starting point, how do we establish the exact direction of the adjustic (corrective) force?

When a number of forces act on a body, these several forces can be replaced by a single force having a definite amount and direction. This single force replacing the effect of the several forces is called their resultant. Because subluxated vertebrae move in different directions, i.e., into different planes of motion, a resultant must be computed from the X-ray analysis of the different directions in which each subluxated vertebra has abnormally distanced itself from its normal position. This resultant gives the adjustor the path of the corrective force to which he aligns the body.

Physical quantities such as mass, volume, temperature, have no connection with direction; they are identified by the term scalor. Vector quantities such as force, velocity, and acceleration are essentially directional in nature, and their magnitude (size) and direction must always be stated if the quantity is to have meaning. Force, therefore, is always going somewhere because it is directional in nature, and replacing vertebral misalignments require force under the control of direction.

What sense does it make to travel to a specific destination knowing just the rate of speed but not the direction of travel? What sense does it make not to know the normal position of a subluxated vertebra and be concerned only with speed of the adjustment but not with direction?

A force vector to be accurate as to direction and of value in the adjustment requires extreme precision in measuring the factors that determine the vector resultant. These factors include the abnormal skull position in the vertical axis, C-1 displacement from the occipital condyles, the C-2 odontoid and spinous malposition, the plane on which C-1 sets, the relative size of the condyles and the superior articulating surface of C-2, the excursion of the cervical spine into a frontal plane, and the rotation of C-1 into the transverse plane.

In describing the subluxation, we've looked at it rather comprehensively from the standpoint of its mechanics. Again, it is estimated that 10,000 different C-1 subluxations exist, each with its own displacement factors and related vectors. We still need to fill out our description, add some additional data on measurement; but, first, let's examine the pathoneurology which is also needed to fill out the description of the subluxation. Then we can look at the measurements of the subluxation's effect on the body, the third essential of a scientific practice.

(To be continued)

Better X-Rays — Better Corrections

By Marshall Dickholtz, Sr., D.C.

The NUCCA work requires precision in all phases of the technique to achieve optimal reduction of the misalignment. For our purposes (in terms of laterality), the atlas should be considered locked, either in its subluxated state or within one-half degree of laterality (with very, very few exceptions).

True laterality can only be measured when the X-ray equipment is properly aligned. In addition, the head cannot be rotated in the transverse plane, and the central skull line must be vertical. When the head tilt is present, there is apparent asymmetry of the skull on the film, because a different part of each side of the parietal region is being projected onto the film.

On small lateralities with head tilt, I strongly suggest taking another nasal film with the head tilt removed. Straightening the skull to the vertical will allow a more true measurement of laterality. (Note: Use this film only for the measurement of laterality. Do not take any other measurement from this film.)

Measurement of the axis spinous, plane line, and angular rotation (the cervical spine having moved away from the vertical axis) can also be misleading if the film has not been taken correctly. The axial canal and spinous measurement should be taken off of the vertex film and transferred to the nasal film. If the vertex and nasal films were taken correctly, however, these measurements should match with the nasal film.

The understanding of patient placement for taking films is not yet a closed book, and there is much yet to learn regarding this procedure. Proper positioning, precise analysis, and optimal headpiece placement are critical and remain incompletely understood in terms of obtaining maximal reductions.

The nasal film is, again, critical to this issue. There are probably innumerable factors which will influence the accuracy of this view. Among the major factors are the structure/function relationships between sitting and standing. When a patient is standing, gravity to the spine is being expressed through the feet and acetabuli. When a patient is seated, the ischial tuberosities become the base. The ischial tuberosities are narrower and therefore, less stable as a base. In addition, torque in the pelvic girdle will affect the sacrum, spine, and resultantly, the position of the head.

It is common to drop the patient's chin on nasal films with high S-lines. This can cause asymmetric movement of the head and distort the analysis. In addition, improper handling of the patient in the X-ray chair can distort head and neck positioning relationships.

I believe that a true representation of the various relationships existing in the subluxation pattern are best represented in the standing patient, (feet spread to the width of the acetabuli) with the eyes closed. (Closing the eyes takes out the visual proprioceptive factor.) Ideally, the Frankfort plane should be horizontal. The patient can be asked to lower and raise his/her head a few times to verify neutral positioning. (Note: Dr. Gregory stated that it would be more anatomically accurate to film patients while they were standing.)

When the patient is positioned for the nasal film, great care should be taken to assure they are sitting erect with shoulders above the pelvic girdle in the sagittal plane. Eyes should be closed and Frankfort line horizontal. Earlobes should be in the same relative position in the frontal plane sitting, as they were when the patient was standing. If relative positioning has shifted, reinstruct the patient to sit erect. The chair may have to be shifted slightly, and/or the upper torso repositioned to obtain the same relative position. Again, if there is a high S-line, and the patient's chin is slightly lowered, the patient's head can be gently moved to reestablish the relative positioning of the earlobes (taking care not to introduce rotation in the transverse plane).

Procedurally, it is useful to sit in a chair in front of the patient. Observe the ears in relationship to horizontal lines on the grid carrier while closing the last bit of travel on the head clamp. The head should not be shifted when the head clamp closes.

Errors at any stage of the procedure can result in incorrect X-ray interpretation. Faulty analysis leads to incorrect understanding of the individual biomechanics. Analysis of resulting post films can compound the errors into incoherence. (Note: Basic types of subluxations don't change too frequently. Improper X-ray procedures can lead one to think they do.)

To double check your positioning after the nasal film is developed, examine the relationship of the mastoid to a horizontal line. The earlobes and mastoids have a consistent relationship to each other. This comparison should be done on both pre and post films. Vertical and horizontal lines should be present in leaded paint on the grid carrier. (Note: The plane of the earlobes has no relationship to the central skull line.)

Inaccurate patient positioning on the nasal film can result in an alteration of the height vector by three or four inches. This would dramatically affect reduction of laterality, subtract from the rotation vector, and affect the reduction of atlas rotation and angular rotation. Inaccurate headpiece placement due to faulty X-ray analysis can be a great detriment to the reduction of the atlas subluxation complex. (Note: Dr. Gregory stated that there is only one-inch leeway in the adjustment vector.)

Consistently monitoring head tilt in your patient can assist management of care. Procedurally, two twelve-inch rulers can be placed against the parietal regions bilaterally. Relationship of the head with the vertical plane can more easily be recognized. This monitoring can alert you to possible change in the basic type, especially if the patient has been in an accident or to another chiropractor.

Further information and research about head tilt and nasal films can be found in Volume 5, Number 4 of The Upper Cervical Monograph, *A Method to Determine the True Head Tilt When Taking a Nasal X-ray,* by Dickholtz and Seemann.

Filters for Specific Upper Cervical X-Rays

By Marshall Dickholtz, Sr., D.C.

We are going to discuss the use of filters in taking upper cervical X-rays. The use of filters is a necessity, because these X-rays have to be taken at various angles. Also filters eliminate scatter radiation and give more detail to the film.

Before following any procedures in this paper, be sure your X-ray equipment is in alignment as per the NUCCA Alignment Book.[1]

Filters for Specific Upper Cervical X-rays

Closing part of the port of the X-ray tube housing will significantly increase the detail on the film. (See instruction sheet A)

Openings in filters that are put in front of the collimators are not standard because of a variation of the distances between the focal spot and the face of the collimator.

The majority of the openings in the filters that I use are for a forty-two inch focal spot to film distance. The distance from my focal spot to the face of the collimator is nine and three-quarters of an inch.

Put a dime in front of the collimator at 42" focal spot to film distance with your X-ray field at right angles to the film. Make a very low exposure. Measure the diameter and compare it to mine (that measures three and one-quarter inches). If not the same, use the difference in ratios to make your filters when compared to the filter dimensions that are in these instructions.

You can also use a trial-and-error method, but with a little time and some calculations, you can make the filters work the first time.

First, you need a bracket that will hold at least four slides of one-sixteenth of an inch thickness of plastic. The bracket should have a three-eighth inch inside dimension in its lateral tracts. (Drawing A) You'll need six plastic slides, 1/16th" thick, five for nasal views and one for the vertex. (Drawing B) The main reason you need several filters is that the nasal X-ray is taken at several angles. You want a slight white area on each side of the parietal region. The lines and marks of the cephalometer will then be seen on both sides of the parietal region. You may want to use more penetration to see the lower cervicals in the primary curve area without over exposing the posterior arch attachments of the atlas and/or the parietals.

Using any K.V.P. higher then eighty and/or not closing the X-ray port, you will have to have different thicknesses of lead. These filters are designed to use in various combinations. When putting these filters together and trying them out, use a tape that can be removed so they can be restructured. The filters also should be fitted with small lead numbers and letters that will be displayed on the X-ray film. Then when you view a film, you will know what filters were used. I might say that the X-ray technique and filters for each view should be on the patient's records. Every time you look at a film, you should ask yourself, "What can I change to give it more detail in all aspects?" Filters with letters A & B would be the full-length nasal filters of .003 of lead with an opening in the center for the cervicals and a layer of .003 and .006 respectively of lead near the top that would cut the exposure to the parietal region. (See drawings C & D)

Filters 1, 2, & 3 should have lead coverings of .003, .006, & .009 of lead that would cover about two-thirds of the way down from the top of a nasal film to the third cervical, when you viewed an exposed film. (See drawing E)

All the lead can be .003 of an inch thick, and using multiple layers, different thickness can be obtained. This thickness of lead works well with the time settings of your control unit.

Example: If you see everything on a nasal film except the lower cervicals because of insufficient penetration, you go up one number on the filter and increase your time setting another step. NUCCA may have whole kits and/or the .003 of lead available.

The filter for the vertex view is composed of a few pieces of lead. One is one-sixteenth of an inch thick with an opening as in the sketch, (See drawing F) that will frame an 8 x 10 film. Now, depending on how much of the area you want to attenuate or close down, you have a few options. If you want to see the whole skull, place strips of .003 lead on all sides except the area in the center where the atlas is. (See drawing G)

If you don't want anything to show on the film, lateral to the ramii, place one-sixteenth inch thick strips on the sides of the 1/16" lead frame so that there will not be any exposure lateral to the ramii, .003 of lead over the place where the nose will be projected, and .006 over the place where the lower cervicals will be projected. (See drawing G)

Mounting the bracket for the slides has to be done with great accuracy. This is accomplished by taping a piece of lead (buckshot) in the center of one slide. The center should take into account that each slide will have an extended height and a restricted area at the bottom when you put it into the bracket. Now, with this slide in the bracket, and the bracket temporarily mounted with tape, align X-ray tube and grid carrier at right angles for an exposure to the center of a 10 x 12 film. There should be a lead letter taped to the front and center of the grid carrier for this procedure (a lead letter, such as X). Another marker should be placed near the first letter to let you know which is the right or left side of the film. Move the bracket until buckshot image hits the exact center of the 10 x 12 film. Then use small screws or double-faced tape to secure bracket. (See drawing H)

When taking a nasal film above S one, slightly above the tip of the nose, use a B filter and a number one filter for a male patient. If you find that this is too dark in all aspects, you might have to add another layer of .003 of lead to the A, B. and vertex filters. (See drawing G)

Drawings of the radiation fields for the different filters are enclosed. To get an exact comparison, set your X-ray tube and grid carrier at right angles with the central ray horizontally at 42 inch focal to film distance, pointed to the exact center of a 10 x 12 film. A string should be attached lateral to the focal spot. Note the marking on the edge of the collimator (should be in the center of the lateral side) where the string crosses. This mark will have to be used every time when aligning for an exposure. Making filters this way, lead thicknesses and parts can be moved or changed. After the lead is set on the slides to match the X-ray

field sketches, and it is to your satisfaction, a clear plastic seal cover (that is used for pictures) should cover the lead to protect it. This will also protect you from lead absorption while handling. You may want to use glue to hold the parts in place on the vertex filter.

Collimator shutters should be closed, at least to cover the sides of the filters.

By utilizing this methodology, you not only get the sharpest X-rays possible, but you have considerably cut down on radiation to the patient.

Discussion

Having these lead filters are only part of the equation for better X-ray films, knowing how to use them is still another part. Without good X-ray films, you would not have a proper listing for your patient. A perfect nasal film taken with a self-centering head clamp shows a proper angled posterior arch of the atlas with no rotation plus:

1). A parietal region that is exposed with a slight white area from the skin. (This cuts radiation from the patient and makes the analysis easier).

2). The posterior arch is slightly raised at inferior attachments and shows the double white area as the arch crosses the lateral masses. (This is the most important detail in the film.)

3). The lateral margins of the seventh cervical or the first dorsal with their respective spinouses, regardless at what angle the nasal view was taken.

Other than the above, there is no other control over the procuring of better detail for the odontoid and axis spinous on the same X-ray film. If these structures are hard to find, look at the lateral and vertex film for relative positions to other structures.

To begin to understand the use of these filters, if you were to take a nasal film without any filtration, the parietal region would probably be overexposed, and the patient would receive more radiation than necessary.

There is scattered radiation on every exposure. The more the X-ray field is reduced and/or attenuated, the less scatter and the greater detail. This is why when one wants the greatest detail, one should take a small spot X-ray film.

The full-length B filter is almost always used, except on a small child where the Ma.S. is reduced so much that there would be too much attenuation and the detail of the skull would be lost. Use the "A" filter in this case.

Whenever the parietal region does not show any skin on a very high angle exposure, increase filtration, maybe also add the A.

Generally speaking, the #1 is used with the "B" when the S line is one or more for an average size male and S line of two or more for an average size female. This is in consideration for the angle that takes in the musculature around the seventh cervical, first dorsal area and the primary curve. The higher the S line, the more the primary curve would interfere with the detail of the lower cervicals, so more Ma.S. and more filtration for the upper two-thirds of the X-ray field. With a big primary curve and a high S line, maybe the "B" filter with the #2 filter, or even the "B" filter with both the #1 and #2 or the #3.

Here are a few examples of nasal film problems with their corresponding cure:

Examples	Cure
Parietal region too dark	Add another full filter
Parietal region too light	Reduce a full filter B to A
Whole nasal film too light	Increase time Ma.S.
Posterior arch and parietal region too dark	Add a 2/3 filter, #1 or increase to #2
Posterior arch and parietal region too light	Decrease from a #2 to #1 or eliminate #1
Lower cervical too light	Add or increase 2/3 filter and increase time
Lower cervical too dark	Eliminate some filtration and cut time

With all this information, you still have the option of increasing or decreasing the K.V.P. by two.

These are a few examples for rectifying a film that is not as perfect as it should be. Good detail of the parietal region, posterior arch, and lower cervicals is necessary.

Always mark the patient's records with the technique and filters that will be used for the best follow-up films.

The glabella may not be on center with the rest of the facial features. Once you see a film that shows rotation, mark the patient's card to place the glabella off center to the align rod of the head clamp and by how much.

There are no special instructions for the vertex filter, except the aligning of the center of the lateral side of the collimator with the string that is held laterally to the anterior/inferior tip of the mastoid. There should be 90 degrees between the string and an imaginary line from the tip of the mastoid and the supra orbital ridge. The string can also be placed at this time, on the back of the skull to see if its image will fall at the proper position on the film. This will generally be shorter for a female than a male patient. Line up your eye with the string and its image in the mirror that you should have on the wall, when checking this projection. A chin centering device should be used for perfect centering and matching pre and post X-ray films.

Generally, keep the same K.V.P. and Ma. station and adjust time.

Females, generally, need less Ma.S. than males, but you want to see the foramen transversarium of the atlas. If it is too light, increase the time. If too dark, decrease the time. Look for a dark circle with a whole outline around it.

Always use the variable vertex square so that all parts of the atlas are taken into account when finding and marking the foramen transversarium. They may not conform to the rest of the vertebra.

I recommend that you do not use any K.V.P. over 80 except on a very large patient and a film screen combination over 400 speed.

For nasal films, close the lateral shutters so that you see a white space on both sides of the film. If the horizontal shutters are closed sufficiently, you should occasionally see a white space on the top or bottom of the film. If you do not take any larger

films than 10 x 12, tape the shutter controls in this position.

I recommend the Kelvar Cassettes from DuPont. The front of these are made of Kelvar materials instead of aluminum and use about 8% less radiation at 80 K.V.P.

I also recommend the Smit-Retgen grid, 150 lines per inch, 8.1 ratio, 42" focal distance with a carbon fiber covering and fiber inter spacing. This will give a sharper film and reduce radiation and time up to 40%, depending on what you are now using.

A lead backscatter of 1/16 inch thickness installed inside a grid carrier or on back of a bucky is also recommended to stop scatter radiation.

Sharper X-ray Films

There is stray radiation that comes from the port of an X-ray tube housing. This darkens your film and blurs the object image. Use the following procedure, but first your X-ray equipment has to be aligned as per the NUCCA X-ray alignment booklet.

The procedure to eliminate this problem is as follows:

Equipment

1 - two inch square piece of lead 1/16" thick
1 - one set of metal tip dividers
1 - one hand drill and 1/8" drill bit
1 - flat file, average size
1 - one set of miniature needle-nose files
1 - roll of sticky tape (not electrical)
1 - piece of wire mesh screen, approximately 4" x 8"
1 - scissors

Place the grid carrier or bucky in a vertical position with the wire screen taped to the right or left side of the unit (starting from the center). A lead letter or marker should also be placed on center of the grid carrier. Now, place the X-ray head in as perfect a vertical position as possible (a level may be placed on the back of the X-ray tube housing). The collimator should be level from right to left. Raise or lower the tube until the central ray is in a horizontal plane aimed at the center of your bucky or grid carrier. You should be using a string that is attached laterally from the focal spot. I have used an aluminum bar with a level to make sure this is aimed horizontally. This spot should be marked for all future X-ray exposures.

Next, lock the height of the cross shaft (it holds the X-ray tube). Remove the collimator. If there isn't a disconnect, have a chair handy to place it on.

Use the points of the dividers to measure the inside diameter of the port opening. Now, use the dividers to scribe a circle on the lead to the size of the port, also a 1/2" diameter circle for reference as you file out the opening. Use the scissors to cut on the outside of the scribed line. The file is then used to finish the lead plug so that there is a tight fit. Drill a 1/8" hole in the center of the plug. With the point of the dividers, scribe a small arrow on the face of the plug, near the top, pointing out towards the circumference. Tape it in the port with the arrow pointing UP. The procedure is to make an oblong hole in the lead plug for the largest film and at the distance at which it is going to be taken. It has to be kept in mind that the smaller the port opening, the sharper the films.

Set the distance for the projection that would require the largest opening.

With all your equipment aligned and squared, make an X-ray exposure about 40 K.Y.P. at 5 Ma.S. This will give you a shadow of the hole in the lead plug as it is projected on the film with the reference points from the wire screen and lead letter.

The next and last few steps are done without moving any of the equipment. Take the lead plug and file out a hole. File out a little at a time, depending on the way the radiation is exposing the film, and test so that the shadow will be exactly where it should be. This should let the X-rays hit the full length of the film and almost 95% of the width. (Start to elongate the hole with a round file and finish the hole with a flat file.) In testing the hole, always make sure the arrow on the plug is pointing straight UP. When the final film shows that the projected shadow is perfect, tape it in place.

I strongly recommend that any chiropractor doing ONLY upper cervical work use only a 10 x 12 grid carrier and use a 42" focal spot to film distance.

The port opening might end up being 5/16" x 7 1/16" depending upon the distance from the focal spot to the port, and if you are NOT using any film larger than a 10 x 12.

1) NUCCA X-ray Alignment Booklet - Video Tape is also available.

NUCCA
217 West Second Street
Monroe, Michigan 48161

PARTS LIST

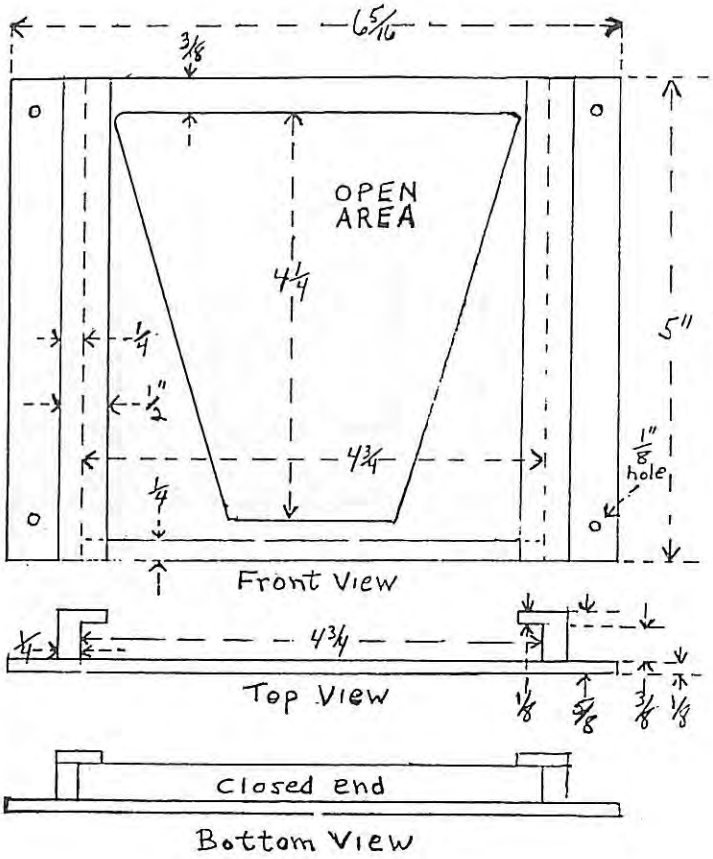
1/16" lead for port closure and vertex filter
.003 lead for filters
1 bracket for filters
6 - 1/16" slides
Small lead letters and numbers A, B, 1, 2, & 3
Clear seal for covering slides
Double-faced tape
4 small screws
Scotch Magic Tape

The cross lines represent the white lead paint on the front of your grid carrier.	Exposure (55 K.V.p. @ 22.5 MaS) of the lead frame, that is one sixteenth of an inch thick, that goes with the vertex filter.

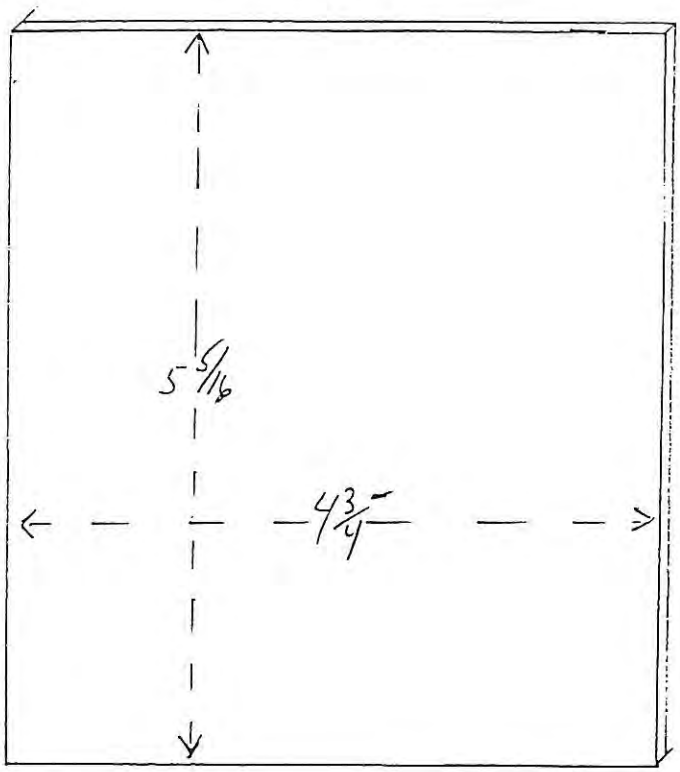
Bottom of a 10 x 12 film



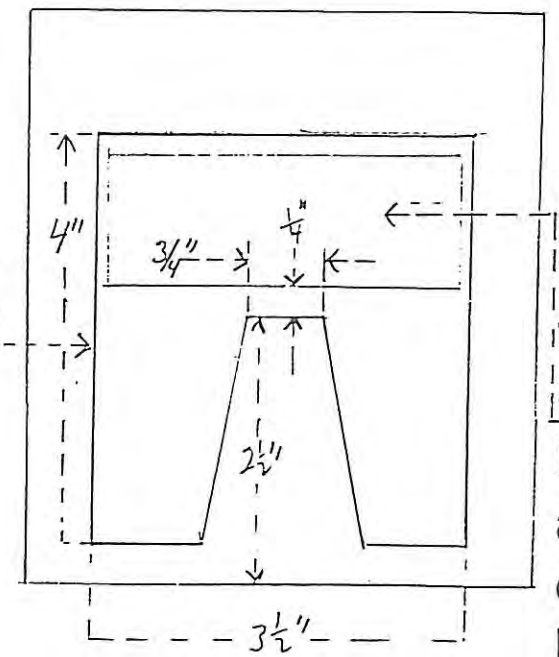
Drawing A



Drawing B



Drawing C & D



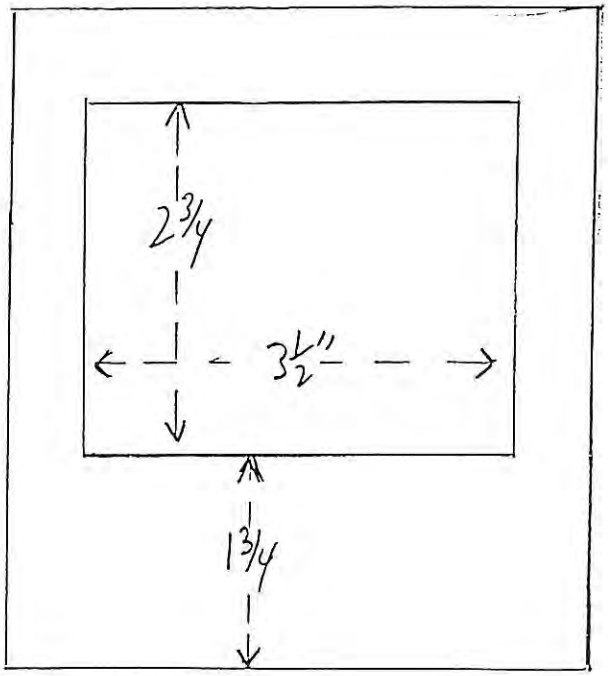
1st layer
.003 lead

For filter A
add .003 lead on
top of first layer
of .003.

For filter B
add .006 of lead
on top of the first
layer of .003

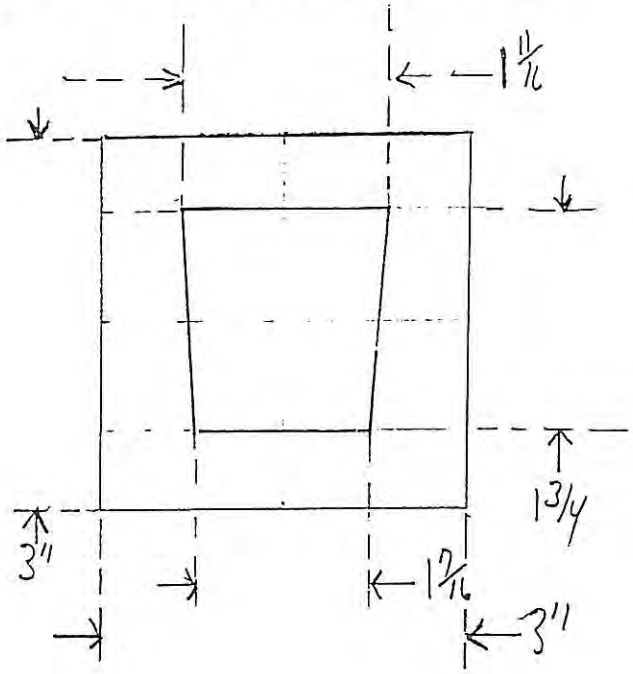
Drawing E

Filters numbered 1, 2, and 3 have .003, .006 and .009 of lead coverings respectively



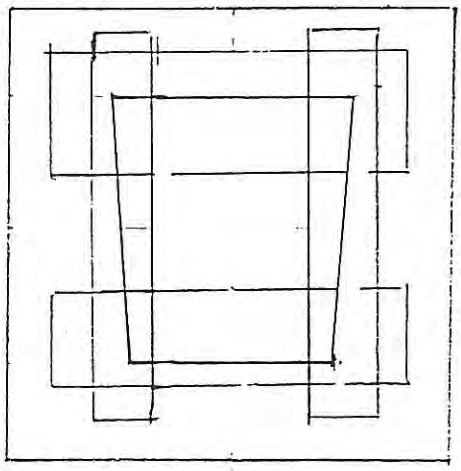
Drawing F

1/16" thick lead with opening for vertex film



Drawing G

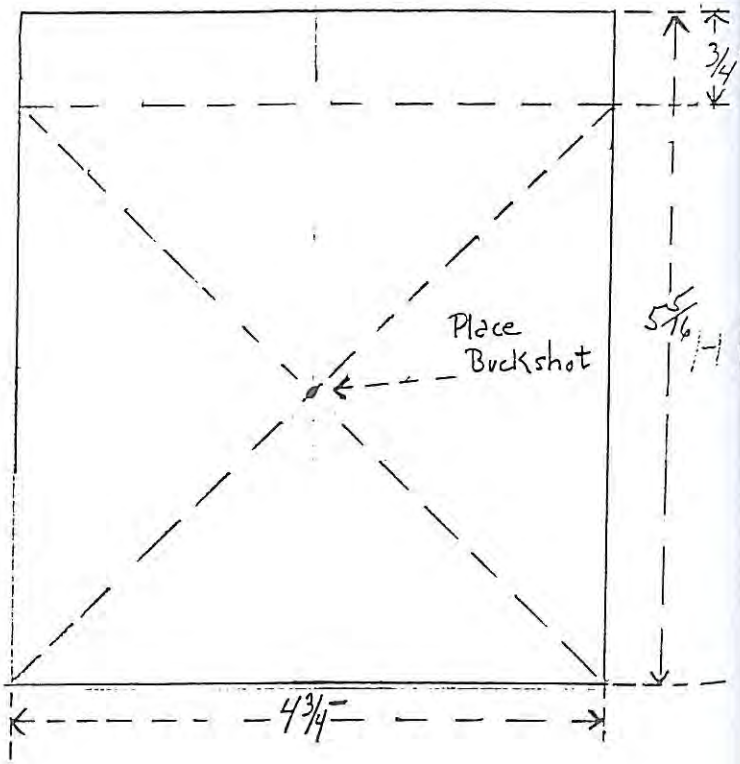
.003 of lead, laid over 1/16"lead frame, covering a portion of each side.

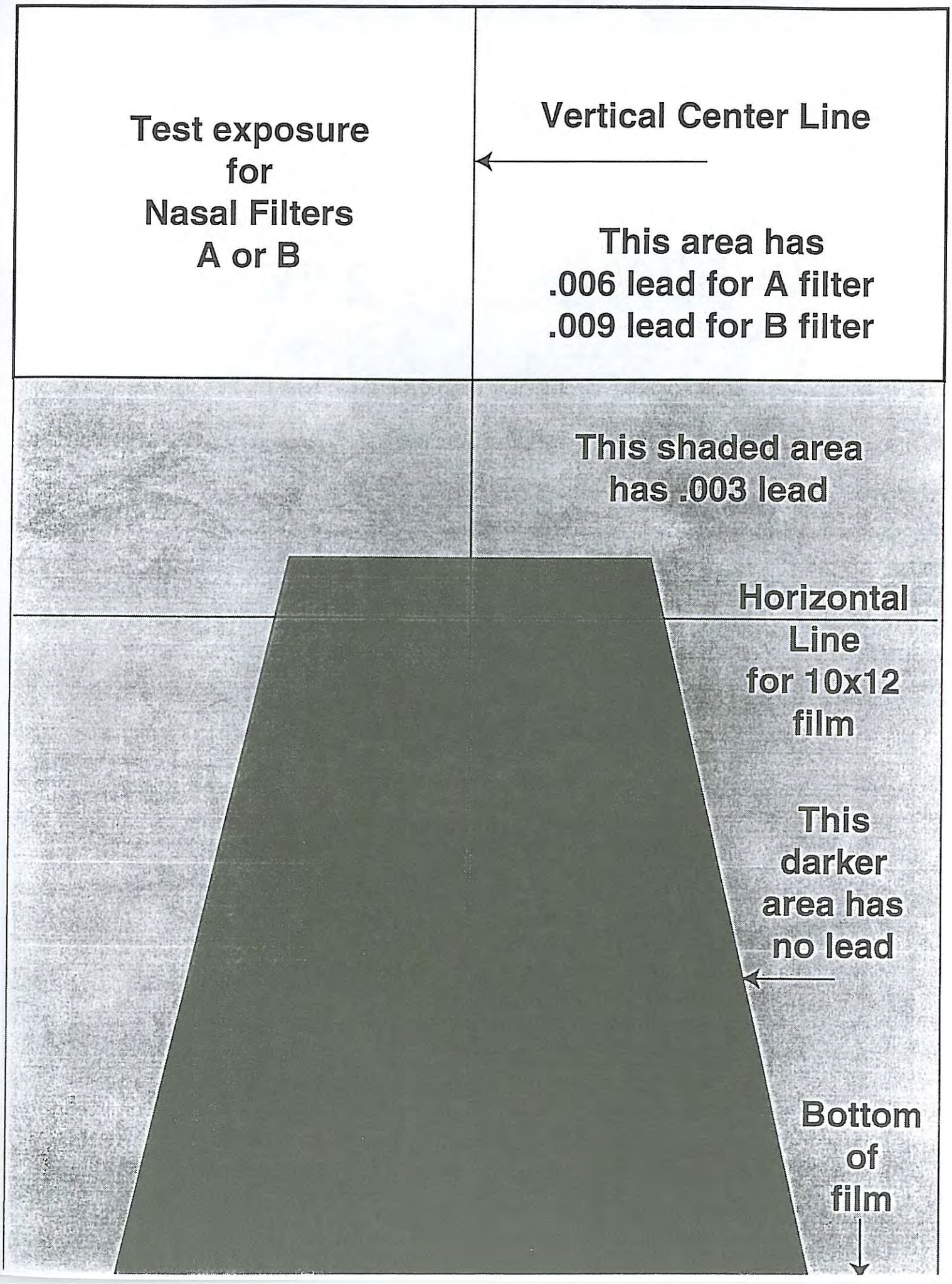


1/16" thick lead can also be used to cover the lateral portions.

This lead frame center should be mounted about 1/8" below center of slide.

Drawing H

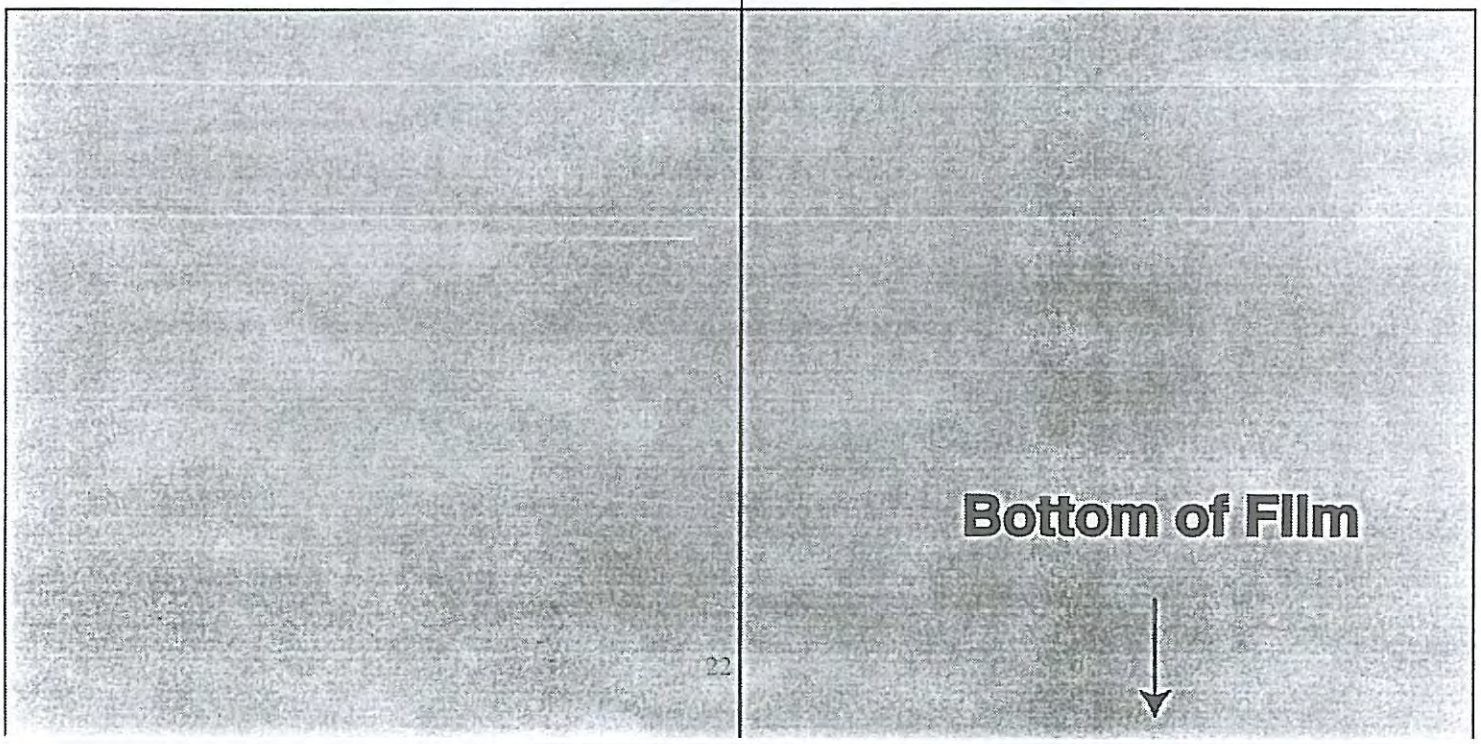


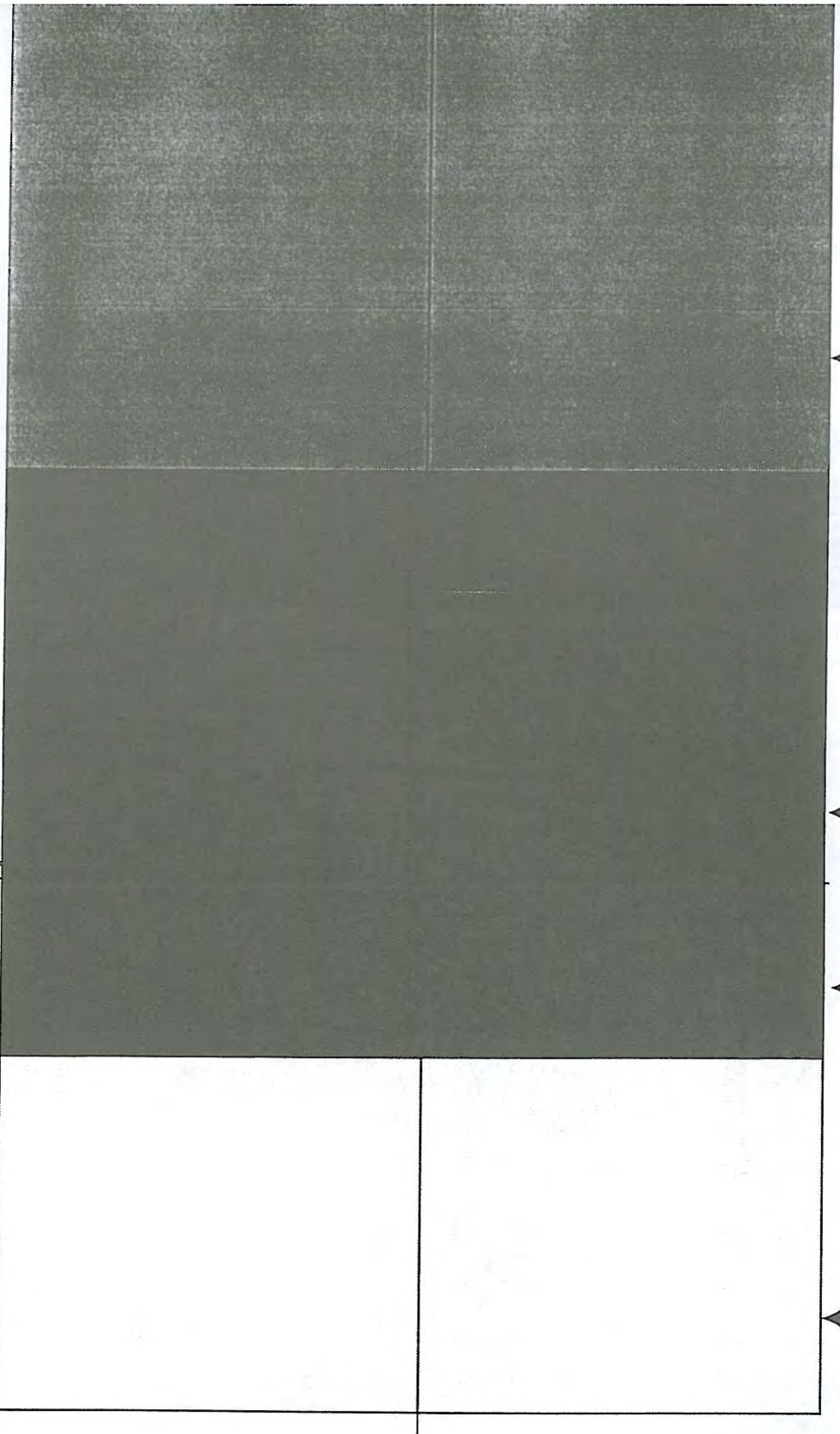

Test exposure
for
Nasal Filters
A or B
Vertical Center Line
This area has
.006 lead for A filter
.009 lead for B filter
This shaded area
has .003 lead
Horizontal
Line
for 10x12
film
This
darker
area has
no lead
Bottom
of
film

Exposure for filters 1 & 2 & 3

About 50 KVP 3.75 Ma.S.

Mid line
or grid curser





Exposure of about 50KVP 15 Ma.S.

.003 lead covering this opening

No attenuation of X-ray field

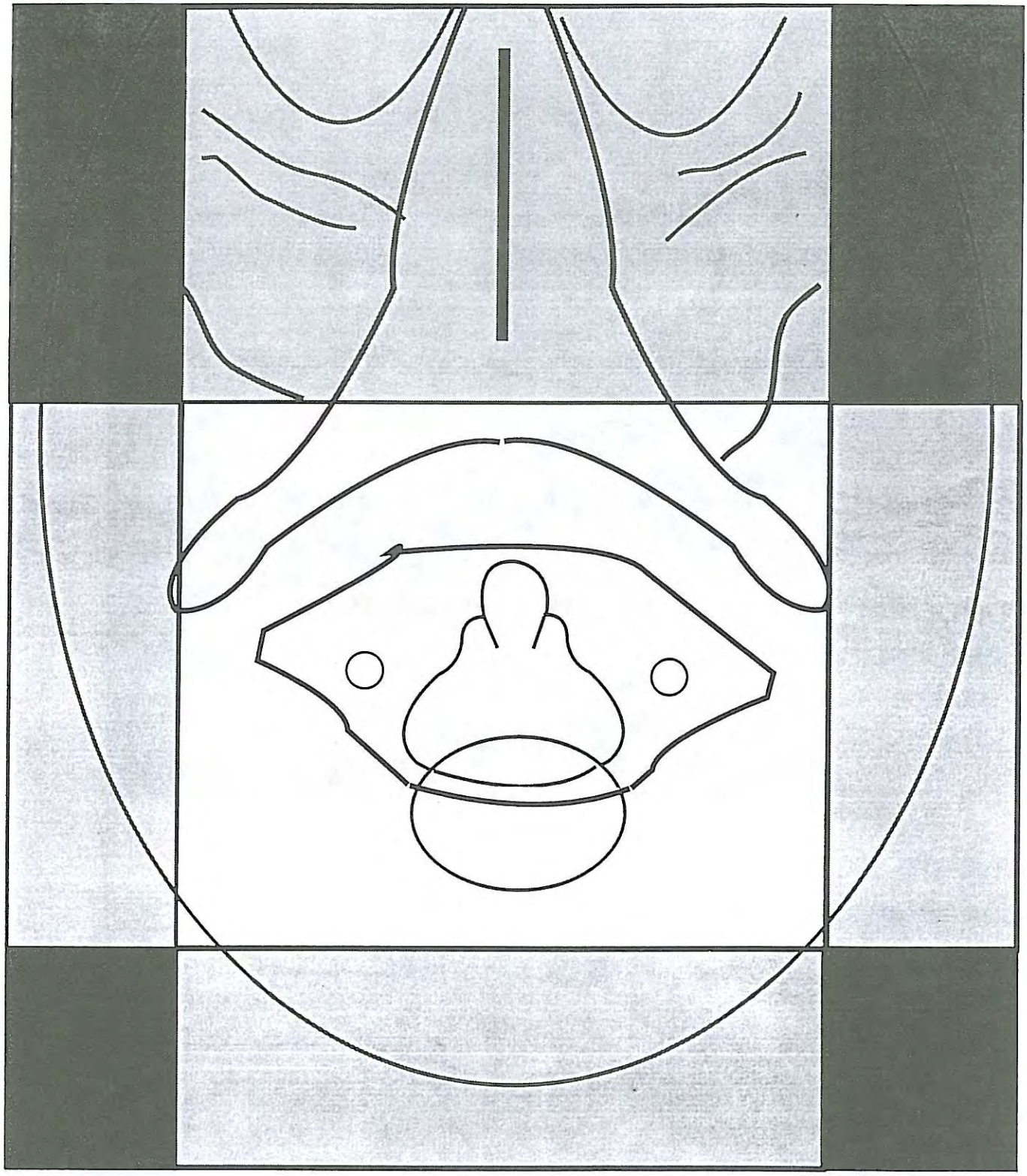
Horizontal Lead line Image from grid carrier for the center of line a 10 x 12 film

.006 lead covering this opening

bottom of 10 x 12 film

Vertical Center Line

This is the test alignment & exposure film for the vertex filter with 1/16" lead on lateral sides.



This is how a vertex film should look without the 1/16 lead on the lateral borders. Only .003 of lead on all sides.

NUCCA Doctors: Why So Few

By Daniel C. Seemann, Ph.D.

There are approximately 1000 chiropractors in the USA who are upper cervical adjustors. Of this number, NUCCA has about 150 members who adjust the atlas. It is not clear how many adjust the atlas exclusively or use other modalities. The guess is there are maybe 75 members who are hard-core manual adjustors. This figure has not changed much over the past 25 years, even though the training has improved and there is a much greater pool of field doctors available. Perhaps the most puzzling: Why so few, when the NUCCA work is generally considered the most challenging and rewarding of all the systems in chiropractic. This article will examine some of the issues which might be contributing factors. In talking to the membership, there are many hypotheses and it is always a topic at the seminars.

It is possible to classify NUCCA members by training and experience. The first level would include students, recent graduates, or interested field doctors (Basic). The next group are those taking the intermediate work which includes the basic biomechanics and adjusting (Intermediate). The third tier are experienced field doctors who want to stay current but are not interested in certification (Advanced). The last level are those who are seeking certification or are certified.

Ideally, a growth pyramid should be in place, whereby those at the lowest level of training and experience would act as the broad base for the organization. With each step of the hierarchy, the numbers would narrow. At the top of the pyramid would be the certified doctors. Currently there are 31 doctors, either certified or in the process.

The reverse is true for NUCCA; there are considerably more certified doctors than new people coming into the work. This is bad news for NUCCA, because it signals little growth for the organization in the next few years, and worse, patients who would benefit from an atlas adjustment will be denied.

The most frequent answer to why there are so few NUCCA doctors is that the work is too difficult. The two major divisions to master are the analysis and the adjustment. Within each part, there are probably areas which are hard to comprehend, but learning the analysis seems easier than the adjustment. A recent study (1994) showed that a majority of a large group of NUCCA doctors reading a positive film (under less than ideal conditions) were within a half of one degree of the correct laterality. Twenty years ago that high degree of accuracy would not have been realized. It also supports the notion that maybe the training has also improved. Certainly, the level of understanding about the analysis has changed.

Learning the adjustment might be what makes NUCCA work so difficult to master. The analysis is more of a cerebral, cognitive procedure. There is measurement, and the relationships are understood. The analysis is logical and rational. On the other hand, mastering the adjustment is an art form. It requires skill and precision. Each adjustor brings a unique posture into play. A certain amount of physical dexterity is required. So, not unlike an artist, there is an emotional component involved. The adjustor has to feel the feedback and has to know when the vertebra are moving. This skill develops with practice but takes longer to master than the analysis.

Teaching the adjustment is more difficult than the analysis because of the many variables cited above. The coach can explain how to shoot the basketball, but the final skill rests with the player. The same is true with the adjustor. The step-by-step phases teach how to adjust, but working on a coordinator at a seminar is different than working on a patient in the office. The post X-ray can be very frustrating, especially if the subluxation has not changed or increased. Two seminars per year cannot reduce the learning curve for adjusting. It can be a slow, difficult process, especially if the field doctor is alone or geographically isolated from his/her colleagues.

While there is agreement among the other upper cervical groups with the cervical analysis, the adjusting instrument has become popular outside of NUCCA. They would probably agree that the hand adjustment is more precise than instrument adjusting, but the time it takes to learn the instrument and get reductions is considerably less than it would take to learn the hand adjustment. This becomes attractive to new field doctors.

This may be why NUCCA is having difficulty in either attracting or retaining new people. Perhaps the bottom line here is that if a choice is to be made to learn the NUCCA work, the individual must know it is going to take time, sacrifices, and patience. If NUCCA had a residency program, it probably would take as long as five years.

Another factor is an economic one. The amount of debt a recent graduate has is about $100,000. They are told they should be making big money in a relatively short period of time. This might be true if the new doctor is willing to prostitute himself at the expense of the patient. NUCCA has never made the claim about a lot of money. Most NUCCA folks will tell you that it was a struggle early on, but they felt good about the solid growth of their practices and the fact that they had helped their patients. So the pool of new graduates will be quickly screened out if they think they will make a lot of money early on, especially if they have major debt.

Attracting doctors who have been in the field for a few years is even more difficult. Once in the field and making a good living, it becomes almost impossible to change, even though the NUCCA work is more attractive. Lee Yardly and Otto Portman can relate how hard it can be switching to NUCCA after coming from big, successful practices. This pool, therefore, is not potentially a good one for NUCCA.

This paper has basically examined two problems as to why there are so few NUCCA doctors: That the NUCCA work is difficult to learn, and this, in turn, dissuades new doctors from considering NUCCA as a professional option.

As we indicated earlier, the learning curve with the adjustment must somehow be shortened. The training for adjusting has not really changed much over the past 30 years: Break down into groups and work on the coordinator. There must be some training device beyond the coordinator. With the technology today,

something must be available. Perhaps there needs to be more regional seminars that concentrate solely on adjusting. The problem certainly is a legitimate agenda item for the NUCCA/ NUCCRA Boards.

There is a term used in psychology called Locus of Control. A person can be classified as either internal or external. People who are internally locused tend not to believe in luck or chance, and they are responsible for their behavior. So if they do good or bad, they will take credit for their actions. Externals believe in luck, chance, or fate. If they fail or are successful, they blame it on external factors. Scientists tend to be internal, because they are interested in cause and effect. Philosophers probably are more external.

It is the writer's opinion that NUCCA doctors tend to be internal. They are analytical. They like the notion of pre and post X-rays that can be measured. They don't want to leave things to chance. They want to know immediately if they reduced the subluxation. The term innate is not mentioned very often. They want to know how and why things happen. They tend to be critical of themselves and others if they can't get the right answers. They are not impressed with modalities that have nothing to do with the reduction of the atlas subluxation. If you want to impress them, show your post X-ray. Most are not interested in fame or fortune. They are interested, though, in serving their patients the very best they can.

NUCCA does set a standard for the chiropractic profession and those who survive the challenges rate at the very top in their field.

Upper Cervical Unity

By Michael Thomas, D.C.

It has been more than thirty years since Dr. John Grostic passed away. The Grostic work has since gone through a convoluted evolution resulting in several different organizations of committed upper cervical practitioners. The organizations differ in various ways, but the foundation of the Grostic approach is firmly embedded in each of them. For several different reasons, these groups, though brothers (and sisters!) in spirit, have become isolated from each other. Lengthy isolation created an inertia that has maintained itself.

In 1994, a group of doctors met together on Jekyll Island in Georgia to discuss matters of importance and concern to all upper cervical doctors who practice in the post Grostic lineage. This meeting, initially spearheaded by Dr. Hal Crowe, moved ahead and gave itself a name. THE ACADEMY OF UPPER CERVICAL CHIROPRACTIC ORGANIZATIONS created an interim board and a mission statement:

> "The mission of the Academy of Upper Cervical Chiropractic Organizations is to maintain a coalition of chiropractors and chiropractic organizations who recognize, define, and qualify the atlas subluxation complex as an entity. The Academy shall foster and promote knowledge of the atlas subluxation through exchange and dissemination to perpetuate, advance, and preserve the science of the upper cervical adjustment."

The AUCCO met once again at the Upper Cervical Conference in Marietta, Georgia last November. The next meeting will again be on Jekyll Island, April 22nd. This meeting will be based on the agenda of the interim board and will include deciding membership and dues, forming an academy data base, election of bylaws, formation of a nominating committee for election of officers, and finalizing plans for the October 1995 Academy Centennial Event. For the first time, three of the major upper cervical organizations (NUCCA, ATLAS ORTHOGONALITY, and ORTHOSPINOLOGY) will meet at the same time, in the same place. There will be the usual separate instructional seminars, but there will also be combined meetings for everyone, where topics of mutual interest will be explored, including research updates from all three organizations.

On October 21, 1994, the Dynamic Chiropractic published a graphic representation of the percentage of chiropractors who use various techniques. Many doctors practice multiple techniques so that the total is far above 100 percent. However, NUCCA, Life Upper Cervical, and Grostic are identified as separate techniques and are probably not practiced by the same doctors considering the isolation discussed above. Adding up the three techniques comes to just under seven percent of the chiropractic population. Twenty-six percent admitted to practicing the HIO work. Considering the unsettling climate in healthcare in these times, our voice and our work must be recognized if we expect to remain viable in tomorrow's world. Established doctors could probably survive on a completely cash basis, but it would become essentially impossible for new doctors to establish themselves considering the costs of schooling, setting up a practice, and simply paying personal expenses. Without a real voice in our profession, the restoration model and even the ability to take technique films is in jeopardy. A recent brochure from the AUCCO notes:

> "While the majority of the chiropractic profession drifts more towards the allopathic model of treating pain syndromes, a percentage still addresses restoration of function, and while the majority of the chiropractic profession drifts towards spinal manipulative therapy and denying the subluxation, a percentage still addresses specific upper cervical adjusting procedures."

Our differences cannot be so great that we just allow this work to end with this generation. Our children's children are going to have enough to contend with. Let's work together to help make sure some of them can be upper cervical doctors.

NUCCA Assessment Outline

By James F. Palmer, M.S.

Statement of Intent

To proportionately reduce or correct the atlas subluxation complex misalignment factors.

Overview

An Upper Cervical Technique using a manual, triceps-pull atlas adjustment of low amplitude and velocity requiring vectored forces just sufficient in magnitude to overcome the resistance associated with the subluxation, performed in accordance with sound kinesiological and biomechanical principles. Misalignment factors are determined from radiographic analysis (lateral, nasium, and vertex views) and processed through a four-basic type paradigm to optimize patient positioning in side posture and to determine the specific corrective adjustic vector. Verifiable elements such as spastic contracture, pelvic distortions, contractured leg, center of gravity displacement, and deviations of the spinal vertebrae from the vertical axis are objective signs that can be measured, tested, and reciprocally related to the Atlas Subluxation Complex; collectively, these verifiable elements or signs of the Atlas Subluxation Complex are referred to as the Atlas Subluxation Syndrome. This technique incorporates the objective information derived from neurological, orthopedic, and chiropractic examinations to assess the presence of neurological interference.

History

The NUCCA (National Upper Cervical Chiropractic Association) "technique" traces its roots back to 1941 when Dr. John Grostic of Ann Arbor walked into the office of Dr. Ralph R. Gregory seeking an atlas adjustment. Between 1941 and 1946, Dr. Gregory worked in close collaboration with Dr. Grostic. Dr. Gregory pointed out Dr. A. A. Werning's statement "the atlas moves laterally as if on the rim of a circle" (The Atlas Specific) to Dr. Grostic, the axis superior articulations were added, and the condylar-axial concept became the starting point for what was to become the Grostic Technique. Between 1946 and 1964, Dr. Gregory assisted Dr. Grostic in nearly all the seminars. In 1966, two years after the death of Dr. Grostic, the National Upper Cervical Chiropractic Association (NUCCA) was formed; in 1971 NUCCRA, the research organization for NUCCA was formed. Reexamination of the original basic work was done, research expanded, and newer methods of subluxation analysis and correction developed to such an extent that NUCCA came to symbolize a new technique by the time of Dr. Gregory's death in 1990. The processes of improvement and refinement continue under Dr. Albert Berti, president of NUCCA.

Definition of Unique Terms

ATLAS SUBLUXATION COMPLEX (ASC)

This term is a neologism intended to denote the far-reaching and damaging effects of the subluxation occipital-atlanto-axial area of the cervical spine upon the spinal column and the human organism. The term includes the atlas vertebra in all its planes of misalignment, its positional relationship to the occiput, subjacent vertebrae, and pelvis, inclusive of the excursions of these structures into any or all of the bodily orientation planes; and resulting in, or capable of resulting in, concomitant detriment to the susceptive neurological components.

ATLAS SUBLUXATION SYNDROME

In this term, the word syndrome is limited in meaning to include only the observable and measurable signs of an Atlas Subluxation Complex. The Atlas Subluxation Syndrome is defined as those objective signs which are always present and measurable in proportion to the intensity of the Atlas Subluxation Complex; misalignment factors as shown by x-rays, resulting traction of the neurological component, presence of spastic contracture of the lumbar and pelvic musculature, distortion of the pelvic girdle, displacement of the body's center of gravity, contractured leg, and deviation of the spinal segments from the vertical axis of the body.

NEUROLOGICAL COMPONENT

This term includes that nerve structure which is deformed by traction, enfoldment, and compression resulting from the effects of the misalignment factors of the vertebrae, occiput, and pelvic girdle regardless of the location of the nerve structure: Skull, spinal column, or that nerve structure emitting through foramina of the skull and/or spinal column. Enfoldment of nervous structure is generally present. Traction may be, and generally is, both longitudinal and transverse.

MISALIGNMENT FACTORS

The misalignment factors are the measurable misalignments of the vertebrae of the spinal column and the positional relationship of the occiput to the spinal column; and includes the relationship of these structures to the vertical axis of the body and to any and all planes of motion, as well as the ratio of magnitude that exists between an excursion into any given plane to that of any other plane of motion.

VERIFIABLE ELEMENTS

A verifiable element is any objective sign that can be measured, tested, and reciprocally related to the Atlas Subluxation Complex. Examples are: Spastic contracture, pelvic distortions, contractured leg, center of gravity displacement, and deviations of the spinal vertebrae from the vertical axis.

CONTRACTURED LEG

A leg is contractured (short) when it is not equal in length to its opposite member due solely to an Atlas Subluxation Complex.

SPASTIC CONTRACTURE

This term is applied to a shortening of muscle fibers resulting from over-innervation due to the effects of an Atlas Subluxation Complex. It is characterized by considerable resistance to passive stretch.

PREDOMINANT FACTOR

A predominant factor is that single misalignment factor of the Atlas Subluxation Complex that at any given moment is producing the greatest amount of spastic contracture; it is not necessarily the misalignment of greatest magnitude.

VERTICAL AXIS

The vertical axis is formed by the intersection of the frontal and sagittal planes of motion. It is perpendicular to the ground. In the normal spinal column, the vertical axis passes through the center of gravity located in the pelvis at the point where all three planes of motion intersect. The pelvic girdle, occiput or skull, and/or any spinal vertebrae can be considered as normally positioned when aligned with the vertical axis and the parts proportionately influenced by gravitational stresses.

FIXED POINT

The fixed point is a point at the first or second dorsal vertebra, and is considered fixed because of its anatomical relation to the rib cage which limits its lateral movement.

Diagnostic Exams

A. Postural Distortion.
   (1) Supine leg length discrepancy examination. The presence of a contractured (short) leg is an indicator of an Atlas Subluxation Complex (ASC).
   (2) Anatometer measurement of pelvic distortion in the frontal and transverse planes and lateral displacement of fixed point at shoulder level (pelvis and spinal measurements in the frontal and transverse planes is indicative of an ASC.) Anatometer II: Percent relative weight differential.

B. Thermography.
   Asymmetry measurement with neurocalometer.

C. Radiography.
   (1) Lateral, nasium, and vertex cervical views standard. The projection of the nasium and vertex X-rays are determined from the lateral (scout) X-rays. Nasium and vertex X-rays are used to measure the deviation of the head and cervical spine from their normal position in the frontal and transverse planes. Measurements permit calculation of the biomechanical factors of ASC to determine appropriate vector of correction.
   (2) Additional X-rays if deemed necessary.
   (3) Pathology scan.

D. Physical, orthopedic, and neurological examinations of areas indicated by patient history and presentation.

Treatment Procedures

A. Examination by stated diagnostic procedures.

B. Adjustive Procedure
   (1) Patient positioned on side-posture adjusting table (low/firm) with appropriate headpiece based on the basic type, shape of skull, and biomechanics of the ASC.
   (2) Firm mastoid-support headpiece and multiple support headpieces, can be moved vertically and horizontally.
   (3) Modified triceps brachii pull, low velocity, low displacement, transfer of energy between pisiform of doctor and overlying tissue of transverse process of atlas. Backward pull of contact arm. Doctor positioned to make adjustment based on predetermined vectors. No drop of headpiece.
   (4) Adjustment is performed until resistance of the ASC is completely overcome, and the head and cervical spine have been restored to normal.

C. Postural distortion measurements immediately following adjustment. Post X-ray (nasium) following new patient (initial) adjustment to determine degree of proportionate reduction of misalignment factors or determine new vector.

Ancillary Procedures

None, except those prescribed by an emergency.

Assessment of Outcomes

Diagnostic exams (V1) – both pre and post adjustment are the core assessment devices. Surface electromyography is an example of a non-core assessment process.

Physiological Mechanisms and Rationale

When the atlas is displaced from a normal to an abnormal position, the nerves at the atlas level are tractionized, resulting in over-innervation of the extensor muscles (spastic contracture), and is manifested as a distorted pelvis, spinal imbalance, and contractured leg. Involvement of the caudal end of the brain stem is hypothesized.

Contraindications to Care

Includes, but is not necessarily limited to, those situations which preclude contact or placement by doctor due to osseous, muscular, ligamentous, vascular, or neurological involvement.

Evidence of Efficacy

A brief list of published articles is as follows:

A. Gregory, R.R., 1984. "Updating the Four Basic Types." The Upper Cervical Monograph, Vol. 3, No. 8, 8-12.

B. Gregory, R.R., 1989. "Stabilizing the C-1 Subluxation Complex." The Upper Cervical Monograph, Vol. 4, No. 7, 6-9.

C. Gregory, R.R., 1990. "Force of Depth in Adjusting C-1 Subluxation." The Upper Cervical Monograph, Vol. 4, No. 9, 8-11.

D. Denton, K.E., 1990. "A Review of Biomechanics." The Upper Cervical Monograph, Vol. 4, No. 10, 11-17.

E. Dickholtz, M., 1991. "Error in Taking of Cervical X-Rays and Their Effects on Analysis." The Upper Cervical Monograph, Vol. 5, No. 1, 3-4.

F. Gregory, R.R., 1971. The Atlas Subluxation Complex Manual.

G. Gregory, R.R., 1988. "The Evolution of the NUCCA Adjustment." The Upper Cervical Monograph, Vol. 4, No. 6, 7-10.

H. Dickholtz, M., 1980. "Patient Alignment for Upper Cervical X-Rays." The Upper Cervical Monograph, Vol. 2, No. 8, 2-7.

I. Seemann, D.C., 1986. "Observer Reliability and Objectivity using Rotary Measurements on X-Rays." The Upper Cervical Monograph, Vol. 4, No. 1, 6-8.

J. Palmer, T., Denton, K., Palmer, J., 1990. "A Clinical Investigation into Upper-Cervical Biomechanical Stability: Part I." The Upper Cervical Monograph, Vol. 4, No. 10, 2-7.

K. Palmer, J., 1993. "NUCCRA Database." The Upper Cervical Monograph, Vol. 5, No. 3, 9-12.

NUCCA NEWS
Published by THE NATIONAL UPPER CERVICAL CHIROPRACTIC ASSOCIATION, INC.

1995 NUCCA Calendar of Events

March - April	Palmer Elective Course Davenport, Iowa
April 22	Association of Upper Cervical Chiropractic Organizations AUCCO Meeting Jekyll Island, Georgia
May 20, 21, 22	28th Annual NUCCA Convention Seattle, Washington
May 22	NUCCA Directory Deadline
July 5 - 9	Centennial Event Washington, D.C.
August 25	Deadline for *Monograph* articles
September 13 - 17	Centennial Event Davenport, Iowa
October 21, 22 & 23	Fall Seminar - AUCCO, NUCCA, Atlas Orthogonality, Orthospinology Atlanta, Georgia
November - December	12th Annual Upper Cervical Spine Conference Marietta, Georgia
December 15	Deadline for ordering NUCCA supplies for 1995

Research Funds

The Board of Directors acknowledges those who have contributed to the NUCCA/NUCCRA Organization. All donations are tax deductible. Special donors include:

Marynelle Shields	Indiana
Drs. Andrew & Irvin Mathias	Indiana
Yvonne Maurice on behalf of Dr. Maurice	California
The Helen Fair Estate	Texas
Dr. Christine Coglizer	Oklahoma
Dr. Daniel C. Seemann	Ohio
Dr. Albert Berti	Canada
Dr. Keith Denton	Michigan
E. L. Denton	Michigan
Dr. John Davis	Canada

1995 NUCCA Fall Seminar

The Academy of Upper Cervical Chiropractic Organization's Centennial Event

Under the umbrella of the **AUCCO**; **NUCCA**, **Atlas Orthogonality**, and the **Society of Orthospinology** will hold their fall conferences, **October 21 through 23, 1995,** in Atlanta, Georgia. The event will be held at the Georgia International Convention and Trade Center, with lodging at the Sheraton Gateway Hotel.

Although the three groups will conduct separate seminars, some lectures, common to all groups, will be together. A joint banquet will be held Saturday evening.

These three groups have been separate for thirty years. Preservation of the Atlas Subluxation Complex, common research, and the unique procedures used to detect and correct the ASC are the motivating force in bringing these three groups together. With a united voice, the upper cervical community will ensure a place in the changing world of health care. Plan to attend this historic event.

THE 28th ANNUAL N.U.C.C.A CONVENTION

May 20, 21, 22, 1995
Saturday through Monday
Hyatt Regency Bellevue
900 Bellevue Way N.E
Bellevue,
Washington 98004
206-462-1234

Seminar Topics

Hands-On

X-Ray Analysis
Adjusting Practical
Adjusting Evaluation
Headpiece Placement

Lectures

Advanced Biomechanics
(Monday May 22)
Intermediate Biomechanics
Research Update
X-ray Placement
Errors in X-ray Placement
Adjusting Errors
Neurology

APPLICATION FORM • 28TH ANNUAL CONFERENCE
(Deadline April 7, 1995)

○ Advanced Course ○ Basic Course ○ License Renewal

Name: _____ Phone: _____

Address: _____ Zip: _____ Yrs. in Practice ____

Make checks payable to: P.C.C. Full fee must accompany this form.

Mail to: N.U.C.C.A
217 West Second St
Monroe, MI 48161

Include: Banquet form
Registration form
Check or Money Order

Call Hotel before April 15, 1995

Contact Person: Edna L. Denton Phone (313) 241-5755

Basic Class

X-ray Analysis
Biomechanics
Headpiece Placement
Introduction to Adjusting
Leg length exam

Special Session

Friday May 19, 1995
(by invitation only)

Educational Seminar is co-sponsored by Palmer College of Chiropractic. 18 hours of continuing Education Credit

*License-renewal is applied for in most states. Not all states approve all courses: therefore, you should check with your own state to see if individual courses are acceptable for license-renewal. Participants must have their license number and be monitored.

Hotel Information

Hyatt Regency Bellevue,
900 Bellevue Way, N.E.
206-462-1234 Please make reservations by April 15th NUCCA receives reduction costs for conference rooms, we encourage all to stay at the Hyatt.

Shuttle Express from Sea-Tac airport #45 on Reservation Phone or Call 1-800-487-RIDE

Seminar Fees

DC's -	Members	Non-Members
	$400.00	$500.00
1st/2nd Yr. DC's	$200.00	$250.00
Students-	$150.00	$175.00

Deadline for Registration: April 7, 1995

Late Fee: $50.00

N.U.C.C.A. will host a complimentary banquet for registrants on Saturday evening May 20, 1995.
Guests are $30.00 each (Payable to NUCCA)
# of Guests _____

☐ Yes, I will attend
☐ No, I will not attend

Entree Choices: ___ Grilled Filet of Salmon, ___ Roast Prime Rib of Beef (include #) ___ Vegetarian

Please return this form with your registration.

SEATTLE is expecting 12,000 Motel reservations DURING OUR SEMINAR WEEK MAKE YOUR RESERVATION NOW !!!!! NOW !!!!

NATIONAL UPPER CERVICAL CHIROPRACTIC ASSOCIATION, INC.

A NON-PROFIT CHIROPRACTIC ORGANIZATION
APPLICATION FOR MEMBERSHIP

I hereby apply for membership in the NATIONAL UPPER CERVICAL CHIROPRACTIC ASSOCIATION, INC. (NUCCA):

- ☐ **ACTIVE MEMBERS: In Practice Over 2 Years:** Dues $100.00 per year.
- ☐ **ACTIVE MEMBERS: 1st and 2nd Year Doctors:** Dues $50.00 per year.
- ☐ **STUDENT MEMBERS:** Dues $25.00 per year.
- ☐ **LIFETIME MEMBERS:** Dues $2,000.00.
- ☐ **ACADEMIC MEMBERS:** Dues $50.00 per year.
- ☐ **SUPPORTIVE MEMBERS:** Dues $25.00 per year.
- ☐ **RETIRED MEMBERS:** Dues $25.00 per year.
- ☐ **HONORARY MEMBERS:**

Directory Information Due February, 1995

NAME_____ AGE_____

ADDRESS_____ CITY_____ STATE_____ ZIP_____

CHIROPRACTIC COLLEGE (ATTENDING OR GRADUATED FROM)_____

I AM LICENSED TO PRACTICE CHIROPRACTIC IN THE FOLLOWING STATES:_____

_____ YEARS IN PRACTICE_____

DATE:_____ SIGNATURE:_____

MAKE CHECK PAYABLE TO:

NATIONAL UPPER CERVICAL CHIROPRACTIC ASSOCIATION, INC.

MAIL TO: **NUCCA**
217 West Second Street
Monroe, Michigan 48161

MEMBERSHIP DESCRIPTION

ACTIVE MEMBERS shall be any graduate chiropractor from a chartered college or university of chiropractic who is in good standing in his/her state of residence, who has applied for membership, and who has paid his/her annual dues. Active members shall have the rights and privileges of membership, be eligible to vote, and to hold elective office.
Seminar fees for active members are:
$400.00 in practice over 2 years
$200.00 1st and 2nd year Doctors
$150.00 Students
Members will receive a 10% discount on all NUCCA supplies.

LIFETIME MEMBERS shall be Active Members who pay lifetime dues to NUCCA and shall have all of the rights and privileges of Active Members.

ACADEMIC MEMBERS shall be members of the faculty, research department, or administration of chartered colleges or universities who are in good standing and have paid annual academic dues. Academic Members are entitled to attend NUCCA membership meetings and to address the assembly, but are not able to make motions, vote, or hold elective office.

STUDENT MEMBERS shall be chiropractic students who have applied to or are actively enrolled in a charter college or university of chiropractic who have paid annual student dues. They are entitled to attend NUCCA membership meetings and to address the assembly but are not eligible to make motions, vote, or hold elective office.

SUPPORTIVE MEMBERS shall be NUCCA friends, family, and patients who desire to contribute dues and/or other gifts for the advancement and support of NUCCA. They are entitled to attend NUCCA membership meetings and to address the assembly but are not eligible to make motions, vote, or hold elective office.

RETIRED MEMBERS shall be former Active, Academic, or Supportive Members who have achieved retirement and who wish to retain membership in their previous category. Retired members are excluded from holding office.

HONORARY MEMBERS are persons other than student or graduate chiropractors who have demonstrated outstanding devotion and service to NUCCA. Honorary Members shall be recommended by a member of NUCCA and elected by a majority vote of the Board of Directors. They shall not pay dues, be entitled to vote, or hold elective office.

1995-96
NUCCA Directory

The NUCCA directory will be published following the May Convention. The directory contains the names, addresses and phone numbers of Doctors who have paid their annual dues. With the exception of Certified Doctors, this directory makes no attempt to qualify individual expertise or right to practice Chiropractic in any jurisdiction. Contact the NUCCA Executive Secretary regarding any corrections, omissions, or deletions. Directory information is due by May 31, 1995. This directory will be published every May.

NUCCA Certification

A certification program has been initiated by the National Upper Cervical Chiropractic Association, Inc. (NUCCA). The purpose of the program is to NUCCA-qualify doctors in the NUCCA work and establish a set of standards for all NUCCA doctors to maintain. Doctors who successfully complete the program will be eligible to qualify as instructors in the NUCCA procedures. Examinations will be given at NUCCA seminars and conventions. Doctors who desire to take the examinations must make application to the certification committee one month prior to the seminar or convention date.

Doctors who wish to be NUCCA-certified must meet the following prior conditions: (1) be in practice for a period of at least three years; (2) have possession of, or access to, equipment and instrumentation recommended by NUCCA; and (3) permit NUCCA inspection of their office facilities. The entire examination must be completed within a three-year period. Certificates will be issued to successful candidates.

Doctors who have not engaged in practice for three years but who have attended NUCCA seminars are eligible to take the examination or examinations which cover a three-year period. A fee is charged for each examination. There are three examinations which must be passed in order to become certified. In the event of failure of the examination, or any part thereof, the candidate is re-examined on the part of the examination that is failed without paying an additional fee, provided re-examination takes place within a one-year period.

Certification will be evaluated every three years and certified doctors will be requested to either take an oral examination and updated data or provide evidence that they have attended a NUCCA seminar at least once each year.

The examination is in three segments, as follows:

1. X-RAY AND INSTRUMENTATION
   - A. Understanding of X-ray alignment procedures
   - B. Theory about distortion, magnification, collimation
   - C. Produce five sets of consecutive pre-cervical X-rays suitable for analysis
   - D. Submit a set of X-ray alignment films as designated by NUCCA X-ray outline
   - E. Examination on X-ray procedures
   - F. Examination on instrumentation

   Parts A and B are a written examination composed of one hundred questions with a passing grade of 85. The practical portion, Parts C, D, E, and F cannot be taken until the written part is successfully completed.

   The fee for Segment 1 is fifty dollars and must be included with the application.

2. FILM ANALYSIS, BIO-MECHANICS AND ADJUSTING
   - A. Knowledge of osseous structures, bio-mechanics and adjusting. Written examination of 100 questions. Passing grade of 85.
   - B. Submit five consecutive pre-sets of analyzed cervical spinal X-rays. The analysis must be the analysis outlined by NUCCA. The X-ray analysis must pass an inter-observer reliability of .90.
   - C. Examination of film analysis.

   Parts B and C can not be submitted or taken until Part A is passed. X-ray sets from Segment I cannot be submitted for Segment 2.

   The fee for Segment 2 is one hundred dollars and must be included with the application.

3. ADJUSTING
   - A. Submit ten sets of consecutive pre and post cervical X-rays. The post X-rays presented to the examining board should be those taken after the initial adjustment. Reduction in the misalignment factors must be 85% or better. Reduction in cases of gross or normal misalignment factors to be evaluated at the discretion of the examining board.
   - B. Submit an outlined work-up for each of the above set of X-rays. The work-up outline is to be requested from the examining board.
   - C. Oral examination in which the candidate is given various listings for which he is to explain reduction procedures.

   The ten sets of X-rays submitted cannot be X-ray sets from Segments 1 and 2.

   The fee for Segment 3 is one hundred dollars and must be included with the application.

   Each Segment must be successfully completed before application can be made for the following Segment examination.

   Application for certification examinations must be submitted one month prior to seminar or convention date to:

   Dr. Albert Berti
   200 - 3825 Sunset Street
   Burnaby, B.C., Canada
   V5G 1T4

NUCCA CERTIFICATION EXAMINATION

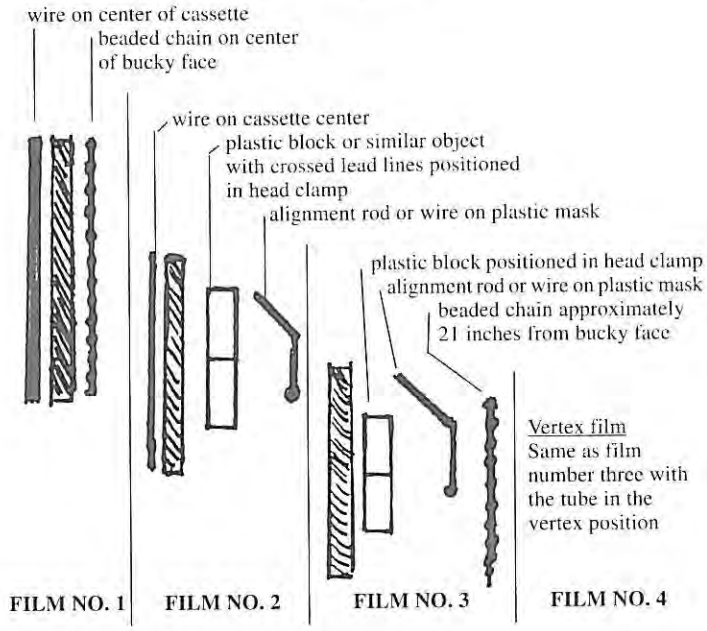
SEGMENT I

PART A: A written examination composed of one hundred questions with a passing grade of eighty-five. The examination will address understanding of X-ray alignment procedures, theory about distortion, magnification, collimation, X-ray analysis and basic bio-mechanics.

PART B: (cannot be submitted until Part A is successfully completed).

Submit five sets of consecutive pre-cervical X-rays suitable for analysis.

Submit a set of four alignment films (three nasium views and one vertex view). Refer to drawings below.



SEGMENT II

PART A: A written examination composed of one hundred questions with a passing grade of eighty-five. The examination will address: advanced bio-mechanics, X-ray analysis, adjusting mechanics and osseous structures.

PART B: (cannot be submitted until Part A is successfully completed).

Submit five sets of consecutive pre X-rays. The X-rays are to be analyzed and marked as illustrated on the drawings on page 37.

SEGMENT III

Ten sets of consecutive pre and post X-rays are to be submitted to the certification committee. The post X-rays are to be the X-rays taken following the initial adjustment. All X-rays should have the date imprinted on the films. Hand printed dates on the films are not acceptable. All X-rays are to be marked as illustrated on the drawings on page 5.

Within the ten sets of submitted X-rays, the workup listed below must be completed for one Type One subluxation, one Type Two subluxation, one Type Three subluxation and one Type Four subluxation.

1: List the Basic Type of subluxation and give its characteristics.

2: How is laterality produced and why that factor is significant.

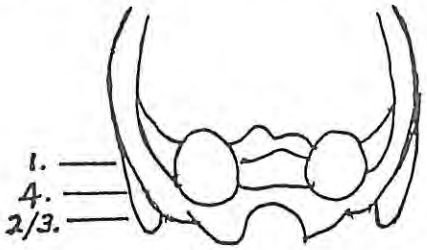
3: List the resistances encountered and how to overcome them.

4: Explain the lower cervical angular rotation pattern and the frontal plane the rotation is in.

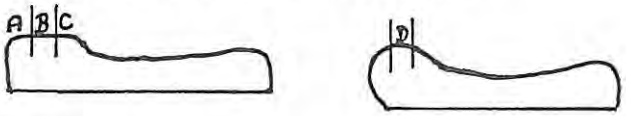
5: Explain the type of mastoid support to be used and why.

Round  or Square 

6: What portion of the mastoid or skull will be placed on the mastoid support: (1), (2), (3), or (4), (refer to drawing).



7: What portion of the mastoid or skull (1), (2), (3), or (4) (see drawing question #6) is placed on the mastoid support areas (A), (B), (C), or (D). Explain why.



8: Which headpiece angle will be used in each case.

(A)  or (B) 

9: Did you change the adjusting vector and if so, why.

10: What do you think the predominant factor is and why.

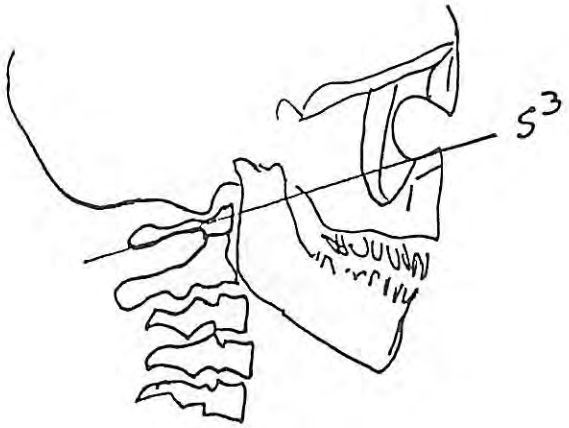
11: Based on your pre and post findings would you expect the pattern to remain stable or change. Explain briefly.

12: Based on your pre and post X-ray findings would you change the headpiece placement or the adjusting vector in order to achieve a higher degree of correction.

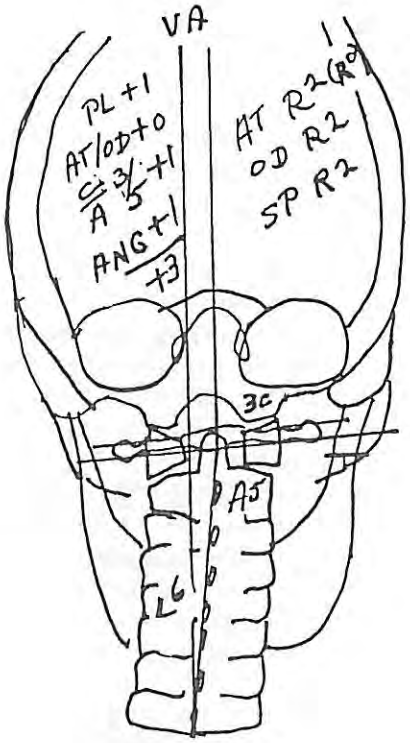
13: In comparing your pre and post X-rays, do you feel the patient X-ray placement was accurate. If not, explain.

14: Based on the pre and post X-ray analysis and the objective findings, when do you think a repre X-ray is necessary.

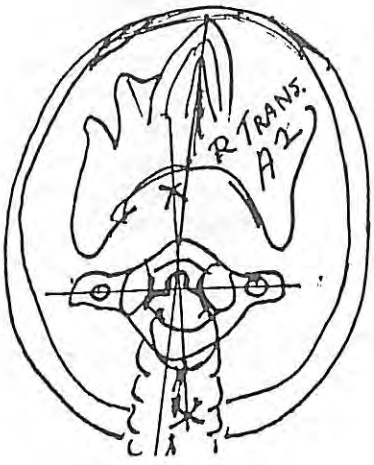
Drawings illustrating X-ray markings.



The S or I factor is to be marked on the lateral film.



The misalignment of C1, odontoid of C2 and spinous of C2 are to be marked as illustrated, i.e. in the frontal plane in which the excursion has occurred. The plane line, At/Od, C/A and angle factors are to be marked and added on the opposite frontal plane. If the head is tilted or turned away from the vertical axis it should be marked on the film.



The excursion of C1 in the transverse plane is to be marked as illustrated.

SUPPLY PRICE LIST

NUCCA's Non-Profit status requires that remittance be received prior to shipping of orders.
Make checks payable to: NUCCA

INSTRUMENTS - SET

(Vertex Square, Cephalometer, Relatoscope)

	Non-Member	Member
Students -	$33.00	$30.00
Doctors -	$66.00	$60.00

NUCCA PLAQUE - $125.00

PAMPHLETS

Non-Member	Member
$33.00 per 100	$30.00 per 100

- A Patient Guide
- Questions & Answers
- The Adjustment and the Patient
- The NUCCA System of Chiropractic
- A Patient Guide

Non-Member	Member
$75.00 per 100	$70.00 per 100

- Introduction to Chiropractic Care

MONOGRAPHS - SET

	Non-Member	Member
Students -	$50.00	$45.00
Doctors -	$100.00	$90.00

POSTER

A.S.C. Poster

Non-Member	Member
$30.00	$25.00

BLACK BOOKLETS - SET

Non-Member	Member
$51.00	$45.00

STANDARDS OF PRACTICE MANUAL

Non-Member	Member
$83.00	$75.00

NUCCA PINS

Silver - $25.00
Gold - $500.00 Donation

INSTRUMENTS - INDIVIDUAL

	Non-Member	Member
Vertex Square	$17.00	$15.00
Cephalometer	$28.00	$25.00
Relatoscope	$22.00	$20.00
X-ray Alignment Mask	$75.00	$75.00
Chin Centering Device	$30.00	$25.00
Film Marking Pencils	$12.00/dz.	$10.00/dz.
Protractors	$11.00/ea.	$10.00/ea.
Cutting Knife, Mirror, & White Lead Paint (with instructions)	$17.00	$15.00

MONOGRAPHS - INDIVIDUAL

Vol. 1-3	$1.00 each
Vol. 4-5	$3.00 each

POSTER

Post/Adjustment Healing Cycle

Non-Member	Member
$7.00	$5.00

BLACK BOOKLETS - INDIVIDUAL

	Non-Member	Member
X-Ray Analysis	$17.00	$15.00
Biomechanics	$17.00	$15.00
Adjusting	$17.00	$15.00

VIDEO TAPES

Osseous Structure	$90.00
X-Ray Analysis	$100.00
Adjusting the ASC	$300.00
Errors In Adjusting The ASC	$200.00
Leg Check/Headpiece Placement	$90.00
X-Ray Alignment & Pt. Placement	$90.00
Biomechanics - 4 Basic Types	$100.00
Questions and Answers	$100.00

WHOLE SET OF TAPES $800.00

Orders must be received by December 15th of calendar year

In Memoriam

Dr. James McAlpine
April 3, 1926 - January 9, 1995

Dr. James McAlpine died unexpectedly of heart failure following a routine day at his office.

Dr. McAlpine was a graduate of Lincoln Chiropractic College, class of May, 1949 and practiced since that time in Chesaning, Michigan. He became involved in Grostic work in 1950 and, from 1926 to 1964, assisted Dr. Grostic in presenting classes and seminars. Following Dr. Grostic's death, Dr. McAlpine was involved in establishing the Atlanta-based Grostic Chiropractic Presentations and served as President of that group in the early 1970's. He was a charter board member of the Society of Chiropractic Orthospinology and served as the president of that group in 1981 through 1982. In 1983, Dr. McAlpine became a post-graduate faculty member of Life Chiropractic College where he participated in research and continuing education. Dr. McAlpine was a member of the International Chiropractic Association and Michigan Council on Chiropractic.

Dr. James Kenneth Humber, Sr.
April 22, 1923 - December 23, 1994

Dr. J.K. Humber passed away following a lengthy illness.

Dr. Humber was a 1949 Palmer graduate and attained his Ph.C. degree at Texas Chiropractic College the following year. He started practice in Atlanta, Georgia in 1951 and began attending Dr. Grostic's classes in 1952. Dr. Humber began assisting as an instructor for Dr. Grostic in 1960. He was one of the original members of the Atlanta-based Grostic Chiropractic Presentations and helped form the Society of Chiropractic Orthospinology after Grostic Chiropractic Presentations was dissolved in 1974. He served as president several times and is considered by most to have been the protagonist of Orthospinology.

"J.K." was a past Representative Assemblyman with the International Chiropractic Association, and in 1983 served as charter president of the Georgia Council on Chiropractic. Dr. Humber retired from practice in 1991, and that same year was recognized with Georgia's Chiropractor of the Year award.

Donna Moon
1932 - 1994

A longtime friend and supporter of NUCCA, Mrs. Donna Moon, wife of Dr. Donald Moon, died this past September.

Mrs. Moon became very active in politics after the sudden death of one of her children. She was a longtime member of the Dayton Board of Education and became a Montgomery County Commissioner in 1984. As an activist on child welfare issues, she started the Child Protection Task Force to fight child abuse. Mrs. Moon held the post of commission president from 1991 until August of 1994.

The NUCCA board of directors extends its heartfelt sympathy to the Moon family.