

Chapter 13

OSTEOPATHY and CHIROPRACTIC

“Touch” has been an important human attribute from before the dawn of civilisation. In many cases, it is used simply to indicate psychological or spiritual support for a sick person. Sometimes, tense muscles are relaxed with massage. On occasions, manual interventions have been made in more dramatic circumstances as when a broken bone needed to be re-set or a dislocated joint had to be put back into its rightful place. This chapter is primarily concerned with two methods that have grown out of a particular application of touch.

The origins of osteopathy

Osteopathy was the invention of a poorly qualified American doctor, Andrew Taylor Still (1828-1917). Born in Virginia, the son of a Methodist preacher who was also a self-taught physician, he was a deeply religious man who was convinced that healing was an innate, God-given capacity of the human body. Of course, there is nothing unusual or special about that view. Surgeons, for example, rely on the body’s in-built mechanisms to heal a wound after an appendectomy. Still grew up in Tennessee and Missouri, and despite being a Southerner, was an ardent abolitionist and served in the Union Army during the American Civil War. He learnt medicine by apprenticeship to his father and studied part-time in a college in Kansas City.

Still was fascinated by bones and would exhume bodies from Indian graves to study skeletons. He reasoned that God’s design of the human body was perfect and that one became ill when one’s bones became misaligned. He theorised that disease was caused by minor strains, slips and dislocations that caused pressure by bones, especially those in the spine, on arteries and impaired blood flow (Figure 1). Disillusioned by the failure of nineteenth century medicines to save his three young children from meningitis, and with a background of being fiercely opposed to alcohol, he abandoned drugs and attempted to promote healing by manipulating bones, joints and tissues. This, he claimed allowed free circulation of the blood. According to his own account, this idea first came to him when as a ten year old boy he cured his own headache by lying down with his neck resting on a rope strung between two trees. He proclaimed this theory in 1874 but the medical practitioners in the area would not listen to him. Moreover, the local Methodist minister denounced him as being league with the devil, so he moved to Kirksville, Missouri. The term he used to describe his practice, osteopathy, is derived from the Greek words OSTEON meaning “bone” and PATHEIA translated as “suffering” or “feeling”.

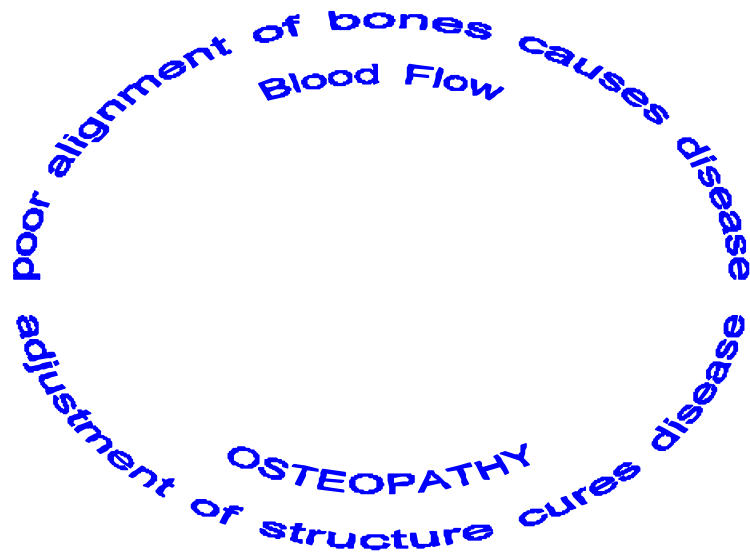


Figure 1. The initial philosophy of osteopathy: mechanical adjustment of bones and joints restores blood flow and corrects diseases.

Still not only treated headaches and stiff necks, but also patients with serious infectious diseases such as pneumonia, typhoid fever and childhood diarrhoea. At the same time, he portrayed ordinary doctors as poisoners. Naturally, this stirred up enormous resentment among the medical profession. Since he also disparaged homeopathy as the worthless dispensing of sugar-coated pills, he also incurred the wrath of the homeopaths. Still's philosophy is summarised in his autobiography:

"In answer to the inquiry, What can you give us in place of drugs? We can give you adjustment of structure but we cannot add or give anything from the material world that would be beneficial to the workings of a perfect machine, that was made and put in running order according to God's judgment, in the construction of all its parts, to add to its form and power day by day, and carry out all exhausted substances that have been made so by wear and motion. A perfectly adjusted body which will produce pure blood and plenty of it, deliver it on time and in quantity sufficient to supply all demands in the economy of life. This is what the osteopath can give you in the place of drugs if he knows his business."¹

In 1892, he began to teach classes in osteopathy in Kirksville and shortly thereafter

¹Still AS. *Autobiography, with a history of the discovery and development of the science of osteopathy*. Published privately, Kirksville, 1897; revised edition, 1908

founded the American School of Osteopathy. One of Still's students, John Littlejohn, returned to England and set up the British School of Osteopathy in 1917. The trouble was that Still's students had great difficulty in learning from him. They were unsure at how he arrived at a diagnosis and he performed his manipulative therapy so quickly that they could not follow him. Consequently, diagnostic methods and theory evolved with the years. Still was concerned only with variations from the normal positions of the vertebrae, but by the 1930's, osteopaths were examining the range of movement of one bone on another. Further, the concept of pathology caused by arterial pressure was abandoned in favour of a disturbance of reflex nervous activity.

By 1980, there were 14 schools of osteopathy in the USA churning out 1,000 students annually. Graduates of these institutions receive the grandiloquent degree of doctor of osteopathy (D.O.) and in all states in the USA are recognised as being equivalent to medical doctors. In contrast to the founder of their school, most modern American osteopaths rarely manipulate but prescribe drugs, regarded as poisons by their founder, and practise surgery.² In fact, the training of osteopaths in the United States is beginning to resemble that of standard medical training and graduates are entering medical specialty programmes. This worries a number of osteopaths who are supporting a return to osteopathic primary care.

In total contradistinction to its neighbour, stands Canada which in 1981 had a mere 29 osteopaths practising under strict restrictions.³ In Britain⁴ and many other countries, osteopaths are not permitted by law to prescribe prescription drugs or perform surgical procedures. Osteopaths in these countries often practise manipulation (high velocity thrusts) or passive joint mobilisation in combination with some other form of alternative medicine such as naturopathy.

The genesis of chiropractic

In September 1895, a grocer and erstwhile fish-monger in Davenport, Iowa in the United States named Daniel David Palmer (1845-1913) examined the back of a deaf janitor, Harvey Lillard. The deafness had apparently come on instantaneously 17 years earlier when Lillard was exerting himself in a cramped, stooping position and he felt something give way in his back. Palmer claimed that he found a "subluxed", that is, misaligned vertebra and wrote in his autobiography that he persuaded Lillard to let him "replace" it

²Gevitz N. Sectarian medicine. *Journal of the American Medical Association* 257: 1636-1640, 1987

³Gray C. Osteopathy: is there a place in Canadian medicine? *Canadian Medical Association Journal* 125: 108-111, 1981

⁴Baer HA. The drive for professionalization in British osteopathy. *Social Science and Medicine* 19: 717-725, 1984

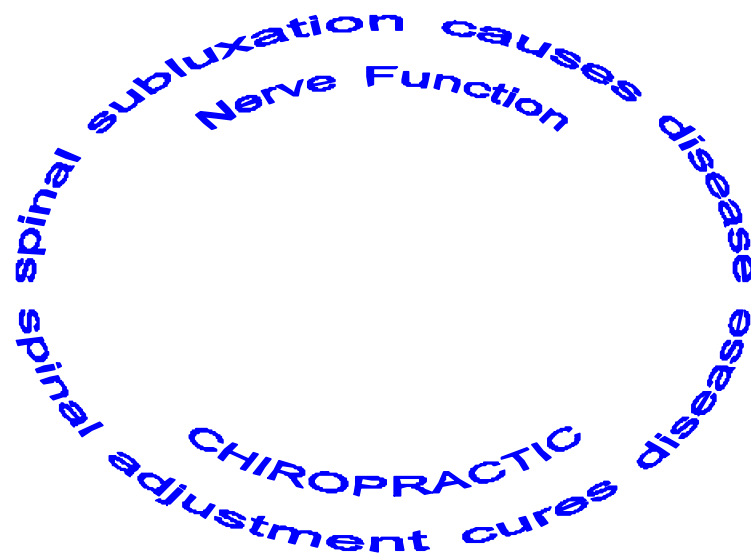


Figure 2. the philosophy of chiropractic: mechanical adjustment of bones and joints corrects dysfunction of the nerves and restores health

after “a half hour’s talk”⁵ - remember that Lillard was supposedly deaf! Lillard lay face down on a couch then Palmer applied pressure to the spine with his hands and “the vertebra moved into place and soon the man could hear as before”⁵. Shortly afterwards, he cured a patient with some sort of heart trouble by manipulation. On the basis of these two cases, Palmer concluded that

“a subluxed vertebra, a vertebral bone, is the cause of 95% of all diseases... Luxated bones press against nerves. By their displacement, they elongate the pathway of the nerve... modified impulses cause functions to be performed abnormally.”⁵

Subluxation means a partial dislocation of joints, that is, the opposing surfaces of two bones are not correctly aligned with each other. Palmer carried this proposition further to conclude that treatment of all diseases should be carried out exclusively by manipulation of the vertebra to re-align joints and relieve pressure on nerves (Figure 2). He expounded his views to the Reverend Samuel Weed in Davenport who proposed the name “chiropractic” derived from the Greek words CHEIR meaning “hand” and PRAKTIKOS denoting “practice”, formed from the word to “do” or “act”.

Palmer was nothing if not vain-glorious. In his autobiography he also wrote:

“I am the originator, the Fountain Head of the essential principle that disease is the result of too much or not enough functioning... I have answered the question - what is

⁵Palmer DD. Textbook of the science, art and philosophy of chiropractic, Portland Printing House, Oregon, 1910; reprinted 1966

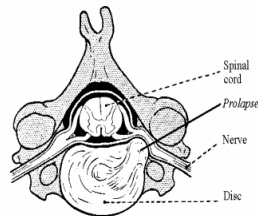


Figure 3. Top view of the neck showing a prolapsed disc pressing on a nerve.

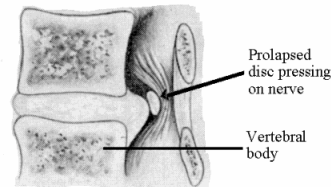


Figure 4. Side view of the lower back (lumbar region) showing a prolapsed disc pressing on a nerve.

life?”⁵

By the end of 1895, Palmer had opened the Palmer School of Chiropractic in Davenport. The only requirement for admission was an ability to pay the fee of \$450, discounted by \$50 for cash. Amongst the pupils was his son, Bartlett Joshua Palmer (1881-1961). Father and son were arrested in 1906 and charged with practising medicine without a licence. Daniel Palmer was sent to gaol, but B.J. (as he was known) never came to trial. Subsequently Daniel sold his school and his business to his son. When he died penniless in 1913, he hated his son and abhorred other chiropractors and ordered that his son not attend his funeral.

On the other hand, when B.J. died in 1961, he was a multimillionaire who had built up an extra-ordinary empire. He was the master of mail-order diplomas, emphasizing the lack of examinations. He said that his school was a business, not a professional institution, the task of which was to manufacture chiropractors. He affirmed the doctrine of his father, writing “chiropractic principle has the vertebral subluxation as the cause of *all* disease; chiropractic practice has the vertebral adjustment as the *cure* of all disease”⁶. However, when he became sick himself, he went to medical doctors.

Incidentally, medical doctors do recognise that mechanical disorders of the spine may cause serious problems, particularly neck pain and sciatica. The latter term means pain in the back and in the leg due to pressure on a nerve caused by a “slipped disc”, that is a disc which has protruded and is pressing on a nerve (Figures 3, 4). In contrast to chiropractors, they do not say that such pressure causes disease of the heart, lungs, blood vessels, bowel, liver, kidneys and so on.

Moreover, there were dissenters within the ranks of chiropractors. One was William

⁶Palmer B.J. The bigness of the fellow within. Chiropractic Fountain Head, Davenport, Iowa, 1949

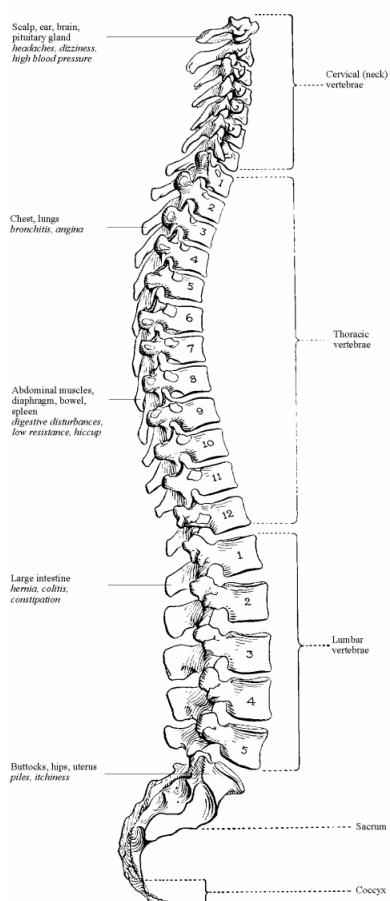


Figure 5. Side view of the spine showing the major regions and some diseases said to be due to mal-alignment of those parts.

Carver, an Oklahoma City lawyer who set up his own school of chiropractic. He believed that chiropractors should use methods such as nutritional therapy and physical therapy as well as spinal manipulation. This led to a schism between the followers of the Palmer method who called themselves the “Straights” and the Carverites who became known as the “Mixers”. Both groups still exist today with the latter being in the majority.

Chiropractic has had remarkable success in receiving public and legal recognition, especially in the United States but also in many other countries, despite its very doubtful origins. This in large measure due to the salesmanship and marketing skill of B.J. Palmer

and others on the one hand, and staggering gullibility on the other.^{7,8} In 1925, chiropractic was licensed in 32 of the 48 American states and eventually it became recognised in all. By the 1970's, there were 36 chiropractic colleges and some 20,000 chiropractors in the USA. When the US government determined in 1975 that chiropractic was "higher learning", the editor of the *Annals of Internal Medicine* aptly observed:

"These actions are notably ironic in our era of mounting consumer pressures for reliable goods and honest services. It is yet another example of one arm of the federal government moving in disregard of the wisdom that moves another arm.... It will be particularly galling to our profession, which finds itself under potential threat of policing its services by a central bureaucracy while a healing cult without scientific validation is legitimized by fiat."⁹

In the United States today, chiropractors cannot perform surgery or prescribe drugs, but are allowed considerable flexibility including the right to take X-rays. In fact, chiropractors are often X-ray happy, taking huge films of the whole vertebral column called "spinographs" with which to impress their clients. Not only are such radiographs unnecessary, but they result in excessive exposure to radiation. A diagrammatic view of the spine is shown in Figure 5; chiropractors (and osteopaths) may claim that misalignments in various areas cause all sorts of diseases.) Such is public acceptance in the USA that customers of chiropractors receive reimbursements from both the government¹⁰ and private insurance organisations.^{11,12}

Osteopaths, chiropractors and physiotherapists

What then are the differences between osteopaths, chiropractors and physiotherapists? Manipulation performed by chiropractors is essentially the same as that practised by osteopaths except that chiropractors generally restrict it to the spine whereas osteopaths work on all joints and soft tissues. Osteopaths use a variety of manual techniques including a wide range of soft tissue and stretching techniques as well as manipulative thrusts to spinal joints¹³ whereas chiropractors tend to use sudden short thrusts. These manipulations may be quite frightening, especially sudden movements that crack the vertebrae of the

⁷Ballantine HT. Medicine and chiropractic. *Journal of the American Medical Association* 200: 131-135, 1967

⁸Ballantine HT. Will the delivery of health care be improved by the use of chiropractic services? *New England Journal of Medicine* 286: 237-241, 1972

⁹The Editor. Chiropractic as "Higher Learning". *Annals of Internal Medicine* 82: 843, 1975

¹⁰Ballantine HT. Federal recognition of chiropractic: a double standard. *Annals of Internal Medicine* 82: 712-713, 1975

¹¹Shekelle PG. What role for chiropractic in health care? *New England Journal of Medicine* 339: 1074-1075, 1998

¹²Kaptchuk TJ, Eisenberg DM. Chiropractic: origins, controversies and contributions. *Archives of Internal Medicine* 158: 2215-2224, 1998

¹³Burton AK. Osteopathy in back trouble. *British Medical Journal* ii: 1482-1483, 1986

neck. Physiotherapists use similar techniques as well as other physical therapies. However, they work within the confines of orthodox medicine, accepting the same anatomy, physiology and pathology, and frequently treat patients at the request and under the direction of medical practitioners. Many physiotherapists use a manipulative and mobilisation technique devised by G.D. Maitland, a physiotherapist in Adelaide, Australia.¹⁴ Another popular technique amongst orthodox practitioners was described by Dr James Cyriax in London, England.¹⁵

Do any of these techniques work? It has been rather difficult to find out. Most attention has been paid to the effects of manipulation on back pain. That is perfectly logical, for if spinal manipulation is going to do anything, it might be expected to relieve back problems. There are very little scientific data to validate the use of osteopathy or chiropractic in other clinical situations.

Furthermore, in the studies that are reviewed in the following pages, it is sometimes difficult know whether the manipulation being applied is osteopathic, chiropractic or physiotherapeutic. The distinctions are not always clearcut; an osteopath might use a technique which a chiropractor might consider chiropractic, and *vice versa*. In these circumstances, it is perhaps best to define the intervention as osteopathic, chiropractic, or physiotherapeutic depending upon the discipline with which the practitioner identifies himself or herself.

Does manipulation relieve low back pain?

Pain in the lower part of the back, anatomically called the lumbar region, is said to affect 70-80% of adults at some time during their lives. In most cases the precise cause cannot be identified but is generally thought to be due to mechanical stresses. In fact, low back pain has been described as an illness in search of a disease. Pain causes muscle stiffness which is detected by loss of spinal movement. Most episodes are mild and 90% resolve within six weeks. Because of its frequency, however, and in view of its disabling effects, back pain has an enormous economic impact. New treatments are constantly appearing but there is little consensus as to what is the most appropriate care.¹⁶ It has been proposed that manipulation will lessen back pain by reducing mechanical stress. It is generally agreed that manipulation is best avoided if there is evidence of compression of nerve roots coming out of the spine as indicated by loss of sensation or paralysis. This section reviews the evidence for and against conventional physiotherapeutic techniques, osteopathy and chiropractic in relieving low back pain.

Physiotherapy

¹⁴Maitland GD. Vertebral manipulation, fourth edition, Butterworth, London, 1977

¹⁵Cyriax J. Textbook of orthopaedic medicine, 10th edition, Baillière Tindall, London, 1982

¹⁶Deyo RA, Cherkov D, Conrad D, Volinn E. Cost, controversy, crisis: low back pain and the health of the public. *Annual Review of Public Health* 12: 141-156, 1991

One of the first properly conducted trials of manipulation of low back pain was undertaken by a team consisting of a research fellow, a rheumatologist, a physiotherapist, a radiologist and a statistician from the Universities of Bristol, Manchester and Bath in England. This team, led by Dr H Sims-Williams, studied 94 patients who went to their general practitioners complaining of pain in the lumbar region. Patients were randomised to receive either Maitland manipulation and mobilisation or placebo physiotherapy (enthusiastic but very low intensity microwave diathermy radiation). Assessments were made by a physician without knowledge of the treatment given. In 1978 in a condensed report¹⁷ which did not provide all the details, they indicated that most patients improved immediately after both forms of treatment, although slightly more so in patients receiving manipulation and mobilisation. By three months, the differences between the two groups had largely disappeared and by one year they were identical. The authors concluded that a course of mobilisation and manipulation may hasten improvement but does not affect the long-term prognosis.

Alternative standard approaches include exercises, massage, thermotherapy (short-wave or microwave diathermy) and bed rest. In 1985, the results appeared of a randomised trial of various treatments in family practice of acute low back that was coordinated by the departments of family medicine and clinical epidemiology and biostatistics at McMaster University in Hamilton, Ontario, Canada.¹⁸ No benefit was seen for either physiotherapeutic isometric exercises or for bed rest. Similarly, a large multicentre Dutch trial of 473 patients found no advantage of exercise therapy over the usual care given by general practitioners.¹⁹ Again, another study²⁰ showed that seven days in bed was no better than two days' bed rest. In contrast, another study comparing intensive back muscle exercises, moderate back exercises or mild exercises in conjunction with massage and thermotherapy favoured intensive exercise.²¹ A particular form of postural exercises has been described by McKenzie.²² A randomised trial indicated that the McKenzie method was superior to back care education without exercises.²³

¹⁷Sims-Williams H, Jayson MIV, Young SMS *et al.* Controlled trial of mobilisation and manipulation for patients with low back pain in general practice. *British Medical Journal* ii: 1338-1340, 1978

¹⁸Gilbert JR, Taylor DW, Hildebrand A, Evans C. Clinical trial of common treatments for low back pain in family practice. *British Medical Journal* ii: 789-792, 1985

¹⁹Faas A, Chavannes AW, van Eijk JTM, Gubbels JW. A randomized, placebo-controlled trial of exercise therapy in patients with acute low back pain. *Spine* 18: 1388-1395, 1993

²⁰Dey RA, Diehl AK, Rosenthal M. How many days of bed rest for acute low back pain? A randomized clinical trial. *New England Journal of Medicine* 315: 1064-1070, 1986

²¹Manniche C, Hesselsøe G, Bentzen L *et al.* Clinical trial of intensive muscle training for low back pain. *The Lancet* ii: 1473-1476, 1988

²²McKenzie RA. The lumbar spine: mechanical diagnosis and therapy, Spinal Publication, Waikanae, New Zealand, 1981

²³Stankovic R, Johnell O. Conservative treatment of acute low-back pain. A prospective randomized trial: McKenzie method of treatment versus patient education in "mini back school". *Spine* 15: 120-

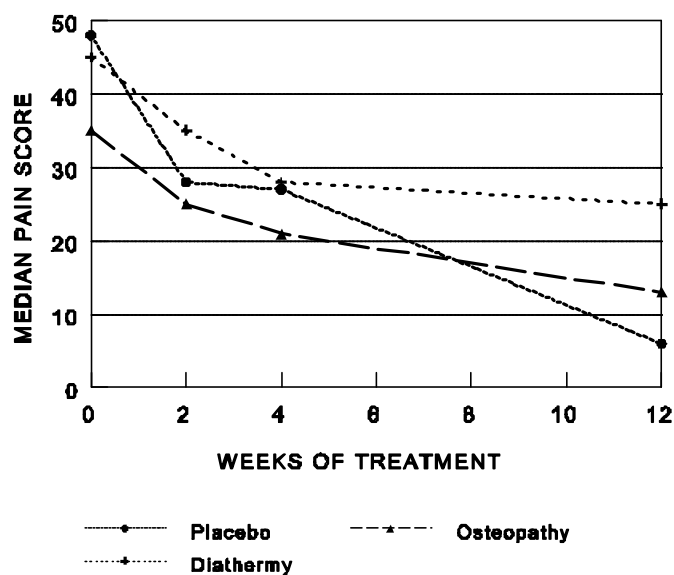


Figure 6. Median pain scores before, during and after treatment in groups of patients who received either osteopathic manipulations, short-wave diathermy of placebo physiotherapy

Perhaps the last word belongs to the most recent study emanating from Finland and which appeared in the *New England Journal of Medicine* in 1995. Continuing daily activities within the limits permitted by pain lead to more rapid recovery than either bed rest or back-mobilising exercises.²⁴

Osteopathy

In 1985, Dr T. Gibson and colleagues from the department of rheumatology at Guy's Hospital in London, England reported a comparison of physiotherapeutic microwave (short-wave) diathermy with manipulation administered by a non-medical osteopath. In addition, they had a group of patients who were given placebo physiotherapy with a detuned diathermy. They studied 109 hospital outpatients with low back pain of 2-12 months' duration who were randomly allocated to one of the three groups. Serial

123, 1990

²⁴Malmivaara A, Häkkinen U, Aro T *et al.* The treatment of acute low back pain - bed rest, exercises, or ordinary activity? *New England Journal of Medicine* 332: 351-355, 1995

assessments were made by a doctor unaware of the form of treatment that had been given. Pain was measured on a visual analogue scale (a graded ruler with no pain at one end and intolerable pain at the other), spinal tenderness was scored, consumption of pain-killers was counted, and flexion of the lumbar spine was measured.

Their results appeared in a paper²⁵ in *The Lancet* entitled “Controlled comparison of short-wave diathermy treatment with osteopathic treatment in non-specific low back pain”. At two and four weeks, there were no significant differences between the various groups (Figure 6). At twelve weeks, the placebo group did the best! On the other hand, this group consumed the most pain-killers, had the worst tenderness score, and had the greatest number of people unable to work or who could only perform modified activities. All three groups improved with time, and the authors concluded that the benefits obtained with both osteopathy and short-wave diathermy may have been achieved through a placebo effect. It is probably better to say that the natural history of low back pain is a tendency to get better and neither osteopathy nor physiotherapy changed this significantly.

Chiropractic

In a study nearly three decades ago, Robert Kane and colleagues from the department of family and community medicine of the University of Utah College of Medicine in Salt Lake City in the USA identified patients with a back problem by going through workmen’s compensation records. They found 122 patients who had been treated by a chiropractor and 110 who had been managed by a medical practitioner. They then interviewed these patients to assess their functional status and this was given a score. They reported their results in a paper²⁶ labelled “Manipulating the patient: a comparison of the effectiveness of physician and chiropractic care”. Improvement after treatment was similar in the two groups (Table 1) but patients who were treated by chiropractors had almost twice as many visits. The investigators concluded that chiropractic treatment of back complaints appeared to be as effective as that given by medical practitioners. This was a retrospective study, however, and the authors recognised the need for a prospective, randomised trial.

Such a trial was undertaken a few years later. Dr TW Meade, director of the Medical Research Council epidemiology and medical care unit at Northwick Park Hospital in Harrow, England co-ordinated a trial to compare the effectiveness of chiropractic manipulation with standard physiotherapy. This was a multicentre study that involved eleven centres, each of which had access to both chiropractic and hospital outpatient physiotherapy clinics. 741 patients aged 18-65 presenting to their general practitioners and who had no contra-indications to manipulation and who had not been treated within the previous month were randomised to receive either chiropractic or standard hospital

²⁵Gibson T, Grahame R, Harkness J, Woo P, Blagrove P, Hills R. *The Lancet* i: 1258-1261, 1985

²⁶Kane RL, Leymaster C, Olsen D, Woolley FD. *The Lancet* i: 1333-1336, 1974

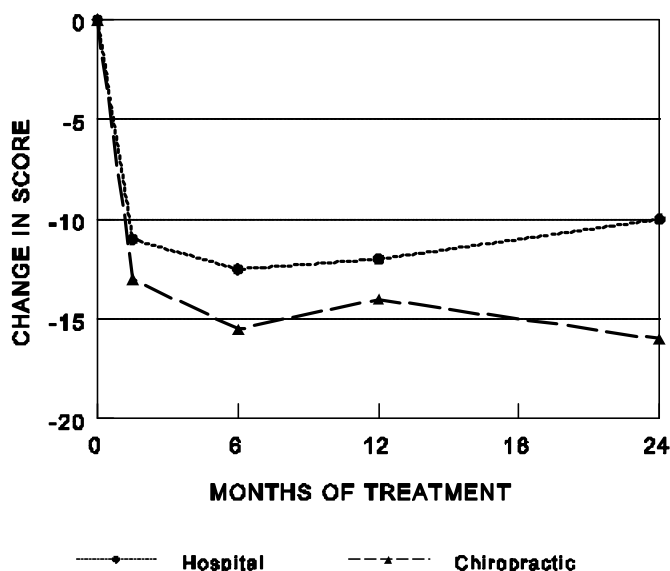
Table 1. Average functional status before and after treatment of patients by either medical practitioners or chiropractors and the average number of visits to each type of therapist.

	medical treatment	chiropractic treatment
functional status at the time of first visit	0.53	0.57
functional status after treatment	0.75	0.76
number of visits	7.3	12.8

treatment, the precise nature of the treatment was left to individual practitioners. Chiropractors used chiropractic manipulation in most patients while hospital staff generally used Maitland manipulation and/or mobilisation although some had Cyriax manipulation. Chiropractors were allowed to give a maximum of ten treatments that were intended to be concentrated over the first three months but could be spread over one year if considered necessary. The patients' progress was measured using a special questionnaire called the Oswestry back pain questionnaire which scored various features such as intensity of pain, difficulty with lifting and walking and so on, on a sliding scale. In addition, a nurse measured ability to raise the leg and flex the back before treatment and after six weeks.

The authors reported their results in 1990 in the *British Medical Journal* in a paper²⁷ headed "Low back pain of mechanical origin: randomised comparison of chiropractic and hospital outpatient management". Improvement in symptoms as indicated by falls in the Oswestry score for the two groups of patients are shown in Figure 7. Improvement was significantly greater in those receiving chiropractic treatment; after two years, there was a 7% greater fall in the Oswestry score in the chiropractic group. This is equivalent to the difference between having mild pain, being able to lift heavy weights without pain, and being able to sit for more than one hour on the one hand compared with having moderate pain, being able to lift heavy weights only if they are conveniently positioned, and being unable to sit for more than 30 minutes on the other. The differences noted between the two groups were most marked in patients who had more severe back disease as indicated by a higher initial Oswestry score. Similarly, patients given chiropractic treatment had greater improvement in mobility in the back and legs and 91% of patients were satisfied or very satisfied compared with 81% of those given hospital physiotherapeutic treatment. The investigators concluded that for patients with low back pain in whom manipulation is not contra-indicated, chiropractic almost certainly confers a greater long-term benefit than hospital outpatient physiotherapeutic management, and that this benefit was mainly seen in

²⁷Meade TW, Dyer S, Browne W *et al.* *British Medical Journal* 300: 1431-1437, 1990



Improvement in the back pain score in patients at various times after beginning hospital physiotherapy or chiropractic manipulation.

patients with chronic or severe pain.

An editorial then appeared in *The Lancet* asking whether the results of this trial warranted a revision of the conventional medical view of chiropractic.²⁸ It answered its own question by saying that chiropractic should be taken seriously by conventional medicine, that is, doctors and physiotherapists, but thought that the view that chiropractic should be included within the National Health Service in the United Kingdom was too extreme. However, Drs Bliddal and Bendix²⁹ from the department of rheumatology at the State University Hospital in Copenhagen Denmark were not so kind. They believed that Meade and his colleagues had shown no superiority for chiropractic in patients with acute low back pain and that more than 80% of patients with acute low back pain would get better spontaneously anyway. Furthermore, they claimed that chiropractors frequently offer year-long recurrence prevention, a practice that is not justified and is in danger of turning people into patients. They interpreted Meade's study to show that chiropractic manipulation is superior to the mixture of treatments that the medical profession is currently discarding and declared that the answer to chronic low back pain is active muscle training.

In 1992, Paul Shekelle MD and colleagues, two of whom were medical practitioners

²⁸Anonymous. Chiropractors and low back pain. *The Lancet* ii: 220, 1990

²⁹Bliddal H, Bendix T. Chiropractors and low back pain. *The Lancet* ii: 1504-1505, 1990

and two of whom were chiropractors, in Los Angeles, California reviewed the literature on the effects of spinal manipulation for low back pain. They included studies of manipulation by physiotherapists, osteopaths and chiropractors and weighted the reports according to how well they thought the investigations were done. They concluded that spinal manipulation is of short-term benefit in some patients, particularly those with uncomplicated low-back pain but the data were insufficient to decide on the value of manipulation for chronic low back pain.³⁰

Further data were provided in a study reported in 1995 in the *New England Journal of Medicine*.³¹ Dr Timothy Carey and colleagues involved in the North Carolina Back Project undertook an extensive study of 1,633 patients with acute low back pain in North Carolina. These patients were looked after by 39 urban primary care physicians (general practitioners), 48 rural primary care physicians, 32 urban chiropractors, 32 rural chiropractors, 29 orthopaedic surgeons and 28 doctors in a Health Maintenance Organization. The researchers were able to contact 95% of the patients after six months. They found that the outcomes including pain relief and mobility were similar in all the groups, with the least expensive treatment being provided by the general practitioners.

Broadly similar results were found yet again by investigations in the USA and Canada who also reported their results in the *New England Journal of Medicine*.³² They compared the effectiveness of physiotherapy using the Mackenzie method of manipulation, chiropractic or minimal intervention with simply the provision of an educational booklet. Physiotherapy and chiropractic had similar outcomes and were only marginally better than giving the explanatory booklet. The authors questioned whether the costs of physiotherapy or chiropractic were worth it.

Does manipulation relieve nonspecific back pain and neck complaints?

Neck disorders are reported less frequently than back pain but they still constitute a major problem. A group of Dutch investigators from Maastricht in The Netherlands reviewed 35 randomised clinical trials reported in the literature. They concluded that “although some results are promising, the efficacy of manipulation has not been convincingly shown”.³³ They then set out to do their own trial. They compared the effectiveness of manipulation,

³⁰Shekelle PG, Adams AH, Chassin MR *et al.* Spinal manipulation for low-back pain. *Annals of Internal Medicine* 117: 590-598, 1992

³¹Carey TS, Garrett J, Jackman A *et al.* The outcomes and costs of care for acute back pain among patients seen by primary care practitioners, chiropractors, and orthopaedic surgeons. *New England Journal of Medicine* 333: 913-917, 1995

³²Cherkin DC, Devo RA, Battié M, Street J, Barlow W. A comparison of physical therapy, chiropractic manipulation, and provision of an educational booklet for the treatment of patients with low back pain. *New England Journal of Medicine* 339: 1021-1029, 1998

³³Koes BW, Assendelft WJ, van der Heijden GJ, Bouter IM, Knipschild PG. Spinal manipulation and mobilisation for back pain: a blinded review. *British Medical Journal* 303: 1298-1303, 1991

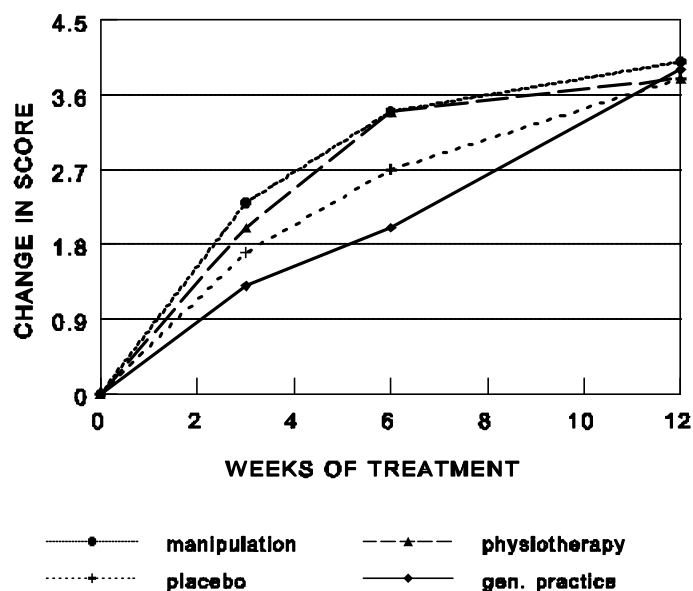


Figure 8. Improvement in the main painful complaint, on a 10 point scale, in patients treated by manipulation, physiotherapy, placebo physiotherapy or their general practitioners before and at various times after beginning treatment.

non-manipulative physiotherapy, continued treatment by a general practitioner, and placebo therapy in patients with a variety of back and neck conditions. The co-ordinating team was lead by BW Koes from the department of epidemiology and biostatistics of the University of Limburg, and included an anatomist, physiotherapists and a manual therapist as well as epidemiologists. Two hundred and fifty six patients presenting to 40 general practitioners were randomised to one of the four groups. Manipulation was carried out according to the directives of the Dutch Society for Manual Therapy while placebo treatment was administered by using detuned ultrasound and short-wave diathermy machines. Treatments were given for six weeks and assessment was made 3, 6 and 12 weeks after randomisation. The severity of the complaint was assessed by a blinded research assistant and patients estimated the overall effect of treatment and rated the severity of their pain.

The investigators reported their results in a paper³⁴ entitled "The effectiveness of manual therapy, physiotherapy, and treatment by the general practitioner for nonspecific

³⁴Koes BW, Bouter LM, van Mameren H, Essers AHM, Verstegen GMJR, Hofhizen DM *et al. Spine* 17: 28-35, 1992

back and neck complaints: a randomized trial". At three weeks, there was a marginal benefit in favour of manipulation and to a lesser extent for physiotherapy over the results achieved by placebo physiotherapy or standard care given by general practitioners for the main complaint (Figure 8). By 12 weeks, there were no significant differences among the groups, irrespective of the treatment given. Similar results were seen for improvement in pain. The greatest improvement in overall functional status at 12 weeks was actually in those who received placebo treatment. The worst overall effects as perceived by the patients themselves were in those treated by general practitioners; perhaps this reflects less attention or the least placebo effect in this group. Indeed, the authors concluded that differences between physiotherapy and manipulation could not be shown and that a substantial part of the effectiveness of these two regimens appeared to be due to nonspecific placebo effects.

However, in a follow-up report they indicated that the improvement score (out of 10) for the main complaint was 4.5 for manipulation and 3.8 for physiotherapy.³⁵ They then concluded that manipulation was slightly better than physiotherapy and that both of these techniques were superior to either placebo physiotherapy or standard treatment by general practitioners. The latter statement was completely unsupported by data as they did not provide scores for the last two groups. It seems that they would have been much safer ground if they had stuck to the conclusions of their first paper.

Does manipulation of the neck help migraine and other forms of headache?

Migraine is a common form of headache that has been discussed in the chapter on meditation. Since some chiropractors have claimed that chiropractic therapy benefits patients with migraine, Dr GB Parker and colleagues from the University of New South Wales in Sydney, Australia investigated the effects of manipulation of the neck.

They randomly allocated 85 patients to receive either neck (also called cervical) manipulation by a medical practitioner or physiotherapist, to be manipulated by a chiropractor, or to have simple mobilisation administered by a doctor or physiotherapist. Treatments were given over a two month period. The frequency and duration of headaches were recorded and the severity of pain was measured using a visual analogue scale, that is, a ruler marked in graduations with worst pain at one end and none at the other.

The investigators reported their findings in a paper³⁶ headed "A controlled trial of cervical manipulation for migraine". They found that migrainous symptoms were reduced in all the groups but said there were no significant differences between those who received

³⁵Koes BW, Bouter LM, van Mameren H, Essers AHM, Verstegen GMRJ, Hofhuizen DM *et al.* Randomised clinical trial of manipulative therapy and physiotherapy for persistent back and neck complaints: results of one year follow up. *British Medical Journal* 304: 601-605, 1992

³⁶Parker GB, Tupling H, Pryor DS. *Australian and New Zealand Journal of Medicine* 8: 589-593, 1978

Table 2. Percentage improvement after 2 months of various symptoms of migraine after either chiropractic or orthodox manipulation or simple mobilisation.

	Per cent improvement after treatment		
	chiropractic manipulation	orthodox manipulation	simple mobilisation
frequency of headaches	67	15	53
duration of headaches	57	9	25
pain intensity	75	14	18
disability	56	4	27

cervical manipulation by a chiropractor or an orthodox therapist or with those who were given the control treatment. Further, they maintained this view when patients were followed for two years.³⁷ However, when one looks at the data, it appears to me that chiropractic manipulation looks to have something going for it (Table 2). For example, the average length of time that headaches lasted in the group treated by chiropractic was reduced by 57% compared with only a 9% reduction in those that were given orthodox manipulation and 25% in those that received simple mobilisation. Unfortunately, insufficient information is given in the original paper to be able to re-analyse the results for tests of statistical significance. This study might be worth doing again.

An investigation of the value of chiropractic manipulation in tension headaches was done by two chiropractors in Denmark. They randomised 75 patients to receive either chiropractic or laser treatment as a placebo over four weeks. No differences were found between the two groups and the investigators concluded that chiropractic was of no value for this condition.³⁸

Can osteopaths diagnose heart attacks by palpation?

Osteopathic medicine has as one of its tenets the idea that there may be signs of disease that are remote from the organ affected. There is nothing new in this idea and it is well

³⁷Parker GB, Pryor DS, Tupling H. Why does migraine improve during a clinical trial? Further results from a trial of cervical manipulation for migraine. *Australian and New Zealand Journal of Medicine* 10: 192-198, 1980

³⁸Bove DC, Nilsson N. Spinal manipulation in the treatment of episodic tension-type headache. A randomized controlled trial. *Journal of the American Medical Association* 280: 1576-1579, 1998

recognised in many situations in medicine. Alexander Nicholas and colleagues from the Philadelphia College of Osteopathy in Pennsylvania in the United States of America set out to determine whether osteopaths could find abnormalities in the soft tissues of the back in patients who had suffered a heart attack (technically called a myocardial infarction).

They studied 62 patients; 25 had known myocardial infarctions 3-5 days previously, 15 had heart disease other than heart attacks, and the remainder had no known disease of the cardiovascular system. Each person was examined by one of five osteopaths selected at random. The osteopath examined the patient's back and was not allowed to converse with the patient. The soft tissues (everything except bone) were described by the following categories - tense, firm and resistant; friction; thick, boggy and doughy; flaccid and atrophic; spastic; full; heavy musculature with increased density; cord-like ropiness; fibre-like stringiness, bead-like or pellet-like shottiness; colour change; cold or warm; dry or moist; or normal. Extra-ordinarily, variation among the examiners was determined by having the examiners palpate 30 mongrel dogs while blind-folded! Concerning the humans, abnormalities of the tissues of the left side back between the first and eighth thoracic vertebrae were found in 67% of patients with heart attacks, in 65% of those with heart disease other than heart attacks, and in 29% of control subjects. These data are not particularly impressive. The authors claimed that they showed that palpating the back may help in diagnosing heart attacks. Considering that chest pain is a much more reliable symptom and that electrocardiography and blood tests are the definitive ways of diagnosing and determining the severity of heart attacks, one may well ask what is the point of all this? It certainly does nothing to support the underlying philosophy of osteopathy.

This paper³⁹ was published in the *British Medical Journal*. One can only speculate as to why that august journal on the other side of the Atlantic Ocean should have published it. Certainly, subsequent correspondents were not very impressed and criticised the study on various grounds, with one letter writer⁴⁰ also remarking that he was yet to see a dog that rested on its back! The only reason I have included a discussion of this report is because it is the only study of osteopathy that I have been able to find in a first-rate medical journal.

Is chiropractic of value in the treatment of asthma?

Asthma has been described in the chapter on acupuncture. Claims have been made that chiropractic is helpful so a group of medical practitioners and chiropractors from Ontario, Canada set out to investigate this question.⁴¹ They studied 91 asthmatic children who, in

³⁹Nicholas AS, Debias DA, Ehrenfeuchter W *et al*. A somatic component to myocardial infarction. *British Medical Journal* 291: 13-17, 1985

⁴⁰Forsyth DR. A somatic component to myocardial infarction. *British Medical Journal* 291: 481, 1985.

⁴¹Balon J *et al*. A comparison of active and simulated chiropractic manipulation as adjunctive treatment for childhood asthma. *NewEngland Journal of Medicine* 339: 1013-1020, 1998

addition to their usual medical therapy, were randomly allocated to be treated with either real or simulated chiropractic for 16 weeks. There were no differences between the two groups in either the symptoms reported or objective measures of the children's ability to blow air through a tube. The investigators concluded that adding chiropractic to standard medical care was of no benefit. This study did not answer the question as to whether chiropractic is better than no treatment or equivalent to standard medical therapy. In view of the above results, I cannot imagine that any ethics committee would approve such a study.

Are there any risks to manipulation?

There have been many reports in the medical literature of severe, occasionally fatal, complications of spinal manipulation. Several examples are given:

- A 44 year old previously fit and healthy man played his first game of cricket for 20 years. After bowling, he complained of an acute onset of pain in his neck and shoulder. Two to three days later, he saw a chiropractor who performed rotational manipulation of the neck. Five days after that, he suddenly developed vertigo (dizziness). After another few days, he complained of double vision, headache, vomiting and weakness in his left arm. He was admitted to hospital but died shortly thereafter. At post-mortem examination, the artery that supplies the base of the brain and which runs through the bones of the neck (the vertebral artery) was found to be torn and the brain itself was destroyed because of lack of blood.⁴²
- A 69 year old retired insurance agent saw an osteopath for pain in his shoulder. His neck was manipulated and he immediately became breathless. Subsequent investigations showed that his diaphragm (the muscle between the lungs and abdomen and which aids breathing) was paralysed. The nerves that control the diaphragm arise in the neck. The patient's symptoms gradually improved over the next three years.⁴³
- A 28 year old woman with chronic low back pain attended a chiropractor who manipulated her back. Within hours the pain was much worse and she had developed sciatica (pain in her leg) associated with weakness of the leg. X-ray examination revealed that the disc between the fourth and fifth lumbar vertebrae was prolapsed, that is, it had been squashed and was bulging causing pressure on a nerve. An operation was immediately undertaken to relieve the pressure and she made an

⁴²Johnson CP, Lawler W, Burns J. Use of histomorphometry in the assessment of fatal vertebral artery dissection. *Journal of Clinical Pathology* 46: 1000-1003, 1993

⁴³Pandit A, Kalra, S, Woodcock A. An unusual cause of bilateral diaphragmatic paralysis. *Thorax* 47: 201, 1992

uneventful recovery.⁴⁴

In 1993, Frank Powell and his colleagues from the division of neurosurgery at the University of Illinois College of Medicine at Peoria in the United States reviewed 138 cases reported in the literature of complications following spinal manipulation as well as describing two cases of their own. They analysed the risks of manipulation and compared them with the benefits achieved. They concluded that the ratio of risk to benefit was sufficiently low for manipulation to be acceptable in patients with midline low back pain that had been present for a week or less. However, they calculated the risk of manipulation was unacceptably high in patients with neck pain or for patients with pain anywhere in the back that was associated with either a prolapsed disc or sciatica.⁴⁵

Awaiting judgement

Much of the clinical practice of many osteopaths and chiropractors is concerned with back and neck disorders. As already recounted, the value of these therapies in these conditions have been investigated extensively. However, many chiropractors and osteopaths do not restrict their activities to these disorders but claim to be effective in a variety of other disorders (Table 3). They may well have a useful role to play in a variety of musculo-skeletal disorders but there is no evidence to support their practice in diseases of the internal organs. Medical practitioners and physiotherapists have been most concerned to assess the validity of chiropractic and osteopathy in treatment of some disorders of the spine, especially lower back pain. I doubt that they will be much interested in assessing the other claims and it is going to be up to chiropractors and osteopaths to undertake trials of their therapies in other conditions. I will be very surprised in any such evidence is ever forthcoming.

Conclusions

There is no evidence whatever that osteopathy or chiropractic are of any value for conditions other than back pain. Claims that osteopathy and chiropractic have anything to offer for non-musculoskeletal illnesses, with the possible exception of migraine, are absurd and scurrilous. There is however, some evidence that manipulation, whether by a chiropractor, osteopath, physiotherapist or appropriately trained medical practitioner, may be of limited benefit in patients with acute back pain, especially if it is of recent onset.

What would I do if I had back pain? If it involved the neck, I would see my doctor or

⁴⁴Slater RNS, Spencer JD. Central lumbar disc prolapse following chiropractic manipulation: a call for audit of 'alternative practice'. *Journal of the Royal Society of Medicine* 85: 637-638, 1992

⁴⁵Powell FC, Hanigan WC, Olivero WC. A risk/benefit analysis of spinal manipulation therapy for relief of lumbar or cervical pain. *Neurosurgery* 33: 73-79, 1993

Table 3. Conditions for which efficacy of osteopathy and/or chiropractic is claimed (+) in a range of books^{46,47,48,49} on alternative medicine. Diseases marked in bold have been formally tested and are described in this chapter.

	Fulder	Inglis	Readers' Digest	Stanway
asthma	+		+	+
arthritis	+		+	+
backache	+	+	+	+
bronchitis				+
cardiac disorders	+			
catarrh			+	
chest pain	+			
circulatory disorders		+		
constipation			+	
digestive disorders	+	+		
diseases of the internal organs				+
emotional disorders				+
giddiness				+
headaches	+	+	+	
hip and knee problems		+		
indigestion				+
limb (arm and leg) pain	+	+		
lumbago	+			
menstrual disorders			+	
migraine	+		+	+
neck pain			+	+
neuralgia	+			
neurological disorders	+			
respiratory disorders	+	+		
sciatica	+	+	+	
shoulder pain		+		+
slipped disc	+		+	+
stress			+	
sports injuries	+		+	

physiotherapist and avoid manipulation like the plague as there are significant risks. If the

⁴⁶Fulder S. *The handbook of complementary medicine*. Oxford University Press, Oxford, 1988
⁴⁷Inglis B, West R. *The alternative health guide*. Michael Joseph, London, 1983
⁴⁸*The Reader's Digest guide to alternative medicine*. Reader's Digest, Sydney, 1992
⁴⁹Stanway, A. *Alternative medicine: a guide to natural therapies*. Chancellor Press, London, 1986

pain involved the lower back, I would put myself to bed until I was able to continue ordinary activities and take a pain-killer and anti-inflammatory agent such as aspirin. If the symptoms did not subside within a few days, I would seek out a doctor trained in manipulation. Alternatively, I would see my general practitioner to exclude any serious disease that would be a contra-indication to manipulation and ask him to refer me to a physiotherapist who was skilled in manipulation. I would choose a physiotherapist because I know that such an individual has the same basic understanding and philosophy of disease as I do. If, however, you prefer to be manipulated by an osteopath or chiropractor, that is reasonable if you have uncomplicated low back pain, but it would be wiser to consult your general practitioner first. A motto for those who use osteopaths and chiropractors might well be:

Back, not beyond"