THE UPPER CERVICAL
MONOGRAPH

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THE FLIGHT FROM THE SUBLUXATION

by Donald K. Moon, D.C.

Today, almost 81 years after the discovery of chiropractic, our profession finds itself at the threshold of its golden opportunity—that of becoming a respected, accepted member of the scientific community. All of us have dreamed of the day that doctors of chiropractic would be considered as important to the health of mankind as any other health practitioners. How great it will be to have the words "vertebral subluxation" become as understood and respected as "penicillin" or "Salk vaccine"!

It would appear, on the surface at least, that it's just a matter of time now that our dreams are realized. Yet there are disturbing clouds on our horizon and the irony is that we are responsible for their existence. The chiropractic profession is being drawn into a trap that it is setting for itself—and which ultimately could lead it into a most vulnerable position—a sort of professional limbo with no basic premise, philosophy, or scientific basis.

Somewhere in our quest for acceptance and respectability the major priorities of many chiropractors have become twisted and distorted. To some of them the vertebral subluxation appears to be the major stumbling block between them and these goals. A few have even been so bold as to say that a subluxation of a vertebra is an unscientific, unproved and therefore indefensible concept. Those same chiropractors have chosen to retreat behind the facade of ambiguous theories and have deluded themselves into believing that they will never be called upon to give a valid explanation of why they have the right to exist as a separate and distinct health discipline. They seem to be hoping that they will eventually be absorbed into the mainstream of the healing sciences by abandoning support of the subluxation concept. In its place they are embracing a Pandora's box of theories and therapies. Is it any wonder that we are increasingly viewed as technicians or excellent physical therapists?! I need not remind you technicians are not primary health care providers.

This article will not concern itself with the relative value of other types of procedures used as adjuncts in many chiropractic offices. We must avoid the polarization that seems to always accompany discussions between those of different schools of thought in our profession. It is time to concentrate on those areas where we can, should, and must agree if we are to mature as respected members of the scientific community.

This writer is concerned with the emphasis or lack of same placed on the vertebral subluxation and its scientific reduction. Chiropractic authorities have agreed that the vertebral misalignment and its resultant effect on neurological components is the cornerstone of chiropractic practice. When the emphasis on the vertebral subluxation is relegated to a very minor concern in the doctor's practice and when adjunctive care becomes primary we are treading on very dangerous ground. Yet this is precisely what is happening in many of our offices.

What are the reasons for this problem? Probably foremost has been the lack of true scientific research into the subluxation and its reduction. Instead of research data we have relied on clinical results which are not acceptable criteria for establishment of a relationship between subluxation reduction and restoration of health. As a result, many of our own practitioners have begun a flight from the subluxation. One voice in the wilderness which has remained strong and firm for increased research of the subluxation and its effects on neurological components has been the National Upper Cervical Chiropractic Association and its chief director, Dr. Ralph Gregory. Since NUCCA has concentrated its research on the upper cervical subluxation it has been viewed by some as a radical extension of the previously controversial so-called HIO concept.

Because of the polarization of thought mentioned earlier, many doctors are almost afraid to voice an interest in further research in the cervical region and its effect on neurological components. That is most unfortunate. To over-react against such work is equally as radical as the HIO practitioners were once accused of being. We have reached the point that opinions will no longer stand unless they are supported by valid research. This type of research is and has been an ongoing process in NUCCA. Substantiation of the subluxation concept and its mechanical reduction is now a matter of scientific documentation. While the research is just in its infancy, we have a firm foundation upon which to sow the seeds of a proliferating science. When we demonstrate the measurement of misalignment factors and their effect on neurological components we silence forever those who would relegate us to the role of technicians. We will conclusively prove the **science** of chiropractic.

There seems to be a prevailing attitude that it doesn't make any difference which technique is used to correct a vertebral misalignment. The simple truth is that it **does make a difference!**

The corrective mechanical act must **reduce** the misalignment factors and not just reduce the symptoms. If in fact a vertebra is moved from one malposition to another it is possible to create a new subluxation involving different neurological components which may not be symptomatic for a period of time.

This leads of course to the incorrect conclusion that the patient is well and that the treatment was successful. We can no longer afford the luxury of relying on criteria based on symptoms and clinical results. The vertebral subluxation complex, a term coined by Dr. Gregory and used to denote the misalignment factors and all areas and tissues affected by them, must be given priority status in chiropractic. There is no health field that is not evolving through scientific research. Chiropractic is no exception. While we doctors of chiropractic are embracing and emulating many medical methods of treatment, the medical profession is showing increased concern with the subluxation. To leave the research of the vertebral subluxation to the medical profession is tantamount to abdication of the throne by a monarch. You can rest assured that they will someday engage in the type of research that we are failing to emphasize today. We cannot afford to lose our professional identity by default.

All practitioners are the product of the colleges from which they graduate. The colleges have an awesome responsibility to the profession. The material they present must represent the latest state of chiropractic science and research. Instead, our colleges have abdicated their responsibilities and have permitted opinions to dominate the presentation of material relative to spinal adjustment techniques. We field doctors must recognize this problem and must not blindly defend all that we have been taught as gospel. The emphasis in college curricula is frequently on diagnosis. For some strange reason this has caused another area of polarization and again division into two camps. To deny the right or ability to diagnose eliminates our right to determine the effects of the vertebral subluxation and its reduction. Diagnosis also enables the chiropractic doctor to make a simple evaluation of which cases to accept and which to refer. Conversely, the diagnosis does not determine the mathematics or measurements necessary for subluxation reduction. For some reason we have not allowed these two areas to peacefully co-exist. Yet, ideally they could and should. The problem arises again when we forget that the subluxation reduction is the mechanical act that gets the patient well. All the tests in the world are useless unless the cause of the problem is corrected. We must insist that our colleges teach technique procedures which are mechanically sound. Once this is accomplished the long sought and desired goal of standardized curriculum in all our colleges will be closer to a reality.

The central question is: Do we have the will to defend and research the subluxation complex before we forget who we are and why we have a right to exist as primary health care providers?

PATIENT ALIGNMENT FOR UPPER CERVICAL X-RAYS

by Marshall Dickholtz, D.C.

Precisely aligned X-ray equipment and proper patient placement are two essential factors if distortion-controlled upper cervical x-ray films are to be obtained. If either or both of these two factors is lacking, the films cannot be accurately analysed. Unequal bilateral magnification and improper patient placement ruin precision analysis. Because the adjustment is the synthesis of film analysis, the process of computing the misalignments of the subluxation so as to establish the force vectors required to correct it, make analytical accuracy vital. Not only must the vertebral misalignments be measured in degrees as to their direction from the normal position but computed as to their comparative relationships into the planes of abnormal motion if the adjustic force vectors are to be determined exactly, and a resultant of forces established that, if acted on, will produce a corrective adjustment.

When an X-ray machine is properly aligned and the patient correctly placed, comparative X-rays can be consistently repeated. Consistent reproduction of X-rays is vital to the subluxation-measurement process. X-rays taken to determine the amount of correction of the subluxation after the adjustment (posts) require consistent placement and, of course, exact machine alignment. (See NUCCA X-Ray Alignment Handbook for detailed instructions on how to align X-ray equipment.)

PATIENT PLACEMENT AIDS:

Several aids have been developed to assist in placing the patient for the X-ray exposure. Some of these aids have helped reduce exposure time, just as machine alignment has reduced exposure to the patient.

A very important placement aid is the turn-table upon which the chair is securely fastened. (See Figure 1) Because the patient's head is the constant in the X-ray, it must be exactly centered to the film. No rotation of the head is permissible. If the patient carries his head in a rotated manner, or the head is tilted characteristically, neither must be removed manually by

Marshall Dickholtz, D.C.

the technician. The head is x-rayed in its characteristic tilt when taking the nasium view, but head rotation is removed by turning the turn-table until the center of the patient's glabella aligns with the center of the bucky and film. Both head tilt and head rotation are part of the patient's subluxation and to remove them manually would cause error. The head tilt indicates that the head has abnormally rotated from its true vertical axis, and rotation of the head indicates that misaligned vertebral segments in the cervical spine have caused the head to rotate.

The purpose of the turn-table, therefore, is to enable the technician to move the patient right or left so that the center of his glabella (skull) can easily be aligned to the center of the bucky and film. The turn-table also serves the purpose of rotating the patient's body to achieve the same objective. It further permits the technician to bring the patient forward or backward in proper proximity to the bucky. The procedure for using the turn-table will be described under patient placement for each type of film: lateral, nasium (A-P), and vertex.

A scissors-type headclamp should be attached to the bucky or grid-holder. (See Fig. 1) The headclamp serves as a stablizer for the patient's head during the exposure, and is aligned so that, when opened, its center is always central to the center of the bucky. Consequently, the patient's head can be viewed between the pads of the open clamps and brought equidistant from each pad simply by manipulating the turn-table. Thus the headclamp serves as a centering device, insuring patient head alignment.

Attached to the headclamp is a device called an alignment rod. (See Fig. 1) As the name indicates, the alignment rod is used to align the glabella of the patient's head to the center of the bucky and film. Another device, developed by NUCCRA, is the plastic alignment mask which supplants the alignment rod. This mask permits the technician to observe several points on the patient's head from which to align the patient.

Of help in centering patients in the

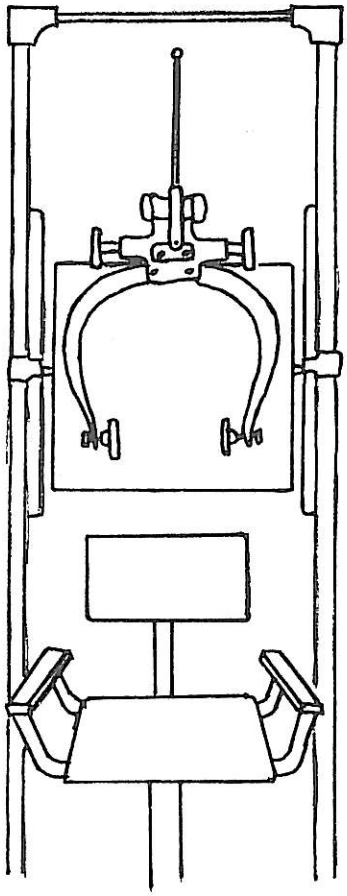

Figure 1

vertex film is the 4″ x 4″ mirror which can be permanently attached to the top and center of the bucky or grid-holder. A center line vertically inscribed through the center of the mirror, which is continuous with the central vertical line of the bucky, allows the technician to view the patient's glabella as it is reflected in the mirror as he stands behind the patient. The mirror may also be used to reflect the alignment rod or the center line of the plastic mask.

Also used exclusively when taking the vertex film is the NUCCRA chin-centering device. This plastic instrument guides the patient's chin to the mid-line of the bucky and center of the film at a point about two inches above the horizontal center of the film. The device is secured to the front of the bucky by two small plastic brackets, and it can be quickly removed when taking the lateral or nasium films.

A cord or heavy string at least 42 inches long should be attached to the X-ray tube-head just lateral to the focal spot. This cord represents the true central ray from the focal spot. Its function is to permit the technician to view the path of the central ray from focal spot through the patient and to the desired point on the bucky or film. The cord also helps to determine the position of the tube-head on the tube column when taking any film. By tying a knot in the cord, the required 42 inch focal spot to film distance can be constantly checked. This exact distance is required for all exposures because the NUCCRA analytical instruments are designed to measure X-ray images taken at a 42 inch distance.

ALIGNING THE PATIENT FOR THE 8 X 10 LATERAL FILM:

To align the patient for the 8 X 10 lateral film, have the patient sit on the turn-table chair in his naturally erect position. The turn-table is then rotated until the patient's shoulders are approximately at right angles to the face of the bucky or grid-holder. The angle of the bucky is set parallel to an imaginary vertical line through the patient's head and neck. The patient's shoulder rests gently against the face of the bucky at its lower aspect. (See Fig. 2)

The patient is centered to the middle of the bucky (film) by moving the turn-table chair toward the bucky until one shoulder rests against the front of the bucky. The opened headclamps are lowered and placed so that the pads, when closed, will contact the patient's forehead and upper part of the pos-

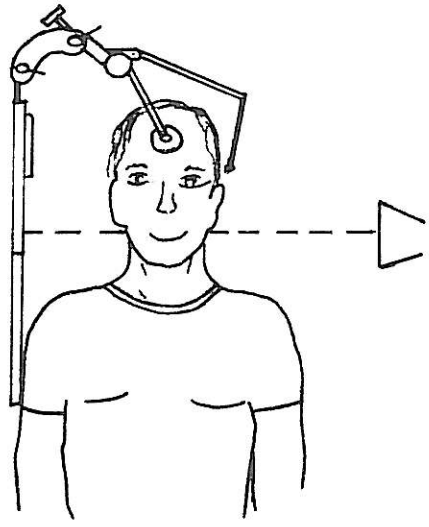

Figure 2

terior skull. Any unequal distance between the pads and the head should be eliminated by moving the turn-table chair forward or backward. When the patient is centered to the headclamp pads, the clamps may be closed until the pads rest against the forehead and back of the upper part of the head.

The alignment rod or plastic mask may be brought down over the side of the patient's head so that any two symmetrical points on the patient's head can be viewed with the aid of the mirror. If these two points are not directly opposite, the head may be rotated. Open the clamps and turn the turn-table until the opposite points agree. It is well to check the rami of the patient's jaws to see if they align. When closing the clamp, use care that the patient's head is not moved during the process. Always be sure when taking an x-ray that the headclamp pads pivot freely to assure firm contact with irregular bone structures.

Position the x-ray tube on the tube column so that the cord representing the central ray will pass through the inferior aspects of the ear-lobes of the patient, and strike the film about one-and-one-half inches above the horizontal bucky line. Thus the central ray is directed from the focal spot through the mark on the tube cone (which sets the tube at its correct height on the tube column) so that it aligns with the atlas. So positioned, all seven cervicals should be clearly seen on the developed film. In rare cases where the patient's shoulders obscure the lower cervicals, turn the turn-table about 15° to the face of the bucky and take another film.

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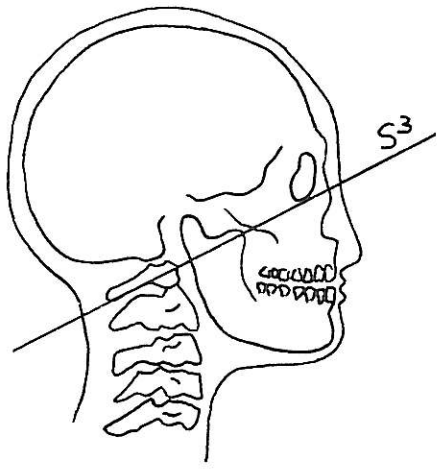


Figure 3

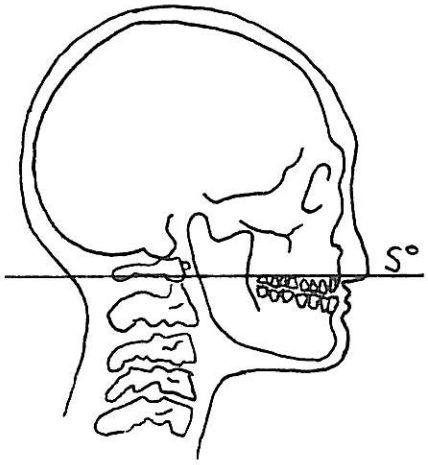


Figure 4

The purposes for which a lateral film is taken include, of course, the existence of and location of pathology, abnormalities, and old fractures. The lateral film is also valuable in determining the amount of abnormal movement of the atlas into the sagittal plane (so-called superiority or inferiority). The sagittal plane movement of atlas is important in x-raying the patient for the nasium. With the nasium exposure, the central ray must be directed through the atlas so that the attachments of its posterior ring to the lateral masses can be clearly seen as they are necessary in determining atlas laterality. The technician must know the plane on which the atlas sets so that he can determine the correct angle of the central ray when taking the nasium. This plane varies in different people (See Figures 3 & 4). The lateral film, therefore, must be developed before taking the nasium film. The plane on which the atlas sets can be determined by placing a ruler through the posterior ring attachments and under the inferior border of the posterior ring. If the lateral film is dry, a line may be drawn through the same points.

For the 150 lb. person, the recommended exposure time for the lateral is 90 K.V.P. at 10 Mas, and ¾ second. (A 90 K.V.P. and 10 Mas is recommended for all cervical films; only the time factor is changed from film to film).

ALIGNING THE PATIENT FOR THE 10 X 12 NASIUM FILM:

The patient is directed to sit erect but not rigidly so, and to lower his head and look toward his knees. If the patient's head is raised, his laterality of atlas may measure less on the nasium film than if his head is lowered slightly. Laterality of atlas may in fact read opposite to its correct side if only measurable to a fraction of a degree. This is important, particularly when taking comparative x-rays.

Having the patient close his eyes while being placed will eliminate the possibility that he is holding his head in an unnatural position, fixing his head position with his vision. In any event, if the head is tilted or rotated do not manually remove either. The head is the constant; to change its position manually is to change the subluxation.

Move the patient toward the bucky by bringing the turn-table chair backward. Tilt the bucky forward so that it contacts the head and at least one shoulder. Raise or lower the bucky until the patient's atlas is about ½ inch above the horizontal line on the bucky representing the horizontal center of the 10 X 12 film. Bring down the headclamps and visually determine the spaces between the pads and the patient's head. Move the turn-table chair laterally until these spaces are equalized. Close the headclamps until the pads gently and evenly contact the patient in the transverse area, or low down on the patient's head, so as not to straighten any head tilt that may be present.

Bring down the alignment rod, or the plastic alignment mask. Check with the center of the patient's glabella. If using a NUCCA plastic mask, check its center line to the glabella and also note the relation of the curved lines to the lateral aspects of the patient's head. If the points align, the patient is accurately placed; if the points do not align, check for head rotation and remove it by turning the turn-table. The headclamps must be opened before turning the patient, of course.

When the patient's head is rotated, it is a better practice to bring the patient forward with the turn-table chair, taking him away from the bucky. Turn the patient's body with the turn-table at the same time easily taking him back to the bucky. Then align his glabella and the center of the back of his head to the center line on the mirror and bucky. Check again the spaces between his head and the headclamp pads. It may be necessary to shift him slightly left or right to equalize the head and pad distances and obtain glabella and back of head alignment to the bucky center line. Close the headclamps and recheck the alignment. If alignment is centered, raise the alignment rod, or plastic mask, out of the x-ray field. After the exposure, it is advisable to lower the alignment rod and recheck alignment to ascertain if patient moved during the exposure.

Head rotation is seen on a nasium film by observing the skull thickness, relative position of the orbits to the lateral aspects of the skull, comparing the shape and size of the zygomatic arches, the rami of the mandible to the mastoids, the overshadowing of the nasal septum on the lateral masses, and bilaterally comparing other like points [See Fig. 5, 5(a), and 5(b)].

Move the X-ray tube up or down the tube column to the position which agrees with the superiority or inferiority of atlas as shown on the lateral film. In performing this operation, the cord that is attached to the tube-head is brought through the tip of the mastoid process to a point approximately one-half inch above the horizontal center of the 10 X 12 film. The tube-head should be positioned so that the central ray, as represented by the cord, is along a straight line from the focal spot, through the tip of the mastoid, to one-half inch above the horizontal center line of the bucky. (The horizontal line for both the 8 X 10 and the 10 X 12 should show clearly on the bucky face) The X-ray tube-head and the cone should be marked so that the cord, as it passes along the side of the tube-head and cone, will indicate the necessary degree for tipping the tube (See Fig. 6).

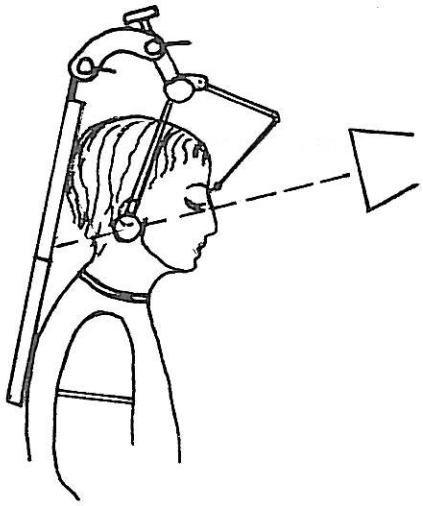


Figure 6

When the central ray bisects the atlas from its anterior tubercle through its posterior tubercle, the attachments of the posterior ring to the lateral masses can be clearly seen on the exposed film. If these attachments are not clear because the central ray was too low, the posterior ring will overshadow the attachments. If the ring is too low, do not attempt to analyse the film. Recheck the plane on which atlas sets by drawing a line along the inferior border of the posterior ring and through the ring's attachments to the lateral masses, continuing the line through the facial features. The point where the line emits from the facial features will be the entry point for the

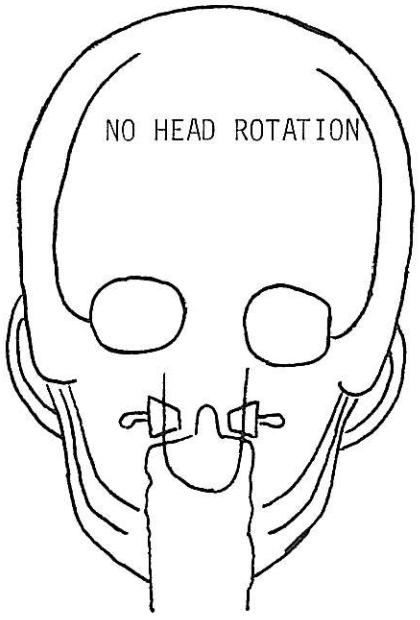


Figure 5

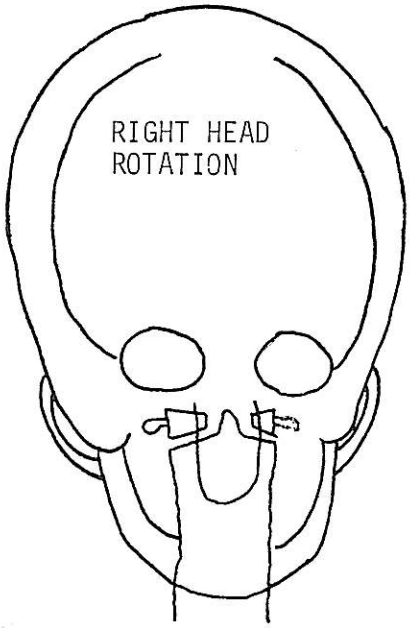


Figure 5(a)

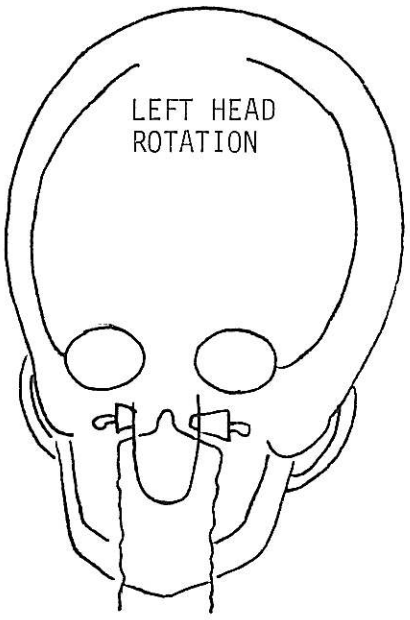


Figure 5(b)

central ray. Retake the film. Record the degree of angle on the case record card as the post nasium film must be x-rayed through the exact same angle (See Fig. 7).

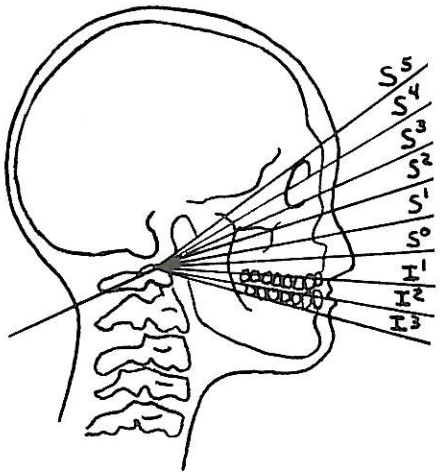


Figure 7

In rare cases where the atlas is inferior, a cork may be placed between the patient's front teeth, holding his mouth open so that the X-ray image is not obliterated. In these cases the central ray must pass through the open mouth or the attachments of the posterior ring will be obscure on the film image. The exposure time should be reduced to compensate for the lessened density.

When taking the nasium film, it is advisable to take two films, one with the tube-head (and central ray) raised about three inches higher than its position for the film taken through the true plane of the atlas. A better definition of pertinent structures is obtained and the analysis made more accurate, justifying the practice. The higher exposure will require slightly more time because the ray must pass through the patient's head more obliquely.

ALIGNING THE PATIENT FOR THE 8 X 10 VERTEX FILM:

To take the vertex film requires that the patient face the bucky which is angled forward at an approximate 20° angle. Shift the patient with the turn-table chair until the center of his sacrum approximates the center vertical line of the bucky. Have him lean forward from the waist, his head and neck extended, and advise him to look up. If the patient has difficulty in looking upward, or if too much strain is evident, move the turn-table chair as far backward as possible. Guide the patient's chin until it rests on the vertical center line of the bucky, and at a point two inches above the horizontal center line of the bucky. If a NUCCRA chin-rest is used, simply guide the patient's chin into the chin-rest where it will automatically center to the film.

Standing on the turn-table platform directly behind the patient, the technician manually removes all tilt from the patient's head. Accuracy in obtaining a level head can be obtained if the technician compares the patient's earlobes to the horizontal center line on the bucky. The technician leans over the patient and manually aligns the center of the patient's glabella with the center line of the mirror. This procedure rules out the possibility of head rotation. The manual aligning of the patient's head does not change rotation of the atlas in the transverse plane which is the purpose of the vertex film.

After the patient is aligned, bring the headclamp to a point that will permit the pads, when the clamp is closed, to contact the crown of the patient's head at its posterior. This headclamp position brings a slight forward pressure on the head when the clamp is closed.

The central ray, as indicated by the cord attached to the tube-head, is directed at right angles through an imaginary line from the superior aspect of the patient's eye socket to the tip of his transverse process; the central ray bisects the imaginary line at the tip of the transverse process (See Fig. 8). The position of the tube-head (focal spot) on the tube column is determined by the central ray which must pass through the imaginary line at a 90° angle to a point that coincides with the transverse process location. The tube-head must be turned to set the 90° angle.

There can be no deviation of the central ray from 90°, either forward or backward. The deviation will distort the image and alter the shape of the transverse foramina of the atlas. These

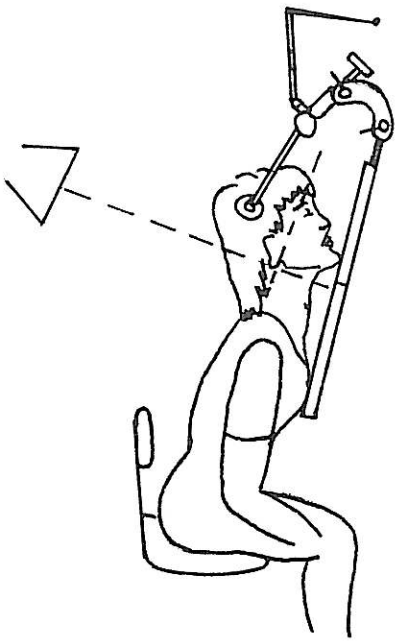


Figure 8

foramina are vital landmarks in computing rotation of atlas into the transverse plane of the body. If the central ray angle is less then 90° an elongated X-ray image will result. If the angle is greater than 90°, the image will be compressed. In either case the patient should be re-x-rayed [See Fig. 9, 9(a), and 9(b)].

GENERAL INFORMATION:

Tight collimation should be installed at the port of the X-ray housing and the front of the cone (See MONOGRAPH Vol. 1, No. 2, December, 1973). When using 8 X 10 and 10 X 12 cervical X-rays at a 42 inch focal-spot to film distance, permanent collimation can be used at the port and front of the cone (See MONOGRAPH, Vol. 1, No. 2 for details) All state and federal regulations should be carefully observed.

If the X-rays are hand processed, a full seven minutes developing time at a 68° temperature is advised. Seven minutes is advisable if the exposure time for a 150 lb. person is from ½ to ¾ seconds for the lateral; 2 to 2½ seconds for the nasium; and 2½ to 3 seconds for the vertex film. By developing the films for a full seven minutes a more detailed film will result. If the films are too black, cut the time of the exposure. It is the final minute in the

hand processing developing procedure that brings out the detail in the film that is not over exposed. The lateral film, developed first, will guide the technician in determining the time factor to be used on the successive films.

It is well to remember when aligning patients that less distortion is evident if the bucky is kept as close to a right angle to the central ray as possible. While this ideal situation is not always tenable, it should be observed carefully.

In cases of a loss of calcification, the K.V.P. should be lowered to bring out more detail. For every 10 K.V.P. decrease, double the exposure time.

A properly exposed film will be more gray than black. Black films do not clearly show the pertinent reference points in analysing the film. Poor collimation will darken the X-ray image, adversely affecting detail. Good collimation requires more exposure time but provides protection for the patient.

In all cases clarity is essential. In cases where pathology should be examined more closely, the patient can be placed flush against the bucky, thus shortening the object to film distance which gives greater detail.

A back scatter shield can be installed on the back of the bucky or grid-holder. This shield is a sheet of one-sixteenth inch thick lead mounted directly on the bucky or grid-holder, and it serves to reduce scattered radiation.

Always use a double marking system, one that will clearly indicate the right side of the film. The patient's name, or case number, placed in a letter-plate which bears the name of the doctor or clinic and the date of the X-ray, should be taped on the front of the bucky. It should read forward, date left, patient's name right. A large letter "R" or the word "RIGHT" should be permanently taped to the front and side of the cassette. The cassette is always placed in the bucky with the letter "R" or the word "RIGHT" corresponding to the patient's right side when he is positioned for the exposure. When the X-rays are analysed, it is a simple matter to double check and avoid serious error, because, when placed in the reading box, the patient's name on the nasium film should read backward and the letter "R" or the word "RIGHT" appear on the right side of the film. On the vertex film, the patient's name will read forward and the letter "R" or the word "RIGHT" will appear on the right side. As cassettes can be incorrectly placed in the bucky, a double marking system is advisable.

CONCLUSION:

It is vitally important to the scientific upper cervical practitioner that the patient's X-rays be clear and detailed, because the force vectors of the adjustment are computed from the films. As NUCCA practices upper cervical, it is a measured process: X-ray through adjusting process through the post- X-rays. Each step depends for its accuracy upon the preceding step. Because force is a vector possessing magnitude and direction, adjusting can be dangerous to the patient if the direction of the adjustic force is not correctly computed for any reason. Incorrect film analysis results in wrongly computed force vectors, wrong direction in the adjustment, increased misalignments, and larger subluxations.

For these reasons, NUCCA offers help to the doctor with his X-ray alignment and associated problems. In 1971 NUCCA published an X-ray Alignment Handbook which is available from NUCCA at cost plus handling and mailing charges of $1.00. Members of NUCCA receive a copy without charge, upon request. NUCCA, the fraternal organization, or NUCCRA, the research organization, may be contacted by mail for free advice on all phases of upper cervical practice.

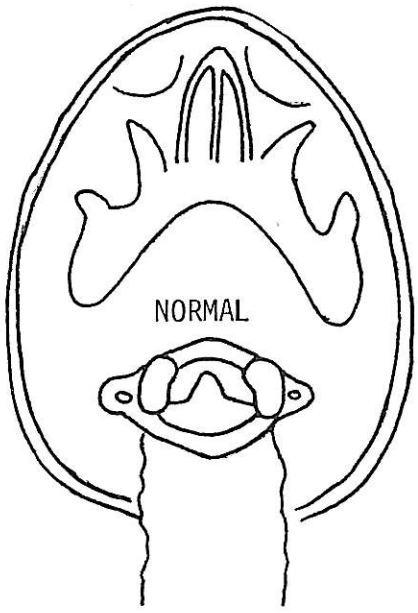


Figure 9

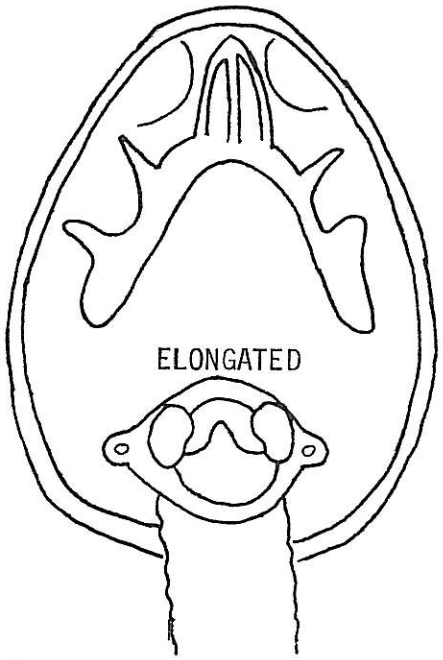


Figure 9a

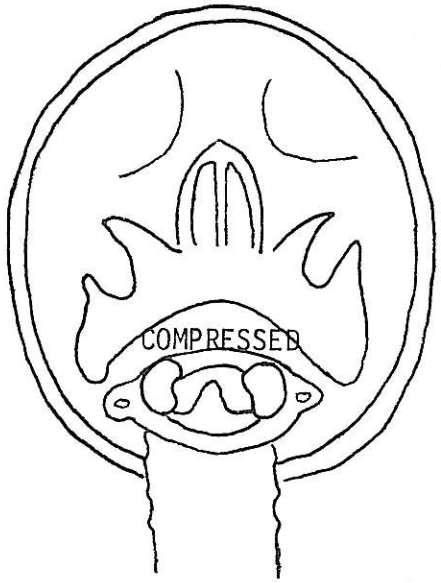


Figure 9b

THE FOURTEENTH ANNUAL NUCCA CONVENTION

The Dynamics of Subluxation Reduction, the theme of the 1980 NUCCA Convention and Educational Conference, suggests the aim of the Convention: what its objectives are. Correction of the C1 subluxation is required if the spinal column is to be realigned to its normal position. The C1 subluxation has been demonstrated by measurement to be the master subluxation. Its correction by the adjustment is dependent upon the relevant principles of the physical sciences. Dynamics, that branch of Mechanics that deals with energy or force in motion, will be stressed.

A chiropractor, if his work is to be corrective and effective regardless of his technique, must restore the spinal column to its normal position. Abnormal motion in the entire spinal column must be eliminated. Equilibrium or balance must be restored to the spinal column. Otherwise the cause of subluxations is not removed. The restoration of equilibrium to the spinal column depends upon how efficiently the C1 subluxation is removed. The difference between success and failure in obtaining patient results most often lies in a correction of the C1 subluxation, because spinal column normalization requires a central nervous system free of all the stresses caused by a C1 subluxation.

During its research program, the National Upper Cervical Chiropractic Research Association, Inc. (NUCCRA) has measured and correlated the distortions and misalignments of the spinal column to the C1 subluxation. Following the corrective adjustment, NUCCRA has correlated these objective and measurable symptoms to the degree of subluxation-correction. The relationship that exists between spinal balance and pelvic alignment has been demonstrated by measurement without exception, and the neurological rationale for these relationships has been established.

Measurement is the language of science. That a C1 subluxation is the only subluxation that produces measurable signs in the human body that can be correlated with the subluxation is proven fact. Furthermore, it is the only subluxation that can produce measurable CNS stress, resulting in neuromuscular abnormalities. Any practitioner of chiropractic, regardless of technique utilized, must fail in his attempts to restore normalcy to the spinal column until correcton of the C1 subluxation is accomplished. Any patient who fails to receive a C1 correction fails to receive the benefits of chiropractic, the reason he consulted a chiropractor in the first place.

The 1980 NUCCA Convention and Educational Program will be directed toward filling the "knowledge gaps" regarding the correction of the C1 subluxation. It will stress biomechanical principles that must be known by the chiropractor if he is to successfully adjust the C1 subluxation and correct spinal distortions; it will present new kinesiological principles that simplify the adjustment, and that will make corrections easier. Distortions that occur in the body, subluxation-induced distortions, will be demonstrated with the Anatometer, a data-retrieval instrument used in NUCCRA research. In short, NUCCA Upper Cervical methods will be shown to be a full-spine technique.

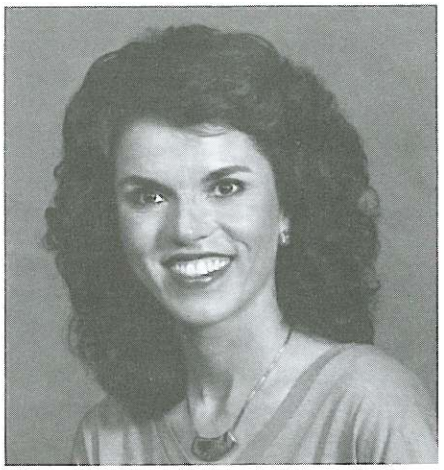
Dynamics of the adjustment will be studied fully at the 1980 NUCCA Convention. Force resulting from adjustments will be analyzed. The influence of gravity on the adjustment-correction will be discussed. It will be a practical educational program in which all participants will become involved so that they may take home with them the knowledge essential to their practices. Participants will be given a year's membership in NUCCA so that they can keep up with NUCCRA research findings without additional cost to them.

A schedule of the 1980 NUCCA Annual Convention and Educational Program is listed in this MONOGRAPH. Applications must be sent into NUCCA Headquarters by March 1, 1980. Space is limited and, because of the practical work involved, the program will be limited to 100 applicants. Additional information can be obtained by writing NUCCA, 217 West Second Street, Monroe, Michigan 48161.

ANNOUNCEMENT

Dr. Julia A. Hernandez announces her association in practice with Dr. R. R. Gregory, at 217 West Second Street, Monroe, Michigan.

A native of Chicago, Illinois, Dr. Hernandez later moved to Florida where she received her preliminary education at the Florida Keys Community College.



Dr. Julia A. Hernandez

In 1975, Dr. Hernandez enrolled in the National College of Chiropractic, transferring in 1976 to the Palmer College of Chiropractic. While at Palmer, Dr. Hernandez was the Vice-President of the N.U.C.C.A. Club for 1977 and 1979. In 1977, Dr. Hernandez assisted Dr. Sherry P. Dickholtz in organizing N.U.C.C.A. Day at Palmer. During her externship at the Palmer Clinic, Dr. Hernandez attended N.U.C.C.A. Educational Seminars. In her graduation class of 1979, Dr. Hernandez received The Student International Chiropractic Association "Dedication" Award.

Dr. Hernandez received her Michigan State License in 1979, and is also a diplomate of the National Board of Chiropractic Examiners. Although she does not plan to make Monroe her permanent home, Dr. Hernandez hopes to practice with Dr. Gregory for several years.

THE FOURTEENTH ANNUAL NUCCA CONVENTION SCHEDULE

Saturday, May 3, 1980:

8:00 - 8:45 Registration
8:45 - 9:00 Invocation (Rev. H. B. Fehner, Pastor Emeritus, Trinity Lutheran Church)
9:00 - 9:30 Opening Address (Dr. Donald K. Moon)
9:30 - 10:30 Structure Identification (Dr. Julia A. Hernandez)
10:30 - 12:00 Simplifying the Adjustment (Dr. Steven Goodman)
12:00 - 1:30 Lunch
1:30 - 3:00 Researching the Spinal Column (D. C. Seemann, Ph.D.)
3:00 - 4:30 Mechanics of Atlas Rotation (Dr. Thomas R. Elliott, Jr.)
4:30 - 6:30 Basic and Advanced Film Analysis (Dr. R. R. Gregory)

Sunday, May 4, 1980:

8:30 - 10:00 Basic and Advanced Film Analysis (cont'd)
10:00 - 11:00 Kinesiological Principles in Adjusting (Dr. R. R. Gregory)
11:00 - 12:00 Adjusting: Practical Work (Instructors: NUCCA Board Members)
12:00 - 1:30 Lunch
1:30 - 3:00 Anthropology: From Physical Anthropology to Chiropractic (R. T. Anderson, Ph.D.) (Professor of Anthropology, Mills College, Oakland, Calif.)
3:00 - 5:00 Film Analysis (Instructors: NUCCA Board Members)
5:00 - 6:30 Dinner
6:30 - 8:00 Public Health and Chiropractic (David J. Lieberman, M.D., M. P. H.)

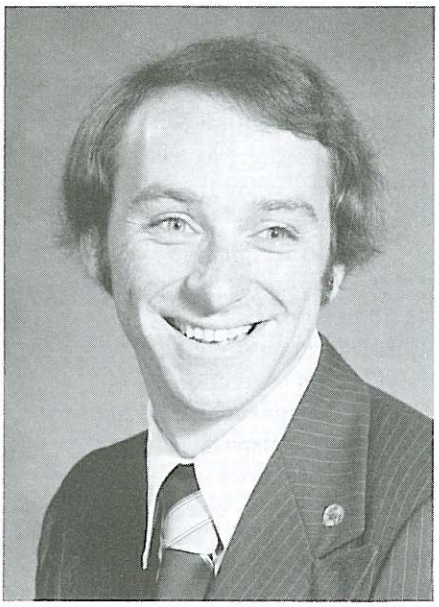
Monday, May 5, 1980:

8:30 - 10:30 Biomechanical Principles in Film Analysis (Dr. R. R. Gregory)
10:30 - 12:00 Adjusting Practice (NUCCA Directive Board Members)
12:00 - 1:30 Lunch
1:30 - 3:00 Film Analysis (cont'd)
3:00 - 5:00 NUCCA Annual Business Meeting (Election of Directors)
NUCCA Banquet: Colonial House, Speaker Judge Andy Devine

Tuesday, May 6, 1980:

8:30 - 10:30 Office Procedure For the Upper Cervical Practitioner
10:30 - 12:00 Film Analysis (NUCCA Directive Board)
12:00 - 1:30 Lunch
1:30 - 4:00 General Review

DR. STEVEN N. MACDONALD



Dr. Steven N. MacDonald

Dr. Steven N. MacDonald announces the opening of his office at Pacific Grove, California 93950.

A graduate of the Palmer College of Chiropractic, Davenport, Iowa in June of 1978, Dr. MacDonald practiced with Dr. George Neukam in Los Gatos, California until January of 1979 when he became associated with Dr. Harold Farris, Fresno, California. Dr. MacDonald values his practice experience while with Dr. Farris who is a longtime NUCCA member and practitioner. In September Dr. MacDonald and his wife Vicki moved to the Monterey Peninsular and opened an office in Pacific Grove.

Dr. MacDonald was born in Spokane, Washington in 1951, and there attended Gonzaga University, graduating in 1974 with a B.A. degree in Biology. He enrolled in the Palmer College after becoming interested in chiropractic through a friend's enthusiasm. After a classmate at Palmer's, Dr. Sherry Dickholtz of Chicago, challenged his "ideas on chiropractic", Dr. MacDonald became affiliated with NUCCA.

NUCCA is proud of this excellent chiropractic practitioner, and extends to him and his lovely wife its best wishes for a long and successful career.

A CHIROPRACTIC DIALOGUE

By Ralph R. Gregory, D.C.

INTRODUCTION

The research work of the National Upper Cervical Chiropractic Research Association, Inc. (NUCCRA) is slowly changing the practice of chiropractic. By applying measurement to the subluxation, to its reduction, and to subluxation-caused effects in the body, NUCCRA is forging a new chiropractic dimension. The employment of the relevant and established principles of the physical sciences gives credibility to the establishment of the subluxation on a scientific basis. In this day of professional disputation, when the profession is torn over the merits of the subluxation and its reduction, NUCCRA is applying the balm of validity, replacing skepticism with proof, belief with conviction, and error with truth.

The purpose of this dialogue, therefore, is to stimulate discussion within the chiropractic profession, not to degrade any system; nor is it to further controversy. But too many manipulative and adjustic procedures are arbitrarily based, making their application to the patient risky. Not only do they **not** correct subluxations, but can increase them. Nor do the vitalistic notions too often relied on explain the mechanism of the subluxation. Ineffective adjustments and vitalistic concepts do not lend themselves to authentic research; only from the subluxation that shows measured reduction can one realistically derive knowledge of those benefits that may accrue to the patient. NUCCRA research findings show that unsuitable adjustments, adjustments that do not correct the subluxation's misalignment factors, are being taught and used in violation of basic chiropractic theory and in non-observance of the chiropractor's duty to the public.

D. D. Palmer, the father of chiropractic, recognized the adjustment of a subluxation as the restoration of the vertebra to its normal position when he wrote: "Remember, adjustments are only made when a vertebra is returned to (its) normal position".[1] Chiropractic literature contains frequent statements that lead the reader to believe that chiropractors are skilled in replacing displaced vertebrae. Even the word "adjustment" emphasizes the idea of matching one thing to another.[2]

It is, therefore, understandable why NUCCRA research changes chiropractic practices, because NUCCRA is measuring the subluxation, its reduction, and the physical effects of both on the body; NUCCRA is using measurement, the language of scientific research. It deals only with the world of reality in its evaluation of the subluxation, that which is clearly apparent to the senses.

In this article, NUCCRA discusses its recent findings over the past nine years and some of the reasoning that flows from its research. It is hoped that this discussion will stimulate dialogue between NUCCRA and factions of the profession that hold different views.

DISCUSSION

It is frequently said that adjustments can do no harm. Such assertions can not be supported by any principle of physical science. An adjustment is a force generated by the adjuster's body for the purpose of realigning a misaligned vertebra that stresses nervous structure. Force, being a vector quantity, involves magnitude and direction, and direction is the line of movement initiated by the force that is applied to the object. Where an adjustic force is directed determines if the adjustment is harmful or beneficial to the patient.

Certain principles of Dynamics, the science of force acting on bodies either at rest or in motion, apply to adjusting vertebra. The adjuster creates the force or mechanical energy in his body that causes the motion of the vertebra to which the force is transferred. Because force has direction, the direction of force must be first determined if the vertebra is to be correctly moved. Direction is determined by accurately analysing the malpositions into which the suspected vertebra has abnormally moved.

The misalignments, or misalignment factors, of every subluxation have their own reduction pathways which are, of course, the exact reverse of each misalignment. The resultant of all the individual misalignments is the final reduction pathway. It is along this resultant that the adjustic force must travel to be corrective. Thus, an accurate analysis is prerequisite to establishing the direction of the adjustic force, justifying the use of x-ray for that purpose. Palpation, at least in the upper cervical spine, is too inadequate a method from which to determine the direction of a corrective adjustic force.

If subluxated vertebrae did not first misalign, there would be no need to adjust. A normally situated vertebra operating within a normal range of motion can not cause a subluxation. It is, therefore, not adjustable; to apply force to it would be traumatic. The purpose, therefore, of the adjustment is to apply mechanical energy to restore a misaligned vertebral segment to its normal position. Mechanical energy is the only form of energy capable of restoring misplaced vertebrae. This fact places chiropractic strictly within the mechanical sciences.

Wrongly directing adjustic forces cannot be other than traumatic. They produce larger vertebral misalignments whether they result from incorrect analyses or from misdirected force. The basic theory of chiropractic—that subluxated vertebrae must be restored to normal position—is violated. If the chiropractic theory is valid—that subluxations do stress the nervous structure—how can wrongly directed adjustic force be justified? Or rationally explained? How can it be explained to the scientific community that there in fact does exist a mechanical normal for the spinal column (which they know) but that few chiropractic adjusting systems incorporate this concept?

Disagreement seems to exist among chiropractors about what constitutes a normal position for the segments of the spinal column, and some refute the idea of a mechanical norm, depending instead upon some nebulous vitalistic notion that is supposed to determine the ability of the adjusted (?) vertebra to correctly position itself. Measurement consistently refutes this notion.

Normal vertebral position can be described as that position where a ver-

tebra conforms statically or in motion with its adjacent members, where it aligns to the vertical axis of the body, where it moves concentrically about its disc center of motion, and where all motion takes place within a normal range of motion. That, incidentally, is the objective of the adjustment: to recreate this spinal situation.

A vertebral misalignment, although it may not be a subluxation, results from the movement of a spinal segment operating inefficiently within an abnormal range of motion. Vertebrae, in other words, do not become "fixed" while functioning within a normal range of motion, as has been suggested. The range of motion must first become abnormal before a subluxation can occur, before nerve structure is stressed. A subluxation can be demonstrated to be a misaligned vertebra within an abnormal range of motion. Several vertebrae are involved in an abnormal range of motion when the subluxation occurs.

Abnormal vertebral motion can be better understood if a frame of reference is used. The orientation planes of motion are such a frame of reference, a gauge by which normal and abnormal motion can be visualized (Fig. 1).

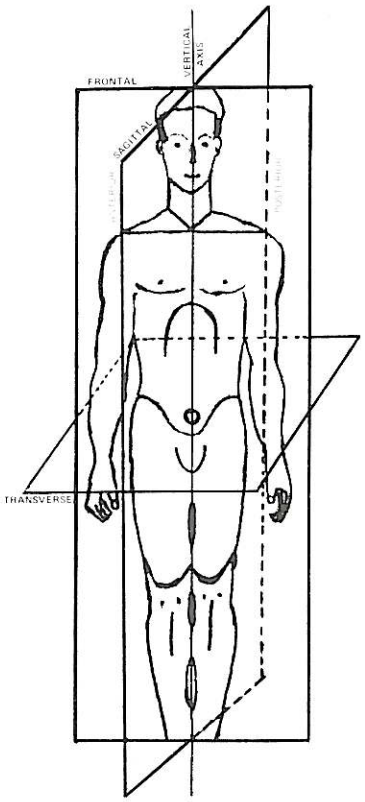


Figure 1

They indicate the degree and the direction of the motion of a vertebral subluxation, or any displaced joint structure, and its normal resting place which is always on the vertical axis of the body. In abnormal vertebral motion, the disc center of motion no longer rests on the vertical axis, and the segment no longer follows the fixed course prescribed by its joints. In normal motion, the vertebra moves about its disc center of motion on the vertical axis, and it moves in accordance with the shape and size of its joint structure.

Joint structures vary throughout the spinal column from the 40° obliquely sloped facets of the cervical spine to the lumbar spine where the articulations are aligned more to the sagittal plane. Any force entering one of the spinal areas is influenced by the shapes of the articulations of that area which receives the force. The force is also influenced slightly by any deviations that the spine or spinal area may have made from the vertical axis of the body. Because of joint structure influence, the adjusting of lumbar and dorsal spinal segments requires little skill. Adjusting the cervical spine, however, is difficult and requires precise analysis and far greater skill. This is especially true of the occipital-atlanto-axial spine where joint structure influence is lacking insofar as being an aid in the adjustment. This area is also complicated by the fact that the cervical spine makes greater excursions from the vertical axis, and the shapes of the articulations permit greater excursions into all the planes of motion.

When a C1 subluxation occurs, the entire spinal column deviates from the vertical axis of the body and abnormal function of the spinal column is present. A C1 subluxation, therefore, stresses the entire spinal column, moving it abnormally from its true positional relationship in the body. Gravitational stress compounds the problems associated with a C1 subluxation.

In the cervical spine, vertebral misalignments occur when the entire cervical spine deviates from the vertical axis, or normal. Cervical spinal function is impaired by a partial loss of contiguity of the joint structure. The abnormal movement of the entire cervical spine from its normal positional relationship to the vertical axis sets up vertebral rotational motions into the transverse plane. The abnormal movement is eccentric because the vertebrae no longer rotate about centers aligned to the vertical axis, but about displaced centers of gravity. This phenomenon takes place in over 90% of the cases.

Deviation of the cervical spine as a unit from the vertical axis of the body sets up gravitational stresses, not only in the cervical spine but throughout the spinal column. Loss of equilibrium accompanies the gravitational stresses. Equilibrium must be restored to the spinal column by the C1 adjustment of the subluxated patient. An adjustment of C1 must be, therefore, precise to be effective in rebalancing the spinal column. C1 is the only spinal segment that, when adjusted, can restore balance to the spine and pelvis.

Measurements before and following a C1 adjustment show clearly that a C1 subluxation causes loss of balance in the entire spinal column, expressed in terms of distortion. That there is a link between pelvic and spinal distortions and a C1 subluxation can be and has been demonstrated on hundreds of cases without exception. In fact, these spinal distortions have become proof of the existence of a C1 subluxation. Because the pelvis is the foundation of the spine, its excursions from the vertical axis distort the spinal segments. Thus, C1 subluxates causing spinal imbalance, displacing the pelvis from the vertical axis, and the displacement of the pelvis compounds the problem of spinal distortion and imbalance. The basis of the distortion and imbalance problem in the subluxated patient is neurological: stress on the brainstem by the lateral movement of C1. The precise correction of the C1 subluxation is, therefore, a full-spine technique, and a C1 subluxation is the master subluxation in the spinal column (Figures 2 & 3).

NEUROLOGICAL RATIONALE

A C1 subluxation causes widespread detrimental effects throughout the spinal column because it creates an imbalance between the facilitatory

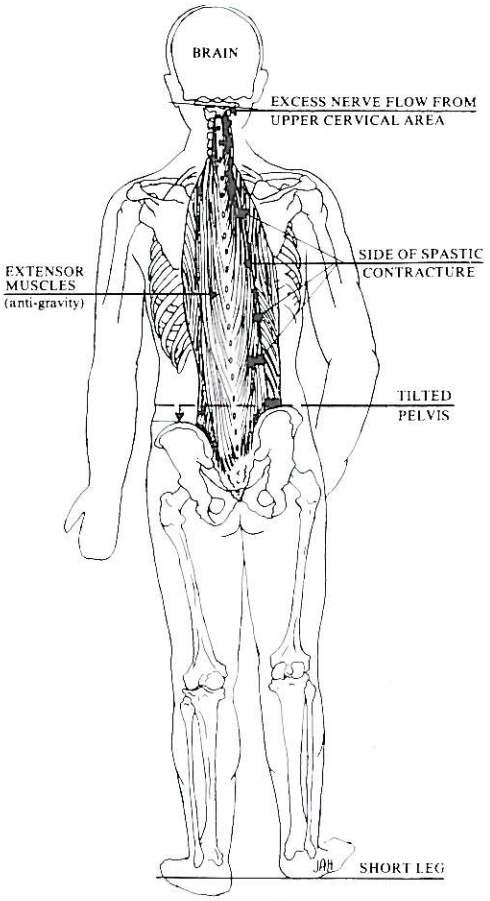


Figure 2
ATLAS SUBLUXATION COMPLEX SYNDROME

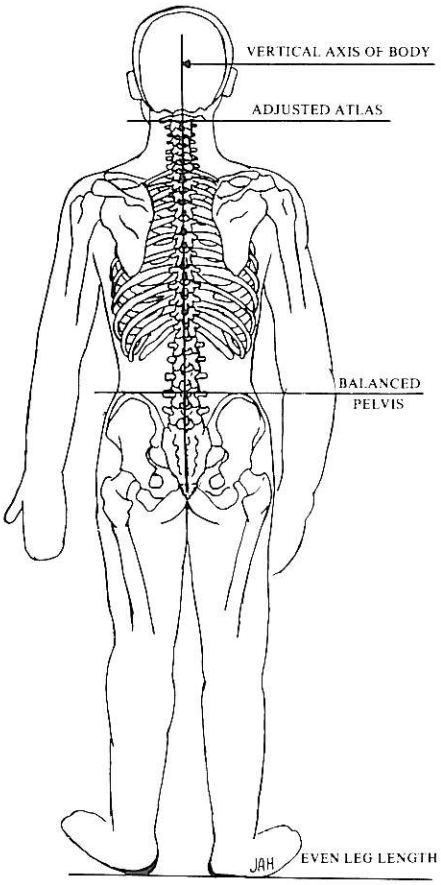


Figure 3
CORRECTED ATLAS SUBLUXATION COMPLEX SYNDROME

and inhibitory mechanisms in the reticular formation of the brain stem. A lateral movement of C1, no wider than a pencil mark, can trigger neurological detriment in the central nervous system (CNS). No appreciable tolerance for lateral movement exists between C1 and the occiput; it is the only vertebra that has such a slight normal range of motion laterally.

The neurological component of a C1 subluxation is the CNS. Magoun (1968) states that the central reticular formation of the brain stem exerts ascending influences upon the cerebral cortex and gives rise to descending connections to the motor outflows from the spinal cord. The more cephalic of these connections facilitates spinal motor discharge while the more caudal region exerts an inhibitory action. Imbalance between these extrapyramidal motor connections is thought to give rise to spasticity. In spasticity, the inhibitory connections, being unopposed, exert an augmented effect.[3]

NUCCRA research demonstrates by measurement methods that a C1 subluxation causes imbalance between the extra-pyramidal motor connections, causing distortions of the pelvis and spine resulting from spastic contracture of the extensor muscles whose function it is to keep the spinal joints intact. NUCCRA research confirms that all subluxated individuals have a subluxated C1, without exception, and that spinal equilibrium is lost. NUCCRA research supports the hypothesis that without a correction of the C1 subluxation, there can be no true adjustment of the spinal column.

The pathology of a C1 subluxation is over-innervation, an excess of supply to the motor neurons of the spinal cord. Normal innervation can come about only by a correction of the C1 subluxation.

It logically follows, therefore, that every subluxated patient must receive a C1 correction if he is to be benefited by chiropractic services. His spine must be restored to the vertical axis of his body and his pelvis balanced to its normal position. In other words, equilibrium must be restored if permanent relief is to be obtained for the patient, and gravitational stresses throughout the spine must be eliminated.

The objective signs of a subluxation are those perceptible to the examiner through physical means; they are objective. The signs that are being discussed in this article are physical signs, subject to accurate measurement. Because they are always discernible through measurement procedures whenever a C1 subluxation activates the patient's body and spinal column, they have been termed the Atlas Subluxation Complex Syndrome (ASCS). Measurements before and after C1 corrections serve as a sure method for ruling out rare cases of anomaly or pathological entity that might contribute to leg disparity.

(To be con't., next issue)

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