

The Contribution of Dr. Roy Warren Sweat's Atlas Orthogonal Technique to Chiropractic

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With the passing of Roy W. Sweat, D.C., B.C.A.O., on January 2, 2022, the chiropractic world lost an iconic figure; however, the vision of chiropractic as taught by the founder of the Atlas Orthogonal Technique (AOT) will live on. In a plan to maintain and promote his vision, a board of fifteen practicing, board-certified Atlas Orthogonal doctors was established. They are responsible for creating and enforcing protocols for AOT practices, overseeing chiropractic colleges that teach the technique, and supporting chiropractic research that will benefit patients' health now and in the future. Dr. Sweat left behind a strong base that will continue to improve chiropractic outcomes by searching for more effective ways to adjust the atlas vertebra. This is his legacy and gift to us all. Below you will read how his vision became a reality.

Introduction

In a 2021 interview, Dr. Ron Oberstein, president of Life Chiropractic College West, asked Dr. Roy Sweat the question, "How did you get into chiropractic?"

Sweat replied:

After WW2, serving in the U.S. Navy, I was looking for a career.

Now, my sister was bedridden and suffering from migraine headaches, she was on medication, and it was not helping her, so she went to a chiropractor, and he adjusted her atlas. Her migraine headaches went away, and she didn't need the medication. I became interested in chiropractic and the chiropractor showed me a nerve chart and said I should go to chiropractic school and become a chiropractor, so I did.

In 1949, in what was known by some as the Golden Era of Chiropractic, Roy Sweat graduated from the Palmer School of Chiropractic. He had been trained as a B.J.

Palmer practitioner of the "hole in one" (HIO) technique. HIO was the only method taught at the school at the time. A side posture table was used to place the patient before their adjustment, which was made when a neurocalometer (NCM) graph showed a repeating heat pattern, known as pattern analysis.

Sweat began his practice of chiropractic in Georgia in 1951. It was not until he adjusted his sister for the first time and she said it hurt her, that he realized "the adjustment doesn't have to be that heavy." With that input, he began his search to find a way to make the force lighter.

The Next Step

In 1952, Sweat began a course of study specializing in the upper cervical occipital-atlanto-axial complex under John F. Grostic, D.C., in Ann Arbor, Michigan. This was the lighter form of adjustment he was looking for. In 1960, Grostic chose Sweat to become an instructor at his seminars and to help present the Grostic program. The pro-

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tocol involved taking X-rays in a neutral position and then analyzing, adjusting, and retaking X-ray images immediately after the adjustment (Grostick, 1946). Sweat consistently obtained a 100% structural correction, with patient signs and symptoms subsiding after each procedure.

When Grostick died in 1964, Sweat became president and renamed the Grostick procedure Orthospinology because, for legal reasons, it was not possible to keep the original name. In 1968, Sweat became the president of the Georgia Chiropractic Society. He was still using the Grostick table which was elevated about 15 inches off the floor but was noticing its restrictions. Its original purpose was to help practitioners move more freely, but it was unaccommodating to chiropractors with physical issues, such as lower back and elbow problems. So, in 1970, Sweat designed a new adjusting instrument with a higher table, not because he, himself, was unable to perform adjustments by hand using the Grostick method, but to make it easier for other chiropractors to utilize the method and adjust people. Consulting with the Georgia Technical University departments of engineering, physics, and mathematics, Sweat created a series of seven different models of his table instrument to get everyone on the same playing field.

Along with introducing newly designed table instruments, in 1981 Sweat founded the teaching program of Chiropractic Atlas Orthogonal. Its aim was to deliver and replicate scientifically specific adjustments to the atlas vertebra. The program is still being taught today. In his 73 years of dedicated practice, he originated, developed, and lovingly nurtured a chiropractic technique that would be taught to many and help thousands of patients globally.

Our Mission and Vision

According to Sweat:

Our mission as the Founder and Leader of the Atlas Orthogonal Chiropractic technique is to offer the most advanced Atlas Ortho-

nal instrument and adjustment. Our vision is for steady growth, commitment to excellence, and the highest integrity, consistent with action, values, methods, measures, and principles.

Aligning with Atlas Orthogonal Chiropractic

Atlas Orthogonal is a chiropractic technique based on Grostick's original programs and specifically upon the vertical relationship of the body, where the head is centered over the pelvis and feet, as shown in the "Human Body Center of Gravity" (Figure 1) skeleton on the right. This positioning is established to support the body from the stresses of gravity.

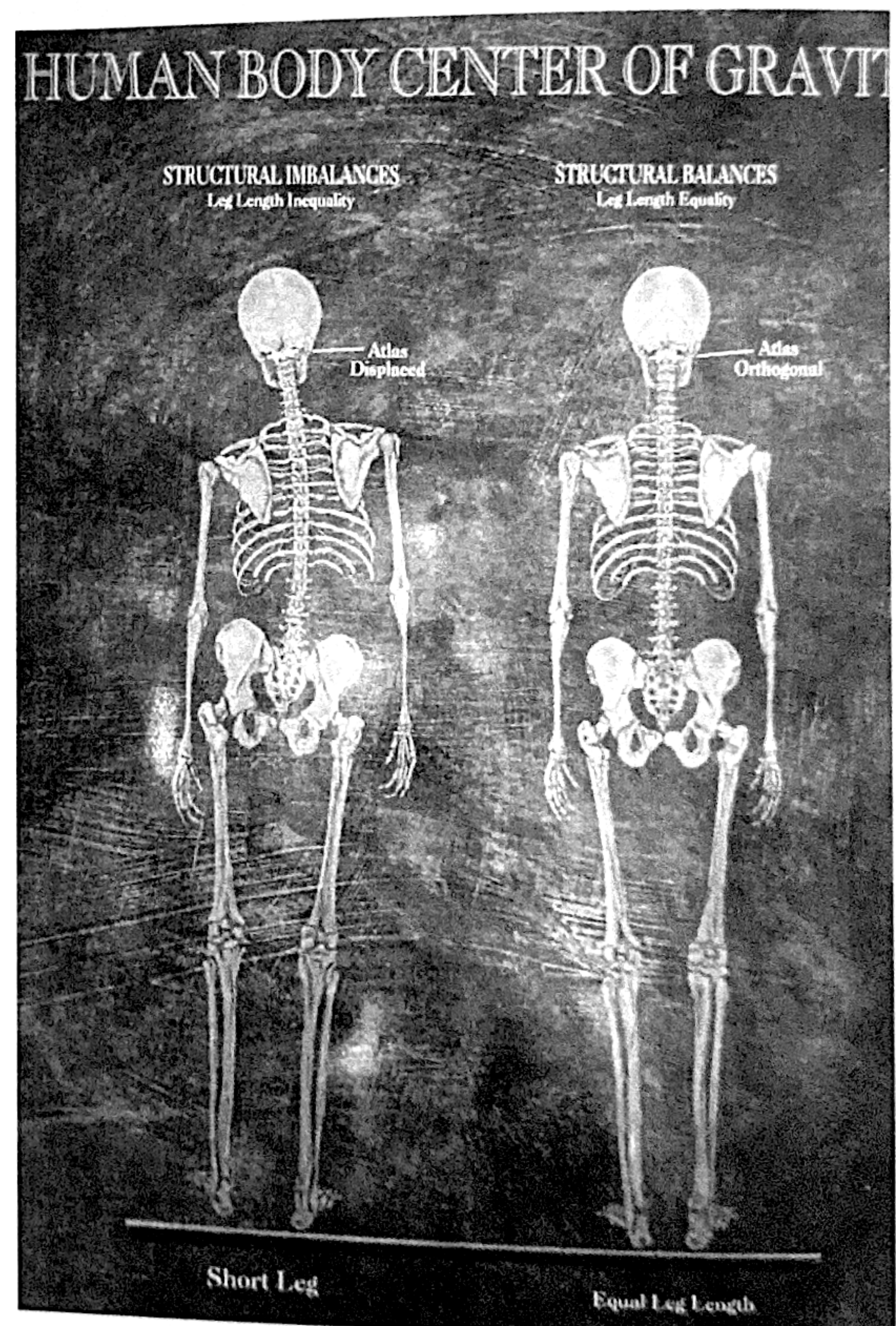


Figure 1. Human Body Center of Gravity, Roy W. Sweat Foundation, 1987

The atlas orthogonal chiropractor studies the alignment of the atlas vertebra (2 ounces), which is the foundation of the spine. The atlas holds up the cranium,

which weighs between nine and seventeen pounds. When building a house, one starts with a level foundation to support the framework. Similarly, the atlas needs to be level to support the head over the lower spine and pelvis. If the atlas foundation becomes unlevelled, the head shifts away from its vertical position, and the atlas misaligns: the lower spine is now away from vertical, and a functional short leg can be observed in a supine position. This is the cause of structural imbalance (as shown by the skeleton on the left). When this misalignment, defined as a "subluxation," occurs, a light-force instrument called the Atlas Orthogonal instrument is utilized to correct the condition, based on the mathematical vector analysis and setup described. This restores the vertical balance of the body. A secondary effect of a subluxated spine is interference with the nervous system. The spine should provide an unobstructed channel in which the nervous system can operate without interference. This nervous system is crucial to providing function to every tissue, organ, and system throughout the body. When the vertical relationship does not exist, serious spinal distortion may arise to compensate for this poor positioning. Complex musculoskeletal conditions (e.g., back pain or stiff necks) may occur, as well as obstructed neurological function, which can potentially affect every system in the body. Re-establishing the vertical balance of the spine and skeletal framework is therefore a major component of health.

The objective of the Atlas Orthogonal Technique is not only to make a correction but also to maintain any adjustment over a long period of time. In order to achieve this state of well-being, periodic check-ups are recommended to ensure individuals hold to adjustment patterns. The technique comprises four basic courses, which cover X-ray placement, analysis, a leg-check with scanning palpation and set-up, and adjustment (Sweat, 2021a). There are four board certification courses (Sweat, 2021b), which include topics such as radiology proce-

dures, table placement, chiropractic patient examinations, radiology analysis and adjustment, and post-adjustment procedures. A dissection course for board certification at the Life Chiropractic University is also included.

The routine protocol on every office visit consists of the doctor checking the patient's supine leg length and performing a process known as scanning palpation of the cervical spine. Scanning palpation involves examining the patient's cervical spine and determining abnormal conditions and the severity of pain. This finding is both subjective and objective. Intra-professional reliability studies show that when examining this way, most doctors can agree when an adjustment is needed, or if a problem exists. Scanning palpation is one of the doctor's most reliable methods for determining what the patient needs and their progress.

In Figure 2, below, "Scanning Palpation," there are six illustrations.

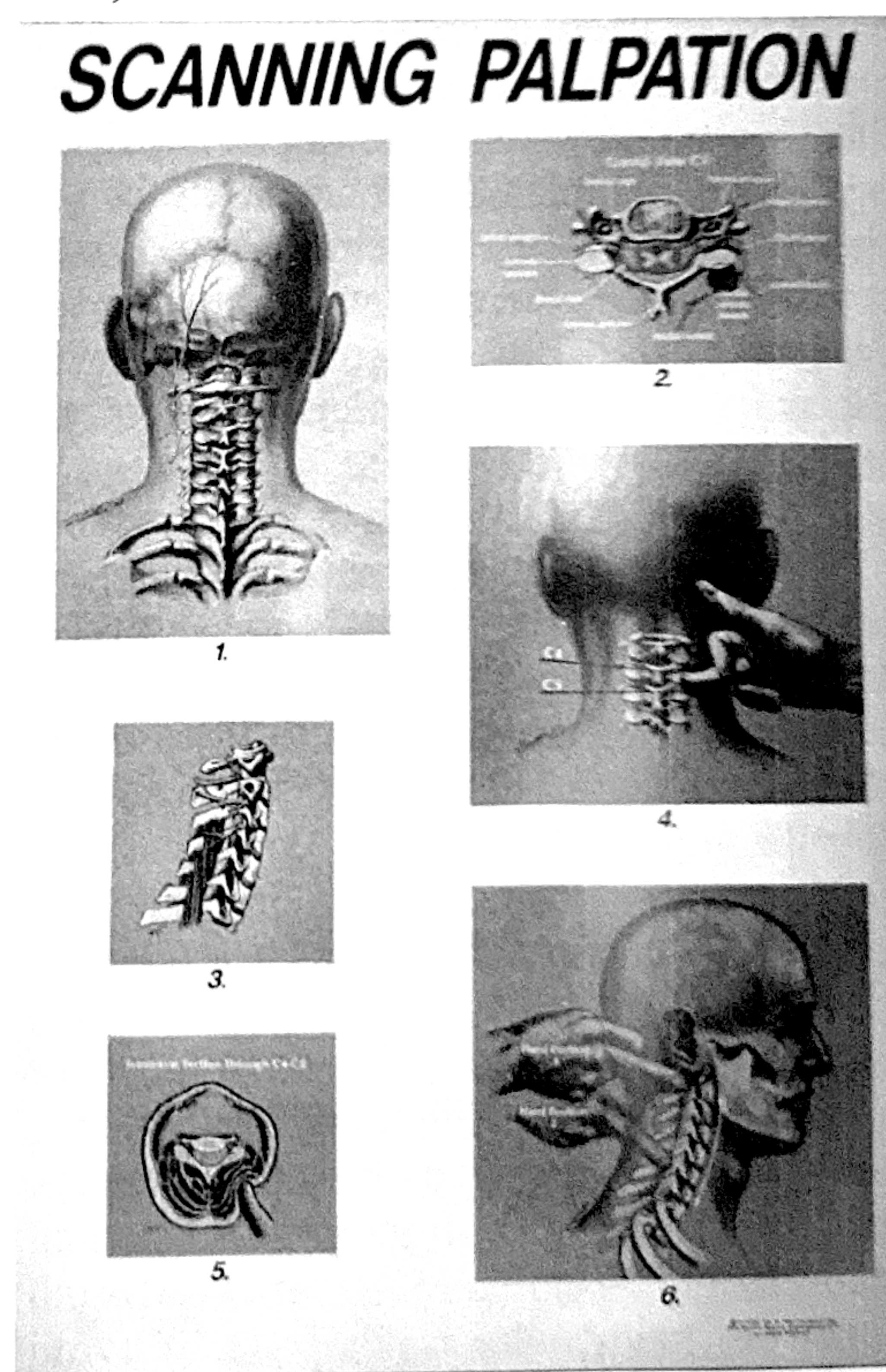


Figure 2. Scanning Palpation pamphlet, Roy W. Sweat Foundation, 1987

The first illustration shows how scanning palpation starts with the first (great occipital nerve) and then the second (ganglion) cervical nerve's dorsal root, both on each side of the head, which are frequently involved in headaches and pain. The neurological connection makes it easy to understand how neuralgia in this area may cause varied and bizarre symptoms that are often unresponsive to conventional treatment.

The second illustration, a cross-section, illustrates the reason for the pain response on palpation, and the amazing way the body is intra-connected from the brain to all other parts of the body, communicating messages back and forth as though through a vast computer.

The third illustration is a lateral view of the cervical spine, drawing attention to how the top two sets of nerves, as they pass backward, are easy to palpate and are considered when involving neurological pain and insults. Other cervical spine pain may be due to a variety of causes.

The fourth illustration shows how, when a problem exists, the doctor's palpatory hands pinpoint the abnormality causing discomfort to the patient. When a correction is made, the patient is likely to be pleasantly surprised when re-examined. The pain they were experiencing is often lessened or completely gone.

The fifth illustration is a cross-section of what is being compressed (referring to the second illustration). It is easy to see how valuable an examination is to a patient's health, both before and after care, when the pain is often lessened or absent after the adjustment.

The sixth illustration demonstrates the hand position in exacting palpation as an art that is stressed heavily in our care.

According to Sweat, "We must be exact in our findings both before and after adjustment, to determine what the patient needs and when they should return for another examination."

X-Rays

Dr. B.J. Palmer, the developer of chiropractic, introduced X-rays to the profession in 1910 (Palmer, 1910a & 1910b), after buying an X-ray machine the previous year, in 1909 (Palmer, 1967; Remier, 1947). Palmer was the first to concentrate on subluxation of the atlas vertebra. He knew it was necessary to X-ray the spine and analyze the vertebrae on a scientific basis. He took them before the adjustment, but let time pass before taking another set after the adjustment (Palmer, 1938). The X-ray protocol became part of standard practice, but it took a while. In 1946, in Sweat's opinion, the protocol was improved by Grostic when he introduced post-adjustment X-rays to the chiropractic profession. These X-rays were taken immediately after the procedure to compare them with those taken beforehand.

The Atlas Orthogonal program, which is based on stereotactic cervical alignment (SCALE) methods, is a spinal healthcare program developed by Sweat in the late 1960s based on scientific and biomechanical procedures for X-ray analysis and vector adjustment. The atlas orthogonal percussion instrument used, along with the analysis, achieves postural restoration, decreases pain, and increases function. This precision treatment reduces cervical spine misalignment and its related symptomatology. This is achieved without manipulation or surgery. The patient requires five pre-cervical X-rays: lateral, frontal/nasium, horizontal/vertex, anteroposterior (AP) open mouth, and AP cervical. Three post-procedure X-rays are performed immediately after the first adjustment: lateral, frontal, and horizontal. The aim is to show the orthogonal structural improvements brought about by SCALE's Atlas Kinematic Displacement (Sweat, 1997). Post-SCALE adjustment of the atlas, X-rays, and magnetic resonance imaging (MRI) scans (Sweat, 1988) have shown significant improvement in identifying the signs and symptoms as well as reductions of the sub-

luxation complex (Sweat, 2000). When other areas of the body are involved, they must be X-rayed in addition to cervical imaging. It is quite common in the medical profession to examine X-rays of fractures and luxations before and after a procedure to see if conditions have been reduced and improved, and Sweat felt it was important for chiropractic to do the same.

Wyoming Upper Cervical Conference

In 1984, Sweat presented his Atlas Orthogonal technique to the profession at the Wyoming Upper Cervical Conference. He gave credit to Palmer and his HIO technique, saying: "I could never accomplish what B.J. Palmer accomplished." He also gave credit to Grostic and A.A. Wernsing.



Figure 3. Dr. Sweat, 1984

Sweat noted that research on congenital and developmental trauma has reported a significant impact on spinal biomechanics and vertebral subluxation (Von Torklus, 1972). Hence, one may not obtain a full or even significant reduction showing up on post-procedure X-rays: in his words, "one

must perform and accomplish excellent results at adjusting."

Sweat supported his presentation with a film on cineradiography, demonstrating that the atlas moves within its subluxated space. In other words, it is not fixated and is not hypermobile. Motion studies of the occipital-atlas-axis complex demonstrate the atlas being adjusted. The atlas (two oz.) vertebra holds the head (9 to 17 lbs.) up. It sits on an inclined plane of the condyles and sits on the inclined facets of the axis. The objective of the Atlas Orthogonal Technique is to make the cranium and cervical spine vertical and the atlas horizontal, thus orthogonal, right-angle position. Sweat also presented a dry bone study demonstrating congenital anomalies. In these cases, reductions of the misalignment factors were shown to be limited due to the variations.

At the conference, Sweat referred to other chiropractic upper cervical procedures, starting with Palmer's HIO technique, saying that "the Upper Cervical procedures are here to stay, they have proven their techniques by the test of time." He cited Sigmund Freud, who said that "theories don't fall out of heaven, they come to us in pieces," and went on to mention that "the upper cervical procedures have stood on the shoulders of giants in accomplishing advancing the science and art of chiropractic. If we can add just one line, we have done our job."

The Atlas Orthogonal Technique is described in C.H. Suh's 13th conference book (p. 190). Suh reviewed Sweat's Atlas Orthogonal Technique using several hundred pre- and post-procedural X-rays using distortion-free computerized analysis. Suh certified that Sweat (2012) was reducing or eliminating upper cervical subluxations. Sweat also presented his research, conducted at Life Chiropractic College, using a transducer measurement instrument that measured force in pounds. He found that the Atlas Orthogonal percussion instrument provided the lightest adjustment measured (at six pounds) when compared to other upper cervical techniques.

The following is from Eugene T. Patronis, Jr., Ph.D., of the School of Physics, Georgia Institute of Technology, after examining the percussion instrument:

I would describe the operation of your device as follows: a mechanical impulse is imparted to a metal stylus by means of a spring-loaded plunger. The strength of this impulse is determined by the initial degree of compression given to the plunger spring. The impulse imparted to the stylus by the plunger excites a compressional wave in the stylus. The velocity of this wave in the stylus material is determined by the square root of the ratio of Young's modulus to the density of the stylus interface, dependent on the impedance match, a portion of the wave energy is transmitted into the patient, and a portion is reflected to the plunger.

Sweat himself used the following analogy:

It's like billiards with a cue stick and pool balls; hit one ball and it can hit another ball." His pre- and post-adjustment X-rays showed significant changes, with the technique helping to bring the cranium, cervical spine, and atlas to orthogonal position. The result is a clear and unobstructed path for the spinal nerves, spinal cord, and vertebral arteries, thereby permitting natural function, mobility, and health.

His message to the profession for the adjustment was "light is right."

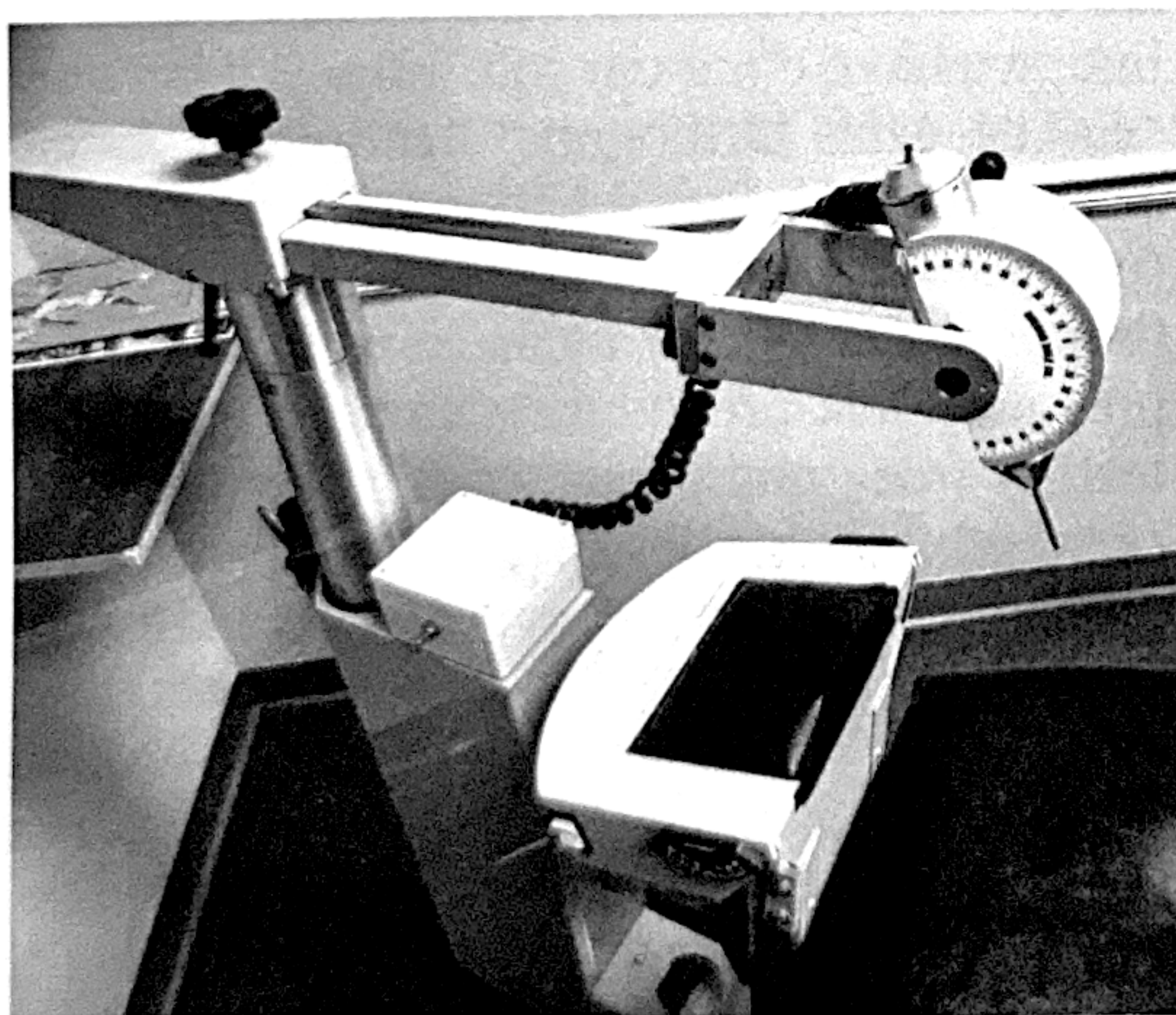


Figure 4. Official Atlas Orthogonal instrument, invented by Dr. Sweat

From the First Base to the Home Plate

In his interview with Oberstein, Sweat said, "B.J. Palmer got us to first base, John F. Grostic got us to second base, Atlas Orthogonal got us to third base. Now it is time for the next generation to get us to home plate."

Oberstein replied, saying, "Dr. Scott Rosa's scientific research will take Atlas Orthogonal there." Sweat agreed: "Dr. Rosa is our number one asset for the program."

Based upon the Atlas Orthogonal Technique in chiropractic, Scott Rosa, D.C., has taken a quantum leap forward in research. By using an upright MRI, he has demonstrated, scientifically, that this adjustment technique was a testament to the efficacy of upper cervical chiropractic (Rosa & Baird, 2015; Rosa, et al., 2018; Rosa, 2011), Sweat, 2020) According to Rosa, "We have a team which includes Dr. Matthew H. Sweat, Dr. Dennis Fiorini, and Dr. Angelo Colavita, that will take us there."

In conclusion, Sweat once wrote in a statement entitled "The Atlas":

Adjusting the atlas is the most rewarding thing in the world. The greatest pleasure is to see people improve, recover their health, and enjoy life. One of the worst things in life is to see a functioning, performing human being become sick and die. The next best thing to creating life is to improve and extend life. To see positive scanning palpation improve immediately and post-X-rays become orthogonal or improve immediately after a chiropractic atlas adjustment, is a very beautiful experience. We must develop scientific instruments to perform and document our chiropractic program. To be in this great chiropractic health field and adjust the atlas with a scientific, accurate procedure is a thankful, living experience.

On May 9, 2020, Sweat gave his final personal and professional interview, which sums up his journey in chiropractic. He was asked the question: "When you pass away and go to heaven, what will you ask God?" To which he replied, "I would ask

him why he didn't make the neck bigger to hold up the head." This author thinks God would reply: "That's why I created you."



Figure 5. Dr. Sweat, 2021.

Sweat received the Daniel David Palmer Scientific Award from Palmer College of Chiropractic in 1995. In 1999, he was the recipient of the World Chiropractic Alliance Researcher of the Year Award. In 2003, he received the William M. Harris Lifetime Achievement Award. In 2018, he was awarded the Lee-Homewood Heritage Award, given by the Association for the History of Chiropractic.

Acknowledgments

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Appendix. Articles by Dr. Sweat in Peer-Reviewed Literature

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