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TABLE OF CONTENTS

Palmer College Homecoming Presentation: Part II
by R. R. Gregory, D.C.

Thoughts About The Future of Chiropractic
by Donald K. Moon, D.C.

How Does Axis Spinous Affect The Cervical Spine?
by Steven N. MacDonald, D.C.

Understanding Torque
by Steven N. MacDonald, D.C.

Is The Basic Type One The Most Common Subluxation?
by Kerry L. Johnson, D.C.
Daniel C. Seemann, PhD.

The Anatometer 1971-2000
by J. Palmer
T. A. Palmer, D.C.

Anatometer Measurements: A Field Study Intra-and Inter-Examiner Reliability and Pre to Post Changes Following an Atlas Adjustment
by D. C. Seemann, PhD.

Aims and Objectives of NUCCA: Analysis of Some Unsolved Problems in Chiropractic
by R. R. Gregory, D.C.

Article Review
by D. C. Seemann, PhD.

Letter to the Editor
by Michael Thomas, D.C.

A Challenge for the NUCCA Membership
by D. C. Seemann

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Palmer College Homecoming Presentation: Part II

by R. R. Gregory, D. C.

. *Part II concludes the selected portions of the August 23, 1966, presentation by Dr. R. R. Gregory at the Palmer College homecoming. The reader should be aware that discussion on 80 slides covering 14 patients has not been included in either Part I or Part II. Part I appeared in the April 1999, issue (Vol. 6, No. 1) of The Upper Cervical Monograph.*

The reader should be aware of the significance of the timing of the lecture. Dr. John Francis Grostic died in 1964, the National Upper Cervical Chiropractic Association, Inc. was formed on April 16, 1966, and the first NUCCA News was published in December of 1966 (the first Monograph was published in March 1973.). Editor

(Elements in the Calculus of the adjustic vector)

As was stated before, the reasoning upon which these elements are based is that of the principle of obtaining mechanical advantage. If the first element, the plane line, appeared as higher than the square line with which it is compared, it would be necessary to bring it down the necessary amount. If it were lower than the square line, it would have to be raised by the adjustment. Atlases do not subluxate always to the high side. This is some of the reasoning on this element of subluxation or misalignment.

Sometimes the plane line is neither high nor low. In that case the necessity for obtaining mechanical leverage is absent; there is no need to consider it, so the analyzer calls it a zero. This means that he intends to leave it unchanged in the adjustment; neither raise or lower it.

Fractions are also included. The difference between the square line and the plane line might be one-sixteenth in which case the analyzer would place a plus or minus one-quarter in the column of elements. Or it might be that the analyzer would find that he had five-sixteenths, either plus or minus, and he would accordingly place the figure one and three-quarters in the column. These figures in the column represent inches or fractions of inches, because at the distance of the adjustor's episternal notch to the patient's transverse process they expand to inches. This is true of the figures for the other three elements, too.

Now the plus means that the adjustor will go higher in his line of drive and the minus means that he will go lower. This is one explanation. The real reason, however, is that from a standpoint of spinal mechanics, when the element is a plus it means that the adjustor must go higher in his line of drive in order to obtain a greater mechanical advantage in overcoming some resistance which is greater in the particular element which he is considering. The minus means again of course that the adjustor will go lower, stand lower in his line of drive; he will direct the vector of force from a lower angle. From the standpoint of spinal mechanics, the minus means that the adjustor will stand lower because he does not need the mechanical advantage in that element which he so designates as a minus because there is not the resistance to be overcome.

Therefore, the mechanical advantage is shifted this way and that so that it becomes relevant to the resistance. Not to do this would be analogous to using a crowbar to move a pebble, or on the minus side it would be comparable to using a toothpick to move a hundred pound rock.

In the second element of the line of drive--the atlas-odontoid relationship--the resistance to the adjustment is determined by the comparative positions of the odontoid to the atlas. If, for example, the odontoid laterality were four degrees to the right and the atlas laterality were one degree to the right, the resistance would be greater. The adjustor would have to move the odontoid in such a case four times faster than he would the atlas. To do this he would consult his booklet and find that he would have to add two inches to his final line of drive to overcome the resistance and obtain the proper mechanical advantage to move the odontoid four times faster than he did the atlas. This is only one combination of atlas-odontoid relationship; there are minus relationships also where the odontoid laterality is less than the atlas laterality, and somewhere the odontoid laterality is opposite to the side of laterality of the atlas, and these would be minus because the mechanical advantage must be lessened to coincide with the lesser resistance encountered in the adjustment.

Considering the third element of the line of drive--the condylar-axial circles--the mechanical advantage must be greater if the axial circle is larger than the condylar circle because the adjustor must come down and around the condylar circle and down and around the axial circle. This is true in all cases where the fulcrum is on the side of the atlas laterality; when it is on the side opposite the side of atlas laterality, this is not true. In these cases the adjustive force must go up and around the head of the patient.

In the fourth element--the subluxation and kink--if the lower kink is greater than the amount of atlas laterality, the mechanical advantage is again proportionally lessened because the resistance is less, so it will come on the minus side; i.e., if the lower kink is on the side of laterality, that is. If the kink is opposite the side of laterality, the resistance is greater so the mechanical advantage is greater and it is a plus quantity.

We could go on now and relate these four elements in their inter-relationships one with the other to show why certain kinks exist with certain atlas-odontoid factors and with the condylar-axial circles, how this effects the resistances which have to be overcome in the adjustment, and what should be done about these conditions; but I am afraid that this would get confusing and we would run out of time on this matter of spinal mechanics alone. I want instead to tie in some of the reasoning on the adjustment.

Technically, the giving of an adjustment is work; and, according to the physicists, work is the overcoming of resistance. More specifically, in quantitative terms, work is the product of the force exerted times the distance covered, or W equals FxD. Work is done only when a force succeeds in moving the body it acts upon.

If we analyze the definition of work, we can readily see that this formula of W equals FxD requires that there be motion in the direction of the force. In other words, force is a vector which means that it is going somewhere; it is going in some direction, and this is just a true of the force generated to do work.

As some of you know, I have compiled a table of mathematical relationships between the elements found in the subluxation and the force vectors that must be inherent within the adjustment to properly correct any given misalignment factors in any given subluxation, and to date, these constitute some 250 in number.

Force is anything which produces motion or change of motion. This being true, it is only common sense in chiropractic, as it is anywhere else, that the force of the adjustment be controlled and pre-determined as to its end result. The only way known to science so far as to how to control and direct force so that its end result is known before it is delivered is by accurate measurement of the factors that must be changed by the force and the directions in which they must be changed.

This is a fact with which, I am sure, that the FDA is acquainted, and I am equally sure that when they get around to us, they will raise the question as to how we predetermine accurately the force that produces motion and produces change of motion in the vertebrae which we adjust; and I think that they will scrutinize our analytical procedures and our adjusting procedures with intense interest and with careful care. I do not believe that they will look with approval upon forces so wrongly determined, or adjustments so ineptly given, that increase the misalignment factors of a subluxation, or those given in one area of the spine that increase subluxations in another region of the spine. There is a vast difference between the predetermined results of an act and the haphazard consequences of an act as many an individual has found out in our courts.

The formula of Work equals Force times Distance operates every time any of us delivers an adjustment whether we move a vertebra toward center or away from center--whether we reduce the subluxation or increase it--whether we benefit the patient or whether the force operates to his detriment. The D in the formula stands for distance and is the factor which produces the motion or the change of motion in the vertebra adjusted. It is a matter of scientific knowledge, and it is the basis upon which any system of analysis or adjusting must stand or fall.

Unless the analysis of the films and the analysis of the adjusting procedure are such that they pre-determine and control the vector of force used in the adjustment to the end that the misalignment factors are reduced, the procedure is a dangerous one and should be abolished.

D. D. Palmer realized this because he said: "Any person can learn to hit the high places, replace and displace vertebrae, relieve one disease and cause others." And he further stated: "the art of adjusting should be guided by scientific knowledge," and he spoke of the art of adjusting as being the "placing into proper relations those vertebrae that were displaced."

When the adjustive force is going somewhere it is transmitting energy. Now, there are four processes by which energy may be transmitted from one system to another. They are: mechanical, electrical, chemical and thermal. In any of these processes, the energy either gained or lost is kinetic or potential.

In the chiropractic adjustment, the process is mechanical. By the act of the adjustment, energy is created to do work which is force times distance, and it is this energy that moves the vertebra. It is just as easy to move it the right way as it is to move it the wrong way.

The adjustment being mechanical in its process uses impact and compression, as opposed, let us say, to thermal where radiation and conduction would be involved with heat added or lessened. Electrical and chemical processes are not applicable to the reduction of the vertebral subluxation either because a pill will not move a vertebra and neither will electrical processes move a vertebra toward normal by intention.

The adjustment, therefore, because it is a mechanical process for the transmission of energy is the most feasible and logical--the most efficient method for restoring vertebrae to normal. This is true if by the word "adjustment" one means a mechanical method of restoring vertebra to or toward normal position. On the other hand, rotatory leverage principle, traction master cervicals and the like are mechanical applications or processes but they definitely violate mechanical principles. So they can hardly be called adjustments. This is also true of adjustments not based upon sound measurement principles or upon mathematical principles.

In my humble opinion, the scope of chiropractic practice is the measurement of the subluxation; its misalignment factors; the reduction to normal of the misalignment factors; the means and methods to do so by human leverage; the relation of the elements of the subluxation to disease processes inclusive of the means and methods to accomplish this. In other words, the scope is the basic restoration principle inclusive of all that flows naturally and uninterruptedly from it.

How else can chiropractic survive as a separate and distinct science? How else can its value to society be determined? In what other way can statistics of value be obtained regarding the efficacy of chiropractic? How else can unity based on principles rather people be secured? Experience should have taught us this because for years we have tried to beat the subluxation, twist it, heat it, electrify it, wash it and even ignore it. We have used every excuse we could to alibi our failure to intelligently deal with the subluxation. D. D. Palmer knew this too because he said: "Adjusting is the result of intellectual and mechanical force on the part of Educated--not of INNATE."

Any technique is simply a device for the solving of problems in the area of the production and the reduction of vertebral subluxation. If it does the job and can show proof of doing the job it is a good technique; if it does not reduce or restore the misalignment factors of the subluxation to their normal positions and cannot prove that it does this, it is not a safe technique.

Even though the patient does not obtain relief from the condition for which he consulted the chiropractor, if the patient's subluxation is removed and its misalignment factors are restored to their normal positions, the chiropractor has done the job for which he was consulted.

Today, one old spirit possessed by the pioneer D.C. has died. It was a radical spirit because it was based upon faith: it had a religious aura, but it served to establish chiropractic.

Somewhere we have failed to supplant this faith with knowledge; we have failed to prove one basic principle, and

because of this failure, we have compromised the basic principle in our daily practice. There are many ways to compromise a principle, and the principle of chiropractic can be damaged and destroyed most effectively in the chiropractor's office little by little in the everyday practice of it.

Again considering again our formula that work equals force times distance, the resultant established from the total of our four elements and the rotation of the atlas vertebra is the "D" or direction factor of the formula. This is the vector of the adjustive force which is going somewhere, and if it going where it should not go--due either to faulty analysis or improper control in the adjustive act itself--its end result will produce wrong motion in the vertebra, the production of more subluxation and eventual detriment to the patient.

This is also true if an adjustment is given in the absence of the need for one, that is, if the patient is checking clear, and I wish we had the time to discuss the neurological as well as the physical reasons for not adjusting a case when it is checking clear. An adjustment is not a device to hold a patient, it is a process for transmitting energy in order to restore subluxated vertebrae.

In the Grostic work, leg measurement for shortness of one leg as compared to the other leg, has been a means of verifying the existence of nerve interference. It has been shown time and again that there exists a definite relationship between a short leg and the misalignment factors of a subluxation of an atlas.

It is a well known physiological fact that spasticity of muscle structure causes bones to distort, and spasticity is present always when one leg shortens, and it is present in the pelvic and lumbar areas of the spinal column. Due to the work of Magoun and Rhine, spasticity was found to be the result of disturbances in the spinal stretch reflex. Further research by Professor K. F. Wells has established that disturbances in the spinal stretch reflex that cause spasticity are due to malfunction of the excitatory and inhibitory fibers located in the cortex of the brain and brain stem with a very few scattered in the spinal cord. Professor K. F. Wells locates the neurological mechanisms and describe their function as follows: The first central mechanism which is called the central inhibitory is located in the brain cortex, and its function is to reduce or inhibit the spinal stretch reflex.

The second central mechanism referred to as the central facilitatory is also found in the brain cortex and in the cerebellum and the brain stem with a few fibers scattered through the spinal cord. The function of this mechanism is to augment the spinal stretch reflex.

If interference of a traumatic or pathological origin cuts off impulses from the first, or central inhibitory mechanism, the normal stretch reflex, augmented by impulses from the second or central facilitatory mechanism, cause an exaggeration of the spinal stretch reflex which in turn causes spasticity of the spinal musculature.

When there is spasticity of the anti-gravity muscles, caused by interference between the two mechanisms, the normal balance and inhibiting control of the spinal musculature is diminished, spasticity is present, either chronic or acute, and contraction of the muscle length is the result. This produces pelvic tilt and/or rotation. The neurological cause of the short leg is in the cortical substance of the brain, cerebellum and brain stem.

It follows, therefore, that alignment of the spinal column end of the pelvis as well as the balancing of the patient's legs is brought about and is maintained through precise analysis and adjustment of the atlas vertebra which is the highest point in the spine at which pressure can occur.

This knowledge should cause us to re-examine our reasoning regarding shoe lifts, except in cases of anatomically short legs, and it should be abundantly clear that alignment of the pelvis does not help keep the atlas in its proper position, but that opposite is true: alignment of the atlas keeps the lumbar spine and pelvis in position.

As I have suggested before today, it is my experience and judgment that measurement is the most accurate and best system of learning about the production and the reduction of the vertebral subluxation. As Lord Kelvin said: "That which you can measure, you know something about." There is so much to be done in chiropractic; so much more to be learned. The truth of chiropractic principles should be a matter of first hand knowledge to us. Some have accepted it on the basis of faith; some on the basis of fact because they have searched its truths, and expended their efforts in perfecting its procedures and its basic principles. Such a man was Dr. J. F. Grostic. He did not believe because he knew, and as I said before today: this is the real evolution of a chiropractor that in the process of his life, he comes to the point where he knows for himself, and he has no need of faith.

And as we move forward in searching for better answers to our questions; better solutions to our problems, let us do so within the confines of those scientific principles which are applicable to our work and necessary to the proving of our basic principle so that chiropractic becomes stronger in the years ahead, and posterity may reap the benefits of our labors.

Let us, with the spirit of Galileo, that first scientific mind, realize that, as Galileo once said, "Mathematics is the alphabet with which God wrote the Universe."

I wish to thank you for your courteous attention and extend to you my best wishes for your chiropractic future.

Thoughts About The Future of Chiropractic

by Donald K. Moon, D.C.

A presentation given in July, 1999, to the High Country Chiropractic Knights. Editor.

What do we hope to accomplish with our speeches? Andy Rooney once said that one must remember that no one is as interested in what you have to say as you are. So what is the purpose of each of us giving a speech? I've never been told the genesis of this requirement but surely it is a way of sharing and motivating. A sharing of ideas and feelings—a way of motivating and encouraging others toward a positive and successful path.

So I wondered again what can I possibly share with you that you do not already know. After all, every doctor here has been successful with a history of many accomplishments. What can I tell you that would motivate you further? Perhaps nothing, perhaps some small nugget of information, or perhaps I will simply revisit and reinforce knowledge that you already posses. And maybe, just maybe, since I am a senior member of the Knights in terms of age and experience even though I am young in terms of my years as a member, I may be able to impart some pearls of wisdom.

Looking back on 41-1/2 years of practice it is apparent that there are several basic "secrets" of success that are common to all successful practices. What concerns me today is that those "secrets" are not shared by the majority of chiropractors. If they were, we would not be continuing to struggle today for the recognition that our profession and its practitioners deserve. I know I have touched on this before in one of my speeches but today I wish to explore the subject of our recognition and the "secrets" that will make it possible.

Every doctor of chiropractic has contributed to any advance or success of his or her profession simply by practicing chiropractic and helping sick people get well.

But let us examine how those contributions could and should be made better. I'm talking about involvement—not just involvement in an individual practice but in the future of chiropractic.

From the day of graduation a doctor of chiropractic should have an "attitude"—an attitude grown out of what B. J. Palmer called the "Big Idea"—an attitude of philosophical enthusiasm. Our young beginning doctors should have a burning desire to tell the world about the wonders of chiropractic. While many graduates seem to have the Big Idea, many do not. Some have even become apologists for our profession with actions betraying a feeling of professional inferiority. And their practices have suffered as a result and the profession suffered as well.

There is no question that there were significant challenges to the early practitioners of chiropractic. By early I mean those doctors who graduated as late as the 1950's. Their challenges were huge and far more threatening than those of today. In some states like Louisiana and Ohio chiropractic physicians struggled to survive as a separate profession. Fortunately, many of these doctors were also blessed with a strong sense of dedication and pride in their profession. They did not become apologists. They did not try to draw attention away from their philosophy and their theories by emphasizing their similarities to medical physicians rather than their differences. And yet, it is our difference that allows us the right to exist as a separate profession. Yes, the early practitioners of chiropractic have left a legacy and paved the way for those who follow.

Oh how I wish I could be a benevolent dictator and determine the future actions and the direction of the chiropractic profession. Perhaps that sounds arrogant but I wish it anyway. Let us explore the reasons why we still have problems today. And, let us consider what might be done to address them.

While serving on the Ohio Board of Chiropractic Examiners, the subject of my examination at that time was "Principles and Practice". As you know that is a broad subject allowing almost any question about any area of practice. One of my questions was "Explain the difference between the chiropractic profession and the medical profession." One young doctor appeared to be confused about the question so I prompted him. I said, "You are a primary care provider, aren't you?" He answered affirmatively. And I followed with "And medical doctors are also so what is it that makes you different?" I was dismayed when the doctor could not think of a satisfactory answer.—He failed my exam.—

I wondered what our colleges were teaching when they graduated a doctor so lacking in pride and understanding of his individuality.

I would like to send the following message to every chiropractic college:

It is not enough to teach the basic sciences. It is not enough to teach diagnosis. It is not enough to teach physical therapy and rehabilitation. It is not enough to teach nutrition. It is not enough to teach technique. Our students must have a well developed sense of who they are, with pride in their differences, philosophy and science. Although I never attended a Parker seminar, I suspect that Jim Parker helped to instill a feeling of self worth to attendees.

Today's challenges to our survival are just as real as they were years ago. They are more sophisticated and more subtle but just as real. Now we not only have challenges to our right to be a separate profession, we also have a fight for turf—a piece of the health care pie. I can hear it now and in the foreseeable future—the M.D.'s saying, "Oh yes, manipulation is effective but better and safer in the hands of M.D.'s and D.O.'s. I said "future". I should say "the present." Others want to steal our thunder now. Witness the present HCFA suit as an example. We have allowed other health disciplines to perpetuate the assumption that spinal manipulative adjusting is generic to osteopaths, manual medicine and chiropractic and even physical therapists. This would be correct if we truly manipulated. We do <u>not</u> manipulate, we adjust. Check the dictionary for the difference in those words. Oh, how dare I use the word "adjust" and separate us further from the quote, "scientific" medical community. I use the word because it demonstrates the science and skills necessary to a separate profession.

So what should we do? For one thing quit trying to soft pedal

the terminology that makes us different. There are apologists in our profession who would bury the word "subluxation". Another phrase, "vertebral misalignment factor" also causes discomfort for the apologists. Would there be a chiropractic profession today without the subluxation theory? Would there be a profession today if B. J. Palmer had abandoned his principles and concepts? The apologists think if we ignore the subluxation and talk only about our similarities to medicine that we will be embraced by the scientific community. In other words, rid ourselves of the "dogma". Webster defines dogma as "a point of view or tenet put forth as authoritative without adequate grounds."

It is true that our profession has relied for far too long on clinical results as proof of our theories. It is also true that much more research needs to be done to establish a firm foundation for our science. But, to fall into the same trap that befell the apologists who want to abandon the subluxation is inexcusable.

Rather that have a flight from the subluxation we must (not should), must research the concept of the misalignment factor and a measurable normal. There has already been a great deal of research which indicates that there is a measurable normal, at least in the cervical spine. This has not become general knowledge or generally accepted within our own profession. Yet, available research is very compelling. Rather than abandon our so called "dogma", if as much effort was spent researching it properly as there is trying to disclaim it, I submit that enough proof could be forthcoming to vindicate our theory.

There are some rather influential people in our profession who would lead us in another direction. If that path is followed, it will eventually lead to paramedical status for chiropractic and chiropractors.—The result of a survive at any cost mentality.

Graduates of our colleges are the product of their educational experience. The areas of research, theory and individuality must be stressed as well as the basic sciences. Our practitioners must practice with pride and our educators must be made accountable that this goal is achieved by their graduates. I don't want to see another candidate for licensure plop him or herself down in front of an examiner putting his black medical bag and stethoscope on the desk in front of him hoping to impress the examiner and yet not be able to explain the difference between a chiropractic physician and an M.D.

We need an army of prepared, dedicated and proud young doctors to face our future and its promises and perils.

Our colleges should have a course for every student in the practical aspects of running a successful practice. I thought about what I would teach students were I to give the course. I even prepared a list of so-called "secrets" to share with them. I will share some of them with you. This list is probably in the context of the booklet that Russell Sawyer had recommended for beginning doctors. All of you here know all of these and more but it's stimulating to revisit them and to imagine how much fun it would be to give the course. Here are some ideas for a successful practice:

1. Understanding and communicating the chiropractic philosophy. Educate, educate, educate.
2. Be enthusiastic. Enthusiasm is contagious.
3. Have an attractive office both exterior and interior. First impressions count. The office needn't be huge but it must be clean, neat and professional.
4. Have an educated staff. They represent you and are the first contact patients have with your office.
5. Have up-to-date equipment.
6. Involve yourself in the community. Join a service club or be active in the Chamber of Commerce.
7. Join your local chiropractic association.
8. Join your national association.
9. Keep current with recent research and be willing to accept that you can improve your knowledge and technique.
10. Encourage inter-professional relations with other health providers.
11. Be willing to give to your patients. Don't put a price tag on every service you provide. If the patient isn't responding, take a free x-ray or don't charge for another orthopedic exam, etc.
12. Care, Care, Care. Your patients will know if you do not.
13. Fight for your rights . . . Example-HCFA lawsuit.
14. Understand the responsibility that goes with the word "professional". Remember the phrase "Ugly American"? Do not become an ugly chiropractor. Everywhere you go you are an ambassador for chiropractic.
15. Support public education and legislative efforts with your money and not just lip service.
16. Become active in politics.
17. Do not allow the apologists to force abandonment of the subluxation complex and the research necessary to free us once and for all from the dogma badge.
18. Understand that getting a degree is just the beginning. Now is not the time to pat yourself on the back. It is time to begin.

It isn't just the colleges that have a responsibility. Each individual doctor has a duty far beyond his office practice. As I said before he is literally an ambassador for chiropractic. I know those of you here know this. I'm preaching to the choir but somehow the rest of the congregation must be reached.

I was talking to a second year chiropractic student and past patient the other day and we were discussing a doctor who has been deeply involved in and given so much to the area of upper cervical research. The student remarked that he had recently met the doctor and that he was accessible and humble. This truly impressed the student. That reminded me of the time when as state president of the OSCA I ended my speech with the words, "Practice With Pride". If I were to give the same speech today I would add the words, "and be humble".

I wonder if the chiropractic doctors who are pushing, pushing, pushing putting themselves ahead of their profession in the process, ever thought about who they are, what they stand for, and what they will leave behind someday. What is better than the knowledge that you made a difference and that you will be known and remembered as a person of integrity?

Thanks for letting me share these thoughts with you.

How Does Axis Spinous Affect The Cervical Spine?

by Steven N. MacDonald, D.C.; NUCCA Board Certified

Dr. Steven N. MacDonald is currently Chairman of the Education Committee of NUCCA and is an active participant in the NUCCA Board Certification process for doctors seeking certification. An excellent interview of Dr. MacDonald by the editor of the NUCCA News, Dr. Michael Thomas, can be found in the Winter 2000 NUCCA News. Editor.

In the NUCCA X-ray analysis the cervical spine lower angle line represents the patient's spinal canal center. This line is drawn from the center of the C-7 vertebra up through the cervical spine to C-2 vertebra midway between it's body center and spinous center. This x-ray line represents the center of the spinal canal of the cervical spine.

The normal spinal canal center is on the x-axis of the orientation planes of the body. This normal position represents a perfectly aligned cervical spine with its spinal center of gravity positioned on the x-axis for efficient normal movement of the vertebrae. A malaligned cervical spine displaced from this vertical x-axis (vertical axis) and fixed within this displacement is in an abnormal eccentric position. It is now unable to produce concentric motion around a normal vertical axis, but produces eccentric motion, and can possibly cause neurological stress. This can lead to the C-1 vertebral Subluxation Syndrome: C-1 vertebra misalignment, neurological insult, spinal extensor muscle contracture, displaced spinal and body center of gravity, pelvic imbalance and a contractured short leg.

The purpose of the NUCCA doctor's chiropractic adjustment is to restore these displaced musculoskeletal structures into alignment with the body's vertical x-axis through adjustment of the C-1 vertebra. When this is performed correctly the body is restored to its proper center of gravity, neurological insult is removed, spinal extensor muscle contracture is removed and pelvic and leg-length balance is regained. Thus the body is more properly aligned with gravity for more efficient motion of its structures and less stress on its parts.

This article is written for the purpose of explaining to the NUCCA chiropractic doctor the biomechanical movement of the cervical spine and how different misalignments of C-2 vertebra spinous process affect its displacements. A complete understanding is needed for the doctor to be able to completely correct and restore a displaced cervical spine to the vertical axis.

When the cervical spine displaces into the frontal plane of the orientation planes of the body, its spinal canal also displaces with it. When the doctor adjusts the cervical spine back to the vertical axis, he/she is also adjusting the cervical spinal canal to the vertical axis. It is important to know that when the cervical spine displaces from the vertical axis into either the right or left frontal plane, what the C-2 vertebral spinous process does, affects the entire displacement. When cervical spine displaces into either frontal plane, if axis spinous displaces farther outward, then cervical spine canal will displace farther outward. If the axis spinous goes no farther in the cervical spine displacement, then cervical spine canal goes no farther. If axis spinous does not displace as far as cervical spine, but actually has less or opposite displacement, then cervical spine canal does not displace as far as cervical spine. In this situation the spinal canal could possibly be aligned with vertical axis, thus not actually be misaligned in the subluxation complex.

How axis spinous misaligns can tell the doctor a lot about the Atlas subluxation complex he/she is trying to correct, and what is the predominant factor to concentrate on in the subluxation. For example there can be a high Atlas plane line in the analysis producing a large lower angle, but in looking at axis spinous and cervical spine alignment, they might be closely superimposed over the proper vertical axis, not needing correction. The atlas vertebra is the predominant factor for the doctor to be concerned with.

Type 1 Right listing laterality (example)

If lower angle is in the right frontal plane, then the spinal canal is in the right frontal plane. The doctor needs to adjust the spinal canal to the vertical axis. The greater the axis spinous rotates into the right frontal plane, then the farther laterally by the cervical spinal canal has moved into the right frontal plane. The less spinous is rotated to the side of laterality or not rotated at all, then possibly the cervical spine will have less frontal plane displacement. This is an easier cervical spine to correct.

If spinous moves in the opposite direction of atlas laterality, then where is our spinal canal? It will be rare to measure these as large cervical spine displacements into the right frontal plane. They will either be on the vertical axis or very close to the vertical axis.

Headpiece placement for this example should be close to the caudal end of the mastoid support. On these the doctor is specifically attempting to correct Atlas laterality and spinous rotation. The doctor should visualize where spinal canal is and what they need to accomplish proper ASC correction.

Type 2

In a type 2 Atlas vertebral subluxation complex with an inferior C-2 spinous, the patient might not have a very large lower angle. In fact, sometimes when the doctor looks at the spinal canal in this situation, there might not be a lower angle, without spinal canal displacement.

Headpiece placement: The patient's head should not be placed too high up on the mastoid support, unless there really is a large lower angle present. The doctor places the apex of the round mastoid support closer to midline between skull center of gravity (SCG) and the inferior tip of the mastoid process. The doctor will not need to adjust as low in this situation, due to less cervical spine deviation.

No axis spinous displacement / or superior axis spinous

The cervical spinal canal is displaced into the opposite frontal plane of laterality and even greater displaced if there is a C-2 superior spinous. Headpiece placement: The doctor will have to place the patient's head higher up on the mastoid, so that the skull movement and correction will assist the doctor in bringing cervical spine and spinous back to the vertical axis. The doctor will want to adjust lower for these misalignments.

The doctor does not want to adjust too low with an inferior axis spinous, otherwise the misalignment can be distorted greater or achieve no change in misalignment. The doctor does adjust lower with a superior spinous, due to the fact that the axis spinous tends to come back toward the adjustor.

Type 4

In a Type 4 ASC the axis spinous movement: inferior, center or superior will usually act the same as a type 1 misalignment. It will affect the cervical spine spinal canal in the same way. The only component that is different is head tilt into atlas laterality.

Type 4 Inferior Spinous will increase lower angle and spinal canal displacement. The doctor will have to correct further to the vertical axis.

Spinous displacement that is absent: the spinal canal is more often closer to the vertical axis. The doctor might not have as far to correct to vertical axis.

In a type 4 ASC with a superior spinous there is the possibility that there will be no angular rotation into the frontal plane on the side of laterality, but angular rotation into the opposite frontal plane can exist, appearing similar to a type 2 ASC arrangement in reality. The doctor sets this patient on the headpiece similar to a type 2 to bring cervical spine and its spinal canal back to the vertical axis, using the flat mastoid support.

The purpose of this article is to stimulate discussion and ideas, so that the doctor can understand more completely the mechanics of the subluxation complex and all its components. It is important to visualize completely the various components of the ASC, it's predominant factors and axis spinous influence on the cervical spinal canal.

Understanding Torque

by Steven N. MacDonald, D.C.; NUCCA Board Certified

Chiropractic doctors who properly address the Atlas Vertebral Subluxation Complex (ASC) have to understand and correct axis spinous misalignment.

Torque in the adjustment is a method of correcting the axis vertebra spinous. It has long been a difficult concept to understand. Before we can know how to correct it, we must understand precisely what is occurring.

The cervical spine is divided into anterior and posterior columns. The anterior column consist of the vertebral bodies and discs. The posterior columns consist of the posterior articulations of the vertebrae.

The adjustor must realize that the torque is directed into the posterior columns to correct the axis spinous. Axis spinous and cervical spinouses displace in the posterior columns and this is where they must be corrected.

When a spinous misaligns, it moves up the post-zygapophyseal articulation that it is adjacent to, thus it must be corrected down the zygapophyseal joint.

An inferior axis spinous has moved up the zygapophyseal joint on the side of laterality. When Atlas laterality is adjusted, a force must also move into axis zygapophyseal joint to correct the axis spinous down the articulation, returning it to the midline of the axis vertebra.

A right sided inferior axis spinous requires a counterclockwise torque and a left sided inferior axis spinous requires a clockwise torque. Torque in these two subluxations transfers force down the zygapophyseal joint on the same side of laterality.

A high correction vector above zero forces the axis spinous away from its force, from the adjustor so to speak, and down the zygapophyseal joint to the axis body midline. A low correction vector below zero cannot force an inferior axis spinous away from the force. The reason is that this force is transferred into the atlas vertebra and away from the axis vertebra. This force cannot then go down the zygapophyseal joint on the side of laterality. A force directed from below zero tends to cause spinouses to move more lateral toward the side of laterality. This approach is helpful in superior spinouses, spinouses that have moved opposite the side of atlas laterality. The adjustic force is transferred to the zygapophyseal joint on the opposite side of laterality.

A superior axis spinous is a spinous that has moved up the zygapophyseal joint on the opposite side of atlas laterality. The adjustor must transfer a force into the zygapophyseal joint on the opposite side of atlas laterality, correcting the axis spinous down that zygapophyseal joint to the midline of axis.

The adjustor uses an opposite torque for superior axis spinouses. On a right frontal plane atlas laterality, the adjustor torques in a clockwise motion for a superior spinous. On a left frontal plane atlas laterality, the adjustor torques in a counterclockwise motion for a superior spinous.

In a superior axis spinous subluxation, the adjustor is attempting to transfer the torque into the anterior cervical column (anterior atlas arch), around to the opposite zygapophyseal articulation so that the force will move the superior spinous down its zygapophyseal joint and back to the midline of the axis vertebra.

More study is needed to increase our understanding of torque and axis spinous displacement within the subluxation and the adjustment. This article is an attempt to explain the basics of these concepts. The adjustor will have greater control of torque within the adjustment if the adjustor has a full understanding of the mechanics involved.

Is The Basic Type One The Most Common Subluxation?

by Kerry L. Johnson, D.C. and Daniel C. Seemann, PhD*

As a result of correspondence with Dr. Kerry Johnson, raw data on both laterality and rotation was sent to and analyzed by the editor. Results showed that pre-adjustment laterality means of the populations in Dr. Johnson's study were markedly different (lower) when compared to the pre-adjustment atlas laterality means found in the literature (See Vol. 4, No. 9; Monograph January 1990; Some Comments on Atlas Laterality). A two-tailed difference of the means test showed that means in this study were approximately four standard deviations lower than the pre-adjustment means in the Grostic study ($\bar{x} = 2.63°$; $n = 523$) and the Gregory studies ($\bar{x} = 263°$; $n = 100$; $\bar{x} = 2.64°$; $n = 108$), a range of possible explanations exist including from a new species of population to taking out head tilt before x-ray. Drs. Johnson and Seemann appear to be making the case for something new under the sun. As they suggest, "it would be interesting to know what other NUCCA practitioners are finding". Editor.

Background

According to data base studies by Seemann, (1,2) "Basic Type One" subluxations account for 52% of the four basic types of subluxations found by NUCCA doctors. Some field doctors claim to find a higher percentage of Type I's but this is not the case in my experience.

I have practiced in the St. Paul / Minneapolis, Minnesota area since 1986. This area has one of the highest numbers of chiropractors per capita in the US (2,3). The number of Type I's found in my office is well below NUCCA norms and the question is whether there might be a relationship between patients who have had previous spinal manipulations and the type of subluxation I find most in my practice.

This leads to two hypotheses that are part of this study:

1. The percentage of patients initially seen in my office with a Type I subluxation is considerably below the NUCCA average.

2. The number of patients found to have "out of pattern" subluxations (atypical Type I and Type IV) will be large because of previous spinal manipulations.

Method

The number of patients used was 200. They were picked from 216 consecutive new patients (2975 – 3191) seen this past year. The 16 patients who were dropped did not meet the protocol required for the study. From each chart two bits of information were recorded: Type of subluxation and whether the patient had prior chiropractic care (PCC) or no prior chiropractic care (NPCC).

Results

Table 1 shows the distribution of the basic types found in Seemann's NUCCA study. The sample represents mostly a population that had prior chiropractic care (PCC).

Table 1 - NUCCA Study

Type	# of patients	% of total
I	52	52
II	23	23
III	7	7
IV	18	18
Total	100	100

Table 2 reports the distribution of the basic types found in the current study where the patients had no previous chiropractic care (NPCC). The reader should note that category I-A was not classified in the 1989 study and would have been included as a type I.

Table 2 - NPCC

Type	# of patients	% of total
I	21	34
I-A	3	5
II	21	34
III	1	1.5
IV	16	25.5
Total	62	100

Table 3 shows the distribution of the basic types found in the current study who had previous chiropractic care (PCC).

Table 3 - PCC

Type	# of patients	% of total
I	18	13
I-A	18	13
II	61	44
III	1	1
IV	40	29
Total	138	100

Table 4 compares the percentages of the types who had prior care, no prior care, and the NUCCA study.

Table 4
A Comparison Between NPCC, PCC, and NUCCA Percentages

Type	NPCC	PCC	NUCCA
I	34	13	52
I-A	5	13	—
II	34	44	23
III	1.5	1	7
IV	25.5	29	18
I-A + IV	30.5*	42*	—

* Note in Table 4 when the "out of pattern" I-A and IV types are combined both the NPCC and PCC percentages are quite high.

Discussion

The hypothesis that the incidence of Type I's found in the investigator's office did not compare to the NUCCA findings is supported. Both categories of NPCC and PCC were well below the NUCCA norm. This was especially noted in the PCC group where only half the number was found when Type I is combined with Type I-A. This is necessary because the 1989 study did not identify the Type I-A subluxation.

Most of the patients in this study were PCC (69%). It is important to share that the 1989 data should be closer to the PCC numbers in this study, because the type of patient seen in the Monroe office mostly had prior chiropractic care.

As to the second hypothesis that prior chiropractic care patients were more likely to have the more complex "out of pattern" subluxations (Type I-A and IV) the data supports this thinking. The fact that 42% of the cases walking into an upper cervical office are "out of pattern" is quite a sobering thought and a challenge.

It is also interesting to note that more Type II's were found than Type I's. Type II's are not thought to be "out of pattern" or more difficult to adjust. The number of Type II's should be less than half of the number of Type I's found.

Conclusion

This study raises more questions than it answers. If less Type I's are found, then the subluxation has to fall in one of the other categories, in this case to the "out of pattern" types. More data needs to be gathered about the patients who have had prior chiropractic care before it can be absolutely determined that the prior care caused the problem. For an example, comparing the NPCC Type IV percentages (25.5) with the PCC Type IV percentages (29.0), they are comparable. Can we then deduce that the PCC patient was mal-manipulated when the numbers are so close?

Life styles of the patient may be another area to explore. One might find that there are more snowmobiles, hockey players, and snow/ice related accidents per capita in that part of the country and thus more trauma to blame for these findings. Old "Oly" Johnson might be turning his head the wrong way when he is milking the cows. But the original data does bear investigating as to why the large differences between the local experience and the NUCCA norm. It would be interesting to know what other NUCCA practitioners are finding.

*Dr. Johnson has completed Part II of the NUCCA certification program.

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The Anatometer 1971-2000

by Jim Palmer, Professor of Physics at the University of Toledo
and Dr. Teresa Palmer, D.C.; NUCCA Board Certified

The body of this material was submitted as part of a textbook being edited by Dr. Michael Thomas; D.C., editor of the NUCCA News and Associate Editor of The Upper Cervical Monograph. Editor.

The Goal

In 1971 Dr. Ralph R. Gregory and University of Toledo Professor Daniel C. Seemann began "*discussions concerning the researching and proving that there was a direct relationship between a subluxated atlas, pelvic distortion and a short (contractured) leg.*"[1] In October of 1971 NUCCRA (National Upper Cervical Chiropractic Research Association) was formalized. A critical part of the early NUCCRA research plan was to design an instrument--eventually called the Anatometer--which would provide objective leg-disparity data that could be correlated with postural, pelvic-distortion data while the patient was standing vertically in a load-bearing position. This was perceived as a potential quantum advancement over the relatively subjective supine-leg check procedure. This instrument had to be sensitive enough to measure subtle postural changes between pre and post adjustments, thereby providing evidence of postural distortion effects of a C-1 subluxation on the body and of the restoring ability of a C-1 adjustment.

Elementary Findings

The most elementary but yet profound findings of early NUCCRA (Gregory-Seemann) research using the prototype Anatometer (I) were the following: (1) the pelvis posturally distorts into both the frontal and transverse planes when the patient has an Atlas subluxation as determined by X-ray analysis; (2) as the X-ray determined subluxation-parameters/listings are reduced, the Anatometer listings of the patient are reduced; and (3) if the subluxation listings (laterality, rotation, etc.) are reduced to zero, then the pelvic distortion eventually goes to zero in both the frontal and transverse planes.[2]

Significant Accomplishment

These profound results lead Dr. R. R. Gregory to state at the tenth annual NUCCA Educational Conference (April 1976): "*The NUCCRA research work accomplished over the past five years with the use of the* (prototype) *Anatometer as a data retrieval instrument has established the basic NUCCA hypothesis that C-1 subluxations can be responsible for neuromusculature problems which causes spastic contracture of skeletal muscles and resultantly, bodily distortions.*"[3] On May 3, 1976, patent applications were filed on the Anatometer; on July 5, 1977, patent #4,033,329 was granted and assigned to NUCCRA. Dr. R. R. Gregory and Mr. Peter Benesh of Benesh Manufacturing were listed as the inventors. In the patent the Anatometer was described as "*A Machine for Determining Vertebrae Locations in the Human Body.*"

Capabilities

According to Dr. R. R. Gregory "*the Anatometer can demonstrate the distortion-stress effects of a C-1 subluxation on the spine by checking the malpositional relationships of key vertebral segments along the spine prior to and subsequent to C-1 correction, indicating thereby the correction obtainable throughout the spine and thus reducing the need for repeated application of X-radiation to the patient. The machine has moveable elements which provide indications of corrections or displacements and has (Anatometer I only) a pair of vertically moveable platforms with horizontally adjustable foot placement indicators mounted thereon.*

The Anatometer has several purposes and functions. Among these is the determination of the absence or the degree of the presence of interference with nervous conduction at the spinal level of C-1 as expressed in terms of bodily distortion. It determines if an adjustment of C-1 is required. It measures the effectiveness of a C-1 adjustment immediately...and, on succeeding checks, the length of time the correction remains stabilized. The Anatometer also provides a measure of *the state of muscular and/or skeletal stress of the body and to what degree. The Anatometer predicts* (via the pelvic transverse-plane movement) *the onset of C-1 subluxation and indicates changes in the misalignments of a C-1 subluxation indicative of the need for correction vector changes in the adjustment and a re-evaluation of the subluxation listing.*"[4]

In its simplest terms, the Anatometer was viewed by Dr. R. R. Gregory as a measuring stick. To Gregory's knowledge it was the first time a measuring system had been devised to "*demonstrate the harmful effects of a vertebral subluxation on the human body and to provide a means of relating these effects directly to a vertebral subluxation. Furthermore the Anatometer has provided convincing proof of the neurological rationale that C-1 subluxation can and do cause imbalance between the inhibitory and the facilitory mechanisms of the brain stem, which imbalance is responsible for spastic contracture in skeletal muscles.*"[5]

The Anatometer was designed and built to test the hypothesis that the short leg is not caused by a distorted pelvis.[6]

Contractured Leg

As use of the Anatometer became more widespread it was noticed in some patients who had been adjusted that Anatometer readings would zero in the transverse plane but not simultaneously zero in the frontal (lateral) plane. This observation was explained by the hypothesis that these patients had a congenital or traumatically caused short leg as contrasted with a contractured leg due to a C1 subluxation. The rationale suggesting this hypothesis was that the vertically-moveable footpads could not clear the frontal (tilt) displacement without creating a new transverse displacement. Observations on new patients who had not been adjusted showed that the use of the vertically-moveable footpads enabled NUCCA doctors to predict how much of the frontal displacement could be removed by clearing the C-1 subluxation. It was a simple matter to adjust

the height differential of the footpads until the transverse plane returned to a normal and then record the height differential when it existed. Because so few patients had a congenital or traumatically caused short leg and because the adjustment is only effective on the C-1 subluxation induced contractured leg, the footpads were not included in Anatometer II which was patented on February 18, 1992 (patent # 5,088,504. R. R. Gregory stated that the Anatometer (I) can be used to "*rule out the amount of curvature caused by a scoliosis and the amount in a scoliotic case caused by the C-1 induced distortion.*"[7] (No published research exists in supporting these observations.)

Predominant Factor Theory

The Anatometer findings and additional observations with the supine leg check and X-ray listings resulted in the "predominant factor theory": the predominant factor "*is that direction* (translation and/or rotation) *of the misalignment of the Atlas Subluxation Complex that caused the greatest neurological detriment, resulting in spastic contracture of the extensor or antigravity musculature.*"[8]

Limitation of Footlifts

The NUCCA doctor was now in a position to understand the limitations of footlifts. Use of footlifts resulting in transverse pelvic displacement from the normal are counter productive; use of footlifts in individuals who have both frontal and transverse pelvic displacements (and a C-1 subluxation) does not address the correctable cause--the atlas subluxation. Or equivalently R. R. Gregory states "*the patient that has both an atlas subluxation and a congenital or traumatically caused short leg must have the degree of shortening that is caused by each factor ascertained accurately if the lift is a beneficial or harmful modality.*"[9] Because NUCCA experience with congenital and traumatically induced short legs is so rare, it is hypothesized that a large portion of the population with footlifts does not really need them.

Measurements

Anatometer I is capable of 7 measurements with the potential of an eighth (height of fixed point above base of platform). The most commonly used measurements are the frontal and transverse pelvic displacements and the fixed point, located at either T-1 or C-7. The displacement of the fixed point from vertical and the pelvic displacement in the transverse plane are measured in degrees. The displacement in the frontal plane is rotatory but is not in degrees because it is in part a function of the pelvic width (right ileac crest/acetabulum to left iliac crest/ acetabulum). Measurements that are taken in inches or fraction thereof are the distance from the midline of the center of the heels to the center of the "heel-V," pelvic width, ilium height, and vertical pad differential. The smallest change in vertical footpad differential is equivalent to 0.125 inches (1/8 inch).

The Anatometer II adds several additional measurements, the most important of which is the percent weight differential. The percent weight differential is the difference between the left and right weight load divided by the total weight and converted to a percent; i.e., 100(L-R)/(L+R). The weight measurements are to the nearest 0.01 pound. These measurements are obtained from a pair of weight-sensitive platforms that are coupled to matched transducers (strain gauges) which respond to the portion of the total body weight that is supported by each of the patient's feet. The Anatometer II cannot measure a "vertical pedal differential."

Anatometer IIA, scheduled for release in summer 2000, has several changes such as the following:

(1) The neck probe for the fixed point will be replaced with a low-power laser.

(2) An optical encoder will register the inclinometer (transducer) reading in the frontal plane, the (rotary) transducer reading in the transverse plane, and the inclinometer (transducer) reading for the fixed point. All three digital outputs will have an accuracy of 0.1 degrees.

(3) The computer hardware and programming to permit the recording of the three new optical encoder data outputs.

Both Anatometer II and Anatometer IIA have data storage and print-out capabilities allowing for an end-of-day printout.

Anatometers have hip calipers that record position of pelvis in frontal and transverse planes and an extendable probe to place on C-7 or T-1 to record deviation off vertical. Anatometer II and IIA record loads on footpads. All measurements that are not transduced to an electrical signal can be locked in position; i.e., the medial or lateral movement of the hip calipers, the tilt of the pelvis, the vertical height of the pelvic calipers above the footpads, and the rotation of the pelvis in the transverse plane.

Protocol

The heel guides are positioned typically between 3 and 5 inches with the larger distance being used by males. A 4-1/2 inch setting is typical for an adult male. After the heel guides are positioned, the patient carefully steps up onto the platform and backs his heels into the V-slots of the heel guides. The feet are placed parallel to one another so that the toes point to the front of the platform. The patient's arms hang freely over the calipers while the patient looks directly forward. At this time weight bearing measurements are taken and electronically recorded.

Next the doctor palpates the crest of the pelvis. The calipers are moved from a position of about 1/2 -1 inch below the crest of the pelvis to a position that is upward and inward over the top of the crest and then locked. A slight squeeze and tissue pull are required. Press down slightly to ensure calipers are on the top of the pelvis; ask the patient to ascertain if the pressure is equal on both sides. At this point in time the doctor locks the frontal and then transverse pelvic planes.

The last major task is the palpation of T-1 or C-7 from both sides to locate the fixed point. Extend probe to fixed point and lock in position. The calipers can now be allowed to flare out so that the patient can step off the platform without unlocking any measurements. Measurements are recorded and the patient can be shown the bodily positional distortions. Patients that are over 350 pounds should not be placed on the footpads because the safety limit for the strain gauges will be exceeded.

Research

Early research utilizing the Anatometer resulted in a 3-dimensional anatomical view of posture showing the undeniable effects of a C-1 subluxation: most commonly a transverse

rotation of the pelvis coupled with a pelvic tilt in the frontal plane and an associated rotation in the frontal plane of the body's long-axis from the body's vertical axis. ["*The normal pattern would be the frontal* (pelvic) *plane would be low on the side of the short leg (-), the transverse plane would be posterior, and the fixed point would be located on the side of the short leg.*"][10] A pilot study by Seemann and Gregory showed that the second highest frequency displacement pattern of the pelvis had only transverse plane rotation and that the least frequent pelvic pattern had only frontal plane displacement.[11]

The documentation of these postural effects of a C-1 subluxation will probably be seen by historians of chiropractic as the first major post-Grostic evolutionary advancement (by NUCCA) and the first time that R. R. Gregory's work would not be credited to Grostic. From these observations a new vocabulary was developed: atlas subluxation complex (ASC), atlas subluxation syndrome, neurological component, verifiable elements, contractured leg, and predominant factor.[12]

Early research with the Anatometer was "*to confirm its reliability and validity* (objectivity)."[13] A study by Addington showed frontal pelvic displacement measurements using the Anatometer to be not statistically significant for coefficients of both reliability and objectivity. Transverse plane pelvic displacement measurements on the second day of the study had reliability and objectivity coefficients that "*failed to reach significance.*"[14] Vertical axis (fixed point) measurements were found to be significant. Intrusiveness of the numerous procedures (palpation and 44 measurements) in the study may have been the major cause of the findings. A subsequent study by Seemann showed that observer reliability in pelvic frontal plane measurements was much higher than in Addington's study although other reliability data were similar. Objectivity coefficients found by Seemann were better than those in Addington's study but still not statistically significant except in the case of the two observers who practiced at the same locale. As a result of his study and Addington's study, Seemann concluded that the most critical Anatometer procedure was the placement of the calipers.[15]

In the 1993 study by Seemann using the Anatometer II, data showed significant ($p<0.01$) change between pre and post-adjustment weight differential even though only 85 percent had a decrease in weight differential. The post adjustment measurements in Seemann's study were taken approximately 6-7 weeks after the initial measurements. Even with this length of time 14 percent of patients showed residual pelvic displacement in the frontal plane and 20 percent showed residual pelvic displacement in the transverse plane.

In a study published in the Spring 1999 Chiropractic Research Journal, Seemann reexamined the topic of inter and intra-reliability using the Anatometer II to record pre and post adjustments measurements on pelvic displacements in the frontal and transverse planes and percent weight differentials on the footpads.

To ascertain whether or not these changes were significant for each individual between pre-adjustment and post-adjustment the student t-test was performed. Both frontal plane and transverse plane pelvic distortions showed that the probability that the pre and post populations were the same was less than 0.1 percent; the percent weight differential measurements yielded less than 2 percent. Intra-examiner reliability was significantly higher in both the frontal pelvic plane ($r = 0.953$) and the transverse pelvic plane ($r = 0.765$) than in the 1984 Seemann study which had $r = 0.81$ and $r = 0.44$ respectively. Although inter-examiner reliability was lower than intra-examiner it was still considered high by Seemann.[17]

Clinical Use

The major data recorded by the NUCCA doctor using Anatometer II consists of both transverse and frontal plane pelvic displacements, the angulation of the fixed point from the vertical axis, and the percent weight differential. It is important to record the data because the patient provides his own baseline; i.e., the patient becomes his own control. With each visit the Anatometer pattern is established, as is the side of the contractured leg, headpiece type and head placement, basic type, and adjustic vector. The correlation of these patterns in a given individual are much higher than correlations between individuals with similar patterns.

The Anatometer measurement that may respond most slowly to an adjustment is the angulation of the fixed point from the vertical axis; the fixed point displacement may not change for six months or it may appear to more closely follow the healing cycle.

If the pelvic frontal plane displacement does go to zero after an adjustment but either the pelvic transverse plane displacement and/or the fixed point angulation does not, then it is recommended that the patient be monitored over time but not adjusted. Sometimes the transverse displacement does not lower due to fatigue; fatigue may account for up to 2 degrees of transverse displacement. If the transverse plane displacement and the fixed point angulation reduce slowly while the pelvic frontal plane is zero and the supine leg check shows no unbalance, the displacements in the transverse plane and from the vertical axis will most likely go to zero. If the pelvic frontal plane displacement is not zeroed but is as high as 1/2 degree, then it is recommended that an adjustment may be indicated for a patient who is not making satisfactory progress.

Closure

The Anatometer was the beginning of the NUCCRA research. It influenced every idea and concept that came after it–from the skull's center of gravity to the four basic types. The Anatometer is best utilized in conjunction with all of the NUCCA procedures and knowledge base. Without it doctors would be taking more x-rays and adjusting when it is not necessary. Its use as a research instrument has not been fully realized.

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Submitted to Chicago Chronic Fatigue News Letter in Fall 1999

by Marshall Dickholtz Sr.

For the past two years a research project has been conducted in the office of Dr. Marshall Dickholtz Sr. The effect of the National Upper Cervical Chiropractic Association (N.U.C.C.A.) correction of the atlas misalignment has been carefully studied in patients diagnosed with Chronic Fatigue Syndrome. The basis of the NUCCA correction is to remove the stress on the brainstem and associated structures to allow for improved nerve conduction and therefore, improve bodily functions. Recent CFS research has revolved around the surgical decompression of this area. The NUCCA correction is a nonsurgical procedure allowing similar decompression in this area.

After an evaluation following the strict NUCCA standards of care, radiographs are obtained. The Anatometer, a specialized instrument, is used to measure the effect of the atlas misalignment on the body's posture. After the low force adjustment, radiographs are retaken to measure the result of the adjustment. To measure the effect of this type of care on CFS patients, the SF-36 and Pittsburgh Sleep Quality index pencil and paper instruments are used to obtain pre and post adjustment data. Data was collected on each visit to measure the patient's progress over a six-month study period. The favorable preliminary results can be viewed at Dr. Dickholtz's web page, http://www.nuccadicholtzsr.com A paper will be presented to a major medical journal for publication in the next few weeks.

Dr. Dickholtz is currently seeking patients for Phase Two of this study.

Full-Length Articles From The 15th Annual Upper Cervical Spine Conference

This article is reprinted with permission of Dr. Sarah K. Webster, PhD., editor of Chiropractic Research Journal (CRJ). It originally appeared in Vol. 6, No. 1, Spring 1999 of CRJ. It is reprinted in its entirety because many NUCCA doctors as well as other upper cervical practitioners who were and are members of A.U.C.C.O. did not receive this issue containing Dr. Seeman's article because of the expiration of the agreement between the Academy and CRJ. The only change in the reprint is the replacement for the Anatometer II photograph with a diagram from the patent.

The NUCCA membership extends its appreciation to Life College and the editor of CRJ. Editor.

Anatometer Measurements: A Field Study Intra- and Inter-Examiner Reliability and Pre to Post Changes Following an Atlas Adjustment

Daniel C. Seemann, PhD

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ABSTRACT

Early studies on the Anatometer (1983 and 1984) revealed low significance of correlation with both intra- and inter-examiner reliability. Part of the difficulty with interpretation of these studies was due to the participation of inexperienced examiners performing too many measurements in too short a period of time.

The present research used experienced chiropractic doctors and assistants who collected data from volunteer patients in six different chiropractic offices in the United States and Canada. The results from the Anatometer data showed significant correlation with all three measurements used for the inter- and intra-reliability portion of the study. The pre- to post adjustment comparisons demonstrated statistical significance with a p value less than 0.02.

The conclusion was that the Anatometer is a valuable instrument for determining the effectiveness of atlas adjustments by field chiropractors.

Key Words: Anatometer, Atlas Adjustment, Measurement, Field Study

BACKGROUND

The Anatometer (Figure 1) (1-4) was designed to measure pelvic distortion in the frontal (horizontal), transverse (rotatory), and fixed point (vertical) planes. After a successful reduction of an atlas subluxation, the pelvis will return to zero degrees in all three planes. A more recent model, the Anatometer II, includes transducers in the foot plates that can detect bilateral weight differences of each leg to one tenth of a pound. With a successful atlas adjustment, the weight differential decreases toward zero. There are over forty Anatometer units (I and II) in use in the

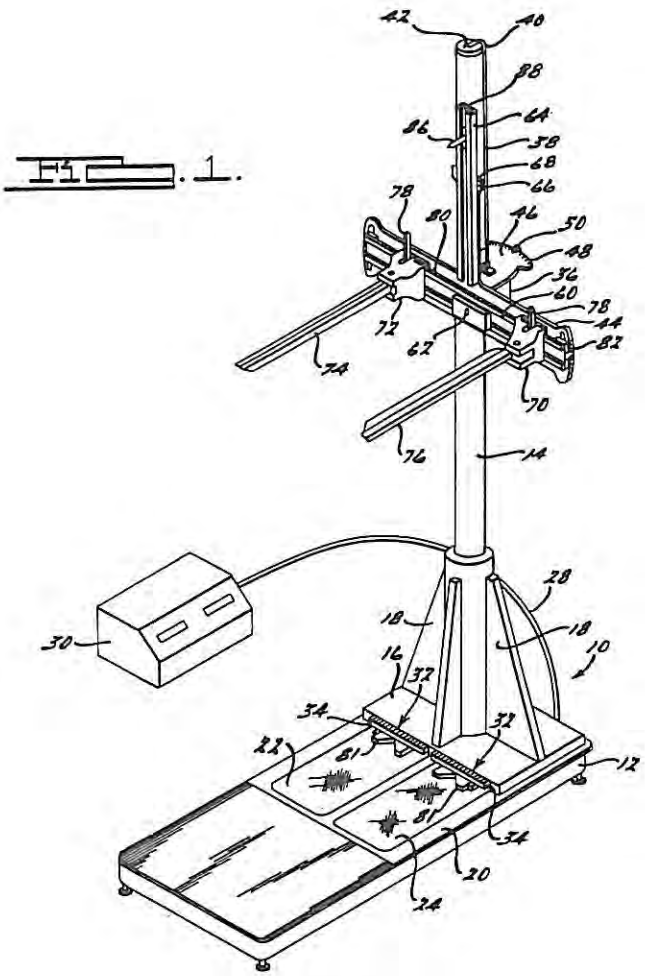


Figure 1

field, and most of the chiropractors who use the Anatometer think it is a vital part of their patient assessment. There is a need for statistical validation of the instrument. Addington (5) and Seemann (6) performed reliability studies that were similar in outcome. Addington found coefficients of correlation (r) in the 0.30 to 0.40 range both for intra- and inter-reliability. Addington in his discussion noted there were 44 measurements made on each subject over a two-day period, and many of the measurements were independent of the Anatometer.

Seemann's data was collected at a National Upper Cervical Chiropractors Association (NUCCA) seminar. The correlation coefficients range from r = 0.81 to 0.34. Of the two measurements taken, including the frontal plane (horizontal) and the transverse plane (rotation), the frontal plane was the most stable and reproducible of the measurements.

There were several technical concerns with both studies. Addington attempted to evaluate four different instruments, some of which were invasive. The observers were not well trained with the Anatometer. With the Seemann study, fatigue of the subjects

and the examiners contributed to the variability of the results. The subjects were all chiropractors who had traveled from all parts of the country and were asked to participate in the study while taking the NUCCA seminar. The observers were also not well trained and inexperienced on the use of the Anatometer.

This present study has attempted to eliminate the problems inherent in the first two investigations. The field doctors and their assistants were experienced in the use of the Anatometer. The subjects were patients who volunteered for the study in the offices of the respective field doctors. There were no time constraints as to when the measurements were to be completed. The data were collected in six different offices in Canada and the United States.

METHODS

The observers were directed to take three measurements on the volunteer patients: the frontal plane, transverse plane and weight differential. Four doctors did not participate in the inter-reliability phase of the study because they practiced alone.

The methodology is presented in Table 1. For the intra-reliability phase, two sets of measurements on each subject were taken either the same day or during the next office visit by the same observer. A post-adjustment measurement was taken at each patient visit.

TABLE 1
Research Design for Intra/Inter-Observer Reliability and Pre/Post-Adjustment Measurements

Pre-Adjustment	First Observer
Intra-examiner Reliability	1. First Measurement
	2. Second Measurement
Inter-examiner Reliability	Second Observer
	3. Third Measurement
Post-Adjustment	First Observer
	4. Fourth Measurement

Interexaminer reliability measurements were performed by a second observer taking a set of measurements prior to the adjustment. So for the inter-examiner reliability portion of the study, the field doctor took two pre-adjustment sets of measurements and one post. The second observer took one set of pre-adjustment measurements.

The data were recorded on an index card. Each observer was blind to any previous measurements. The card was placed in a data envelope to be sent to the research coordinator.

RESULTS

Table 2 compares the three pre- and post- adjustment measurements: frontal plane, transverse plane, and weight differential. Using the Student t test, all three measurements were significant with a p value <0.02.

TABLE 2
Comparison of Pre- and Post-Adjustment Anatometer Measurements

	Pre	Post
Frontal Plane		
	X = 1.25 degrees	X = 0.22 degrees.
	SD = 0.73	SD = 0.73
	n = 75	n = 75
	t = 14.49 p<0.001	
Transverse Plane		
	X = 1.45 degrees	X = 0.88 degrees.
	SD = 1.50	SD = 0.94
	n = 75	n = 65
	t = 2.64 p<0.001	
Weight Differential		
	X = 5.00%	X = 3.83%
	SD = 3.29	SD = 3.39
	n = 49	n = 52
	t = 2.44 p<0.02	

A Pearson product moment correlation coefficient was used to determine the intra- to inter-examiner reliability values. For intra-examiner reliability analysis (Table 3) the correlation coefficient for the frontal plane was r = 0.953; for the transverse plane, r = 0.765; and for the weight differential, r = 0.650. The

TABLE 3
Intra-Examiner Reliability of the Frontal, Transverse, and Weight Differential (WD) Measurements

Frontal	TRANSVERSE	WD
r = 0.953	r = 0.765	r = 0.650
x =,0.995	x = 0.363	x =,0.361
SD = 1.20	SD = 2.06	SD = 6.17
y = 0.969	y = 0.431	y = 1.606
SD = 1.225	SD = 2.228	SD = 7.690
n = 47	n = 47	n = 29

inter-examiner reliability correlation coefficients (Table 4) were frontal plane, r = 0.574; transverse plane, r = 0.603; and weight differential r = 0.709.

TABLE 4
Intra-Examiner Reliability of the Frontal, Transverse, and Weight Differential (WD) Measurements

Frontal	TRANSVERSE	WD
r = 0.574	r = 0.603	r = 0.709
x = 0.865	x = 0.499	x = 0.813
SD = 1.148	SD = 2.198	SD = 6.073
y =,0.551	y = 0.261	y =,0.627
SD = 0.760	SD = 1.632	SD = 4.980
n = 36	n = 36	n = 30

Differences among means are not statistically significant.

DISCUSSION

Some of the field doctors who have the Anatometer II model are finding the weight differential measurement (WD) to be more accurate than the subjective supine leg check. They will adjust the atlas when both legs are even but the weight differential is outside an acceptable range (a 3% difference in the WD). This finding should be a concern for upper cervical adjusters because the supine leg check (7) is routinely the only post check, other than x-rays, obtained by a majority of the chiropractors who adjust the atlas. The experienced hand adjusters will explain that it is a feel they have acquired with experience when they have reduced the subluxation. It is even more difficult for an instrument adjuster without the specific "hands on" contact to know when the subluxation has been reduced (8). With the use of the Anatometer, the subjectivity concerning the effectiveness of the adjustment would be minimized.

CONCLUSIONS

The high correlation coefficients both for intra- and inter-examiner reliability supports the hypothesis that, with experienced observers and familiar surroundings, the Anatometer can be a valuable measurement tool for assessing postural distortion.

The pre- and post-adjustment differences of the three measurements should help build the case that predictable changes take place as the result of an adjustment. The results of these types of studies improve the credibility of chiropractic care to critics who doubt the value of an upper cervical adjustment.

The present study would have been more rigorous if the major investigator controlled the variables at each location. Some of the observers had to take the measurements in one day; while for others the time of the next appointment determined when the measurement was taken. Also, the doctor was not blinded to the fact that the last measurement was the post-adjustment measurement and may have inadvertently anticipated specific changes.

An additional concern was the differences between the reliability coefficients. The intra-examiner correlation coefficients were higher than the inter-examiner reliability coefficients. This finding suggests that the level of experience of the assistants was different than the field doctor and that, perhaps, more data should have been obtained during the inter-examiner reliability phase.

Nonetheless, the benefits of this field study outweigh the loss of control. If there are competent observers, familiar surroundings, and subjects who are not chiropractors or chiropractic students, the results would more accurately represent the normal population.

ACKNOWLEDGMENTS

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Aims and Objectives of NUCCA: Analysis of Some Unsolved Problems in Chiropractic

by R. R. Gregory, D.C.

On May 2, 1969, at the 1969 NUCCA Convention in Trenton, Michigan, Dr. R. R. Gregory presented under the program heading "NUCCA Commentaries" the following lecture. Several reasons exist for publication of this lecture: (1) NUCCA had no publications between March 1969 (NUCCA NEWS; Vol. 1, No. 7) and March 1973 (The Upper Cervical Monograph; Vol. 1, No. 1) and (2) present membership, especially new NUCCA doctors (and students considering NUCCA) may not have as clear and as complete of an understanding of the early days of NUCCA. Editor.

INTRODUCTION:

Today I am to speak to you of the aims and objectives of the National Upper Cervical Chiropractic Association, Inc. There is no reason for another organization or voice unless it satisfies a need, offers solutions for unsolved problems. We believe that there are many unsatisfied needs and unsolved problems in chiropractic, and today I would like to discuss some of them with you; to go over with you some of the unsolved problems that exist currently in chiropractic, and to give you NUCCA's analysis of these problems.

Because of the grave situation which the profession finds itself in this year of 1969, I think we must discuss facts.

The voices that speak for chiropractic are many and they are diverse. They are also contradictory. NUCCA also has a voice, and it is a voice that pleads for reason; for a solution to our problems, professional as well as technical; and for a sound scientific foundation upon which to build a profession that can survive separate and distinct and as an acceptable science. NUCCA's voice is one that appeals for professional unity on the basis of the restoration of the vertebral subluxation and its role in the cause of disease; it is a voice that prays that the essential nature of chiropractic will be given a chance through scientific research in order that its validity and its effectiveness may be determined; it is a voice that requests that chiropractic may become sufficiently scientific that men of reason in our national and state legislative halls will afford it equal opportunity with other healing arts in their deliberations; it is a voice that entreats for professional maturity; last but not least, it is a voice that raises in defense of the right of humanity to be protected from the unsound practices of our day (for those practices exist in all healing arts) and it is time that chiropractic returned some of the criticism it has been receiving.

NUCCA is predicated upon the proposition that the vertebral subluxation is the essential nature of chiropractic, and is what chiropractic is all about, and that the vertebral subluxation as a concept has never been subjected to scientific scrutiny; therefore, its potential as a causative factor has never been scientifically determined and its reduction as a curative factor never scientifically established.

In spite of this situation, or perhaps because of it, the majority of chiropractors have rejected the vertebral subluxation; and, if we are honest with ourselves, we must admit that another large faction have professed it in name only and rejected it in practice. The tragedy of this fact is that too few who profess the subluxation know what to do with it; they have never been taught how to properly manage the subluxation.

Because of the unwillingness or inability of any chiropractic institution or organization to scientifically test the vertebral subluxation and its detrimental effect upon the human organism; and the result of its reduction upon the human organism, NUCCA adopted a policy statement to the effect that chiropractic is predicated on the restoration principle inclusive of all technics that reduce the misalignment factors of the subluxation and which are based upon specific and acceptable principles of subluxation reduction.

The specific and acceptable principles of subluxation reduction are those principles which all sciences use to resolve problems and include those principles which have been used as tools in problem-solving since their discovery. These principles, of which many are applicable and relevant to our unsolved problems, are found in the fields of mathematics, physics, kinesiology, cybernetics and the like. The application of these principles to the unsolved problems we face will make for solutions that will be acceptable to the scientific community.

Scientific truth is scientific truth and that which is truth in physics or in mathematics cannot be false in chiropractic. This, then, insures a basis for truth in chiropractic, and this can be done if this profession, or enough of it, wills it, works at it and supports it.

This NUCCA policy statement, therefore, indicates recognition of the fact that it has never been established scientifically where the subluxation, or subluxations, exist whether in the dorsal, lumbar or cervical area but the policy statement does incorporate the propositions

1. that vertebral subluxations do exist.
2. that their existance and correction is the essential nature of chiropractic.
3. that the restoration to normal of the subluxed vertebra is the objective of the adjustment.
4. that there is a normal.
5. that there are scientifically acceptable principles that would and do apply to subluxation reduction.
6. that there are procedures of attempted correction in use today that are not acceptable and detrimental to those to whom they are applied.
7. that the production and reduction of the vertebral subluxation is susceptible to scientific testing.
8. that it is the moral duty of the profession to prove or to disapprove the vertebral subluxation and its effects upon the organism.
9. that the neurological component can be involved in several ways that are detrimental to it.

All chiropractic authorities are and have been in agreement that a subluxated vertebra by definition includes movement of the vertebra from its normal position into an abnormal position involving more than one plane of motion. These abnormal positions are the misalignment factors of the vertebral subluxation, and are susceptible of accurate measurement. To this extent chiropractic can be an exact science and as exact as the measurement involved.

Thus the logical starting point for the resolution of the problems of the subluxation are the consideration of normal and abnormal vertebral movement. As the problems are solved regarding normal and abnormal vertebral movement we are able to better comprehend what actually happens to the neurological component, and it is not necessarily a reduction or blockage of a nerve impulse flow, or a brain cell to tissue cell reduction in nervous conduction. There are many aspects to involvement of the neurological component, and what actually happens in some cases may come as a shock to those who feel that the science of chiropractic is a completed thing and a closed book.

All of my professional life I have heard it said and seen in print that chiropractic is a simple thing; that all the doctor need to do is to locate a subluxation and make an adjustment and in some miraculous manner the vertebra is returned to normal, the patient gets well, the doctor collects his fee and life goes on as usual. We keep hearing about this simple principle.

It is a source of amazement, to me at least, that this over simplification of the application of force vectors to the vertebral subluxation can continue on year after year, increasing vertebral subluxations or at least not decreasing vertebral misalignment factors, and no one seems interested enough to find out why.

One well-known chiropractic educator recently expressed the idea that it makes little difference what technic one uses to adjust a vertebra and that the doctor should use the technic that works at that particular time. How little must be the understanding to make such a statement.

Something is wrong. The letters and calls for help which I almost daily receive from fellow practitioners, the referred patients and the problem cases within my own practice tell me that chiropractic is not a simple thing and there is no magic switch that can be turned on. When people travel thousands of miles to get an accurate adjustment for a vertebral subluxation because such cannot be obtained in their home location, it cannot be a simple matter and it shows that there is a general lack of knowledge regarding the vertebral subluxation, and perhaps, a lack of interest.

When we look at the situation in our colleges concerning vertebral subluxation reduction we begin to understand why. No one seems to know what to do about vertebral subluxations that have any degree of complexity except to refer to them as simple.

And I see referred cases upon whom chiropractors and osteopaths have applied their simple art, and I am constantly amazed at the consequences — terrible consequences — of the over simplified practice of this art; and I am fearful for the future of this profession. I am fearful for the reason that this negligent and over-simplified practice of a complex science and art can destroy us. This constitutes a more deadly and powerful argument against us than any found in the H.E.W. report, and this is so because it is an argument which can be physically demonstrated before legislative committees and the like. It is an unanswerable argument, and it hangs like the sword of Damocles over our heads waiting until some segment of society, legal, legislative or medical, becomes aware of our ignorance/or our lack of interest and attacks us with logical and scientific arguments which cannot be refuted.

If you think that I am exaggerating this danger to our survival, let me assure you that I am not. It is being discussed to-day within legal circles. The idea that an adjustment can do no harm is erroneous; the idea that an adjustment need not be controlled or predetermined is wrong; the concept that any adjustment or manipulative movement applied in violation of mechanical principles will result in good and not in harm is as wrong as it can be; the erroneous principle that some vitalistic force will correct all errors inherent in the adjustic process must be abandoned. There is abundant proof to the contrary, and it is growing. It presents a clear and present danger to this profession. We need only to await a Ralph Nader to organize the opposition. As long as we persist in remaining on our present non-scientific grounds we are in immediate danger.

This danger is not confined to upper cervical practitioners alone; it is general and applicable to all doctors regardless of their technical approach. I am aware of the fact that it is rather difficult to increase distortions of the pelvis, lumbar area or in the dorsal spines by an adjustment. However, it is very simple to increase misalignments of the cervical spine, and subluxations of the atlanto-axial area of the cervical spine are nearly always increased by rotatories, master cervicals and other leverage technics that violate mechanical principles. Adjustment of this area of the spine is one of precision based upon adequate and accurate measurement. The damage to the neurological component is much greater in the cervical spine, and thus is more apt to sustain damage from non-specific technics.

It is in the cervical spine that the greatest harm is being done by these technics; but the results of this harm are not confined to the cervical spine alone.

Further, the fact that the neurological components of the cervical spinal cord, brain stem and some of the brain areas itself are very susceptible to damage from incorrect adjusting in the atlanto-axial area with resulting and concomitant damage and distortion not only in the immediate cervical-skull area but throughout the entire cord down to the conus medullaris is now established fact.

And it is a fact of which the medical profession is aware, and I can assure you that the upper cervical area is one of deepest interest to the medical profession. As one medic told me: "We consider that the real basis for any truth to the chiropractic principle exists in the occipital-atlanto-axial cervical spine. Your research on the relationship between the pelvic girdle, short leg and the misalignment factors of the atlas vertebra definitely shows the vertebral subluxation to have far-reaching effects throughout the body and establishes the subluxation as a pathogenic process."

It is a demonstrable fact — a matter of scientific demonstration — that the misalignment factors of the atlas produce stress and strain upon the pelvic girdle and lumbar spine because of the neuro-muscular involvement that the atlas is capable of producing when it is subluxated. This means that an atlas subluxation is a precursor — a fore runner — of every pelvic and lower spinal

distortion. The presence of spasticity of the neuro-muscular involvement that the atlas is capable of producing when it is subluxated. This means that an atlas subluxation is a precursor — a fore runner — of every pelvic and lower spinal distortion. The presence of spasticity of the musculature of these spinal areas is solely the result of atlas subluxation, and this is scientific and neurological fact backed by 25 years of testing.

Now this research has three clear meanings for chiropractors regardless of their technical approach whether it be pelvic, full spine or cervical.

FIRST, that unless an atlas subluxation is present and active, distortion of the lower spinal column will not be present — no atlas subluxation — no distorted pelvis.

SECOND, that regardless of the technic used, permanent correction of the pelvic girdle and lumbar spine will not occur unless and until precise alignment of the atlas is an accomplished fact.

THIRD, that the presence of vertebral misalignment at least in the occipital-atlanto area can produce involvement of the susceptive neurological component, and to this extent at least the basic premise of the vertebral subluxation and nerve involvement from it has been scientifically established.

REPEAT.

It can be conclusively demonstrated that any given misalignment direction of the subluxated atlas has a definite effect upon distortion of the pelvic girdle, and this can be accurately accounted for and determined by mensuration of the misalignment factors of the atlas subluxation. As a result of this lengthy research, it becomes imperative that the correction and the maintenance of structural integrity of the lower spinal column depends primarily upon precise measurement of the atlas misalignment factors and their maximum correction.

As the atlas misaligns into each of the orientation planes, frontal, sagittal or transverse, the pelvis distorts accordingly into its orientation planes. For example, if the atlas misaligns into the right frontal plane, and this direction is the predominant misalignment; the pelvis will respond by moving into its left orientation plane and then rotating in the transverse plane.

Distortion of the pelvis into any or all of its planes is always an indication of spastic contracture of the lumbar and pelvic musculature, and spastic contracture is a positive indication of neurological involvement at the occipital-atlanto area of the cervical spine. Whenever distortion of the pelvic girdle is present and spastic contracture is involved, there is an atlas subluxation involved.

Therefore, when we consider the question of majors, we must account for the effect of the vertebral misalignment upon the neurological component. An attempt to determine a major only on the basis of degree of vertebral misalignment, as is so frequently the practice, is a dangerous procedure. Bones alone do not make subluxations.

In discussing this subject, it is, perhaps, apropos to point out that there is no such thing as an axis major. If an axis misalignment is present in the patient, it must be corrected by the adjustment of the atlas. [I use the word "adjustment" in its true sense: that of a force vector which restores the misalignment factors of a subluxated vertebra to or toward normal.

What, then, is so detrimental about an axis major? The reasons are (1) mechanical and (2) neurological. MECHANICALLY, any adjustment of the axis regardless of the contact area will change one of the radii of motion on the transverse plane; in short, it will cause a mechanical rotation of the atlas due to the position of the condyles as they border the foramen magnum. This introduction of a force vector on the axis will shorten one radius of motion and lengthen the opposite radius of motion because these radii of motion are dependent for stability upon the relation of the odontoid process to the vertical axis of the body.

NEUROLOGICALLY, the axis adjustment will produce a transverse traction upon the spinal cord which is further subjected to a compressive involvement by the mechanical process just described.

The relationship of the odontoid process to the vertical axis of the body is a determining factor in whether or not the atlas rotates anterior or posterior because of the effect of the radii of motion. This is part of the research on the production of the vertebral subluxation which is not as yet completed. For that matter, research is never finished; it is a constantly progressing process. Nevertheless, it is mandatory that in order to understand what happens in a subluxation, how it happens, and how it creates disease processes in the human organism that we must understand in scientific terms the production of the vertebral subluxation as well as the reduction of the vertebral subluxation. Adjustment is the key word in research.

Manipulation of vertebrae will not give us the facts which we need to know for the simple reason that manipulation of vertebrae will not restore them to normal position thereby releasing the neurological component so that we can make accurate and consistent deductions concerning the premises which are set up.

Testing of the basic chiropractic premise to be a valid testing must not involve procedures and methods that are contrary to the terms of the premise. There are certain basic questions, the answers to which are vitally essential to the testing process.

For example, can you imagine a scientific body conducting an examination of chiropractic to determine its scientific validity? They would ask:

1. (a) How do chiropractors determine vertebral subluxation?
   (b) Define a subluxation?
2. What unit of measurement is used and why?
3. How is the normal determined?
4. How are subluxations produced?
5. In what way specifically is the neurological component affected?
6. What specifically happens to the neurological component?
7. From a physico-chemical stand-point, how does the neurological component react to an alleged subluxation?
8. What physical objective signs indicate the presence of subluxation?
9. If subluxations cause symptoms, can you demonstrate this from the subluxation per se?
10. Upon what acceptable scientific principles is chiropractic based?
11. What criteria are used to show the effect of alleged vertebral subluxation on the organism? Vital signs
12. What procedure do you use to determine the effects of subluxations?

These and like questions will need scientific and acceptable answers before chiropractic obtains status as a healing art and prestige for its adherents. There can be no resort to vitalism; neither will non-scientific answers suffice; and I submit to you that in all fairness chiropractic is not entitled to consideration or support until its science is purified and its procedures are standardized; and the premises upon which it is based are proved or modified by scientific testing.

These statements, of course, will be considered in some places as heresy; the remarks of a subversive. But regardless of charges and countercharges, the fact remains — the dangerous situation exists — that the profession, or a large segment of it, holds itself out to perform a service to the public of reducing subluxations and this is seldom the case. This raises a legitimate question of professional morality. In this day of consumer protection by government, the question of legalized plunder may at any time arise. For when a profession holds itself out to perform a service — the reduction of the vertebral subluxation and cannot or does not fulfill that service — it gambles from day to day with its survival. Misrepresentation to the public does not enhance its prestige, or advance its interests, or protect its practitioners.

We need to go back to the period of the 1930's when a physical basis for the establishment of a chiropractic science began to be laid. Since this time we have retrogressed scientifically, and this deterioration has adversely affected our image. We did, however, make a scientific beginning in the depression years.

In 1938, Volume XX was published by the Palmer School of Chiropractic, authored by B. J. Palmer. This book contained a study of cases who entered the B. J. Palmer Clinic and of whom comparative graphs were taken, comparative x-rays and a system of measurement of the subluxation, or, and I quote from the book: "subluxation distance and adjustment correction". (Unquote)

I think it is of interest to note that on the preface page of volume XX, B. J. Palmer quoted from page 94 of a book entitled "Personal Hygiene Applied" written by a medical doctor in 1925 by the name of J. F. Williams. I quote"

"Chiropractic will remain a debatable subject, even to chiropractors, until scientific standards and tests are applied to it. It may grow by advertising methods, it may record "curses" by adjustment of subluxations, but it will remain a claim and a cult until it meets satisfactorily the sort of tests that intelligent men everywhere make to cause and effect questions." End of quote.

REPEAT.

No truer words were ever written regarding chiropractic, and these words were written 44 years ago — more than half the entire life-time of chiropractic. B. J. Palmer must have realized the significance of these words written by a medic for he included them in Volume XX, and he attempted to do some testing about this "debatable subject" during the time his clinic was in operation. It was not too long, however, before this beginning lapsed back into the mists of indecision and the fog of vitalistic thinking.

Today, 44 years later, chiropractic is in a worse state from the standpoint of scientific progress than it ever was since the 1930's. It is still a debatable subject "even among chiropractors", and it will continue to be until scientific standards and tests are applied to it. This is the true basis of professional unity. In the eyes of the scientific community, chiropractic is only "a claim and a cult." It is NUCCA's intent to change that situation regardless of where the chips fall.

Until such changes are made, you can expect such reports as recently came out of H.E.W., you can expect division among your colleagues, you can expect professional disunity; you can expect legislatures to diminish your true status always downward and downward; you can expect to continue to be clobbered by your medical opponents; you can expect such inadequate defense of your profession as you have recently seen; you can expect your prestige to keep falling as attacks keep mounting; you can expect the constant thievery of your procedures; you can expect more outside governmental supervision and so on ad infinitum. This situation NUCCA intends to change with your support and your help, and change it we must.

Today the situation has deteriorated to the point where we cannot get agreement even among straights as to what to do with a subluxation. D. D. Palmer knew what a subluxation was and he defined it; B. J. knew what a subluxation was and he defined what it was. Sure, these were premises or hypotheses that should long ago have been subjected to scientific scrutiny and testing, and were not so tested, and herein lies the problem, and also the reason for the deteriorated state in which we find ourselves today. But both these men said it was mechanical and should be so considered. We cannot even get agreement on what to do with the misalignment factor of the subluxation which D. D. Palmer called a partial luxation — a vertebra out of its normal position — even though any normal 10 year old child could tell us that the misalignment factor of a subluxation requires re-alignment. The misalignment factor of the subluxation is the most important factor because without it no subluxation could exist. You cannot have neurological involvement in the absence of misalignment.

D. D. Palmer knew this because in 1910 he wrote in his book "The Chiropractor's Adjustor", page 42, quote "adjustments are only made when a vertebra is returned to its' normal position'. Unquote.

B. J. Palmer knew this because he wrote on page 208 of "The Subluxation Specific — The Adjustment Specific" quote: "If a subluxation is a subluxation, then it is not of normal relationship. If an adjustment is an adjustment, then it (subluxation) must be restored to normal relationship." Unquote. Where is this concept today? What school teaches this? Or the manner by which it is done?

According to information I am receiving lately, there is a growing movement in chiropractic to do away with the subluxation concept. We can't do anything about the subluxation — we can't solve the problems inherent within the subluxation — so do away with it. History repeats itself — Osteopathy came to the same conclusion a few years ago — remember. They got confused, too. So the idea is growing: We can't solve the problems, we can't prove the hypothesis scientifically, so let's throw out the subluxation. I do not think NUCCA will stand still for that. I don't think NUCCA is prepared to throw out the basic chiropractic premise, or lose it by default or exchange it for modalities.

The odd thing about this proposition, which originated in one of our own chiropractic colleges, is that no exponent of this theory of discarding the subluxation can present one iota of proof that it is sound or unsound, and I say that the burden of proof rests on those who would destroy the essential nature of chiropractic to disprove it scientifically before they seek to destroy it.

The other day I received a letter from a doctor in a distant state where insurance guide-lines are being set up. In these guide-lines was a section requesting that x-rays not be taken for mechanical interpretation purposes alone.

Let me quote the letter: "We should all be more aware that interpreting x-rays strictly for mechanics is a risky business and I have good authoritative information that such a procedure would go down the scientific tube if taken to court."

I was asked for an opinion so I gave one. Apparently the writer of this letter does not believe that chiropractic is a mechanical science — or at least that is its nature so he does not understand chiropractic. Therefore, taking and interpreting x-rays to establish a mechanical listing, which is what is involved, in order to give an adjustment, which is a mechanical transmission of energy, is sufficient reason for x-rays. Also such a mechanical listing does constitute an adequate diagnosis, and is good procedure simply because no one ever moved a vertebra except thru a mechanical transmission of energy. There are only four kinds of energy transmission — thermal, electrical, mechanical and chemical. Heat will not move a vertebra; neither will electricity nor will a pill move a vertebra (which is news to some chiropractors.) We are stuck with mechanical because it is a method of impact and compression, but it will move a vertebra.

It would suit some chiropractors if all that was required to reduce to normal a vertebral subluxation was that the patient was hooked up to an electrical outlet, or a heating element or we had several types of colored pills. If the patient had a 5 degree laterality, give a red pill; if he had a 3 degree rotation, give him a green pill and so on. However, this wouldn't work because of the difficulty of finding enough chiropractors who could accurately measure a 5 degree laterality or a 3 degree rotation. We would need a multi-colored pill that would set the subluxated vertebra into motion on several planes at the same time. Even then there would be an argument as to where the subluxation existed in the spine, so the question would arise as to the locality of administration: That is to say, whether to give the pill orally or thru the rectum.

So wherever we look in the profession we see the signs clearer and clearer. Reject the basic premise instead of applying scientific testing. D. D. is dead; B. J. is dead. There is no defender of the restoration principle; no voice of authority urges the profession to consider well the mechanics of the subluxation; that an adjustment is only an adjustment when it restores the normal relationships of vertebral misalignments as both D. D. Palmer and B. J. Palmer said frequently.

If we refer to the "Manual of Chiropractic Sciences" C/C P.C.C. 1965, page 16 we read:

"In what is termed the 'border-line' two things should be remembered:

No. 1. Atlas laterality does not have to exist in every case, and No. 2. use as many points for checking laterality as possible. If there is conflict in measurement or angulation between points used with small amounts of variation, then laterality, very likely, is of minor concern."

In the same manual under the heading "Cervical Correction," we find listed a section devoted to "Traction Leverage Moves"; "Diversified Moves"; "Rotatory Breaks" for atlas and axis; also "Modified Rotatory Breaks"; "Modified Cervical Breaks"; "Modified Thumb Moves."

The scientific and demonstrable facts of the matter are that atlas laterality does always exist — read the A.S.C. and Leg Imbalance. If there is conflict in measurement, then the system of measurement is erroneous. Laterality is never of minor importance because (1) it determines the side on which the adjustment is applied and (2) as little as 3/4 of a degree of laterality triggers the neurological component.

Now why should there be "Conflict in Measurement"; either something is measurable or it is not? Misalignment factors of a subluxation are measurable in degrees because they constitute rotatory motion whether it is laterality of atlas, superiority or inferiority of atlas or rotation of atlas. There never has been a border-line case and there never will be a border-line case. Because rotatory motion is measurable, all atlas vertebral movement is measurable.

Laterality is never of "minor concern"; either it exists or it does not; either it is adjustable or it is not. If it is less than 3/4 of a degree, it will do no harm to the neurological component; if it is more than 3/4 of a degree, it will cause neurological damage if left alone for a period of time which is usually about one month in duration.

The degree of neurological tolerance in the atlanto-occipital area is about 3/4 of a degree. This is approximately the width of a pencil mark.

In reference to diversified moves, traction leverage moves, rotatory breaks and modified breaks, these are non-specific and dangerous manipulations and are in violation of mechanical laws, non-scientific in their application, and should be prohibited by law. For too long we have watched incompetent instructors teaching these dangerous practices and procedures to students and the time has come to speak out against these practices whether or not chiropractic colleges approve them by some system of approval that itself lacks any scientific validity.

Chiropractic is mechanical in its basic nature at least insofar as the production and reduction of the vertebral subluxation is concerned. Therefore, its problems and their solutions fall within the environment of mechanical and the physical sciences. It is by the application of the pertinent principles of these sciences to our research problems that we progress and build an acceptable science that can be recognized by the scientific community. We can not do this if we use procedures that violate all science and all reason and do harm to our fellow man.

So long as the scientific formula exists that states that work equals force times distance we must apply that formula in our adjustments. This means we must apply force so that we control it and we cannot control force vectors until we know how to measure subluxations. Distance is the direction factor of that formula, therefore adjustments must have their line of drive predicated upon the resultant of the misalignment factors of the particular subluxation we are adjusting.

Force is a vector which means that it is going somewhere;

that it has magnitude and direction. It is going somewhere into the subluxated vertebra either to reduce it or to increase; to replace it or displace it farther; to restore nerve function or to more greatly impair nerve function; to cure disease processes or to cause them.

For these reasons cervical breaks, rotatories, thumb moves, traction leverage moves are not and cannot be classified as cervical correction moves. The magnitude and direction of the force vectors cannot be controlled. The result is harm rather than benefit; increased subluxations rather than reduced subluxations.

These things are so contrary to scientific thought; so foreign to the applicable scientific principles that apply; so easily demonstrated to be in error that one is readily justified in asking why chiropractors persist in referring to their profession as a science. The situation is worse today than it was in the 1930's.

Somehow we seem to object to the fact that we are basically constituted a mechanical science. Perhaps, it does not sound dignified enough for some; perhaps it is just that we do not understand the term. Nevertheless, mechanics pure and simple lies at the basis of chiropractic, and the only way through which chiropractic can advance toward acceptance as a science is by way of mechanical principles, and their application.

D. D. Palmer voiced it when he stated that, quote "from this basic fact, to create a science which is destined to revolutionize the theory and practice of the healing art." What was that basic fact of which D. D. spoke? It was the restoration to normal of subluxated vertebrae; the application of mechanical principles in the adjustment in order to restore misaligned vertebrae to normal position.

But let us look at another voice which speaks through a book entitled "Chiropractic Orthopedy, C/C 1956, Palmer College, Page 191: Quote: "A chiropractor is not a spinal architect nor a spinal mechanic and should work through the Innate Intelligence of the body involved to bring about results rather than attempting to manually shape the spinal column."

Here we have an authoritative voice which spoke in 1956 rejecting the mechanical approach; abandoning the principles of force, direction, control, care and predetermined restoration of the misalignment factors and advises that the whole matter be left in the hands of a vitalistic concept. He states that the chiropractor should work through the Innate Intelligence of the body which I submit to you is identically the same approach as would be used by the "spinal mechanic" which we are advised by this book is wrong. Thus this statement impliedly denies that the principles of mechanics that apply to the production and reduction of the vertebral subluxation are themselves the product of the Universal Intelligence which created all laws, all sciences, all systems, all life and all things and released scientific knowledge of them through the Innate Intelligence of men and women who, through the application of these principles and their evolution, insured the progress of man on earth and into space.

Quoting again from the same book, same page and same paragraph, we read further: "Considering the infinite number of muscular combinations and other factors which play upon the spinal column both directly and indirectly, it becomes evident that the alignment of the spinal column by a purely mechanical approach is absurd. Vertebra are not building blocks to be shoved hither and thither, but rather they are integrated parts of a living body and, as such, have a guiding force to repel detrimental forces as well as to accept those concussions of force scientifically applied."

Here we see it again — reject the mechanical approach. Yet had the author of this book researched his facts he would have known that the "muscular combinations and other factors which play upon the spinal column" are subject to mechanical laws; these factors do not "play"; they are subject to the mechanics of muscle action and these mechanics are reducible to exact mathematical formulae. This is why we have stabilizing and rotatory components; tangenital acceleration; perpendicular acceleration; leverage and equilibrium of forces; levers representing all 3 mechanical types and other various applications of mechanical principles to muscle action. In fact, the spinal column constantly seeks to align itself through the mechanics of muscular action. Apparently the author was not aware that innate intelligence operates through the mechanics of muscular action in the spine's constant struggle against gravity, and we would never understand HOW innate intelligence DOES THIS unless and until we applied MECHANICAL REASONING to the body. Thus the author has accomplished the task of denying both innate intelligence and mechanical reasoning — here is the absurdity of the matter. Any first year kinesiology student could have advised him of his erroneous thinking; and we cannot help but wonder why students are confused and we are rejected scientifically.

We must add further in regard to the above paragraph we quoted that if vertebrae in a living body have a "guiding force" capable of repelling detrimental forces as well as accepting concussions of force scientifically applied, then we need have no fear of injury to the spine through accident unless the accident is scientifically applied. To create damage the vertebrae would have to accept the force and this the spine would only do if the force is scientifically applied; that is to say, a force applied according to the laws of mechanics. If this were true, no vertebra could subluxate, no adjustments would be required good or bad; no x-rays are needed; no chiropractic colleges need exist; and we can go home and forget the whole business.

I have no desire to criticize this reasoning, but it is an example of the lack of thinking and of knowledge that is causing us to be held in ridicule by such committees as the H.E.W. AD. Hoc Committee. It is, further, an example of the confusion that exists in voices of authority that are listened to and believed. This book has been on the market, accessible to anyone, friend or foe, for 13 years. I think in these matters we have two choices (1) to request that this sort of nonsense be removed from our college text books or (2) to do nothing and let this pseudo-scientific stuff become the basis of an attack against us.

In my judgment it is quite evident that the author of this textbook was confused as to what to attribute to mechanics and what to credit to Innate Intelligence. Not realizing that the vitalistic premise as he use it is susceptible of explanation in terms of physical science, he chose to write his opinions in terms of vitalism. Had he realized the immensity of the vitalistic concept, he could have explained his theories in a mechanical-physical context which would have resulted in greater glory to his vitalistic concept. Unfortunately, he chose the abstract over the phycical; that which he could not prove over that which he could; the unknown over the known and produced a text book unworthy of the name.

Thinking in terms of a vitalistic force confuses experience. If man attempts to interpret observable phenomena in terms of vitalism he finds nothing to which he can anchor; there are no frames of reference; his reasoning can be easily proved illogical. The same is true in researching the production and reduction of the vertebral subluxation: we must work within scientific principles against proven and acceptable frames of reference — not with super-mechanical agencies or vitalistic concepts.

Chiropractic is as mechanistic in nature as it is vitalistic — in fact more so. Mechanism is the philosophy which explains natural phenomena by reference to matter and motion. If you do not agree, try to explain a vertebral rotation on a transverse plane in vitalistic terms, or the rotation of a vertebra on a frontal plane in the context of vitalism. If you attempt it you end up talking about guiding forces or other non-meaningful terms.

True, the mechanistic theory postulates that all aspects of living organisms can be explained by the laws of inorganic nature and that there is no directive vital principle. In other words, it refutes vitalism. Nevertheless, both of these philosophies are only theoretical, but mechanism we can learn from and with whereas vitalism is static and not subject to testing.

This is, after all, a process of purification recalling us to that which we can measure, observe, understand, and repeat in our actions with a fairly high degree of predictability. This is the only environment for research. The inviolability of experience and the rational correlation of experience prevents the professional flirtations we seem destined to make with those pseudo-metaphysical and quasi-religious propositions that are so evident throughout the chiropractic profession and which brand us as cultists.

Too many take the position that a rational discussion of the vitalistic over-tones of this profession is a condemnation of the innate philosophy, and they react to a discussion such as I am now presenting to you with fists clenched and fire in their eyes. Their innate philosophy is all important and must not be tampered with. This attitude clearly indicates the lack of understanding which some have of the vitalistic concept. This is understandable because they accept by faith their philosophy and reject any attempt to deal with the physical aspect of their science by methods that are provable and demonstrable. Thus they are forever limited because they have rejected the mechanistic approach for the vitalistic and set-up between the two extremes a barrier which does not exist in reality.

Yet this false barrier does divide us into camps, each camp conditioned by the environment of vitalism or mechanism and each supported by doctors whose previous training and whose practical or idealistic traits place him as an adherent of one or the other of the two schools of thought.

The mixer, generally speaking is the type of an individual who is practical, realistic, pragmatic. We do not see him overly concerned with that which is not demonstrable, that which does not have a local application. He is not too greatly interested in concepts which are metaphysical and philosophical. Therefore, we do not see him attending professional meetings that stress the vitalistic approach — such as the D.E. meetings. He is too practical for that sort of thing.

On the other hand we have a segment of the profession to which the vitalistic approach is all important. These exponents of vitalism are those whose professional behavior patterns are conditioned by belief in the super mechanistic.

It is, therefore, understandable that we have disunity in our ranks. Understandable because there are two extremes within the chiropractic environment neither extreme compatible with the other. Disunity is a natural and inevitable consequence.

In 1961, B. J. Palmer said of medicine that it was "still in the dark, failing consistently;" and that "the one basic reason" "for this (was) that the medics seek "physical causes for physical diseases." He went on to say that the medics had overlooked the "abstract factor" of what the internal innate does, as it does it, in regulating all function at all times, etc. This statement was reprinted by the ICA in April of this year 1969.

I cite this quotation because it is an example of an innate-loaded statement that would never be acceptable to a type of mind that is mechanically inclined. It is a vitalistic statement and acceptable only to those who are vitalistically oriented.

I know that B. J. Palmer knew that the subluxation was a physical cause because he described it as a mechanical process in his volume XVLII page 528. Mechanics are as physical as, for example, ultra-sound. But, said B. J., the medics overlooked the "abstract factor" of the internal innate, and that statement is debatable because through any transmission of energy be it thermal, chemical, electrical or mechanical, the "abstract factor" of innate is influenced pretty much the same. The difference lies not so much in the abstract factor as it does in the means of influencing the abstract factor and that is a matter not of vitalism but of mechanism. So even innate gets back to the principles of mechanics and physical science in the final analysis.

It would seem, if we but take the time to analyze the situation in which we find ourselves, that rather than to continue to build the barrier that separates us, we begin to tear it down. This does not mean that either camp need change its approach. It means simply that we apply in the area of vitalism, the solutions that are mechanistic. In other words, we begin the testing and the proving — the research — to the production and reduction of the vertebral subluxation; in short, that we build a science that is acceptable to the scientific community — that makes sense to the finite mind. The chiropractor — vitalist has nothing to lose; the chiropractor-mechanist gives up nothing, but between the two greater understanding grows as the mechanist begins to see the practical application to the basic chiropractic principles.

If we closely analyze the chiropractic situation, we can see that there is no other basis for unity; we tried unity of people before and it failed. Both vitalism and mechanism are integral parts of our professional life; both are forces for good. One cannot, however, research vitalism with any degree of acceptable success. The only approach to research is thru the mechanistic philosophy. It is a sustained program of acceptable research that will serve to weld this profession together, because it will unite vitalist and mechanist; one will strengthen the other; division will gradually disappear; the subluxation and its reduction will once again become the nucleus of the chiropractic profession.

Bergson aply stated the role of vitalism in science when he said: "A very small element of a curve is near being a straight line; and the smaller it is the nearer . . . So, likewise, 'vitality' is tangent, at any and every point, to physical and chemical forces . . . In reality, however, life is no more made up of physico-

chemical elements than a curve is composed of straight lines."

I believe in the Christian's God, the ALL-Wise, Hahneman's Vital Force, the Divine Spirit, Hudson's Subconscious Mind, the chiropractor's Intelligent Force, the Allopath's VIS Medicatrix Natural — the healing power of nature. That, I suppose, makes me a vitalist, but I also believe in that which I can measure, observe, test, and reason about and that makes of me a mechanist. I find no conflict in the two, and I also find that the deeper I go into the measurement, testing and reasoning, the better I understand the principles of my profession.

The need for legitimate research is imperative; it is the difference between survival or destruction. I am not one of those who would claim that our "distinct and pure philosophy" will unify us or save us, as was recently said, for it will never do it. This should be more apparent since the report of the Ad. Hoc Committee of H.E.W. If we are ever to acquire recognition as a science we must become a science; we must speak the scientific language; we must apply the standards and tests which reasonable men everywhere apply to cause-and-effect questions. Make no mistake about it: professions that survive are built on science and not on philosophical concepts that are not susceptible to testing; this is the road to cultism. We must not be afraid to test.

Hans Zinsser once remarked of the biologist: "He knows that the physico-chemical analysis will never give the final clue to life processes; yet he recognizes that "Vitalism" and "Neo-Vitalism" are little more than a sort of amorphous theology born of a sense of the helplessness of mere "Mechanism."

"So, said Zinsser, "the patient biologist plods along, piling up his empirical observations as honestly as he can — getting what satisfaction he may from the fact that he is helping, by infinite increments, to reduce the scope of vitalistic vagueness to narrower and limits."

This we must do also.

Article Review

Is Leg Length Discrepancy Associated with the Side
of Radiating Pain in Patients with a Lumbar Herniated Disc?
by
Albert ten Brinke, Pt, Hans E. van der Aa, MD, PhD,
Job van der Palen, PhD, and Fritz Oosterveld, PT, PhD.
Published in the Spine Vol. 24, No. 7, 1999
Reviewed by
Daniel C. Seemann, PhD

The above group of Netherlands' researchers found with 132 consecutive patients admitted for surgical management of lumbar herniated discs approximately 60% had pain that radiated down the same leg as the short leg. They found no statistical differences between patients with regard to age and sex, although, women showed a 70% tendency for the ipsilateral side which was statistically significant.

They explain the relationship between the radiating pain and leg length as a function of biomechanics of the lumbar disc. During bending, one side of the annulus is compressed while the other side is put under tensile load. On the side of the longer leg, the pelvis will be elevated, resulting in lateral bending and a smaller disc interspace, whereas with the short leg the disc interspace will be increased. Over time, this imbalance can cause the pathology of radiating pain on the side of the short leg.

Of interest to those who measure the short leg, the article traced the disagreement between those who measure leg length directly such as with tapes or radiographic means and indirectly where the leg measure is more subjective. In this study, which I believe is an indirect measurement, the authors attempted to level the hips by raising the short leg with either a 2mm or 3mm boards. They reported good intra-observer reliability using a pilot study. Overall though, the authors concede there is still little agreement in the literature about the measurement problem.

A Response from a NUCCA Point of View

This article should be of interest to atlas adjusters because of our focus on the short leg and the concomitant pelvic distortion. Drs. Berti and Denton have found about the same incidence of the radiating pain with the short leg as the authors. Berti in a pilot study, discovered 55% of the participants had pain on the same side of the short leg.

The research raises several questions about the measurement system used in the study and their explanation as to how the biomechanics causes the radiating pain. It is unfortunate the authors were not aware of the extensive research done with the Anatometer. Taking measurements using 2mm and 3mm boards to level the pelvis is rather a crude method to determine leg length. Even the supine leg check might have been more effective. It probably would have helped to know the weight differential (WD), the transverse and the fixed point numbers as well as the frontal plane. The authors defend their measurement system by writing that the aim of the study was only to determine which was the shorter leg.

But what about the 40% of the patients that had radiating pain on the side opposite the short leg? Does the same biomechanics apply as with an ipsilateral short leg? What about the 28 patients who did not have short leg but still had radiating pain? The answers may be found with a more sophisticated measurement system.

Seemann in his 1993 study, found that 41% of his subjects had a contra lateral WD opposite to the short leg. Lawrence (1984), Vernon and Grice (1984) recorded similar findings. There also was agreement that the contra lateral weights were greater than the ipsilateral weights with the three studies.

An explanation for the shift is the pelvis will tend to compensate for the weight differential especially if the differences are large. The NUCCA position is if the pelvis turns in the transverse plane, in an anterior manner there is a pretty good chance the weight will shift to the opposite side. If this is the case, this may explain in 40% of the cases why the radiating pain is found on the side opposite the short leg. A closer look at the biomechanics of L4 and L5 when the pain radiates in the opposite leg needs to be researched.

It is the writer's guess that the 28 patients who did not register a short leg, but had radiating pain probably did have a short leg but the measurement system did not detect it. The pelvis again may have been compensating and probably the Anatometer would have shown the compensation in the transverse plane or in the weight differential.

Congratulations are in order for the authors of this study, because it shows that chiropractic and other health care givers can benefit from sharing their knowledge.

Dan Seemann, PhD
January 2000

Letter to the Editor

Received at the Fall 1999 NUCCA Conference in Chicago. Letter is in response to Stress and the Subluxated Spine — With Some "Lite" Thermodynamics by Dr. C. D. Chapman, D.C., which appeared in the April 1999 Monograph (Vol. 6, No. 1). As Oliver Wendell Holmes once stated: "What lies behind us and what lies before us are tiny matters compared to what lies within us." Editor.

Dear Editor:

This note is in reference to Dr. Chapman's recent article in the new Monograph. I am happy to see issues of mental and emotional spheres addressed in a NUCCA publication. It is interesting to me that while I agree with the basic premise of Dr. Chapman's article, I disagree with many of the points he makes to prove his case. I do agree that the cause of the atlas subluxation complex is mechanical trauma that creates instability in the supportive tissue around the spine. I would suggest that once the physical weakness exists in the system, subluxation can be triggered by emotional and mental stress. I take exception to Dr. Chapman's contention that the human organism is a closed system. It is very much an open system that is continually exchanging with the environment. We have long quantified exchange of food and air, and we are certainly beginning to recognize constant accommodation to the electromagnetic fields of our local environment as well as the Schumann frequencies of the Earth and most probably of the Sun. Recent research has measured purposeful alteration in heart rate variability by one individual within another individual, even when positioned up to 8-10 feet apart.(1) Other subtle energies may well also be present. I am not however, arguing with the idea of progressive structural fatigue in general being secondary to the ASC. The degenerative effects of chronic upper cervical misalignment are legion.

I would posit however, that many people do indeed have "negatively supercharged" auto-suggestions that "bludgeon [them] repeatedly". In fact most of the people I see hold tension in their muscles in a chronic, maladaptive manner. Individuals labeled with "fibromyalgia" are classic examples. How we greet the universe is critical to the way we manifest our muscle tone. Einstein once remarked that our greatest question to answer in life is whether or not the universe is a friendly place. Do we choose to live in love or fear? Do we expose our vulnerability to the world, or do we live in a defensive "posture"? As a society we are taught to live in maladaptive ways, never slowing down, never stopping for introspection. We "push" on the cars in front of us in traffic and we push on life, afraid that if we stop, it will all fall in on us. Dr. Chapman actually seems to argue for this premise too, in the body of his paper.

I disagree that most of us "know inside when we reach our limits". I do agree that the knowledge of our limits is present inside us. But my observation is that very few folks seem to pay much attention to what is going on inside themselves. [This is part of Dr. Chapman's later point] They prefer to ignore signals as long as they can, taking otc drugs to stifle the symptoms if possible, and then going to the allopath if necessary for prescriptive suppression. How many doctors have asked a patient how they are doing, only to receive the rejoinder, "You're the doctor, you tell me!'. How many times have you asked a patient how they are feeling and had them be unable to really tell you . . . They actually do not attend to their own lives, leaving that to the "experts". So many of us have confused making a living and being entertained, with having a life.

The idea that the ego should be destroyed, is also in my opinion, fallacious. As Ken Wilbur noted:

"The great yogis, saints and sages accomplished so much precisely because they were not timid little toadies but great big egos, plugged into the dynamic Ground and Goal of the Kosmos itself." Precisely because the ego, the soul and the Self can all be present simultaneously, we can better understand the real meaning of "egolessness," a notion that has caused an inordinate amount of confusion. But egolessness does not mean the absence of a functional self (that's a psychotic, not a sage); it means that one is no longer exclusively identified with that self."(2)

The ego is not to be destroyed, it is to be transcended. This is again, an example of the pre/trans fallacy Wilber has spent so much time developing in his massive body of work on consciousness. Wilber continues:

"But "egoless" does not mean "less than personal," it means "more than personal." Not personal minus, but personal plus-all the normal personal qualities, plus some transpersonal ones. Think of the great yogis, saints and sages-from Moses to Christ to Padmasambhava. They were not feeble-mannered milquetoasts, but fierce movers and shakers-from bullwhips in the Temple to subduing entire countries. They rattled the world on its own terms, not in some pie-in-the-sky piety; many of them instigated massive social revolutions that have continued for thousands of years."(2)

Beyond these issues, the idea that stress management must be done by each individual, within themselves, is certainly true enough. A doctor (from docere, meaning teacher) can however teach techniques to assist patients to manage their own thoughts and emotions in a more efficient manner. This has not traditionally been the province of the upper cervical chiropractor. Individuals may choose to enlarge the scope of their practice, but most doctors choose to focus on restoration of structure/function in terms of the upper cervical misalignment. Leonardo DaVinci once said, "Give me a big enough lever and I can move the world!". NUCCA doctors, in restoring normal alignment to the upper cervical area often find effects far afield from the biomechanical resolution. Many patients report feeling calmer, being able to think more clearly, and other highly subjective areas that denote increase in well being. The complexity of the NUCCA work requires incredible dedication and disciplined focus. To practice well, in a consistent manner, the practice must be based around the restoration model. This is why doctors have traditionally been encouraged to focus solely on correction of the ASC. At the same time, our understanding of the nature of reality is increasingly more subjective. Human beings are much more than bags of meat with lever systems inside them. We are finding that health has more to do with attitude and relationships than it does diet, smoking, exercise or other more "objective" factors. Every

thought we have and every feeling we feel creates cytokines and neuropeptides that wash through our bodies touching and influencing every cell. As Carolyn Myss noted, "Our biography becomes our biology".

We can never return to the "comfort" of seeing atoms as "billiard balls" moving in predictable ways in a totally measurable universe. Dr. Chapman's idea that "truth" is "REALITY", harkens to an objectivity that is missing even in his own analysis. I think it was the physicist Rutherford, who noted that the universe resembles a thought more than a machine. At the same time, the extreme precision and Newtonian dynamics, which the NUCCA work is based on, work extremely well at this level of magnitude. Relativity is inescapable. Long standing devotion to the intricacies of the various NUCCA procedures seems to create an undefinable quality in a NUCCA doctor. I have seen and felt it many times in conversations with them at the seminars and in their offices. There is more to the NUCCA work than the biomechanics and the precision. These disciplined qualities are however, necessary before this "hidden" quality becomes operational in the doctor's care.

Suggested Readings: Britannica 1998 Medical and Health Annual pp 18-29. Topic: New anatomic discovery: rectus capitis posterior minor (RCPM) muscle attachment to dura.
See also on world wide web: virtual hospital : Illustrated Encyclopedia of Human Anatomic Variation: Part I: Muscular System: Suboccipatales (RCPM). (http://www.vh.org/viders/textbooks/anatomic variants/text/s/44A suboccipitales.html)

The individual practitioner must always evaluate the appropriate scope of a practice. Intuition and compassion do not make up for a lack of rigor. At the same time, focusing solely on angular relationships makes a cracker-jack technician but not a doctor.

Relatively yours,

Michael Thomas, D.C.

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The electricity of touch: Detection and measurement of cardiac energy exchange between people. In: Pribram, K., ed. Brain and Values: Is a Biological Science of Values Possible? Mahwah, NJ: Lawrence Erlbaum Associates, 1998:359—379.
2. Wilbur, Ken, One Taste, The Journals of Ken Wilber. Shambala Publications 1998.

A Challenge for the NUCCA Membership

I resigned my position as research consultant to NUCCRA effective January 1, 2000. As most of you know my tour as Executive Director ended last year. This completes almost 30 years service for NUCCA/NUCCRA. If someone had told me thirty years ago that I would spend so much time with a chiropractic organization, I would have thought them daft, because I was preparing myself to become a high level administrator at a university somewhere. Most of the time it was interesting and a challenge. Other times I wanted to kick a few butts and take some names. The last two years have been particularly frustrating to me with both Boards failing to grasp the seriousness of losing some top people who have made significant contributions to the growth of this organization. The answer to all of this was a cavalier "well we probably need new blood and it is time to move on." The problem is that a few of that new blood, especially some of the certified doctors have not stepped-up to take important Board positions, yet they are the ones who have benefited the most from those who preceded them.

In the 1970's it was basically Dr. Gregory and me doing the research and the administrative chores for the organization. I think we wanted to divorce ourselves from the Grostic work in that we wanted to make the NUCCA system better and make it easier for the members. I think we made some progress from the days when Ralph would lecture from 8 am until 6 pm, reading from his notes and then return for more work in the evening. This all after Dr. Gregory gave professional service to 18-20 attendees. Of course, what made all this work was the privilege of staying at the Howard Johnson Motor Inn at Monroe Michigan. The Anatometer research was the highlight of the late 70's. I can't think of anything that pleased Ralph and Pete Benesh more than being granted patents for the US and Canada for the instrument.

In the early 80's we needed help and so we enlisted Berti to be our biomechanics man, and Pond to be our adjusting guy and Dickholtz to take responsibility for x-rays. I believe the 80's were the golden years for NUCCA. In 1981 the certification program was started which attempted to establish a standard for the work. Al Berti and Glenn Cripe were our first people to be certified. The research was especially helpful for the field doctor: center of gravity of the skull, lever system, the four basic types, how posterior rotations are formed, better x-rays, improvement on the triceps pull and many others.

In the 90's NUCCA was faced with some challenges. Dr. Gregory died. I have never seen anyone more dedicated to a cause almost to a fault, but if we had not had Ralph, I truly believe there would be no NUCCA today. We were lucky to have had Berti, Pond, Dickholtz and Denton to carry us into the new millennium. Now it is your turn. The challenge is up to you, are you willing to make the sacrifice? I felt that my 30 years made a difference for NUCCA. It helped the field doctors and patients and hell I am not even a chiropractor.

Semper Fi,

Dan Seemann

January 5, 2000