

# THE CHIROPRACTIC REPORT

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Editor: David Chapman-Smith LL.B. (Hons.)

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## PROFESSIONAL NOTES

### Vertebrogenic Hearing Deficit.

A thoroughly researched new article from Terrett in Australia reviews the existing evidence — not only in English but also in French, German, Russian and Spanish — relating to manipulation and other physical treatments of the spine for tinnitus and other hearing loss.

From 11 countries many clinicians, both chiropractic and medical, report cases and case series in which cervical manipulation to correct functional spinal pathology has cured tinnitus and improved hearing — often in cases where these auditory problems have followed motor vehicle whiplash injuries. The great majority of cases involve the upper cervical spine.

The mechanisms of hearing loss and relief in these cases remain unknown. Diminished blood supply to the inner ear seems to be an important factor. However the theory put forward by many clinicians, mechanical irritation of the sympathetic plexus (vertebral nerve) resulting in spasm of the vertebral artery and decreased blood flow, has been

*continued on page 4*

## THE ART OF CHIROPRACTIC

### It is Unscientific to Ignore The Art of Health Care

“We have to challenge ourselves as caregivers and scientists, because it now seems that our neglect of therapeutic relationships and of the relationships between emotions and illness is actually unscientific.

“We pride ourselves as scientists, yet we are not taking on board the new scientific data, for example, from the field of psychoneuroimmunology, showing a mind-body link, with impact from stress, loneliness, despair, grief, and other important personal life events on illness and recovery. I think we need more research into actual human healing, as opposed to disease control.”

David Reilly, MB, ChB<sup>1</sup>

**C**HIROPRACTORS struggle to practise their profession in a world seduced by a biomedical model of health care practice and research.

On this reductionist model practitioners treat the back pain or the headache rather than the patient, and seek to diagnose one physical cause for the problem and provide one proven treatment in a standard dosage or form. There is the assumption that health care is scientific, rather than an art assisted by good science. There is the pretence that only proven methods are used and reimbursed. The system, especially in this era of managed care, tends to drive patients to providers that comply with standard protocols and agree to deliver a basic service inexpensively, rather than those who know how to build the healing relationships that lie at the centre of all truly successful health care.

2. But one needs two wings to fly in health care — art and science. Patients are the ones who understand this best. They are the ones who have been challenging the biomedical model during the past 25 years, leading to the now well-documented rise of acupuncture,

chiropractic, homeopathy, naturopathy and other forms of complementary health care. They have sought the more personal, non-invasive, holistic care that over-reliance upon the biomedical model has corroded in the medical paradigm of health.

3. *The Chiropractic Report*, reflecting the prevailing environment in western health care, generally focuses upon data — newly published research and evidence. Evidence is obviously important. It is also the language of policy makers, governments and third party payors, a language that the chiropractic profession must continue to adopt and employ where necessary. This issue, however, focuses on the second wing — the art of chiropractic and of health care. There is general acceptance — and on this see para 5 below — that it is the need for more art in health care, the personal healing connection that is based on beliefs and emotions as well as knowledge, that is at the heart of the massive patient-led move to chiropractic and other forms of so-called complementary and alternative medicine (CAM).

Calls for more scientific research are important but, depending upon what is meant by research, may be largely missing the point. Certainly the suggestion that the health care system should only acknowledge and fund chiropractic and other CAM services that are proven effective betrays thinking that is both simplistic and wrong. Firstly the great majority of orthodox medical services have never been proven effective<sup>2</sup> or been funded on that basis, and secondly the traditional role of research in health care is to improve its quality rather than authorize its use in the first place.<sup>3</sup>

4. What should and must now be better acknowledged in our health care system is:

a) All good health care involves art and science.

b) It is unscientific to ignore the art of health care.

c) The role of clinical research is to improve the practice of health care, in terms of safety, effectiveness, cost-effectiveness and patient satisfaction, not to pre-approve or authorize it.

d) If clinical research is to be successful its main focus will be the safety and effectiveness of what happens in the real world, in what Hawk calls “the clinical encounter”,<sup>3</sup> rather than one procedure or intervention isolated from its clinical context.

This Report illustrates and discusses these propositions with examples from chiropractic practice and research. Firstly, however, we view these issues from the wider perspective of complementary and alternative medicine (CAM) and one of its leading advocates, Dr. David Reilly, a Scottish specialist in internal medicine and family practice who also practises homeopathy. Reilly, quoted at the beginning of this Report, has been at the cutting edge of CAM for 30 years — he coined that term in 1987.

## B. LOST ART AND A PATIENT-LED REVOLUTION

5. Homeopathic remedies are used by 1 of 3 (30-37%) of chiropractors in Australia/New Zealand<sup>4</sup> and the USA<sup>5</sup> and 1 of 4 (25%) in Canada.<sup>6</sup> Dr. Reilly has been a foremost researcher into the safety and effectiveness of homeopathic remedies, and developed a course in homeopathy in Glasgow that has now been completed by approximately 25% of all Scottish family physicians. He works at the Glasgow Homeopathic Hospital which offers integrated orthodox and complementary care as part of the services of a major university teaching hospital.

In an address to a recent US conference on CAM, now published,<sup>1</sup> Reilly:

a) Reviewed the dramatic rise of CAM since the 1960s — a patient-led “revolution” seen first by the medical profession as quackery, then fringe, then alternative, then complementary, and increasingly now as a vital element of integrative care.

b) Considered the reasons for this. Important ones include the search by patients for better therapies, increased concerns about the safety and pervasive use of drugs, and a clearer understanding by everyone of the limits of the biomedical model of western medicine.

“Although strong in acute high-tech situations, there are few chronic and degenerative diseases that western medicine can truly heal or truly cure,” says Reilly. More often orthodox medicine “relies upon palliation and symptom control.”

c) However, Reilly observes, there are “deeper reasons” than these various important factors. There is growing acceptance that CAM provides patients with “something of value that physicians fail to provide.” This represents “the heart of the matter”, and it is the *art* of health care.

d) Patients are asking for a health care system that is “less drug-based and more personal.” They would like “the best of orthodoxy and complementary medicine combined without competition” to give more healing, therapeutic relationships than can be found in western medicine. Because patients are searching for “a better approach to care” rather than just “different tools in the toolbox”, simply examining individual therapies “by the use of controlled clinical trials will not sufficiently address this major change in medicine.” It will address important components — scientific research has a clear role — “but it will not address these core matters. We will still be left, in one sense, where we started.”

e) Human healing is the issue, not disease control, in a world where therapeutic relationships are central to healing.

f) Finally, Reilly explains the integrative care given at his hospital. Orthodox and CAM care are available “without philosophical competition”. Choice and actions are determined not by science but by “safety, the degree of suffering of the patient, the patient’s choice in the matter, and likely long-term costs and benefits.” On these criteria orthodox medicine is sometimes the first line of treatment but “often can be moved to second line treatment.”

Under this integrative model “more than 70% of people with complex and severe clinical problems which were not responding to orthodox approaches reported clinical improvement sufficient to affect the quality of daily life . . . they also reported fewer visits to family doctors, less conventional drug use, fewer hospital admissions, and fewer hospital attendances.” All of this will sound familiar to chiropractors.

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## C. THE ART OF CHIROPRACTIC

6. The art of chiropractic, and its importance, have recently been well described in general terms by chiropractic leaders Meeker and Haldeman, writing for a series on CAM for physicians in the *Annals of Internal Medicine*. This Report has quoted them before, but their words bear repeating:

“The clinical encounter tends toward a high-touch, low-technology health model with more concern for the person than the disease. Chiropractors believe in the inherent healing ability of the body and communicate the hope of healing to patients. Spinal manipulation and other forms of touching care require that a level of trust develop between the patient and the chiropractor. Repeated visits allow a relationship to flourish that is often used to communicate on a social and psychological level as well as about biological implications of care.

One recent essay opined that much of chiropractic’s success and perhaps its most important contribution to health care might concern this patient-physician relationship. Analyses from anthropologic and socio-

logic perspectives have suggested that treatment by a chiropractor, especially for many patients with chronic pain, can generate a sense of understanding and meaning, an experience of comfort, an expectation of change, and a feeling of empowerment. The hands-on and compassionate “can do” clinical behavior of the typical chiropractor seems to be concrete, reassuring, and immediately satisfying. Observational studies and randomized trials leave little doubt that chiropractic patients are very satisfied with their management.”<sup>7</sup>

Next, an illustration from practice.<sup>8</sup>

7. Mr. AS, a 48 year old man in otherwise excellent health, developed chronic hiccups after a singing rehearsal. The hiccups became progressively more violent. By the second week he was having difficulty with eating and digestion, and when they caused muscle spasm preventing him from breathing for 30 seconds during a telephone conference call at work, he became frightened and made back-to-back appointments with his medical and chiropractic doctors for later that afternoon. Both made time for him in fully booked schedules.

His MD had insufficient time for any history, other than questions during one minute on origin, duration and current severity of the complaint, or for any physical examination. She prescribed medication to moderate the activity of the phrenic nerve which innervates the diaphragm, with the assurance that “if this doesn’t provide results within 48 hours get back to me and I’ll make an appointment with a neurologist and we’ll do a full workup on this.”

Thirty minutes later Mr. AS consulted his chiropractor who, upon entering the examination room, placed his hands on both the patient’s shoulders, looked him in the eye and said “you’re not going to leave here until these hiccups are gone.” A more extensive history, focusing on all aspects of the clinical course of the hiccups and related indigestion, was followed by a manual examination of the abdomen and the joints and soft-tissues of the cervical, thoracic and lumbar spine. The patient was then treated with the following:

- Joint adjustment in the cervical and thoracic regions of the spine to relieve fixation/subluxation and associated reflex activity in the phrenic nerve and nervous system generally.
- Needle acupuncture at 4 points in the ear and abdomen combined with electric current.

- Consumption of six large glasses of water.

Mr. AS left after 30 minutes with full relief from hiccups and a prescribed bland diet to be followed for the next 5 days. He started the diet that evening. The hiccups returned during the night approximately 9 hours following chiropractic treatment, but were permanently relieved by one more similar treatment session at the chiropractic office the next day and observance of the diet. The drug prescription was never filled.

8. This brief case report illustrates a number of points including:

- a) Chiropractic care is not simply a set of techniques of joint adjustment or manipulation, any more than medical care is simply prescription of pills.
- b) The approach of this chiropractor was clearly to understand the patient’s need for reassurance and early response, and then to use a variety of overlapping treatment methods addressing the neurological, musculoskeletal and gastrointestinal aspects of this particular case.
- c) It is likely that each chiropractor would have managed Mr. AS in a slightly different manner, and that this chiropractor would manage his next patient with hiccups in a different manner — because that next patient will present with his/her own unique history and needs.
- d) This variance in care is natural and right and simply reflects the art of good health care, which combines specific and non-specific effects of treatment. Specific effects include the proven results of the treatments used. For example, one proven effect of cervical adjustment is increased active ranges of motion in the cervical spine.<sup>9</sup> Non-specific effects, also known as placebo effects, are general benefits deriving from the healing encounter — for example the concern and confidence of the practitioner, the therapeutic effects of hands-on care, or the magic of pills, or the drama of surgery.

### C. PLACEBO AND CHIROPRACTIC PRACTICE

9. In 1994 *The Lancet* ran a series of seven articles on placebo effects written by medical leaders in Europe and North America. The goal was to rehabilitate and champion placebo effects, in reality one of the most important factors in all aspects of health care, including medica-

tion and surgery, but one that was “generally neglected, unrecognized and untaught” under the current biomedical model of medical education and practice.<sup>10</sup>

The placebo, these articles argued, should be understood, embraced and enhanced, in all delivery of health care, but particularly in the management of chronic pain conditions which combined physical and psychosocial/functional factors.

In the same year Turner, Deyo et al., in an article in the *Journal of the American Medical Association* titled *The Importance of Placebo Effects in Pain Treatment and Research*,<sup>11</sup> addressed five commonly held misconceptions with respect to placebo effects:

- a) The administration of a placebo is the same as doing nothing. This is simply wrong. Non-specific treatment effects are frequently equal or superior to specific treatment effects, and often interact with specific effects so that each enhances the other — an important fact for clinical practice.
- b) Individuals responding to placebo had nothing wrong with them in the first place. Again, this is simply wrong. Placebo responses have been observed for many manifest ‘real conditions’ including angina, asthma, ulcer, pain from obvious injury to tissues as after dental surgery, and hypertension.
- c) Personality type affects the likelihood of being a placebo responder. It is a myth that people who respond to placebos are peculiar, or different from the rest of us. The literature provides no consistent evidence to suggest that chronic anxiety and other personality variables predispose individuals to placebo reactions. Various traits in combination with a specific temporary situational anxiety may predispose some individuals to placebo responses. However it is the present situation that is the dominant factor — for all of us.
- d) The effects of a placebo are short-lived. This has not been studied in depth and there are studies suggesting this assumption is wrong. In one, sham surgery (skin incision only) was performed for angina pectoris, a condition unlikely to show natural remission of symptoms, and 100% of patients reported over 50% improvement in symptoms at one year follow-up.

*continued on page 6*

## RECENT RESEARCH HIGHLIGHTS

*continued from page 1*

ruled out by recent research. Australian researchers investigating the neural control of vertebral artery blood flow have found this flow to be “profoundly unresponsive to stimulation of any component of the cervical sympathetic system” and a German study in which the sympathetic plexus was cut at the level of the atlas vertebra in rabbits reported no effect on hearing thresholds or vestibular functions over the following six months. There may be some other mechanism mediated by the sympathetic nervous system.

Apart from the many reported cases where hearing has improved following upper cervical adjustment/manipulation, there are a few where hearing loss has been provoked by treatment. Presently there are no indications of when treatment is likely to be successful beyond the presence of some form of functional pathology of the upper cervical spine. Treatment is diagnostic. Some patients receive remarkable relief, others moderate relief, and many no relief at all — for them a vertebragenic cause is ruled out. The time is now right for a large interdisciplinary prospective study. (Terrett AGJ (2002) *Vertebragenic Hearing Deficit, the Spine, and Spinal Manipulation Therapy: A Search to Validate the D.D. Palmer/Harvey Lillard Experience*, *Chiro J Aust* 32(1):14-26).

**VHD and TMJ.** Although many cases of vertebragenic hearing deficit (VHD) follow whiplash injuries and other trauma to the cervical spine, some arise without trauma. Alcantara et al. from California report the case of a 41 year old woman whose complaints began with an ear infection. The primary diagnosis given by her medical doctor and dentist was temporomandibular joint (TMJ) syndrome.

She had a 3 month history of worsening symptoms that included bilateral TMJ pain, ear pain, tinnitus, vertigo and altered hearing/sensation of pressure in both ears. Medical care had been medication, and then dental/medical care had been local heat, reduced talking and change to a soft diet. Her symptoms worsened.

Chiropractic examination revealed both temporomandibular clicking/pain/disorder and an atlas subluxation. Adjustment of the atlas according to Gonstead protocols on 9 visits over 2½ months produced consistently steady improvement leading to complete resolution of all symptoms, an improvement that was maintained without further treatment at one year follow-up. (Alcantara J, Plaugher G et al. (2002) *Chiropractic Care of a Patient with Temporomandibular Disorder and Atlas Subluxation*, *J Manip Physiol Ther* 25(1):63-70).

**Patient Questionnaires for Neck Pain and Disability.** Proven patient questionnaires have become the most practical, valid and reliable way of measuring results in the management of patients with back and neck pain and disability. A new systematic review of available questionnaires by Pietrobon et al. from the Division of Orthopedic Surgery, Duke University Medical Center, finds and compares the 5 best validated questionnaires. They are the Neck Disability Index, the Copenhagen Scale, the

Northwick Questionnaire, the Neck Pain and Disability Scale and the Patient Specific Scale. All are good for use in practice.

The one most highly recommended for use in research, because it is the one most revalidated in different study populations and allows good comparison between patients, is the Neck Disability Index which was developed by chiropractic researchers Dr. Howard Vernon and Dr. Silvano Mior of the Canadian Memorial Chiropractic College in Toronto. Another of the questionnaires, the Copenhagen Scale, was also developed by a chiropractor — Dr. Alan Jordan of Denmark. This review also has an excellent discussion of the characteristics of good patient questionnaires — e.g. reliability, validity, responsiveness, etc. (Pietrobon R, Coeytaux RR et al. (2002) *Standard Scales for Measurement of Functional Outcome for Cervical Pain or Dysfunction: A Systematic Review*, *Spine* 27(5):515-522).

**Chiropractic LBP Patients at least as Impaired as Medical Patients.** One sometimes hears the suggestion that patients who seek chiropractic care for musculoskeletal disorders have fewer complications and less impairment than those seeking medical care. A recent article in *Spine* challenges this assumption.

Coulter, Hurwitz et al. report on additional analysis of data from the RAND Corporation survey of chiropractic practices across North America during the period 1992 to 1994. The data, from 10 patient case studies from each of 131 chiropractic practices, were strong because this was not a simple survey asking chiropractors about their patients — it was a full onsite audit of the patient files at each practice, after use of various standard questionnaires (e.g. SF-36; Roland Morris) with all patients. For back pain patients it was found that those seeking chiropractic care “are substantially physically impaired and in pain, about on a par with patients seeking care from medical doctors” and that chiropractic patients had “significantly and clinically worse mental health than medical patients — 6 to 8 points lower on emotional/mental health on the SF-36 scale.” (Coulter ID, Hurwitz EL et al. (2002) *Patients Using Chiropractors in North America: Who Are They, and Why Are They in Chiropractic Care?* *Spine* 27(3):291-298.)

## BOOKS

Two impressive but contrasting chiropractic books have just been released by major publishers. Together they provide, amongst other things, a strong theoretical and clinical basis for chiropractic management of the upper cervical spine. They are:

***Somatovisceral Aspects of Chiropractic: An Evidence-Based Approach***, ed. Charles S. Masarsky and Marion Todres-Masarsky, (Churchill Livingstone, Philadelphia, 2001, ISBN #0-443-06120-3, hardback, 248 pgs). This is an inaugural book linking together principles and evidence in the chiropractic management of somatovisceral disorders, and it presents an impressively argued chiropractic perspective — 15 of the 16 authors are chiropractors.

It commences with the chiropractic paradigm of health (comparing it with others from allopathy to Ayurvedic medicine) and then moves to specific body systems (e.g. cardiovascular,

gastrointestinal, respiratory). It includes excellent chapters on somatovisceral aspects of headache by Darryl Curl, DDS DC and endocrine disorders by Anthony Rosner, PhD. Working in the field of his Harvard doctorate, Rosner discusses the links between pain and stress and the endocrine system and spinal manipulation.

Ebrall, describing the best books of 2001 in *The Chiropractic Journal of Australia*, refers to the Masarskys' text as "a rich gift" and "a tremendously exciting book . . . that is highly recommended" and he is right.

***The Cranio-Cervical Syndrome: Mechanisms, Assessment and Treatment***, ed. Howard Vernon (Butterworth-Heinemann, Oxford, ISBN #0-7506-4495-8, hardback, 262 pages). By contrast with the Masarsky text, Vernon's new book deals specifically with the cranio-cervical junction ("the most complex triad of bony structures, articulations, supporting tissues and nerves in the mobile human spine") and the cranio-cervical syndrome ("a constellation of symptoms and conditions that have their origin in mechanical dysfunction of the cranio-cervical junction") and describes the basis for chiropractic management from a multidisciplinary perspective — only 5 of the 18 authors are chiropractors. Contributors are foremost experts in anatomy, neurosciences, clinical diagnostics and chiropractic and medical practice from Australia, Europe and North America.

Particularly impressive chapters include the opening chapter on clinical anatomy by Gregory Cramer, DC PhD from the US, the chapters by Howard Vernon, DC FCCS from Canada and Nikolai Bogduk, MD PhD from Australia providing the now well-understood basis for cervicogenic headache, and a fascinating chapter by Belgian manual medicine specialist Heiner Biedermann, MD titled *Manual Therapy in Children: With Special Emphasis on the Upper Cervical Spine*. Biedermann provides firm support for chiropractic practice in this sometimes controversial field and describes the frequent dramatic results of cervical manipulation for infants and young children from his clinical experience with 50-100 such patients weekly. He emphasizes the importance of correcting an infant's postural imbalances arising from the cervical spine prior to the point in time the child walks (verticalization).

This is accessible state-of-the-art information on the mechanisms, assessment and treatment of the cranio-cervical syndrome, the importance of which is described thus by Vernon in his preface:

"Dysfunction of the cranio-cervical tissues may manifest as headache, cranial pain, dizziness, mandibular and ocular dysfunction. These clinical conditions may have profound implications for the psychosocial wellbeing of the sufferer, as chronic pain in this region produces profound effects on concentration, mood state, and vocational and avocational capabilities."

There we have it — two books that provide the complete basis and context for chiropractic management of the upper cervical spine. The Masarskys' text, of course, deals also with the thoracic and lumbar spine.



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**Invited Speakers:** include Heiner Biedermann, MD, Gregory Cramer, DC PhD, Charles Masarsky, DC, and Howard Vernon, DC FCCS, referred to in book reviews on this page. Other lecturers include Alan Breen, DC PhD, Gert Bronfort, DC PhD, Art Croft, DC, Scott Haldeman, DC MD PhD, Dan Murphy, DC, Don Murphy, DC, Guy Riekeman, DC, Jay Triano, DC PhD, and Robert Watkins, MD.

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e) One third of subjects in any clinical trial will have a placebo response. This is a widely held misconception based on a paper by Beecher in *JAMA* in 1955. Placebo response rates in fact “vary considerably across studies” and “are strikingly high on average” say Turner, Deyo et al. One recent analysis of evidence on treatments originally thought to be effective but later abandoned because it was found they had no specific effects, reported an impressive average of 70% of patients experiencing positive outcomes from these treatments.

10. What elements in the art of chiropractic practice encourage placebo or non-specific benefits, and what should a chiropractor do to enhance these? On the basis of practice observation by Coulehan<sup>12</sup> and Jamison<sup>13</sup> and patient studies by Cherkin<sup>14, 15</sup> these main factors can be identified:

a) **Confidence and commitment.** Perhaps the single most influential placebo aspect of the clinical encounter is the chiropractor’s confidence derived from a grounding in the philosophy and principles of chiropractic practice. This is an important source of non-specific treatment effects because:

i) With this perspective chiropractors tend to be more comfortable and confident of a real cause, subluxation/dysfunction and its biomechanical and neurological effects, that they can address with tangible treatments and advice.

ii) There can be an immediate plan of treatment rather than “let’s wait and see”.

iii) These factors give the patient confidence and expectation of success.

Commitment to a treatment approach also makes a clinician more tolerant of the patient’s idiosyncracies. The patient is accepted without criticism or rejection. Additionally, as Shapiro and Shapiro observe,<sup>16</sup> the clinician’s commitment is often interpreted by patients as increased interest in them.

b) **Information and advice.** The information patients are given regarding their conditions, content and form, is reported by them as a strong point in the chiropractic encounter.<sup>14</sup> Patients are typically given an explanation in a context they can understand and which meets their expectations.<sup>12</sup> Explanations are often supplemented by visual aids such as models, charts and radiographs which assist understanding and serve as conditioning stimuli which can promote placebo response. (Depending upon the patient’s previous experiences other objects such as white coats, stethoscopes and x-ray machines may have a positive or negative effect on placebo response.)

c) **The laying on of hands.** Chiropractic practice involves “the laying on of hands”, both in examination and treatment, and this is generally regarded as having stronger non-specific effects than medication, machines or surgery. In addition the actual adjustment or manipulation typically produces a ‘pop’ or audible release. To most patients this provides obvious and tangible evidence of value. Something that was previously ‘out’ is now ‘in’. (The noise is, of course, merely the collapse of a nitrogen gas bubble released from the synovial joint during gapping).

11. Which provides the more powerful placebo effects — the personality of the health professional or the laying on of hands/pill/electrotherapy/drama of surgery? Research suggests that it is the former — and that confidence is of central importance to a strong therapeutic relationship.

In one British study<sup>10</sup> 200 patients reporting to a general medical practice with a variety of complaints (cough, sore throat,

back pain, fatigue, headache, etc.) were divided into two groups. One received what was termed a ‘positive consultation’. This consisted of giving the patients a firm diagnosis and reassurance that they would recover in a few days. The other group received a ‘non-positive consultation’. No firm diagnosis or reassurance was given. Patients in each group were then either given a ‘treatment,’ which in fact was only a placebo pill, or no treatment. Thus, there were a total of four different groups. The researchers discovered:

a) It made very little difference whether or not a ‘treatment’ was administered. Two weeks after the initial consultation 50% of those not treated showed improvement compared to 53% of those who were ‘treated’. However:

b) What kind of consultation they received made a significant difference — 64% of those receiving a positive consultation reported improvement compared to 39% of those who received a non-positive consultation. The attitude of the doctor was more important than the presence or absence of a pill.

12. In summary, to generate non-specific effects and enhance the specific effects of treatment in chiropractic practice, it is important for clinicians to appear confident and enthusiastic, to emphasize manual contact and low technology in diagnosis and treatment and, through information and advice and otherwise, to give patients confidence, expectation of success and a new sense of control over their problems.

13. What are the exact mechanisms of action of the placebo? These remain largely unknown, but the three theories most widely discussed are classical conditioning, expectations and the action of endogenous opiates. For more on this see an earlier issue of this Report (September 1995, Volume 9 No. 5, *The Powerful and Mysterious Placebo*).

Does chiropractic management, including particular aspects of treatment such as joint adjustment or manipulation, have specific proven treatment effects beyond placebo effects? For various groups of patients with various disorders, including chronic back pain, neck pain and cervical headache, the answer is yes. We now turn to look at this relationship between art and science in chiropractic practice and research.

## D. ART AND SCIENCE

14. Until recent years the unchallenged gold standard in clinical research on the effectiveness of any given form of health-care has been a randomized controlled trial (RCT) designed on a narrow, biomedical model. Using this model researchers isolate one element of treatment (e.g. a given medication or chiropractic technique), standardize it (e.g. use the same dosage or number of treatments with every patient), and design the study to exclude all other aspects of care including the therapeutic relationship. These other aspects are seen as sources of bias, interfering with the one aspect of treatment being investigated. On this research model placebo effects are seen as a complicating factor that invalidate the study and therefore need to be excluded or disregarded.

During the past 25 years chiropractic researchers have used this model to produce good evidence of the effectiveness of chiropractic manipulation for various categories of patients. The design of trials has steadily improved, and there is still much of value in RCTs on a biomedical model.

However, as Cheryl Hawk, DC PhD from Palmer University, Davenport points out in an important recent article,<sup>3</sup> there are

limitations and traps also. Several widely-cited and well-conducted chiropractic studies reporting negative outcomes, such as the asthma trial reported in the *New England Journal of Medicine* in 1998,<sup>17</sup> likely produced disappointing results because of the use of reductionist methods that equate chiropractic care with one procedure designed to produce one outcome. This is an artificial approach to scientific investigation of the effectiveness of chiropractic care. Chiropractic and medical doctors provide care for patients in a complex healing relationship, and the failure of one aspect of treatment to produce one physiological result tells us very little. Certainly it does not tell us that “chiropractic doesn’t work” or “medicine doesn’t work”.

15. Partly because of the growth of complementary healthcare, a more inclusive biopsychosocial model of research is now challenging the biomedical one. Hawk explains that this new model includes psychological, environmental and physical factors, reflects the reality and complexity of “the clinical encounter”, and acknowledges that “the doctor/patient relationship is in itself a powerful factor.” In other words it is a research model that reflects the real world and includes the art as well as the science of healthcare.

As an experienced clinical scientist Hawk acknowledges that controlled experimental trials are important — and will always be more convincing than case reports and descriptive studies, even large ones. Her point is that these RCTs can be much better designed using a biopsychosocial model and reflecting “real life clinical practice and outcomes that are meaningful to patients.” Chiropractic research must place its focus in this area.

16. All of this can be illustrated by comparing two British multicentre studies of patients with acute and chronic mechanical low-back pain (LBP). The first, by Doran and Newell and published in the *British Medical Journal* in 1975,<sup>18</sup> adopted a traditional, biomedical model and found that manipulation was ineffective. Details are:

a) The purpose of the trial was to compare the effectiveness of manipulation in comparison with physiotherapy, use of a corset and use of analgesics in 456 patients randomly allocated to these four treatment groups.

b) Manipulation could not be combined with any other treatment, and was given twice weekly for three weeks. (Interestingly, though less relevant to the present discussion, there was no requirement of formal qualifications in manipulation, which was given by physicians and physiotherapists (PTs) in seven hospital outpatient departments).

c) The trial reported that manipulation was no more effective than the other three treatments.

Doran and Newell’s RCT formed the basis of medical expert evidence at the New Zealand Commission of Inquiry into Chiropractic in 1978/79<sup>19</sup> that manipulation is ineffective for patients with LBP (which is not what it found) and then, by an even more interesting leap in logic, that chiropractic management, because it makes principal use of manipulation, is ineffective. Here, from the leadership of the medical profession, namely the pages of the respected BMJ as interpreted by foremost experts chosen by the national medical association, is a clear example of the traps of reductionist research and mindset. What the trial really demonstrated was that a short course of general manipulation by practitioners without formal qualifications delivered in a hospital outpatient setting, has about equal effectiveness to standard physiotherapy, use of corset or medication.

17. The second trial, performed by Meade et al. for the British Medical Research Council and published in the BMJ in 1990<sup>20</sup> and 1995,<sup>21</sup> used the more pragmatic approach of comparing two clinical encounters as espoused by Hawk and produced a markedly different result. Details are:

a) 741 patients with acute and chronic mechanical low-back pain or LBP were randomly assigned to two groups — one receiving chiropractic management, whatever that might involve, and the second receiving hospital outpatient department management by physiotherapy/medical staff, whatever that might involve. The only limitations were a maximum of 10 treatment sessions, to be given within a period of 6 months.

In fact virtually all chiropractic patients (99%) received adjustment/manipulation. However this was of a frequency and type selected by chiropractors in their 11 respective offices, and many patients received concurrent chiropractic treatments including physical therapy modalities, traction and rehabilitative exercises. Meade et al. explained that they adopted this research design “because the effectiveness of treatment in day-to-day practice . . . is of most immediate interest.”

b) On this design there was a very different result from the Doran and Newell trial. Meade et al reported that the chiropractic treatment was both effective and significantly more effective than the comparative treatment, particularly for patients with chronic and severe pain. Results were long-term, not the result of trial errors or placebo, and “the potential economic, resource and policy implications of our results are extensive.”

18. Let’s now look more closely at that asthma trial by Balon, Aker et al. in the *NEJM*, the first major interdisciplinary trial of chiropractic management of childhood asthma, excellently designed within its model, but widely cited by medical commentators and the media as reporting that chiropractic management is ineffective. Why has that been said when the trial showed that children under medical care who then received a course of chiropractic adjustment recorded “substantial improvement in symptoms and quality of life and a reduction in  $\beta$ -agonist use”?

A major reason is the trial design, which treated the therapeutic relationship between chiropractors and their patients as irrelevant. Details are:

a) In this study 91 children under continuing medical care for asthma were randomly sent to 1 of 2 groups:

i) The trial group, which received chiropractic adjustment in 1 of 11 participating chiropractic practices. No other chiropractic intervention was allowed.

ii) The control group. These children were also seen by the same chiropractors but were given ‘simulated treatment’ which included palpation, soft-tissue massage and mobilization techniques applied to the spine, paraspinal muscles and shoulders — but not adjustment/manipulation. All of these simulated treatments are described as “non-therapeutic contact”.

b) The reason that the trial reported that “in children with mild or moderate asthma the addition of chiropractic spinal manipulation to usual medical care provided no benefit” is that *both* groups of children received substantial improvement in the three outcome measures mentioned above — improvement in symptoms, quality of life and reduction in  $\beta$ -agonist use. Additionally there were only small but insignificant increases in peak expiratory flow, a major outcome measure in the trial.

Most interesting for us, however, is the fact that all children were exposed to the same chiropractic therapeutic relationship for 28 visits over 16 weeks and reported “high levels of satisfaction” — but the trial design excluded and did not report on the benefits of the therapeutic relationship.

Here we see the risks of a reductionist, biomedical model and view of results. This model is well-suited to proving the effectiveness of specific aspects of care (e.g. a specific technique of chiropractic adjustment for patients with diagnosis X) and the objective effects of these specific aspects of care (e.g. for chiropractic adjustment, what forces reach the joint, and what are the specific biomechanical and neurological responses). However it is not well-suited for clinical research into the overall effectiveness of chiropractic care.

Trials into overall effectiveness must be designed, as in the Meade et al. trial, to capture the art of chiropractic and therefore mirror real life practice as fully as possible. As a further and final illustration of this, consider a study of the effectiveness of chiropractic management for hiccups. If the trial is reporting on *chiropractic management*, Mr. AS’s chiropractor and his colleagues must be able to do whatever they do rather than, for example, simply deliver three chiropractic adjustments at one spinal level in an experimental clinical environment different from normal day-to-day practice.

Hawk’s article, which provides detailed suggestions in this area, emphasizes the importance of “clinical studies that are congruent with chiropractic philosophy and belief while being scientifically sound and valuable.”

## E. CONCLUSION

19. The rise of chiropractic and CAM have been accompanied by calls for research. These, and the associated public funding that is finally being made available in North America, are

welcome but different parties may have different goals and methods in mind.

We need scientific investigation into the effectiveness of chiropractic care and each of its components, but it must be science that asks the right questions and incorporates the art of chiropractic. All researchers and those who fund them should heed the advice of leaders such as Reilly and Hawk, and should post this fundamental truth on their home pages:

*It is unscientific to ignore the art of healthcare.* 

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