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## Demonstration of Brain-to-Immune System Interaction - first time in humans.

Behavioural conditioned immunosuppression has been described in rodents as the most impressive demonstration of brain-to-immune system interaction. To analyse whether behavioural conditioned immunosuppression is possible in humans, these authors, from the Department of Medical Psychology, University of Essen, Germany, recruited healthy subjects and carried out a double blind, placebo-controlled trial.

The healthy subjects were conditioned in four sessions over 3 consecutive days, receiving the immunosuppressive drug cyclosporin A as an unconditioned stimulus paired with a distinctively flavoured drink (conditioned stimulus) each 12 h.

In the next week, re-exposure to the conditioned stimulus (drink), but now paired with placebo capsules, induced a suppression of immune function.

These data demonstrate for the first time that immunosuppression can be behaviourally conditioned in humans in an impressive demonstration of brain-to-immune system interaction.

**Reference:** Goebel MU, Trebst AE, Steiner J, et al. Behavioural conditioning of immunosuppression is possible in humans. *FASEB J* 2002;16:1869-73.

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## Lumbar Nerve Root Injury induces CNS Neuroimmune Activation

The mechanisms underlying common symptomatology that arises secondary to nerve root injury remain obscure. There is a growing body of evidence that central neuroimmune activation may play a key role in the initiation and maintenance of various states, including those resulting from lumbar radiculopathy.

This study was designed to examine the role of central neuroimmune activation in a rat model of lumbar nerve root injury. The authors investigated the role of neuroimmune activation using immunocytochemistry to detect expression of major histocompatibility complexes.

Male Holtzman rats were divided into three groups: a normal group, a sham surgery group, and a chronic group.

The authors found that nerve root injury in the rat produced increased spinal major histocompatibility complex Class II, cluster determinant 4, ICAM-1, and PECAM-1 immunoreactivity and increased bilateral sensitivity to tactile stimuli. Leukocyte trafficking into the spinal parenchyma was observed, which increased over time after nerve root injury.

It was concluded that the presence of spinal neuroimmune changes following nerve root injury supports the hypothesis that central sensitisation through activation of immune mediators, coupled with macrophage traffic across the blood-brain barrier, plays a key role in the mechanisms underlying nerve root injury.

**Reference:** Rutkowski MD, Winkelstein BA, Hickey WF, et al. Lumbar nerve root injury induces central nervous system neuroimmune activation. *Spine* 2002; 27:1604-13.

## **Medical Researchers suggest Dissatisfaction with Mainstream Healthcare still Increasing**

**Quote** - "Dissatisfaction with the U.S. health care system is increasing despite impressive technologic advances. This dissatisfaction is one factor that has led patients to seek out complementary and alternative medicine (CAM) and led medical schools to start teaching CAM".

**Reference:** Maizes V, Schneider C, Bell I, et al. Integrative Medical Education. Acad Med 2002 77: 851-860.

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### **Use of Chiropractic by Individuals with Multiple Sclerosis.**

**OBJECTIVE:** To examine the prevalence and patterns of use of complementary and alternative medicine (CAM) among individuals with multiple sclerosis (MS) in the USA and to explore the reasons for use, symptoms treated and perceived effectiveness of these therapies.

**METHODS:** Surveys were mailed to the entire mailing list of the MS Foundation, constituting 11,600 individuals with MS or their family members; 3,140 adults with MS returned surveys, yielding a response rate of 27.1%.

**RESULTS:** More than half of the responding sample (57.1 %) had used at least one CAM modality.

The longer that people had MS and the less satisfied they were with conventional health care the more likely they were to use CAM therapies.

The most common reasons for using CAMs were the desire to use holistic health care (i.e., treatments that recognized the interrelatedness of mind, body and spirit) and dissatisfaction with conventional medicine.

Of the 3,140 MS sufferers who responded, 25.5% had used chiropractic. Women were 25% more likely than men to use CAM therapies.

There was no significant relationship between the frequency of use and the reported efficacy of the CAM techniques ( $r = 0.17$ ,  $p > 0.10$ ).

**Reference:** Nayak S, Matheis RJ, Schoenberger NE, et al. Clin Rehabil 2003;17:181-91

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### **Low Back Problems: what is the long-term course?**

It is often claimed that up to 90% of low back pain (LBP) episodes resolve spontaneously within 1 month. However, the authors of a this recent review contend that the literature in this area is confusing due to considerable variations regarding the exact definitions of LBP as well as recovery. The authors therefore suggest that, the claim (90% of low back pain (LBP) episodes resolve spontaneously within 1 month) - attractive as it might be to some - may not reflect reality.

In order to investigate the long-term course of incident and prevalent cases of LBP, a systematic and critical literature review was undertaken. A comprehensive search of the topic was carried out utilizing both Medline and EMBASE databases. The Cochrane Library and the Danish Article Base were also screened.

Thirty-six articles were included. The results of the review showed that the reported proportion of patients who still experienced pain after 12 months was 62% on average, the percentage of patients sick-listed 6 months after inclusion into the study was 16%, the percentage who experienced relapses was 60%, and the percentage who had relapses of work absence was 33%. Furthermore, the mean reported prevalence of lower back problems in cases with previous

episodes was 56%, which compared with 22% for those without a prior history of low back problems. Therefore the risk was consistently about twice as high for those with a history of low back problems.

The authors conclude that, "...despite the methodological variations and the lack of comparable definitions, the overall picture is that low back problems do not resolve themselves when ignored".

**ASRF Editors comments** - The idea that most spinal-related problem resolve in the short term of their own accord is incorrect. Patients should be made aware that, in general, spinal related problems are not self-limiting and that the risk of recurrence, after an already having had problems, is very significant.

**Reference:** Hestbaek L, Leboeuf-Yde C, Manniche C. Eur Spine J. (Published on-line 28<sup>th</sup> Jan, 2003).

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### Chiropractic use among Elderly Persons

Large scale surveys in the United States and abroad suggest that 35-60% of adults have used some form of complementary/alternative medicine (CAM). However, no studies to date have focused on predictors and patterns of CAM use among elderly persons.

**METHODS:** The population surveyed were Californians enrolled in a Medicare risk product that offers coverage for acupuncture and chiropractic care. Surveys were mailed to 1,597 members in 1997 and responses received by 728 (51 % response rate). Health risk assessment data were also obtained at baseline and 12-15 months following enrolment in the plan. Multiple logistic regression analyses were carried out to examine predictors of CAM use.

**RESULTS:** Forty-one percent of seniors reported use of CAM. Herbs (24%), **chiropractic (20%)**, massage (15%), and acupuncture (14%) were the most frequently cited therapies. CAM users tended to be younger, more educated, report either arthritis and/or depression/anxiety, not be hypertensive, engage in exercise, practice meditation, and make more frequent physician visits. Although 80% reported that they had received substantial benefit from their use of CAM, the majority (58%) did not discuss the use of these therapies with their medical doctor.

The findings from this study suggest that there is significant interest in and use of CAM, including chiropractic, among elderly persons. These results suggest the importance of further research into the use and potential efficacy within the senior population.

**Reference:** Astin JA, Pelletier KR, Marie A, et al. J Gerontol A Biol Sci Med Sci 2000;55:M4-9

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### Patterns and perceptions of care for treatment of back and neck pain: Results of a national survey.

Back pain and neck pain are common medical conditions that cause substantial morbidity. Despite the presumed importance of complementary therapies for these conditions, studies of care for back and neck pain have not gathered information about the use of complementary therapies.

This nationally representative survey sampled 2,055 adults. The survey gathered detailed information about medical conditions, conventional and complementary therapies used to treat those conditions, and the perceived helpfulness of those therapies.

The authors found that of those reporting back or neck pain in the last 12 months, **37%** had seen a conventional provider and **54%** had used complementary therapies to treat their condition. Chiropractic, massage, and relaxation techniques were the most commonly used complementary treatments for back or neck pain (20%, 14%, and 12%, respectively, of those with back or neck

pain). Chiropractic, massage, and relaxation techniques were rated as "very helpful" for back or neck pain among users (61%, 65%, and 43%, respectively), whereas conventional providers were rated as "very helpful" by 27% of users. We estimate that nearly one-third of all complementary provider visits in 1997 (203 million of 629 million) were made specifically for the treatment of back or neck pain.

The authors conclude that, "Chiropractic, massage, relaxation techniques, and other complementary methods all play an important role in the care of patients with back or neck pain".

**ASRF Editors comments:** This study suggests that more people rated massage as 'very helpful' for their back/neck pain (65%), than rated chiropractic 'very helpful' for back/neck pain (61 %). When we reflect upon the findings of the present survey, another former study that found that chiropractic was no more effective in the treatment of LBP than an inexpensive educational booklet, and the cost-effectiveness paper at the end of this series of updates, it will be clear to most that **the future of the chiropractic profession will be well served by conceptualising and researching the effects of chiropractic care beyond the narrow scope that involves just LBP, neck pain and headaches.**

**Reference:** Wolsko PM, Eisenberg DM, Davis RB, et al. Spine 2003; 28:292-7.

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### It's time to stop taking the tablets - you're not ill, you're just alive

(The following excerpts are from an article published in the London Times by Anjana Ahuja on Feb 19, 2003. The full article can be accessed at the following address) -  
<http://www.timesonline.co.uk/article/0,,7-582366,00.html>

The language of modern life is revealing. Redundancy is no longer something that just happens; employees suffer it. Once, people made redundant went straight to their lawyer. Now they go straight to their GP, where some will be offered counselling while others are prescribed antidepressants to pull them through.

And so redundancy is added to the ever-growing list of life's sorrows that can be assuaged by doctors and pills, rather than personal resolve and a sympathetic ear. They include shyness, which has been redefined as social anxiety disorder, and the grief of losing a loved one (bereavement disorder). Even a reluctance to open bank statements has been recast as a mental health condition, called financial phobia.

The desire to lace up every sling and arrow of life into a medical straitjacket enrages Dr Michael Fitzpatrick, a London GP and author of *The Tyranny of Health: Doctors and the Regulation of Lifestyle*, who says it is evidence of widespread "emotional incontinence".

Fitzpatrick believes the trend for medicalisation has taken root because traditional support systems - family and religion - are withering away.

Even children are imperilled by creeping medicalisation up to one in five American children are thought to have an anxiety disorder, symptoms of which include worrying about exams or fearing embarrassment by one's peers. Those concerns, some argue, are simply part of growing up. That has not stopped parents demanding drugs, notably fluoxetine (Prozac) and paroxetine (Paxil), to turn their nervous progeny into accomplished social performers.

The trend for medicalisation has been imported from across the Atlantic, Tyrer says. His American colleagues take their professional cue from the Diagnostic and Statistical Manual of Mental Disorders, known as DSM-IV and often called the bible of American psychiatry. There are more than 300 disorders listed in the current edition, triple the number listed 20 years ago.

It is all rather convenient for the drug industry because new disorders means new markets. Figures show that 22 million prescriptions for antidepressants were issued in the UK in 2000, compared to just 9 million in 1991.

Last month, an article in the British Medical Journal accused drug companies of inventing a disorder called female sexual dysfunction - the supposed female equivalent of impotence - in order to create a new market. The overall effect is to lower the threshold at which it becomes acceptable to prescribe drugs.

A prescription is the easiest way to prove that the problem has been addressed; Mind will shortly publish evidence that it can take as little as five minutes with a GP before a prescription is fluttered under a patient's nose.

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### Interpreting Kuhn on the Nature of Paradigms

**Quote** - "For Kuhn, the basis of a paradigm is not justified rationally, neither is it open to direct falsification. Since it forms the structure within which evidence is evaluated, the paradigm adapts evidence to suit itself. It takes a huge imaginative leap to get outside the paradigm within which one is working. It is therefore possible to interpret Kuhn in such a way that he is seen as a relativist, since a paradigm can be evaluated against the questions asked by a particular society at a particular time, but cannot be compared with another paradigm from another period. In other words each paradigm has its own language, and the terms used by different paradigms may be incompatible."

**Reference:** Thompson M. Philosophy of Science. Bookprint Limited (UK). 2001. Pge. 71.

### A hospital-based study shows that 10% of patients with chronic gastrointestinal diseases seek chiropractic care.

The objective of this study was to determine the extent to which Taiwanese patients use so called alternative medicine. Five hundred consecutive patients with chronic liver and gastrointestinal disorders at an outpatient-service were interviewed. Forty-two patients were excluded due to incomplete data.

The percentages of patients with chronic liver (102/269, 37.9%) and gastrointestinal (74/189, 39.2%) diseases using alternative medicine were not significantly different ( $p = 0.70$ ). The patients who used alternative medicine were not statistically different in gender ( $p = 0.37$ ), age ( $p = 0.59$ ), education level ( $p = 0.83$ ), family income ( $p = 0.90$ ), or occupation ( $p = 0.72$ ). Only 36% (64/176) of patients informed their doctors of their use of alternative medicine.

The kinds of alternative medicine used by the 176 patients included:

Chinese/herbal medicine, 169 (96%); acupuncture, 31 (18%); nutritional supplements, 22 (13%); **chiropractic, 17 (10%);** scratching, 14 (8%); Qigong, 13 (7%); cupping, 13 (7%); and incense ash, 3 (2%).

This study indicates the use of alternative medicine occurs across all demographic groups in one-third of patients with chronic liver and gastrointestinal diseases at a major general hospital in Taipei.

Reference: Yang ZC, Yang SH, Yang SS, et al. Am J Chin Med 2002 30:637-43.

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### The natural history and risk factors of spinal problems

This study describes the natural history of 13 musculoskeletal conditions requiring hospitalisation and identifies demographic, behavioural, psychosocial, occupational, and clinical characteristics most strongly associated with disability discharge from the Army.

Subjects included 15,268 active-duty personnel hospitalised for common musculoskeletal condition between the years 1989-1996 who were retrospectively followed through 1997.

*Spinal problems had the greatest 5-year cumulative risk of disability (21%, 19%, and 17% for intervertebral disc displacement, intervertebral disc degeneration, and nonspecific low back pain, respectively).*

The study identified the following risk factors for disability among males: lower pay grade, musculoskeletal diagnosis, shorter length of service, older age, occupational category, lower job satisfaction, recurrent hospitalisations, more cigarette smoking, greater work stress, and heavier physical demands. Among females, fewer covariates reached statistical significance, although lower education level was significant in more than one model. Modifiable risk factors related to work (job satisfaction, work stress, physical demands, occupation) and health behaviours (smoking) suggest possible targets for intervention.

References: Lincoln AE, Smith GS, Amoroso PJ, et al. Work 2002; 18:99-113.

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### Chiropractic and Medical Care Costs of Low Back Care

**OBJECTIVE:** To compare the 1-year costs for patients treated for acute and chronic ambulatory low back pain by medical physicians and chiropractors.

**STUDY DESIGN:** Prospective, practice-based observational study undertaken in 13 general medical practices and 51 chiropractic community-based clinics.

**PATIENTS AND METHODS:** Of 2,872 study patients, 2,263 had complete 1-year records of services. Service data were assigned relative value units that were converted into 1995 dollar costs. Prescription drug costs for medical patients were included. Patient data on health status, pain and disability, and socio-economic characteristics were obtained from self-administered questionnaires.

**RESULTS:** The direct office costs of treating both chiropractic and medical patients over a 1-year period were relatively small. Forty-three percent of chiropractic patients and 57% of medical patients incurred costs of less than \$100. However, the mean costs associated with chiropractic patients (\$214) were significantly higher than those for medical patients (\$123), especially when compared with medical patients who were not referred for further treatment or evaluation (\$103). Chiropractic patients had somewhat lower baseline levels of pain and disability than non-referred medical patients, but the 2 groups were relatively similar on most patient characteristics. There also were no statistically significant differences in the improvements in pain and disability between these 2 groups of patients.

**CONCLUSION:** The results of this study indicate that patients treated in chiropractic clinics for acute and chronic low back pain incur higher costs over a 1-year period, but have about the same degree of relief as non-referred patients treated in medical clinics.

**ASRF Editor's comments:** Put simply, chiropractic care costs more than an educational booklet and/or simple analgesic medications. As a result the chiropractic profession might be well advised to explore the role of chiropractic in relation to things like non-musculoskeletal disorders and optimal health through the use of broad functional and quality of life outcome measures.

**Reference:** Stano M, Haas M, Goldberg B, et al. Chiropractic and medical care costs of low back care: results from a practice-based observational study. *Am J Manag Care* 2002; 8:802-9.

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### The Physicist and the Horse

The use of approximations and models is so integrated into the fabric of science that it has even become the basis for a joke. I first heard this story many years ago, and since then I've come across several variations. It goes something like this:

An organized crime syndicate has decided to ask several people to predict the winners of horse races. The first person they ask is a psychic. The psychic gazes into a crystal ball and predicts the winner of a race. The horse loses. I'll leave the fate of the psychic to your imagination. Next the syndicate asks a computer programmer to predict the winner of a horse race. The computer programmer writes a program to predict the winner, enters in all relevant information, runs the program, and announces the winner of the next race. The horse loses and the computer programmer shares the same fate as the psychic. Finally the syndicate decides to ask a physicist. The physicist agrees to participate, asks them to come back in a few weeks and starts thinking about the problem. The syndicate comes back as scheduled, and the physicist says, "I'm not finished yet, come back in another week." They come back in another week and the physicist says, "All right I'm ready now. But I won't just tell you the answer, I have to explain my method to you." So the physicist leads them to a blackboard, sits them down, steps up to the board with a piece of chalk, draws a large circle on the board, and says: "First, assume that the horse is a sphere...."

**Reference:** Derry GN. *What Science is and How it Works*. Princeton Uni Press. 1999. Pge. 87