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Mechanics of the C1 Adjustment

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The Problem

To move a subluxated vertebra from one misaligned position to another misaligned position does not constitute a vertebral adjustment. A vertebra misaligns before it subluxates, and it is to move the misalignments of the subluxation to normal position that the adjuster applies physical energy in the form of an adjustment. If a subluxation could occur without first misaligning, the application of an adjustic force would not be indicated. Some other form of energy—chemical, electrical, thermal—would suffice to remedy the detrimental effects produced by the subluxation. Adjusting is a process that contains the elements of displacement and replacement.

More, however, is essential to a C1 vertebral correction than the application of physical energy or force. The force itself must be carefully directed along a predetermined pathway that is calculated to reposition the misaligned vertebra (Fig. 1). To apply force to a vertebra indiscriminately makes no more sense than to attempt to move an object to a specific place without regard to the application and line of direction of the moving force. A random force applied to any object will not direct it to the desired point, nor will the application of an aimless force reset a misaligned and subluxated vertebra.

The problem becomes infinitely more serious if chiropractic is to validly research the effects of the subluxation and its correction on the human body. Without such research, the subluxation and its correction—the essential nature of chiropractic—will continue to be supplanted by other methods. The argument could be defended that one of the chief reasons that the profession is so divided today stems from the fact that the potential of the subluxation and its correction has not been fully and adequately researched. No one really knows the scope of the subluxation system, or its effects on the human body. And no one can seriously contend that a subluxated C1 vertebra that is not corrected can be validly researched as to its beneficial effects.

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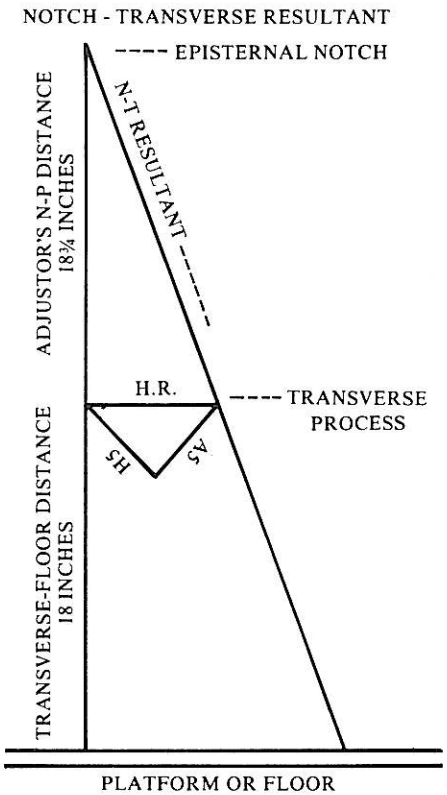


FIGURE 1

The reduction pathway (N-T Resultant) computed from x-rays and the adjuster's episternal notch to transverse distance for a C-1 subluxation requiring vertical and horizontal vectors of 5 inches.

Whose Criteria is it, Anyway?

—Donald K. Moon, D.C.

A few months ago I wrote an article for the Monograph entitled "The Flight From the Subluxation." It expressed concern that our profession was retreating from its basic premise. The field response to the article was positive and I have been asked to write further on the subject.

As I wrote before, the vertebral subluxation and its resultant effect on neurological components is the cornerstone of chiropractic practice. As such, one would presume that our colleges and organizations would have spent considerable time, energy and money in significant research of the subluxation complex. Such has not been the case. As a result, there is little agreement on how to reduce the subluxation. We cannot afford to continue to accommodate opinions rather than soundly based scientific procedures. We must forget the destructive argument over adjustive procedures versus straight chiropractic practice and concentrate on the more important area of the misalignment factor. This is the one area where all chiropractors must agree. We must have a common ground on which to communicate.

If there is little emphasis in our colleges on the subluxation, its detection and reduction—if there is little or no effort or desire to research the subluxation complex then we must seek ourselves where we are going and what we will become. Even recent graduates from chiropractic colleges have expressed concern that more research into the vertebral misalignment factor and its effect on human function is sorely needed. No one certainly would deny that much

(Continued on page 3)

Correction of the C1 vertebra is prerequisite to valid research.

Normalizing a subluxated vertebra's position is, of course, elemental to chiropractic. D. D. Palmer, the discoverer of chiropractic, stated in 1910 that "Adjustments are only made when the vertebra is returned to normal position."[1] This concept in Palmer's day may never have been realized in upper cervical adjusting, because chiropractors then did not have the advantages that relevant kinesiological and biomechanical principles offer the modern chiropractor who seeks to correct subluxations. Nor could the early chiropractor test the effects of his adjustments other than symptomatically, a subjective means at best. In short, the early chiropractor lacked today's procedures and methods of the physical sciences whose principles are relevant to the art of adjusting vertebra.

Control and direction of the adjustic movement presents no problem in the thoracic and lumbar spine, because the adjustic force direction is conditioned by the size, shape, and location of the vertebral facets—a built-in reduction pathway exists. In the upper cervical spine, no reduction pathway exists to guide the introduction of the adjustic force. Predetermining the upper cervical reduction pathway is a mathematical procedure, calculated from a detailed analysis of the X-ray films for each subluxation. Palpatory methods are not accurate and too subjective to establish the exact relationships between the abnormal movements of upper cervical vertebrae into different planes of motion, a necessity in establishing a reduction pathway vector.

Yet, precision of analysis and adjusting in the upper cervical spine is imperative, because of the widespread detrimental influence of these subluxations on the central nervous system. Imbalance between the facilitatory and inhibitory neurological mechanisms in the caudal end of the brain stem of the subluxated person results in over-innervation of the motor neurons of the spinal cord, spastic contracture of the spinal extensor musculature, pelvic imbalance, distortion of the spine from the vertical axis of the body, displacement of the body's center of gravity, and the contractured (short) leg. Adjustments applied to spinal segments subjacent to C1 fail to remedy these widespread effects.

After the reduction pathway, or final resultant of the force vectors, is computed from the X-rays, correction of the C1 complex presents another problem: skillful performance of the adjustic motor skill.

Adjusting the C1 subluxation complex is a motor skill because its successful performance demands timed and physiologically economical movements of the adjuster's body to produce the desired result. Gowitske and Milner define a motor skill as a group of simple, natural movements combined in a new or unusual manner to achieve a predetermined objective.[2] The C1 adjustment fits this definition; it is a combination of simple, natural movements designed to produce rectilinear motion through the final resultant of force vectors or the reduction pathway of a given C1 subluxation to achieve the objective of restoring the spine and the pelvic girdle to the vertical axis (normal) of the body. Like any motor activity, the C1 adjustment is based upon kinesiological and mechanical principles essential to skillful performance.

Mechanics is the science that deals with the motion of bodies under the action of forces, including the body that remains at rest. Statics, kinematics, and kinetics are the three branches of mechanics. The C1 adjuster is chiefly concerned with kinetics, a subject dealing with the principles with which to predict the motion that will occur in any given situation. These kinetic principles guide the C1 adjuster in determining his body movements during the adjustic phases of a given C1 subluxation.

Body motion is produced by force and force in the body is produced by muscular contraction. The adjuster uses his body as a machine to accomplish work; to release the potential mechanical energy in the final, or kinetic, phase of the C1 adjustment that predictably should correct the misalignment factors of the C1 subluxation. He is, therefore, vitally interested in the mechanics of motion, force, and direction. How skillfully he performs the adjustic motor skill determines how well he accomplishes the work of re-aligning the vertebra or vertebrae of the subluxation complex.

Force is the instigator of motion. It is a vector quantity tending acceleration of an object in the direction of its application. The direction of the application of force is vital in adjusting C1 subluxations, and is the reason for analyzing X-ray films so as to compute the vectors that determine the direction of the adjustic force for a given C1 subluxation. The C1 subluxation—lacking a built-in reduction pathway as in the case of the subjacent vertebral segments—requires precise direction of the adjustic force (Fig. 1). The C1 adjustment is a structured adjustment, a planned adjustment, not unlike the specifications of any proposed structure.

Force is a vector quantity because it possesses both magnitude and direction. Force is a carrier of both these elements. Failure to structure C1 adjustments from a complete X-ray analysis, to compute and know the pathway of reduction that will correct a C1 subluxation, results in failure to correct the subluxation, because the adjuster simply cannot do what he does not know how to do. The force of her or his adjustment is misdirected and the magnitude of the forces is excessive because more force and depth are required to move the vertebra along a pathway that is wrongly computed. The danger of increasing the misalignment factors of C1 is considerable with resulting trauma to the patient and compounding the future problem of vertebral correction.

The magnitude of force required to adjust a C1 subluxation varies according to the type of subluxation and the resistance offered by the skull and the vertebral structures subjacent to C1. If the adjustic force is properly delivered along the subluxation's reduction pathway, the amount of force and depth is minimal, not exceeding

20 pounds and usually less in the majority of cases. A number one basic type generally requires more force than a number two or three basic type (see Monograph Vol. 2, No. 10 for explanation of basic types).

Depth used in the C1 adjustment is never an aid in correcting C1 subluxations. If either force or depth exceeds the required amount to correct the subluxation, buckling of the cervical spine and an increase in the size of the misalignment factors occurs. The buckling of the cervical spine takes place at the superior articulating surfaces of C2, the cervical spine's weakest point. Depth and excessive force are traumatic to the patient; and, in susceptible cases, increases the danger of vascular accident.

Failure, then, to skillfully perform the adjustic motor activity results from not structuring the adjustment from a detailed analysis of the X-ray films; and not performing the adjustic action according to relevant mechanical principles. Chiropractic is a mechanical science, or, more properly, an art form that should be developed from relevant mechanical principles. The majority of systems for adjusting C1 subluxations today have not advanced along kinesiological principles; they are mechanically inept because they violate these mechanical principles. These systems continue to be practiced because few practitioners take comparative X-rays (posts) after the first adjustment of the patient to determine vertebral correction, if any. Nor do many practitioners use post procedures to ascertain the effects of upper cervical adjusting on pelvic malalignment, spastic contracture of the spinal extensor musculature, the contractured (short) leg, and other known bodily effects of a C1 subluxation. The problem is two-fold.

Methods of Adjustic Measurement

For years several methods and tools have been devised to test the performance of the adjustic motor skill. The oldest and best test is the comparative (post) X-ray, taken immediately following the first adjustment. The post X-ray is conclusive as to its findings; it not only verifies the correctiveness of the analysis, but indicates the degree of the skill of the adjuster. Comparative X-rays ascertain the degree of vertebral reduction, and, thereby, protect the patient against analytical errors and non-skillful performance.

Analyses of the effects of the C1 adjustment on the body before and after the adjustment, using an anatometer (Fig. 2) provides evidence of the skillful performance of the adjuster. The anatometer, a device for measuring spinal and pelvic distortions caused solely by a C1 subluxation, correlates bodily distortion with the misalignment factors of the C1 subluxation. Pre and post recordings on this device provide a dramatic picture of the skillful performance of the C1 adjustment.

Another study for determining if rectilinear force is expressed through the reduction pathway (notch-transverse resultant) is the light pattern device. This device consists of a harness attached to the adjuster's body which contains two small spotlights representing force emanating through the adjuster's parallel forces or action lines (episternal notch and pelvic center of gravity). In a dimly lighted room, the adjuster can see his adjustic movements throughout the potential phases of the adjustment and during the kinetic phase reflected on the floor. Because a C1 adjustment must be delivered so that the adjuster's parallel forces or action lines are coplanar with the subluxation's reduction pathway to achieve rectilinear motion, the light pattern device is especially valuable because a visual feedback is obtained.

The videotape provides another tool for analyzing the expression of the adjustic force. Because a tape can be "frozen" at any point, a detailed study can be made of the performance of the phases and steps of the adjustic complex.

The light pattern and the videotape studies required a device with which the adjuster can practice various C1 adjustments. To fill this need, the coordinator was devised in 1946 (Fig. 3). This simple tool permits the adjuster to practice C1 subluxations. It consists simply of a metal stool with a series of horizontal resultants (force vectors) marked on its wooden top. A rubber plunger having a resistance of 7-10 pounds is centered on the wooden top, its tip representing the point of the application of forces, or the contact point.

The great value of the coordinator is in conditioning the adjuster to perceive through his senses an awareness of his muscle and joint movements, the relative alignment of his body parts in space to the action lines, and

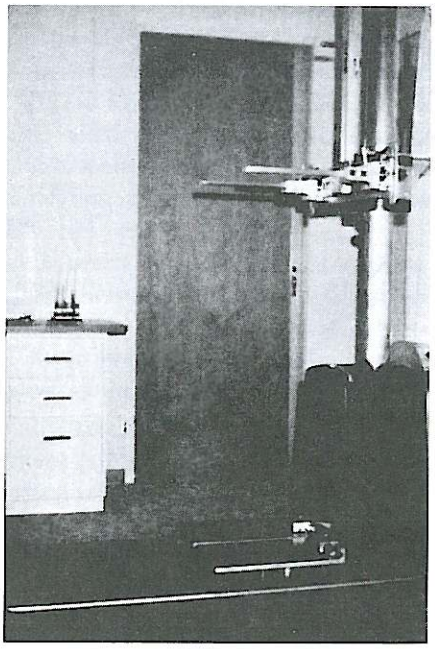


FIGURE 2
SIDE VIEW

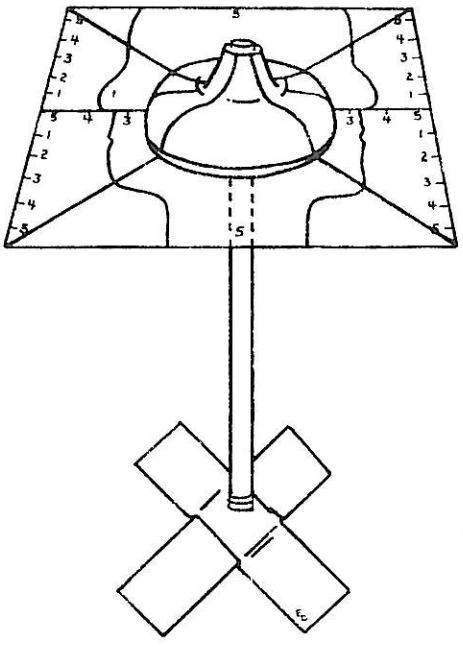


FIGURE 3
COORDINATOR

the correct distribution of his body weight. The skillful adjuster always knows through feedback the position of her or his bodily parts in relation to the C1 subluxation being addressed. She or he knows, therefore, how to "aim" the parallel forces or action lines.

Mastering feedback requires concentration. By sensing the direction in which the coordinator rubber top moves after meeting the resistance, the adjuster is advised of the accuracy of her or his stance, the alignment of bodily parts, and, resultantly, the angle of the adjustic action lines. The direction of any force is along its action lines which should be coplanar with the final resultant of the force vectors essential to reducing the subluxation. The adjuster should of course practice different subluxations.

Figure 4 depicts the adjustic action line for a left anterior subluxation of approximately 5 degrees. The force along the action line has successfully overcome the resistance of the coordinator top without turning or changing, a successful application and direction of force coplanar with the computed resultant of force vectors. The adjuster's feedback advises her or him that the force of the action line has not been shunted off at a tangent as it meets and overcomes the coordinator's resistance.

As the adjuster develops a good sense of feedback by practicing different adjustments, it soon becomes clear that various responses of the coordinator to the adjustic force occur. Figure 5 shows a frequently observed occurrence when the force of the action line breaks sharply downward and backward after meeting resistance. If this tangent of force occurred in adjusting a C1 subluxation, the post X-rays would disclose no reduction of the rotation of C1 and little, if any, reduction of atlas laterality. Rotations of subjacent vertebral segments would not be aligned to the vertical axis of the body because the force along the action line would not correct angular rotation of the cervical spine into the frontal plane. It is quite probable that rotation would be increased; and, in basic types two and three, angular rotation would be increased.

These vertebral misalignment increases would, within a few days, increase the neurological detriment which would be expressed in the patient's body as a greater degree of spastic contracture of the spinal extensor musculature or a change in spastic contracture to the opposite side of the body. Either a greater leg disparity than originally observed, or an opposite leg length deficiency, would occur.

Too frequently, an adjuster activates the adjustic force from too low a point on the triceps muscles. This error causes the force along the action line to enter the coordinator top but to reverse itself because no follow-through results. Shortly afterward, the action line attempts to re-establish its direction. Figure 6 depicts this situation. Maximal reduction of the C1 subluxation complex is not achieved because the atlas-lever becomes locked between the occipital condyles and the superior articulating surfaces of C2. Another reason for this type of error is a breakdown of the contact hand.

All of these figures depict faults in body stance and triceps contraction. A very common error is seen when the adjuster's shoulder and pelvic girdle are not aligned so that the parallel forces or action lines emanating from the episternal notch and the pelvic center of gravity do not align with the final resultant. Most frequently the parallel force or action lines fall short, as depicted in Figure 7. Obviously this error defeats any attempt to reduce the misalignment factors of the C1 subluxation complex. The remedy of this fault is for the adjuster to achieve that angulation of his shoulder and pelvic levers that will angle his parallel forces along the reduction pathway of the particular subluxation he is addressing.

Posterior C1 subluxations present the same or similar adjustic errors as anterior C1 subluxations. Posterior subluxations are frequently more difficult for the C1 adjuster than are anteriors if the rotation vector is large, because it is difficult to align the parallel forces to the reduction pathway by leaning over the patient's body. Extreme posterior rotations, therefore, can generally be reduced more successfully by reversing the contact hand and adjusting from behind the patient. The torquing motion to correct the axis spinous process must also be reversed when changing contact hands.

This discussion of adjustic errors is

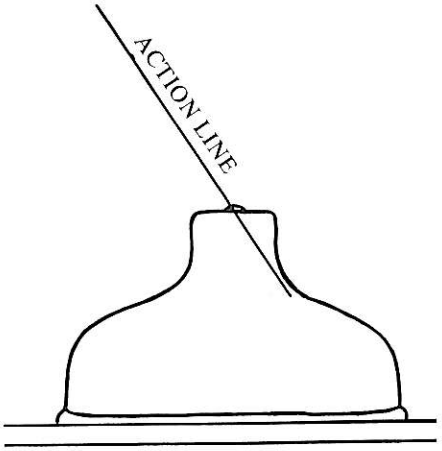


FIGURE 4

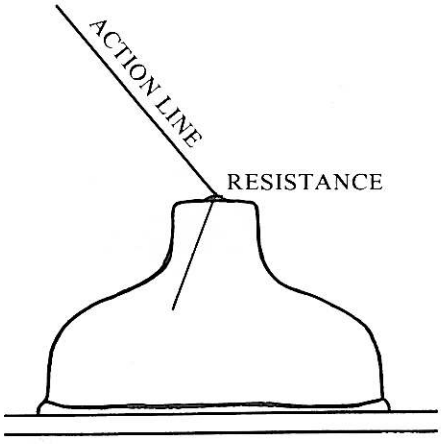


FIGURE 5

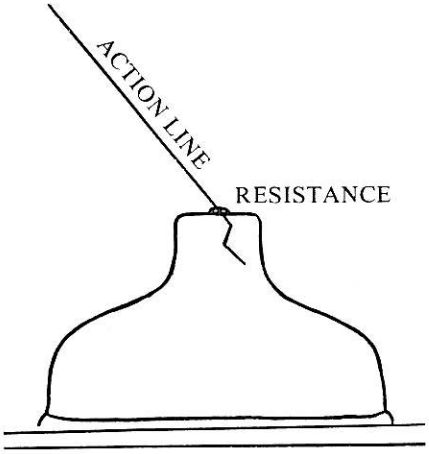


FIGURE 6

not inclusive. It merely points out some of the more obvious reasons why C1 subluxations do not decrease, and in some instances may increase. The forces along the action lines can easily be deflected by resistances unless the adjuster contracts his triceps muscles completely and properly. Much depends upon the stance of the adjuster being positioned so that his parallel forces align to the reduction pathway of the subluxation or the notch-transverse resultant, shoulder and pelvic levers positioned at right angles to the parallel forces which must be coplanar with the notch-transverse resultant, how correctly the potential phases of the adjustment are performed to obtain alignment, and how accurately the adjuster's center of gravity backs up the adjustment. Efficient adjusting is largely a matter of mechanics.

Kinetic Phase Discussion

The most difficult phase of the adjustment obviously is the final or kinetic phase. The seven potential phases that precede the final phase are for the purpose of aligning the adjuster's body levers so that his parallel forces are coplanar with the reduction pathway of the subluxation. These seven potential phases determine the adjuster's stance so that the desired alignment is accomplished and rectilinear adjustic force can be delivered along the reduction pathway. (The reader is referred to Monograph, Vol. 3, No. 1 for a discussion of the potential phases of the adjustment.)

The adjuster initiates the kinetic

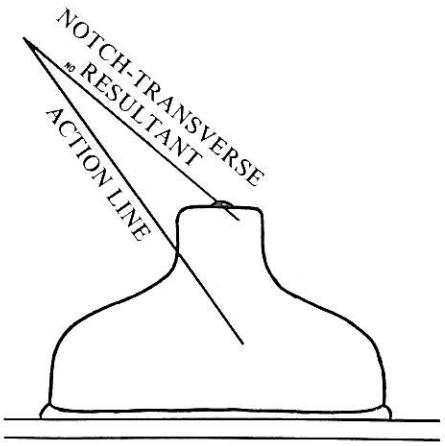


FIGURE 7

FIGURE 8
LINE OF PULL

phase by contracting his tricep muscles along their line of pull—a straight line between the muscle's insertion in the olecranon process of the ulnar bone and the origin of the long head in the infraglenoid tuberosity of the scapula (Fig. 8). The direction of the line of pull is upward and, when the shoulder girdle compresses from the muscular contraction, somewhat medialward.

The function of the triceps brachii is to adduct the arm and to extend the forearm. In the adjustic act, the muscular contraction is started from a point below the glenohumeral joint of about one-and-one-half inches so as to somewhat reverse the muscle's function and accentuate shoulder girdle contraction. This reversal of function is aided by locking the roll-in hand on the wrist of contact arm, causing the effort of the muscular action to be concentrated upon the shoulder girdle.

Muscles are capable of pulling both directions from either origin to insertion or from insertion to origin. This principle is known as functional reversibility.[3]

Better understanding of the adjustment is obtained if the adjuster can visualize the mechanics of shoulder girdle action in the adjustment. A tricep muscle possesses the pulley action of a biaxial or two-joint muscle. That is, it acts over both the shoulder and elbow joints, but it is too short to permit complete movement of both joints at the same time. By pulling the triceps brachii along its line of pull from a point slightly below the glenohumeral joint, this joint is activated before the elbow joint. This is important to overcoming the resistance of the shoulder joint, and setting the adjustic chain in action.

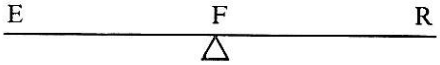
Kinesiologists compare the pectoral or shoulder girdle to a three-link chain. Movements at the glenohumeral joint are always accompanied by accommodating movements of associated structures. If accommodation did not occur, the primary movement would be inhibited.[4]

The primary movement of the C1 adjustment is the upward and inward motion of the humeri, initiated by the triceps brachii contraction. It is the accommodating movements medialward of the adjuster's clavicles and scapulae that permit full and uninhibited tricep brachii contraction.

A timing sequence in the adjustic act is essential between the triceps brachii contraction and the accommodating movements of clavicles and scapulae. If the adjuster's clavicles and scapulae move even slightly ahead of the triceps brachii contraction, the result is a loss of the effort of lever and a loss of control. When the timing of the triceps brachii contraction is coordinated exactly with the movement of the adjuster's clavicles and scapulae, momentum is transferred to the adjuster's body mass.

In terms of levers, the shoulder girdle constitutes the resistance or the load to be moved, the glenohumeral joints are the fulcra, and the contracting triceps brachii are the effort. This is a first class lever (Fig. 9).

In overcoming the resistance of the shoulder lever by completely contracting the triceps brachii, the adjuster moves the body lever first that pos-



FIRST CLASS LEVER

E (Effort): Triceps brachii contraction

F (Fulcrum): Shoulder joint axis of motion

R (Resistance): Shoulder girdle.

FIGURE 9

sesses the greatest inertia. This concept is very important in the sequence of movement, because efficient movement in a motor skill necessitates that levers of the greatest mass must move first as they possess the greatest inertia. Smaller levers, such as the elbow, should move after the shoulder lever, or later in the sequence of movement.[5] If the adjuster violates this principle and initiates his adjustment from the elbows, she or he transfers little momentum to the body mass. Followthrough is lost, and usually compensated for by a so-called body-drop which reduces the length of the notch-tranverse resultant, thereby reducing the height and rotation vectors, resulting in an incomplete vertebral reduction.

Applying the principle of overcoming the inertia of the shoulder girdle seems difficult for adjusters to master. This difficulty probably results from thinking in terms of the vertebra as constituting the resistance to the adjustment. This thinking introduces a push into the adjustment, and, resultantly, depth. Push and depth defeat subluxation reduction because they buckle or kink the cervical spine between the inferior borders of the lateral masses of C1 and the superior articulating surfaces of C2. The resistance of about ten pounds of the head is also overcome. C1, therefore, is prevented from moving about the condyles of occiput because the depth-force of the adjustment is transferred to the weakest point in the cervical spine—the atlanto-axial articulation.

If the push or depth-force is sufficient and the patient's skull is turned downward on the side of laterality, the foramen magnum is forced away from the side of laterality. This error creates a problem because, in effect, laterality is increased. The effect is much the same as when the head is used as a lever in an attempt to adjust a cervical vertebra by thrusting it. These systems are mechanically inept because the head constitutes part of the resistance to cervical vertebral movement in adjusting.

A C1 adjustment is a contraction of the triceps brachii, the effort of the first class lever, so as to overcome the inertia of the adjuster's shoulder girdle. The adjuster, in other words, is not attempting to overcome the resistance offered by the C1 subluxation complex but the resistance of his own shoulder girdle. The amount of resistance of the adjuster's shoulder girdle is far greater than that of the vertebral subluxation; and, by activating the shoulder girdle, the adjuster contains the greater force within his body. Activating the shoulder girdle imparts momentum to the adjuster's body mass and follow-through down the reduction pathway, provided the alignment of the adjuster's body levers is coplanar with the notch-transverse resultant.

Speed is frequently considered an asset in adjusting. Speed of muscle contraction is of little value in overcoming resistance because speed of muscular contraction violates the principle that the greater the speed of contraction, the less force generated or load moved, and the greater the load, the less the velocity of shortening.[6] Maximal contraction of the triceps brachii is the requirement for efficient performance, not speed of contraction. The load to be moved is the adjuster's shoulder girdle, and the more complete the triceps brachii contraction, the greater the compression of the shoulder girdle, the medialward force generated by the muscular contraction. Obviously, if the load resistance equals the effort of the triceps contraction, the result equals zero. Effort balances resistance and no movement takes place about the fulcra.

Adjusters frequently have problems overcoming the resistance of the shoulder girdle to the triceps brachii contraction, because they contract or tighten the shoulder musculature. Resistance can be reduced considerably if the adjuster consciously relaxes her or his shoulder musculature prior to contracting the triceps brachii. If the shoulder girdle resistance is not overcome, momentum and follow-through will not occur and the degree of C1 reduction will be slight.

Protection for the patient is assured by control of adjustic forces that do not directly invade the cervical spine, and maximal reduction of the misalignment factors is obtainable only by control of adjustic force. The upper cervical spine cannot absorb forces that are greater than its resistances. If it does, it subluxates; and uncontrolled adjustic forces subluxate it more.

The amount of adjustic force that can be safely entered into a patient's neck is controlled by a sort of built-in resistance mechanism. This resistance mechanism varies depending upon the classification of the subluxation, the size of the superior articulating surfaces of C2, the degree of excursion of the cervical spine into a frontal plane, and other factors. Whenever the adjustic force exceeds these resistances, trauma can result.

The exact amount of force required to correct a given C1 subluxation has not been specifically computed. Fairly accurate limits, however, for each of the basic types have been determined. Spinal and skull resistances can be reduced by patient placement, based on the basic type of subluxation and the center of gravity of the skull. Each C1 subluxation responds to the exact amount of force necessary to overcome the resistances that are incorporated in the cervical spine.

Kinesiologists explain that efficiency in performing any motor skill depends on the relationship between the amount of work accomplished and the force or energy expended.[7] This relationship is vital in adjusting C1 subluxations. The system incorporating the force of the triceps brachii in overcoming the adjuster's shoulder lever recognizes and practices the work-force principle. If ten pounds of force is required to correct a given C1 subluxation, the vertebra will normalize at the same instant that the adjuster's triceps brachii have exerted ten pounds of force against her or his shoulder lever. Thus, a built-in mechanism operates that controls force and protects the patient.

Another principle should be observed in performing the efficient C1 adjustic motor skill. That principle states that the position of a limb is a factor in the intensity of response when a muscle contracts by means of cortical stimulation.[8] Significant to the C1 adjuster, therefore, is the bend

of her or his elbow angles; the more acute the bend, the stronger the response. Reduction of the elbow angle is obtained by drawing back the contact arm from the shoulder.

The C1 adjuster must always bear in mind that lateral movement of the C1 vertebra about the occipital condyles takes place efficiently if it moves first on the superior articulating surfaces of C2. In adjusting any type of C1 subluxation, C1 must move down and around or up and around the superior articulations of C2. If C1 does not move in this manner, it is blocked from moving about the occipital condyles. C2 is the base of support for C1 and the skull and first moving the C2 vertebra facilitates the movement of C1. This concept makes laterality reduction of C1 easier.

The size of the articulating surfaces of C2 vary in different patients. The larger the size, the greater the resistance to reducing C1 on the occipital condyles. The distance, therefore, that C1 has misaligned on the occipital condyles is not the factor that requires more adjustic force. The amount of force required to move a large C1 laterality is no greater than that needed to move it a lesser distance. The problem of larger lateralities of C1 is solved by adjusting the height vector to accommodate the size of the articulating surfaces of C2.

Conclusion

For several years tests have provided ample evidence that adjusting a C1 subluxated vertebra is a motor skill that requires a high degree of efficiency on the part of the adjuster if the objective of subluxation correction is to be achieved. Adequately supported also is the need for the establishment of the reduction pathway, computed from X-ray. Mechanically inept methods of adjusting subluxated C1 vertebrae and methods utilizing no previously computed pathway fail to correct C1 subluxations and may prove traumatic to the patient.

The application and the direction of adjustic force are vital elements in correcting C1 subluxations. Control of these two elements requires an understanding and application of the relevant principles of the physical sciences. Adjusting, as now taught and largely practiced, rarely incorporates these principles.

A two-fold problem too long ignored exists insofar as correction of the C1 subluxation is concerned. This problem must be remedied because the detrimental physical and measurable distortions effects of the C1 subluxation have long been proved to exist throughout the human body. Valid research, furthermore, of the response of the body to a C1 correction requires first that the correction be made.

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[8]Ibid. pg. 67.

THE 1982 ANNUAL N.U.C.C.A. CONVENTION

The theme was Biomechanics of the Spinal Column. Educational supervisor was Daniel C. Seemann, Ph.D. of the University of Toledo. The convention chairmen were Drs. Keith E. Denton of Michigan and Marshall Dickholtz, Jr. Among the lecturers were Donald Stolberg, Ph.D., University of Toledo, David Drury, former Editorial Director of WTVG and winner of the Associated Press Special Award in 1968. Instructors included Drs. T. A. Denton, K. E. Denton, Marshal Dickholtz, Sr., Lloyd Pond, Albert Berti, and R. R. Gregory.

Dr. D. C. Seemann, research advisor for the National Upper Cervical Chiropractic Research Association, Inc. (NUCCRA) gave a research update presentation.

Donators to NUCCRA research at the convention were:

Dr. A. Berti	Canada
Dr. M. Winkler	California
Dr. R. H. Danec	Washington
Fairborn Chiropractic Association	Ohio
Dr. M. W. Clark	Oklahoma
Dr. N. Ikuse	Japan
Dr. G. P. Palkowski	Ohio
Dr. G. P. Foran	Canada
Donald Miller	Michigan
Dr. M. Dickholtz, Jr.	Illinois
Dr. G. Cripe	California
Dr. J. Hernandez	California
Dr. G. Grannis	California
Dr. Lloyd Pond	New Mexico
Dr. H. Alexander	Ohio
Dr. & Mrs. K. Denton	Michigan
Dr. K. Nakano	California
Dr. & Mrs. M. Dickholtz, Sr.	Illinois
Dr. D. K. Moon	Ohio
Dr. W. Krull	California
Dr. S. Dickholtz	Illinois
Joan Reisch	

Whose Criteria Is It, Anyway?

(Continued from page 1)

valuable research is being done. However, little of it is of a practical and immediate help to the practitioner as it does not relate directly to the problems of subluxation production and their reciprocal relationship to body functions. The *Speaking and Personal Betterment Guide* recently published by the American Chiropractic Association in the section entitled "Questions Demand Answers" stated: "A Chiropractic corrective adjustment is made only after careful analysis, delivered in a specific manner, to achieve a predetermined goal. It is a precise, delicate maneuver, requiring special bio-engineering skills and a deftness not unlike that required by a surgeon." It would be difficult to imagine a brain surgeon taking the technique of his art lightly. Yet, in reality, the subluxation is not only being taken lightly, it is slowly being shoved aside. It is being replaced by a huge armamentarium of therapeutics most of which can be found in some branch of medicine. The value of modalities is not relative, nor is diagnosis the issue.

The ability to diagnose and assume responsibility of patients as a primary health care provider is necessary to all chiropractic doctors. Otherwise we would be relegated to the role of technicians, unable to see patients without referral. But we still have to get the patients well and that is accomplished by restoring neurological integrity and reducing misalignment factors.

Thoughtful chiropractors will probably agree that the lack of research has led to the major problems still facing our profession. Without a firm foundation based on scientific research, without proof of the effects of subluxation production and reduction we are in essence reduced to practicing a system of therapeutics similar to that already practiced by the allopathic physician. Perhaps our almost frantic desire for recognition at any cost has put us in this position. We seem to have lost sight that short term recognition may result in long term loss of identity. An example of this is the lack of chiropractic criteria. Have we so abandoned our theories that we have no criteria of our own?

We say that chiropractic treatment is different. Then, too, is not the etiology different? When a subluxation is identified as an etiologic agent we are dealing with more than just identification of a disease or malfunction. We are concerned with more than relief of symptoms. We are dealing with a vertebrogenic condition; in other words, a subluxation complex. Yet many times we find that the subluxation, although present, is not considered important.

Consider the insurance industry for example, and the language necessary for approval of a chiropractic claim. An acceptable diagnosis is required for payment. The catch lies in the word "acceptable." Acceptable to whom? Whose criteria is it anyway? Isn't there enough difference between chiropractors and M.D.s that our forms should reflect the uniqueness of our own approach to disease and its treatment? Should all cases of cervical radiculitis, for example, be shoved into the same box using an arbitrary limitation of treatment regardless of the varying degrees of difficulty in subluxation reduction? Of course not! But by using medical rather than chiropractic criteria this is precisely what is happening. Most of us are aware of a proliferation of chiropractic consultants, many of whom are self-certified. They in turn have offered their "services" to insurance companies. Their influence has grown to the point that some are utilized by many insurance companies to the extent that they literally are setting the standards for the profession. In many cases these "standards" do not have any basis other than the consultant's arbitrary opinion. I'm sure its very flattering to be a consultant to many insurance companies. But they must guard against becoming the chiropractic counterpart of the misguided (albeit sincere) Colonel in the book and movie, *Bridge on the River Kwai.* They should insist on the acceptance of the recognition of the subluxation as a pathogen, not as a finding. One of these consultants went on record recently to say that "chiropractic is manipulation and nothing more." He further stated that a subluxation was only a finding and that there was no scientific proof of its effect on human function. This same consultant has embraced medical criteria, terminology, etc., without question, but worse yet, without use of proper chiropractic criteria. It shouldn't be hard to see the folly of failure to establish our own standards. Establishment of our own criteria is not to deny the vast body of scientific knowledge developed by medical research which chiropractors should obviously employ whenever indicated.

In reality, however, the ready acceptance of medical criteria and standards by the consultant is actually only a symptom of our problem rather than the cause. It is up to profession, starting at the college level to put the emphasis where it belongs and build a science based on understanding the subluxation, its manifestations, both objective and subjective, and its measurable reduction.

Without some solution to the problem the foregoing dialogue would be little more than wishful thinking. Fortunately the National Upper Cervical Chiropractic Research Association (N.U.C.C.R.A.) has been engaged in meaningful scientific research for many years. As Dr. Ralph Gregory, the president of N.U.C.C.R.A. has said, "The employment of the relevant and established principles of the physical sciences gives credibility to the establishment of the subluxation on a scientific basis."

If, in fact, the subluxation can be measured then its reduction can be measured. All chiropractic authorities agree that misalignment must precede subluxation. If not, there would be no need to adjust. An adjustment must be delivered in such a way that the mechanical energies introduced do in fact restore misplaced vertebrae. Therefore, chiropractic deals with mechanical science.

A few examples of chiropractic science emanating from the

N.U.C.C.R.A. research can demonstrate how our profession can and must command the respect of the scientific community. N.U.C.C.R.A. has developed a method of cervical x-ray that will meet the criteria of measurement which is far superior to that of the commonly accepted medical views of the same area.

Taken with a properly aligned x-ray tube, the nasium and vertex views allow the doctor to measure misalignment of the atlas in degrees into the frontal plane and the transverse plane, to establish the vertical axis of the skull, to locate the exact center of the foramen magnum, to determine force vectors necessary for misalignment reduction and to provide accuracy to measure said reduction on post x-rays. Then why do we still accept without question the old medical views? Surely we can contribute to scientific progress. If, in fact, it remains necessary to have a Davis series on an accident case to diagnose fracture, soft tissue injury or pathology, then it should be equally necessary to use chiropractic views for accurate analysis of a vertebral misalignment.

The Anatometer, an instrument that measures and records in terms of the orientation planes of motion, the presence of, the location of, and the severity of distortion-stress effects of C1 subluxations on the human body has been developed by N.U.C.C.R.A. The recent research by Daniel Seemann, Ph.D. of the center of gravity of the skull has contributed greatly to understanding of mechanical principles in reduce C1 misalignments. The categorizing of different types of subluxations and varying degrees of difficulty in their reduction is now progressing. It is abundantly clear that a chiropractic adjustment is a very exacting procedure. The determination of the length of treatment of the patient is dependent on chiropractic, not medical evaluation.

We have our foundation in science. We have our own criteria. We have gone one step beyond—a step beyond symptoms and treatment of effects. Let's build on this foundation and insist on the individuality of chiropractic. We need not emulate the M.D.s. We need to be better. Otherwise there would be no need for a chiropractic profession today.

Anatometer Approved in State of Michigan

Among the analytical instruments and adjusting apparatus approved on May 18, 1982 by the Michigan Board of Chiropractic for use in the practice of Chiropractic in the state of Michigan was the anatometer.

The anatometer is a device for measuring the distortion stress effects of a C1 subluxation on the human body. In the presence of a C1 subluxation, the pelvic girdle shifts laterally into one of the frontal planes and rotates into the transverse plane. The spine deviates from the vertical axis (normal position) of the body. These distortions are indicative of a C1 subluxation, and are remedied when the C1 subluxation is corrected.

The anatometer separates abnormality of osseous structure from the true distortion by balancing the patient, because abnormal structure will not permit a true reading. Further indication of the presence of abnormal structure is observed when the C1 subluxation is corrected and some degree of distortion reading still exists. The percentage of abnormality is less than 2 percent. The instrument provides a reliable means of determining in cases of scoliosis the difference between the degree of correctable distortion and true scoliosis distortion.

Because nervous interference by a C1 subluxation is reflected in a distortion pattern of the body, the anatometer determines whether an adjustment is required, if the adjustment is stabilized, if the patient is progressing satisfactorily, or regressing from the standpoint of subluxation correction.

If changes occur in the C1 subluxation misalignment factors, the anatometer records the changes by recording differences in the distortion pattern. These differences indicate that the adjustment is no longer effective, and that new x-rays are required. A trauma experienced by the patient may cause changes in the C1 subluxation's misalignment factors that render the adjustment ineffective.

As a post check instrument, the anatometer makes comparisons of the changes in the distortion patterns of a given case with the original readings. If the distortion pattern fails to reduce sufficiently or correctly, the C1 adjustment is not effective. The adjuster, thereby, is advised of the accuracy of his adjustment, and of a need for a re-evaluation of his analysis or of his adjusting procedure.

Correlations of cases over an eight year period show that when the C1 subluxation is maximally reduced or corrected, the anatometer records dramatic changes in the distortion patterns.

NUCCA to Participate in Texas Chiropractic College Research Project

NUCCA will participate in a research project administered at Texas Chiropractic College set for October 2-3 at the TCC. Elmer Addington, NUCCA member and project director, has requested the use of an anatometer to correlate clinical measurements of the anatometer with other chiropractic clinical instruments used in measuring patients. Drs. John Clark and Andrew Shepherd, both NUCCA members, will participate for NUCCA. The results of the findings will be made available to NUCCA members when the data has been correlated.

IN MEMORIAM

Ruth O. Gregory
January 14, 1916—June 9, 1982

Ruth Gregory, 66, wife of Ralph Gregory died June 9, 1982 at Toledo Hospital. She was born January 14, 1916 in Waterbury, Connecticut. Services were held in Monroe, Michigan, and burial was at the Roselawn Memorial Park, Lasalle, Michigan. Pallbearers were Al Berti, Peter Benesh, Keith Denton, Marshall Dickholtz, Sr., David Drury, and Dan Seemann. David Young of Fairgreen United Presbyterian Church, Toledo, Ohio officiated, and Dan Seemann gave the eulogy. The following excerpts are taken from the eulogy.

"The many flowers that have been sent from all over the country are a fine tribute to Ruth. She loved flowers, especially roses. I believe one of the things that we will remember about Ruth is that she was a woman for all ages. She could communicate extremely well with almost everyone: young or old, rich or poor, male or female. She also was consistent in how she dealt with people. Everyone was treated the same regardless of the person's rank in life. And I believe the reason that she was so consistent was that she was true to herself. She knew who she was, where she came from and I think she probably knew where she was going. She has been described by her admirers as a class lady.

Ruth's early years were spent in Waterbury, Connecticut. It was during this period that she acquired the traits of hardiness, hard work, and doing the best with what you have, traits that are common to people who come from New England. This does not mean that Ruth might have lacked a sense of humor. Her maiden name was Fitts and she would tell the story how people from Waterbury would sometimes refer to her and her sisters as 'Miss Fitts'. She married Ralph in Watertown, Connecticut in 1937 and moved to Davenport, Iowa while Ralph finished his Chiropractic training at Palmer College. Going to college during the depression presented many economic challenges, but Ruth always referred to these years as good years, even with the many sacrifices that were made. In 1940, the Gregory's located in Monroe and of course, have brought national attention to Monroe.

Ruth's relationship with Ralph was a unique one. She was wife, secretary, confidante and good friend, always totally giving to Ralph and the work. I know that at times there were questions as to whether the dedication and sacrifice was worth it, but it was apparent to me that Ruth felt fulfilled, that she was indeed an integral part in helping the many thousands of patients over the years.

Ruth was a tough lady. Even in her last days she would apologize for the inconvenience she thought she was causing. In the Marine Corps, people are sometimes evaluated as to whether they could make it in combat. Ruth could have easily qualified.

Ruth will always be alive with us. She loved roses, people, to talk, good books, to travel, loyalty, this country, and good music. When we think of Ruth, we will always think of beautiful roses, sunshine and clear skies in Monroe".

Donations to NUCCRA in memory of Ruth Gregory were made by the following people:

NUCCA-NUCCRA DONATIONS IN MEMORY OF RUTH O. GREGORY

Several contributions were received in memory of Ruth O. Gregory who passed away on June 9th, 1982. The contributions were made to the NUCCA-NUCCRA organizations to further their work in research and the dissemination of educational materials. Mrs. Gregory devoted much of her time and effort to NUCCA and NUCCRA. The names of the contributors are listed below.

Dr. Donald E. Moon, Ohio
Dr. Hugh L. Crowe, Georgia
Dr. Steven N. Macdonald, California
Mr. & Mrs. Harold Sample, Ohio
Mr. Peter Benesh, Jr., Michigan
Dr. E. Erkenswich, Illinois
Mrs. Anne Roggelin, Michigan
Mr. & Mrs. D. Robinson, Michigan
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Dr. & Mrs. H. L. Stephens, Oklahoma
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Dr. M. Wayne Clark, Oklahoma
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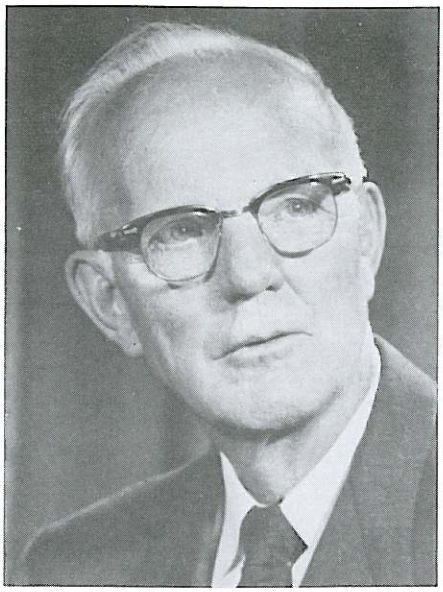

IN MEMORIAM
Dr. Clarence F. Aumann

On Saturday, May 15, 1982, Dr. Clarence F. Aumann, 105 Woodland Lane, Carmel, Indiana, one of Chiropractic's great pioneers passed away. It is with sadness that we report Dr. Aumann's death, not simply because we have lost a friend, but because Chiropractic has lost one of its greatest champions.

Dr. Aumann practiced in Indiana for fifty-five years after graduating from the Palmer College of Chiropractic in 1917. He served as an I.C.A. representative from Indiana and for several years as a member of the I.C.A. Board of Control. In 1956, Dr. Aumann was elected a distinguished fellow of the I.C.A. and in 1969 he was made an honorary board member.

In 1961 Dr. Aumann was named "Chiropractor of the Year" in the state of Indiana, and in 1971 was made an honorary member of the Indiana State Chiropractic Association. For 16 years he served on the Indiana Board of Medical Registration and Examination.

When the National Upper Cervical Chiropractic Research Association, Inc. (NUCCRA) was formed in 1971, Dr. Aumann was one of its charter members. He served on the NUCCRA Board until his death. In 1981 Dr. Aumann was awarded a plaque from the NUCCA- NUCCRA organizations for his outstanding services to Chiropractic and to the NUCCA—NUCCRA Corporations.

As a great teacher, a reliable advisor, and an unexcelled example, Dr. Aumann served chiropractic during his long and active life. His profession will miss him, and for him his friends will grieve. We extend to his daughter, Mrs. Marynelle Shields, our deepest sympathy.

In loving memory of Dr. Aumann, the following persons donated to the NUCCRA Research in which he was so interested:

Mr. and Mrs. John M. Oakley, Indiana
Dr. Frank J. Daskalos, Indiana
Mrs. T. M. Quilter, Ohio

The 1982 ANNUAL N.U.C.C.A. CONVENTION

The Sixteenth Annual N.U.C.C.A. Convention was held May 15, 1982 through May 18, 1982 at the Howard Johnson Motor Lodge, Monroe, Michigan. Attending were registrants from several states and two foreign countries. It was sponsored by the University of Toledo. Certificates of attendance were given by the University.

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JMPT Seeks Help

In a recent letter to the editors of the various chiropractic journals, Ray Hildenbrandt who is editor of the Journal of Manipulative and Physiological Therapeutics, ask that the editors publish in their journals a letter to the chiropractic profession asking help for JMPT. Hildenbrandt noted that the JMPT has grown to National prominence in just four years and has become the authority in scientific chiropractic around the world. JMPT is now indexed in several national and international data gathering organizations such as INDEX MEDICUS, The Bio-Sciences Indexing Service and the USSR Academy of Science.

With the large growth of JMPT has come larger financial demands and as a result deficits are projected for the future. The request by JMPT is for grants from any chiropractic group or organization or in the case of individuals, subscribing to JMPT would be very helpful. NUCCA urges all of its members to support JMPT in any way possible. It is a class journal and deserves our support.