

Social and professional involvements in, and contributions to, the Biological Sciences by Chiropractors: With other notable contributors to the Discipline.

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Narrative: The contributions to the health and healing sciences made by members of the chiropractic profession are recognised here. It seems that too often chiropractic is regarded as a form of manipulation rather than as a profession.

There are however many contributions, scientific innovations, and clinical roles that have been and continue to be made by chiropractors.

Indexing terms: Chiropractic; Chiropractors; contributions.

Introduction

One wonders why health authorities ignore the fact that many politicians, business leaders, royalty, medical doctors, media and film celebrities, professional sporting teams and individual sporting professionals' resort to chiropractic care, often against advice based on unsubstantiated opinion and outright ill-informed bias. (1, 2, 3)

This failure to recognise patient demand and clinical efficacy was highlighted recently when four medical bodies (*Australian Medical Association (Victorian Branch), Australian Orthopaedic Association, Spine Society of Australia, Royal Australian College of General Practice, and Friends of Science in Medicine*) provided no evidence to support their claims to a critical health minister and a review panel, that spinal manipulation of infants was harmful. Significantly, the review found that in Australia for over 100 years 'there were no patient complaints or practitioner notifications that arose from significant harm to a child following spinal manipulation' by chiropractors. (4, 5)

The continuation of chiropractic within the health care system can only be due to the profession's service of clinical efficacy and subsequent patient demand. Health authorities do not seem aware that chiropractic services are offered in over 100 hospitals around the world, and within the military services in the US.

Inter-professional collaboration in research involving chiropractors is not uncommon but is seldom acknowledged. (6, 7, 8, 9, 10, 11)

... Chiropractic is all-pervasive in Western society and we present an overview of the many ways Chiropractors have contributed to the development of knowledge, along with some trivia ...'



It would be fair to say that without patient demand and the profession's perseverance, the formal provision of spinal manipulation would not be available to patients, and certainly not have been embraced by the physiotherapy (manual therapy) and medical professions (manual medicine) to the extent that it has been.

Initially and for many decades, there was scepticism regarding the chiropractic vertebral lesion called a *vertebral subluxation*, or whether spinal manipulation of certain clinical entities could relieve low back pain. Further, reservations were expressed as to an association with headaches and other vertebrogenic conditions, but these same concepts have now been adopted by elements within medicine and physiotherapy.

Apart from the now established health procedure known generally as spinal manipulation (*spinal manipulative therapy*, SMT), and the influence this can have on the nervous system, members of the Chiropractic profession have contributed significant elements to the health care professions and to the biological sciences, particularly in somatoautonomic neurophysiology and vertebrogenic spinal pain.

In addition to the neurospinal care, Chiropractors also provide guidance to patients by way of exercise, diet, lifestyle, stress management, and nutrition. In this light, Chiropractic could be seen as more a health care profession than a sickness care profession. This differentiates the Chiropractic model of care from some other professions. Other papers have included the complex of somatosensory and somato-autonomic activation associated with the vertebral subluxation complex.

Research has been conducted by chiropractors for most of the profession's duration. (12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23)

Even at its beginning, Chiropractic health care could hardly have been considered 'alternative' as '... one third of the first graduating class of chiropractors were medical physicians.' (24)

In Australia alone, it is estimated that there are nearly 3 million patient visits to chiropractors each month. [6,147 x 110/week x 4 = 2.7 million per month] Worldwide this figure could be in the vicinity of 46 million per month. [Based on approximately 105,000 chiropractors in practice].

Contribution to biological and healing sciences

and Gray's Anatomy

In the 1950s, one renowned chiropractor, Dr AV Nilsson, a lecturer at LACC, was so respected that it was reported he was twice offered an honorary MD degree by the *University of Southern California* that 'After each edition of *Gray's Anatomy* came out, he would read it in "great detail", and send carefully worded comments if he found errors or if his own work had shown variations from the anatomy described in the text'. On one occasion, he submitted 26 typed pages. A former lab aide said he has a recollection that Nilsson 'once showed me correspondence from the publisher acknowledging his contribution.' It was noted 'That the publishers of *Gray's* showed their appreciation for Nilsson's contributions by giving him a special copy of the anatomy textbook variously described as "The Golden *Gray's*" or as "a copy with his name engraved in gold on the cover.'" (25, 26)

In a further connection with the authoritative medical text, one of the recent editors noted in the 2005 edition of *Gray's Anatomy* was Dr Patricia Collins PhD, an Associate Professor of Anatomy at the *Anglo-European College of Chiropractic in Bournemouth*, UK. (27)

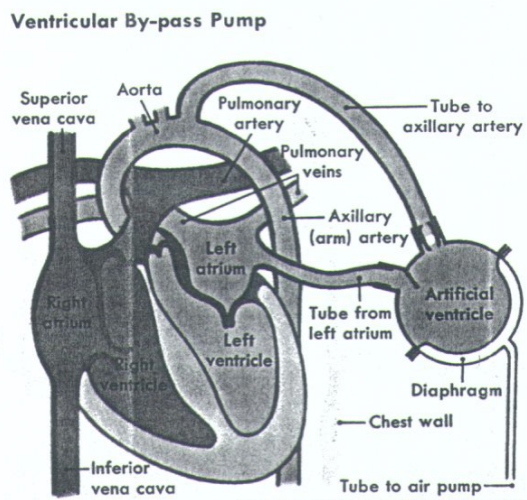
Smithsonian Institute display of Chiropractic

Acknowledgement of the role of chiropractic in the US was recognised when the *Smithsonian Institute* exhibited the unique and purpose-made chiropractic treatment table called an 'adjusting

table'. The prototype of this patented, cutting-edge table is the only chiropractic table ever to be exhibited at the *Smithsonian Institute* in Washington, DC. (28)

An encyclopaedic amendment 1982

In 1982, *World Book Encyclopaedia* was alerted by a chiropractor regarding an incorrect heart diagram (Figure 1) where the semilunar valves from both the left and right ventricles were inverted. *World Book* acknowledged the error in a letter dated July 26, 1982. (Figure 2) (29)



The Ventricular By-pass Pump, above, helps a failing left ventricle. It takes blood from the left atrium and then forces it into the arm artery. As a result, the left ventricle has to pump less hard and the strain on the heart is relieved. Tubes connect the device to the arm artery and left atrium. Another tube goes to a pump, which controls the rate of "beating."

140b

Fig 1: World Book Encyclopaedia, 1980

World Book-Childcraft International, Inc.
A subsidiary of The Scott & Fetzer Company
Merchandise Mart Plaza
Chicago, Illinois 60654
Telephone: (312) 245-2800
Telex: 25-4533
William H. Nault
Executive Vice-President
and Editorial Director

July 26, 1982

Dr. P. Rome

AUSTRALIA

Dear Dr. Rome:

Your letter concerning *The World Book Encyclopedia* has been referred to me for reply. We are pleased to hear from you.

We appreciate your taking the time to point out that the semilunar valves drawn in the diagram on page 140b of Volume 9 are facing the wrong way. As you may know, despite our constant checking and rechecking, an occasional discrepancy may escape our detection. You may be sure that the necessary revision will be made in this illustration at our earliest opportunity.

Thank you for writing to us, Dr. Rome. We sincerely appreciate your constructive interest in *The World Book Encyclopedia*.

Sincerely yours,

Frances L. Fu
Frances L. Fu
Editorial Researcher,
for Dr. Nault

Fig 2: World Book Ency
Acknowledgement

Dr Michelle Wessely

(Chiropractor)

A presentation of a biomedical paper at the 2005 conference of the Radiological Society of North America discussed the transverse ligament of the knee. It was presented on behalf of colleagues in the research by a doctor of chiropractic, Dr Michelle Wessely. This paper addressed, '... the exact sites of origin of the anterior transverse ligament of the knee (TL), and to correlate the presence of this ligament with the occurrence of meniscal tears' which led to further studies on the role of this ligament. (30, 31, 32, 33)

Anatomy: Theorised then isolated

The superior intra-capsular ligament of the SI Joint

Dr Fred W H Illi (1901-1983)

Dr Illi was one of the most prominent pioneer chiropractic researchers in the first half of last century, developing theories on the role of spinal biomechanics in the human body. He conducted practical work in chiropractic radiology and focussed research in human dissection especially of the sacroiliac joint, in Chicago during the 1930-40 decades. He then established the *Institute for*

the Study of the Statics & Dynamics of the Human Body in Geneva. Dr Illi produced a massive volume of documentation in both written and visual format. His biographer traced his American interlude and the influence of the *Universal Chiropractic College* (which became the *National College of Chiropractic* in Chicago, now the *National University of Health Sciences*) in his chosen work, an unusual marriage of his first career choice of engineering, biomechanics, and the use of the x-ray in chiropractic.

Dr Illi was the first to prove conclusively that the sacro-iliac joint was a movable joint. Prior to that, conventional anatomists were convinced that Chiropractors were quite wrong in claiming that the sacroiliac joint could cause pain and needed both Chiropractic adjustments and sacroiliac exercises to alleviate the symptoms.

From 1932 until 1975, Illi studied over 800 cineroentgenographic films and correctly described sacroiliac motion, the dampening effect of the iliolumbar ligament on L5, and developed revealing concepts on pelvic articular biomechanics and anatomy. (34, 35, 36, 37, 38, 39, 40)

MRI and Cerebrospinal fluid flow

Inter-professional collaborative and innovative MRI research and development regarding the flow of cerebrospinal fluid (CSF) and the wider ramifications of the influence of upper cervical subluxations were developed by Dr Scott Rosa. Discussion of the complications from these biomechanical subluxation disturbances at this suboccipital region have been extensively presented by Middleton through enlarged colourful slides and detailed presentation. (41-49) These were mostly upright functional MRIs using *Fonar*® technology. The revelatory effect of an upper cervical orthogonal adjustment on CSF flow was demonstrated. (50)

Expert court testimony on whiplash

The 3rd edition of the textbook by Drs Arthur Croft and Stephen Foreman has its foreword contributed by Rene Cailliet MD. That acknowledgement suggests the quality of the contribution that these two experts have made to the chiropractic, legal, and medical professions as authorities on whiplash. (51)

These two highly qualified Doctors of Chiropractic have been in demand as authorities and expert witnesses in whiplash litigation and other legal topics such as risk management, cerebrovascular injuries, errors of omission and commission. Between them they have published at least 18 textbooks and over 350 papers on these topics. In addition, Dr Croft is certified in traffic accident reconstruction through the *Northwestern University's Traffic Institute*. He is also a reviewer of grant proposals for the *National Institute of Health* (NIH), has worked on several projects at the RAND Corporation, and is a reviewer for a number of journals. In 1991, he received an Emmy nomination from the *National Academy of Television Arts and Sciences* for his role in the production *Whiplash*. (52, 53)

A similar recognition of another chiropractor is afforded to Dr Lawrence Nordoff in his collaboratively edited text on vehicle collisions authored by this chiropractor. (54)

In a comparative study of Chiropractic care in whiplash, the acknowledgements by the medical authors were encouraging. In the medical journal *Injury* in 1996, Woodward et al reported that found that '*Twenty-six (93 per cent) patients improved following chiropractic treatment (U = 34, P < 0.001)*'. (55)

The Vertebral Subluxation concept

One of the most significant contributions to health and healing is the recognition and highlighting of the neurological ramifications of the biomechanical condition identified as a

subluxation, or a *Vertebral Subluxation Complex*, which includes its influence on clinical signs and symptoms.

Further, it is the amelioration by manual or instrument adjustment of these lesions that proves to be so efficacious for a range of associated conditions. (56, 57, 58, 59, 60, 61, 62)

If the Chiropractic profession as well as elements within the Osteopathic profession had not persisted so successfully with their models of care, we suggest that the science, art, and philosophy of spinal manipulation would have faded as an option for a range health conditions. It is for these reasons that the professions sought to remain separate rather than blend or merge with other health philosophies by applying the science of physiology in distinct formats.

The spinal lesion known as a *subluxation* is not unique to the Chiropractic profession. Due to its complexity, this mechanical lesion it is now known as *Vertebral Subluxation Complex* (VSC).

The VSC concept is well recognised in the literature. The successful persistence of addressing the Chiropractic subluxation has been supported by patient demand and has led to medicine and physiotherapy now adopting similar principles and concepts.

The especially adapted techniques of spinal adjustments refined over 120 years by Chiropractors are specific forms of the more general procedures of manipulation still employed by medical practitioners and physiotherapists.

Dr JP Warbasse, former chief surgeon of the *German Hospital* and attending surgeon at the *Methodist Episcopal Hospital* in Brooklyn, said, '*Subluxations of vertebrae occur in all parts of the spine, and in all degrees. When the dislocation is so slight as not to affect the spinal cord, it will still produce disturbances in the spinal nerves, passing off through the spinal foramina*'. He also refers to these as '*common subluxations*' and '*finer displacements*'. (63)

Although identified by chiropractors over 120 years ago, two medical researchers acknowledged the significant role of disturbed vertebrae in the neck as a cause of headaches. Braaf and Rosner stated that '*More than 90 percent of recurring headaches can be traced to a mechanical derangement of the cervical portion of the spine produced by an injury*'. One wonders how such an astounding statistic has not appeared to have altered the conventional model of care for the condition. (64. 65)

World Health Organisation

The vertebral subluxation has already been recognised by the *World Health Organisation* (WHO) in its publication, *World Classification of Diseases* (ICD-10), which classifies '*Biomechanical lesions, not elsewhere classified*' as item M99. It further sub-classifies the VSC as item M99.1 – '*Subluxation complex (vertebral)*'. Item M99.0 is designated '*Segmental and somatic dysfunction*.' (66)

A further instance of the integration of chiropractic being associated with the World Health Organisation occurred when *The President of the World Federation of Neurology*, Lord Walton, supported an application by the *World Federation of Chiropractic* (WFC) to join the *Council of International Organisations of Medical Sciences* (CIOMS) which is associated with the WHO and UNESCO. In 1996 Lord Walton stated that '*The relationship between the medical and chiropractic professions world-wide has become increasingly one of mutual respect and collaboration ...*' (67)

Also in 1996, the Executive Director of the *International Council of Nurses*, which is also associated with the WHO, also supported the WFC application by stating, '*I am writing to you on behalf of the President of the International Council of Nurses to support your application.*' (68)

Further integration developed when the *American Academy of Hospital Chiropractors* (AAHC) reported that its members were invited by the *Royal College of Physicians and Surgeons US* in conjunction with the *American Academy of Minimally Invasive Spinal Physicians and Surgeons*, to

attend their 2007 conference 'to learn, join ideas, and network with the pioneers of minimally invasive spinal procedures'. (69)

In another example of inter-professional collaboration, an orthopaedic surgeon Dr William Kirkaldy-Willis and a Chiropractor Dr David Cassidy, collaborated on a number of papers over a 10-year period, with some of that research also being published in a textbook 'Managing Low Back Pain'. (70, 71)

Politics

Dr Clinton Amos Clauson (1898-1959) Governor of Maine 1959

In becoming Governor of the US State of Maine, Dr Clauson has possibly attained the highest political office of any Chiropractor. He travelled east from Iowa as a young man, and after graduation, set up practice as a Chiropractor in Waterville, Maine. He actively participated in politics from 1928, and in 1956 he was elected Waterville's mayor and went on to become elected Governor of the State the following year. (72, 73, 74, 75)

At least 5 Canadian Chiropractors have represented electorates in national or provincial governments, other countries also have chiropractors who have become MPs including in Australia and many in the USA.

A Chiropractic connection with sport

An extensive Chiropractic connection exists with various professional sports teams as well as individual amateur and professional sporting personnel. This includes participants with both summer and winter Olympic athletes. (25, 76,77)

Historically, Chiropractors have been involved with professional sports since at least the late 1920s. They are part of the health teams involved for efficacious recovery and maintenance for participants.

Contemporary sporting notables who have utilised the services of a Chiropractor include Venus Williams and Novak Djokovic.

US baseball

Dr Charles Jorgensen is regarded as the very first chiropractor to work with a professional baseball team. He was associated with the *Pittsburgh Pirates* around 1929-30. (25, 76)

Also in the 1930's, Dr Erle Painter became the chiropractor for the *New York Yankees* baseball team. 'Babe' Ruth, Lou Gehrig (yes, that one), and Joe DiMaggio (who married Marilyn Monroe in 1955) were some of his patients during his twelve years there. (25, 76)

Ice hockey

Dr Harry Williams worked with the *Toronto Maple Leafs* in the 1960's. This was at a time when the *Leafs* were premiers of the *National Hockey League* 13 times. The *Leafs* have not won a championship, *The Stanley Cup*, since 1967. (76)

Olympics

Dr Leroy Perry is the first DC to officially attend the Olympic Games; the 1976 Olympics in Montreal, Canada.

He was associated with the *Aruba Olympic Team*. (25) Chiropractic care has been sought by Olympic athletes and provided by many chiropractors since. (76, 77)

Armed services

Chiropractic care is now available to the armed forces of both the USA and Canada. (78, 79, 80, 81, 82, 83)

Publications

Further interprofessional collaboration with chiropractors among authors of textbooks and journal papers has been quite common. One example is the text on manipulative therapy by Glasgow et al, with a forward by GD Maitland. (84)

Chiropractic authors of a number of textbooks have been incorporated into medical literature. There are also many Chiropractic authors who have published in medical journals and have contributed chapters in medical textbooks as well as medical authors with chapters in Chiropractic texts, as well as joint authorships.

Over 50 chiropractic journals are published. Many are peer-reviewed, some are branch, international, or national monthly journals, there is even a weekly chiropractic newspaper *Dynamic Chiropractic*. Indeed, earlier in its history, there was a chiropractic-owned radio station. Some of these publications are also available on open access on the internet as well through the '*Index of Chiropractic Literature*' and through the PubMed portal to medical literature.

Table 1 Example of journals indexed in chiroindex.org

American Chiropractor
American Journal of Chiropractic Medicine
Annals of Vertebral Subluxation Research
Asia Pacific Chiropractic Journal
Chiropractic Economics
Chiropractic History
Chiropractic Journal of Australia
Chiropractic Paediatrics
Chiropractic Radiology
Chiropractic Research Journal
Chiropractic Sports Medicine
Chiropractic Technique
International; Review of Chiropractic
Journal of the American Chiropractic Association (JACA)
Journal of Paediatrics Maternal and Family Health
Journal Manipulative Physiological Therapeutics (JMPT)
Journal of the Canadian Chiropractic Association
Journal of the Neuromusculoskeletal System (JNMS)
Journal of Upper Cervical Chiropractic Research
Journal Vertebral Subluxation Research
Palmer Journal of Research
Research Forum
Spinal Manipulation – A Review of the Current Literature
Today's Chiropractic
The Chiropractic Journal
The Journal of Chiropractic Clinical Investigation

Chiropractic researcher of the spine Dr Lynton Giles, has published several textbooks and detailed studies on the spine, and on the management of spinal conditions. He has contributed numerous papers, and textbook chapters to the medical and chiropractic literature base which included many histopathological slides and findings. (85, 86, 87, 88, 89)

Chiropractors Dr Terry Yochum and Dr Lindsay Rowe published a 2-volume encyclopaedia on radiological findings. The texts became the highest selling medical radiology reference text in the US at one stage. First published in 1987 it is now in its 3rd edition. (90)

Dr Neil Davies authored an internationally recognised textbook published through inter-professional medical collaboration, *Chiropractic Paediatrics: a clinical handbook*. (91) [Ed note: Dr Davies is now a contributor to this masthead, see his first paper here]

In further collaboration, the *International Society for the Study of the Lumbar Spine* (ISSLS) includes some 400 surgeons, physiotherapists, chiropractors, engineers, kinesiologists, epidemiologists and molecular and cell biologists from around the world. Its 2023 conference in Melbourne, Australia included a range of presentations by chiropractors. (92)

As a chiropractor and a medical neurologist, Dr Scott Haldeman has been prominent in both professions and published widely on Chiropractic regarding clinical spinal conditions, particularly regarding low back and neck pain, and safety issues of manipulation. (93, 94, 95, 96)

A highly regarded neurology textbook by Cramer and Darby presents a practical and explanatory neuroanatomy text associating the spinal structure with key neurophysiological aspects for a clinical setting. (97)

Extract of celebrity patients from Sports and Entertainment

Patients who have access to specialist care at any expense have notably resorted to chiropractic care. This would suggest a sign that chiropractic contributes an element of health care not available elsewhere. (Table 4) (1,77,98,99)

Arnold Schwarzenegger	Denzel Washington	Pink Floyd
Barbara Streisand	Dolly Parton	Tom Cruise
Betty White	Dr Phil McGraw	Tom Hanks
Bob Hope	Guns 'n Roses	The Rolling Stones
Brad Pitt	Janet Jackson	Tina Turner
Bruce Willis	Joe Montana	Venus Williams
Cher	Julia Roberts	Wes Snipes
Cindy Crawford.	Madonna	
Clint Eastwood	Mat Damon	
Demi Moore	Michael Jordan	

It is noted that many other public figures have also sought chiropractic care, these include:

- ▶ Princess Diana (100)
- ▶ Chiang Kia Shek (101)
- ▶ Mahatma Gandhi (102)
- ▶ Harry S Truman (103)

The renown surgeon Dr Charles Mayo, noted for the formation of the *Mayo Medical Clinic*, sought chiropractic care for his wife in the 1940's. (104, 105, 106)

Conclusion

The wide-ranging contributions suggest that chiropractic is established in many aspects of society, a factor seemingly not reflected as much in Australia.

It is acknowledged we have only presented a number of examples of the available material in this presentation, it was not practical to include the many chiropractic authors who have also made significant contributions and to whom we extend our apologies.

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Also by Rome & Waterhouse

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