



THE UPPER CERVICAL
MONOGRAPH

Vol. 9, No. 1 *Published by* THE UPPER CERVICAL RESEARCH FOUNDATION October 2019



Table of Contents

Editorial

Dr. Gordon Hasick

UCRF President's Message

Dr. Craig Lapenski

Research Knowledge Translation for Everyday Practice

Dr. Gordon Hasick

UCRF Impact Report

Dr. Gordon Hasick and Kathy Waters

Certification

Dr. Marshall Dickholtz

Standards Review Committee Update

Dr. Glenn Cripe

Standards Protocol Updates

Dr. Glenn Cripe, Dr. Craig Lapeski and Dr. Tym Flory

<p><u>Editorial</u> <u>Board:</u></p> <p>© NUCCA, 2019. All Rights Reserved.</p>	<p>Dr. Gordon Hasick- Editor</p> <p>Dr. Jordan Landholm</p> <p>Dr. Keith Denton</p> <p>Dr. Lila Baker</p> <p>Dr. Jonathan Chung</p> <p>Kathy Waters</p>
--	---

Statement: The Upper Cervical Monograph is the official research publication of the Upper Cervical Research Foundation (UCRF), National Upper Cervical Chiropractic Association (NUCCA) and Ralph R. Gregory Memorial Foundation (Canada). All material submitted for publication becomes the property of UCRF / NUCCA. Photo credit for all nature photos; Aidan Hasick © 2010-2019

Permission to publish content from the Monograph should be requested in writing to:

Upper Cervical Research Foundation

5353 Wayzata Blvd., Suite 350

Minneapolis, MN 55416

Fax: 877/558-0410

Direct phone: 952/564-3056

Toll-free phone: 800/541-5799

Email: info@ucrf.org

Website: www.ucrf.org

Message from the Editor

Dr. Gordon Hasick

The UC Monograph was first published in 1973. Since then, there have been various editors and contributors that continue to share the research, education and important topics of the day that are the central support of the NUCCA procedure. The continued success of the NUCCA and UCRF organizations comes from serving the membership with the ongoing research and innovation that provides the most optimal correction of the Atlas Subluxation Complex (ASC).

There are three distinct areas of the NUCCA organization that exist to serve and support your NUCCA practice success and the legacy of the NUCCA procedure. Research, Standards and Certification. All three of these areas flow through and inform the teachings. This issue of the Monograph celebrates these three areas. We will also acknowledge the efforts for research fundraising and much of the research that has been successfully published. Please take some time to explore the Impact Report that highlights the last 10 years of efforts towards NUCCA research.

From the time we enter the world and begin to grow stronger and more capable, our whole life is a series of developmental steps. Just like learning to walk starts with crawling, wobbling and falling down. We eventually, after much persistent effort, take on our full natural gait as a unique human and move deeper into our world. To grow into greater

capacities and abilities, we need an environment that supports us to fully develop.

Professional development and personal development are life-long journeys. The NUCCA Organization is dedicated to support that developmental process. That support firstly comes through the clearly defined NUCCA teachings at conferences and seminars and through the written Standards of Care.

Secondly, the support from the UCRF research that is conducted to clarify and understand the essential benefits from a fully corrected ASC.

Thirdly, the NUCCA Certification Program and personal mentoring that comes from this process. For those who choose to step into that arena, the personal challenges and rewards are historically significant.

The Atlas Subluxation Complex is a uniquely complex biomechanical and neurological challenge. This issue of the monograph is dedicated to honoring and clarifying what decades of care and research has shown us. The NUCCA Standards of Care and Practice Guidelines and the years of research provide us a helpful support that enables us to successfully go into clinical practice today and navigate the complexities each patient presents.

For some practitioners, the support is welcomed, appreciated and is used as a guide to help develop themselves. For other

practitioners, they find the outlined standards and teachings restrictive to their full and personal expression of the work. In truth, all of these areas of support are intended to help you to be the best “you” in practice. Ultimately, we each have the opportunity to take on the learning and apply it in a very personal way.

Research, Standards and Certification along with the teachings at conferences and online are a generous support that can help ensure you are successful. That path to clinical success translates from a maximal correction of the ASC to optimal patient outcomes that will ideally lead to your sustained success in practice. We invite you to use them well and hopefully they guide you. We encourage you to apply them respectfully and practice applying them in a way that you know and own from a deep experiential place. Practice, practice and practice. Learning is life long and there is no end to how good you can get at applying the NUCCA standards and principles that are taught today.

The NUCCA Standards Committee has spent years studying the protocols and procedures and have recently refined some of the ways in which we practice. Published in this Monograph are some of those researched changes to our teaching. We invite you to further study them and apply them as a support for your best outcomes in practice.

There are many people devoting many hours to NUCCA and are ensuring the ongoing projects and work continues along these

streams of support. Research, Certification, Standards and Education. Thank you to all of those people who devote their volunteer time on the various NUCCA and UCRF boards and committees to keep NUCCA, a precious gift to the healthcare community, alive and well.

To maintain the continuity and tradition of the UC Monograph, which is a tradition that lives on dedicated to honoring the past and actively innovating the best future, please enjoy this edition of the 2019 UC Monograph.

Sincerely,
Dr. Gordon Hasick
Editor



UCRF President’s Message

Dr. Craig Lapenski

The NUCCA spinal corrective procedure is based on measurable and tested procedures that have been developed starting with the work of Dr. Ralph R. Gregory and Dr John F. Grostic in their collaboration between 1941 and 1946.

Dr. Gregory continued to develop the work and founded the NUCCA organization in 1966.

He always wanted an organization that was founded on tested and proven principles and procedures. The NUCCA Board of Directors created an organization that was designed for the NUCCA work to be tested, advanced and refined. In October of 1971, The National Upper Cervical Chiropractic Research Association or NUCCRA was formed as a research organization and later became The Upper Cervical Research Foundation or UCRF in 2007. Since its inception, this organization has continued to test and validate the NUCCA procedures, as well as produce research involving the effects of the ASC and its optimal correction.

Over many decades, the UCRF Board of Directors has employed research directors to help guide our organization and help with the duties of administration. Along with the devoted work of NUCCA doctors within our membership, this partnership has produced a body of information that has helped the public and our organization increase the awareness of the importance of the Upper Cervical Spine. As a new era of opportunities exists within healthcare, our organization stands poised and committed for NUCCA to play an ever-increasing role within the healthcare community.

On behalf of the Board of Directors of the UCRF, it is our privilege to serve our members and carry on the torch that has been passed from those who came before us.

Dr. Craig Lapenski
President UCRF

NUCCA Research Knowledge Translation for Everyday Practice

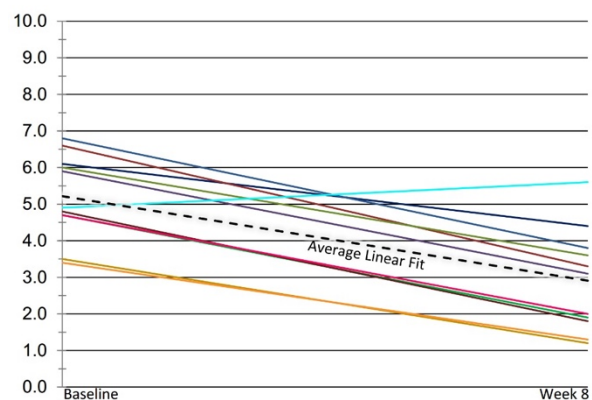
Dr. Gordon Hasick

From the Calgary NUCCA migraine study, three of the patients reported outcomes utilized were the VAS, MIDAS and the HIT 6 tests. Each of these tests are described below along with the results from the patients that were measured in the NUCCA study. For the Migraine study, the N= 11 which is smaller in comparison, but the trend for the VAS, MIDAS and the HIT 6 tests along with other Dynamic MRI measurements of the Hemo-Dynamic and Hydro-Dynamic changes were notable. The results of the study also concluded, further research with more candidates and a placebo group would be valuable.

Visual Analog Scale - VAS

The VAS measure changes in pain levels over time. The study results showed a substantial reduction of pain for 10/11 Migraine Research Candidates.

The trend line for NUCCA migraine study.



HIT 6

HIT stands for Headache Impact Test. This tool helps patients communicate the severity of their headache pain to their healthcare provider.

It helps to determine the impact headaches have on the patient's life, better communicate the information to the healthcare provider, track the patient's headache history and the effectiveness of therapy over time. With the HIT 6, **the lower the score, the better**. The 6-item questionnaire measures important and relevant constructs of the impact of headache in patients with migraine, but that specifically, **a decrease of 6 points or more appears to be the best threshold for a meaningful decrease in total score** for those with chronic migraine. (1,2)

REFERENCES

1. Houts C. Content validity of the HIT-6 in migraine patients: results of a systematic literature review. Presented at: 2019 American Headache Society Annual Meeting; July 11-14, 2019; Philadelphia, PA. Poster 213LB.
2. Cady R. Chronic migraine: Establishing a responder definition for the HIT-6 total score. Presented at: 2019 American Headache Society Annual Meeting; July 11-14, 2019; Philadelphia, PA. 215LB.

MIDAS

The MIDAS or Migraine Disability Assessment Test is a test used by doctors to determine how severely migraines affect a patient's life. Patients are asked questions about the frequency and duration of their headaches, as well as how often these

headaches limited their ability to participate in activities at work, at school, or at home.

The test was evaluated by the professional journal *Neurology* in 2001; it was found to be both reliable and valid. (1)

1. Stewart, WF (2001). "Development and testing of the Migraine Disability Assessment (MIDAS) Questionnaire to assess headache-related disability. (Abstract)". *Neurology*. 56 (6 Suppl 1): S20
8. doi:10.1212/wnl.56.suppl_1.s20. PMID 11294956.

MIDAS			
Comparison With Preempt 1&2			
	Botox	Placebo	NUCCA
N	688	696	11
Baseline	42.1	42.4	46.7
12 Week Change (mean decrease)	18.3	11	32.1
HIT 6			
Comparison With Preempt 1&2			
	Botox	Placebo	NUCCA
N	688	696	11
Baseline	65.5	65.4	64.2
12 Week Change	-4.7	-2.6	-10.4

(click on the image above to open larger view)

The inclusion criteria for the NUCCA migraine study included candidates with 10-26 headaches days a month, At least 8 days per month with pain of levels of $\geq 4/10$ for part of the day. There was also a history of MTBI in 9/11 candidates and 5/11 had a history of MVA. Click here for more [Data](#).

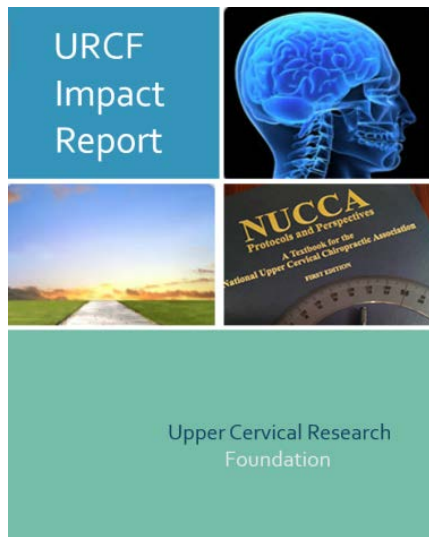
Of the 11 Candidates:

- 5 received 1** NUCCA correction
 - 4 received 2** NUCCA corrections
 - 1 received 3** NUCCA corrections
 - 1 received 5** NUCCA corrections
- (Over the 8 weeks of monitoring)

UCRF Impact Report

Treasurers: Dr. Gordon Hasick - UCRF and
Kathy Waters - The Ralph R. Gregory Memorial
Foundation (Canada)

The UCRF Impact Report 2019 was put together to show the measurable successes that UCRF has accomplished over the past 10 years with your support! A big thank you to all of our donors and to those of you who continue to support UCRF initiatives through the annual Small Steps to Success Campaign and Gregory Circle Memberships. We would also like to thank all of the board members who volunteer their time to work on these projects. Please enjoy viewing this document by clicking on the link below:



(click on the image above to open Report)

Certification

Dr. Marshall Dickholtz Jr.

Dr. Gregory's Work and the Lost Culture

We live in an age where protecting the environment and creating a sustainable future seems to be in the news daily. While there is a stand to maintain natural resources and traditional cultures, there is also a push to change iconic views; especially if the view doesn't fit today's narrative. Even the language we use is now driven to avoid differentiation and assure no one is offended. Old ideas, beliefs and contexts are viewed as antiquated and dinosaurs of the past.

I'm one of the few remaining Gregory era doctors; one of the dinosaurs. There are only a few individuals left that learned directly from the founder of the NUCCA technique and were immersed in a culture of always maintaining the possibility of a maximal correction of the Atlas Subluxation Complex. It is difficult for many doctors today that never met Dr. Gregory or learned directly from him (let alone being born after his passing) to understand the uniqueness of who he was. Dr. Gregory had a remarkable commitment, vision and what he could produce with his personal clinical outcomes was beyond comparison. He demonstrated and taught others that a maximal correction can occur beyond the mere changing of lines on radiographs.

You can fully appreciate how difficult it is to open the mind of another (like a potential new patient) that has a fixed view about what chiropractic is and has never experienced a maximal C-1 correction. It can also be challenging for many NUCCA members today to see what the environment with Dr. Gregory was like and just what the potential for the NUCCA work really is.

The current view of what it means to be a NUCCA doctor is shaped by the current membership beliefs and the NUCCA cultural perspective. Based upon the questions and conversations at the NUCCA conferences, on social media, and in the field, there are clear limitations to the potential of the NUCCA standards and protocols for some. They don't seem to have the ability to visualize or hear about a context or view of NUCCA outside of the way they "know" it is.

I grew up with Dr. Gregory and his wife Ruth as part of our extended family. There was no other person that my father had greater respect and modelled his life in honor of. I officially attended my first NUCCA conference in spring of 1976. I have had an opportunity to directly see how the vision of Dr. Gregory's work has evolved. I am also personal witness to how this vision has been slowly degrading over the past years. My concern is that the quest to develop mastery and to know what is possible with a truly powerful adjustment for the maximal reduction of the C-1 subluxation is being lost.

When Dr. Gregory created NUCCA board certification and the standards associated to its fulfillment, it was based on what he knew about the complexities of Atlas Subluxation Complex. He understood a lesser correction could have a positive outcome but could leave a patient with a reduced subluxation that had its own health consequences attached. Dr. Gregory stood for what a doctor needs to be able to accomplish in the delivery of the adjustment with safety, reliability and effectiveness.

In those early years a great percentage of doctors attending the NUCCA conferences were board certified. The culture wasn't about passing a certification test, it was the worthiness of a quest to be a doctor that demonstrates the commitment and strength of character to strive to be one's best. The commitment was toward the maximal reduction of the ASC for the benefit of the patient.

The entire world, including the world of NUCCA, has changed from four decades ago until today. What has become evident is a huge gap regarding the context and pursuit of mastery. The Certification Program, even though it's evolved into an opportunity for personalized mentorship, while it actually has a lower fulfillment requirement, is often looked at with disdain. It risks becoming more of an achievement award than an expression of mastery of the work.

Board Certification is looked at by some as divisive and that it asserts some doctors have better skills than another. It's difficult for me to understand why many steps the organization has taken, such as having the regular review of a NUCCA doctor to demonstrate their abilities to be listed on the web site, have been met with protest. Some doctors have protested that it shapes how their patients or potential patients perceive their qualifications; or the lack of. Their solution is that we stop differentiating one doctor from another on the website. Clearly this is the time for us to have conversations about what are the best ways to communicate to the public who we are as an organization and as individual practitioners.

After 43 years of attending NUCCA conferences, the elephant in the room is the loss of drive to become masterful in the NUCCA technique. In this article I call it "Dr. Gregory's work" for a reason. We seem to universally agree with Dr. Gregory's process of taking and analyzing structural misalignment, and yet many oppose and fight against his baseline standard of care. Care beyond the certification standard is what he stood for. He stood for the highest level of care that is delivered to the public. He devoted his life to research, writing and teaching so that others could perform as effectively as he knew was possible.

It's not about passing a test, it's not about being perfect, it's about the endless movement towards mastery and a deeper understanding of how to effectively reduce

the complexity of the ASC. Every board-certified doctor who took on the challenge of improving their skill set and that did pass certification review has reported becoming more capable and competent than they previously thought possible. That baseline of knowledge and performance truly opens up a whole new world of personal growth and effectiveness in this work. They see it with their patient's outcomes.

When Roger Bannister broke the "impossible" four-minute mile, immediately other runners were able to accomplish the same performance mark. As NUCCA members, are we going to outperform the NUCCA doctors that have done the "impossible" before us; or are we targeting "let's all run an eight minute mile together so no one feels bad or left out"?

I have had the honor to have my alignment corrected by the best of the best. It is my personal experience physiologically that there is a profound difference in my quality of health based on the degree and completeness of my correction. That skill set can be achieved by many doctors that seek to achieve it for their patients.

All NUCCA doctors provide a valued service to their patients! The question is which of our patients missed the opportunity of fully recovering their health because we left part of the C-1 subluxation uncorrected?

The success of this work cannot rest of the shoulders of a handful of certified doctors that have not only met the baseline NUCCA

standard, but work as mentors while holding active positions of boards and committees, along with their family and practice commitments.

Without a higher percentage of our members stepping up and honoring what the founder Dr. Ralph R. Gregory saw was needed, I fear this work will not survive with integrity. Dr. Gregory established the National Upper Cervical Chiropractic Association as he desired the work to live on beyond his own life. Now is the time to honor the work as it was designed, seek to have the skills to accomplish maximal corrections of the ASC, continue the highest vision for NUCCA so that it will not be lost. NOW is the time to further our learning, develop, refine and advance the work.

In my 43 years of participation and now seeing the original fires of NUCCA slowly disappearing, I know deeply in every cell of my being, it is worth preserving. I have now become an activist and I will continuously stand for the future of this organization and the possibility it holds for the expression of life and health that results from a maximal correction of the ASC.

Everything in our world occurs to us through a specific view that we have either created for ourselves or inherited from others. Take a look at what is your view or vision for your family, your patients, your practice, how you take care of yourself or your performance in this work. Can you see that depending on the context or view you have for any area of your life; this not only shapes the way you see it

but also influences your actions to support that view; they are perfectly correlated. Over time those repeated actions create a future.

I invite you to inquire into a couple of questions:

- 1) *What do you stand for regarding your skills, your patients health and the future of NUCCA and the reduction of the Atlas Subluxation Complex?***
- 2) *What actions are you willing to take to make that happen?***

Thank you for your willingness to take action for the integrity and future of NUCCA.

Sincerely,

Dr. Marshall Dickholtz Jr.

Co-Chair Certification and Standards Committee



Standards Review Committee Update

Dr. Glenn Cripe

As chairman of the Standards Review Committee, I thank NUCCA for the privilege of serving on this important committee. I also thank Drs. Craig Lapenski and Tym Flory for their dedication, hard work and for their countless hours in making sure NUCCA is maintaining the highest of standards of proven care.

The Standards Review Committee was formed in 2015 as a subcommittee and reports to the Certification & Standards Committee with recommendations for different types of NUCCA standards and protocols to investigate. This review committee welcomes input from all NUCCA members to submit their ideas and recommendations that may simplify, change or add to any of the different components of the NUCCA procedure. It was Dr. Gregory's intention to have NUCCA continually evolve and improve, and that tradition continues today with this committee.

It is very important for me, as chairman of this committee, to assure the members that this committee will not make changes for the sake of change. We take changes very seriously and are very aware of the importance of thoroughly investigating each concept that comes before us. We will only make recommendations in favor of changes when our detailed research indicates that it will

indeed enhance the core procedures and principles of NUCCA care.

Over these past years our committee has presented to the Certification & Standards Committee a wide range of recommendations for final approval. The changes we have investigated and recommended cover a variety of topics and have all been reviewed and brought to the board. These areas of investigation have ranged from biomechanics, film analysis, x-ray imaging, and adjusting procedures. The initial reviews are printed here in this Monograph. Others will be added at a later date and we recommend these changes should be reviewed by all members.

It is our hope that as a committee we are able to clarify a better understanding of the NUCCA procedure. If you want to have something reviewed or changes considered, here is a link to the [Standards Review Committee's form](#). Doctors can use this form to formally make any suggestions. We will investigate the query based upon established committee testing criteria and once tested, the result will be posted.

It is our intention to bring the important changes to the NUCCA membership and we look forward to hearing from you.

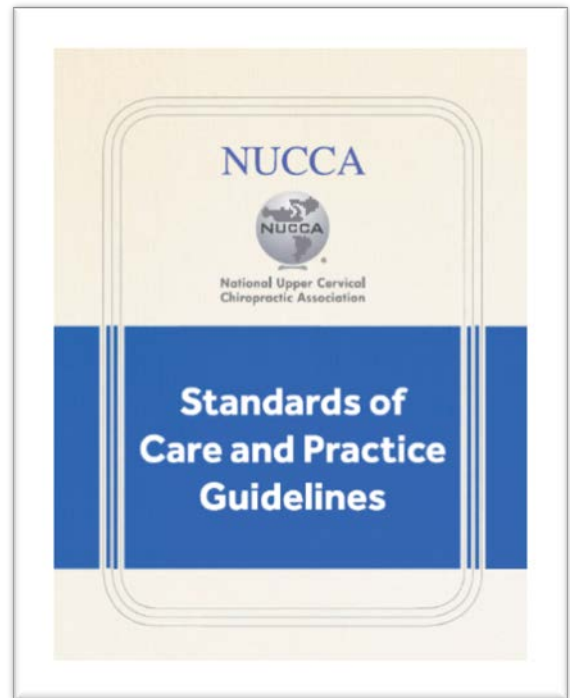
Regards,

Glenn Cripe, D.C.
Chair, Standards Review Committee

As the NUCCA organization continues to grow, our liability and accountability becomes more important. In response to the changing landscape we live and practice in, certain changes are implemented in support of a number of current organizational needs. The NUCCA Standards and Certification Committees continue to refine and define the NUCCA Guidelines to Best Care. Here is the recently revised and edited Standards of Care document. Please take time to familiarize yourself with these Standards of Care as a support to your successful practice.

Here some of the reasons why this has been done:

- 1.** In response to numerous inquiries made to the NUCCA office about the widely varied experiences the same patient has in different NUCCA offices.
- 2.** To retain the good reputation of a long history that has benefited so many people through a measurable and accurate method of care.
- 3.** The UCRF research results that come from following a standardized protocol of care that is measurable and reproducible.
- 4.** To provide the optimal support for advanced learning of the NUCCA procedure.
- 5.** Clear and accurate communication to the public around expectations.
- 6.** Chiropractic Universities are requesting that we have documented whether a doctor



(click on the image above to open Guidelines)

credentials and status within our certification program are active when they appear to teach or speak.

7. Annual or biannual credentialed testing is a common standard of practice among many, if not most, other professional organizations.

Your help and support of these standards will help ensure a healthy future for everyone; patients, practitioners and the NUCCA organization.

Standards Protocol Updates

THE CERVICAL LINE

Tymothy L. Flory, D.C.

Introduction:

There is confusion regarding the nomenclature for the line that is drawn on the Nasium film to represent the position of the cervical spine in the frontal plane. At conferences and in speaking with other doctors, multiple names were used for this line including, most commonly, the “Lower Neck Line” and the “Lower Angle Line.”

The NUCCA textbook hints at the name being the “Angular Rotation” line, but never actually names the line in the chapter on x-ray analysis.¹ The Atlas Subluxation Complex Manual references the “Lower Cervical Line.”² This line is named the “Angular Rotation Line” in what is known as the “Black Book.”³

There should be clarity and accuracy in the nomenclature that describes every aspect of the NUCCA work. There was confusion due to the lack of clarity for this particular line, and after receiving a proposal and completing the Standards Review Committee testing, the confusion will be replaced with clarity in the article.

Recommendation:

The “Lower Neck Line” and “Lower Cervical Line” should not be used because the line represents the position of the entire cervical spine. How much of the cervical spine constitutes the “lower neck?” This name was

confusing to the doctor and student due to inaccuracy. There is a contradiction between what the name depicts and what the line represents.

The “Angular Rotation Line” line should not be used because Angular Rotation is an angle derived from measuring this line against the Vertical Axis Line. Angular Rotation is not the structure that the line represents.

In the same way, the “Lower Angle Line” should not be used because the Lower Angle is the angular measurement between this line and the Atlas Plane Line. Again, this is not the structure itself that the line represents.

The recommendation that was passed by The Standards Review Committee is to name the above referenced line the “Cervical Line,” as it represents the position of the cervical spine on the frontal plane x-ray view.



FIGURE 1 – The yellow line is the accepted “Cervical Line.”

References:

1. Thomas, Michael D. editor. NUCCA Protocols and Perspectives: A Textbook for the National Upper Cervical Chiropractic Association. First edition. Monroe, Michigan: National Upper Cervical Chiropractic Research Association, 2002: pages 10-29.
2. Gregory, Ralph R. The Atlas Subluxation Complex Manual. 1971, page 18.
3. Gregory, Ralph R. The NUCCA Basic Course. Pages 24-25.



GETTING THE AXIAL CIRCLE RIGHT

Glenn E. Cripe, D.C. & Tymothy L. Flory, D.C.

Introduction:

One of the most important measurements in the analysis of the nasium film is the axial circle measurement. The relationship between the condylar and axial circles is vital to the adjusting vector in that it represents the structural starting point for every correction vector. Therefore, every precaution needs to be taken to attain the correct measurement of this structure. This paper discusses the method that can be used to ensure you are as accurate as possible when measuring the axial circle. By performing this check method, the doctor will also have one additional way to confirm that the atlas plane line is accurately drawn.

The Procedure:

First, trace a small portion of the lateral margins of each lateral mass midway between the C1 posterior arch and the inferior articulating surface of atlas (Figure 1).

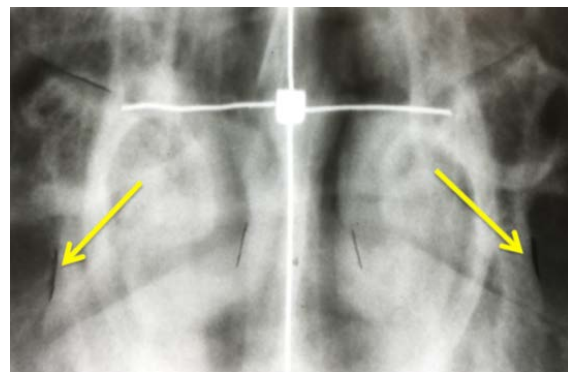


FIGURE 1 – Trace lateral margin of the lateral mass.

Follow along the axial surface medial to lateral to identify and place a dot on the superolateral point of the superior articulating surface of C2. Use the previously made marks on the lateral masses to ensure this dot is in line with the lateral margin of the lateral mass (Figure 2). Repeat on the other side.

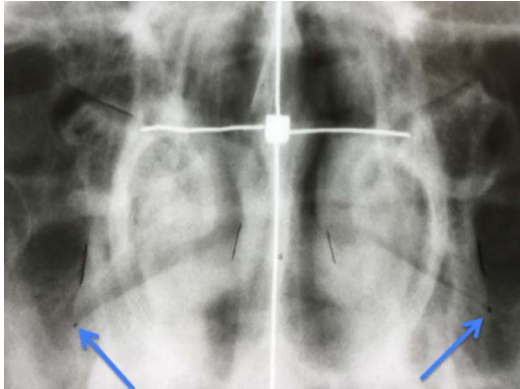


FIGURE 2 – Mark lateral points for axial circle.

Next, following along the axial surface lateral to medial, identify and place a dot on the superomedial point of the superior articulating surface of C2. This dot will be in line with the medial margin of the lateral mass (Figure 3). Repeat on the other side.

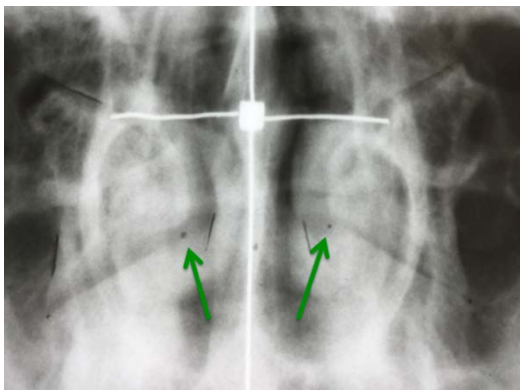


FIGURE 3 – Mark medial points for axial circle.

This is the same method that has been taught for years to determine the axial circle. In this article we are clarifying the best method of identifying the medial and lateral points of the axial surface and how to best double check.

The Check Method: In order to determine if these dots are placed correctly, place a zero ruler across the lateral set of dots and with the zero mark of the ruler centered to the center of C1 (Figure 4). Check the medial and lateral dots for symmetry as compared to atlas. More often than not there is symmetry of these points when identified accurately, and the doctor will notice that all four points will touch with the appropriate arc of the circumscale more consistently.

If there is not symmetry with the location of the dots, then evaluate your identification of these points. You may have to look more closely to see that you've mismarked these structures. Remember that there are many overlapping structures in this area that you may have to identify and sift through in order to accurately identify the medial and lateral aspects of the axial surface.

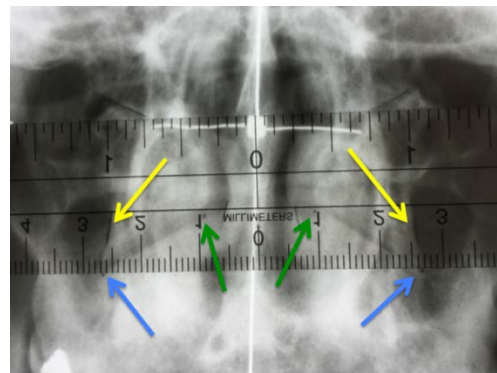


FIGURE 4 – Using a Zero Ruler to check for symmetry.

Additional Benefit of this Check Method:

In addition to evaluating your identification of the medial and lateral points for the axial circle, look also for symmetry in the identification and marking of the odontoid and the C1 attachments for the posterior arch. Many times, these will also be symmetrical where the center point of the odontoid is on the zero line of the ruler and the inferior C1 attachment points create an atlas plane line that is near parallel with the medial and lateral points of the axial circle (Figure 5).

If there is not symmetry with the odontoid or C1 attachments, then evaluate your identification of these points. You may have to look more closely to see that you've mismarked these structures. As stated above, there are many overlapping structures in this area. The nasal structures can frequently obscure the visualization of the lateral margins of the odontoid process, and the inferior orbit can obscure the C1 attachments depending on the S-Line of the Nasium film.

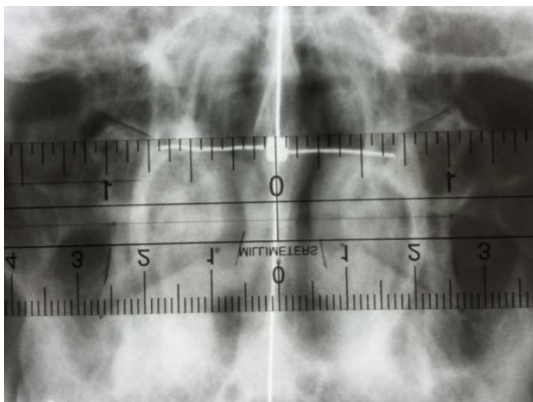


FIGURE 5 – Checking Atlas Plane Line and Center of Odontoid.

In Summary:

Not always will all of these structures be symmetrical, but typically there is more symmetry to these structures than not. If they are not, one could look for a malformed odontoid, a short condyle, a malformation of the posterior arch attachment to the lateral mass, etc.

This method of identifying and checking the analysis of the superior articulating surface of C2 ensures a higher degree of accuracy in determining the axial circle, as well as, discovering errors in the drawing of the atlas plane line.



ACCEPTABLE ROTATION ON A NASAL X-RAY

Craig Lapenski, D.C

INTRODUCTION:

The nasal film is the x-ray that we NUCCA doctors use to glean the most information from as far as biomechanical theory and vector selection. The data derived from this film greatly impacts many aspects of patient outcomes.

Due to its high level of importance, the amount of rotation on the nasium film should be measured on each film taken for both pre and post x-rays. The amount of acceptable rotation will impact the measurement of the subluxation, as well as the side of laterality, depending on the amount of error.

Therefore, it is the purpose of this article to clarify the methodology of measuring and the amount of acceptable deviation from zero.

THE PROCEDURE:

First locate the orbits of the eyes on the nasal film. Locate the intersection of the lateral orbital contour with the innominate (oblique) line.

Mark this point with a dot. Then do the same on the opposite side.



Using a ruler, measure the distance from the mark to the outer aspect of the skull using the plane at which the dots exist.



Then measure this distance on the other side and compare the two sides.



Mark the distance lateral to the dot. If the distance is more than two millimeters from one side to the other, retake the x-ray.

IN SUMMARY:

There are a multitude of structures that can be compared on a nasal film to look for rotation in patient positioning. For the purpose of using easily definable structures that are routinely measured by many practitioners, the intersection of the lateral orbital contour with the innominate line has been selected. Other secondary structures can be used as well. The purpose of this clarification is to create accuracy in determining the side of laterality, and to have certainty in the data produced from the analysis on the nasal x-ray.

Change for Establishing the Fixed Point

Dr. Craig Lapenski, DC

INTRODUCTION:

Angular rotation and the lower angle are significant components of the atlas subluxation complex (ASC). Angular rotation represents the excursion of the cervical spine, as a unit about the vertical axis, into either the right or the left frontal plane. To utilize accurate biomechanical forces and correctly bring the head and neck back onto the vertical axis, the cervical line must be an accurate representation of the excursion of the cervical spine.

The first step in formulating the cervical line is to establish the degree of deviation of the neural canal in the upper cervical spine. The upper point for the cervical line is measured by dividing the distance between the lateral and posterior structures of C2. The lateral structures are measured at the lateral borders of the superior articular facets of C2. The posterior structure is marked at the inferior bifurcation of the spinous process of C2. A middle point, measured between these structures, is used as the upper point of the cervical line. The purpose of this article is to suggest that the same should be done for the lower cervical spine.

Currently, to complete the cervical line, the fixed point is established by marking the articular pillars of the lowest visible cervical vertebra (NUCCA txt, pg. 10-28) or the first dorsal vertebra (The ASC Manual Black Book, pg18). This method only considers lateral structures of the neural canal and lacks a posterior component. Angular Rotation is both lateral excursion of the cervical vertebrae in the frontal plane and the coupling mechanism of the spinous process rotation in the transverse plane (NUCCA Txt, pg. 11-5). If only lateral components are utilized, then calculations and biomechanical rationales can become inaccurate. Steps are taken to accurately measure the rotation of C2 in the upper cervical spine and steps should also be taken to accurately measure the rotatory component of the subluxation in the lower cervical spine.

The ASC is a mechanical displacement linked to neurological dysfunction. While many components of neurological dysfunction are still being uncovered, there are a couple of well documented theories that link mechanical distortion to neurological insult. One of these predominant theories is the dentate ligament theory. The dentate ligaments attach to the dura from the cranio-cervical junction down to T12. These ligamentous attachments anchor the spinal cord in the spinal canal on the lateral borders but affect the whole circumference of the spinal cord. It has been well documented in the medical literature that cervical cord decompression can be accomplished by removing the dentate ligaments and the

posterior aspect of the vertebrae. This restores the cord to its proper shape but leaves the patient without laminae or a spinous process. Since the posterior structure plays an important role in cervical spine decompression it should be accounted for in measuring the ASC. Both the lateral and posterior structures of the spinal canal should be utilized in quantifying mechanical displacement of the ASC.

The structural and neurological health of the patient is dependent on proper correction of the ASC in all its components. The purpose of this paper is to implement an updated protocol for establishing the fixed point and more accurately identify the axis of deviation of the lower cervical spine.

METHODS:

Below are a series of diagrams illustrating the method for establishing a fixed point by splitting anterior and posterior structures of the neural canal. The first sequence illustrates the preferred method of analysis, using the transverse processes of T1. The analysis of many patient films by several board-certified doctors has found that using the TP's of T1 yields the same results as using the vertebral body of C7 and often the TP's of T1 are clearer and thus more accurate to mark. If for some reason the TP's of T1 are not visualized or unclear, an acceptable alternative method is to mark the articular pillars of C7. It is critical that whichever method the doctor uses, they use the exact same sequence on the POST films.

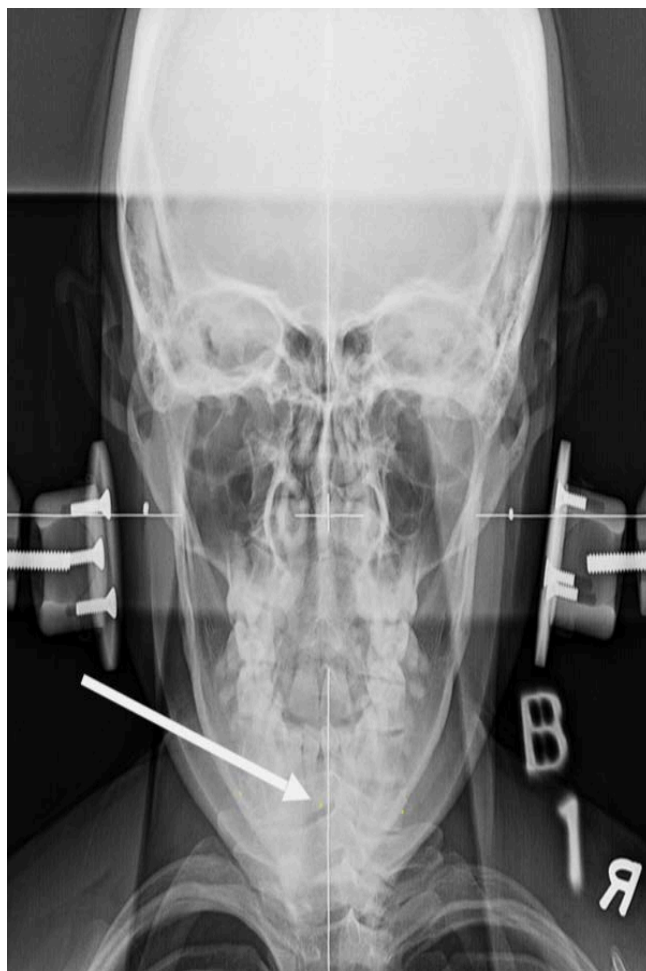
The procedure using the body center of T1:

First: Mark the outer borders of the transverse process of T1



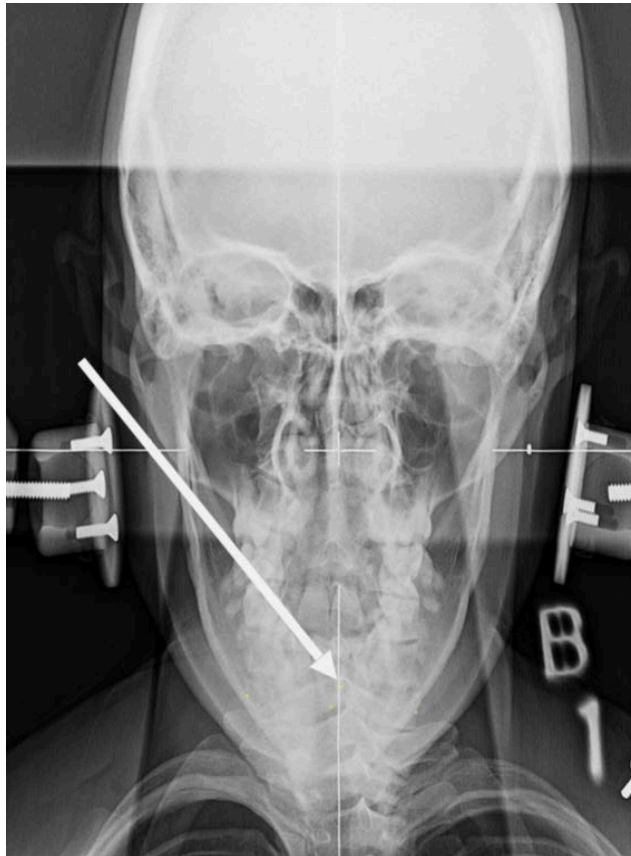
The procedure using the body center of T1:

Second: Use a ruler divide the two points, place a dot at the center



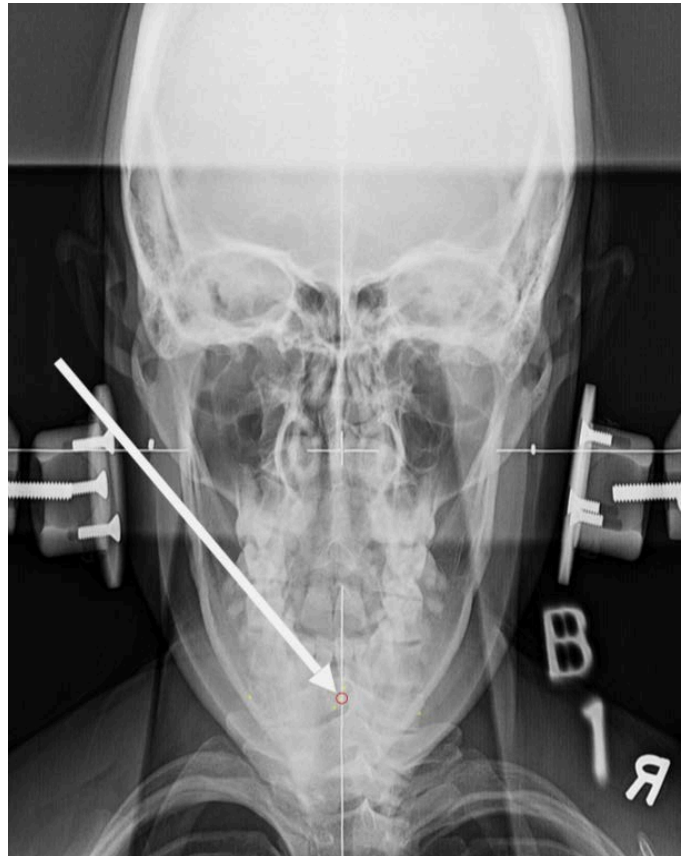
The procedure using the body center of T1:

Third: Mark the center of the spinous process of T1



The procedure using the body center of T1:

Fourth: Split the distance of the two scribed points to establish the fixed point

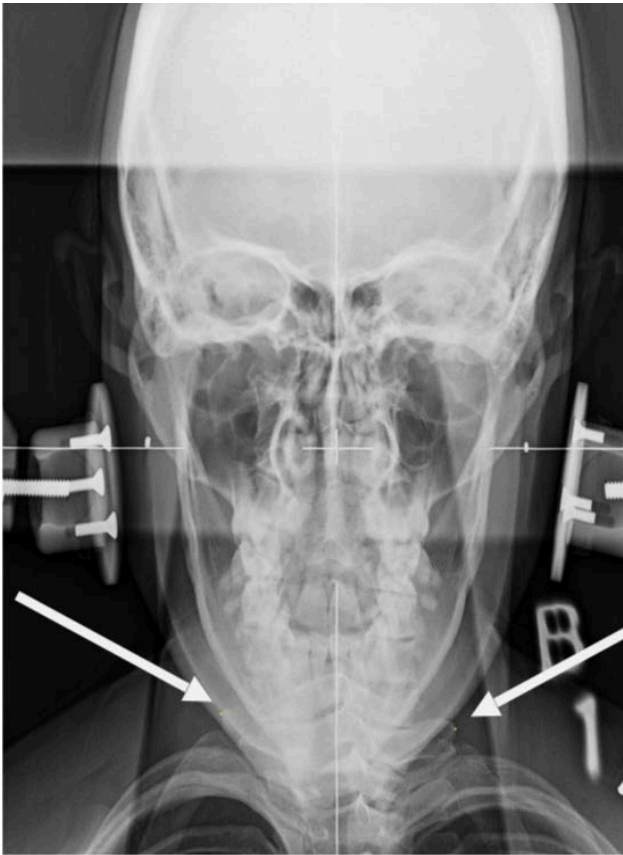


***If you use the body center of T1 on the PRE use the EXACT same points on the POST

“The Procedure Using the Body Center of C7”

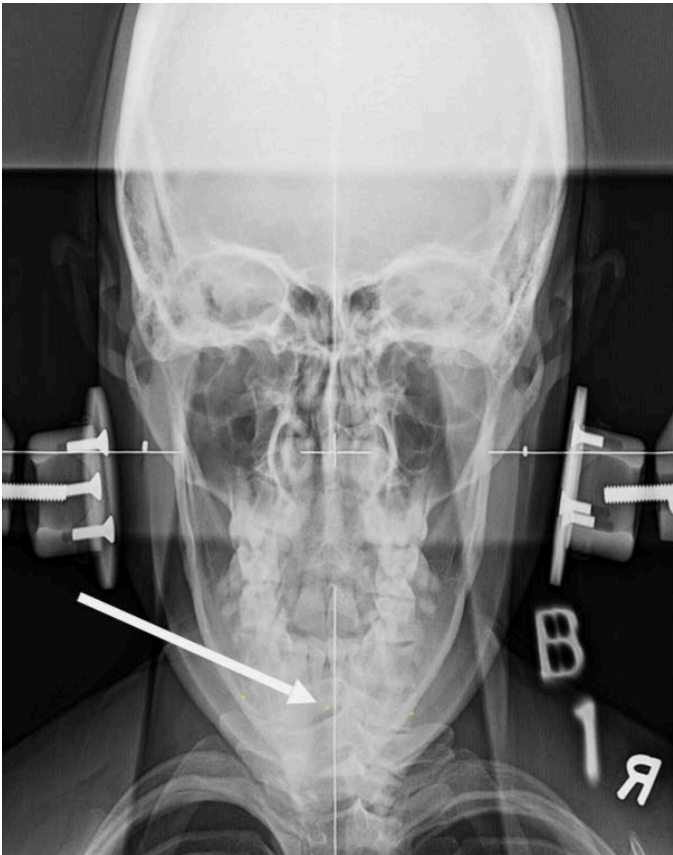
The procedure using the body center of C7:

First: Mark the outer borders of the articular pillars of C6 or C7



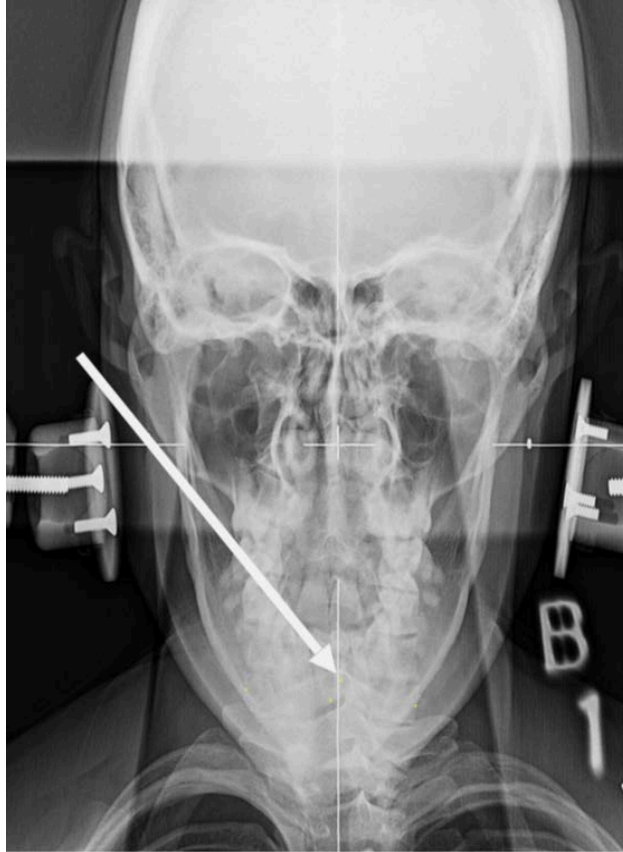
The procedure using the body center of C7:

Second: Use a ruler divide the two points, place a dot at the center



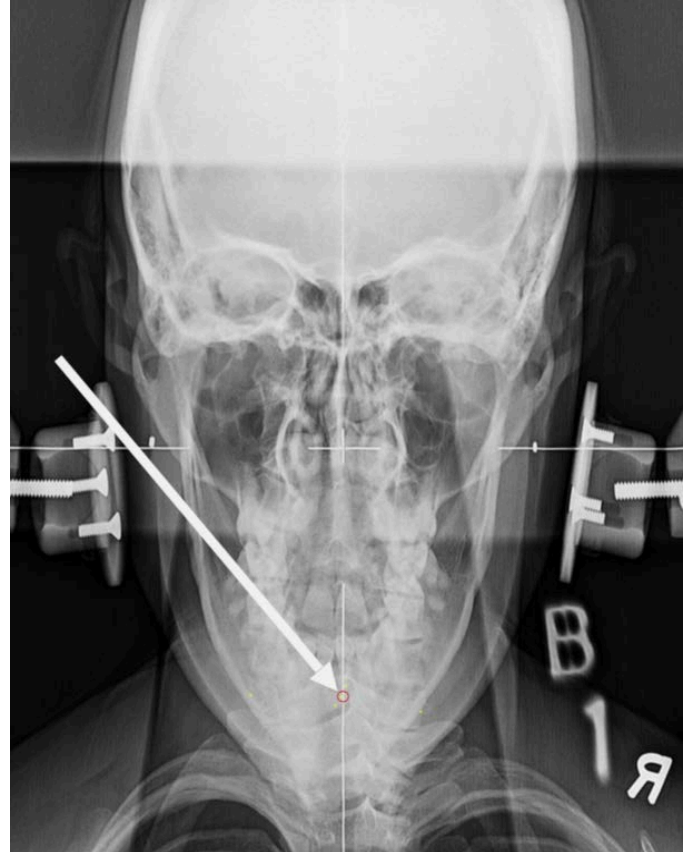
The procedure using the body center of C7:

Third: Mark the center of the spinous process of the vertebra that was used in steps 1&2



The procedure using the body center of C7:

Fourth: Split the distance of the two scribed points to establish the fixed point



****If you use the body center of C7 on the PRE use the EXACT same points on the POST**

CONCLUSION:

NUCCA Protocol is utilized to maximize the reduction of the ASC and restore orthogonal balance to the head and neck of the individual patient ASC. Maximizing the correction is the goal of all doctors and the more accurate the analysis the better chance of obtaining a maximal correction of the ASC.

When areas of the analysis can be updated to improve biomechanical rationale, it is the job of the Standards Review Committee to vet the changes and update the Procedures Manual accordingly.

The previously used protocol for marking the fixed point did not accommodate for large longitudinal deviation about the vertical axis of the lower cervical and/or upper thoracic spine. When there is significant deviation off the vertical axis, the fixed point will now more accurately represent excursion of the neural canal in the lower cervical spine.

Acknowledgements

Debbie Norton

For the past number of years UCRF has received a tremendous amount of support from our association management firm IntrinXec. In particular, Debbie Norton has been instrumental and foundational in supporting UCRF by helping us navigate a number of administrative and strategic planning changes.

She recently retired from IntrinXec and we will miss her steady presence and wisdom that she shared with us along our path to success. Thank you for all that you have done to help support us through the past years of dedicated service.

UCRF and NUCCA is looking forward to our continued strong and supportive working relationship with IntrinXec as we continue to make innovative changes for our future path to success.

Kathy Waters

This past year The Upper Cervical Research Foundation board extended a special crystal award and acknowledgement to Kathy Waters, board director and treasurer for the Ralph R. Gregory Memorial Foundation (Canada). This award was extended for her years of service and dedication to both organizations. Since 2010, she has served the foundations by helping manage the complex

finances of both organizations involving multiple projects, fundraising events and endowment funds along with Dr. Gordon Hasick UCRF treasurer and past President.

Kathy was very involved in helping with the project management and data collection for the Calgary Migraine Headache study from 2011-2015. She was also instrumental in the creative work that was involved with the creation of the UC Monograph.org website with the transition from paper to digital. In this issue of the Monograph, the UCRF Impact Report is another one of her creative contributions to telling the UCRF and NUCCA success story.

The past years of steadfast dedicated service in the background of the UCRF and NUCCA organizations has produced many successful outcomes with research, publication and the detailed project and financial management for both UCRF and the Ralph R. Gregory Memorial Foundation (Canada). We are grateful for her years of dedicated service and help. Thank you.

This issue was put together with the help of a lot of people, both volunteers and professional help. Thank you to all of our supporters that have helped contribute to this edition of the Monograph.

The UC Monograph is dedicated to honoring the past and actively pursuing the most innovative future for NUCCA.