

Evolution of the Upper Cervical Adjustment

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Abstract

Objective: The purpose of this literature review is to investigate the pioneering and development of the Upper Cervical Adjustment. This review will discuss the advent of the Neurocalometer, and the controversial founders of Hole In One. This review will also discuss the evolution of the Upper Cervical Work over the years.

Conclusion: Upper Cervical Work has come a long ways since the discovery of Chiropractic by D.D. Palmer in 1895. Since it's inception, Chiropractic has been clouded by controversy, yet some of the biggest advancements in Chiropractic have been in the Upper Cervical field of work. The Upper Cervical field created quite a stir when B.J first announced it in 1931, but it has prevailed, and has been touched by those with the passion and drive to take it to further and further limits. Over the years, many Chiropractors have devoted their lives to advancing different areas of the Upper Cervical Work. Spinal analysis saw its first analytical measurement system with the advent of the Neurocalometer, which has been proceeded by the Kale Thermocouples, and most recently the TyTron C-3000 scanner. Spinographic physics and Spinographic analysis have become laser aligned, and have even been taken to the level of 3-D with the Blair stereo views, all to ensure the exact listing is calculated. Adjusting techniques have been improved and tested to ensure the most accurate and precise adjustment can be delivered on a consistent base. Even spinal analysis protocols have been developed to ensure patients are not over adjusted, but are adjusted at the right time, in the right place. The individuals that have made these advancements have devoted their lives not just to Upper Cervical Work, but also to the

Chiropractic principle of internal healing. Some have even gone to the greatest magnitudes by taking their work to the masses around the world.

Is it possible that one day, the entire world will have the opportunity to experience Upper Cervical Care, as only B.J. could dream:

“So, atlas or axis specific adjustment of the inter-magnum atlas foramen or odontoid specific subluxation, to release pressures upon nerves, to restore normal quantity impulse flow, to restore health IS BIG enough to rebuild the thoughts and actions of the world.” (3)

Keywords: Upper Cervical, HIO, Neurocalometer, Grostic, Atlas Orthogonal, Blair, Kale, NUCCA.

Introduction

D.D. Palmer, the Discoverer of Chiropractic, began his career in healthcare as a magnetic healer. D.D. had studied under Dr. Paul Castor, the most famous and successful magnetic healer in America, and went on to practice as a magnetic healer from 1885 to 1895, in Davenport, Iowa. (1) It was during these ten years D.D. discovered a new principle - the principle of internal healing. This principle led him to the practice of Chiropractic, which saw its birth on September 18, 1895. D.D. Palmer applied the first adjustment to Harvey Lillard, who had lost his hearing seventeen years prior. While sitting in a cramped position, he felt something give in his back. (1)

D.D. states in 1911: "I replaced the displaced 4TH DORSAL VERTEBRA by one move, which restored his hearing." (2) It was not till many years later that we discovered the first adjustment was actually an upper cervical adjustment. B.J. Palmer, the Developer of Chiropractic, retracted his father initial claims in 1957, stating the adjustment was

"NOT 4th dorsal vertebra but was AXIS that was adjusted in Harvey Lillard." (1) He goes on to state: "Why do I say it was 'the axis'? Because I was there and SAW WHAT HE DID, WHERE he did it—and it WAS the axis." (1)

D.D. had lied about the level he adjusted due to fear of persecution from the medical profession for touching the cervical spine. At that time, it was believed only dislocations occurred in the backbones, and any fooling with the neck would produce complete paralysis of the body below. (1) Thus, the pioneering of Chiropractic was based on an Upper Cervical Adjustment.

B.J Palmer introduced Upper Cervical Work in 1931, and created quite a stir in the profession. Chiropractors were torn between following B.J. and his theories of adjusting the Atlas and Axis only, or continuing to practice the full spine Chiropractic they were accustomed to. The following words of BJ Palmer in 1934 changed the face of Chiropractic, and created great a divide in the profession that is still present to this day.

“Man is a SMALL thing, worlds considered. An axis vertebra is small, man considered. The odontoid process, on an axis, is small. An atlas is SMALL, man considered. The neural canal, in an atlas, is also SMALL. Yet, that axis odontoid process, small as it is; crowding in upon the atlas neural canal, small as it is, acts as a governor to the destiny of man’s thots and functions; for it, in normal position permits a free flow, or in subluxation interferes with a free flow of all that force with which man thinks and acts. Man lives when he CAN think and act. Man dies when he CEASES to create thot and perform motion. Man becomes sick when thot and function are below par. Therefore, the inter-magnum-atlas foramen or the odontoid process may be a SMALL thing, but it is the BIGGEST thing in man.

“So, atlas or axis specific adjustment of the inter-magnum atlas foramen or odontoid specific subluxation, to release pressures upon nerves, to restore normal quantity impulse flow, to restore health IS BIG enough to rebuild the thoughts and actions of the world.” (3)

There were few individuals that followed B.J. and his Upper Cervical work, but those that did, brought with them the passion and drive to take it to further and further limits. Just as interesting as the controversy that tore the Chiropractic profession apart, is the controversy in the development of Upper Cervical Work.

Discussion

Neurocalometer

As the Chiropractic profession was evolving, it became increasingly important to develop a system of spinal analysis to increase the consistency of results. In 1910, the system of analysis included finding the "hot boxes" along the spinal column. (4) These "hot boxes" were detected by applying the back of ones hand or fingers along the spine, and finding a zone that were warmer to the touch than the other zones. The Chiropractor looked for these "hot boxes" to locate subluxations, and determine the cause of the patient's trouble. (4) This type of spinal analysis was doubtless the forerunner of the Neurocalometer.

In the early 1920's, Dossa D. Evins, a student at the Palmer School of Chiropractic (an electrical engineer by previous training), evolved the idea of devising an instrument to detect the "hot boxes." (4) His instrument was intended to allow the Chiropractor a more positive determination of the presence of nerve irritation and inflammation, indicating a troubled area in the patients spine. By its application along the spine, irritation and inflammation was registered on the dial of the instrument through the interpretation of a sensitive thermopile. (4) After months of experiment, he developed an instrument simple enough for the operation of the average Chiropractor. This instrument was introduced as the Neurocalometer (NCM) in 1924, in collaboration with B.J. Palmer. (5) The NCM was composed of two sets of thermocouples and a sensitive galvanometer. By placing the thermocouples in probes which straddle the spine, imbalances in skin temperature at like points were detected. Later, the capability of recording these temperature differences on a strip chart, the

Neurocalograph, was added. (6) During the next few years, the Chiropractic profession began to focus on the specific cause of all diseases. The use of the Neurocalometer guided the focus to the Atlas and Axis region in the early 1930's. (3) This is the region where the most heat differentials were detected. A 'pattern system' of analysis was developed to interpret the heat differentials on the Neurocalograph, which indicated the probable level of a subluxation. (7)

In later years, the NCM proved to be pivotal in Upper Cervical work, providing the much-needed analytical system of spinal analysis. The Neurocalometer had two purposes, one was to provide positive proof of the existence of nerve impingement and location of injured fibers, and demonstrate interference with the normal flow of mental impulses. The other purpose was to aid the Chiropractor as to the efficiency or inefficiency of the adjustment. The 'pattern system' became the determining factor for adjusting a patient, and aided the Chiropractor after the adjustment was applied to confirm if a neurological change had taken place. (4) The NCM was the first instrument of it's kind, and has led to the development of hundreds of similar instruments over the years. Without the advent of the NCM, modern Upper Cervical Work would not be in existence.

Hole In One

The name *Hole In One* originated in 1931, but it did not originate in reference to the Upper Cervical area. *Hole In One (HIO)* related to adjusting the specific subluxations that were considered the major subluxations in that patient. Adjusting the major subluxation when it showed interference was considered scoring 'A Hole in

One' in golf terminology. (8) Therefore, the *HIO* adjustment should be located wherever the *HIO* subluxation is. B.J. stated in reference to *Hole In One*:

“The less you do, if done right, the greater will be the results.

The more you do, if done wrong, the less will be the results.” (9)

The basic idea of *Hole In One* was that instead of adjusting several different locations on the patient, a Chiropractor could find the one major subluxation, adjust it, and in turn prevent the patient from being over-adjusted. It is speculated that it was this type of thinking, and the use of the Neurocalometer that led B.J. to the Upper Cervical area.

Aleck August Wernsing, a 1926 graduate of the Palmer School of Chiropractic, claims to have had a large part in the development of Upper Cervical Work. During the Great Depression, Wernsing developed a chronic illness that he believed originated from the upper cervical area. (10) He investigated anatomy, joint mechanics and improved upon the radiographic analysis of the area to develop what he called “Specific Atlas Correction” and “Atlas Specific.” (11) Wernsing’s technique focused on determining the malposition of atlas in relation to the occipital condyles, and was based on the fact that there was no rotation between atlas and occiput. He was using a side posture adjustment to correct the misalignment of Atlas. This was an extremely different approach than that taught at Palmer School of Chiropractic; which was teaching a knee-chest adjustment to the axis in order to correct atlas, and was basing the work on rotation existing between atlas and occiput. There was only one similarity between the two techniques, there were both addressing the upper cervical area. As B.J. stated in his infamous speech in 1931:

“The majority of *HIO* subluxations and adjustments are in the cervical region, the majority are either atlas or axis.” (12)

Wernsing felt sharing his research was imperative, so he packaged it up and presented it to B.J. in 1934. Later that year, B.J. released his new book *The Subluxation Specific – The Adjustment Specific* where he discussed the upper cervical subluxation using some of Wernsing's ideas, but Wernsing felt his ideas had been presented in a "...rather confusing manner." (13) B.J. acknowledged many individuals for their valuable aid, counsel, and suggestions: W.L. Heath, D.C.; A.B. Hender, M.D., D.C.; C.Q. Cadman, D.C.; Herb Hender, D.C.; H.C. Chance, D.C.; Wm. P. Brownell, D.C.; and A.A. Wernsing, D.C. (14) B.J. and his team of researchers worked hard and long to develop the *HIO* system of analysis and adjusting technique as it is known today. It is impossible to tell who exactly is the founder of *HIO*, but it is obvious Aleck August Wernsing's contribution were applied to the later versions of the *HIO* work.

Since the advent of the *HIO* work, there has been much advancement in the field of Upper Cervical Work. The following is a discussion of some of the most impressive contributions made to this area of study.

NUCCA

In 1941 Dr. John Francis Grostic walked into the office of Dr. Ralph R. Gregory for an upper cervical adjustment. They became friends, and decided to collaborate to evolve a more biomechanically accurate system of upper cervical subluxation correction. (22) Dr. Gregory had been reading Dr. A. A. Wernsing's, The Atlas Specific at about this time, and was impressed by Wernsing's comment - due to the shape of the superior articular facets of the atlas, the atlas moves laterally as if on the rim of circle. He showed the Wernsing book to Dr. Grostic; and together they

added the axis superior articulations. The resultant condylar-axial concept became the starting point for what was to become the Grostic Procedure. (19) In early 1943, Dr. Grostic, who was not satisfied with the former methods of determining Atlas laterally developed the Cephalometer, a skull-divider for establishing the central skull line. When joined to the Atlas plan line, these two lines formed two angles with atlas laterally being on the side of the acute angle. (19) To achieve these specific Spinographs, it became necessary to eliminate all other variables; therefore Dr. Grostic designed and installed perfectly aligned x-ray equipment. Precise patient placement became essential, permitting distortion free x-rays to be taken and making x-ray analysis with rotatory measurement acceptable.

After the death of Dr. Grostic, Dr. Gregory, with other interested chiropractors, formed The National Upper Cervical Chiropractic Association, Inc., (NUCCA), on April 16, 1966. The accomplishments of NUCCA and The National Upper Cervical Chiropractic Research Association (NUCCRA) have been many. Outstanding among them are: (1) The development of the double-pivot-point system in x-ray analysis; (2) The development of the triceps pull adjustment; (3) The designing of better film analytical instruments; (4) The development of biomechanical concepts in film analysis and adjusting; (5) The design and development over seven years of the Anatometer by Dr. Gregory and Peter Benesh which measures bodily distortions before and after the C-1 adjustment, providing proof of the effects of a C-1 subluxation on the body and their correction; (6) The design and development of a multiple support headpiece for extreme subluxations; (7) The establishment of a vertical axis for C-1 subluxations; (8) The classification of C-1 subluxations into basic

types; (9) The location of the skull center of gravity; (10) The identification of the components of the lever system and their relationship inherent in an occipital-atlanto-axial subluxation. (22)

Groscopic Procedure

Under the direction of B.J. Palmer, a group known as the Palmer Standardized Chiropractic Council provided a forum at which research and new ideas could be presented and exchanged. Dr. John F. Groscopic, a graduate of Palmer College in the early 1930's, was one of the members of this organization. During the 1940's, Dr. Groscopic developed the Groscopic Procedure for Spinographic analysis in collaboration with Dr. Ralph Gregory. It was at an annual meeting of the Palmer Standardized Chiropractic Council that Dr. John F. Groscopic presented his Spinographic measurement system. (19)

The Groscopic Procedure required a minimum of three cervical Spinographs: a lateral view, a nasium view, and a vertex view. The *lateral view* showed all seven cervical vertebrae, and allowed for measurement of the Atlas plane to determine the angle of the central ray necessary on the nasium view. The *nasium view* of the atlas projected the atlas posterior ring above the posterior ring attachments to the lateral masses of the atlas. This film helped determine superiority or inferiority of the Atlas, and had to be taken with absolutely no head rotation. The third view is a *vertex* of the Atlas, which is taken to determine the presence of absence of rotation of the atlas in relation to a central skull line. (20)

Dr. Grostic taught the Palmer Toggle adjustment, but the adjusting procedure has changed several times over the years in an effort to improve the effectiveness of the procedure. Today, the adjustment is similar to the Palmer Toggle, but utilizes a much shorter and lighter thrust. The contact point, the pisiform, usually travels less than one-fourth inch during the thrust. (19) The Grostic Procedure used a Thermoscribe reading and leg checks to determine if nerve interference was present. Dr. Grostic recommended a Thermoscribe reading with at least a two-point break, and the leg checks showing at least a 1/4 inch difference.

Dr. Grostic taught his procedure from 1946 till his death in 1964. In 1965, *Grostic Chiropractic Presentations, Inc.* was incorporated in Georgia by the Grostic family and several chiropractors who had assisted Dr. Grostic with his classes. Seminars were held in Atlanta, Georgia and Ann Arbor, Michigan, from 1965 until *Grostic Chiropractic Presentations, Inc.* dissolved in 1976. In 1977, the *Society of Chiropractic Orthospinology* was organized by some of the former directors of *Grostic Chiropractic Presentations, Inc.*, and continues to teach the Grostic system of Spinographic analysis. (19)

Atlas Orthogonal

In 1960 Dr. Grostic choose Dr. Sweat to become an instructor at his seminars and help present the Grostic programs. After Dr. Grostics' death, Dr. Sweat and four other doctors organized *Grostic Chiropractic Presentations, Inc.* In 1977, Dr. Sweat organized the *Society of Chiropractic Orthospinology*, which presented the Grostic Procedure. (19) In 1981 Dr. Sweat created the program of *Chiropractic Atlas*

Orthogonality, which utilized the principle of the Grostic Procedure, but had many key differences.

The *Chiropractic Atlas Orthogonality* program incorporates advancements Dr. Sweat has made in the areas of x-ray physics and adjusting instrumentation. Since the 1970's, Dr. Sweat has designed an Atlas orthogonal x-ray frame, floating chair and other laser-aligned attachments for the x-ray machine to eliminate all variables causing misinterpretation of the Spinographs. (20) Today, many of Upper Cervical techniques utilizing the x-ray equipment designed by Dr. Sweat. An Atlas orthogonal computerized x-ray analysis program has also been designed that is slowly gaining recognition in the field. Dr. Sweat also developed the atlas orthogonal precision instrument, which is designed to deliver a precise adjustment based on the specific misalignment found from the Spinographs. The instrument delivers a mechanical impulse through a metal stylus, and can be controlled so that the exact amount of impulse required will be applied. (21)

Blair Cervical Technique

Dr. William G. Blair began to develop his distinctive method for the analysis and correction soon after graduating from the Palmer School of Chiropractic in 1949. Trained in *HIO*, Dr. Blair soon became concerned with the potential effects of osseous asymmetry, or 'malformation.' (18) He was concerned the traditional Spinograph analysis system was not producing accurate listings. He studied skeletal specimens, and came to the conclusion the Atlas could not move in a truly lateral direction because the slope of the lateral masses. He discovered the condyles created an

osseous locking mechanism preventing such motion, and Atlas could not rotate in relation to occiput in the coronal plane without causing a gapping of the atlanto-occipital articulations. (18) He was able to disprove the prevailing thought of the time regarding the Atlas-Occiput misalignment. Dr. Blair developed the Blair Sterographic Spinographic views that allowed the imaging of misalignments in the Upper Cervical spine, but eliminated asymmetry as a source of error in Spinographic analysis. (18) By eliminating the asymmetry, and finding the true direction of misalignment, he was able to deliver a tailor made adjustment to each patient.

Dr. Blair developed a system of analysis that included developing each patients 'pattern' using instrumentation, and establishing their functional leg length deficiency in the prone position. (18) He used his Spinographic system to establish their listing, and the side posture position to deliver his adjustment. Having been trained in the *HIO* technique, Dr. Blair used this technique as his foundation, and advanced the technique by adding a 180-degree torque to his toggle. He mastered this technique by developing the "pisiform lead" protocol, in which adjuster's pisiform remains in firm contact with the segmental contact point throughout the adjustive thrust. (18)

Kale Network

Dr. Michael Kale, a 1965 PSC graduate, is well known for his pioneering efforts in several vital research areas. As chairman of an international research team, he worked with other scientists to conduct the first-ever nerve-related experiments on the spine and spinal cord, and proved the Upper Cervical subluxation had an effect on the function of the brainstem. (15) Dr. Kale developed an advanced NCM instrument

using heat sensitive thermocouples that detects heat differentials more accurately than the NCM. The Kale Thermocouples and Kale Thermoscribe 3000 are much smoother gliding on the skin, and are still used by many Upper Cervical doctors today. (15)

Dr. Kale was considered the world's foremost expert and Chiropractic's leading authority on "Upper Cervical Specific" chiropractic *Knee-Chest* technique. Dr. Kale advanced the *Knee-Chest* adjustment first developed by B.J. in the 1930's to adjust Axis. Dr. Kale used the principles of *HIO*, and the Blair analysis system to advance the *Knee-Chest* adjustment so that either Atlas or Axis could be adjusted with precision. He also conducted research to prove the knee-chest position was more effective than the side-posture position when adjusting either the atlas or axis. (16)

Dr. Kale established the first intensive day-care chiropractic clinic in South Carolina, and went on to open a 24-hour Chiropractic hospital in 1985, where only the *Knee-Chest* adjustments were performed. (15) This was not the first of the Chiropractic Hospitals; the first one being founded in 1936 by Dr. Roy Bakkum. Dr. Bakkum's thirty-bed facility was open till 1950, the only treatment patients were given was a *HIO* adjustments. (17) Dr. Kale became known internationally for establishing his 'Kale Foreign Messengers' group that traveled to Egypt, Israel, Romania, Japan, Canada, Russia, Argentina, and the West Indies to bring chiropractic to those who might not otherwise have access to it. (15)

KCUCS

After the death of Dr. Kale, Dr. Robert Kessinger founded Knee-Chest Upper Cervical Specific (KCUCS) in 2000. Dr. Kessinger graduated from Logan College of

Chiropractic in 1988, and was an instructor for the Kale Knee-Chest Network from 1994 through 1997. (23) KCUCS teaches the same adjustment and analysis protocols that were taught at by Dr. Kale, but have incorporated the TyTron C-3000 infrared scanner instead of the Kale Thermocouples. The Tytron C-3000 utilizes a fixed width and thermally insulated infrared sensors to accurately and objectively measure heat asymmetries or lack thereof as an indicator of the presence or absence of nervous system interference. (24)

KCUCS has followed the Kale Network example, and created the KCUCS World Missions coordinated by the International Christian Servants. (23)

Conclusions

Upper Cervical Work has come a long ways since the discovery of Chiropractic by D.D. Palmer in 1895. Since it's inception, Chiropractic has been clouded by controversy, yet some of the biggest advancements in Chiropractic has been in the Upper Cervical field of work. The Upper Cervical field created quite a stir when B.J first announced it in 1931, but it has prevailed, and has been touched by those with the passion and drive to take it to further and further limits. Over the years, many Chiropractors have devoted their lives to advancing different areas of the Upper Cervical Work. Spinal analysis saw its first analytical measurement system with the advent of the Neurocalometer, which has been proceeded by the Kale Thermocouples, and most recently the TyTron C-3000 scanner. Spinographic physics and Spinographic analysis have become laser aligned, and have even been taken to the level of 3-D with the Blair stereo views, all to ensure the exact listing is calculated. Adjusting techniques have been improved and tested to ensure the most accurate and precise adjustment can be delivered on a consistent base. Even spinal analysis protocols have been developed to ensure patients are not over adjusted, but are adjusted at the right time, in the right place. The individuals that have made these advancements have devoted their lives not just to Upper Cervical Work, but also to the Chiropractic principle of internal healing. Some have even gone to the greatest magnitudes by taking their work to the masses around the world.

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