

## Chapter 4

# ACUPUNCTURE

Acupuncture is said to have had its origins in China some 5,000 years ago when it was noticed that soldiers wounded with arrows occasionally were relieved from diseases that had been troubling them for years. Whether or not this story is true, Chinese medicine has evolved a system that aims to cure illness by penetrating the skin at specific points. This system is called acupuncture, derived from the Latin words "acus" and "punctura" meaning "needle" and "pricked", respectively. The first book on the subject, called *The Yellow Emperor's Classic of Internal Disease* was written about 700 BC.

Acupuncture is based upon the theory that there is a nervous connection between the organs within the body and the body's surface. Let me hasten to add that no medical

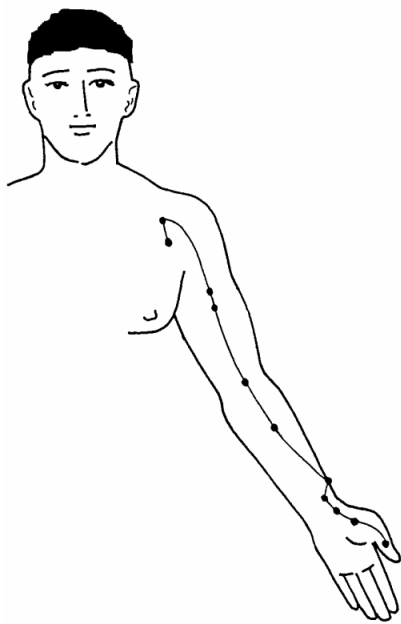


Figure 1. Acupuncture points along the lung meridian.

scientist has ever found such connections. It is claimed that when an organ is diseased, tender points, called acupuncture points, appear in or just beneath the skin. The Chinese acupuncturists described about 1,000 of these points and classified them into twelve main groups. All the points belonging to one group are joined by an imaginary line called a meridian (Figures 1,2). The number of points on each meridian varies. For example, there are said to be 67 points on the bladder meridian and nine on the heart meridian. These meridians are believed to control the heart, pericardium (the lining around the heart), lung, stomach, small bowel, large bowel, liver, gall-bladder, spleen, kidney, bladder and "triple warmer". In addition to these external, surface meridians, there is said to be a complex network of internal meridians. A variant of the standard form of acupuncture is Ear, Nose, Hand and Foot acupuncture in which it is believed that all parts of the

body are represented in miniature form in other parts of the body. For example, all the

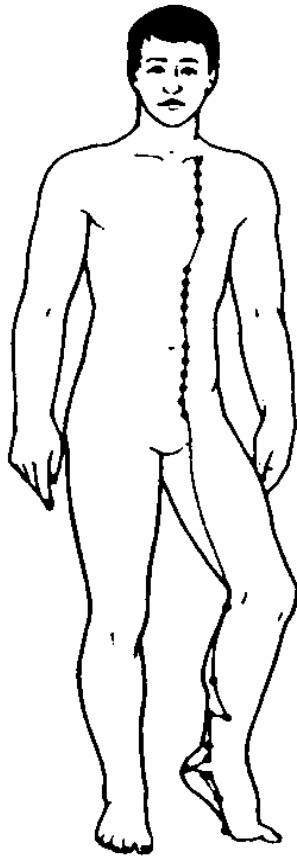


Figure 2. Acupuncture points along the kidney meridian running from the neck to the foot.

parts of the body are believed to be represented in the ear (Figure 3).

Chinese theorists suppose that the body's life forces, known as *chi* or *qi*, circulate in the meridians. They blame all disease on disturbances of these circulating life forces. This is considered to occur when there is an imbalance between *Yin* and *Yang*. *Yin* and *Yang* are two poles or extremes, equivalent to positive and negative, male and female, or good and evil (Figure 4). They are the activating forces behind *qi*, so when there is an imbalance between the two, the constant movement between them is impeded, resulting in illness. *Yin* organs are hollow, like the bowel and bladder while *Yang* organs are solid or filled with blood, such as the liver and lungs. *Yin* sedates, is cold, dark and passive and is regarded as a negative principle while *Yang* stimulates, is warm, light and active and is deemed a positive principle. Acupuncture is practised by stimulating the acupuncture points, usually with fine needles inserted into the skin, in order to influence other parts of the body. When a needle is inserted, it is left there for periods ranging from a few seconds to a few weeks. Some practitioners rotate the needles with the finger tips, some just insert and remove them, while others electrify the needles. The art for the acupuncturist, however, is in identifying the right points for the illness at hand.

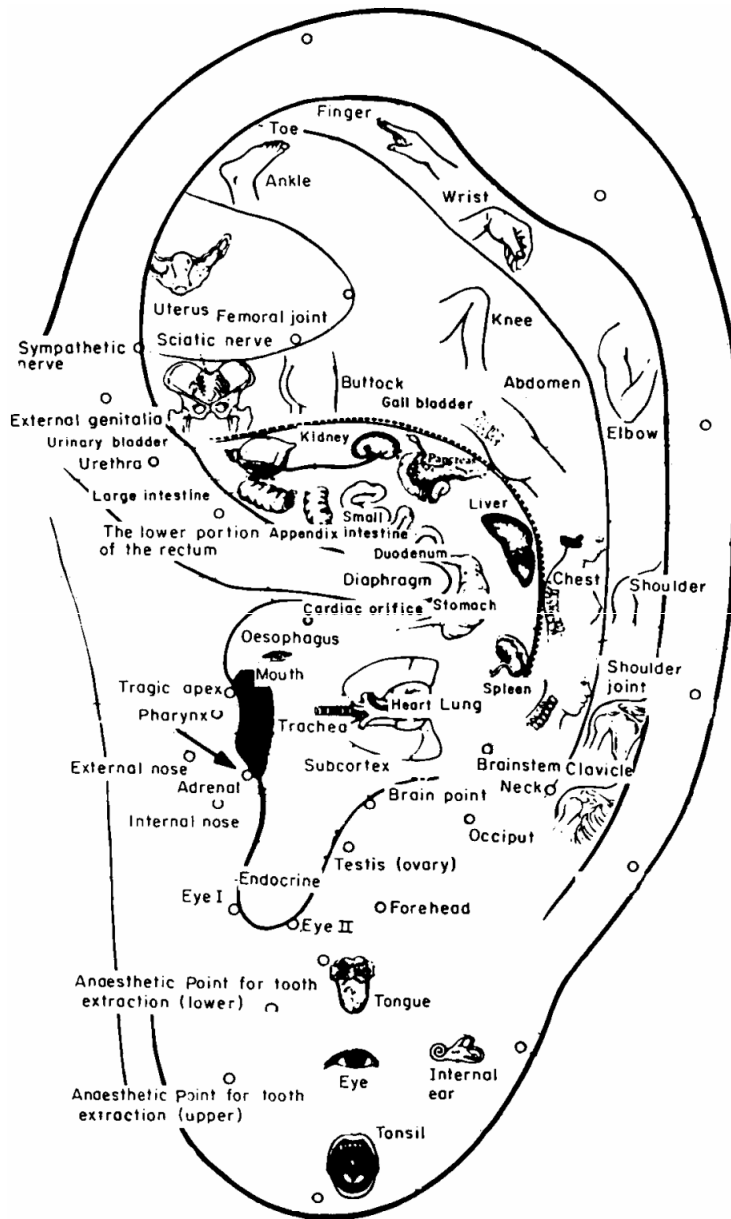


Figure 3. Representation on the ear of the organs and other bodily structures.

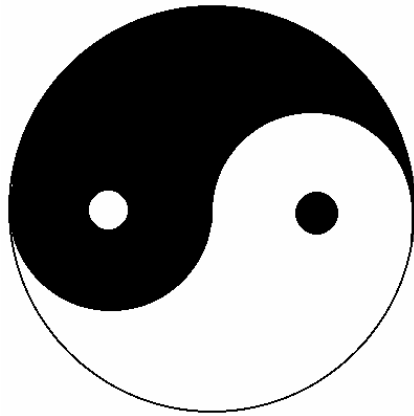


Figure 4. Symbol of Yin and Yang representing opposite extremes. A perfect balance between these forces results in a healthy person.

Other modes of stimulation of acupuncture points include acupressure (application of pressure), shiatsu (a variant of acupressure in which acupuncture points are stimulated with the finger tips), moxibustion (applying burning moxa, a plant known botanically as *Artemisia japonica*), and a miscellany of instruments such as vibrators, lasers, and heat and magnetic oscillators. Whatever the mode used, proponents of all these techniques are convinced that their interventions restore the balance between Yin and Yang by relieving obstructions in the meridians. This allows the vital energies of the body to flow once more along these unseen channels.

It is only in the last two or three decades that acupuncture has had much of an impact in the West. It was first brought to Europe from Indochina shortly before World War II by the French. In the early 1970's, a number of American delegations visited China and interest in the subject grew. Outside of China, acupuncture is practiced mainly by naturopaths but also by a few medically qualified acupuncturists. Some of these latter individuals have been particularly interested in assessing the effectiveness of acupuncture by proper clinical trials using modern statistical techniques.

One of the practical problems in trials with acupuncture is the necessity to conceal from the patient whether or not acupuncture is really being administered. This is necessary in order to differentiate any true effects of acupuncture from the well-known placebo effect. Unfortunately, this is somewhat difficult to do as one can easily feel if the skin is being punctured by a needle. One technique is to prick the skin with needles then remove them immediately; they are then reinserted just before the end of the session and subjects are unable to discern whether they had received real or sham acupuncture. Another approach is to administer acupuncture at points that are not thought traditionally to be therapeutic. A third approach is to use acupressure rather than acupuncture. In this technique, an elasticised band containing a plastic button is used to apply sustained pressure at the acupuncture point. It is relatively easy to have a control group as the patients can be given dummy bands without the pressure button. None of these methods is perfect and this sometimes makes interpretation of the results obtained in various trials difficult.

The pages that follow summarise many of the trials of acupuncture that have been done for a variety of illnesses and have been published in reputable medical journals. Conditions investigated range from ringing in the ears to pain relief.

### **Can acupuncture help ringing in the ears?**

Tinnitus is the medical name for ringing in the ears. The cause is usually not clear but is probably due to a disturbance of the inner ear or the auditory nerve that runs from the ear to the brain. In some cases, tinnitus is associated with deafness and dizziness, a condition known as Menière's disease. Most patients who complain of ringing in the ears are told by their doctors that there is no treatment and that they will have to learn to live with it. Consequently, some sufferers have turned to acupuncture in the hope that it will help and individuals have claimed a degree of success.

In order to investigate whether there is any validity in this approach, a controlled trial was undertaken by Mr NJ Marks, an ear, nose and throat surgeon at Guy's Hospital in London, England, and his colleagues, Dr P Emery, a physician, and Mr G Onisiphorou, an audiologist, at the same hospital. They selected 14 patients who had persistent tinnitus affecting only one side of the head. Because tinnitus is a symptom, it is difficult to measure it objectively. They therefore used a combination of the patient describing the tinnitus verbally and scoring the intensity of the noise on a horizontal 10 cm line every three or four hours, as well as a technique called "tinnitus matching" which is semi-quantitative.

Following a baseline assessment for one week, each patient was then treated for two weeks with either genuine acupuncture or sham acupuncture. The latter was performed by immediate removal of the needle then reinsertion at the end of the procedure. After a rest period of three weeks, each patient was then given the opposite treatment to that administered earlier. After each treatment, the patients were interviewed by a doctor who did not know which treatment had been given. The investigators reported their results in a paper<sup>1</sup> entitled "A controlled trial of acupuncture in tinnitus". Although 5 out of 14 patients reported a subjective improvement after true acupuncture compared with none out of 14 after sham acupuncture, analysis of the other two scoring measures revealed no differences at all. This disappointing result led the authors to conclude that "statistical analysis of the group as a whole revealed no significant differences between placebo and active acupuncture treatment". However, they were reluctant to close the door on this relatively harmless method of treatment as there was a suggestion that patients might respond to treatment with courses lasting longer than two weeks.

Unfortunately, a subsequent study of 52 patients in the department of audiology at

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<sup>1</sup>Marks NJ, Emery P, Onisiphorou C. *Journal of Laryngology and Otology* 98: 1103-1109, 1984

Vejle Hospital in Denmark confirmed that acupuncture did not help to control tinnitus.<sup>2</sup>

### **Can acupuncture control asthma?**

Asthma is a common affliction of the lungs in which the sufferer wheezes and is short of breath. Such attacks usually occur intermittently and may be brought on by inhalation of substances in the environment (known as allergens) such as grass pollens and mites in house dust, by exercise, and by exposure to cold. In many patients, the tendency to asthma is inherited and such individuals make excessive amounts of special proteins called antibodies that react with inhaled allergens. When an antibody meets an allergen, a sequence of chemical reactions is set in train that culminates in the production of mucus and constriction of the muscles in the airways. It is these events that cause wheezing and shortness of breath.

Doctors generally treat patients with asthma in a number of ways. They advise avoidance as far as is possible of those environmental conditions that are likely to induce an attack. Mild attacks are treated by inhalation of sprays that contain medications that open up the airways. Severe attacks require therapy with cortisone-like drugs that suppress inflammation. There is no cure for asthma and these measures are imperfect or have side-effects.

It was natural then that the question should arise as to whether acupuncture could help as it has been used as a traditional remedy in China. A number of preliminary studies suggested that there may be some benefit so a team of investigators from the Schools of Medicine and Public Health at the University of California, Los Angeles in the United States undertook a controlled trial. The team, led by Dr Donald Tashkin, was multi-disciplinary in composition with members coming from the departments of medicine, anesthesiology, pediatrics and epidemiology.

The researchers chose 25 patients aged from 8 to 73 years with moderate to severe chronic asthma. Measurements to quantify the severity of the asthma were taken repeatedly over four weeks then patients received either real or placebo acupuncture twice a week for four weeks. After a rest period of three weeks, they then had a four week course of real acupuncture if they had previously had placebo acupuncture or *vice versa*. Finally, all subjects were observed for another four weeks.

Patients kept a diary to record how they felt and how much medication they required to control their symptoms. More significantly, it is possible to measure the degree of openness or closure of the airways by asking patients to breathe air into a special machine called a spirometer and by observing breathing while in a special chamber called a whole

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<sup>2</sup>Vilholm OJ, Moller K, Jorgensen K. Effect of traditional Chinese acupuncture on severe tinnitus: a double-blind placebo-controlled clinical investigation with open therapeutic control. *British Journal of Audiology* 32:197-204, 1998

body plethysmograph. Neither the patients nor the doctors assessing each patient knew whether real or placebo acupuncture had been given.

The investigators reported their findings in an article<sup>3</sup> entitled "A controlled trial of real and simulated acupuncture in the management of chronic asthma". When they analysed the results, they found no differences after real or placebo acupuncture in the severity of symptoms, the consumption of medications, or in the physical measurements of lung function. The authors considered that "our findings failed to demonstrate any short- or long-term benefit of acupuncture therapy in the management of moderate to severe asthma".

Similar findings were reported from Perth, Western Australia by Dr MK Tandon, a chest physician at the Repatriation Hospital, AT Wood PhD, a biostatistician, and Dr PFT Soh, a general practitioner. They studied 15 patients aged from 19-57 years with chronic asthma. Acupuncture was given by helium-neon laser. Placebo acupuncture was administered by stimulating sites that were not supposed to affect lung function. They reported their results in a paper<sup>4</sup> labelled "Acupuncture for bronchial asthma? A double-blind cross-over study". They found no differences in patients' symptoms, use of medications or measurements of ventilation. On the other hand, a more recent study from the Pontefract General Hospital in the United Kingdom of 23 patients who received real or sham acupuncture, found a reduction in symptoms and in the use of medications to dilate the airways although there was not measurable difference in their respiratory function, ie their ability to blow air.<sup>5</sup>

However, these studies illustrate one of the problems with this sort of investigation. Patients who received "real acupuncture" had needles inserted at certain locations that were said traditionally to be important in treating asthma. On the other hand, patients given "simulated acupuncture" had needles inserted in areas where "no acupuncture loci are known to exist". Since it was uncertain whether there really are acupuncture points, let alone where they are, it may be that the investigators had been giving real acupuncture when they thought they were giving placebo acupuncture.

Nevertheless, using this same approach, other researchers have found that acupuncture is of some benefit. Drs Kam Pui Fung, Olivia Chow and Shun Yeung So of the departments of paediatrics and medicine at Queen Mary Hospital and the University of Hong Kong studied 19 children with mild to moderate asthma. They noted that acupuncture had no effect on the lungs when the patients were resting. However, they did find that acupuncture reduced the worsening of asthma brought on by exercise. When

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<sup>3</sup>Tashkin DP, Kroening RJ, Bresler DE, Simmons M, Coulson AH, Kerschnar H. *Journal of Allergy and Clinical Immunology* 76:855-863, 1985

<sup>4</sup>Tandon MK, Soh PFT, Wood AT. *Medical Journal of Australia* 154: 409-412, 1991

<sup>5</sup>Biernacki W, Peake MD. Acupuncture in treatment of stable asthma. *Respiratory Medicine* 92:1143-1145, 1998

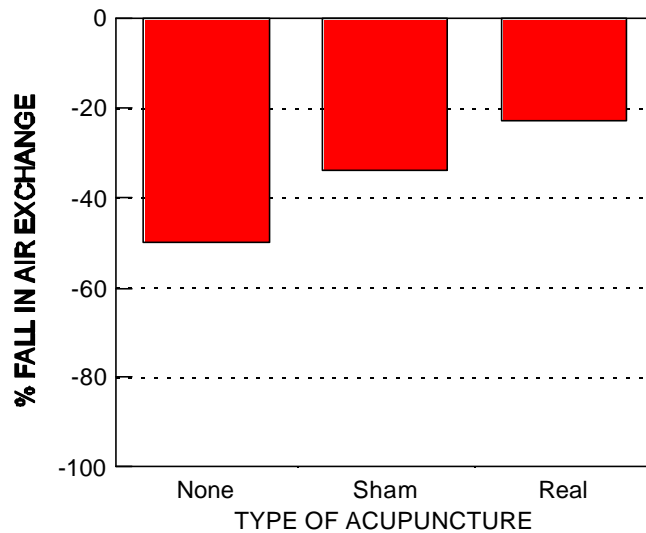


Figure 5. Effect of acupuncture on the severity of asthma brought on by exercise. More severe illness is indicated by a greater fall in air exchange.

asthmatics exercise, the airways partially close and it is harder for them to breathe. This can be quantified by measuring the amount of air that is moved in and out of the lungs. They reported their results in 1986 in *The Lancet* in a paper<sup>6</sup> entitled "attenuation of exercise-induced asthma by acupuncture". As can be seen from Figure 5, there was a 50% fall in air exchange after exercise when no acupuncture was given but this was reduced to only 34% and 23% after sham and real acupuncture, respectively. The protection afforded by both sham and real acupuncture was statistically significant, although the effects of real acupuncture were more marked. These results either mean that both sham and real acupuncture are powerful placebos or that they are both efficacious with the traditional acupuncture points being perhaps marginally more effective.

#### Is acupuncture of value in hay fever

Hay fever, technically known as allergic rhinitis, has a similar basis to asthma but inhaled allergens affect the nose and sinuses rather than the lungs. Twenty four patients with

<sup>6</sup>Fung KP, Chow OKW, So SY. *The Lancet* ii: 1419-1421, 1986

seasonal hay fever in Vienna were randomly divided into two groups and given either true or sham acupuncture.<sup>7</sup> The patients kept a diary to record their symptoms and addition the effects of challenge with substances to which they were known to be allergic was measured. Acupuncture did not appear to be of any benefit. However, the number of patients studied was very small and it is not possible from this investigation to rule out a small benefit of acupuncture.

### **Does acupuncture help chronic bronchitis and emphysema?**

Chronic bronchitis and emphysema, also known as chronic obstructive airways or lung disease, usually afflicts elderly people who have a long history of cigarette smoking. The major symptoms are cough and bringing up phlegm together with shortness of breath. This last symptom is similar to that seen in asthma except that the difficulty in breathing is permanent rather than intermittent.

Dr Jobst and his colleagues in Oxford, England enlisted the aid of Dr Jin Hua Chen, a chest specialist who was also an acupuncturist, when he visited from Beijing, China. They wanted to determine whether acupuncture could relieve breathlessness in patients with this complaint. They chose 24 patients and treated them with either real or sham acupuncture for three weeks. As in the studies of asthma, patients given sham acupuncture were needled in exactly the same way as those who received real acupuncture except that the needles were inserted in the skin over the knee as this area was considered to be a "dead point".

They reported their results in *The Lancet* in a paper<sup>8</sup> called "Controlled trial of acupuncture for disabling breathlessness". Not surprisingly, since chronic bronchitis and emphysema is associated with permanent structural damage to the lung, they found that acupuncture did not affect the amount of air exchanged. On the other hand, those patients who received real acupuncture did feel better and could walk a greater distance in six minutes (Figure 6). In fact, both groups of patients walked further after acupuncture treatment although the improvement was greater in those given true acupuncture. Even so, the effects of acupuncture were only small and the sufferers were still severely disabled. In an accompanying editorial, *The Lancet* put the findings in perspective by remarking that "referral of respiratory cripples to the local acupuncture centre will not be an acceptable solution".

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<sup>7</sup>Wolkenstein E, Horak F. [Protective effect of acupuncture on allergen provoked rhinitis.] *Wiener Medizinische Wochenschrift* 148: 450453, 1998

<sup>8</sup>Jobst K, Chen JH, McPherson K, Arrowsmith J, Brown V, Efthimiou J *et al.* *The Lancet* ii: 1416-1419, 1986

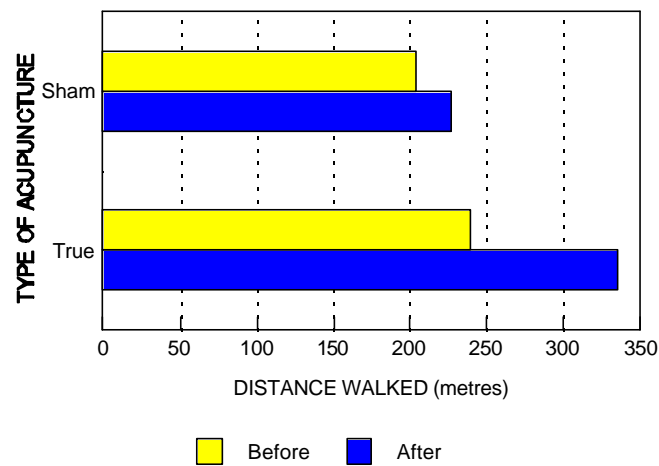


Figure 6. Distance patients with chronic bronchitis and emphysema were able to walk until they were too short of breath to continue before and after "sham" and "true" acupuncture.

### Can acupuncture assist smokers to stop smoking?

More and more people are becoming aware that cigarette smoking is associated with lung cancer, heart disease, strokes and other ailments. Indeed, tobacco has been described as the "Red Man's Revenge" since the plant was first shown to Sir Walter Raleigh (who introduced it to Europe) by an American Indian. As a result of this growing realization, increasing numbers of people either stop smoking or try to abandon the habit. For many individuals, however, this is an extremely difficult task and acupuncture has become popular as an aid to stopping smoking. Does it work?

One of the first studies to attempt to examine this point was undertaken by Drs Yves Lamontagne and Marc-André Gagnon, both physicians at the Louis-H Lafontaine Hospital in Montreal, Canada together with Lawrence Annable, a statistician in the department of psychiatry at McGill University in Montreal. They recruited 75 men by advertising in the daily newspaper; their ages ranged from 20-50 years and they had smoked between 15 and 50 cigarettes a day for at least three years. The subjects were then randomly assigned to one of three groups. Group 1 was given acupuncture by an acupuncturist hired expressly for the purpose. Needles were placed in the ear and lung points that were thought to be effective for smoking withdrawal. Group 2 was also given acupuncture except that the needles were inserted at points not thought to be relevant to

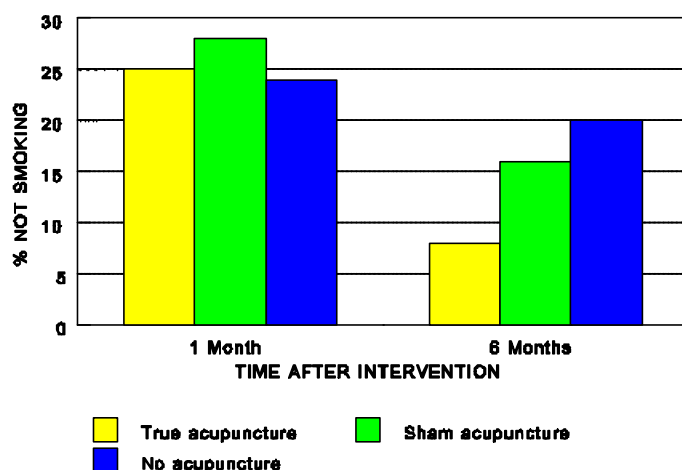


Figure 7. Proportion of patients still not smoking 1 and 6 months after receiving either true, sham or no acupuncture.

smoking. Group 3 was asked to stop smoking as best they could by themselves and simply reported on progress to a therapist.

The researchers published their findings in a paper<sup>9</sup> called "Acupuncture for smokers: lack of long-term therapeutic effect in a controlled study". The success rates, as ascertained by measuring the proportions of subjects who had still stopped smoking one and six months after the intervention, are shown in Figure 7. There were no significant differences among the three groups after one month. In fact, after six months, those who had been left to their own devices did best. The authors concluded that the effectiveness of acupuncture "remains to be proven in the treatment of tobacco addiction".

Three years later, more encouraging results were claimed by Drs Daniel SJ Choy and Letty Lutzkers, both medical practitioners, and Lon Meltzer, a scientist, from New York in the United States of America. They treated 514 patients by inserting needles into the "hunger point" in each ear. Apart from being changed every week, ostensibly to prevent infections, the needles were left in place until a patient had four consecutive weeks of abstinence from smoking. 339 of the 514 patients completed at least four weeks of therapy and 298 (88%) of these stopped smoking. When 220 patients were followed up two years later, 69% of this group were still not smoking. The authors declared that the "immediate success rate was 88 per cent" and that the "relapse rate at two years was 31

<sup>9</sup>Lamontagne Y, Annable L, Gagnon MA. *Canadian Medical Association Journal* 122: 787-790, 1980

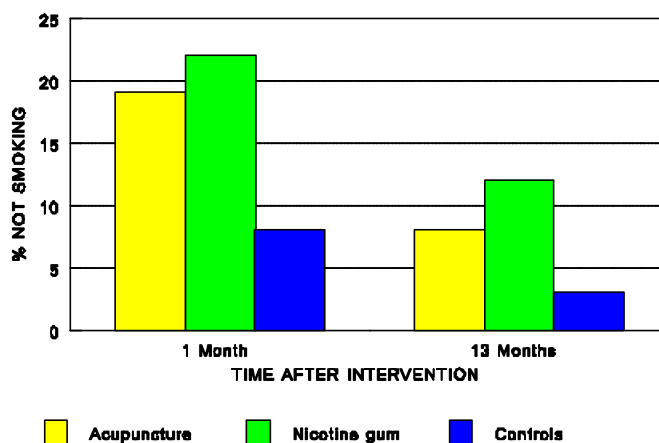


Figure 8. Proportion of patients still not smoking 1 and 13 months after being given acupuncture, nicotine gum, or were left to their own devices.

per cent".

It is rather surprising that this study, named "Effective treatment for smoking cessation", was published in such an august journal<sup>10</sup> as the *American Journal of Medicine*. Not only was this investigation uncontrolled, but the results were reported in a misleading manner. The immediate success rate was really 58% (298 of 514). Only 220 subjects were followed up to see whether they had started to smoke again; 31% of these had. We are not told what happened to the other 119 individuals. Perhaps they had all started smoking again and kept clear of the doctors! In that case, the relapse rate would have been 63%.

Rather more convincing evidence was then provided by French workers in a paper<sup>11</sup> designated "Helping people to stop smoking: randomised comparison of groups being treated with acupuncture and nicotine gum with a control group". Françoise Clavel PhD and her colleagues at the research unit in cancer epidemiology at the Institut Gustav Roussy in Villejuif, France, enrolled 651 smokers in a study. They were then randomly allocated into one of three groups. Group 1 was treated with acupuncture, Group 2 was provided with nicotine gum, and Group 3, the control group, was given a cigarette case with a lock controlled by a time switch that could be regulated at will. In addition, all participants received group therapy.

The results one and 13 months after treatment are illustrated in Figure 8. Although the overall success rate was small, significantly more people who either received acupuncture

<sup>10</sup>Choy DSJ, Lutzker L, Meltzer L. *American Journal of Medicine* 75: 1033-1036, 1983

<sup>11</sup>Clavel F, Benhamou S, Company-Huertas A, Flamant R. *British Medical Journal* 291: 1538-1539, 1985

or chewed nicotine gum had given up smoking than in the control group. If anything, chewing nicotine gum appeared to be slightly more effective than acupuncture. Nevertheless, the results overall were depressing irrespective of treatment with less than 10% of smokers being able to stop smoking and sustain the achievement.

Subsequent studies have been just as confusing. A study of 78 patients in a general practice in England found that no controls but 12.5% of smokers given ear acupuncture were not smoking after 6 months.<sup>12</sup> On the other hand, a study reported from the department of complementary medicine in the University of Exeter in the United Kingdom failed to find any benefit of electro-acupuncture. They studied 76 adults and found that at day 14, 39% of the acupuncture group and 42% of the control were abstinent.<sup>13</sup>

### **Does acupuncture relieve angina?**

Angina is characterised by severe, crushing chest pain behind the breastbone that often radiates into the neck and down the left arm and is frequently associated with shortness of breath. It is usually brought on by exercise such as climbing stairs or hurrying and is relieved by rest or by popping a glyceryl trinitrate (= nitroglycerine) tablet under the tongue. These symptoms occur when the oxygen supply to the heart muscle is impaired and is usually due to partial blockage of the coronary arteries. Until relatively recent times, this diagnosis was dreaded because it was often a harbinger of death. Improved medicines and the advent of surgical interventions such as angioplasty (opening of obstructions by a distensible balloon on a catheter inserted into a coronary artery) or coronary artery bypass grafting have improved the prognosis considerably. Nevertheless, there are many patients who are unsuitable for surgery or who respond poorly to treatment with drugs. Suggestions were made that such patients might benefit from acupuncture.

This question was taken up by Dr A Richter and his colleagues at the Wallenberg laboratory for cardiovascular research in Sahlgren's Hospital at the University of Gothenburg in Sweden. They studied 21 patients aged from 35-73 years who had had at least five attacks of angina per week in the past six months despite standard medical care. They were divided randomly into two groups. Patients in the first group received traditional Chinese acupuncture three times each week for four weeks from an acupuncturist who had ten years' experience in China. Subjects in the other group were given an extra tablet to take that was a placebo but were told that it was a new type of anti-anginal medicine. This was done because the researchers felt that it was not really

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<sup>12</sup>Waite NR, Clough JB. A single-blind, placebo-controlled trial of a simple acupuncture treatment in the cessation of smoking. *British Journal of General Practice* 48: 1487-1490, 1998

<sup>13</sup>White AR, Resch KL, Ernst E. Randomized trial of acupuncture for nicotine withdrawal symptoms. *Archives of Internal Medicine* 158: 2251-2255, 1998

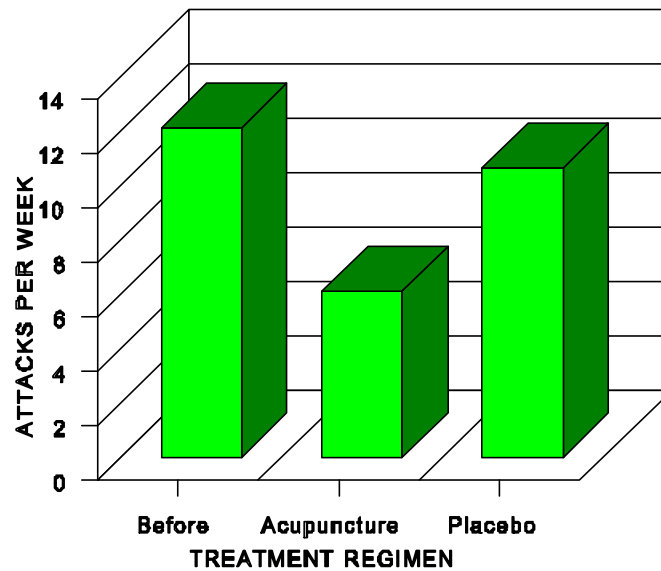


Figure 9. Number of attacks during the study period of anginal chest pain in patients with heart disease before intervention and after either acupuncture or a placebo tablet.

possible to give sham acupuncture. Following a two week rest period, the treatment regimens were reversed. The patients recorded the number of attacks they had and completed a questionnaire about their quality of life. Finally, they underwent a special exercise test on a bicycle ergometer while connected up to an electrocardiograph.

The researchers reported their results in a paper<sup>14</sup> entitled "Effect of acupuncture in patients with angina pectoris". They noted a significant fall in the number of attacks of angina during the period of acupuncture but not while taking the placebo tablet (Figure 9) and patients said they felt better. Exercise testing did not reveal any effect of acupuncture on the maximal physical activity that could be undertaken but the onset of chest pain was delayed, the severity of pain was lessened, and the abnormalities induced in the electrocardiogram were reduced (Figure 10) in patients given acupuncture. This last observation is particularly important as it is an objective measurement and is less likely to be affected by psychological factors. It implies that the heart muscle was being protected in some way from insufficient oxygenation. The authors concluded that acupuncture had a

<sup>14</sup>Richter A, Herlitz J, Hjalmarson Å. *European Heart Journal* 12: 175-178, 1991

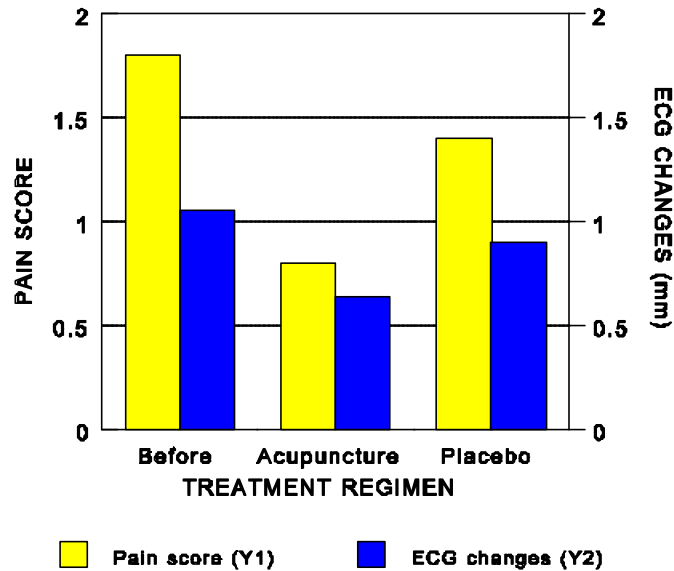


Figure 10. Severity of pain and magnitude of electrocardiographic changes in patients during an attack of angina before intervention and after either acupuncture or a placebo tablet. Abnormalities in the electrocardiograph are measured by the deviation in millimetres of the electrical tracing from the baseline.

"beneficial effect in patients with severe, intensively treated angina" and they postulated that this may be mediated by acupuncture opening up the coronary blood vessels.

Some support for the value of acupuncture in angina was also provided by Drs Soeren Ballegaard and colleagues from the medical department of the University of Copenhagen at the Rigshospitalet, Denmark. They found that both true and placebo acupuncture reduced the number of attacks of angina by approximately 50% and more than halved the quantity of nitroglycerine tablets used to relieve pain. They reported their results in a paper<sup>15</sup> entitled "Effect of acupuncture in moderate stable angina pectoris: a controlled study". They considered it was not possible to demonstrate a significant difference between genuine and sham acupuncture, and again in a subsequent study<sup>16</sup>, they concluded that "both genuine and sham acupuncture have a specific effect in some patients with angina".

<sup>15</sup>Ballegaard S, Pedersen F, Pietersen A, Nissen VH, Olsen NV. *Journal of Internal Medicine* 227:25-30, 1990

<sup>16</sup>Ballegaard S, Meyer CN, Trojaborg W. Acupuncture in angina pectoris: does acupuncture have a specific effect? *Journal of Internal Medicine* 229: 357-362, 1991

### Does acupuncture help alcoholism?

Addiction to alcohol is a problem that has afflicted the human race for generations. Unfortunately, a proportion of drinkers become hooked on the drug and are resistant to all standard efforts to wean them off the intoxicant. The question was then raised as to whether acupuncture might be of benefit.

Drs Milton L Bullock and Patricia D Culliton of the department of medicine at the University of Minnesota Medical School and Dr Robert T Olander of the Hennepin County Detoxification Center, both in Minneapolis, Minnesota in the United States of America undertook a study to try to answer this question. The detoxification centre is an 88 bed establishment in central Minneapolis where "skid-row" alcoholics may receive care without charge for 72 hours. Eight patients, 75 men and 5 women aged from 23-71 years, were enrolled in the study. Each patient had had many admissions, that is, he or she was a recidivist. Those admitted to the study were then transferred to Mission Lodge, a long-term treatment centre 16 km away, where they remained for the next few weeks. Patients were then divided randomly into two groups. One was given acupuncture in the ear at points said to be specific for chemical dependency. The control group was given acupuncture at different points in the ear. Acupuncture was administered over 8 weeks, daily at first, then tailing off in frequency. As many patients as possible were reviewed 1, 3 and 6 months after completion of therapy and discharge from the Lodge. Those patients who completed the course were paid \$100 as an incentive. Twenty-one of the 40 patients given therapeutic acupuncture finished the course whereas only one of the 40 individuals who received sham acupuncture completed the programme.

The investigators reported their results in *The Lancet* in a paper<sup>17</sup> entitled "Controlled trial of acupuncture for severe recidivist alcoholism". At six months, they were able to review 27 patients in the treatment and 23 in the control groups, respectively. A higher proportion of the control patients compared with the treatment patients expressed a moderate to strong need for alcohol (Figure 11). Furthermore, patients given sham acupuncture reported 704 episodes of drinking whereas those given true acupuncture admitted only 308 incidents. More objectively, the same two groups had 186 and 75 admissions, respectively, to the detoxification centre during this six month period.

Clearly, significant differences were observed between the two groups and the authors believed that "our results are encouraging enough for other research groups to validate the efficacy of acupuncture in the treatment of the alcoholic population". Regrettably, this was not confirmed in a small, randomised study of alcoholics, many of whom were also drug addicts in Brooklyn, New York<sup>18</sup> or in a study of 72 alcoholics at

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<sup>17</sup>Bullock ML, Culliton PD, Olander RT. *The Lancet* ii: 1435-1439, 1989

<sup>18</sup>Worner TM, Zeller B, Schwarz H, Zwas F, Lyon D. Acupuncture fails to improve treatment outcome in alcoholics. *Drug and Alcohol Dependence* 30: 169-173, 1992

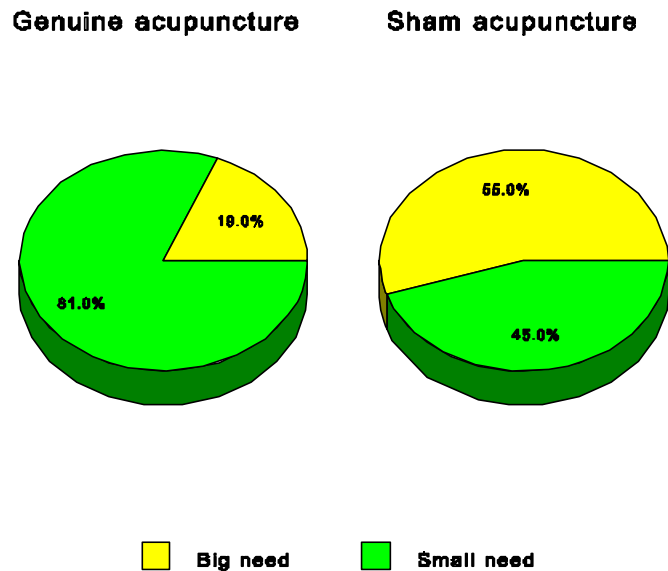


Figure 11. Proportion of patients expressing a strong-to-moderate ("big") or a small need for alcohol 6 months after treatment with genuine or sham acupuncture.

the Malmoe University Hospital in Sweden.<sup>19</sup>

**Can acupuncture ameliorate nausea and vomiting**

Nausea and vomiting are symptoms familiar to most of us and have usually appeared following an infection of the stomach and intestines. There are many other causes of nausea and vomiting, however, and two of the most troublesome are anaesthetics and other drugs given for surgical operations, and chemotherapy used in the treatment of cancer. Even more common is vomiting in early pregnancy. The technical term for vomiting is "emesis" so measures to prevent it are known as "anti-emetics". The role of acupuncture in relieving these symptoms has been studied in all of these settings.

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<sup>19</sup>Sapir-Weise R *et al.* Acupuncture in alcoholism treatment: a randomized outpatient study. *Alcholo and Alcoholism* 34: 629-635, 1999

*Post-operative nausea and vomiting*

Nausea and vomiting following an operation may result from the stress of the surgery but may be due to the anaesthetic given or more particularly to the morphine-like drugs (opioids) commonly used to relieve pain. Professor JW Dundee of the department of anaesthetics at The Queen's University of Belfast in Northern Ireland visited the Peoples' Republic of China in the early 1980's to study acupuncture and its effects. He was so impressed by the value of acupuncture in the prevention of vomiting in early pregnancy ("morning sickness") that on his return to Ireland he began a series of studies of the value of this technique in the relief of post-operative vomiting.

Together with some colleagues who were all lecturers in his department, he first studied 50 women aged 16-60 years who had a minor gynaecological operation. Twenty five of them were given acupuncture while all of them received a morphine-like drug called meptazinol to relieve pain. Acupuncture was given at a point near the wrist that was used by the Chinese for morning sickness. The patients were then observed for vomiting after the operation by an investigator who did not know whether or not acupuncture had been given. The researchers reported their results in a paper<sup>20</sup> entitled "Traditional Chinese acupuncture: a potentially useful anti-emetic?".

Sixteen (64%) of 25 control patients vomited after the operation compared with only 7 (28%) of the 25 patients who received acupuncture. This so impressed the researchers that they repeated the study. This time, a different opioid, nalbupine, was used and 75 patients were divided into three groups that received either the drug alone, the drug plus true acupuncture, or the drug plus dummy acupuncture in which a site near the elbow, that was not thought to be relevant, was needled. The results are shown in Figure 12. There was a significant reduction in the incidence of both nausea and vomiting in patients who received true acupuncture compared with those given dummy acupuncture or drug alone. The authors were unable to explain the mechanisms for these effects but concluded that acupuncture reduced "vomiting or nausea, or both, induced by two opioids".

Similar results were reported by the same authors for nausea and vomiting induced by another opioid, pethidine, in a paper<sup>21</sup> entitled "Reduction in the emetic effects of opioid pre-anaesthetic medication by acupuncture".

On the other hand, these findings could not be corroborated by a group of investigators in New Zealand. Directly stimulated by the studies mentioned above, Drs WM Weightman and M Zacharias, anaesthetists at the Dunedin Public Hospital and the Southland Hospital, respectively, and Mr P Herbison, a biostatistician in the department of social and preventive medicine at the University of Otago, studied 44 patients who

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<sup>20</sup>Dundee JW, Chestnutt WN, Ghaly RG, Lynas AGA. *British Medical Journal* 293: 583-684, 1986

<sup>21</sup>Dundee JW, Chestnutt WN, Ghaly RG, Lynas AGA. *British Journal of Clinical Pharmacology* 22: 214P-215P, 1986

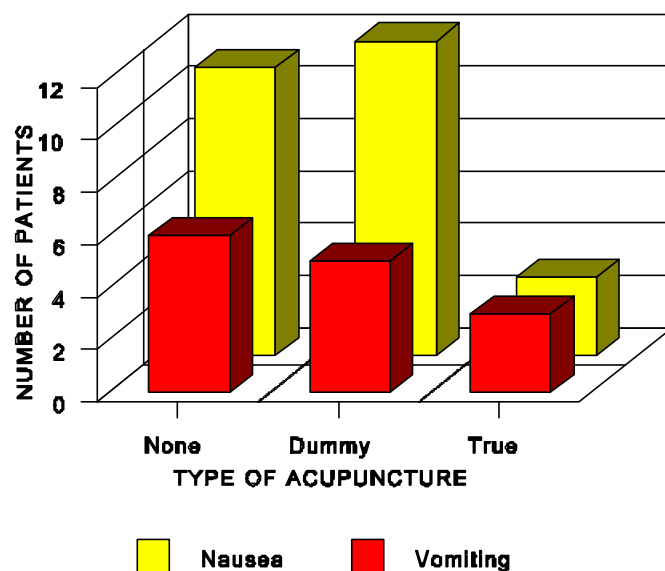


Figure 12. Frequency of nausea and vomiting after a surgical operation in patients who were given either no, sham or true acupuncture.

underwent minor abdominal surgery. They found no significant differences between the groups given or not given acupuncture. They indicated their findings a year later in a report<sup>22</sup> called "Traditional Chinese acupuncture as an anti-emetic".

In view of these conflicting results, several groups of researchers have examined the effectiveness of acupuncture in a number of different surgical situations (Table 1). These included laparoscopy (looking inside the abdominal cavity with an illuminated tube), general surgical patients with a variety of operations, tonsillectomy, operations on eye muscles to correct squint (in which the two eyes look in different directions) and Caesarian sections. Benefit was found in four studies of adult patients and in two out of three studies of children. Three of the eight investigations used acupressure rather than acupuncture; one found benefit but two did not.<sup>23,24,25,26,27,28,29,30</sup> So what do all these

<sup>22</sup>Weightman WM, Zacharias M. *British Medical Journal* 296: 1379-1380, 1987

<sup>23</sup>Ho RT, Javan B, Fung ST, Cheung HK, Lee JH. Electro-acupuncture and postoperative emesis. *Anaesthesia* 45: 327-329, 1989

<sup>24</sup>Barsoum G, Perry EP, Fraser IA. Postoperative nausea is relieved by acupressure. *Journal of the Royal Society of Medicine* 83: 86-89, 1990

<sup>25</sup>Lewis IH, Pryn SJ, Reynolds PI, Pandit UA, Wilton NCT. Effect of P6 acupressure on postoperative

Table 1. Summary of other studies looking into the effects of acupuncture on nausea and vomiting after surgical operations.

Authors	Operation	Age	Technique	Benefit
Ho <sup>17</sup>	Laparoscopy	Adult	Electroacupuncture	Yes
Bersoum <sup>18</sup>	General surgery	Adult	Acupressure	Yes
Lewis <sup>19</sup>	Squint correction	Child	Acupressure	No
Yentis <sup>20</sup>	Tonsillectomy	Child	Acupuncture	No
al-Sahdi <sup>21</sup>	Laparoscopy	Adult	Acupuncture	Yes
Stein <sup>22</sup>	Caesarian section	Adult	Acupressure	Yes
Schlager <sup>23</sup>	Squint correction	Child	Laser stimulation	Yes
Shenkman <sup>24</sup>	Tonsillectomy	Child	Acupressure	No

trials mean? The overall impression is that acupuncture may be of marginal benefit and is perhaps better in some clinical situations than in others.

#### *Cancer chemotherapy*

In more recent times, Professor Dundee and his colleagues have extended their observations to look at the role of acupressure in relieving nausea and vomiting induced by drugs given for the treatment of cancer. Their first report was in a paper<sup>31</sup> called "Acupuncture prophylaxis of cancer chemotherapy-induced sickness" published in 1989.

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vomiting in children undergoing outpatient strabismus correction. *British Journal of Anaesthesia* 67: 73-78, 1991

<sup>26</sup>Yentis SM, Bissonette B. P6 acupuncture and postoperative vomiting after tonsillectomy in children. *British Journal of Anaesthesia* 67: 779-780, 1991

<sup>27</sup>Al-Sadi M, Newman B, Julious SA. Acupuncture in the prevention of post-operative nausea and vomiting. *Anaesthesia* 52: 658-661, 1997

<sup>28</sup>Stein DJ, Birmbach DJ, Danzer BI, Kuroda MM, Grunebaum A, Thys DM. Acupressure versus intravenous metoclopramide to prevent nausea and vomiting during spinal anesthesia for cesarian section. *Anesthesia and Analgesia* 84: 342-345, 1997

<sup>29</sup>Schlager A, Offer T, Baldissera I. Laser stimulation of acupuncture point P6 reduces post-operative vomiting in children undergoing strabismus surgery. *British Journal of Anaesthesia* 81: 529-532, 1998

<sup>30</sup>Shenkan Z *et al.* Acupressure-acupuncture antiemetic prophylaxis in children undergoing tonsillectomy. *Anesthesiology* 90: 1311-1316, 1999

<sup>31</sup>Dundee JW, Ghaly RG, Fitzpatrick KTJ, Lynch GA. *Journal of the Royal Society of Medicine* 82: 268-271, 1989

They showed that when electrical acupuncture was given five minutes before the administration of cytotoxic (cancer-killing) agents, it was effective in preventing sickness in two thirds of patients. However, the benefit only lasted for 6-8 hours. Consequently, together with his colleague, Dr Yang of the Northern Ireland Radiotherapy Centre in Belfast, Professor Dundee examined the effect of acupressure rather than acupuncture. Patients admitted to the study had had troublesome nausea after a previous course of chemotherapy despite treatment with standard anti-emetics. They were asked to apply pressure for five minutes every two hours. Patients then reported on how they felt. The two investigators found that about two thirds of patients responded and that in 95% of these individuals, the effect was maintained for 24 hours. They reported their findings in the same journal a year later in a paper<sup>32</sup> entitled "Prolongation of the anti-emetic actions of P6 acupuncture by acupressure in patients having cancer chemotherapy". Unfortunately, these studies were uncontrolled. There were no groups given either no treatment or placebo acupuncture to enable a meaningful comparison of the results. Thus, the value of acupuncture in this clinical context must remain *sub judice*.

#### *Nausea in pregnancy*

Nausea, especially on awakening in the morning, is an almost invariable accompaniment of pregnancy. While most women usually find this troublesome and annoying, some suffer so much that nausea and vomiting become a major problem in pregnancy, a condition known as "hyperemesis gravidarum".

Drs de Aloysio and Penacchioni of the department of obstetrics and gynaecology at Bologna University in Italy set out to determine whether acupressure would help control morning sickness in early pregnancy. This trial was randomised, double-blind, cross-over and placebo-controlled. In other words, no-one knew what was going on. They did this by using a band on each wrist to apply pressure to an acupuncture point, but some of the bands were disabled. All patients had three days of treatment with all possible combinations of left and right hands and normal and disabled bands. The researchers studied 60 women and found that sham acupressure caused a 30% improvement while real acupressure resulted in a 60% improvement, whether acupressure was applied to the right, left, or both wrists. In summarising their paper<sup>33</sup>, they concluded that acupressure "relieves morning sickness". Perhaps they should have said that acupuncture may partially relieve morning sickness.

That was exactly what Dr J Belluomini and colleagues from the department of obstetrics and gynecology at the California Pacific Medical Center in San Francisco, USA

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<sup>32</sup>Dundee JW, Yang J. *Journal of the Royal Society of Medicine* 83: 360-362, 1990

<sup>33</sup>de Aloysio D, Penacchioni P. Morning sickness control in early pregnancy by Neiguan point acupressure. *Obstetrics and Gynecology* 80: 852-854, 1992

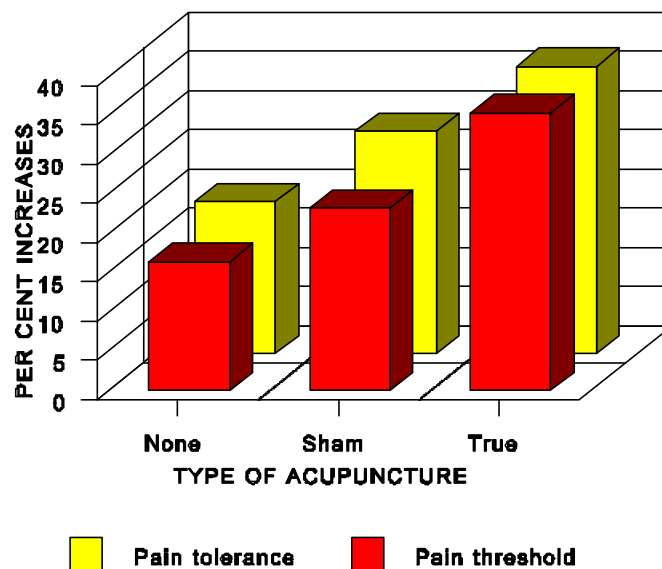


Figure 13. Percentage increases in the pain threshold and pain tolerance following no acupuncture, pseudo-acupuncture or genuine acupuncture in volunteers.

said. They undertook a randomised, blinded study of acupressure in pregnant women and found that it significantly reduced nausea but did not affect the severity or frequency of vomiting.<sup>34</sup>

### Can acupuncture relieve pain?

The attribute of acupuncture which perhaps more than any other has captured the imagination of Westerners is its reputed ability to relieve pain, sometimes to the point of anaesthesia. The question soon arose as to whether the pain-relieving (technically called "analgesic") effects were due to suggestion on the part of the acupuncturist or were intrinsic to the procedure itself.

In order to address this question, Mr Duncan Stewart and Drs Joan Thomson and Ian Oswald of the University Department of Psychiatry at the Royal Edinburgh Hospital in Scotland, experimented on twelve paid volunteers, six men and six women, aged 18-32

<sup>34</sup>Belluomini J, Litt RC, Lee KA, Katz M. Acupressure for nausea and vomiting of pregnancy: a randomized, blinded study. *Obstetrics and Gynecology* 84: 245-248, 1994

years and in good health. Pain was induced by applying hot lights to various parts of the body; the longer the light was left on, the hotter and more painful it became. The times taken to first feel pain (the "detection threshold") and the times taken till the pain could no longer be withstood (the "pain tolerance value") were measured. After an initial baseline study, the experiment was repeated without acupuncture (the control session) or with sham or true acupuncture. Simulated acupuncture was administered by inserting needles at points that were not recognised acupuncture sites. A slight increase in the pain threshold and tolerance occurred when the test was repeated without acupuncture, but greater responses were seen with sham and true acupuncture (Figure 13). Acupuncture was significantly more effective, particularly in raising the threshold of pain.

In reporting their results in a paper entitled "Acupuncture analgesia: an experimental investigation", the authors summed up thus: "The conclusion must be that acupuncture may have analgesic effects .... The practical value of acupuncture, however, still remains to be established."<sup>35</sup> The following sections describe a number of attempts to examine the latter issue.

#### *In osteoarthritis*

Osteoarthritis is a degenerative disease of the joints. This means that they simply wear out after years of effort. This form of arthritis affects mostly the weight-bearing joints such as the hips, knees, back and neck, but may also afflict the fingers, especially of women who have spent years using their hands washing and cleaning. The lining of the joints is worn away, nerve endings are stimulated causing pain, and mobility is impaired. This condition is usually treated by pain-relieving medications. These drugs do little for the underlying disease process but often give significant pain relief.

An alternative strategy that has been suggested to relieve pain is to use acupuncture. A number of studies have examined whether it works or not. One of the first such investigations was performed over 20 years ago by Albert C Gaw MD, Lennig W Chang MD and Lein-Chun Shaw MD from the departments of psychiatry, medicine and pediatrics of the New England Medical Center Hospital in Boston, Massachusetts in the United States of America. They randomly assigned patients with osteoarthritis affecting the knee, hip, neck or fingers to one of two groups and asked the patients, if possible, to stop their usual pain medications. The treatment group was given traditional Chinese acupuncture as carried out in Hong Kong and Taiwan whereas patients in the control group had needles inserted outside the standard acupuncture points. Treatment was given three times a week on eight occasions by Dr Shaw. Dr Gaw, the psychiatrist, and Dr Chang, the rheumatologist, who did not know which form of treatment had been given,

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<sup>35</sup>Stewart D, Thomson J, Oswald I. *British Medical Journal* i: 67-70, 1977

independently examined each patient. They attempted to measure how much pain the patients felt, how tender their joints were, and whether mobility of the joint changed. Each observer found that both the treatment and control groups had a 10-20% reduction in pain and tenderness but only about 5% improvement in mobility.

They reported their results in a paper<sup>36</sup> entitled "Efficacy of acupuncture in osteoarthritic pain: a controlled, double-blind study". The researchers concluded that "both experimental and control groups showed a reduction in pain after the treatments". This was one of the first scientific studies of the effectiveness of acupuncture and the authors went to some trouble to discuss the possible reasons for their findings. Firstly, the patients may have entered the trial when they had one of the temporary flare-ups that is common in this disease. Thus, the apparent effect of acupuncture could really have been due to a subsequent natural spontaneous remission. Secondly, the reductions in pain that occurred in both groups could have been due to a placebo effect. Finally, acupuncture may be effective whether or not it is given in sites that are traditionally used in treatment.

In the following year, an important study was reported by Mary E Moore MD, PhD and Stephen N Berk PhD from the departments of medicine and psychology and the Pain Control Center at Temple University in Philadelphia, Pennsylvania, also in the United States. They recruited 42 patients with shoulder pain due to either osteoarthritis or inflammation of the soft tissues around the shoulder joint (tendonitis or bursitis). The patients were then randomly assigned to one of two groups. The first batch was given classical Chinese acupuncture using points considered to relieve shoulder pain. The control subjects were given sham acupuncture in which the needle was pressed against the skin but the skin was not penetrated. In order to probe more deeply into the placebo effect, each group was subdivided into two smaller sets; one was treated in a positive setting with a friendly, enthusiastic therapist while the other were treated in a negative setting by a morose and uncommunicative therapist. They were given real or sham acupuncture weekly for three weeks then assessed by someone who was unaware of which form of acupuncture they had received.

The investigators reported their results in an article<sup>37</sup> labelled "Acupuncture for chronic shoulder pain; an experimental study with attention to the role of placebo and hypnotic susceptibility". The sham acupuncture was very convincing because the patients were unable to discern whether they had received true or sham acupuncture. Patients in all groups reported an improvement in their shoulder discomfort. As can be seen in Figure 14, patients given placebo acupuncture in a negative setting did just as well as those given placebo acupuncture in a positive setting. A negative setting, however, did impair the effectiveness of true acupuncture. Although pain was improved there was no

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<sup>36</sup>Gaw AC, Chang LW, Shaw LC. *New England Journal of Medicine* 293: 375-378, 1975

<sup>37</sup>Moore ME, Berk SN. *Annals of Internal Medicine* 84: 381-394, 1976

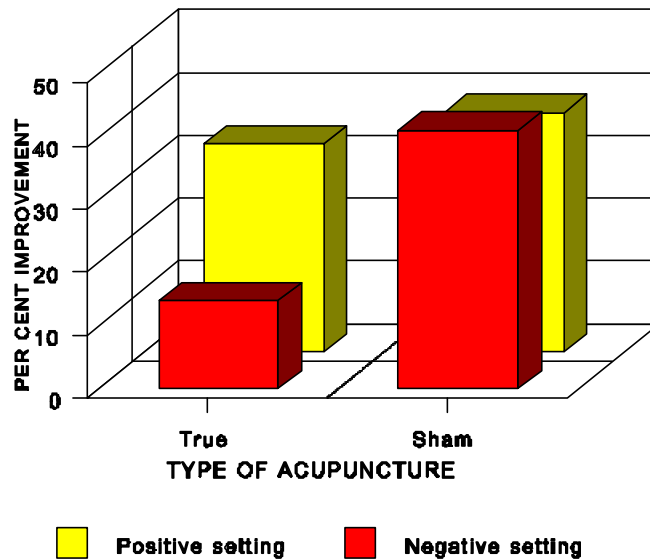


Figure 14. Improvement produced by true and sham acupuncture when given in positive and negative settings to patients suffering from chronic shoulder pain.

objective evidence of change in shoulder mobility. Interestingly, those patients who were more susceptible to hypnosis noticed a greater improvement in their shoulder pain. Drs Moore and Berk were not impressed by their findings and put the whole thing down to a placebo effect.

The same conclusion was reached by Dr George Mendelson and his colleagues from the Prince Henry and Alfred Hospitals in Melbourne, Australia. The investigating team was composed of psychiatrists, surgeons and physicians. They studied 77 patients with chronic low back pain. Patients rated their pain by a variety of techniques including indicating the severity on a horizontal line 10 centimetres long with "no pain" at the left and "pain as severe as it could possibly be" at the right. Patients were allocated randomly into one of two groups and received either four weeks of traditional acupuncture or four weeks of placebo acupuncture. In the latter case, local anaesthetic was injected into the skin at non-acupuncture, non-tender sites and needles were inserted for 30 minutes but were not stimulated. After a four week rest period, the two different groups were swapped then the reverse form of treatment was given. The researchers reported their results in a paper entitled "Acupuncture treatment of chronic back pain: a double-blind

placebo-controlled trial".<sup>38</sup> They noted an overall reduction in pain score of 26% for true acupuncture and 22% for placebo acupuncture. They concluded that "the placebo-component of acupuncture treatment is more important clinically than the physiological". Put another way, this means that the effect was due to the patient thinking that something potentially useful was being done rather than because of something unique to the process itself.

Similar findings were made by Drs JP Petrie and BL Hazleman of the rheumatology research unit at Addenbrooke's Hospital in Cambridge, England. They studied 25 patients with chronic pain in the neck and gave them either true or sham acupuncture twice weekly for four weeks. They summarised their results in a report<sup>39</sup> headed "A controlled study of acupuncture in neck pain". No differences were found between the two groups and they concluded that "acupuncture may have no greater effect than that of a powerful placebo".

Similarly, David Modi and colleagues from the University of Reading compared the effectiveness of acupuncture and physiotherapy in 35 patients with chronic neck pain.<sup>40</sup> Patients were randomly divided into the two groups and assessed at the start of treatment, a 6 weeks and after 6 months. Both groups improved and there were no differences between the two. This means that acupuncture and physiotherapy are equally effective or ineffective. We can say no more because there was no control group which received no therapy.

Even so, this may be useful. Dr Christensen and colleagues from the department of anesthesiology at the Central Hospital, Nykobing-Falster, Denmark, studied 29 patients with severe osteoarthritis of the knees who were awaiting joint replacement<sup>41</sup>. They found that acupuncture eased the discomfort while waiting for surgery. In fact, seven patients responded so well that they no longer wanted an operation, thus saving US\$9,000 each. Finally, a study from the complementary medicine program at the University of Maryland in Baltimore, USA of 43 patients with osteoarthritis of the knee suggested that osteoarthritis may lead to some pain relief, at least for the first few weeks after treatment.<sup>42</sup>

Clearly, different investigators have come up with contradictory results. Part of the reason may be because the symptoms of osteoarthritis are notoriously variable. It is likely

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<sup>38</sup>Mendelson G, Selwood TS, Kranz HK, Loh TS, Kidson MA, Scott DS. *American Journal of Medicine* 74: 49-55, 1983

<sup>39</sup>Petrie JP, Hazleman BL. *British Journal of Rheumatology* 25: 271-275, 1986

<sup>40</sup>Modi DJ, Aluko AA, Robertshaw C, Farebroth J. Chronic neck pain: a comparison of acupuncture treatment and physiotherapy. *British Journal of Rheumatology* 37: 1118-1122, 1998

<sup>41</sup>Christensen BV, Iuhl, IU, Vilbek H, Bulow HH, Dreijer NC, Rasmussen HF. Acupuncture treatment of severe knee osteoarthrosis. A long-term study. *Acta Anaesthesiologica Scandinavica* 36: 519-525, 1992

<sup>42</sup>Berman BM et al. A randomized trial of acupuncture as an adjunctive therapy in osteoarthritis of the knee. *Rheumatology* 38: 346-354, 1999

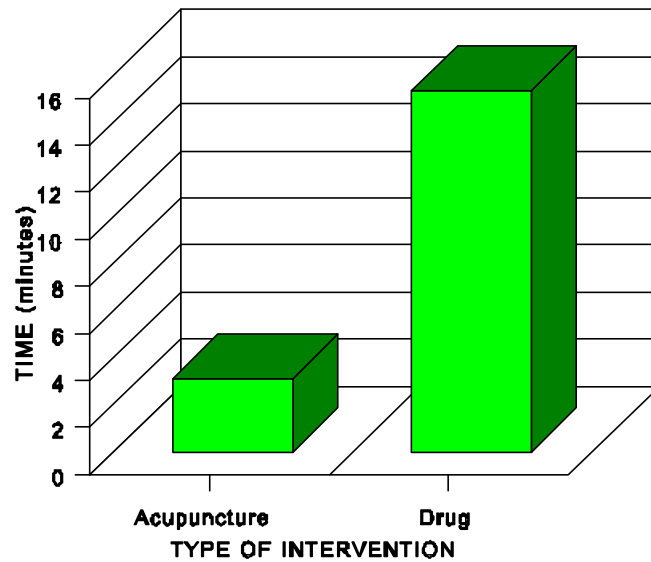


Figure 15. Average time (in minutes) to the onset of pain relief following either acupuncture or drug therapy in patients with renal colic.

that if acupuncture does have a benefit in osteoarthritis, it is of only limited degree.

*Rheumatoid arthritis*

Whereas osteoarthritis is largely due to wear and tear of the joints, rheumatoid arthritis is inflammation of the joints due to an unknown cause. It may cause severe pain and deformity. Dr Townsend and colleagues from the Royal Berkshire Hospital in England studied acupuncture in a placebo-controlled trial in 56 patients. Acupuncture did not relieve pain, the numbers of swollen joints or blood tests for inflammation.<sup>43</sup>

*Headache*

Tension headaches are characterised by a feeling of a tight band around the head,

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<sup>43</sup>Townsend DJ, Sathanathan R, Kriss S, Dore C. The effect of acupuncture on patients with rheumatoid arthritis: a randomized, placebo-controlled cross-over study. *Rheumatology* 38: 864-869, 1999

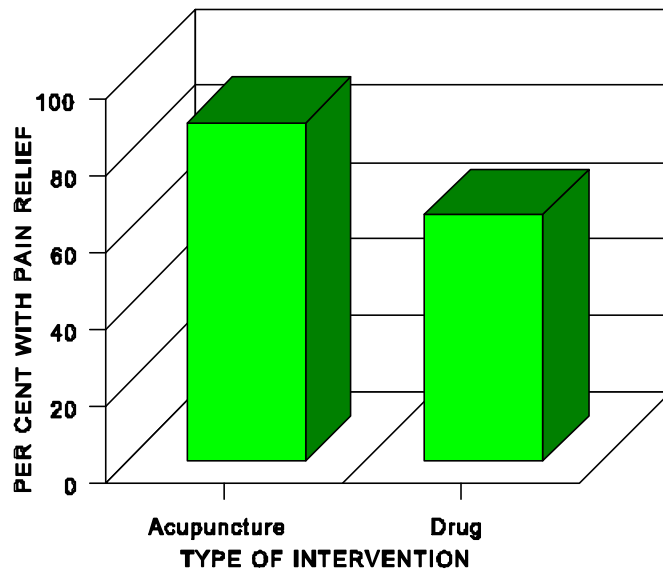


Figure 16. Proportion of patients with complete pain relief following either acupuncture or drug therapy for pain relief.

especially in the forehead. Dr Tavola and colleagues from the department of psychiatry at the University of Milan in Italy studied the effects of genuine and sham acupuncture on 30 patients with such headaches. They reported their results in a paper<sup>44</sup> entitled "Traditional Chinese acupuncture in tension-type headache: a controlled study". They found that both true and sham acupuncture significantly reduced the frequency of headaches and the amount of pain-killers consumed over the ensuing twelve months. However, if a headache did develop, the duration and intensity of the headache was not relieved.

#### *Renal colic*

Renal colic is a very severe pain that patients suffer when a kidney stone passes down the ureter, the tube leading from the kidney to the bladder. The patient often writhes about in pain, feels sick, and vomits. Dr Lee and his colleagues from the National Yang-Ming Medical College in Taiwan, in a prospective, randomised study of 38 patients, compared the effect of acupuncture with standard treatment which included the injection of a pain-

<sup>44</sup>Tavola T, Gala C, Conte G, Invernizzi G. *Pain* 48: 325-329, 1992

killer called avafortan. Whereas the drug took an average of 15 minutes to begin working, acupuncture was effective in just over three minutes (Figure 15). Furthermore, 86% of those patients treated with acupuncture became free of pain compared with only 63% of those given the drug (Figure 16). In reporting their results in a paper<sup>45</sup> called "Acupuncture in the treatment of renal colic", they remarked that "acupuncture can be a good alternative in the treatment of renal colic."

### *In childbirth*

Most women suffer severe pain during labour. Various methods including acupuncture have been proposed to relieve these pains. Dr Sven Lyrenäs from the department of obstetrics and gynaecology in Uppsala University in Uppsala, Sweden, together with colleagues from the departments of anesthesiology, psychiatry and pharmacology set out to determine whether acupuncture is useful. They studied 32 women who were having their first baby and compared them with a number of similar women who did not have acupuncture. From the 36th week of pregnancy, the 32 women were given acupuncture once a week until delivery. Acupuncture needles were inserted into four points in each leg that were supposed to relax the uterus and pelvic organs. During labour, the women estimated the severity of their pain and the researchers measured objectively the use of pain-relieving medications (analgesics) and anaesthesia.

The investigators reported their results in a paper<sup>46</sup> entitled "Acupuncture before delivery: effect on pain perception and the need for analgesics". They found no significant differences between women given acupuncture and those in the control groups in either perception of pain or in the utilisation of analgesics and anaesthetics. They concluded that acupuncture "does not seem to have any significantly beneficial effects upon the women's overall experience of labor and delivery". Nevertheless, almost all the women given acupuncture said that they would ask for it again if they had another baby.

The longer labour lasts, the more pain a mother is likely to experience. Labour is divided into a first stage and a second stage. Dr Zeisler and colleagues from the University of Vienna in Austria studied the effect of acupuncture on the duration of labour. There was no difference between the twogroups for the length of the second stage (57 minutes each) but labour was considerable shorter (196 minutes) in the acupuncture group compared with 321 minutes for the control group.<sup>47</sup>

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<sup>45</sup>Lee YH, Lee WC, Chen MT, Huang JK, Chung G, Chang LS. *Journal of Urology* 147: 16-18, 1992

<sup>46</sup>Lyrenäs S, Lutsch H, Hetta J, Nyberg F, Willdeck-Lundh G, Lindberg, B. *Gynecologic and Obstetric Investigation* 29: 118-124, 1990

<sup>47</sup>Zeisler H *et al.* Influence of acupuncture on duration of labor. *Gynecologic and Obstetric Investigation* 46: 22-25, 1998

*Acupuncture anaesthesia*

Acupuncture anaesthesia was apparently introduced into China in 1958. The technique increases the pain threshold sufficiently to allow surgery on conscious subjects. Its use became so widespread that experience with more than two million cases was reviewed at a symposium in Beijing, China in 1984. Although much has appeared in the Oriental literature about acupuncture anaesthesia, very little has been documented in occidental medical journals. Many Western doctors and scientists have visited China to witness the procedure, but their reports have been largely anecdotal and related to a limited number of patients.

Recently, a collaborative study was undertaken between Dutch and Chinese doctors. Supported by the Dutch Ministry of Education, a pharmaceutical company (Janssen Pharmaceutica), and the University of Nijmegen in The Netherlands, Dr HG Kho, an anaesthetist, and Dr J van Egmond, a physicist, from the Institute of Anesthesiology of the University of Nijmegen, visited the First Affiliated Hospital of the Nanjing Medical College in China. They examined the effectiveness of acupuncture anaesthesia in 20 Chinese patients who had surgery for removal of tumours from the thyroid gland in the neck. Although no general anaesthetic was given (as would be the case in Holland), acupuncture was supplemented by small doses of pethidine, a morphine-like powerful reliever of pain. The acupuncture was administered by placing needles in four locations in the ear on the same side of the head as the thyroid tumour. Immediately after the operation, the patient, the surgeon, and the anesthesiologist assessed the effectiveness of pain relief. The surgeons were very happy with the outcome while the patients and the anaesthetists were relatively satisfied (Figure 17).

In their report<sup>48</sup> entitled "Acupuncture anaesthesia: observations on its use for removal of thyroid adenomata and influence on recovery and morbidity in a Chinese hospital", the authors concluded that although it did not provide complete pain relief, acupuncture was safe and preferable to general anaesthesia in places where facilities for the latter were poor.

Drs Kho and van Egmond then returned to the The Netherlands and studied a group of 29 Dutch patients who had abdominal operations for the removal of lymph glands. Since they had found in China that pain relief was incomplete with acupuncture alone, on this occasion they supplemented acupuncture anaesthesia with standard chemical anaesthesia and transcutaneous stimulation. The chemical anaesthetics were used to induce sleep and relax the muscles, thus allowing the surgeon to get into the abdominal cavity easily. Transcutaneous stimulation is a technique in which electrodes are placed on the skin and an electric current is pulsed through; this often produces some pain relief.

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<sup>48</sup>Kho HG, van Egmond J, Zhang CF, Lin GF, Zhang GL. *Anaesthesia* 45: 480-485, 1990

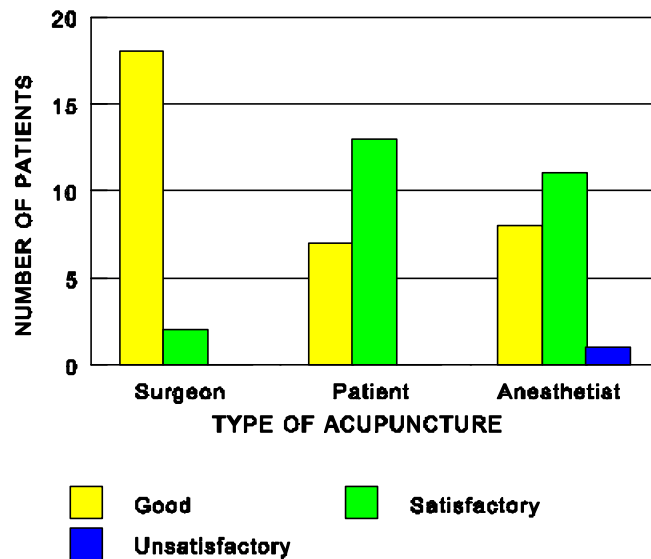


Figure 17. Quality of pain relief during acupuncture anaesthesia for removal of a thyroid tumour as assessed by the surgeon, the patient and the anaesthetist, with quality being described as good, satisfactory and unsatisfactory.

Patients were divided into two groups. One was given acupuncture + transcutaneous stimulation + small doses (4% of the standard dose) of general anaesthetic, while the other group was given a standard general anaesthetic.

The researchers reported their findings in 1991 in a paper<sup>49</sup> labelled "Acupuncture and transcutaneous stimulation analgesia in comparison with moderate-dose fentanyl anaesthesia in major surgery". Fentanyl is a general anaesthetic. Bias was reduced by ensuring that observers post-operatively did not know which form of treatment had been given. Patients who had received acupuncture had a more rapid return to consciousness. There were no differences between the two groups with respect to changes in blood pressure or pulse rate during the operation, demand for pain-relievers after the operation, restoration of bladder and bowel activity, or in post-operative complications. The authors concluded rather cautiously that "no clinically relevant disadvantages attributable to the method were demonstrated".

<sup>49</sup>Kho HG, Eijk RJR, Kapteijns WMMJ, van Egmond J. *Anaesthesia* 46: 129-135, 1991

### *Acupuncture and post-operative pain*

Somewhat contrasting with these positive findings were the experiences of Dr Ekblom and colleagues from the department of physiology at the Karolinska Institute in Stockholm, Sweden. They studied a number of patients who had impacted wisdom teeth extracted. One group was given acupuncture pre-operatively, the second was given acupuncture post-operatively, and the third had no acupuncture. The results were reported in a paper<sup>50</sup> entitled "Increased post-operative pain and consumption of analgesics following acupuncture". Those who were given acupuncture before tooth extraction found the procedure more unpleasant, needed more local anaesthetic, were more tense afterwards and took more pain-killers after extraction. Moreover, "dry sockets", a complication that sometimes occurs during wound healing, was more common in those who had acupuncture, whether before or after extraction, than in those who did not have acupuncture.

Another negative study in this vein was reported by Gupta and colleagues from the department of anaesthesia at Bedford Hospital in the United Kingdom. They conducted a randomised, double-blind study of acupuncture given when patients were already anaesthetised while undergoing a knee arthroscopy (a visual examination of the knee joint with a flexible viewing instrument). Acupuncture did not improve post-operative pain or the amount of pain killers administered.<sup>51</sup>

### **Can acupuncture help psoriasis**

Psoriasis is an irritating skin disorder of unknown cause that is usually treated with creams, especially those containing cortisone-like drugs. Dr Jerner and colleagues studied 56 patients in a randomised controlled trial using true or sham acupuncture for 10 weeks. Unfortunately, acupuncture was ineffective<sup>52</sup>.

### **Does acupuncture assist weight loss?**

Any new means of losing weight in obesity is welcome. Dr Ernst in Austria reviewed the literature. He found four controlled trials although all of them had some methodological flaws. The results were contradictory. The two best trials showed no effect. He concluded that on balance, no clear picture emerged to show that acupuncture or acupressure is

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<sup>50</sup>Ekblom A, Hansson P, Thomsson M, Thomas M. *Pain* 44: 241-247, 1991

<sup>51</sup>Gupta S *et al.* The effect of pre-emptive acupuncture on analgesic requirements after day-case knee arthroscopy. *Anaesthesia* 54: 1204-1207, 1999

<sup>52</sup>Jerner B, Skogh, Vahlquist A. A controlled trial of acupuncture in psoriasis: no convincing effect. *Acta Dermato-Venerologica* 77: 154-156, 1997

effective in reducing either appetite or body weight<sup>53</sup>

### **Does acupuncture influence Sjogren's syndrome?**

Sjogren's syndrome is a disease of unknown cause which is characterised by dry eyes, dry mouth and sometimes by arthritis. Dr List and colleagues from Linkoping in Sweden studied 21 patients. They were divided into two randomly and half were given acupuncture for 10 weeks and half were not. The amount of saliva produced in response to stimulation with paraffin was measured. Unfortunately, no difference was found between the two groups.<sup>54</sup>

### **Does acupuncture help patients who have had a stroke?**

Stroke is an illness caused by either insufficient blood to the brain or bleeding in the brain. Depending upon the part of the brain involved, there may be paralysis, loss of sensation, loss of speech and blindness. No-one has suggested that acupuncture can cure strokes but there have been claims that it may help some of the symptoms. Dr Gosman-Hedstrom and colleagues from the department of rehabilitation at the Sahlgrenska University Hospital in Goteborg, Sweden studied 104 patients who had had a stroke.<sup>55</sup>

They were divided randomly into three groups. All patients were given conventional rehabilitation but in addition the first group was given deep electroacupuncture while the second was given superficial electroacupuncture for 10 weeks. Occupational therapists who did not know which treatment had been given assessed the patients four times over the following year. Unfortunately, there was no improvement in neurological status, ability to perform daily life activities or quality of life in the patients given acupuncture.

### **Awaiting judgement**

In this chapter, I have recounted those studies that have appeared to date in the orthodox medical literature. There are, of course, other conditions for which some acupuncturists may claim benefit for acupuncture. Such claims vary from one acupuncturist to another and from one region or country to the next. However, a panoramic view of what illnesses

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<sup>53</sup>Ernst E. Acupuncture/acupressure for weight reduction? A systematic review. *Wiener Klinische Wochenschrift* 109: 6-62, 1997

<sup>54</sup>List T, Lundeberg T, Lundstrom I, Lindstrom F, Raval N. The effect of acupuncture in the treatment of patients with primary Sjogren's syndrome. A controlled study. *Acta Odontologica Scandinavica*. 56: 95-99, 1998

<sup>55</sup>Gosman Hedstrom G et al. Effects of acupuncture treatment on daily life activities and quality of life: a controlled, prospective, and randomized study of acute stroke patients. *Stroke* 29: 2100-2108, 1998

acupuncturists are likely to say may respond to this therapy can be obtained by surveying a range of books on alternative medicine. Stanway, for example, says that theoretically acupuncture may be of value for “any reversible disease”, whatever that means. He then goes on to list a number specific disorders. Some suggestions are positively dangerous such as the use of acupuncture as the sole therapy for appendicitis. As you can see from Table 2, there is considerable variation among authors and the majority of conditions have not been formally studied. This is not to say that acupuncture is of no value in these conditions; it is simply that its efficacy has not yet been investigated. There may be a number of reasons for this state of affairs such as the availability of other effective remedies, a perception by investigators that acupuncture is unlikely to be of benefit in a particular condition, lack of funds to examine the question, or just that the problem has not yet caught anyone’s imagination and energy.

#### **Are there any problems with acupuncture?**

Yes. The first concern is pretty obvious - it may not work. This is clearly very important if the patient is having a surgical operation and the pain relief is inadequate. But there have been examples of other types of complications.

- *Collapsed lung.* A 29 year old woman was admitted with extreme shortness of breath to the New York Hospital-Cornell Medical Center in the United States.<sup>56</sup> She had had acupuncture treatment for headache in which needles were implanted in both sides of chest. The needles had punctured each lung and they had collapsed as a consequence. She responded to emergency mechanical expansion of the lungs by inserting tubes into each side of the chest and apply-applying a vacuum.
- *Inflammation of the ear.* A 45 year old Italian lady received acupuncture treatment for chronic back pain. Three weeks later, she presented to Charing Cross Hospital in London, England with a red, swollen and painful right ear<sup>57</sup> Green pus was discharging from the area where the needle had been inserted (and left for some time). She recovered after treatment by surgical drainage to let the pus out plus administration of antibiotics but was left with a residual cosmetic deformity.
- *Infection of the heart valves.* A 57 year old woman who had previously had an artificial valve fitted in her heart as a treatment for long-standing rheumatic fever had

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<sup>56</sup>Mazal DA, King T, Harvey J, Cohen J. Bilateral pneumothorax after acupuncture. *New England Journal of Medicine* 302: 1365-1366, 1980

<sup>57</sup>Warwick-Brown NP, Richards AES. Perichondritis of the ear following acupuncture. *Journal of Laryngology and Otology* 100: 1177-1179, 1986

Table 2. Conditions for which efficacy of acupuncture is claimed (+) in a range of books<sup>58,59,60,61</sup> on alternative medicine. Diseases marked in bold have been formally tested and are described in this chapter.

	Fulder	Inglis	Readers' Digest	Stanway
addiction	+		+	
<b>allergy</b>			+	
<b>angina</b>	+		+	
anxiety			+	
appendicitis				+
<b>arthritic pain</b>	+		+	
<b>asthma</b>	+	+	+	
back pain		+	+	
bed-wetting		+		
bronchitis, acute		+	+	+
colitis	+	+	+	
conjunctivitis		+		
constipation		+		
depression	+			
diarrhoea		+		
digestive upsets			+	+
dysentery		+		
facial paralysis	+	+		
frozen shoulder		+		
gall-bladder disease			+	
<b>headache</b>	+	+		+
insomnia			+	
menstrual upsets	+			+
nervous disorders				+
<b>operative pain</b>		+		+
sciatica	+	+		
short-sightedness		+		
<b>smoking cessation</b>			+	
stress			+	

<sup>58</sup>Fulder S. *The handbook of complementary medicine*. Oxford University Press, Oxford, 1988

<sup>59</sup>Inglis B, West R. *The alternative health guide*. Michael Joseph, London, 1983

<sup>60</sup>The Reader's Digest guide to alternative medicine. Reader's Digest, Sydney, 1992

<sup>61</sup>Stanway, A. *Alternative medicine: a guide to natural therapies*. Chancellor Press, London, 1986

	Fulder	Inglis	Readers' Digest	Stanway
tennis elbow		+		
<b>tinnitus</b>	+	+		
tonsillitis		+		
toothache		+		
tiredness			+	
ulcers	+	+	+	

acupuncture needles inserted in both ears in an attempt to stop her smoking. Eighteen days later, she was seen in the department of cardiology at Guy's Hospital in London, England complaining of fever, night sweats, an irregularly beating heart, loss of appetite and energy, and increasing shortness of breath. Physical examinations showed evidence of infection of a heart valve and a bacterium was grown from a sample of her blood. She needed treatment with intravenous injections of antibiotics three times daily for the next four weeks before she recovered.<sup>62</sup>

- *Septicaemia*. A 41 year old man had acupuncture for shoulder pain. Three days later he developed rapidly spreading infection of the skin with gangrene. Despite intensive antibiotic therapy and surgery he died (cited in<sup>50</sup>).
- *The silent viral killers: hepatitis B virus, hepatitis C virus, human immunodeficiency virus*. Most people have heard of these deadly organisms. The hepatitis viruses cause liver disease which may be fatal while the human immunodeficiency virus infection almost always is a death sentence with sufferers dying a slow, unpleasant death from AIDS. These illnesses may present acutely (such as jaundice [yellowness] in hepatitis)<sup>63</sup> but more commonly they do not become apparent for months, or more usually years, after the infection is acquired - long after acupuncture therapy has been forgotten. These viruses live in the blood and it is well-known that they may be transmitted from one person to another by contaminated needles. Swabbing or cleaning needles with disinfectants is unreliable. Needles should only be re-used if sterilised in an autoclave at high pressure and temperature or are soaked in a powerful disinfectant such as glutaraldehyde for at least ten minutes. Most lay acupuncturists have little understanding of these principles or the nature of infectious diseases. Anyone who consults a non-medically qualified acupuncturist and

<sup>62</sup>Jeff DB, Smith S, Brennard-Roper DA, Curry PVL. Acupuncture needles as a cause of bacterial endocarditis. *British Medical Journal* 287: 326-327, 1983

<sup>63</sup>Walsh B, Maguire H, Carrington D. Outbreak of hepatitis B in an acupuncture clinic. *Communicable Diseases and Public Health* 2: 79-81, 1999

has needles inserted is taking a grave risk.<sup>64</sup> Acupressure, on the other hand, is quite safe.

### Conclusions

Acupuncture is an enigma to Western doctors and medical scientists. It is extra-ordinarily difficult for someone trained in the Western tradition to come to terms with something that seems to have no anatomical or physiological basis yet has a proud history in the Orient and seems to have some objective evidence in its favour. In an editorial<sup>65</sup> in the *British Medical Journal* in 1984, George Lewith, director of the Centre for the Study of Alternative Therapies in Southampton, England, encapsulated the issues. He wrote: "Despite all the recent interest in acupuncture among doctors, scientists and the public, confusion persists about how it works - or indeed if it works at all".

Others were less open to persuasion. Petr Skrabanek of the Mater Misericordiae Hospital in Dublin, Ireland, also in 1984, wrote in that other famous British medical periodical, *The Lancet*. In a "point of view" article<sup>66</sup> called "Acupuncture and the age of unreason", he blasted acupuncture as outrageous, irrational and politically motivated "quackupuncture".

He was in his turn attacked as being a "demagogue bent on discrediting his opponents by any means"<sup>67</sup>. Drs Fung and Lau accused him of recounting derisive historical anecdotes, not citing any scientific evidence, and of being incorrect with many of his quotations. Finally, they pleaded "let us reason with facts and scientific arguments, not biased views". Indeed, Dr George Ulett of the department of psychiatry at the St. Louis University school of medicine in Missouri, USA, suggested that acupuncture may be an example of the "tomato effect" - "tomatoes, once considered poisonous, are now known to be edible"<sup>68</sup>, that is, although acupuncture is often ridiculed, perhaps there is something in it.

Clearly, acupuncture is no magical panacea. It is by no means a cure-all. Yet, as the preceding pages show, a number of rigorous, controlled studies suggest that in some circumstance, acupuncture does have a significant benefit. This indeed was also the view of a group of experts brought together by the National Institutes of Health in the United States.<sup>69</sup> No-one knows how it works. Many still don't believe it does. We can only hope

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<sup>64</sup>Ernst E, White AR. Acupuncture may be associated with severe adverse events. *British Medical Journal* 320: 513, 2000

<sup>65</sup>Lewith GT. Can we assess the effects of acupuncture? *British Medical Journal* 288: 1475-1476, 1984

<sup>66</sup>Skrabanek P. *The Lancet* i: 1169-1171, 1984

<sup>67</sup>Fung KP, Lau SP. Acupuncture. *The Lancet* ii: 45, 1984

<sup>68</sup>Ulett GA. Acupuncture. *The Lancet* ii: 174-175, 1984

<sup>69</sup>NIH Consensus conference. Acupuncture. *Journal of the American Medical Association* 280: 1518-

that time will tell. What is a reasonable summary of the place of acupuncture? -

## Perhaps a point