TRIGGER WARNING

The Following Lecture May Offend Some People

If You're Not Outraged, Then You're Not Paying Attention



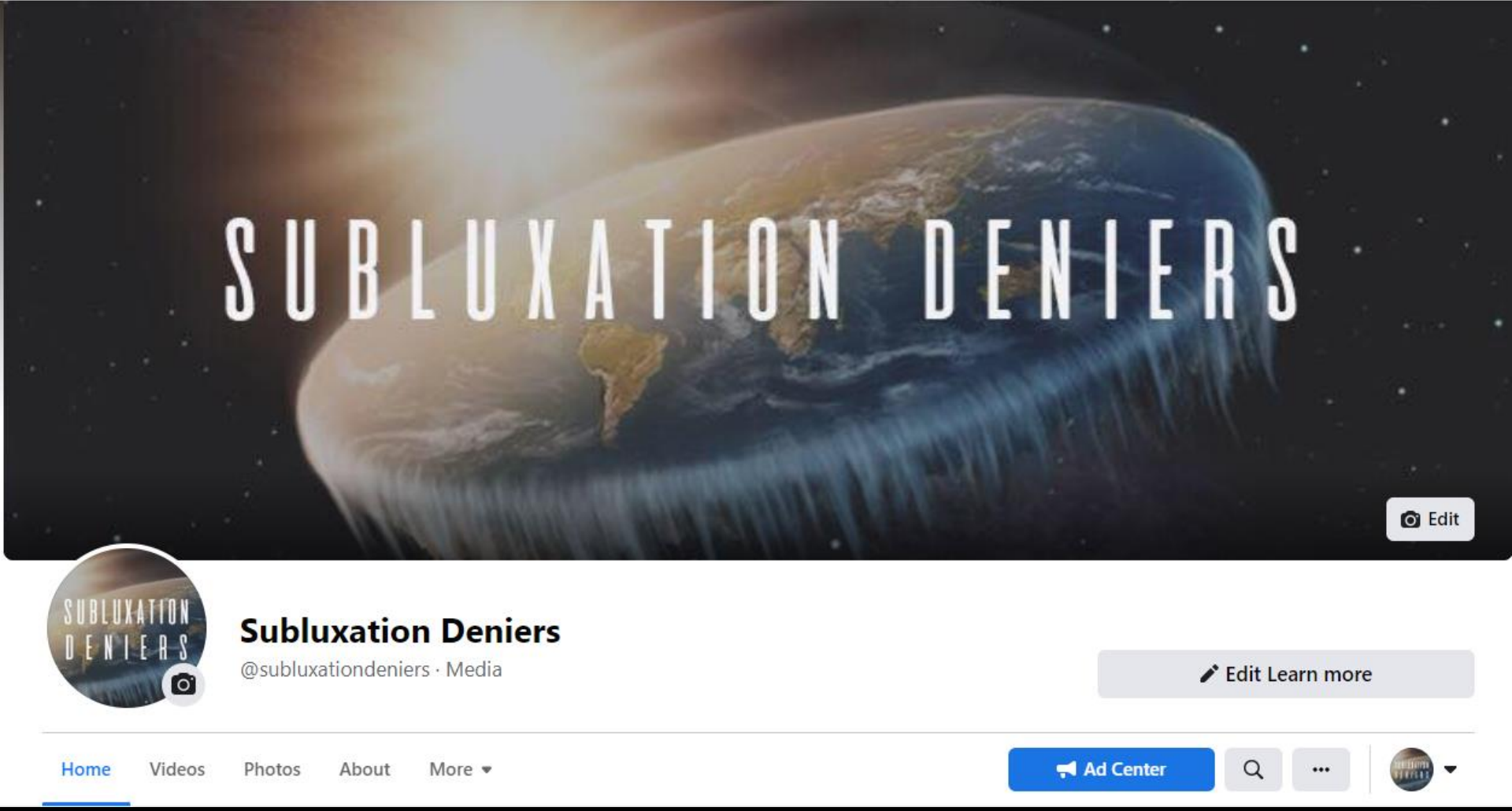
Matthew McCoy DC, MPH
Free Human Being
Member – Sherman College Board of Trustees
Publisher – McCoy Press
CEO - ChiroFutures Malpractice Insurance Program
Vice President – Foundation for Vertebral Subluxation

Subluxation is a Fraud



Sufficient research exists to support the management of vertebral subluxation in a vitalistic, salutogenic and evidence informed model.





facebook.com/subluxationdeniers

What is a Subluxation Denier?



Dogma Over Data

A number of chiropractors representing the radical fringe of the chiropractic profession, are suggesting that the term vertebral subluxation and the concept be abandoned. They seem to think that subluxation-based chiropractic is based on the antiquated monocausal theory espoused by early chiropractors, or the limited model of intraforaminal nerve-root compression. Anyone with even a passing knowledge of the literature knows this is not true. So, what gives? By bantering about terms such as integration and evidence-based practice, members of this fringe element have achieved a degree of success in hijacking some colleges and political organizations in an apparent attempt to pander to third-party payers and fit into the medical system. We are reminded of an organization known as the Flat Earth Society, whose members stubbornly choose to ignore the overwhelming evidence contrary to

SubluxationDeniers.com

Programmes promoting and teaching unorthodox explanatory frameworks, such as *life force, innate intelligence, vitalism* and a belief that manipulating the spine to remove restrictions or *'chiropractic subluxations'* can restore health more broadly, will not meet these Education Standards





ChiropracticCartel.com

“There’s no credible evidence and it breaks my heart to say it”



https://www.screencast.com/t/GdohqUFE



"NO EVIDENCE MY ASS"

Amy Haas DC, Ph.D

Epidemiology

- What percentage of the population is subluxated?
- Does vertebral subluxation lead to increased morbidity and mortality?

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Epidemiology

Secondary Analysis of a Dataset to Estimate the Prevalence of Vertebral Subluxation and its Implications for Health Promotion and Prevention

Christie Kwon DC, MS, MPH, Jose Binongo Ph.D, Matthew McCoy DC, MPH

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Epidemiology

- ***What percentage of the population is subluxated?***

- 1,851 subjects | 7 chiropractic clinics | 4 states
- Average age: 43.48 yoa
- The overall prevalence of VS was **78.55%**

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"The authors quote Gray's Anatomy about the idea that the nervous system controls and coordinates all organs and structures. This is not relevant to the study and is **untrue.** Many organs function well without nervous system control"

Stephen Perle DC, MS
Professor of Clinical Sciences
University of Bridgeport
College of Chiropractic

Epidemiology

- ***Does vertebral subluxation lead to increased morbidity and mortality?***

- Patients reported various spinal or extremity pain, numbness, or tingling; headaches; ear, nose, and throat-related issues; visceral symptoms; mental health concerns; neurocognitive issues; and concerns about general health as well as overall wellness

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Review

A Scoping Review of Chiropractic, Vertebral Subluxation and Immune Function with Implications for Development of a Protocol for Measurement of Immune Biomarkers in Chiropractic Research & the Development of Related Policy

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Anquonette Stiles DC, MPH[3]
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2. *President – Foundation for Vertebral Subluxation & Director of Center for Scholarly Activity Sherman College of Chiropractic*
3. *Research Fellow – Foundation for Vertebral Subluxation*

Abstract

Objective: To discuss the existing literature on chiropractic, vertebral subluxation and immune function in order to inform the development of an integrative review of the literature, a review of immune biomarkers in relation to chiropractic, development of a research protocol, the implementation of future studies and the development of related policy.

Methods/Results: We conducted a scoping review of existing literature available to the authors and conducted further searches and gathering of documents based on that available literature. 125 papers were gathered and included in this review.

Conclusions: This is a scoping review of the literature regarding chiropractic and its relationship to neuroimmunology. It is intended to inform a larger project and give that team as much background as possible in a short period of time. The results of the already available research demands that we further explore the neuro-immuno-regulatory effects of chiropractic, adjustment and spinal manipulation and it provides a starting point for doing so. While adjustments reduce pain and inflammation, they also improve immune-regulatory function. How and to what extent is the subject of this current multi-pronged project.

Key Words: *Chiropractic, immunity, neuroimmunity, neuroimmunology, psychoneuroimmunology, neuroimmunoendocrine system, immune biomarkers, supersystem, vertebral subluxation, adjustment, spinal manipulation*

Introduction

It is well established that the nervous system controls and coordinates all functions and systems of the human body including immunity and the immune system.[1] Many in chiropractic consider that this relationship confers salutogenic benefits in people undergoing chiropractic care.[2-4]

Recent events related to the Coronavirus Pandemic have brought this relationship to the forefront within and outside of the chiropractic profession. This includes assertions by researchers within the chiropractic profession that there is no credible evidence supporting claims of effectiveness of spinal adjustment and/or manipulation in boosting or strengthening the immune system and that there is no credible, scientific evidence that spinal adjustment and/or manipulation has any clinically relevant effect on the immune system.[5]

As a result of the assertions by these researchers, some chiropractic regulatory boards, chiropractic trade organizations and chiropractic educational institutions from around the world are claiming that there exists no credible, scientific evidence that would permit claims of effectiveness for conferring or enhancing immunity through spinal adjustment and/or manipulation to be made in communications by chiropractors.[6] Essentially, chiropractors have been effectively muzzled and banned from discussing any connection between the nervous and immune systems.

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Cureus

Open Access Review Article

DOI: 10.7759/cureus.56223

Vertebral Subluxation and Systems Biology: An Integrative Review Exploring the Salutogenic Influence of Chiropractic Care on the Neuroendocrine-Immune System

Review began 02/05/2024
Review ended 03/15/2024
Published 03/15/2024

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Amy Haas [1], Jonathan Chung [1], Christopher Kent [2, 1], Brooke Mills [1], Matthew McCoy [1]

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Corresponding author: Amy Haas, path.of.life.chiropractic@gmail.com

Abstract

In this paper we synthesize an expansive body of literature examining the multifaceted influence of chiropractic care on processes within and modulators of the neuroendocrine-immune (NEI) system, for the purpose of generating an inductive hypothesis regarding the potential impacts of chiropractic care on integrated physiology. Taking a broad, interdisciplinary, and integrative view of two decades of research-documented outcomes of chiropractic care, inclusive of reports ranging from systematic and meta-analysis and randomized and observational trials to case and cohort studies, this review encapsulates a rigorous analysis of research and suggests the appropriateness of a more integrative perspective on the impact of chiropractic care on systemic physiology. A novel perspective on the salutogenic, health-promoting effects of chiropractic adjustment is presented, focused on the improvement of physical indicators of well-being and adaptability such as blood pressure, heart rate variability, and sleep, potential benefits that may be facilitated through multiple neurologically mediated pathways. Our findings support the biological plausibility of complex benefits from chiropractic intervention that is not limited to simple neuromusculoskeletal outcomes and open new avenues for future research, specifically the exploration and mapping of the precise neural pathways and networks influenced by chiropractic adjustment.

Categories: Preventive Medicine, Integrative/Complementary Medicine, Health Policy
Keywords: evidence informed practice, chiropractic adjustment, adaptability, salutogenesis, integrative physiology, chiropractic care, vertebral subluxation

Introduction And Background

A primary function of the human body is to adapt to its environment in order to survive and propagate the species. The process of adaptation requires a patent neurological capacity to (1) rapidly and accurately sense threats to or changes in the body's internal and external environments; (2) integrate multiple forms of sensory0 information; and (3) execute a coherent, physiologically coordinated and temporally appropriate multi-system response. The human nervous system must, therefore, be capable of sensitively perceiving and accurately integrating all forms of information from its environment including physical changes, chemical changes, or emotional/social challenges, as it continually assesses and overcomes potential threats [1]. Further, it must also be capable of generating a coordinated response via a symphony of body systems, promoting coherent maintenance of adaptation within the body's dynamic equilibrium and safeguarding the body's ability to thrive under diverse circumstances [2,3].

Integrative systems biology, or integrative physiology [4], is the study of coordinated responses from functionally coupled systems such as the nervous system, the endocrine system, and the immune system, which reciprocally influence one another [5-8]. The growth in the body of research outlining the connections between these subsystems has been exponential in the past century, and has overcome the now-historical notion that the central nervous system (CNS) is "immunologically pristine" and separated from the immune system [9,10]. While the relationship between the nervous and endocrine systems has long been accepted [11], current research has elucidated and defined numerous physical and functional conduits by which the nervous system and immune system interact and achieve coherent synergy. These conduits include direct interface of the immune system with both the sympathetic and parasympathetic divisions of the autonomic nervous system [5,12-14], direct innervation and control of immune structures, including neural circuits that directly modulate antigen flow through lymph nodes [5,15,16], bidirectional interactions at the dural neuro-immune interface within the CNS [10], and shared modulation by neurotransmitters, neuropeptides, hormones, and other small molecule messengers [17-19]. Current hypotheses in the field of neuroendocrine immunology hold that neuroimmune circuits may also mediate and modulate inter-organ communication, thereby serving as the primary conductor in the coordination of human physiology as a whole [20]. In the neuroendocrine-immune (NEI) system, each of the three component arms - nervous system, immune system, and endocrine system - modulates one another via multiple means of "crosstalk," in order to achieve synergistic and integrated physiological changes and coordinated adaptation to an environmental stressor.

This growing body of research on the reciprocal nature of communication between the subsystems of the

How to cite this article
Haas A, Chung J, Kent C, et al. (March 15, 2024) Vertebral Subluxation and Systems Biology: An Integrative Review Exploring the Salutogenic Influence of Chiropractic Care on the Neuroendocrine-Immune System. Cureus 16(3): e56223. DOI 10.7759/cureus.56223

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REVIEW OF THE LITERATURE

Objective Physiologic Changes and Associated Health Benefits of Chiropractic Adjustments in Asymptomatic Subjects: A Review of the Literature

Sean M. Hannon, BA, DC

ABSTRACT

Objective: To review existing literature documenting objectively measured physiologic changes and their associated health benefits subsequent to chiropractic adjustments, primarily in asymptomatic individuals.

Data Collection: "Asymptomatic" "normal" "pain-free" and "healthy" subjects were keywords used to search for articles pertaining to the objective. Data was collected directly from the bound journals of the Palmer College of Chiropractic library in Davenport, IA, Life University library in Marietta, GA, and the Sherman College of Chiropractic library in Spartanburg, SC. Some articles were downloaded from peer-reviewed journals accessible through campus Internet subscription.

Results: More than twenty studies were found documenting objective health benefits in subjects who were specifically described as "asymptomatic," "healthy," "normal," or "free from physical injury." Nearly an equal number of studies were found documenting objectively measured health benefits in subjects to which no symptomatic presentation was described.

Conclusion: The data reviewed lend support to the contention that chiropractic adjustments, often for the purpose of correcting vertebral subluxation, confer measurable health benefits to people regardless of the presence or absence of symptoms. A significant amount of preliminary evidence supports that people without symptoms can benefit from chiropractic care. Improved function can be objectively measured in asymptomatic individuals following chiropractic care in a number of body systems often by relatively non-invasive means. It is plausible that chiropractic care may be of benefit to every function of the body and have the potential for long-term, overall health benefit to those receiving chiropractic care.

Key words: *chiropractic adjustment, subluxation, objective measurement, health benefit*

Introduction

A recent survey of 658 randomly selected US chiropractors revealed some surprising data.[1] Eighty-eight percent (88.3%) of respondents agreed or strongly agreed that the purpose of maintenance care was "to maintain or optimize state of health." Eighty-percent (80.2%) of respondents agreed or strongly agreed that the purpose of maintenance care was to "determine and treat subluxation." Furthermore, US chiropractors agreed that "maintenance care was of value to all age groups, with the value increasing slightly with an increase in a patient's age." However, only forty-percent (40.2%) agreed that "adequate research existed to support the concept of maintenance care," and ninety-three percent (93.4%) agreed "there was a need for more research." It seems that US chiropractors agree and are of the opinion that correcting subluxation is of value to all people, but nearly 60% do not think there is sufficient evidence to verify their opinion. One chiropractor expressed this frustration in a Letter to the Editor in the August 6, 2000 issue of *Dynamic Chiropractic*, a trade journal of the chiropractic profession:

> "I try to encourage my patients who are open to continue maintenance care… However, I have yet to see a single research finding that indicates that those patients who do receive regular chiropractic care, regardless of symptomotology, benefit in any measurable way."
> -Scott Rogers, MA,DC

Others have expressed their opinions on the subject in peer-reviewed literature:

> "Many chiropractors will continue to adjust imaginary subluxations in the spines of perfectly healthy patients, perpetuating unsubstantiated claims and discouraging chiropractors who wish to specialize in the treatment of neck and back pain…[2] Chiropractors who believe that vertebral alignment has something to do with general health often encourage their patients to submit to regular and frequent manipulation, even when these patients are asymptomatic… I cannot personally justify manipulating the spine of a healthy, symptom-free patient… It is unfair to patients to allow them to believe that they must have regular spinal adjustments in order to stay healthy… I cannot see any basis or justification for routinely manipulating the spine of a healthy patient for the purpose of maintaining health or preventing disease."[3]
> -*Samuel Homola, DC*

Sean M. Hannon, BA, DC, Private Practice, Denver, CO

- Respiration
- ROM
- HRV
- Autonomic function
- Endocrine function
- Cardiovascular function
- Immune Function
- Muscle strength
- Athletic ability
- Neurocognitive function
- Reaction time
- Information processing
- Visual acuity
- Stress
- Reproductive hormones
- Healing
- Recovery time
- Health of senior citizens
- Reduced labor times

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Original Research

Improved Glycosylated Hemoglobin, Hyperglycemia, and Quality of Life Following Thoracic Hypokyphosis Vertebral Subluxation Correction Using Chiropractic BioPhysics®: A Prospective Case Report

Curtis Fedorchuk, DC[1]
Douglas F Lightstone, DC[1]
Robert D Comer, DC[1]
Michael T Weiner, DC[2]
Matthew McCoy, DC[3]

1. *Institute for Spinal Health and Performance, Cumming, GA*
2. *Private Practice of Chiropractic, Tucker, GA*
3. *Foundation for Vertebral Subluxation, Kennesaw, GA*

Abstract

Objective: Spinal misalignment increases spinal cord tension and is linked to various health conditions. There has never been a study on the impact of spinal alignment on blood glucose metabolism. This prospective case with long-term follow-up explores spinal alignment and its impact on type 1 diabetes mellitus.

Case and methods: A 26-year-old male presented with chronic mid-back pain for 9 years and type 1 diabetes mellitus. Radiography and MRI revealed hypokyphosis of the thoracic spine with spinal misalignment from thoracic vertebrae 6 through 9 consistent with vertebral subluxation. Glycosylated hemoglobin and blood-glucose averages were obtained by continuous glucose monitoring. Back pain, paraspinal muscle tension, and quality of life were also measured. The patient received Chiropractic BioPhysics® care including Mirror Image® corrective spinal exercises, adjustments, and traction.

Results: After 36 visits, the patient reported improvement in his mid-back pain and quality of life. Thoracic x-rays showed correction of thoracic hypokyphosis. Surface EMG measuring paraspinal muscle tension improved and continuous glucose monitoring showed dramatic drop in blood glucose immediately following the onset of each visit and improvement in blood glucose averages, percentage of time of blood glucose in a healthy target range, and glycosylated hemoglobin. The patient reported he reduced his basal insulin by approximately half during chiropractic care.

Conclusions: This case suggests that correction of thoracic hypokyphosis using Chiropractic BioPhysics® care protocols may result in improved glycosylated hemoglobin and blood glucose metabolism for a person with type 1 diabetes mellitus, as well as back pain, paraspinal muscle tension, and quality of life.

Key Words: Chiropractic BioPhysics®, adjustments, traction, vertebral subluxation; spine, Type 1 diabetes, thoracic hypokyphosis, continuous glucose meter, HbA1c

Introduction

Type 1 diabetes mellitus (T1DM) has serious short-term and long- term health implications. The disorder has a strong genetic component, but the factors that trigger onset of clinical disease remain largely unknown.[1] Hyperglycemia predisposes people with diabetes to serious health conditions and complications such as cardiovascular disease, stroke, nephropathy and kidney failure, retinopathy and blindness. report from the US Centers for Disease Control [CDC] recently estimated that a 10-year- old boy or girl developing [type 1] diabetes in the year 2000 would lose, on average, 18.7 and 19.0 life-years, respectively, compared with their non-diabetic peers".[12]

There is no known way to prevent or cure T1DM.

Type 1

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Three arm randomized clinical trial with two control groups

Residential addiction treatment setting.

A total of 98 subjects (14 female and 84 male) were enrolled in the year and a half study.

100% of the Active (chiropractic) group completed the 30-day program, while only 24 (75%) of the Placebo group and 19 (56%) of the Usual Care group completed 30 days.

Decreased anxiety and depression

Decreased nursing station visits.

Poor performance by the placebo group suggests that the chiropractic care had no positive placebo effect.

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ORIGINAL RESEARCH

Atlas Vertebra Realignment and Achievement of Arterial Pressure Goal in Hypertensive Patients: A Pilot Study

George L. Bakris, M.D[1]., Marshall Dickholtz, Sr., D.C[2]., Peter Meyer, Ph.D.[1], Glenda Kravitz, M.S[1], Elizabeth Avery, MS[1], Martha Miller BA[3], Jonathan Brown, D.C[2], C. Woodfield[4], Bruce M. Bell, M.D[3]

ABSTRACT

Anatomical abnormalities of the cervical spine at the level of the Atlas vertebra are associated with relative ischemia of the brainstem circulation and increased blood pressure (BP). Manual correction of this mal-alignment has been associated with reduced arterial pressure. This pilot study tests the hypothesis that correcting mal-alignment of the Atlas vertebra reduces and maintains lowering BP. Fifty drug naïve (n=26) or washed out (n=24) subjects with Stage 1 hypertension were evaluated using a randomized, double blind, placebo-controlled study design at a single center.

Subjects received no antihypertensive meds during the eight-week study duration. After baseline measures subjects were randomized to receive a National Upper Cervical Chiropractic (NUCCA) procedure or a sham procedure. Statistical analysis was performed comparing baseline and week 8 visits. The study was designed with 90% power to detect an 8/5 mmHg reduction difference in arterial pressure at eight weeks over the placebo group. The study cohort consisted of 70% males, 2% Hispanic, mean age 52.7+9.6 years. There were no major differences in baseline demographics found between the two treatment groups.

The primary results of the study are noted in the Table. No adverse effects were recorded. We conclude that restoration of Atlas alignment is associated with marked reductions in blood pressure similar to the use of two-drug combination therapy. Larger studies are needed to validate these findings.

Key Words: *atlas; vertebra; antihypertensive therapy*

Background

Studies note that arterial compression of the left lateral medulla oblongata by looping arteries of the base of the brain in 51 of 53 hypertensive patients undergoing left retromastoid craniotomy and microvascular decompression for unrelated cranial nerve dysfunctions; 76% of these individuals had marked lowering of blood pressure following surgery.

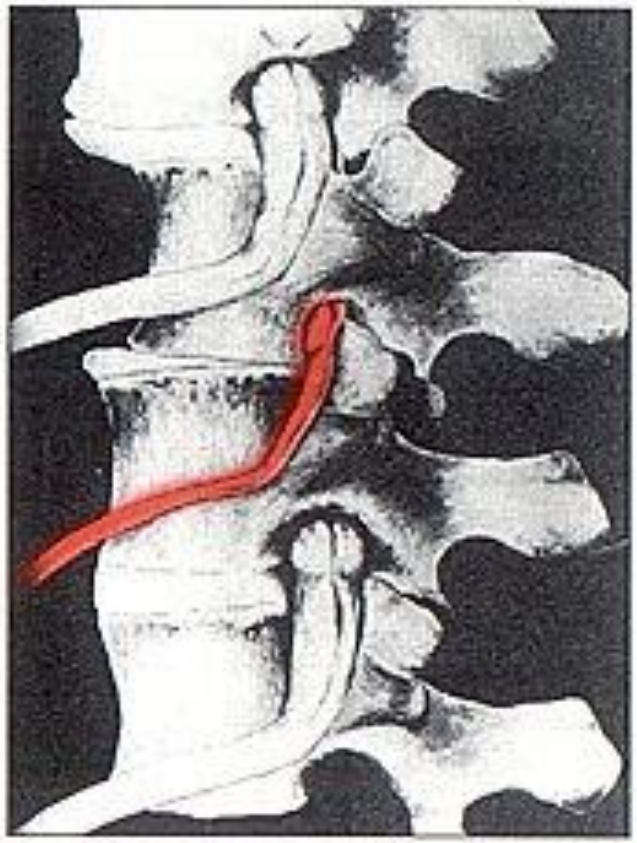
Such compression was **not** noted in normotensive patients (1). Studies to clarify the mechanism by which decompression of the left rostral ventrolateral medulla alleviate neurogenic hypertension have been performed. They indicate that a sub-

Reproduced with permission from an Abstract of the original: G Bakris, M Dickholtz Sr, PM Meyer, G Kravitz, E Avery, M Miller, J Brown, C Woodfield, B Bell. Atlas

Demonstrated an effect similar to taking two hypertensive medications daily.

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So What About the Silent Killer?



This is one type of vertebral subluxation (nerve interference) – the "silent killer."

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MORTALITY

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Hold onna yo ass Fred . . .



Normal



Abnormal – Phase 3

TECHNIQUE

Scientific Rationale, Clinical Protocols, and Positive Patient Outcomes of the EPIC Technique Spinal Procedure

Stan Pierce, Jr D.C.[1]

ABSTRACT

Inside the chiropractic profession, there are many diverse procedures and approaches to spinal care. Although each individual Doctor of Chiropractic (DC) may practice chiropractic with their own individual systems and techniques of care, those procedures are rooted in established techniques taught in the curriculum of various chiropractic colleges and universities. One of those established techniques is called EPIC. "EPIC" is an acronym for Evolutionary Percussive Instrument Corrections. It is a chiropractic technique that focuses on the use of progressively advancing diagnostic and adjusting technology to correct the craniocervical junction alignment. Its mission statement is: "We believe in challenging the status quo in healthcare, as well as in chiropractic. Forever striving to improve our quality of care, we will always look for the next conceptual or technological breakthrough that will help us achieve better spinal corrections for optimal patient health."

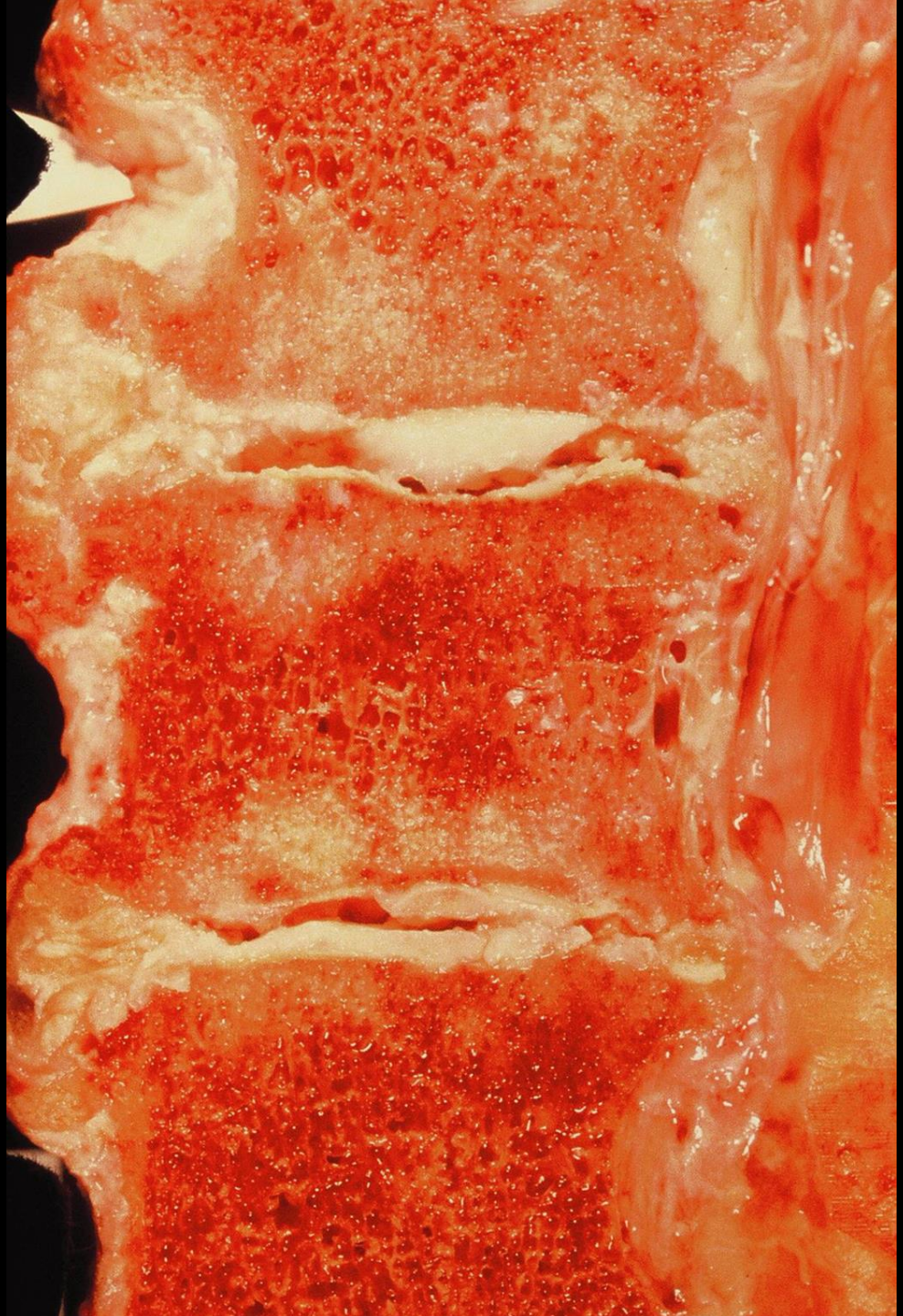
History

The EPIC technique is a direct genealogical descendant of the technique originally developed by the founding family of chiropractic. In 1895, Daniel David "DD" Palmer, DC first discovered and termed the spinal "subluxation", defined as a condition of the spine where a vertebra has lost its correct juxtaposition to the extent of disrupting the nervous system function. His son, Bartlett Joshua "BJ" Palmer, DC spent a lifetime of chiropractic research and concluded the premise of ADIO (Above-Down-Inside-Out) in referencing the flow of the nervous system primarily going from the brain, down the spinal cord, out the nerves to the effected/controlled areas. Based upon this concept, Dr. BJ Palmer focused on refining a procedure to analyze and adjust the 2 upper cervical vertebral misalignments calling that area "the true subluxation" and, in the early 1900s, developed a technique called Hole-In-One (HIO)/Toggle focusing on adjusting this unique area. The existence of the subluxation's neurologic imbalance was

ASLP, AIRP, etc.) to give a general understanding of what direction the chiropractor needed to adjust it. The axis (C2) malposition was given a separate general designation from the radiographs and required a separate adjustment. Following the adjustment, the neurophysical criteria were re-examined to assess change, but post adjustment radiographs were not standardized to be taken. His approach was the foundation of the science, results, and public perspective of the beginning of the chiropractic profession and was called the Toggle technique.

In the 1930s, John Grostic, DC, refined the radiographs and measured angles used to assess the cervical malposition, quantified these malpositioned vertebrae on a mathematical engineering platform. He refined the adjusting art to reduce the amount and depth of thrust, and to improve the accuracy of the adjusting line of drive. He utilized a post x-ray analytical







First Documented Evidence of **Increased Telomere Length** Following Chiropractic

There is an old saying that chiropractic "adds life to years and years to life". Actually there are a lot of services and products that claim to do this.

In regards to chiropractic – one things is for sure: Research over the past 100 years has shown that chiropractic does indeed add "life" to years – meaning research has shown that chiropractic improves the quality of life in people who get chiropractic care.

In regards to the second claim of adding "years to life" there is a way to go in terms of research before such a statement can be made with certainty.

However, recent research reporting on a 35-year-old female undergoing chiropractic care showed that she experienced an increase in her ***telomere length*** following 3 months of chiropractic care. This is the first documented evidence showing increase in telomere length following chiropractic. The woman reported on in the study also experienced resolution of her neck and back pain as well as problems with frequent urination.

What does that have to do with life span you ask?

Telomeres are the caps at the end of each strand of DNA that protect our chromosomes (our genes), like the plastic tips at the end of shoelaces. Without the coating, shoelaces become frayed until they can no longer do their job. Without telomeres our DNA

Mortality

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Case Study

Increased Telomere Length & Improvements in Dysautonomia, Quality of Life, Neck & Back Pain Following Correction of Sagittal Cervical Alignment Using Chiropractic BioPhysics® Technique: a Case Study

Curtis Fedorchuk, D.C.[1]
Doug Lightstone, D.C[1]
Matthew McCoy, D.C.[2]
DE Harrison, D.C.[3]

1. *Private Practice of Chiropractic, Cumming, GA*
2. *Foundation for Vertebral Subluxation, Kennesaw, GA*
3. *Private Practice of Chiropractic, Eagle, ID*

Abstract

Objective: To present a prospective case study on the increase of telomere length, improvement in nocturnal polyuria, neck and mid-back pain, autonomic nervous system adaptability, and health-related quality of life following correction of the sagittal cervico-thoracic spinal alignment and posture using chiropractic biophysics® (CBP®) technique.

Clinical features: A 35-year-old white female elementary school teacher presented with chronic neck and mid- back pain for 5 years following a motor vehicle collision as well as nocturnal polyuria. Examination and radiography revealed forward head posture and loss of cervical lordosis consistent with vertebral subluxation. Patient telomere length was derived from nucleated white blood cells obtained from a blood test. Quality of life measures were determined by the Short-Form 36 health survey and heart rate variability was measured.

Intervention and outcome: The patient received CBP® spinal care including Mirror Image® corrective spinal exercises, adjustments, and traction. Full spine and drop table adjustments were administered. After 36 visits, she reported improvement in her nocturnal polyuria, neck and mid-back pain, and quality of life. Cervical x-rays showed correction of cervical lordosis and forward head posture. A blood test showed significant improvement in patient telomere length and heart rate variability improved from a health risk to within normal limits.

Conclusion: Our case suggests that correction of cervical lordosis and forward head postures by CBP® Mirror Image® methods improved the sagittal spinal alignment and posture and was temporally associated with lengthened telomeres, improved nocturnal polyuria, neck and mid-back pain, quality of life, and autonomic nervous system adaptability.

Key Indexing Terms: *Chiropractic BioPhysics®; CBP®; Adjustments; Traction; Cervical spine posture; Lordosis; Telomere length; Quality of life; Nocturnal polyuria; Vertebral subluxation*

Introduction

Human telomere length (TL) is affected by genetic and environmental factors.[1] TL is longest at birth and decreases with advancing age.[2] As such, telomere length is considered a biomarker of biological aging.[2,3] As telomeres shorten, cells can lose their ability to undergo cellular sequencing (replication and division) and may undergo apoptosis (cell diseases,[3,7-10] psychological and stress disorders,[3] neurodegenerative diseases,[3] cancer,[3,11] chronic and serious illnesses,[3] and mortality.[3,10] Additionally, TL is associated with lifestyle choices such as diet, tobacco and alcohol use,[12] physical activity, and sleep.[3] Fewer studies have focused on the dynamic change and regulation of TL by implementing

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Hyperkyphotic Posture Predicts Mortality in Older Community-Dwelling Men and Women: A Prospective Study

Deborah M. Kado, MD, MS, Mei-Hua Huang, DrPH,* Arun S. Karlamangla, MD, PhD,* Elizabeth Barrett-Connor, MD,† and Gail A. Greendale, MD**

OBJECTIVES: To determine the association between hyperkyphotic posture and rate of mortality and cause-specific mortality in older persons.

DESIGN: Prospective cohort study.

SETTING: Rancho Bernardo, California.

PARTICIPANTS: Subjects were 1,353 participants from the Rancho Bernardo Study who had measurements of kyphotic posture made at an osteoporosis visit between 1988 and 1991.

MEASURES: Kyphotic posture was measured as the number of 1.7-cm blocks that needed to be placed under the participant's head to achieve a neutral head position when lying supine on a radiology table. Demographic and clinical characteristics and health behaviors were assessed at a clinic visit using standard questionnaires. Participants were followed for an average of 4.2 years, with mortality and cause of death confirmed using review of death certificates.

RESULTS: Hyperkyphotic posture, defined as requiring one or more blocks under the occiput to achieve a neutral head position while lying supine, was more common in men than women (44% in men, 22% of women, $P<.0001$). In age- and sex-adjusted analyses, persons with hyperkyphotic posture had a 1.44 greater rate of mortality (95% confidence interval (CI) = 1.12–1.86, $P=.005$). In multiply adjusted models, the increased rate of death associated with hyperkyphotic posture remained significant (relative hazard = 1.40, 95% CI = 1.08–1.81, $P=.012$). In cause-specific mortality analyses, hyperkyphotic posture was specifically associated with an increased rate of death due to atherosclerosis.

CONCLUSION: Older men and women with hyperkyphotic posture have higher mortality rates. **J Am Geriatr Soc 52:1662–1667, 2004.**

Key words: kyphosis; hyperkyphosis; kyphotic posture; mortality; cohort study

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Supported by Public Health Service Grants AG007181-15 and 1K12AG01004 and the Claude D. Pepper Older Americans Independent Center (5P60AG10415-11). This abstract was presented at the annual meeting of the American Society of Bone and Mineral Research, in San Antonio, Texas, September 22, 2002.

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Hyperkyphosis, commonly known as the dowager's hump, is frequently observed in older persons, yet little is known about its clinical significance. For example, its exact prevalence rates are unknown, and its causes other than vertebral fractures are not well defined. However, it is known that, in addition to being cosmetically undesirable, hyperkyphosis is associated with restrictive pulmonary disease[1] and poor physical function,[2–4] suggesting that hyperkyphosis might be also associated with other adverse health outcomes.

Few studies have investigated the association between hyperkyphosis and mortality. One study reported that hyperkyphotic men, but not women, had an age-adjusted greater rate of mortality,[5] but other possible confounding factors that might represent the true cause of increased mortality were not considered. It has previously been shown that older women with hyperkyphosis are at greater risk of pulmonary deaths, but there was limited power to adjust for possible confounders, and the risk of all-cause mortality was not investigated.[6]

Many methods have been used to measure the extent of kyphosis, but even a simple external physical measurement, suitable for clinical use, can be used to predict the risk of adverse health outcomes.[3,7] It was hypothesized that hyperkyphosis, assessed using a simple clinical measurement of the occiput-to-table distance (when lying supine on an examination table), would be associated with increased mortality in older men and women.

METHODS

Subjects

Relationship between hyperkyphotic posture (hunchback) and the rate of mortality (deaths) in older persons.

1300 subjects

Followed for an average of 4 years

Those with hyperkyphotic posture had a greater rate of death than those who did not.

"Older men and women with hyperkyphotic posture have higher mortality rates."

The worse the curve was - the greater the rate of mortality.

For deaths due to atherosclerosis those who had hyperkyphotic posture had two and a half times the rate of death. Greater than even smoking.

Hyperkyphotic posture reflects an increased rate of physiological aging (inability to adapt).

Progressive Spinal Kyphosis in the Aging Population

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Thoracic kyphosis tends to increase with age. Hyperkyphosis is defined as excessive curvature of the thoracic spine and may be associated with adverse health effects. Hyperkyphosis in isolation or as a component of degenerative kyphoscoliosis has important implications for the surgical management of adult spinal deformity. Our objective was to review the literature on the epidemiology, etiology, natural history, management, and outcomes of thoracic hyperkyphosis. We performed a narrative review of literature on thoracic hyperkyphosis and its implications for adult spinal deformity surgery. Hyperkyphosis has a prevalence of 20% to 40% and is more common in the geriatric population. The cause is multifactorial and involves an interaction between degenerative changes, vertebral compression fractures, muscular weakness, and altered biomechanics. It may be associated with adverse health consequences including impaired physical function, pain and disability, impaired pulmonary function, and increased mortality. Nonoperative management may slow the progression of kyphosis and improve function. Surgery is rarely performed for isolated hyperkyphosis in the elderly due to the associated risk, but is an option when kyphosis occurs in the context of significant deformity. In this scenario, increased thoracic kyphosis influences selection of fusion levels and overall surgical planning. Kyphosis is common in older individuals and is associated with adverse health effects and increased mortality. Current evidence suggests a role for nonoperative therapies in reducing kyphosis and delaying its progression. Isolated hyperkyphosis in the elderly is rarely treated surgically; however, increased thoracic kyphosis as a component of global spinal deformity has important implications for patient selection and operative planning.

KEY WORDS: Adult spinal deformity, Dowager's hump, Proximal junctional kyphosis, Senile kyphosis, Thoracic hyperkyphosis

Neurosurgery 77:S164–S172, 2015 DOI: 10.1227/NEU.0000000000000944 www.neurosurgery-online.com

Degenerative changes affecting the spine accumulate and contribute to an overall trend of kyphosis with increased age.[1] Hyperkyphosis, defined as excessive curvature of the thoracic spine in the sagittal plane, is commonly referred to as "dowager's hump." The prevalence of hyperkyphosis in older individuals is not precisely known but has been reported to be between 20% and 40%.[2,3] In general, a thoracic kyphosis angle greater than 40 degrees, which represents the 95th percentile of normal in young adults, is defined as hyperkyphosis.[4,5] Mean thoracic kyphosis (TK) increases as we age: from 20 to 29 degrees in individuals under 40 years of age[4] to 53 degrees in 60 to 74 year olds, and 66 degrees in those older than 75 years of age.[6] The kyphosis angle increases more rapidly with age in women than in men.[7] This progression makes it difficult to establish uniform thresholds that distinguish pathological hyperkyphosis from "normal" changes associated with aging.

Hyperkyphosis may negatively impact several aspects of an afflicted individual's health including physical function, pulmonary function, pain and disability, and even mortality. Although

ABBREVIATIONS: ASD, adult spinal deformity; **BMD,** bone mineral density; **DDD,** degenerative disc disease; **LL,** lumbar lordosis; **OR,** odds ratio; **PI,** pelvic incidence; **PJK,** proximal junctional kyphosis; **PT,** pelvic tilt; **SSV,** sagittal stable vertebra; **TK,** thoracic kyphosis; **UIV,** upper-most instrumented vertebra

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SPINE Volume 30, Number 18, pp 2024–2029
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The Impact of Positive Sagittal Balance in Adult Spinal Deformity

Steven D. Glassman, MD,* Keith Bridwell, MD,‡ John R. Dimar, MD,* William Horton, MD,§ Sigurd Berven, MD,† and Frank Schwab, MD‖

Study Design. This study is a retrospective review of 752 patients with adult spinal deformity enrolled in a multicenter prospective database in 2002 and 2003. Patients with positive sagittal balance (N = 352) were further evaluated regarding radiographic parameters and health status measures, including the Scoliosis Research Society patient questionnaire, MOS short form-12, and Oswestry Disability Index.

Objectives. To examine patients with adult deformity with positive sagittal balance to define parameters within that group that might differentially predict clinical impact.

Summary of Background Data. In a multicenter study of 298 adults with spinal deformity, positive sagittal balance was identified as the radiographic parameter most highly correlated with adverse health status outcomes.

Methods. Radiographic evaluation was performed according to a standarized protocol for 36-inch standing radiographs. Magnitude of positive sagittal balance and regional sagittal Cobb angle measures were recorded. Statistical correlation between radiographic parameters and health status measures were performed. Potentially confounding variables were assessed.

Results. Positive sagittal balance was identified in 352 patients. The C7 plumb line deviation ranged from 1 to 271 mm. All measures of health status showed significantly poorer scores as C7 plumb line deviation increased. Patients with relative kyphosis in the lumbar region had significantly more disability than patients with normal or lordotic lumbar sagittal Cobb measures.

Conclusions. This study shows that although even mildly positive sagittal balance is somewhat detrimental, severity of symptoms increases in a linear fashion with progressive sagittal imbalance. The results also show that kyphosis is more favorable in the upper thoracic region but very poorly tolerated in the lumbar spine.

Key words: adult spinal deformity, positive sagittal balance, lumbar kyphosis. **Spine 2005;30:2024–2029**

Adult spinal deformity is a broad diagnostic classification that encompasses both stable asymptomatic curves and progressive or disabling deformities. Most previous studies of adult spinal deformity have focused on the incidence of clinical symptoms or identification of radiographic findings that might prognosticate curve or symptom progression.[1–6] Although some of these studies have included a relatively large number of patients, the sample size has been too small for a meaningful analysis of diagnostic subgroups. To establish a better understanding of this diverse clinical entity, investigators have begun to apply reproducible evaluation techniques, including standardized radiographs,[7] gait analysis,[8] and validated health status measures.[9–13] Optimally, the combination of larger study populations and more standardized data collection should facilitate a more accurate characterization of the critical elements within the spectrum of adult spinal deformity.

In a recent multicenter study of 298 adults with spinal deformity, positive sagittal balance was identified as the radiographic parameter most highly correlated with adverse health status outcomes.[14] Positive sagittal balance was defined as an anterior deviation of the C7 plumb line measurement. Positive sagittal balance was more significantly associated with pain and disability than curve magnitude, curve location, or coronal imbalance. Although there is a well-recognized incidence of pain and disability with syndromes of postoperative sagittal imbalance such as flat back deformity,[15,16] this study showed a similar occurrence in unoperated deformities. Despite a relatively large study group, the data pool was still insufficient to analyze individual factors contributing to the fact that positive sagittal balance was so poorly tolerated.

Important issues to consider in evaluating patients with positive sagittal balance include the magnitude of the deformity, location of the deformity, and any interaction with concurrent coronal plane deformities or coronal imbalance. The extent of symptoms might also be related to the etiology of the positive sagittal balance, whether primary or postsurgical. The purpose of the present study was to examine patients with adult deformity with positive sagittal balance to define parameters within that group that might differentially predict clini-

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Acknowledgment date: October 6, 2004. First revision date: January 26, 2005. Acceptance date: January 27, 2005.

The manuscript submitted does not contain information about medical device(s)/drug(s).

Corporate/Industry funds were received in support of this work. Although one or more of the author(s) has/have received or will receive

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Pain Medicine 2018; 19: 2377–2386
doi: 10.1093/pm/pnx306

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PAIN & AGING SECTION

Original Research Article

Inverse Association Between Neck Pain and All-Cause Mortality in Community-Dwelling Older Adults

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Funding sources: The study was supported by grants from Fondazione Cassa di Risparmio in Bologna and Regione Emilia Romagna-Piani per la Salute.

Disclosure and conflicts of interest: None concerning any of the authors.

Abstract

Objective. In a previous study, we found an apparent protective effect of neck pain on all-cause mortality in subjects older than age 85 years. The present longitudinal investigation was performed to verify this unexpected finding in a larger sample and to establish its significance.

Design. Population follow-up study.

Setting. Three towns of Northern Italy.

Subjects. We examined 5,253 community-dwelling residents age 65–102 years (55% female).

Methods. Data collected included demographics, anti-inflammatory drugs, physical activity, main risk factors, self-rated health, physical activity, cardiovascular events, medical therapy, and presence of pain in the main joints. Seven-year all-cause mortality was the end point.

Results. During follow-up, 1,250 people died. After adjustment for age, sex, anti-inflammatory drugs, physical activity, and main risk factors, neck pain was inversely associated with mortality (hazard ratio = 0.74, 95% confidence interval = 0.64–0.86, $P<0.001$). This association was present, with high significance, in each of the eight following subgroups: men, women, age 65–74 years, age 75–84 years, age ≥85 years and residents of each of the three towns. The subjects without neck pain (N = 3,158) were older, more often men, less often hypercholesterolemic, less physically active, and had more frequently had a stroke than the subjects with neck pain (N = 2,095). There were no differences in the causes of death between subjects with or without neck pain.

Conclusions. This study has confirmed the existence of an independent inverse association between neck pain and mortality in the elderly, suggesting that reduced sensitivity to neck pain may be a new marker of frailty.

Key Words. Elderly; Epidemiological Study; Frailty; Mortality; Neck Pain

Introduction

The determinants of mortality and survival in the elderly may differ even to a great extent from the traditional risk factors of middle-aged subjects [1–3]. In fact, in the elderly, survival is more influenced by functional and nutritional status than by cardiovascular risk. In particular, in the geriatric field, the concept of risk tends to coincide

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- Women with hyperkyphotic posture are at greater risk for deaths due to pulmonary problems.
- 20-40% of the population has hyperkyphosis caused by structural spinal shifts and the resulting spinal degeneration that happens when the spine is shifted for several years.
- ". . . hyperkyphosis is associated with adverse health consequences including impaired physical functioning, pain, disability, impaired pulmonary function and increased mortality **(death)".**
- In women, a greater degree of kyphosis is correlated with increased likelihood of subsequent vertebral fractures. The researchers describe what they call a "cascade" of events starting with structural spinal shifts leading to a downward spiral of health effects.
- A loss of the normal curve in the neck is correlated with thoracic kyphotic angles.
- The adverse health consequences of thoracic hyperkyphosis are varied and include impairment in physical function, diminished pulmonary function, increased vertebral fractures, increased falls,
- and **an increase in mortality**.
- Women with hyperkyphosis have worse balance, wider stance, and slower gait velocity; all have been associated with an increased risk of falls.

ORIGINAL RESEARCH

Improved Health Correlated With Ratio of Chiropractors in Mississippi River States

John Hart, DC, MHS[1]

ABSTRACT

Purpose: The news that Minnesota ranks first in health and Louisiana last, suggests that their connecting medium, the Mississippi River, or some other north-to-south phenomenon might be a factor. Consequently, correlations were assessed for various outcomes for states along the Mississippi River in an effort to better understand possible mechanisms for the health disparity along the River. Doctor ratios were also correlated with the outcomes.

Methods: Each state along the Mississippi River was ranked according to its north-to-south position. The position ranks were correlated with various outcomes in the areas of health, education, and socioeconomics. Doctor (physician [medical and osteopathic] and chiropractor) ratios for these river states were also correlated with these outcomes.

Results: Except for generosity index, the outcomes had a tendency to worsen from north-to-south but tended to improve with increased doctor ratios. Chiropractors had stronger correlations for improved outcomes in 20 of the 25 outcomes compared to physicians, whereas physicians had stronger correlations in four of the 25 outcomes compared to chiropractors. The correlation was the same for both doctor types for one of the 25 outcomes

Discussion: Decreased health along the Mississippi River, from north-to-south, is likely a multi-factorial phenomenon, i.e., a decrease in income, educational attainment, and quality of health care. The ratios for both doctor types (physician and chiropractor) were correlated with improved outcomes, especially for chiropractor ratios.

Conclusions: Correlation does not necessarily show causation but it can give clues. Except for generosity index, the outcomes tended to worsen when proceeding south along the Mississippi River. Chiropractors had stronger correlations for improved health outcomes when compared to physicians. Further study is indicated into other possible causative mechanisms such as the quality of drinking water and health care delivery.

Keywords: *Mississippi River, medicine, chiropractic, health outcomes*

Introduction

The news that Minnesota ranks first in health and Louisiana last suggests that their common geographical link, the Mississippi River, might be a factor.[1] It would seem that a river becomes more polluted downstream and that this would be a concern when many communities along the Mississippi use its water for drinking.[2-3] Given the high amount of industrialization of the U.S. however, the contaminants in the Mississippi River are surprisingly low.[4] For chemicals that *are* present however, it would seem that their concentration generally increases downstream.

Mercury, during a test period in 1991, was found to exist in higher concentrations downstream while the level of lead (in 1991) tended to *decrease* downstream.[5] The author was unable to locate information on contamination levels in the Mississippi River that were more recent than the 1995 report cited here.

Curious as to whether the position of a state along the Mississippi River is correlated with its health rank, a correlation test was performed for overall health rank as well as for individual outcomes (i.e., those that are contained in the

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ORIGINAL RESEARCH

1990 Death Rates in the U.S. in Relation to: Chiropractors and Medical Doctors Per Capita, Age, Income, and Education

John Hart, MHS, D.C.[1]

ABSTRACT

Objective: Previous studies have found that purported health determinants of chiropractors per capita and medical doctors per capita, as well as other purported determinants of health, have an influence on health outcomes such as death rates. This study assesses the affects of the purported health determinants of age, educational attainment, chiropractors per capita, medical doctors per capita, and per capita income on death rates for the year 1990 in the United States.

Methods: Health determinants of educational attainment for 1989, per capita income in 1990, percent of population 65 and older in 1990 (age), chiropractors per capita in 1990 and medical doctors per capita in 1990 for the 50 U.S. States and District of Columbia were correlated with the top three causes of death (heart disease, cancer, and cerebrovascular disease). Differences were also assessed by comparing death rates in jurisdictions having *low* versus *high* determinant values (i.e., jurisdictions having low versus high income).

Results: Correlation of determinants with death rates, on average was strongest for age, followed by educational attainment, chiropractors per capita, per capita income, and medical doctors per capita. There were statistically significant differences in *low* versus *high* jurisdictions for age and educational attainment (four years of high school and four or more years of college) for all three death rate categories ($p < 0.05$). When considering medical doctors per capita, statistically significantly lower death rates were recorded for cerebrovascular disease.

Conclusion: For the determinants assessed in this study, age showed the strongest relationship with the death rates, followed by educational attainment. The determinants of chiropractors per capita, medical doctors per capita, and per capita income exhibited weaker relationships with the death rates. Future research will seek to determine whether these findings are common to other years.

Key Words: *Chiropractic, Chiropractors per capita, medical doctors per capita, death rates, age, educational attainment, income*

Introduction

Previous reports on health outcomes and chiropractors and medical doctors per capita have shown that as the per capita increases, outcomes such as cancer and heart disease death rates generally decrease, particularly for chiropractors/capita.[1-4] Age[5] and educational attainment[6-7] are thought to have an influence on mortality rates. Although income is also thought to be inversely correlated with mortality rates, there is evidence that contradicts this traditional notion, reporting that higher income groups have higher mortality rates.[8] The purpose of the present study, which is based on data from 1989 and 1990, is to compare its findings for consistency with purported health determinants of age, educational attainment, health insurance coverage, income, chiropractors per capita and medical doctors per capita, and their effects on mortality rates.

Methods

The three leading causes of death in 1990 were identified as follows: cancer, heart disease, and cerebrovascular disease.[9] The 1990 death rates were studied relative to chiropractors per capita[10] and medical doctors[11] per capita in the 50 U.S. States and District of Columbia (referred to as *jurisdictions*)

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ORIGINAL RESEARCH

Correlation of U.S. Mortality Rates with Chiropractor Ratios and other Determinants: 1995

John Hart MHS, D.C.[1]

ABSTRACT

Introduction: A previous study found that chiropractor ratios were more strongly correlated with improved health outcomes in the U.S., for years 2001-2005, compared to physician (medical and osteopathic) ratios. This study seeks to determine if such correlations exist for an earlier year (1995). The variables of income, education and health insurance coverage were also assessed in relation to the health outcomes.

Methods: The following variables, considered as determinants having a possible effect on mortality rates, were obtained for the 50 states and District of Columbia for the year 1995: Ratios for chiropractors and physicians (medical doctors), percent of persons below poverty level, median income, personal per capita income, health insurance, and educational attainment (high school diploma or higher, and bachelor degree or higher). Mortality rates for the top three causes of death in 1995 were obtained as follows: Heart disease, cancer, and cerebrovascular disease. Mortality rate from all causes was also included. Correlations were performed between the determinants and mortality rates using the Spearman correlation test.

Results: Increased median income showed the strongest correlation with reduced mortality rates (from all causes, $r = -0.480$, $p = 0.000$). Between chiropractor and medical doctor ratios, chiropractors showed stronger correlations for reduced mortality rates for cancer ($r = -0.378$, $p = 0.007$), heart disease ($r = -0.344$, $p = 0.01$), and all causes ($r = -0.402$, $p = 0.004$). Medical doctor ratios showed a stronger correlation with reduced cerebrovascular mortality ($r = -0.259$, $p = 0.07$) compared to chiropractor ratios.

Discussion: Determinants of median income, educational attainment and chiropractor ratios were more strongly correlated with decreased mortality compared to determinants of health insurance or medical doctor ratios.

Conclusion: Correlation does not necessarily show causation but it can provide clues. Increases in median income, educational attainment, and chiropractor ratios were most strongly correlated with reduced (improved) mortality rates. Health insurance coverage and medical doctor ratios showed the least correlation with reduced mortality rates.

Key Words: *Chiropractic, Chiropractor ratios, physician ratios, mortality rates, heart disease, cancer, cerebrovascular*

Introduction

A previous study, using a secondary source for outcomes data, found that chiropractor ratios (number of chiropractors per 100,000 population) were more strongly correlated with improved health outcomes in the U.S. from 2001-2005 compared to physician (medical and osteopathic) ratios (number of physicians per 100,000 population).[1] Another study, which also used a secondary source for outcomes data, showed similar findings though the years for the outcomes preceded the years for the doctor ratios[2] (i.e., the year for the cancer death rates used *preceded* the year used for the doctor ratios). The present study seeks to determine if such data from primary (governmental) sources. In addition to the determinants of doctor ratios, the determinants of income, educational attainment, and health insurance coverage were also correlated with the health outcomes. The health outcomes for 1995 used in the present study consist of the top three causes of death for that year (1995).

Methods

Doctor ratio determinants were obtained for each of the 50 states and the District of Columbia as follows: chiropractor

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ORIGINAL RESEARCH

Association of Hypertension Mortality Rates with Geographic Concentrations of Chiropractors and Medical Doctors in the U.S., 2008

John Hart, DC, MHSc[1]

1. *Private Practice of Chiropractic, Spartanburg, SC*

Abstract

As concentration (dose) of health care providers increases, health outcomes (responses) are expected to be favorable (e.g., decrease in mortality rates). Accordingly, this data-driven, ecological study compares hypertension mortality rates in the U.S. by state to concentrations of doctors of chiropractic (DC) and medical doctors (MD). DC and MD concentrations (per 10,000 population) were separately compared to 2008 hypertension death rates using Spearman correlation analysis and linear regression (where appropriate). DC concentrations revealed a stronger beneficial association with hypertension death rates ($r = -0.430$, $p = 0.0020$) compared to MD concentrations ($r = -0.029$ with an observed outlier, and $r = -0.085$ without the outlier; both coefficients not statistically significant). Linear regression revealed that an average national decrease of approximately one hypertension death per 100,000 population (95% CI = −1.4 to −0.4) would be expected with an increase of one DC per 10,000 population within the range in this study (1.0 to 5.2 DCs per 10,000 population). Since this is an observational study, causal inference is not claimed. The study is intended as a first step to research having other designs such as case-control.

Key Words: *Physician, chiropractic, hypertension, mortality*

Introduction

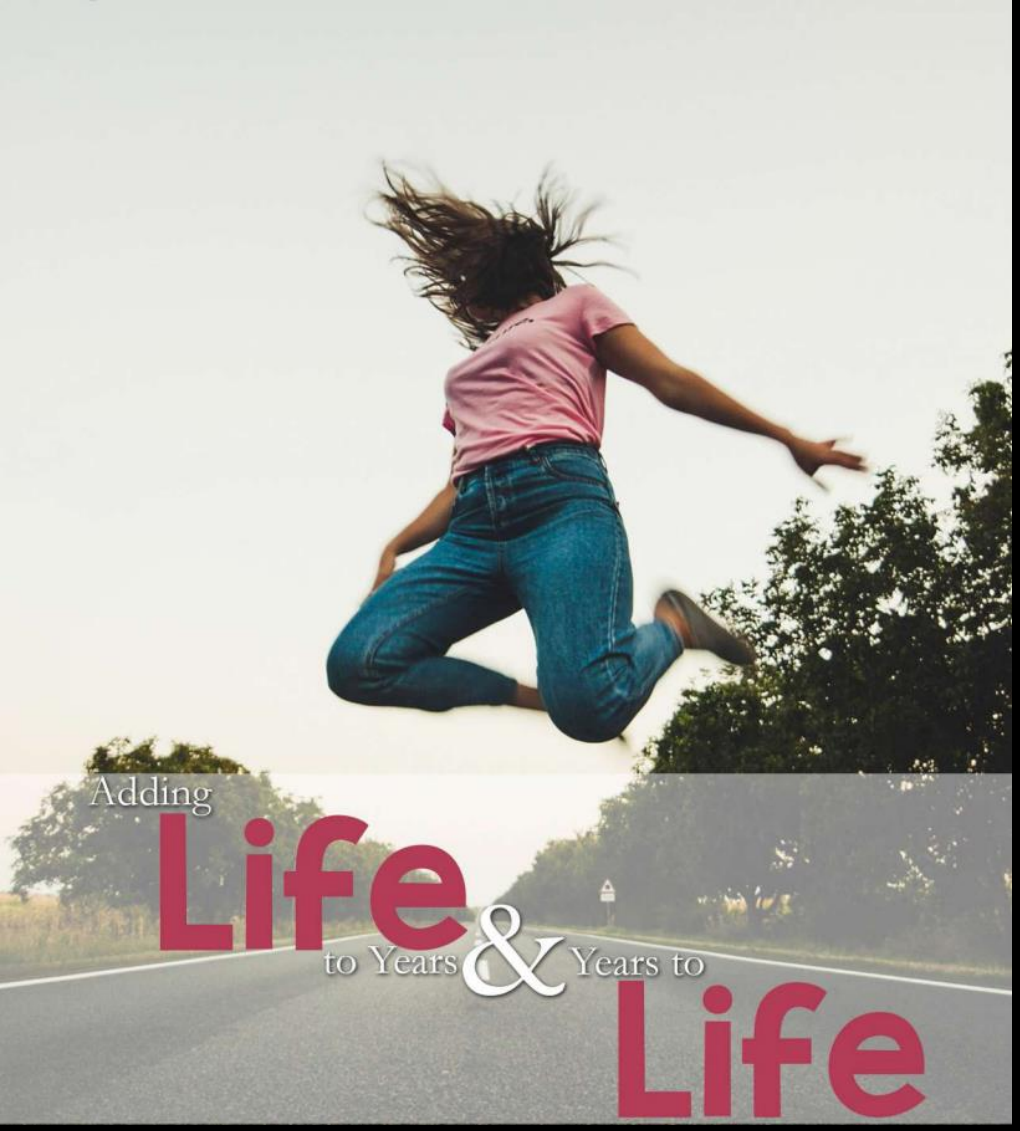
As concentrations of health care practitioners increases, access to their services is expected to also increase, with an expected decrease in adverse health outcomes (such as hypertension mortality rates). The present ecological, data-driven study compares correlations of 2007 MD and DC concentrations with 2008 hypertension mortality rates.

The condition of hypertension was selected because there is some evidence that a reduction in blood pressure in hypertensive patients occurs following chiropractic care. Whedon (2013) reported on a case study where blood pressure decreased from 134/98 to 114/80 following chiropractic care. In a practice-based setting, Torns (2012) found statistically significant reductions in systolic and diastolic blood pressures in 18 patients with hypertension following chiropractic care that focused on the upper cervical spine. Welch and Boone (2008) found a significant reduction in diastolic blood pressure in a convenience sample of asymptomatic chiropractic students. In another practice-based pilot study, Plaugher et al. (2002) also found a statistically significant reduction in diastolic blood study where patients with Stage 1 hypertension were randomized into a chiropractic group or sham group. Here, statistically significant reductions were observed in the chiropractic group (that also focused on the upper cervical spine, in particular, C1) compared to reductions in the sham group for systolic and diastolic blood pressures.

Approximately two-thirds of chiropractors in North America address a condition known as subluxation (McDonald et al., 2004) which in concept includes a neurological component (Chiropractic, 2013). Consequently, the mechanism for a possible beneficial effect on hypertension from adjusting subluxation presumably pertains to neurological pathways in the spine and peripheral nervous system (Bolton, 2000; Budgell, 2000).

While the aforementioned chiropractic studies assessed changes in hypertension morbidity following chiropractic care, the present study assesses hypertension mortality in the context of chiropractic care, and compares this correlation to medical

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- Improved health was correlated with the ratio of chiropractors. This means **the more chiropractors there were - the better the health of the population.**
- In another one of Dr. Hart's studies he looked at death rates in the U.S. in relation to chiropractors and medical doctors and found that **the ratio of chiropractors were correlated with reduced death rates for cancer, heart disease, and cerebrovascular disease.**
- Hart did another study looking at the correlation of U.S. mortality rates and compared them to the ratio of chiropractors and medical doctors. He found that between chiropractor and medical doctor ratios, **there were strong correlations for reduced death rates from cancer, heart disease, and all causes with an increase in chiropractors.**
- Hart looked at the association of deaths from high blood pressure with geographic concentrations of chiropractors and medical doctors in the U.S. and found that there was **a reduction in death rates from high blood pressure in relation to the concentration of chiropractors.**

Relation of disturbances of craniosacral mechanisms to symptomatology of the newborn: Study of 1,250 infants

VIOLA FRYMANN, M.B., B.S., D.O., F.A.A.O.
La Jolla, California

This study explores the possibility of a relation between symptomatology in newborn infants and anatomic-physiologic disturbances of the craniosacral mechanism. The primary respiratory mechanism hypothesis postulates a rhythmic cranial motion, palpable externally, that is the combined effect of the inherent motility of the central nervous system, fluctuation of the cerebrospinal fluid, the reciprocal tension mechanism of the dural membranes and their folds, and articular mobility of the cranial bones and of the sacrum between the ilia. Labor apparently has a traumatic effect on the craniosacral mechanism in some circumstances. Strain patterns within the developmental parts of the occiput appear significant in producing nervous symptoms. Flexion strain at the sphenobasilar symphysis, sacral extension strain, and compression of the sphenobasilar symphysis were noted in nervous infants. A significant relation is suggested between torsion strain of the sphenobasilar symphysis with restriction in temporal mobility and respiratory and circulatory symptoms.

The full-term skull is designed to provide the maximum accommodation to the forces of labor, the minimum trauma to the delicate nervous system within, and the utmost capacity for restitution after labor is complete.

At the time of birth ossification of the skull bones is not complete: the occipital, temporal bones, sphenoid, frontal bone, and mandible consist of more than one piece. Each portion of these bones may be regarded functionally as a separate bone, capable of moving in relation to its neighbor both physiologically in response to the forces from within the cranium and pathologically as a result of trauma from without. A thorough knowledge of the anatomy involved is essential to an understanding of the symptomatology which may result from a particular strain pattern. It will, moreover, direct the physician toward the prime cause behind a presenting symptom.

Time does not permit a detailed consideration of all these important areas. Only the highlights will be considered here.

Anatomic and physiologic considerations[1]

The *occipital bone* at birth is in four parts: the basilar part, two lateral condylar parts, and the squama which is formed by the union, during the third fetal month, of the interparietal occiput formed in membrane and the supraocciput formed in cartilage. These four parts form the anterior, lateral, and posterior margins of the foramen magnum respectively. Distortion of their mutual relationships may and frequently does distort the foramen magnum (Figs. 1-6). The hypoglossal nerve passes through the cartilage between the basilar part and the lateral or condylar part (Figs. 2, 3, 5). The hypoglossal is the motor nerve to the tongue and its physiologic function is of primary importance to the sucking and swallowing mechanism. Immediately anterolateral to the

1250 newborn infants

17% of them had occipital “strains”

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Blocked Atlantal Nerve Syndrome
In Infants and Small Children

BY G. GUTMANN

(Published in "Manuelle Medizin" © Springer-Verlag 1987. The "ICA Review" thanks the Barge Chiropractic Clinic of LaCrosse, Wisconsin, for having the original paper translated into English by Ronald M. Mazur, PhD; Winona State University, Minnesota. Translation published with permission of "Manuelle Medizen" publishers.)

Summary: Three case reports are reviewed to illustrate a syndrome that has so far received far too little attention, which is caused and perpetuated in infants and small children by blocked nerve impulses at the atlas. The clinical picture ranges from central motor impairment and development through idencephalic impairments of vegetative regulatory systems to lowered resistance to infections, especially to ear-, nose- and throat-infections. The theoretical background to this syndrome is indicated. The main factor in the causation concerns the neurophysiological connections between the area of the atlanto-occipital joint and centers in the brain stem. In addition to the case history (birth trauma, etc.) and the pediatrician's diagnosis, chiropractical and radiological examination are of decisive importance for the diagnosis of this syndrome. If the indications are correctly observed, chiropractic can often bring about amazingly successful results, because the therapy is a causal one.

Key words: Babies, infants, atlas, blocked nerves, dysregulation, motor, vegetative, impaired development, resistance lowered to infections, diagnosis and therapy, chiropractical.

REPRINTED BY PERMISSION OF THE "ICA REVIEW" AND DR. FRED BARGE.

We described this syndrome for the first time in 1953, and then again in 1968, with the complex designation, cervical-diencephalic-static syndrome (C.D.S.). In 1984 we described it as cervical-diencephalic-kinesiological syndrome in small children.

Even though it is among the most satisfying indications of the effectiveness of manual therapy, evidently even experts in our own ranks have hardly gained access to this occurrence at all. Only the pediatrician Mohr (30) has checked our reports and confirmed them in full measure. Lewit, (26, 27) and later Seifert (35) expressed a similar opinion in the German Democratic Republic.

CASE STUDIES

V.S., 10-month-old male child
Congenital torticollis after suction-belljar delivery. Post-natal haemotoma of the sternocleidic mastoid on the right side.

In spite of intensive therapeutic gymnastics, no improvement in the torticollis. A clear-cut asymmetry had developed in the skull and face. Crawling, let alone sitting, was impossible. The orthopedic institute treating the patient diagnosed cerebral disturbances of movement.

Our X-ray findings: Moderate degree of inferior location of the atlas with kyphotic position of the HWS and dislocation of the occiput (al) on the right side across from Cl and C2.

No clear blockage could be felt manually. Targeted manual impulse treatment (Cl/C2 from the left with counter-support of the occiput (al).) In the course of the next 12 months, the first clear improvement in posture and motor responses, confirmed by colleagues collaborating in the treatment.

The second treatment was after 4 months. The parents reported that the child had literally made a great leap forward after each treatment.

Later reports from the parents and treating doctors confirmed unanimously that both motor responses and the previously retarded mental and linguistic development were now pro-

Blocked Atlantal Nerve Syndrome

Gutmann found that these infants suffered from lowered resistance to infections, especially to ear-nose- and throat infections, insomnia, cranial bone asymmetry, torticollis, walking problems, language delays, conjunctivitis, tonsillitis, rhinitis, earaches, extreme neck sensitivity, scoliosis, delayed hip development, and seizures.

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Incidence of Somatic Dysfunction in Healthy Newborns

Erica L. Waddington, DO; Karen T. Snider, DO; Michael D. Lockwood, DO; and Vanessa K. Pazdernik, MS

From Tri Town Community Action Agency, Alpert School of Medicine at Brown University in Johnston, Rhode Island (Dr Waddington); the Department of Family Medicine, Preventive Medicine and Community Health at the A.T. Still University–Kirksville College of Osteopathic Medicine in Missouri (Dr Snider); the Liberty University College of Osteopathic Medicine in Lynchburg, Virginia (Dr Lockwood); and Research Support at A.T. Still University in Mesa, Arizona (Ms Pazdernik).

Financial Disclosures: None reported.

Support: None reported.

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E-mail: ksnider@atsu.edu

Submitted September 3, 2014; final revision received May 26, 2015; accepted June 24, 2015.

Context: Recent evidence suggests that osteopathic manipulative treatment of somatic dysfunction in newborns may decrease complications and hospital length of stay. Such dysfunction may result from external forces related to the birth process, but its incidence is unknown.

Objective: To identify the incidence and patterns of somatic dysfunction in healthy newborns at least 6 hours after birth and to correlate those findings with maternal and labor history, gestational age, and findings of the initial newborn assessment performed immediately after birth.

Methods: Healthy newborns aged 6 to 72 hours were physically examined and assessed for somatic dysfunction, including asymmetry and motion restriction of the cranial, cervical, lumbar, and sacral regions. The total somatic dysfunction identified was summarized in a somatic dysfunction severity score (SDSS), calculated by assigning 1 point for each identified finding; the SDSS could range from 0 (no somatic dysfunction) to 34 (all somatic dysfunctions assessed present). Findings were correlated with maternal and newborn characteristics and labor history. Descriptive analyses were performed, and findings were compared between the initial newborn assessment and the research examination.

Results: One hundred newborns were examined (mean gestational age, 38.5 weeks). In 99 newborns (99%), at least 1 sphenobasilar synchondrosis strain pattern was present, with sidebending rotations being the most common (present in 63 newborns [63%]). Condylar compression was found in 95 newborns (95%), temporal bone restrictions in 85 (85%), motion restriction of at least 1 cervical vertebral segment in 91 (91%) and at least 1 lumbar vertebral segment in 94 (94%), and a posterior sacral base in 80 (80%). The SDSS was not associated with mode of delivery or labor augmentation (P=.49 and P=.54, respectively), but it was positively associated with the duration of labor; each 1-hour increase in labor increased the predicted SDSS by 0.12 points (P=.04).

Conclusion: Somatic dysfunction of the cranial, cervical, lumbar, and sacral regions was common in healthy newborns, and the total somatic dysfunction (SDSS) was related to the length of labor. (ClinicalTrials.gov number NCT01496872)

J Am Osteopath Assoc. 2015;115(11):654-665
doi:10.7556/jaoa.2015.136

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100 Newborns

Somatic dysfunctions

Extremely common in newborns.

Examined “healthy” newborns 6 to 72 hours old

99% of them had somatic dysfunction

Severity was related to the length of labor.

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Siefert studied over 1000 infants and found that 11% of them suffered from subluxations in the upper neck and they also had scoliotic (curved) postures.

What makes Siefert's study so important is that none of those infants had any symptoms whatsoever.

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J Manual Medicine (1992) 6:151–156

Journal of Manual Medicine
© Springer-Verlag 1992

Kinematic imbalances due to suboccipital strain in newborns

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Summary. Using case histories and catamneses, the pathogenetic potential of the craniovertebral junction in newborn and young children is discussed. Supporting neurophysiological findings are presented. The symptom complex of "kinematic imbalances due to suboccipital strain" (KISS syndrome) has a wide range of clinical signs and can in many cases be dealt with effectively by manual therapy. The main symptoms are torticollis, unilateral microsomy, C-scoliosis and motoric asymmetries, often accompanied by unilaterally retarded maturation of the hip joints and slowed motor development. Risk factors seem to be: intrauterine misalignment, application of extraction aids, prolonged labor and mulitple fetuses.

Key words: Manual therapy – Craniovertebral junction – Cervical spine – C-scoliosis – Motor asymmetry – Torticollis

The pathogenetic importance of asymmetric posture and motion in small children is often played down if recognized at all. Quite regularly, parents complaining about the bent position of their baby get the advice "to cantilever the baby during sleep, and it will go away"; this proves to be wrong in many cases. Vojta and Bobath went beyond the mere diagnostic description of "C-scoliosis" or "torticollis" and developed treatment schemes based on refined methods of examination and a deeper understanding of neuromotor development. These forms of therapy were developed for children with minimal cerebral damage (MCD) and greatly improved the changes of rehabilitation in these little patients. Both methods require a lot of discipline from parents and physiotherapists alike. In many cases the duration of the treatment can be shortened by combining and/or replacing it with manual therapy of the suboccipital segments of the upper cervical spine.

Patients and methods

Patients

Of the more than 600 children (age ≤24 months) treated to date, we chose a group of 135 babies referred to us by a pediatric orthopedist between 1981 and 1990; 114 of them could be reached for follow-up.

Most of the babies were refered to us because of asymmetric posture. The case histories included the following (Table 1):

- Tilt posture of the head, torticollis.
- Opisthotonos, head held in retroflexion. Unable to lie on the back, as this forces the head into anteflexion.
- Uniform sleeping posture; the child cries if the mother tries to change its position.
- Asymmetric motor patterns.
- Asymmetric posture of trunk and extremities, sometimes combined with a tilted head position reminiscent of a persisting asymmetric tonic neck reflex.
- Sleeping disorders; the baby wakes up crying every hour.
- Extreme sensitivity of the neck.
- Cranial scoliosis, swelling of one side of the facial soft tissues.
- Blockages of the iliosacral points, asymmetries of the gluteis muscles.
- Asymmetric development and range of movement of the hips.
- Fever of unknown origin; loss of appetite and other symptoms of central nervous system disorders.

Needless to say, these symptoms cover a wide range of pathological conditions and cannot always be attributed to the suboccipital joints, but if we encounter a combination of motor asymmetries, sleeping disorders and a facial scoliosis, it is worthwile to look at the suboccipital joints.

Table 1. Findings at first examination

	KISS
Mobility of the cervial spine reduced more than 30%[a]	85 (74.6%)
Torticollis	44 (38.6%)
C-scoliosis	40 (35.1%)
Unilateral microsomy	47 (41.2%)
Retarded development of the hip joints (sonographically verified)	50 (43.9%)
Opisthotonos	11 (9.7%)
Mobility of the vertebral spine reduced more than 30%	12 (10.5%)
Feet deformities	12 (10.5%)
Pathological reflexes[b]	3.2 of 7

[a] Including cases of torticollis
[b] Tested: Vojta, traction test; Peiper, Collis, vertical and horizontal; Landau, axiallary hanging test (see [37])

600 children less than two years old.

"suboccipital strain"

This area can literally be a chokepoint.

Biedermann found the infants and children effected by these subluxations in the neck experienced **birth trauma, prolonged labor and the use of things like forceps** during their births

Number one thing that brought these infants into Biedermann's clinic: **Asymmetric posture**.

Tilted head, the head held backwards, awkward sleeping positions, movements on one side of the body that don't match the other side, sleeping disorders, extreme sensitivity, swelling of one side of the face, abnormalities of the hips and spine, unexplained fevers, loss of appetite.

Biedermann found that their necks were stiff, had reduced range of motion, one side of the head sometimes larger than the other, abnormal reflexes, muscle spasms of the back so severe that the infants' backs were arched

Biedermann **took x-rays** which he used to help determine how to fix the misalignments

Biedermann

"The birth canal is one of the most dangerous obstacles we ever have to traverse."

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Australian Chiropractic Board BANS Spinal Manipulation in Infants

Thursday, March 14, 2019 - 11:39

NEWS STAFF



Interim Policy in Place Until Government Investigation is Over

In a shocking and unprecedented move, the **Chiropractic Board of Australia has banned the practice of spinal manipulation in children by chiropractors**. The move comes after calls from the Victorian Health Minister and Australian Medical Association's President to stop the chiropractic care of children.

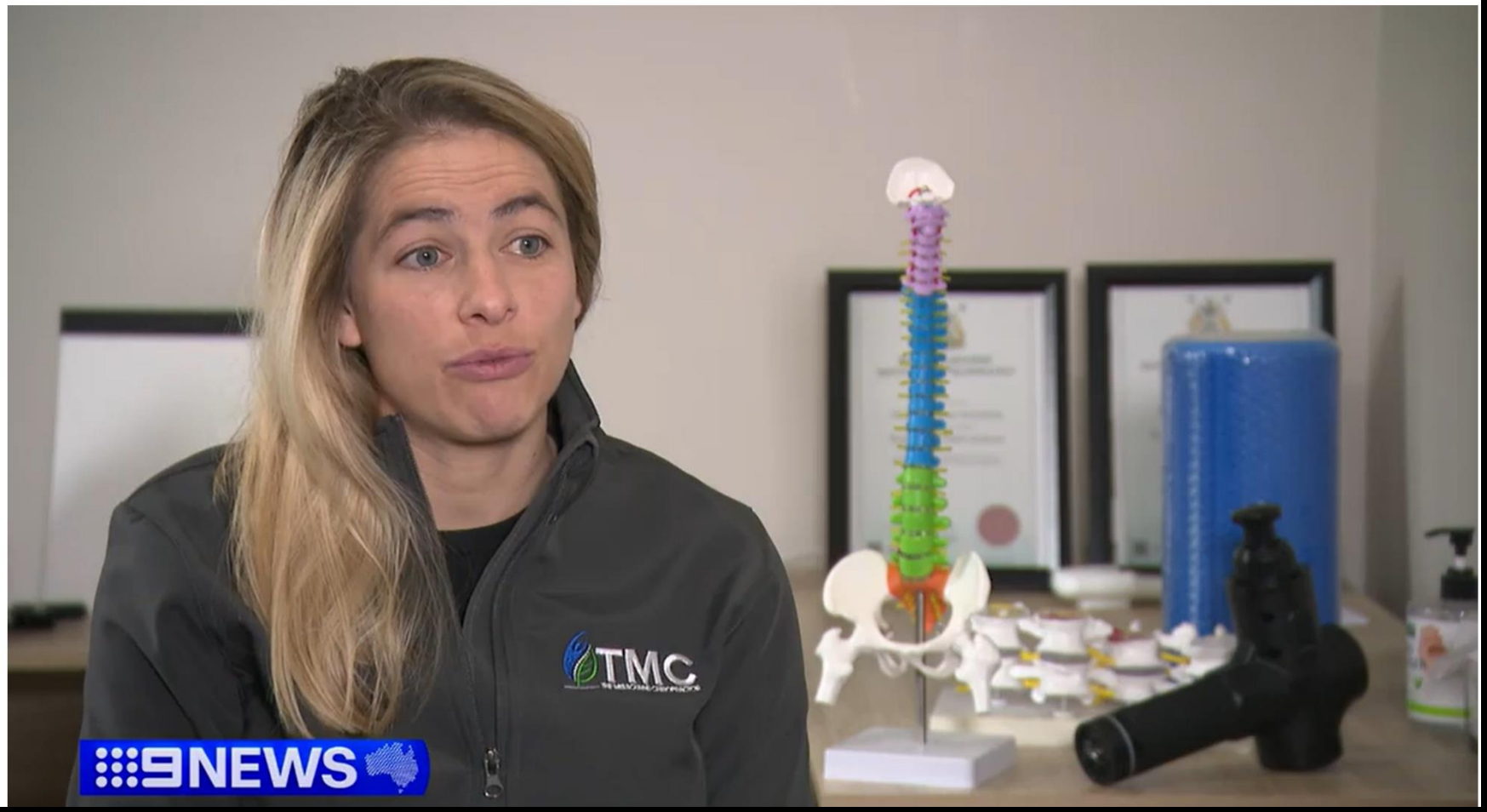
CLICK HERE to review the policy

Incredibly, the Chiropractic Board either lies in their announcement or reveals deep seated ignorance stating:

". . . the Board acknowledges there is no current clinical guideline, or peer-reviewed publication to guide chiropractors with respect to the care of infants and young children, and the use of spinal manipulation in particular."

GPs call for infant spinal adjustments to be outlawed after interim ban ends

By 9News Staff | 8:10pm Jun 13, 2024



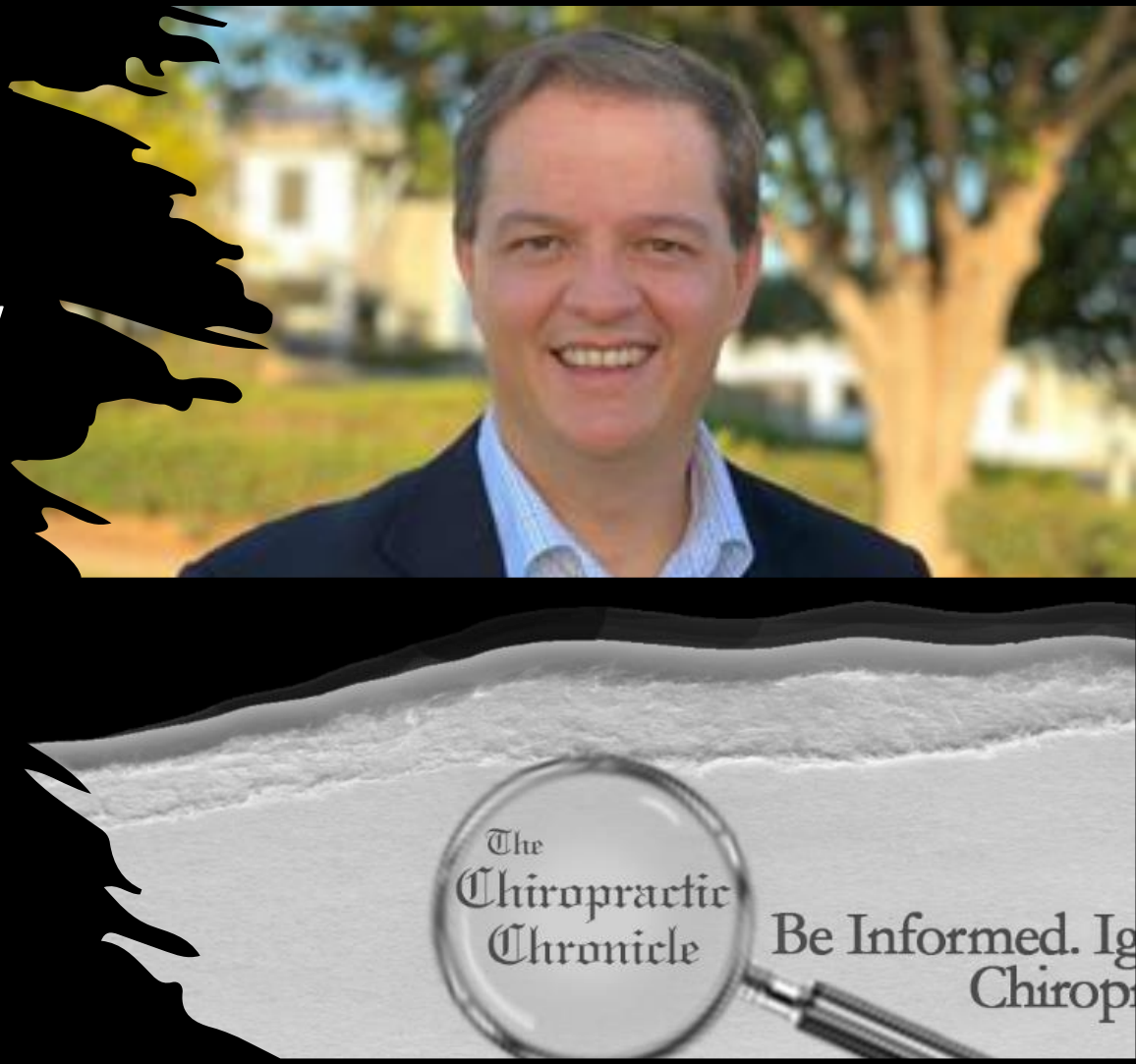
Chiropractic Board of Australia reinstates ban on baby back cracking



By Jorge Branco | 12:05am Jun 18, 2024



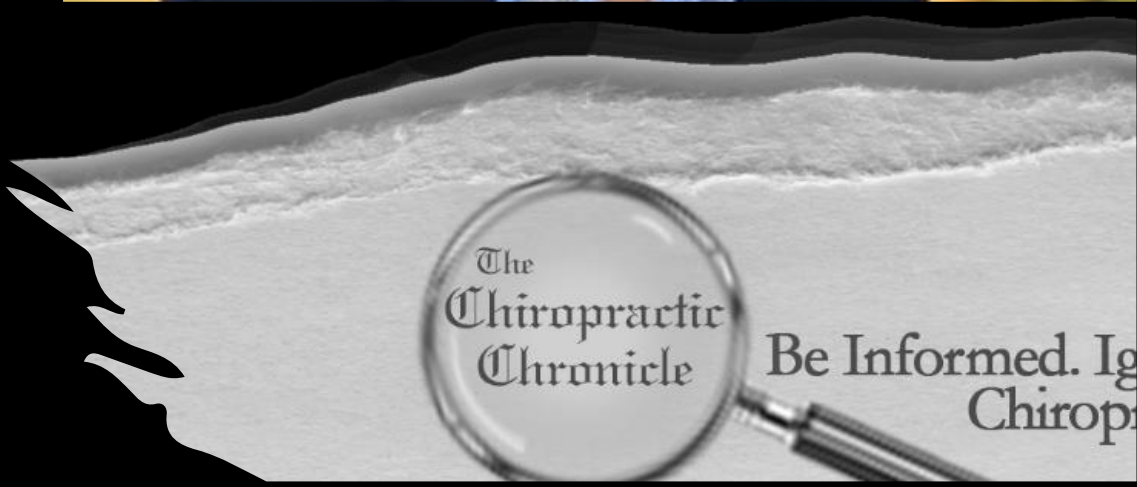
“The idea that children should now be subject to spinal manipulation … is quite scary”



"We know there is a risk of harm; we know that there is no evidence of a curative benefit or that these therapies are needed."

— Associate Professor Michael Clements, Vice President of the Royal Australian College of General Practitioners (RACGP) on the chiropractic infant ban.

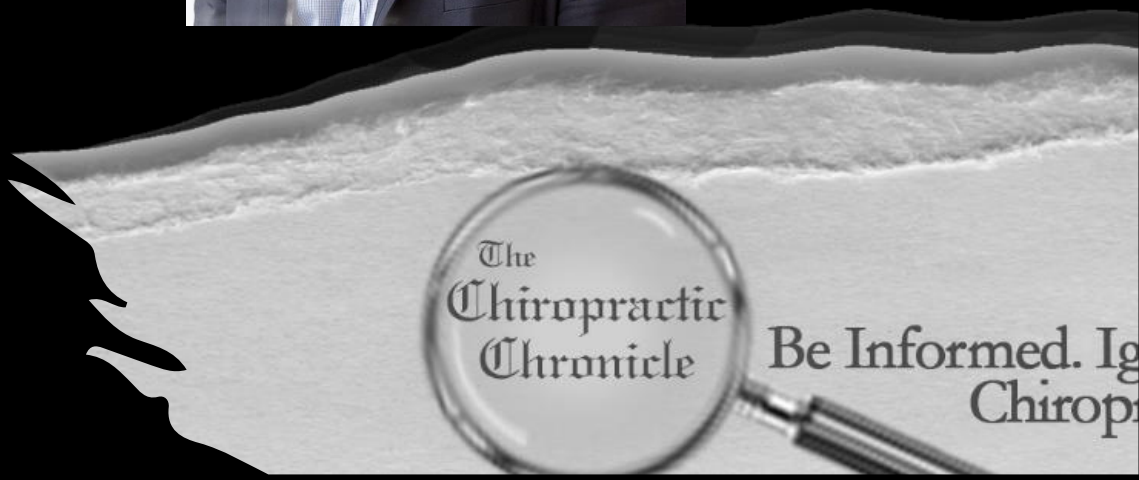




"The child is an immature structure; they're not fully grown humans yet so everything that you do to them puts them at risk for the future."

— Dr. Patrick Lo, Paediatric Neurosurgeon on the chiropractic infant ban

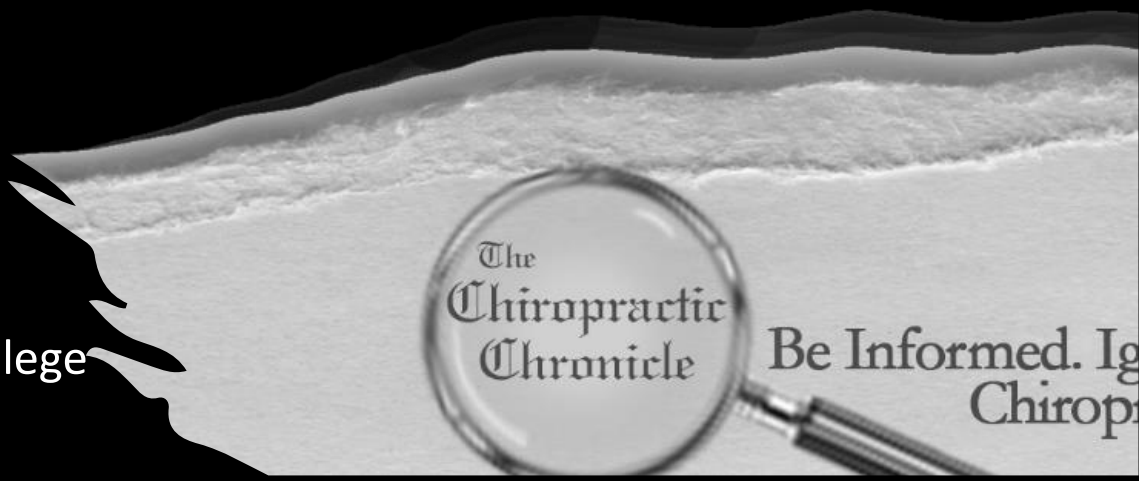




"It's certainly something I wouldn't do to my child, so I would advise parents to not allow this sort of practice to be done to your child.



— James Best
Chair of child and young person health at the Royal Australian College of General Practitioners

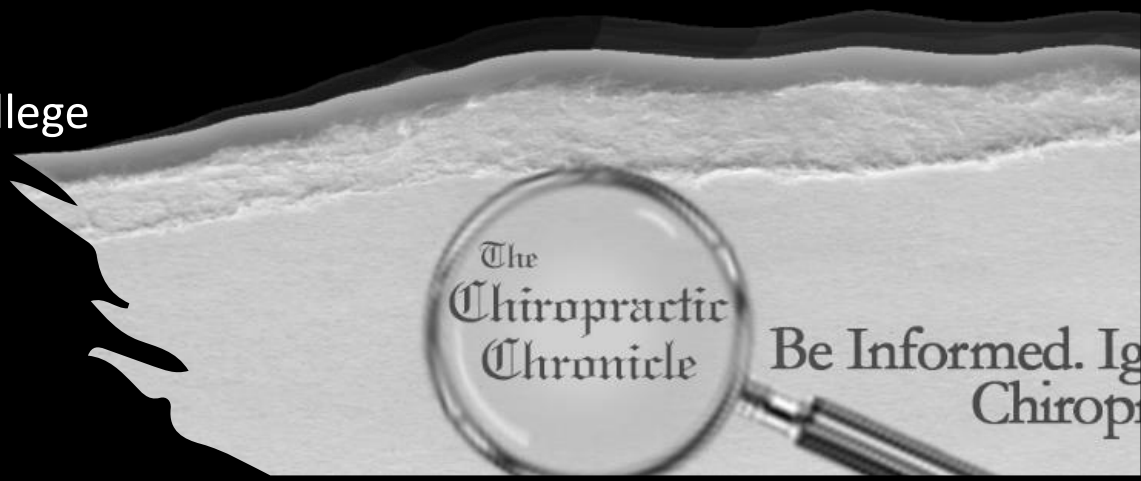


The practice is "deeply disturbing".



— James Best

Chair of child and young person health at the Royal Australian College of General Practitioners on the chiropractic care of children



ACA Says Not Enough Research to Prove Chiropractic Works in Kids

Thursday, September 15, 2022 - 15:19

NEWS STAFF

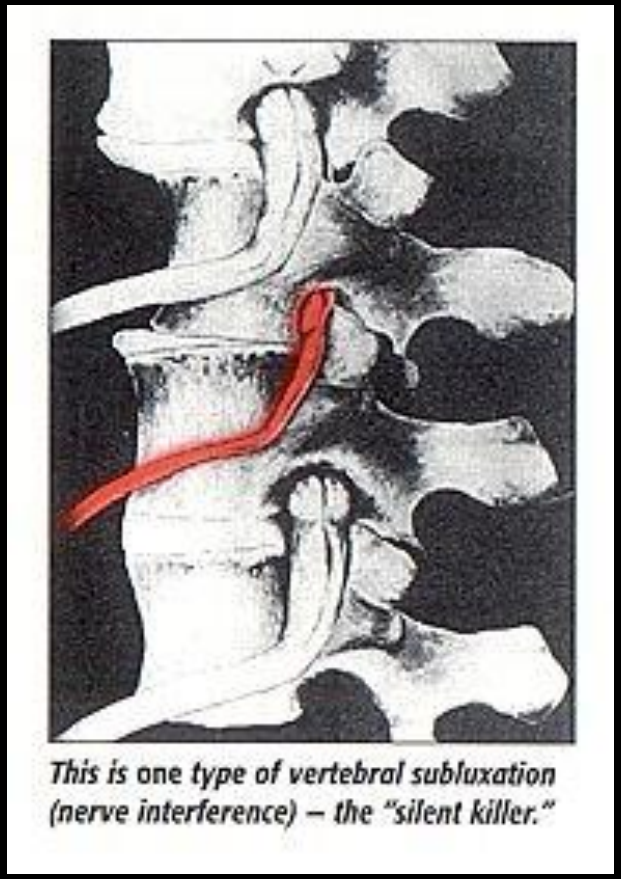


Claims We Can't Really Say For Sure What's Happening

In an interview for the Washington Post on the role of chiropractic for children, the **President of the American Chiropractic Association's (ACA) Council on Chiropractic Pediatrics** stated:

“We still haven’t been able to demonstrate in the research the effectiveness that we’ve seen clinically. We can’t really say for sure what’s happening. It’s sort of like a black box. But, what we do know is that, clinically, what we’re doing is effective because we see a change in the symptoms of the child."

The Silent Killer



This is one type of vertebral subluxation (nerve interference) – the "silent killer."


IF YOU'RE NOT
OUTRAGED
YOU'RE NOT PAYING
ATTENTION

Risk = Hazard + Outrage



Components of Outrage

Voluntary	vs	**Coerced**
Familiar	vs	**Exotic**
Not memorable	vs	**Memorable**
Individual control	vs	**Controlled by others**
Fair	vs	**Unfair**
Trustworthy	vs	**Untrustworthy**



Four Kinds of Risk Communication (p. 1)

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1. Public Relations (also health education) – high-hazard, low-outrage

Audience:	Apathetic and inattentive; but undefended, uninterested in talking back. Huge -- most people, most of the time, on most issues.
Task:	To produce brief messages that reinforce whatever appeals are most likely to predispose the audience toward your goals. For serious hazards, this usually means provoking more outrage.
Medium:	Monologue via the mass media.
Barriers:	Audience inattention; audience size; media resistance; need to package everything into short sound bites; policy implications of trying to provoke outrage.
"Silver lining":	There is little need to listen, or to address audience concerns, reservations, or objections; this audience has few if any.

2. Stakeholder Relations -- medium-hazard, medium-outrage

Audience:	Interested and attentive, but not too upset to listen: The ideal audience ... but a fairly unusual one.
Task:	To discuss the issues openly and rationally, explaining your views and responding to audience questions and concerns.
Medium:	Dialogue in person, supplemented by specialized media (web site, newsletter, etc.).
Barriers:	None, except perhaps the inefficiency of one-on-one dialogue. And you have to be prepared to explain the technical details; this is the only audience that really wants to hear them.
"Silver lining":	This is the easiest communication environment. Duplicating it is the goal of the other three kinds of risk communication.

3. Outrage Management – low-hazard, high-outrage

Audience:	Outraged, largely at you. A small group of "fanatics" is usually accompanied by a larger, less outraged constituency watching to see how the controversy evolves.
Task:	To reduce audience outrage by listening, acknowledging, apologizing, sharing control and credit, etc. The controversy ends when the "fanatics" declare victory or their constituency thinks they have won enough.

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Consulting, Training, and Research in Risk Communication

1. Public Relations (also health education) – high-hazard, low-outrage

Audience:	Apathetic and inattentive; but undefended, uninterested in talking back. Huge -- most people, most of the time, on most issues.
Task:	To produce brief messages that reinforce whatever appeals are most likely to predispose the audience toward your goals. For serious hazards, this usually means provoking more outrage.
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"Silver lining":	There is little need to listen, or to address audience concerns, reservations, or objections; this audience has few if any.

The Problem

- We do not have a “research” problem.

- We have a **POLITICAL** problem
- We have a **MARKETING** problem



Risk, Change Strategies, Behavior Change & Vertebral Subluxation

Risk





Risk/Benefit Ratio



"Something that is forgotten in all of this is people like to smoke"

David Adelman

Morgan Stanley Analyst

Perceptions

“There is virtually no correlation between the ranking of a threat or hazard by experts and the ranking of those same hazards by the public”

Vincent Cavello



Perceptions



- Perception = Reality
- That which perceived as real - *is* real
- That which is perceived as real, is real in its consequences.

Perceptions on Evaluation of Risk

Experts:

- Rely on risk assessment
- Objective
- Analytic
- Wise
- Rational
- Based on real risk

Public:

- Rely on perceptions of risk
- Subjective
- Hypothetical
- Emotional
- Not always rational
- Irrational

Factors Affecting Risk Perception

Risks perceived to be:

- Voluntary are more acceptable than risks perceived to be imposed;
- Under the individual's control are more accepted than risks perceived to be controlled by others;
- Have clear benefits are more accepted than risks perceived to have little or no benefit;
- Fairly distributed are more accepted than risks perceived to be unfairly distributed

Factors Affecting Risk Perception

Risks perceived to be:

- Natural are more acceptable than man-made risks;
- Statistical are more accepted than risks perceived to be catastrophic;
- Generated by a trusted source are more acceptable than risks perceived to be generated by an entrusted source;
- Familiar are more acceptable than risks perceived to be exotic; and
- Affect adults are more accepted than risks perceived to affect children

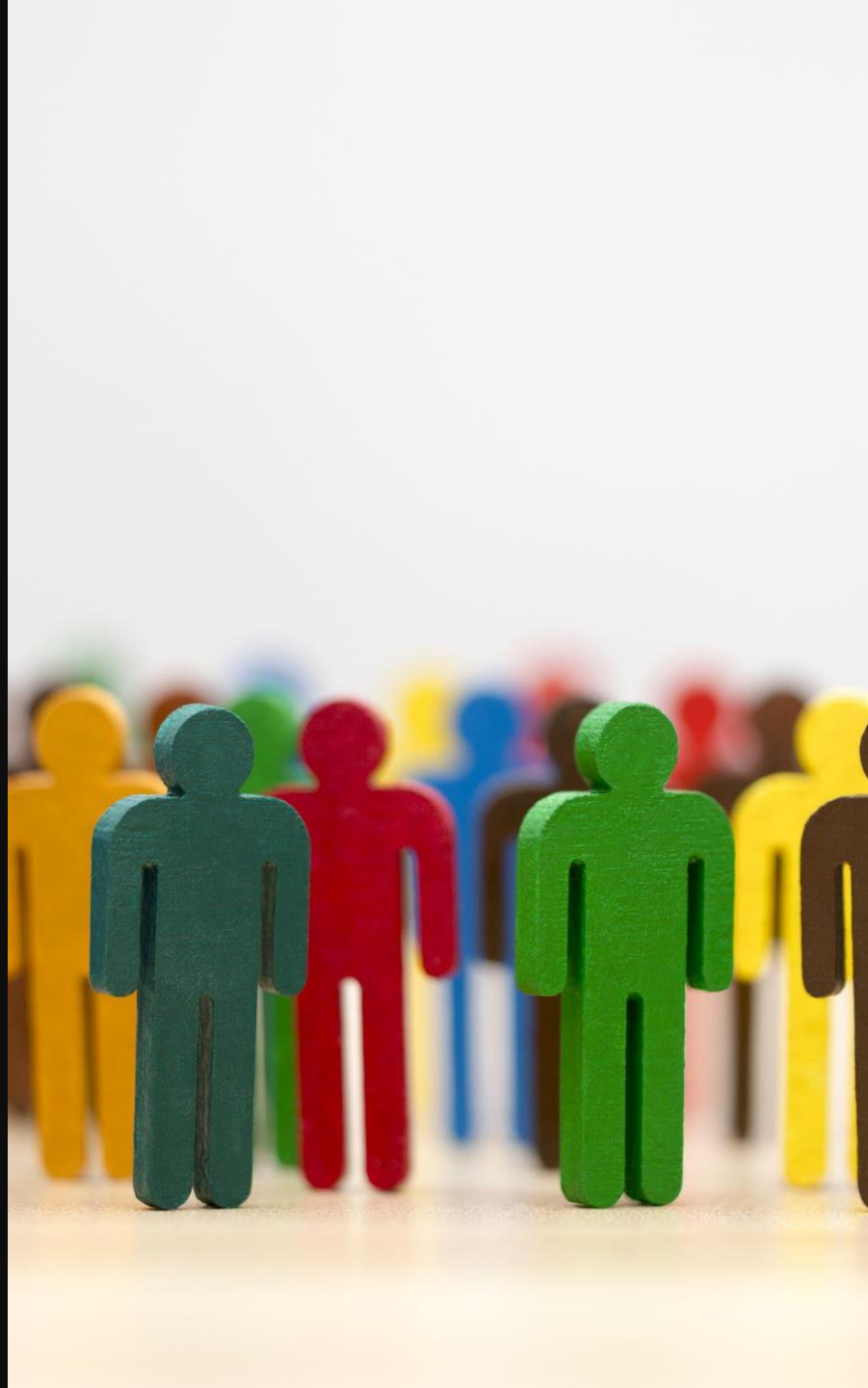
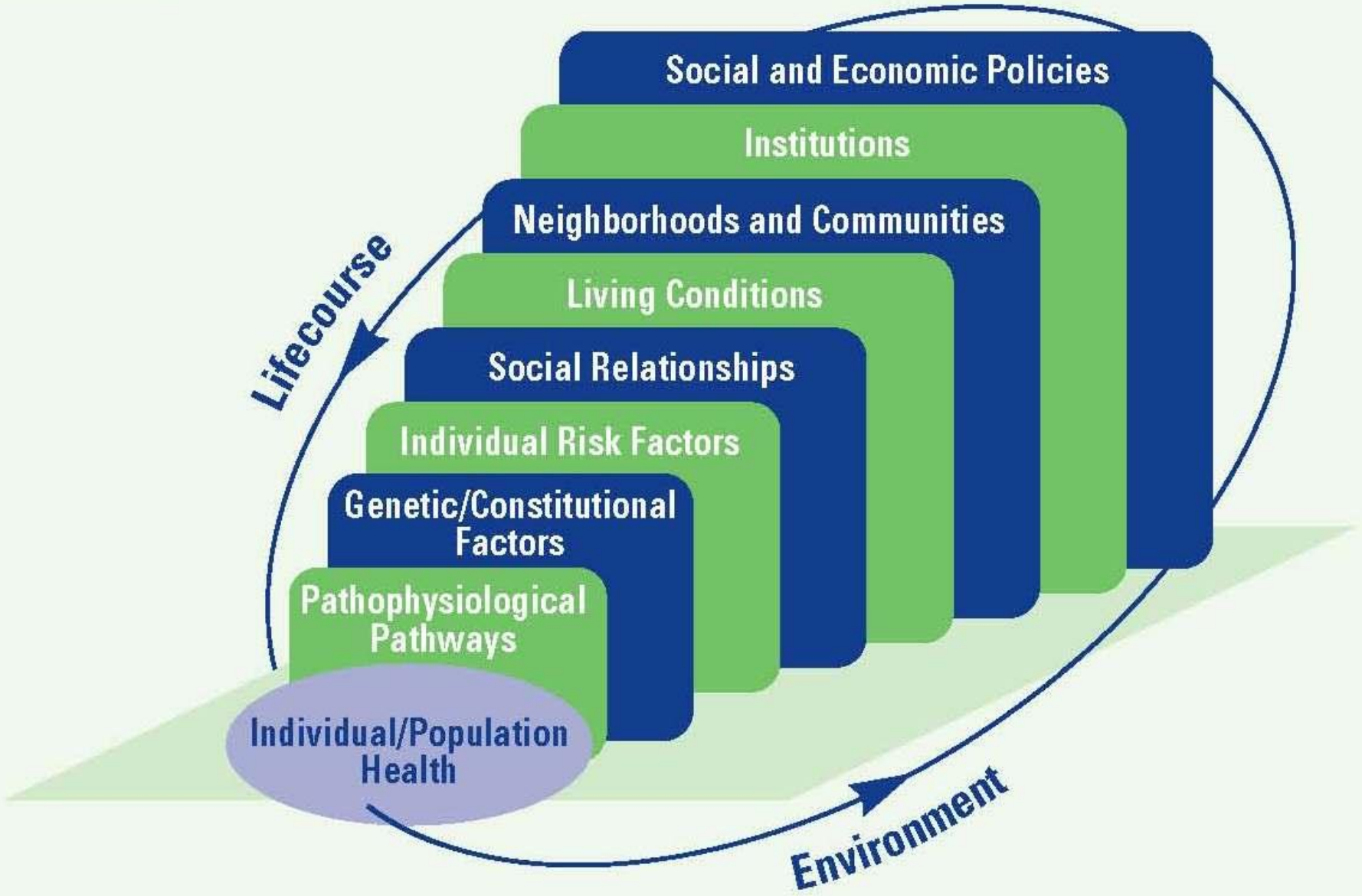
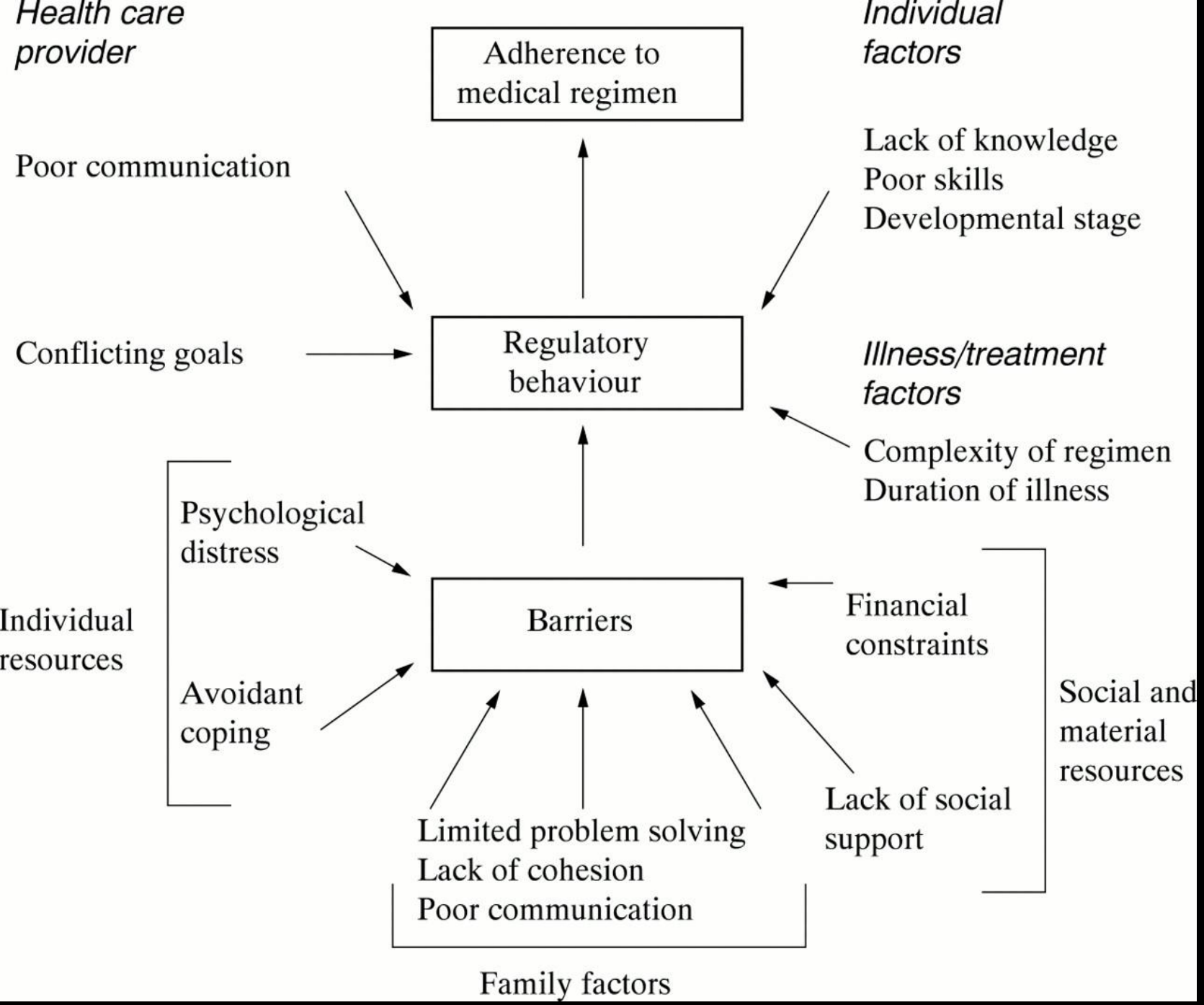


Figure 2. A Multilevel Approach to Epidemiology



Source: Smedley BD, Syme SL (eds.), Institute of Medicine. Promoting Health: Strategies from Social and Behavioral Research. Washington, D.C.:, National Academies Press, 2000.


Health care provider
Poor communication
Individual factors
Lack of knowledge
Poor skills
Developmental stage
Adherence to medical regimen
Conflicting goals
Regulatory behaviour
Illness/treatment factors
Complexity of regimen
Duration of illness
Psychological distress
Individual resources
Barriers
Financial constraints
Avoidant coping
Social and material resources
Lack of social support
Limited problem solving
Lack of cohesion
Poor communication
Family factors

Health Education

- Just because you know something is good or bad for you does not mean you will change behavior

- Need to increase the likelihood that behavior will change



Change

People change what they do less because they are given *analysis* that shifts their *thinking* than because they are *shown* a truth that influences their *feelings*.

The Heart of Change



Behavior Change

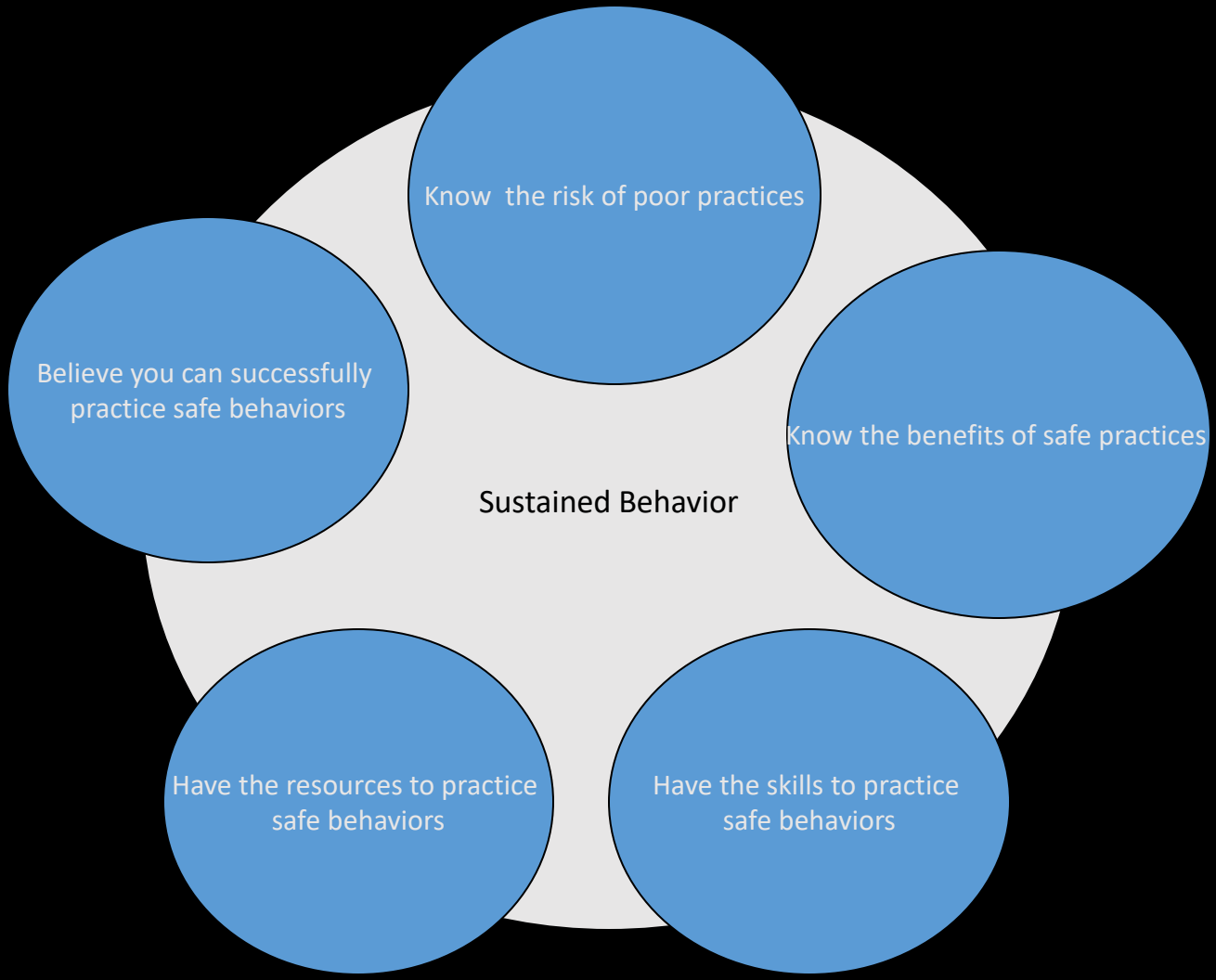
Communication alone will not sustain behavioral change

Reflection

"To cease smoking is the easiest thing I ever did; I ought to know because I have done it a thousand times."

Mark Twain




Know the risk of poor practices
Know the benefits of safe practices
Have the skills to practice safe behaviors
Have the resources to practice safe behaviors
Believe you can successfully practice safe behaviors
Sustained Behavior



Risk

Benefit

Skills

Resources

Belief

20 Foot Wall

Cross-Cutting Issues

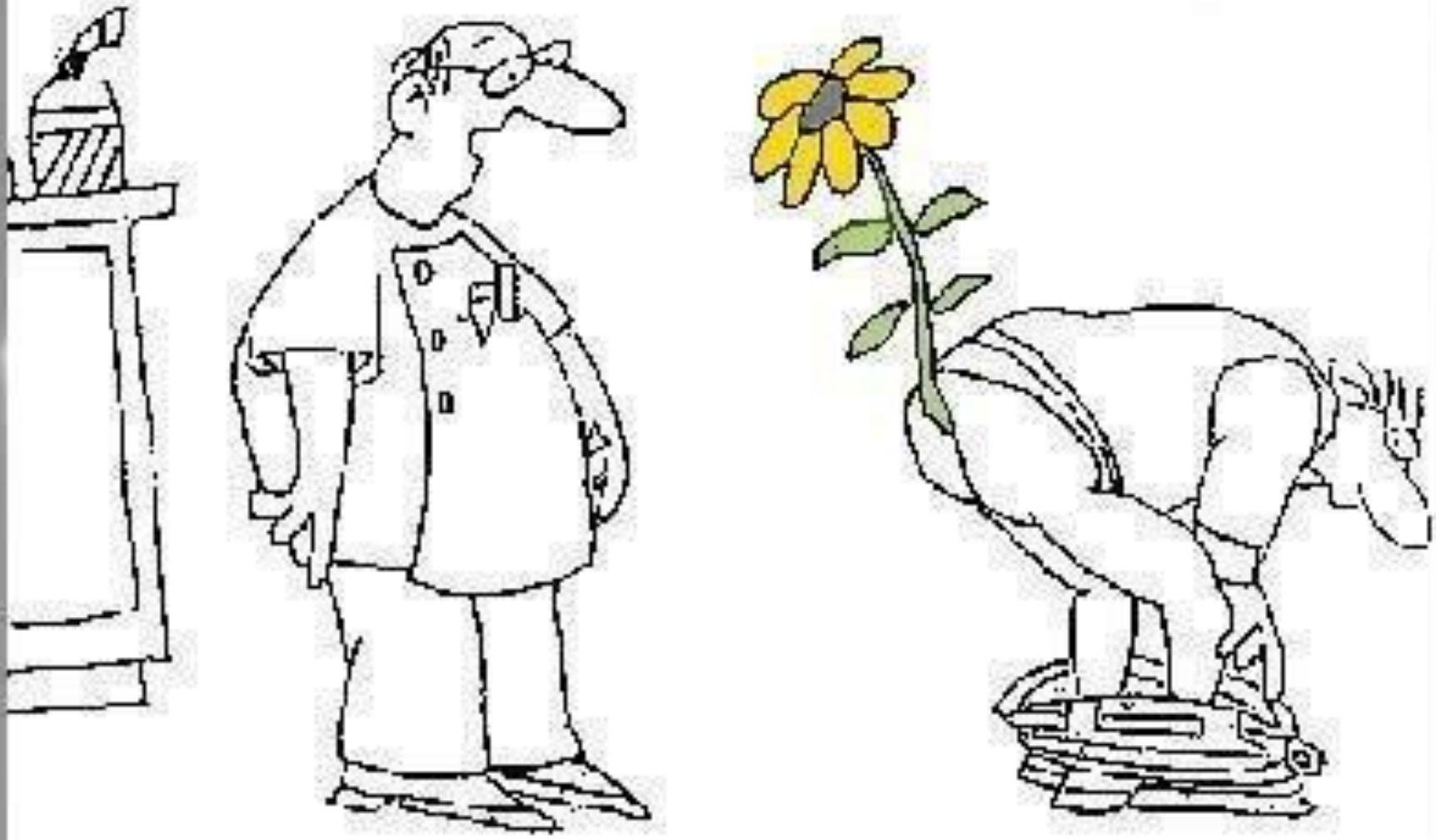
- The importance of an individual's world view.
- Multiple levels of influence.
- Change as a process.
- Motivation versus intention.
- Intention versus action.
- Changing behavior versus maintaining behavior change.

Health Belief Model

Concept	Definition	Potential Change Strategies
Perceived susceptibility	Beliefs about the chances of getting a condition	• Define what populations(s) are at risk and their levels of risk • Tailor risk information based on an individual's characteristics or behaviors • Help the individual develop an accurate perception of his or her own risk
Perceived severity	Beliefs about the seriousness of a condition and its consequences	• Specify the consequences of a condition and recommended action
Perceived benefits	Beliefs about the effectiveness of taking action to reduce risk or seriousness	• Explain how, where, and when to take action and what the potential positive results will be
Perceived barriers	Beliefs about the material and psychological costs of taking action	• Offer reassurance, incentives, and assistance; correct misinformation
Cues to action	Factors that activate "readiness to change"	• Provide "how to" information, promote awareness, and employ reminder systems
Self-efficacy	Confidence in one's ability to take action	• Provide training and guidance in performing action • Use progressive goal setting • Give verbal reinforcement • Demonstrate desired behaviors

Stage	Definition	Potential Change Strategies
Precontemplation	Has no intention of taking action within the next six months	Increase awareness of need for change; personalize information about risks and benefits
Contemplation	Intends to take action in the next six months	Motivate; encourage making specific plans
Preparation	Intends to take action within the next thirty days and has taken some behavioral steps in this direction	Assist with developing and implementing concrete action plans; help set gradual goals
Action	Has changed behavior for less than six months	Assist with feedback, problem solving, social support, and reinforcement
Maintenance	Has changed behavior for more than six months	Assist with coping, reminders, finding alternatives, avoiding slips/relapses (as applicable)

Stages of Change


"You're eating too much fiber."

Decisional Balance



- Pros
  - The benefits of changing
- Cons
  - The costs of changing

Source: Glanz et al, 2002.

Normal





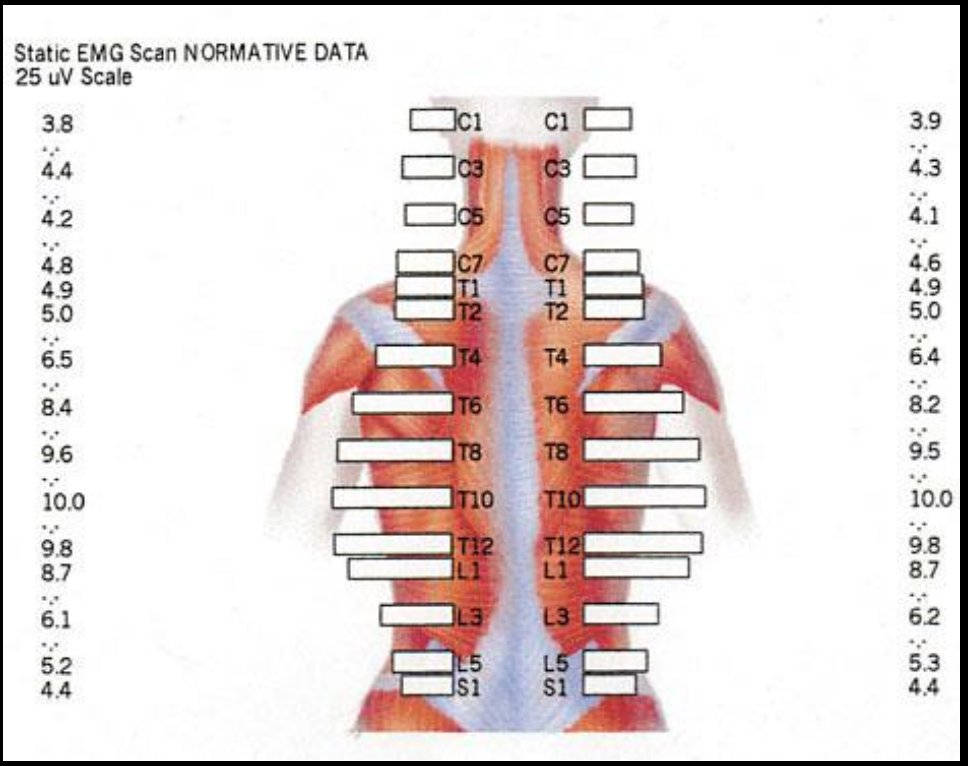
Abnormal – Kinesiopathology - Phase 1



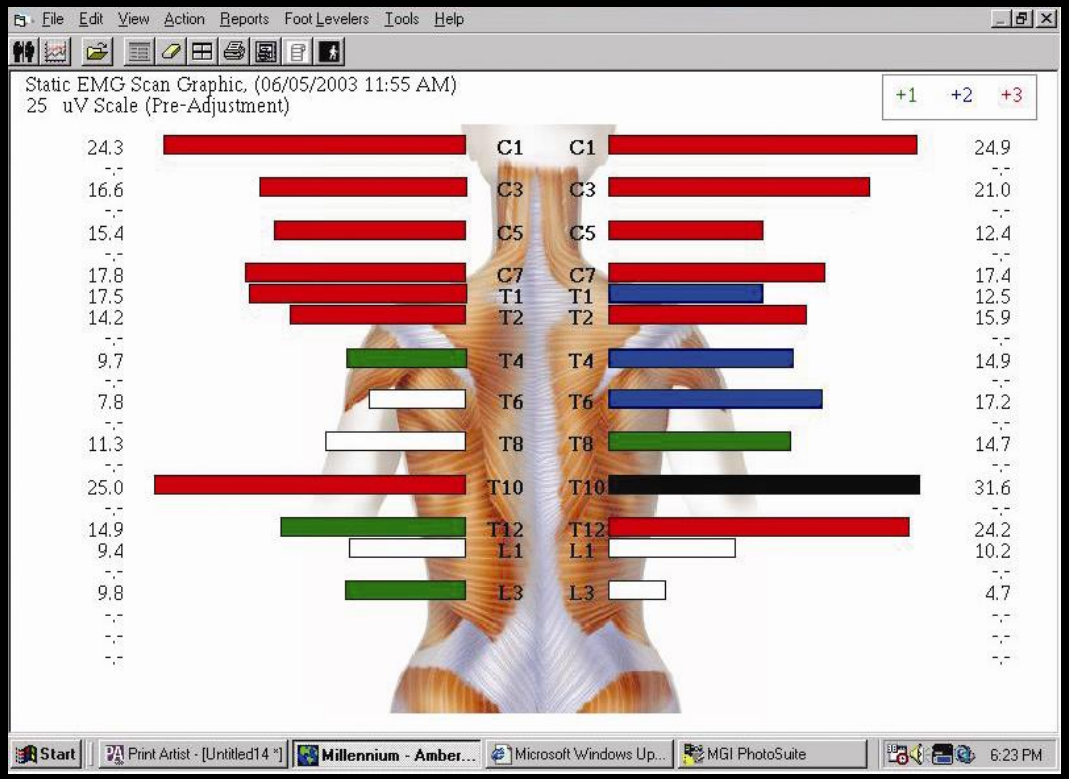
Abnormal – Kinesiopathology - Phase 2



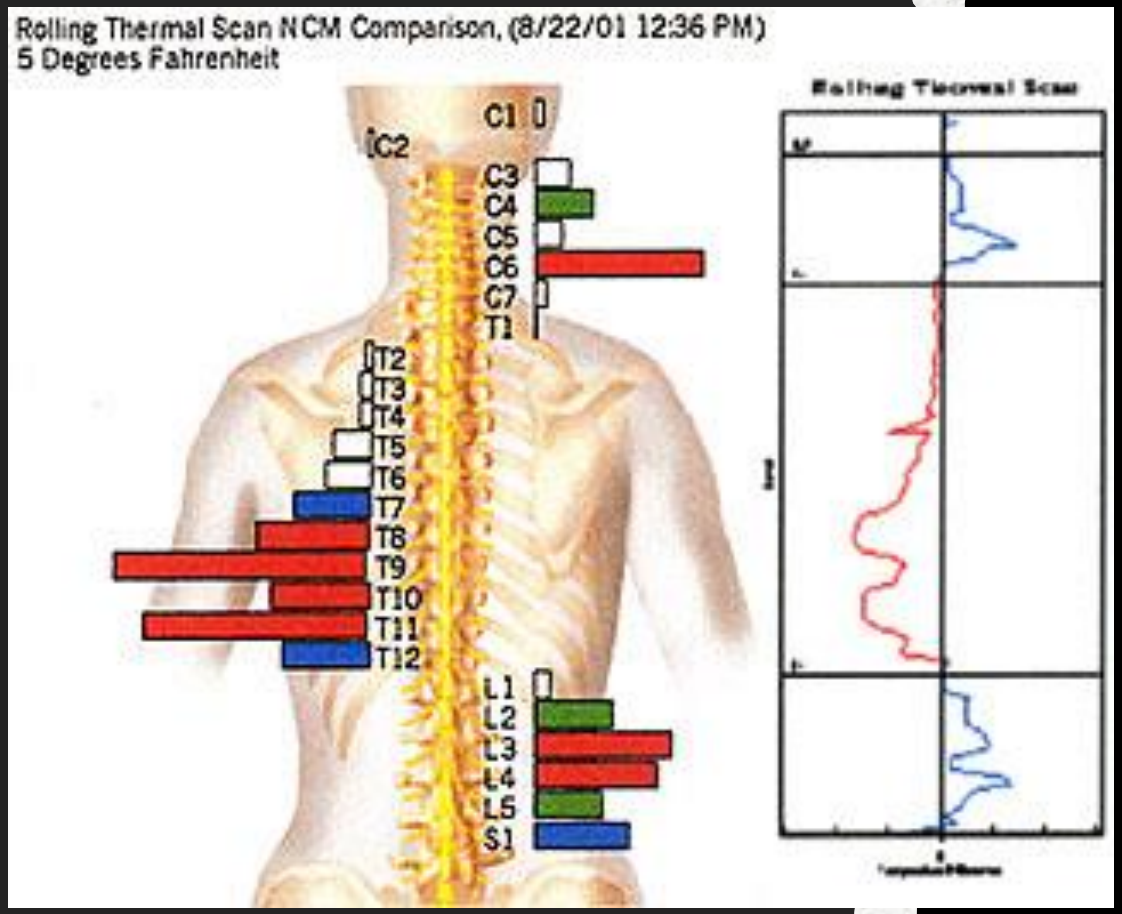
Abnormal – Kinesiopathology - Phase 3



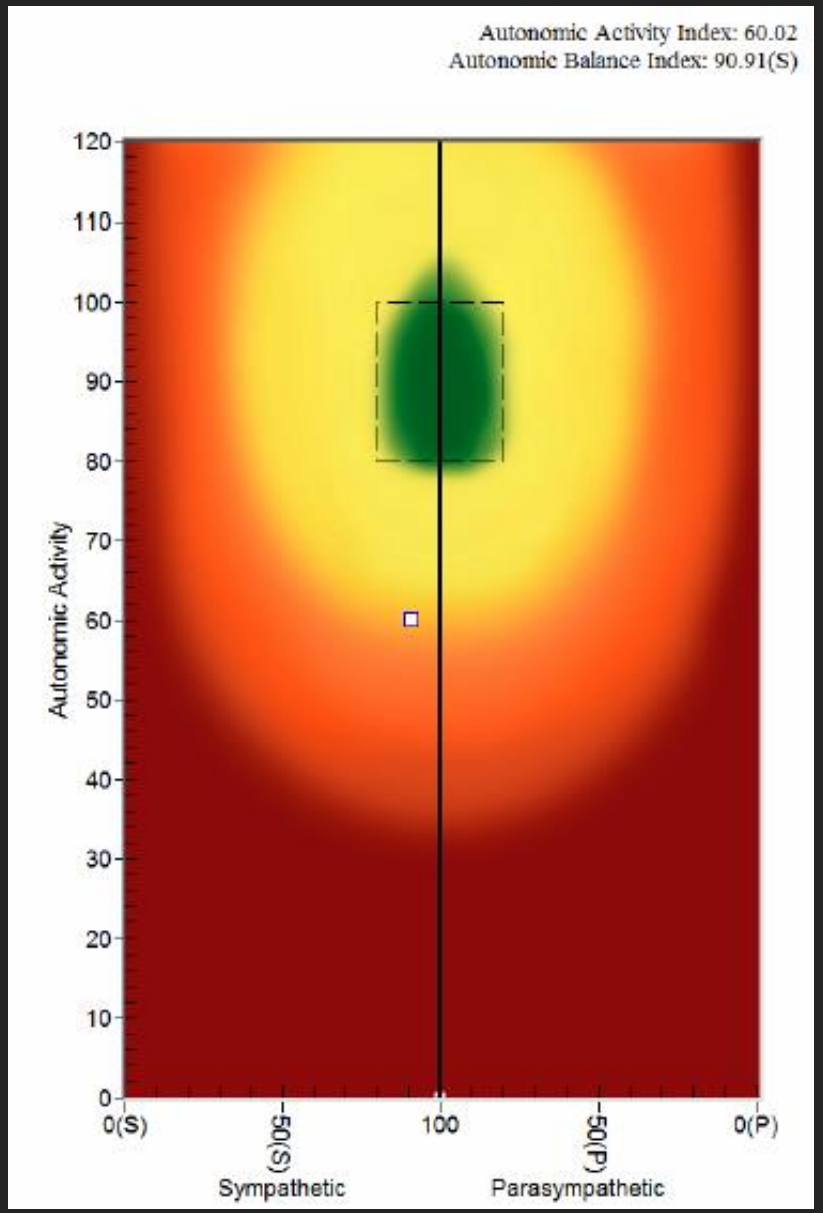
Muscle Function - Normal



Abnormal - Myopathology



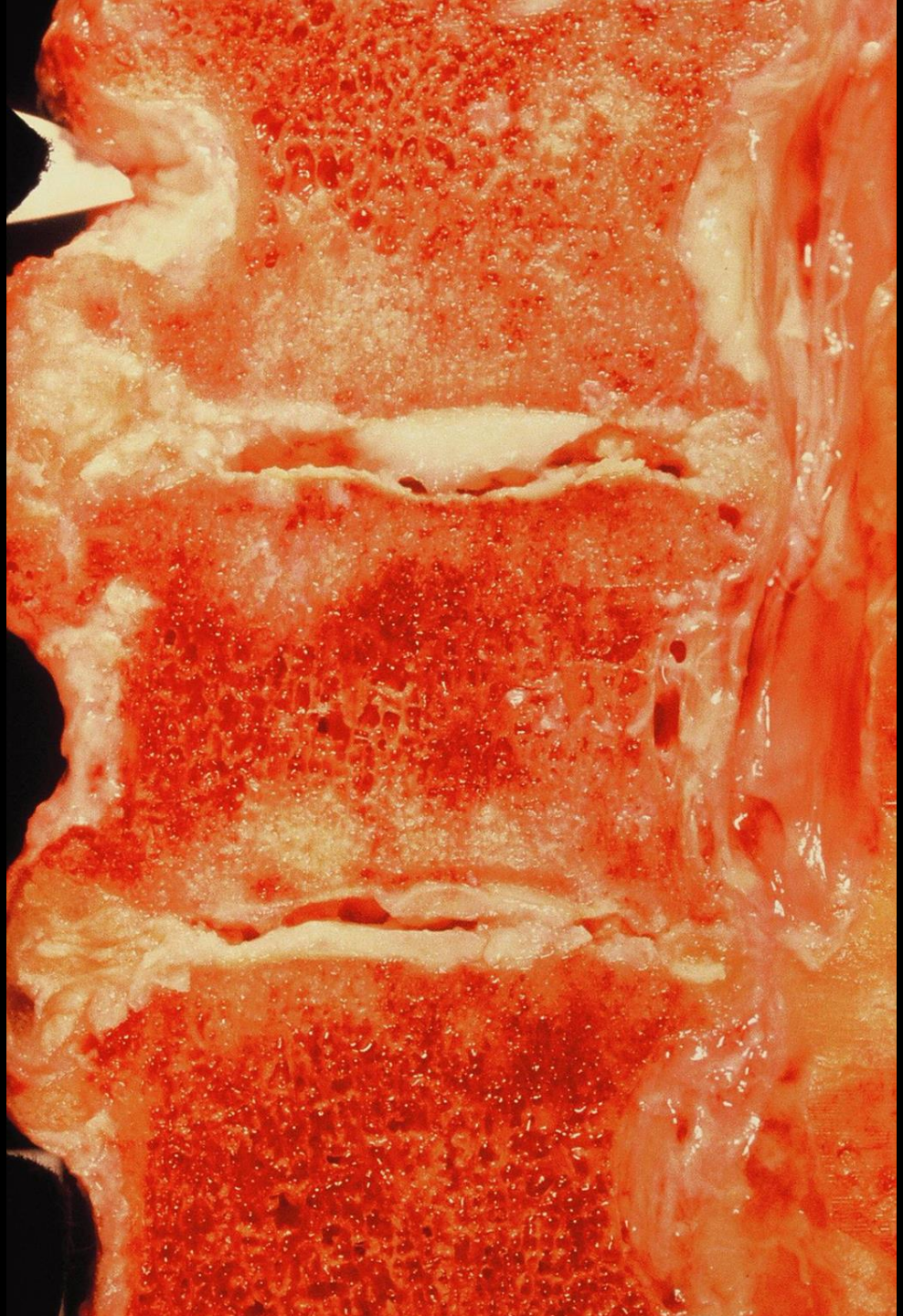
Neuropathophysiology - Abnormal



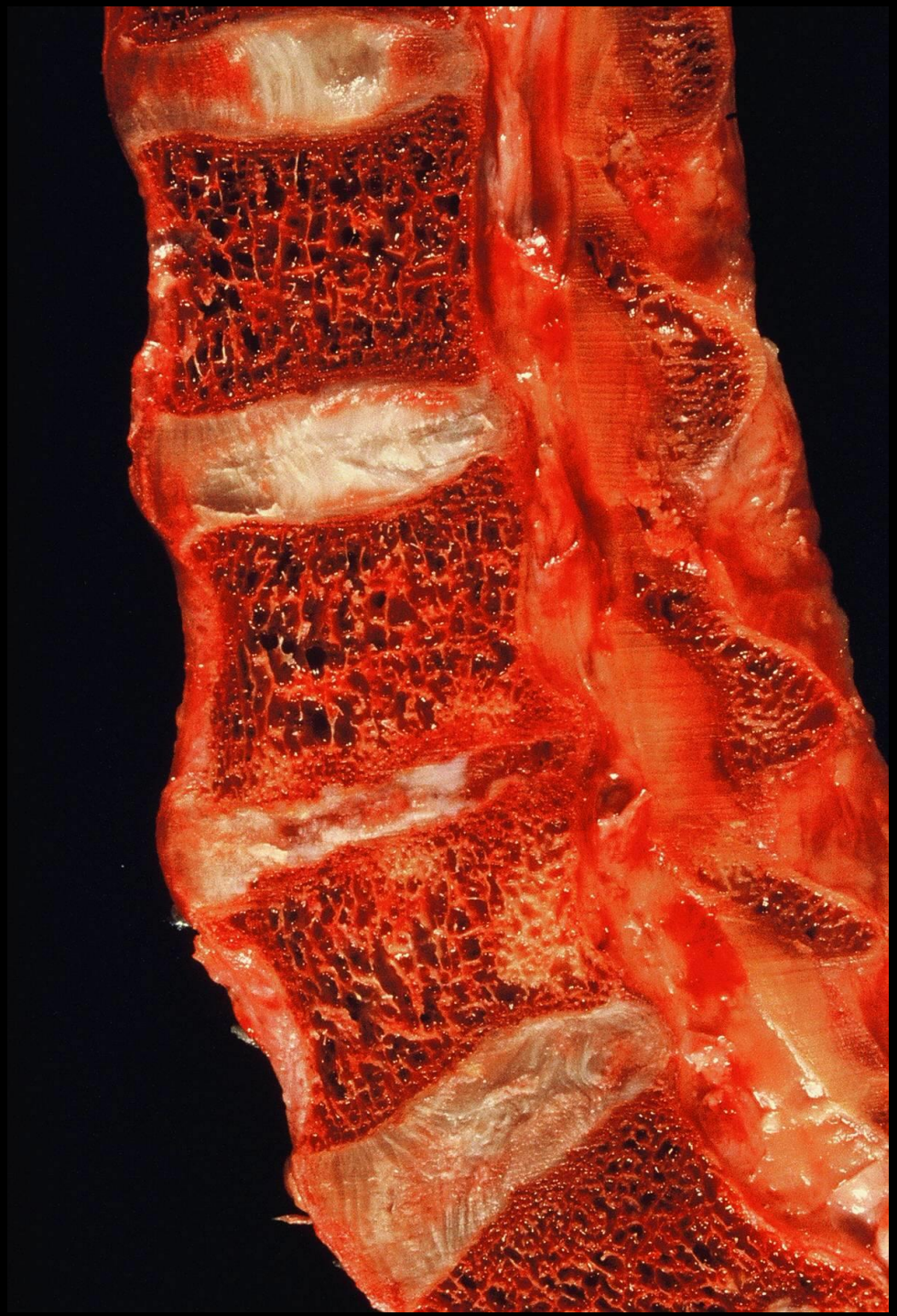
Neuropathophysiology – Abnormal - HRV



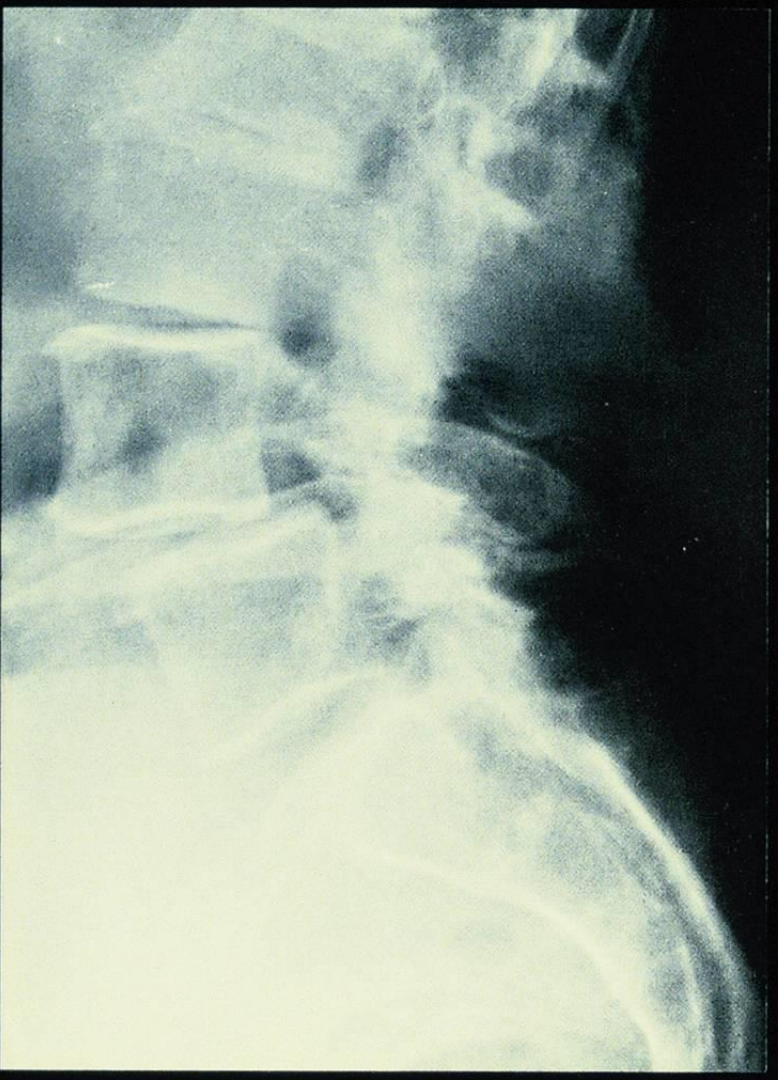


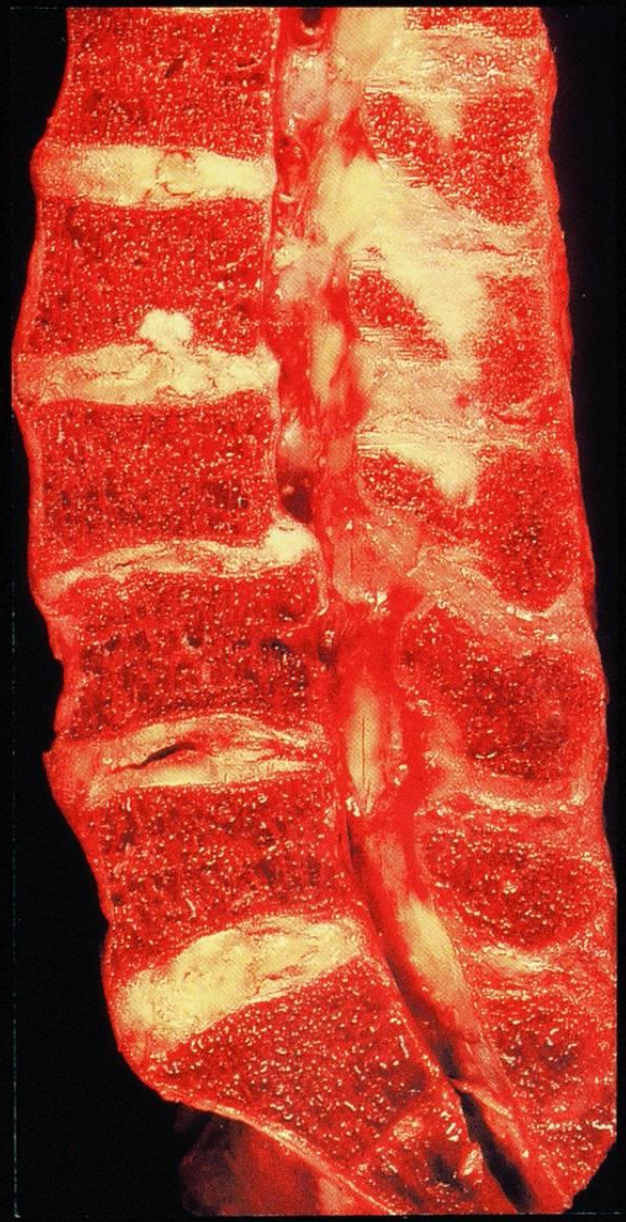


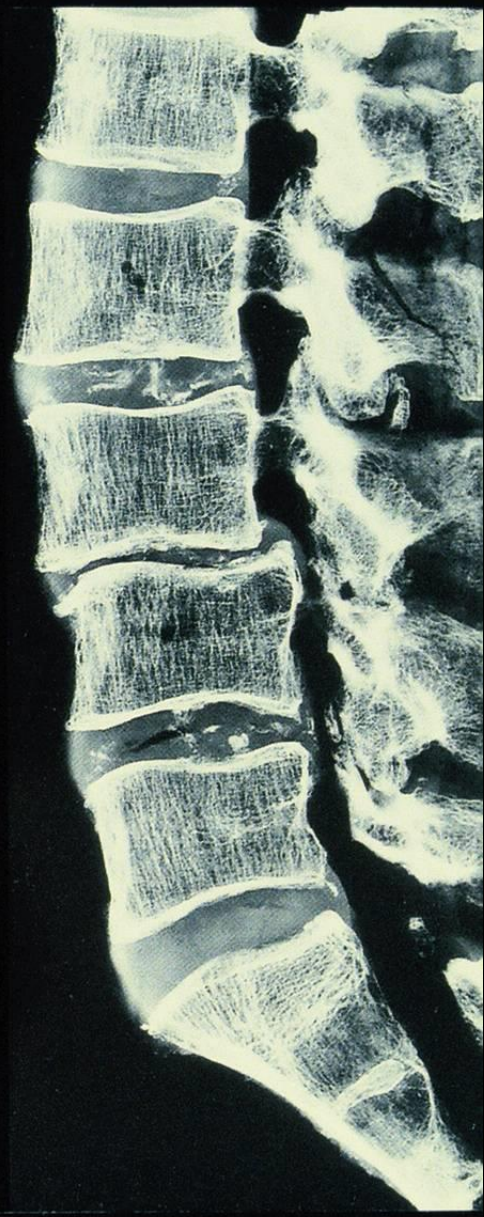


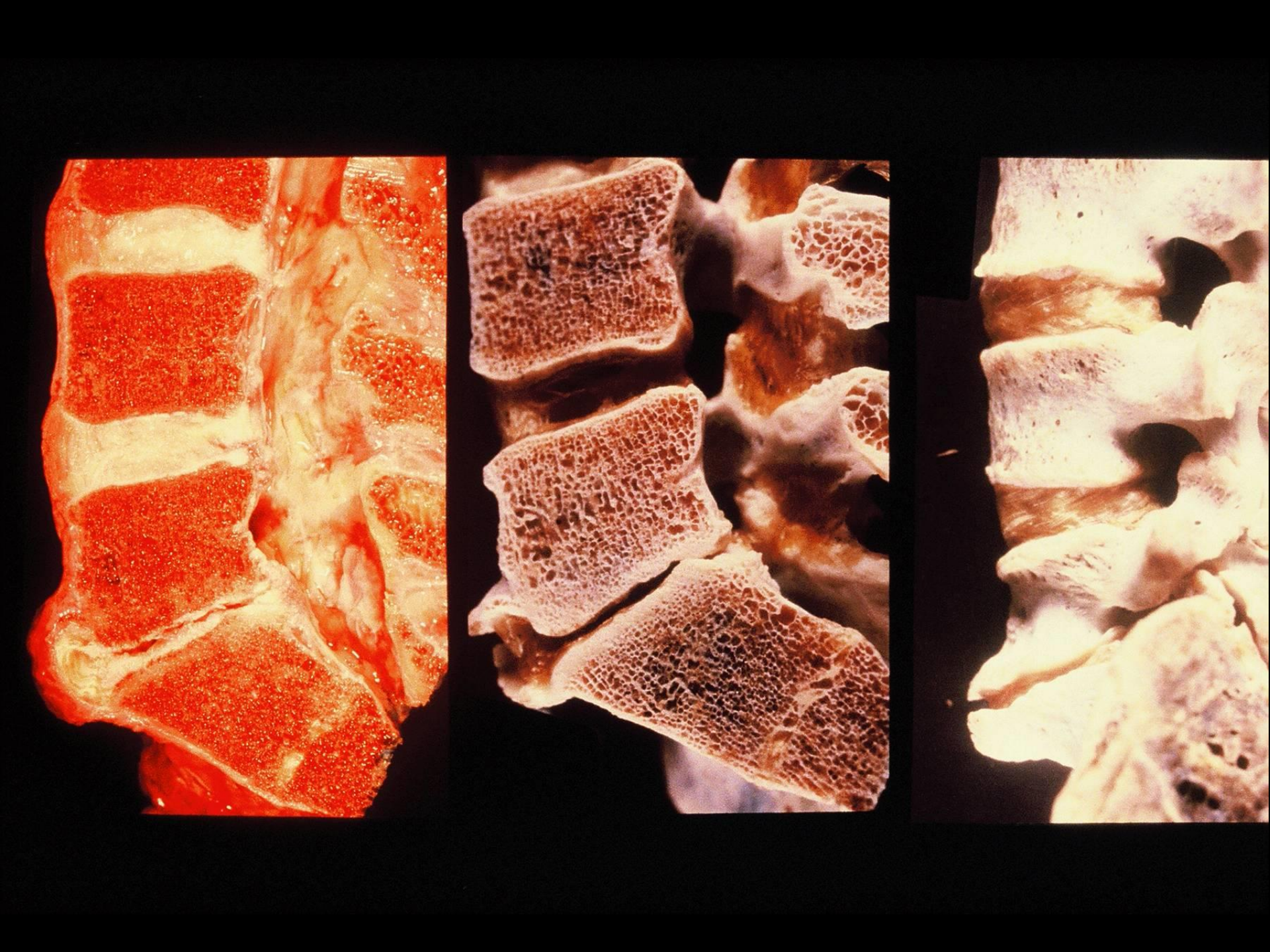


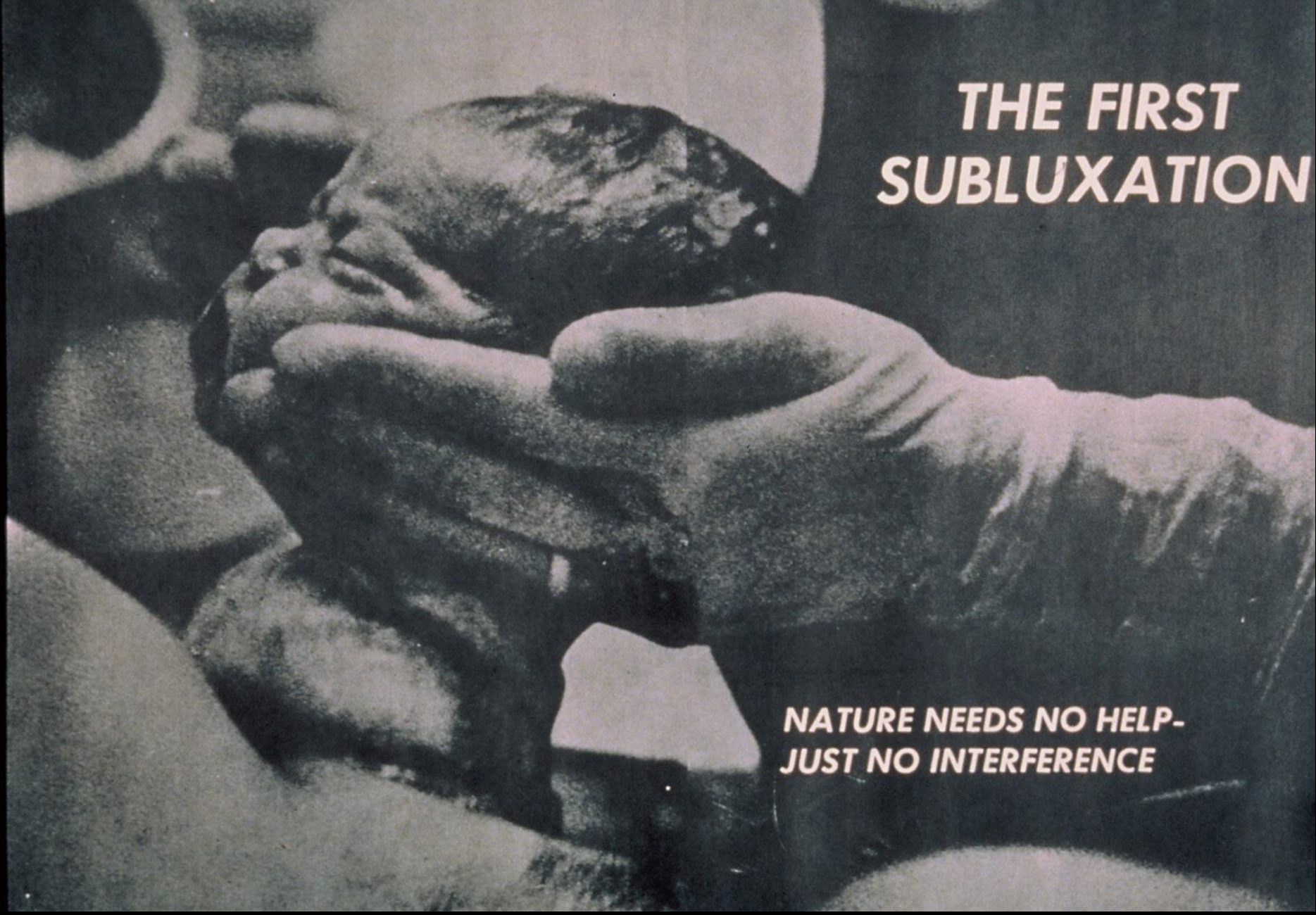




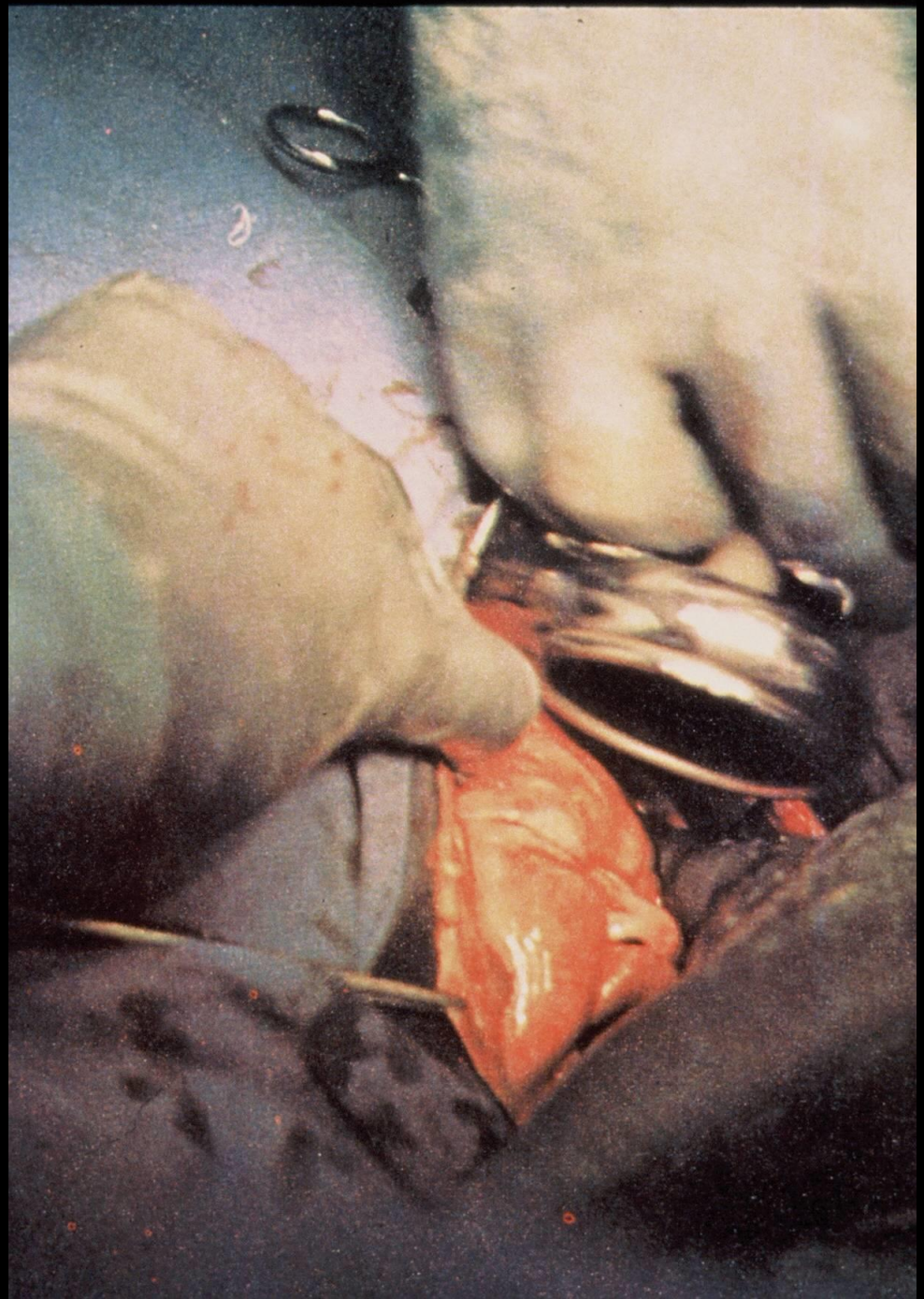


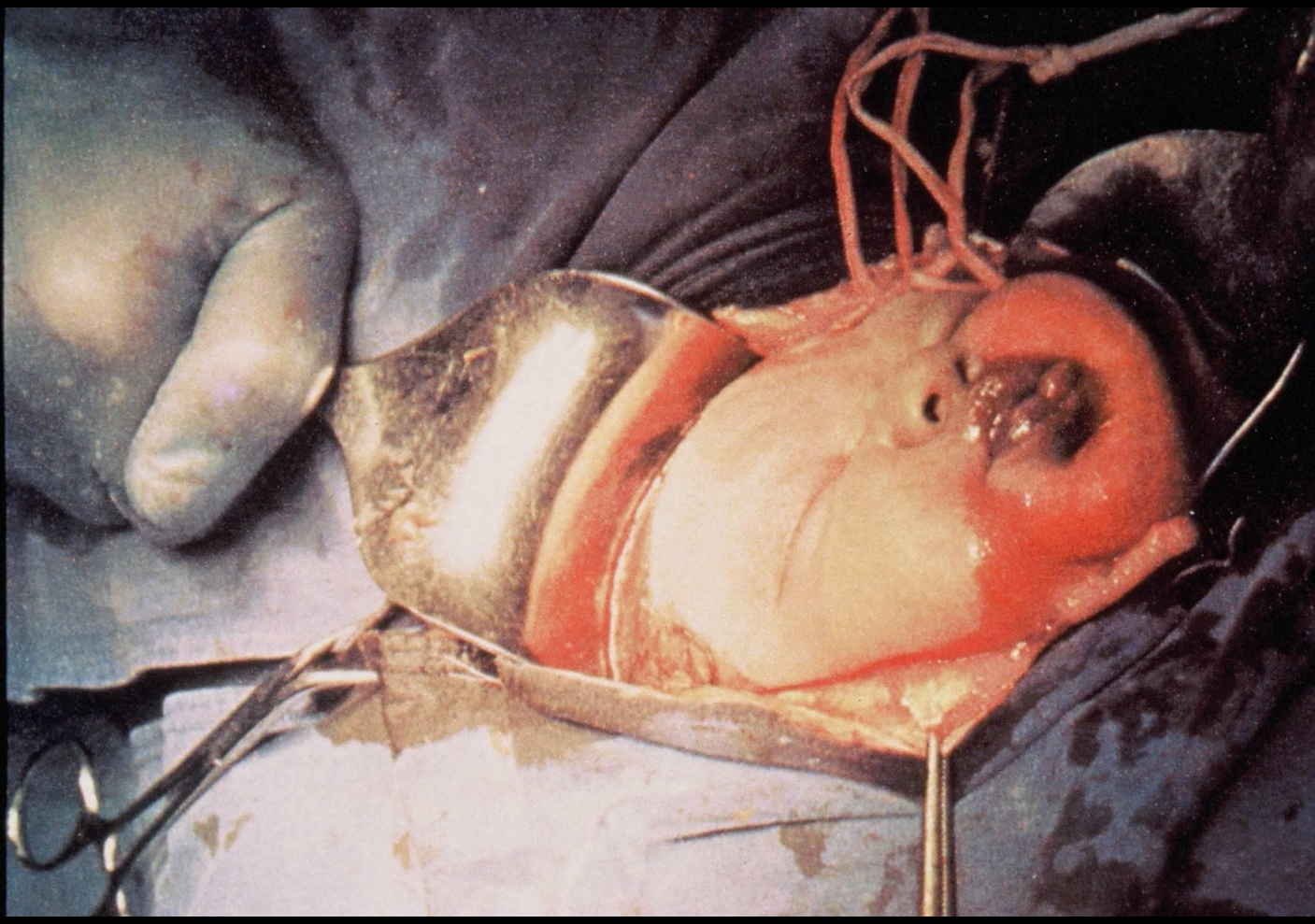


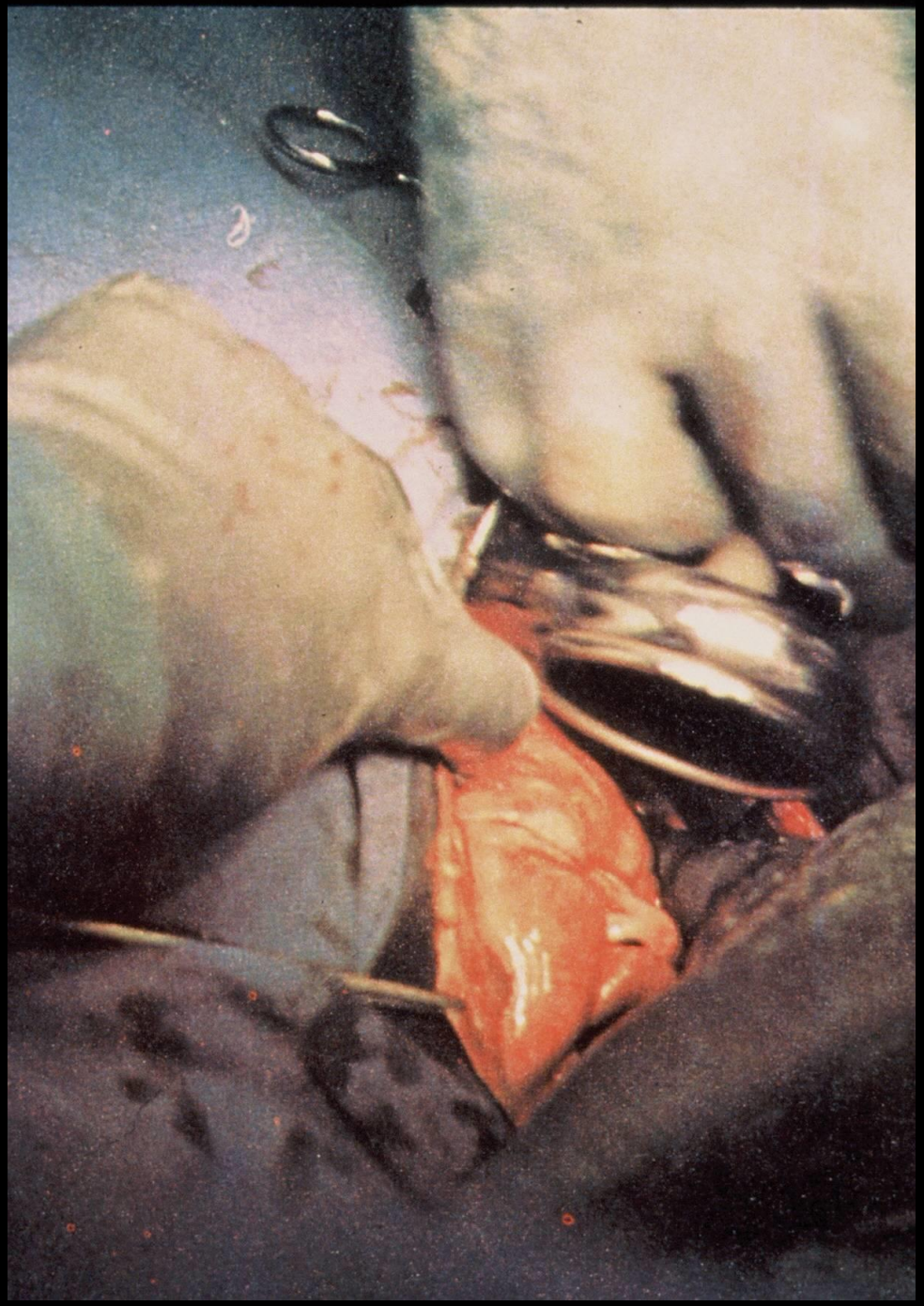


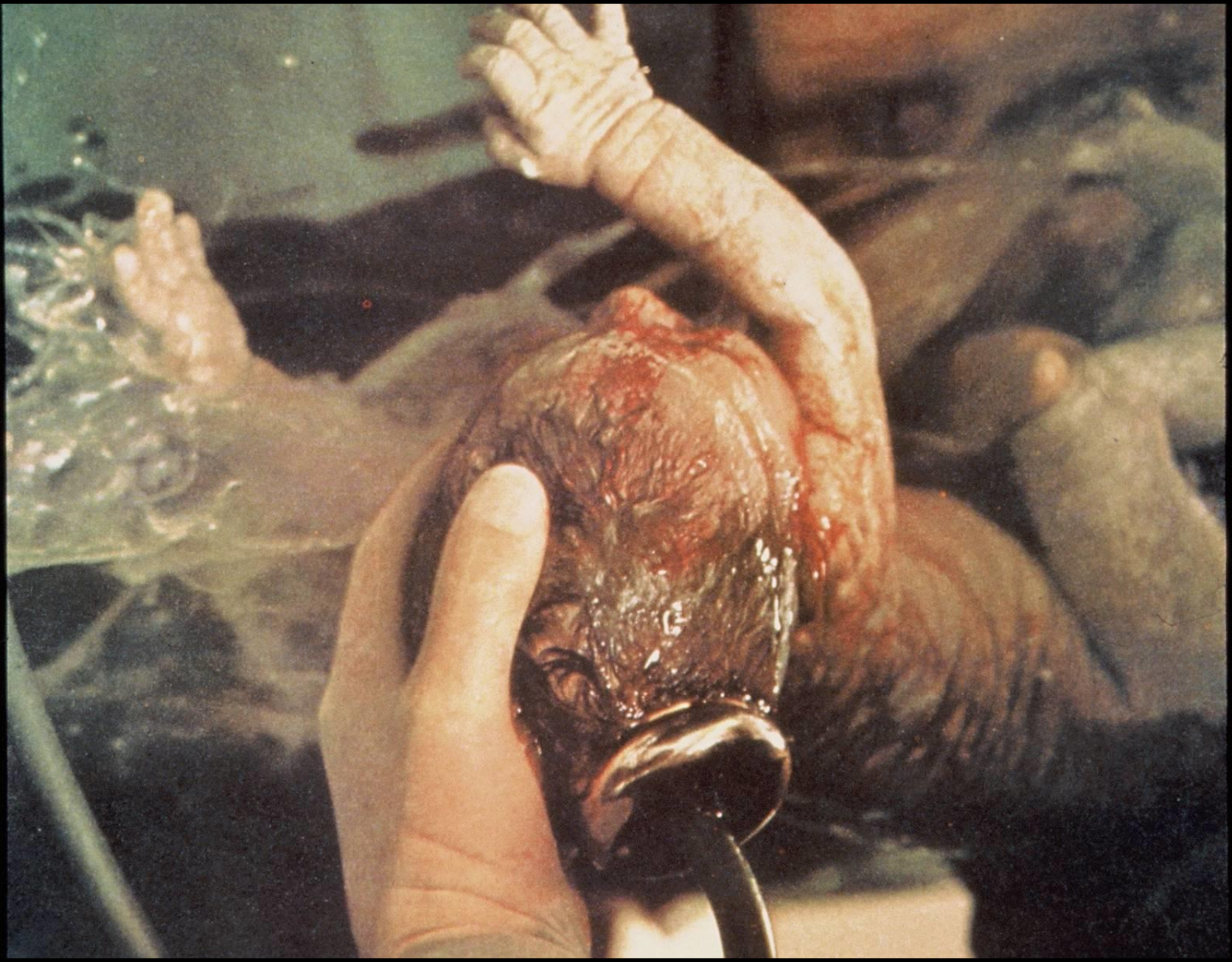

THE FIRST
SUBLUXATION
NATURE NEEDS NO HELP-
JUST NO INTERFERENCE



















You say you want one?

You Are the Authority

- Be certain
- Know what normal and abnormal is
- Know how to communicate them
- Meet your patient's where they are
- Help take them where they need to go
- Have a big mission

Now – Go Change the World…

"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has."

Margaret Mead - Anthropologist



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Free Human Being
Member - Sherman College Board of Trustees
Publisher – McCoy Press
CEO - ChiroFutures Malpractice Insurance Program
Vice President – Foundation for Vertebral Subluxation

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