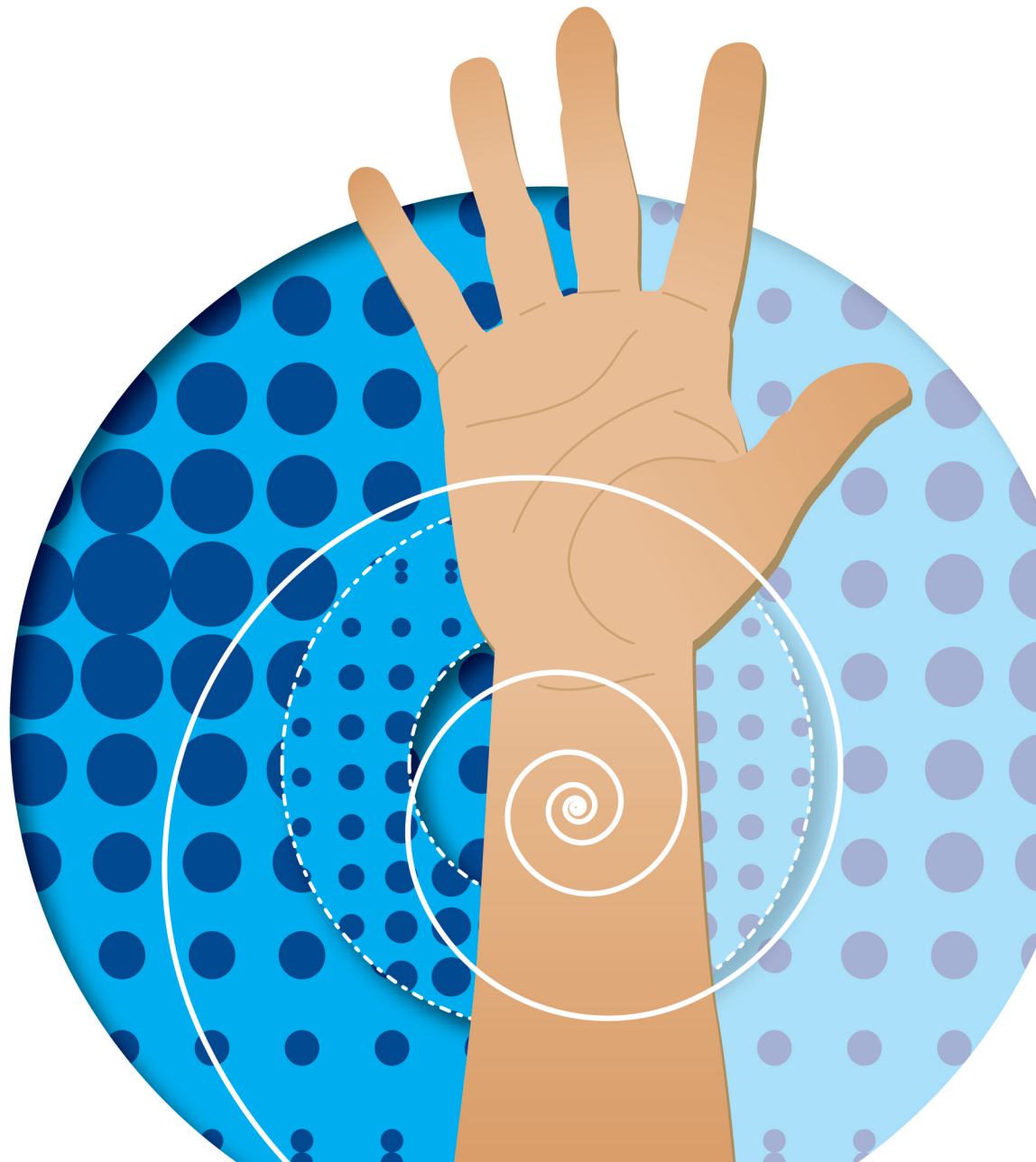


# The power of pressure



# East meets west

Western medicine has made truly remarkable advances in the past 200 years. However, as many common ailments remain incurable, increasingly scientists are looking at traditional Eastern treatments to complement Western science.

Although Western medics may balk at Traditional Chinese Medicine's theory, evolved over 4000 years, that ill health results from an imbalance in the flow of 'life energy', they find that ancient techniques to restore this flow – such as acupuncture and acupressure – can be surprisingly effective.

Acupuncture involves the insertion of very fine needles into specific points on the body to alleviate a variety of symptoms and restore overall health. With acupressure, which works on the same principles but lends itself more easily to self treatment, finger pressure is used to stimulate these points, which are said to lie on invisible channels of 'energy flow' under the skin.

**at least 10% of the British population  
regularly uses complementary or  
alternative medicine**

Lay people have long led the way in accepting unconventional therapies. Surveys such as the Government-funded National Omnibus survey in 2001 show that at least 10% of the British population regularly uses complementary or alternative medicine, especially those who are better educated and more affluent.<sup>1</sup> A 2005 study of 1000 people commissioned by the Diagnostic Clinic, London, found that 68% had faith in complementary medicine. Many have found that complementary and alternative treatments can offer relief for the nagging distress of chronic complaints, such as arthritis, that orthodox medicine often fails to alleviate.

## Acupuncture and acupressure in Western medicine

Several British doctors discovered the benefits of acupuncture as early as the 19th century, but recent Western interest in acupuncture was triggered in 1972, when New York Times journalist James Reston, in China to cover Richard Nixon's historic visit, reported the success of acupuncture in relieving his post-operative pain after an emergency appendectomy.

This led to a spate of research studies. As a result, acupuncture (and by implication acupressure) has received more scientific investigation than most complementary and alternative therapies put together.

Evidence from clinical trials that it relieves nausea and vomiting, back pain, migraine and dental pain was sufficiently strong for the British Medical Association in 2000 to recommend its wider availability on the NHS.<sup>2</sup> About 86% of NHS pain clinics offer acupuncture and growing numbers of GPs, nurses and physiotherapists either practise it or refer patients to a practitioner. The British Medical Acupuncture Society has trained 1408 GPs over the last seven years.

From the patient's point of view, acupressure has the enormous advantage of being easily learned and applied. No needles or practitioners are required, and for certain conditions it can be very successful. Two major reviews of research by the prestigious Cochrane Collaboration in the last three years have found acupressure effective in treating nausea after surgery and from chemotherapy.

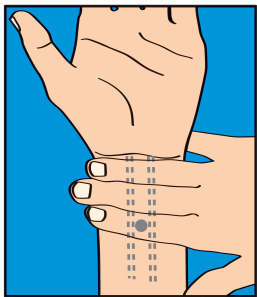
Western medical sceptics say that, if acupuncture and acupressure work, then it must do so by scientifically acceptable means. Now plausible explanations that fit comfortably with Western science are emerging.



<sup>1</sup> Kate Thomas, Pat Coleman, Use of complementary or alternative medicine in a general population in Great Britain. Results from the National Omnibus survey, Journal of Public Health, vol 26, no. 2, June 2004, pp 152-157(6)

<sup>2</sup> Acupuncture: Efficacy, Safety and Practice, British Medical Association, 25.06.2000

# The Pericardium 6 story



Four thousand years ago Chinese doctors knew that stimulating a certain point near the wrist could relieve nausea. Closer to home, an old Royal Navy tradition recommended placing a boiled sweet under a sailor's watchstrap to ease seasickness.

Over the last 20 years a number of randomised clinical trials carried out by Western scientists have demonstrated the same phenomenon. Stimulation of the acupoint known as Pericardium 6 (P6) or Nei-guan ("inner gate") can relieve and even eliminate nausea and vomiting in early pregnancy; after a general anaesthetic; and for cancer patients undergoing chemotherapy where anti-nausea drugs are not sufficient. P6 is found between the two major tendons on the inside of the arm, approximately two inches, or three finger widths, below the crease of the wrist.

## Convincing Studies

The prestigious Cochrane Collaboration published a review of clinical trials of acupuncture-point stimulation for chemotherapy-induced nausea or vomiting in 2006, and one of P6 stimulation for preventing postoperative nausea and vomiting in 2004. Both found that acupressure could reduce the risk and severity of nausea.<sup>1 2</sup>

"I'm impressed by the research," says Professor Edzard Ernst, who holds the first chair in Complementary Medicine at the Peninsula Medical School, Exeter University. He is committed to subjecting the claims of complementary and alternative therapies to rigorously controlled scientific trials. "It seems fairly convincing and some of the studies would stand up to any level of scrutiny." Even the notoriously meticulous US Food and Drug Administration (FDA) has judged some of the British trials on P6 as the best evidence available for acupuncture and acupressure.



**Acupressure is non-invasive,  
does not require specially trained  
practitioners and people can  
perform it on themselves**

In 2004, the standard of evidence for the benefits of acupressure convinced the FDA to grant Sea-Band Ltd clearance to market Sea-Band in the US as a relief for nausea.

Acupressure, says Professor Ernst, has a number of advantages: it is non-invasive, does not require specially trained practitioners and most people can perform it on themselves as part of their own healthcare, thus offering a psychological boost. "More importantly," he adds, "it's entirely safe. There are no side-effects; if it doesn't work, then no harm is done, and it is inexpensive.

"Given that, on balance, the evidence is fairly encouraging, it puzzles me that acupressure is not used more frequently to alleviate nausea and vomiting."

Anti-emetics – drugs to prevent nausea and vomiting, such as ondansetron – are expensive. They may have side-effects; droperidol, for example, can cause facial spasms. So why is a cheap and harmless treatment like acupressure not offered routinely on the NHS?

Availability is not a problem. Locating the P6 point takes only a few seconds to learn, and elasticated wristbands with a plastic stud that exerts continuous pressure on the acupoint are a popular self-help remedy for travel sickness, available over the counter at thousands of chemists.

These same wristbands, called Sea-Bands, proved effective in trials on hospital patients suffering from nausea; yet many health professionals are unaware of the results, hence implementation in surgical and oncology wards and ante-natal clinics is progressing slowly. Unofficially however, a number of nurses suggest that patients try acupressure wristbands.

**implementing acupressure in  
many NHS hospitals would be very  
simple and could save the country  
a great deal of money**

"They are more commonly used by nurses working in the cancer field," says Denise Tiran, a midwife specialising in complementary and alternative medicine. "Some oncology units use them and a few surgical ward areas have tried them, but to my knowledge, no NHS ante-natal clinics or labour wards supply acupressure bands free of charge. Finances would not stretch to offering them for something which is relatively 'minor' in medical terms. One of the problems in my experience is that they 'walk' – people take them home and don't return them."

Medical scepticism about complementary and alternative therapies is largely responsible for the lack of interest. "Applying pressure to the wrist of a patient may not seem a very convincing medical intervention," explains Professor Ernst, "although the clinical trials published so far are scientifically compelling and should convince people eventually."

Dr George Lewith, of the Faculty of Medicine, Health and Life Sciences, University of Southampton, and a leading investigator of complementary medicine, has carried out several studies on P6.

"Conventional medicine doesn't yet know how to put positive findings in complementary medicine into practice," he says. "Theoretically and practically, implementing acupressure in many NHS hospitals would be very simple and could save the country a great deal of money."

<sup>1</sup> Ezzo JM, Richardson MA, Vickers A, Allen C, Dibble SL, Issell BF, Lao L, Pearl M, Ramirez G, Roscoe JA, Shen J, Shivanian JC, Streitberger K, Treish I, Zhang G. Acupuncture-point stimulation for chemotherapy-induced nausea or vomiting (Review). The Cochrane Library 2006, Issue 4

<sup>2</sup> Lee A, Done ML. Stimulation of the wrist acupuncture point P6 for preventing postoperative nausea and vomiting (Review). Cochrane Database of Systematic Reviews 2004, Issue 3.

# What traditional Chinese medicine says

Acupressure is one of several techniques used in traditional Chinese medicine. Developed over 4000 years of critical observation and testing, this system is very different in philosophy and practice to Western medicine.

Western doctors start with a symptom and look for a specific cause or disease. A Chinese medical practitioner will treat the symptom as only one factor in the individual's entire physiological and psychological profile, which must be studied to find the 'pattern of disharmony.'

## Chi is animated by a constant movement of energy between yin and yang

According to traditional Chinese medicine (often referred to as TCM), illness results from an imbalance in the flow of 'chi' ('life energy') through the body. The original meaning of chi' (pronounced 'chee' and sometimes spelt 'Qi') was simply air, breath or energy, but it eventually came to mean the vital nourishing and protective energy that sustains everything in the world. We receive chi at conception from our parents, and after birth continue to derive it from food and air.

Chi is animated by a constant movement of energy between yin and yang, two opposing but complementary forces. When one predominates, the flow of energy is disturbed and disease and emotional instability can result.

## Chi circulates through the body along a network of invisible channels beneath the skin called meridians

Chi circulates through the body along a network of invisible channels beneath the skin called meridians. There are 12 basic meridians, paired on the right and left sides of the body and named after the internal organs to which they are said to be attached, such as the lung, large bowel and (in the case of P6) the pericardium. (In Western medicine, this is the double-walled sac that contains the heart and the roots of the major blood vessels.)

Dotted along the meridians are 2000 or so known acupoints, where chi is said to be concentrated and at which it enters and leaves the body. Stimulation of these points – whether by needles, heat, mild electrical currents or pressure – is said to free the flow of chi, releasing blockages and restoring depletions, thus returning the body to harmony.

### HOW THE CHINESE USE ACUPRESSURE

Tuina, as acupressure is known in China, is the technique of applying pressure with the hands to the acupoints and meridians. Some points are known to be particularly powerful and the Chinese will press or scrape them with a fingernail or the edge of a spoon as a self-help measure.

Pericardium 6 (P6) is one of these. Its functions are said to include the movement of energy in the chest, harmonisation of digestion and the stomach, the regulation of blood flow and calming of the mind.

TCM practitioners recommend P6 to treat chest pain, irregular and painful periods, premenstrual depression, insomnia and – because of the influence on the stomach – to relieve nausea and vomiting, acid regurgitation, hiccupping and belching.

### WHAT WESTERN SCIENCE SAYS

So far there is no scientific evidence to support the existence of 'chi' or 'meridians,' despite studies that show acupuncture and acupressure can be effective in relieving nausea, vomiting and pain. Western doctors prefer to seek other, more medically acceptable, explanations for the phenomenon.

Since the 1970s convincing theories have emerged for the mechanisms behind acupuncture (and by extension acupressure). Initial studies into the pain-relieving properties of acupuncture led researchers to conclude that the most likely answer lay in the involvement of morphine-like chemicals known as endorphins and the 'gate control theory' of pain relief. In 1982, researchers showed that needling released endorphins in the central nervous system.<sup>1</sup>

In simple terms, nerves carrying pressure signals reach the brain faster than pain messages. As the brain can receive only so many messages at once, the 'gate' is closed by the time pain signals arrive.

Pressure appears to stimulate nerve fibres running up the spinal cord and ultimately result in production of endorphins. These transmitters, also called 'endogenous opioid peptides', are morphine-like compounds which influence the hormonal and immune systems and inhibit the brain's perception of pain, especially when associated with anxiety and stress.

But why, for instance, should the stimulation of specific points and not others trigger certain responses in the brain? And by what means are reactions prompted in another, seemingly unrelated part of the body?

Western physicians have known for many years that pressing, stimulating or injecting various points on the skin can help relieve pain. These points, known as trigger points, or motor points, may be some distance from the site of the pain – a phenomenon known as 'referred pain.' By and large they correlate with traditional acupuncture points.

According to Dr Adrian White, editor of *Acupuncture in Medicine*, medical acupuncturist and clinical research fellow in General Practice and Primary Care at the Peninsula Medical School, Plymouth, several mechanisms have now been identified that go a long way towards explaining how acupuncture and acupressure might work.

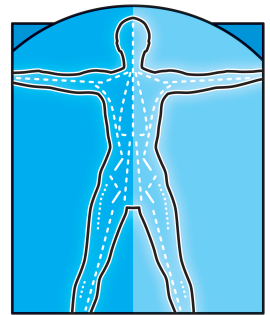
## acupressure is the technique of applying pressure with the hands to the acupoints and meridians

### 1) Local blood flow

Stimulating the small branches of a sensory nerve just under the skin can set off a nerve impulse (an electrical signal known as an 'action potential'). This releases various substances, including a peptide that dilates local blood vessels and increases blood flow. This could encourage tissue healing, for example after minor injury, and improve the function of local glands, such as salivary glands.

### 2) 'Segmental' pain relief

The nerve impulse travels up the nerve directly to the spinal cord, and enters the segment of the cord to which it is attached.





Here it depresses activity in a filtering site, called the 'dorsal horn'. This receives information about body sensations such as touch, heat, cold, and pain, and passes on only what is 'useful' to the brain, via endorphin messengers.

Pain sensations from any part of the body which sends nerves to that segment of the spinal cord can be inhibited. For instance, the nerves from a painful knee enter the same segment of the spinal cord as the nerves from the surrounding muscles. If nerves in those muscles are stimulated, the knee feels less painful.

### 3) The 'extrasegmental' effect

The nerve impulse produced by acupuncture/acupressure stimulation then travels beyond the segment and up the spinal cord to the brainstem, where it inhibits the brain's own pain-suppressing mechanisms.

For example, if you are focusing hard on playing sport, you may not notice an injury. It is only later that you become aware of the pain.

### 4) In the brain

The nerve impulse travels further into the brain. In the cerebral cortex, the original stimulation is registered. Deeper still, in the hypothalamus and limbic system, other mood-enhancing effects are triggered. Acupuncture can be calming and improve wellbeing; people may become more cheerful and motivated.

From the brain, signals flow back to other parts of the body. To the autonomic nervous system, for instance, or the hormonal system. Or to the stomach and digestive tract to reduce nausea and vomiting.

"There are still large gaps in our knowledge," says Dr White, "but two areas of current research should provide us with an even better understanding of acupuncture mechanisms within the next few years." Currently under investigation are long-term changes in neurotransmitters (chemicals that send electrical signals between nerve cells), brain cells and the blood-brain barrier.

## WESTERN MEDICAL ACUPUNCTURISTS

Western doctors who practice acupuncture have a different approach to Traditional Chinese Medicine practitioners. A Western acupuncturist makes a medical diagnosis in the orthodox way, and treatment is based on a more conventional view of the structure and function of the body and its internal organs. This tends to mean treating acupoints close to the problem area rather than, as TCM practitioners do, stimulating points that may be at the far end of the body but are linked on the same meridian. Acupuncture and acupressure are regarded as complementary to drugs or surgery or whatever else the patient requires.

British Medical Acupuncture Society [www.medical-acupuncture.co.uk](http://www.medical-acupuncture.co.uk)

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Brain scans, especially functional magnetic resonance imaging (fMRI), are opening up the mysteries of the deep brain, which seems to have implications for acupuncture. Experimental fMRI studies of P6 stimulation showed effects on stomach muscle activity, the vagus nerve linking the brain and digestive system, and the cerebellum, the part of the brain involved in the integration of sensory perception and movement, that sends information to the muscles.<sup>2</sup>

Recent thinking attributes the sustained effect of regular acupuncture sessions to genes. Acupuncture stimulates our own genes to make more of our natural endorphins. A course of treatment to create an initial effect is followed by top-ups to keep the genes switched on. Some of us may have more acupoint-sensitive genes than others, which could explain the wide variation in individual responses that mystifies practitioners and researchers.

<sup>1</sup> Han JS, Terenius L, Neurochemical basis of acupuncture analgesia, *Annu Rev Pharmacol Toxicol* 1982; 22:193-220

<sup>2</sup> Streitberger K, Ezzo J, Schneider A, Acupuncture for nausea and vomiting: an update of clinical and experimental studies. *Autonomic Neuroscience* 2006 Oct 30;129(1-2):107-17



# Travel sickness

Thousands of Westerners have discovered for themselves the benefits of acupressure as a travel sickness remedy.

## Travel sickness is a good example of nausea due to a condition somewhere else in the body

Nausea, or feeling ill, queasy and wanting to vomit, is not necessarily caused by a problem in the stomach. Travel sickness is a good example of nausea due to a condition somewhere else in the body.

Any form of transport can cause nausea, dizziness and vomiting. Our sense of equilibrium lies in the ear and works hand in hand with eyesight. When messages to these organs don't agree and the brain is confused by the extent the body is actually moving, the resulting symptom is one of nausea.

Daniel Choy was ship's doctor on an ocean-going yacht when the vessel ran into rough weather off the North American coast. To everyone's consternation the seasickness pills had been washed overboard.

Dr Choy remembered a traditional remedy from his youth. "This sounds crazy," he told the sailors, "but if you press this point on your wrist you might feel better." They obeyed and to their astonishment many reported that the nausea subsided, returning only if they removed their fingers from the point.

From there it was a short step to devising a wristband with a stud that would maintain continuous pressure, its effect easily topped up with an occasional squeeze.

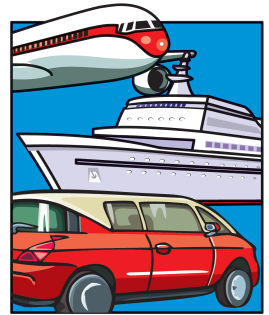
These are marketed in the UK as Sea-Bands. Dr Ian Cracknell, a Leicestershire GP, admits to being sceptical when asked to trial them. "I gave them very casually to patients going on holiday and they came back saying 'It seems to work.' People who'd never been able to travel more than a few yards went on holiday around the Greek islands."

Little formal research exists on the effectiveness of acupressure bands in relieving travel sickness. "It's the one area where it's difficult to do a formal study," says Dr Cracknell. Taking a boatload of people out to sea in a gale doesn't allow for the randomisation, clinical controls and double-blinding on which science insists.

Several trials have been made with subjects sitting in a special rotating optokinetic drum that confuses the senses and creates the conditions for motion sickness. In one study of 64 people in Aviation, Space and Environmental Medicine in 1995, researchers at the Department of Psychology, Humboldt State University, Arcata, California, used electrogastragrams to measure wave-like contractions of the stomach as well as the subjects' reports. Those receiving P6 acupressure showed less abnormal gastric activity and significantly fewer symptoms than the controls.<sup>1</sup>

## Those receiving P6 acupressure showed less abnormal gastric activity and significantly fewer symptoms

In another American study using a rotating optokinetic drum, reported in Alternative Therapies in Health and Medicine in 2001, researchers at the Gastrointestinal Psychology Laboratory, Pennsylvania State University, found that an acupressure band on the wrist decreased symptoms of motion sickness and accompanying gastric activity in 25 healthy subjects aged 18 to 22 years.<sup>2</sup>



<sup>1</sup> Hu S, Stritzel R, Chandler A, Stern RM, P6 acupressure reduces symptoms of vection-induced motion sickness. Aviation, Space and Environmental Medicine 1995 July;66(7):631-4

<sup>2</sup> Stern RM, Jokerst MD, Muth ER, Hollis C, Acupressure relieves the symptoms of motion sickness and reduces abnormal gastric activity. Alternative Therapies in Health and Medicine 2001 July-Aug;7(4):91-4

# Morning sickness



Of the 640,000 or so women who will give birth in England and Wales this year, three quarters will spend the first three months coping with waves of nausea and vomiting.<sup>1 2</sup>

With up to 80% of pregnant women reporting morning sickness,<sup>3</sup> it is common enough to be regarded as a symptom of pregnancy. The cause is believed to be rapidly rising serum levels of a hormone called HCG (human chorionic gonadotropin) secreted by the foetus. Increased oestrogen levels may also have a role.

In one out of a hundred women, nausea and vomiting is intolerably severe – a condition known as hyperemesis gravidarum. Without relief, it can interfere with the weight gain needed to sustain pregnancy and cause dehydration that is harmful to both mother and child. At the very least, the sheer unpleasantness may adversely affect a woman's attitude to pregnancy.

**55-75% of pregnant women  
seek alternative or  
complementary remedies**

Fear of the effects of drugs on their baby leads 55 – 75% of pregnant women to seek alternative or complementary remedies, according to the Royal College of Midwives. Anecdotally, acupressure has an impressive track record in offering relief from morning sickness for many – though not all – women, and has held up well, though not conclusively, in several clinical trials. Although evidence is insufficiently strong for Primary Care Trusts to provide wristbands on the NHS to expectant mothers, some community midwives recommend acupressure bands to women dealing with morning sickness.

Proper instruction is essential however. "Many midwives are aware of Sea-Bands but do not know how to position them properly and are surprised when they don't work," says midwife Denise Tiran, a specialist in complementary and alternative medicine with a particular interest in morning sickness, and director of Expectancy, a consultancy for expectant parents that advises on combining complementary therapies and normal maternity care ([www.expectancy.co.uk](http://www.expectancy.co.uk)).

"Incorrect positioning or failing to stimulate the bands when a wave of nausea occurs are common reasons for women not continuing to use them," she says.

"In any case most doctors and many midwives disregard the severity of morning sickness, and see it as a normal physiological event which will pass, although they will generally support mothers' use of complementary medicine so long as it does not interfere with normal care."

One of the first advocates of acupressure bands in the UK was the late Professor John Dundee of the Department of Anaesthesia at Queen's University, Belfast. On a visit to China, he saw young mothers-to-be in a Beijing maternity hospital being instructed to press an acupoint on their wrists to relieve morning sickness. On his return to Northern Ireland he carried out a series of studies into acupressure and acupuncture for the relief of nausea that are still highly rated.

In 1989 he published in the Journal of the Royal Society of Medicine the first clinical trial of P6 stimulation for morning sickness in 350 women. Acupressure proved a very simple skill to learn.

The results were significant. Those who had acupressure suffered from less nausea and vomiting than those who

didn't have acupressure and those who pressed a dummy point.

In a more recent study in the Journal of Reproductive Medicine in 2001, researchers at Lund University in Sweden studied 60 women suffering from morning sickness and found that those who wore wristbands to stimulate P6 experienced about 60% less nausea and vomiting two weeks later than women who were given a placebo band or no band at all.<sup>4</sup>

The women in both P6 and placebo groups reported feeling better within one day of treatment, but for those in the placebo category, the effect disappeared after just three days. "Though the study was short, we expect the effect to last longer than 14 days," said Elisabet Werntoft, a registered nurse and one of the researchers. "We recommend that women with morning sickness try the wristbands since they have no known side effects and are easy to use and inexpensive."

**non-invasive, inexpensive,  
safe and effective treatment  
for the nausea and  
vomiting of pregnancy**

Similar positive results were found in a study of Sea-Bands carried out in 17 medical clinics by Kirkhof School of Nursing, Grand Valley State University, Michigan. and published in the Journal of Obstetric, Gynecologic and Neonatal Nursing in 2001. Researchers found that those pregnant women wearing the bands had significantly less frequency and severity of nausea and vomiting than the placebo group, and less nausea and vomiting when wearing the bands than when not. The authors concluded that "Sea-Bands with acupressure buttons are a non-invasive, inexpensive, safe and effective treatment for the nausea and vomiting of pregnancy."<sup>5</sup>

A large Australian study of nearly 600 women at the Women and Children's Hospital, Adelaide, published in Birth in 2002, showed acupuncture given weekly for four weeks was an effective treatment for nausea and dry retching, though not vomiting, in early pregnancy. When the women were followed up after birth, no serious adverse effects from using acupuncture in early pregnancy were found.<sup>6 7</sup>

**Acupressure is a good first line self  
help measure, it enables women to  
treat themselves at home.**

Preliminary studies that suggested benefits for troublesome nausea, sparked her interest in acupuncture, says chief researcher Dr Caroline Smith of the University of Adelaide. "There is a need for further research," she adds.

However, acupuncture requires a practitioner and, although the effects may be stronger, is a more expensive and invasive procedure. "Acupressure is a good first line self help measure," says Dr Smith. "It enables women to treat themselves at home."

<sup>1</sup> National Statistics, Population Trends, Winter 2006. 826,000 conceptions and 640,000 live births in England and Wales in 2004, 22% of conceptions aborted.

<sup>2</sup> Lacroix R, Eason E, Melzack R, Nausea and vomiting during pregnancy: A prospective study of its frequency, intensity, and patterns of change. American Journal of Obstetrics and Gynaecology, 2000 Apr;182(4):931-7

<sup>3</sup> Cowan MJ. Hyperemesis gravidarum: Implications for home care and infusion therapies. Intravenous Nursing 1996;19:46-58

<sup>4</sup> Werntoft E, Dykes AK. Effect of acupressure on nausea and vomiting during pregnancy: A randomized, placebo-controlled pilot study. Journal of Reproductive Medicine 2001 Sep;46(9):835-9

<sup>5</sup> Steele NM, French J, Gatherer-Boyles J, Newman S, Leclair S. Effect of acupressure by Sea-Bands on nausea and vomiting of pregnancy. Journal of Obstetric, Gynecologic and Neonatal Nursing 2001 Jan-Feb;30(1):61-70

<sup>6</sup> Smith C, Crowther C, Beilby J. Acupuncture to treat nausea and vomiting in early pregnancy: a randomized controlled trial. Birth March 2002; 29(1):1-9

<sup>7</sup> Smith C, Crowther C, Beilby J. Pregnancy outcome following women's participation in a randomised controlled trial of acupuncture to treat nausea and vomiting in early pregnancy. Complementary Therapies in Medicine 2002 June;10(2):78-83

# Post-operative nausea and vomiting

Despite improvements in anaesthetic techniques, up to 80% of patients still suffer nausea and vomiting in the first 24 hours after an operation,<sup>1</sup> especially when an opioid is given for pain relief. Anti-sickness drugs are only partially effective in preventing or treating this reaction and may have unpleasant side effects. Droperidol, for example, can cause muscle spasms.

Day surgery is increasingly common in the UK, as techniques for minimally invasive surgery are developed and hospitals look at ways to cut costs, but doctors are reluctant to send home a patient at risk of nausea and vomiting.

Because of these problems, researchers are actively looking at complementary or alternative solutions. In 2004 the respected Cochrane Collaboration published a review of 26 clinical trials into stimulation of acupoint P6 for preventing post-operative nausea and vomiting.<sup>2</sup> Methods used included needle acupuncture, electro-acupuncture, laser stimulation and acupressure.

Overall, the authors found that stimulating P6 was more effective than sham treatment (stimulating a non-acupuncture point) in reducing the risk of nausea, vomiting and the need for rescue anti-emetics (anti-sickness drugs). The risk of nausea – but not vomiting – was lower in patients receiving P6 stimulation than in those given preventative anti-emetics.

Two trials led by Professor John Dundee of Queen's University, Belfast – ground-breaking for their time – were included in the Cochrane review. These, published in the British Medical Journal in 1986 and the British Journal of Anaesthesia 1989, demonstrated the efficacy of P6 acupuncture in preventing nausea and vomiting after minor surgery.<sup>3, 4</sup>

Another British study in the review took place at Walsgrave Hospital, Coventry. Consultant surgeon Ian Fraser undertook with some scepticism a trial of acupressure bands to reduce nausea and vomiting in 150 post-operative patients. He admits he was surprised at the results.

## The acupressure bands were more effective than the anti-sickness drugs

In the study, published in the Journal of the Royal Society of Medicine in 1990,<sup>5</sup> the research team deliberately used a 'mixed bag' of surgical patients receiving a variety of anaesthetics. Divided into three groups, some wore normal acupressure wristbands, some dummy bands without buttons, and the third group received dummy bands plus the anti-emetic drug prochlorperazine with their pain-relieving opiate drugs or when they felt sick.

"The acupressure bands were more effective than the anti-sickness drugs, which in our trial conferred no benefit whatsoever," says Mr Fraser.

Dr Shu-Ming Wang, associate professor of anesthesiology, Yale University School of Medicine, USA, led a Cochrane-reviewed trial, published in Anesthesiology in 2002, that found P6 acupuncture as effective as the anti-emetic droperidol in controlling post-operative nausea and vomiting in 187 children in the recovery ward.<sup>6</sup>

She teaches parents how to find P6 and apply pressure to relieve nausea and vomiting in their children after surgery. "It's easier when we're busy and time is too short for acupuncture," she says.

Although trained in Western medicine, Dr Wang was sufficiently impressed by the growing body of research

supporting acupuncture to qualify as a practitioner. "My day job as an anaesthesiologist means I'm prescribing drugs all the time. Every single one has side effects, so I thought it would be helpful for me to learn something I could incorporate in my practice.

"Our recovery room usually call me to give acupuncture if there is any child who has persistent postoperative nausea and vomiting and who does not respond to medication." The medical and nursing professions in the US, she says, are increasingly receptive to acupuncture and acupressure. "I have more consultations and acceptance of these treatments from all the healthcare workers and from parents."

Not everyone relishes acupuncture. Aidah Alkaissi led a Cochrane-reviewed study of P6 acupressure with Sea-Bands to relieve nausea and vomiting in 410 women following gynaecological surgery at the University Hospital, Linköping, Sweden, published in the Canadian Journal of Anesthesia in 2002.<sup>7</sup> According to Dr Alkaissi, P6 acupressure may be more acceptable to patients than needling: "It's a simple method that can be used with good results in patients having vaginal surgery."<sup>8</sup>

## acupressure increased tolerance to motion sickness in women who were susceptible to post-operative nausea and vomiting

The research team showed that a significantly higher number of women reported no nausea or vomiting among those receiving postoperative P6 acupressure than in the control groups. In a subsequent study published in the Canadian Journal of Anesthesia in 2005, Alkaissi found that P6 acupressure increased tolerance to motion sickness in women who were susceptible to post-operative nausea and vomiting.<sup>9</sup>

In an Irish study of 104 gynaecological patients in the British Journal of Anaesthesia (1999), included in the Cochrane review, P6 acupressure with Sea-Bands reduced the incidence of nausea or vomiting after laparoscopy (keyhole abdominal surgery) from 42% to 19%. Researchers at the Rotunda Hospital, Dublin, found that timing was important; acupressure worked best if the wrist bands were applied at the same time as anaesthesia was given and removed 20 minutes later, before the patient regained consciousness.<sup>10</sup>

## Acupressure was found to reduce the incidence of nausea or vomiting from 53% to 23%

Nausea and vomiting following Caesarean section under spinal anaesthesia is distressing for a mother trying to bond with her new baby. In a further trial of 94 mothers by the same team at the Rotunda Hospital, published in the British Journal of Anaesthesia in 2000, Sea-Bands were applied to the P6 acupoint five minutes before the anaesthetic and removed six hours after the Caesarean.<sup>11</sup> Acupressure was found to reduce the incidence of nausea or vomiting from 53% to 23%, compared with a placebo.



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<sup>2</sup> Lee A, Done ML. Stimulation of the wrist acupuncture point P6 for preventing postoperative nausea and vomiting. *Cochrane Database of Systematic Reviews* 2004;(3):CD003281

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<sup>4</sup> Dundee JW, Ghaly RG, Bill KM, Chestnutt WN, Fitzpatrick KT, Lynas AG. Effect of stimulation of the P6 anti-emetic point on post-operative nausea and vomiting. *British Journal of Anaesthesia* 1989 Nov;63:612-8

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<sup>6</sup> Wang SM, Kain ZN. P6 acupoint injections are as effective as droperidol in controlling early postoperative nausea and vomiting in children. *Anesthesiology* 2002 Aug;97(2):359-66

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<sup>8</sup> The Experts Speak. <http://www.vitasearch.com/CP/experts/p2experts.htm>

<sup>9</sup> Alkaissi A, Torbjorn L, Odqvist LM, Kalman S. P6 acupressure increases tolerance to nauseogenic motion stimulation in women at high risk for PONV. *Canadian Journal of Anesthesia* 2005 Aug-Sep;52(7):703-9

<sup>10</sup> Harmon D, Gardiner J, Harrison R, Kelly A. Acupressure and the prevention of nausea and vomiting after laparoscopy. *British Journal of Anaesthesia* 1999;82(3):387-90

<sup>11</sup> Harmon D, Ryan M, Kelly A, Bowen M. Acupressure and prevention of nausea and vomiting during and after spinal anaesthesia for Caesarean section. *British Journal of Anaesthesia* 2000;84(4):463-7



# In chemotherapy



Nausea and vomiting is a common and unpleasant side-effect of chemotherapy for cancer patients. Around 35% suffer vomiting and over 60% experience nausea which, because it can continue for a number of days, may have more impact on their daily lives.<sup>1 2</sup> So severe are their symptoms that some patients may even refuse potentially life-saving treatment.

**Patients can apply it themselves, which may lend a psychological boost in helping them to feel more in control**

<sup>1</sup> Ballatori E, Roila F, Ruggeri B, Betti M, Sarti S, Soru G, Cruciani G, Di Maio M, Andrea B, Deuson RR. The impact of chemotherapy-induced nausea and vomiting on health-related quality of life. *Supportive Care in Cancer* 2006 Aug 29 [Epub ahead of print]

<sup>2</sup> Bloechl-Daum B, Deuson RR, Mavros P, Hansen M, Herrstedt J. Delayed nausea and vomiting continue to reduce patients' quality of life after highly and moderately emetogenic chemotherapy despite antiemetic treatment. *Journal of Clinical Oncology* 2006 Sep 20;24(27):4472-8

<sup>3</sup> Klein J, Griffiths P. Acupressure for nausea and vomiting in cancer patients receiving chemotherapy. *British Journal of Community Nursing* 2004;9(9):383-7

<sup>4</sup> King CR. Nonpharmacologic management of chemotherapy-induced nausea and vomiting. *Oncology Nursing Forum* 1997 Aug;24(7 Suppl):41-8

<sup>5</sup> Ezzo JM, Richardson MA, Vickers A, Allen C, Dibble SL, Issell BF, Lao L, Pearl M, Ramirez G, Roscoe JA, Shen J, Shivan JC, Streitberger K, Treish I, Zhang G. Acupuncture-point stimulation for chemotherapy-induced nausea or vomiting. *Cochrane Database of Systematic Reviews* 2006 Apr 19;(2):CD002285

<sup>6</sup> Dibble SL, Chapman J, Mack KA, Shih AS. Acupressure for nausea: results of a pilot study. *Oncology Nursing Forum*, 2000 Jan-Feb;27(1):41-7

<sup>7</sup> Roscoe JA, Morrow GR, Hickok JT, Bushunow P, Pierce HI, Flynn PJ, Kirshner JJ, Moore DF, Atkins JN. The efficacy of acupressure and acustimulation wrist bands for the relief of chemotherapy-induced nausea and vomiting. A University of Rochester Cancer Center Community Clinical Oncology Program multicenter study. *Journal of Pain and Symptom Management* 2003 Aug;26(2):731-42

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<sup>9</sup> Dundee JW, Yang J. Prolongation of the antiemetic action of P6 acupuncture by acupressure in patients having cancer chemotherapy. *Journal of the Royal Society of Medicine* 1990;83:360-2

<sup>10</sup> Gardani G, Cerrone R, Biella C, Mancini L, Proserpio E, Casiraghi M, Travisi O, Meregalli M, Trabattini P, Colombo L, Giani L, Vaghi M, Lissoni P. Effect of acupressure on nausea and vomiting induced by chemotherapy in cancer patients. *Minerva Medica* 2006 Oct;97(5):391-4

Once a patient has experienced chemotherapy-associated nausea, he or she is at risk of developing anticipatory nausea with further chemotherapy, according to Joan Klein, Nurse Consultant Cancer Care, St Mary's Hospital, London, and Peter Griffiths of King's College London, in the *British Journal of Community Nursing* (2004).<sup>3</sup> They expect to feel sick, so they do. Prevention as well as treatment of nausea and vomiting is vital.

"Such evidence as there is is positive," Klein and Griffiths concluded. "Acupressure offers clients an active strategy, which can be deployed in addition to their medication. It is unlikely to have adverse effects when used in this manner... It would be appropriate [for practitioners] to inform patients that scientific research suggests that there may be a benefit and that many patients do find it helpful."

Anti-sickness drugs, even the most recent serotonin antagonists (5-HT3) such as ondansetron, are routinely prescribed but as many as 60% of chemotherapy patients will still experience nausea and vomiting.<sup>4</sup>

Stimulation of acupoint P6 can reduce these symptoms, a hefty Cochrane Collaboration review of 11 high quality randomised clinically controlled trials concluded in 2006.<sup>5</sup> Techniques included traditional acupuncture, electroacupuncture (a small electrical charge in the needle), acustimulation (electrical stimulation of the skin surface) and acupressure.

When pooled, results showed that electroacupuncture reduced vomiting on the first day of chemotherapy, but manual acupuncture did not. Acupressure reduced first-day nausea, but was not effective on later days and showed no benefit for vomiting.

Administering acupuncture in busy wards can present practical problems, however. Trained practitioners are necessary and the process of inserting needles or administering electrical currents is invasive and time consuming.

**Sea-Bands acupressure bands outperformed not only the control group with no bands, but also an acustimulation band**

The great advantage of acupressure is that it is simple, non-invasive and inexpensive. Patients can apply it themselves, which may lend a psychological boost in helping them to feel more in control. And it could be a useful enhancement of standard anti-emetics, cancer care specialists point out.

Women undergoing chemotherapy for breast cancer who received acupressure as well as anti-sickness medication reported less incidence and intensity of nausea than a

control group receiving only anti-emetics, according to a Cochrane-reviewed study by Suzanne Dibble and colleagues at the Institute for Health and Aging, University of California, in *Oncology Nursing Forum* in 2000.<sup>6</sup>

In a major study of 739 patients undergoing chemotherapy with standard anti-emetics at the University of Rochester Cancer Centre, New York, Sea-Band acupressure bands outperformed not only the control group with no bands, but also an acustimulation band that delivered an electrical charge to the skin at P6.<sup>7</sup>

"I was actually interested in the acustimulation band at first and thought of the Sea-Bands as a placebo control," says Dr Joseph Roscoe, leader of the trial in the *Journal of Pain and Symptom Management* (2003) and one of the authors of the Cochrane review. "I was quite surprised when they worked better."

In clinical trials, the procedure or medication being tested must be shown to be more effective than an inert form called a placebo. Around a third of subjects respond to a placebo because they believe or expect it to work.

The anomaly prompted Dr Roscoe to carry out further analyses comparing acupressure wristbands and acustimulation bands as adjuncts to anti-sickness medication, published in the *Journal of the Society for Integrative Oncology* in 2006.<sup>8</sup> He limited the analysis for this article to 86 breast cancer patients receiving chemotherapy who, from previous experience, were at high risk of suffering severe nausea.

Among women using Sea-Bands, 41% reported severe nausea, significantly less than 73% in the acustimulation band group, and 68% in those receiving anti-emetics alone.

"The bands were well received by patients and staff alike in our studies," says Dr Roscoe. He suspects that patients' positive expectations about acupressure bands have a role in their efficacy, although the 29 women in the group wearing acupressure bands did not necessarily believe they would be beneficial – contrary to most findings about the placebo response.

**70% of patients reported relief from nausea and vomiting**

Two further studies using Sea-Bands are under way. "In both studies we are varying the information that patients receive about the bands in the hope that we can enhance the positive expectancies that they generate in patients," he says.

Acupressure could even enhance acupuncture. In a study in the *Journal of the Royal Society of Medicine* in 1990, Professor John Dundee of Queen's University, Belfast, found that an acupressure band placed on P6 and pressed every two hours helped prolong the anti-sickness effect of acupuncture for up to 24 hours.<sup>9</sup>

A suggestion that acupressure could even provide relief in cases where standard anti-emetics have no effect comes from a recent trial published in *Minerva Medica* in 2006.<sup>10</sup> Researchers at the Department of Radiotherapy and Oncology, San Gerardo Hospital, Milan, provided Sea-Bands to 40 advanced cancer patients for whom anti-sickness drugs had failed during previous chemotherapy.

The patients wore the wristbands for eight hours the day before chemotherapy and continued for at least three days following the treatment. Overall, 70% of patients reported relief from nausea and vomiting, and this rose to 100% in three patients receiving cisplatin and taxol.

## summary

Research into acupressure is continuing, as it is in acupuncture. Two major reviews of high quality trials of acupressure concluded that results were sufficiently positive to call for further studies. All stressed the benefits to patients of a non-invasive, patient-controlled and inexpensive treatment for nausea and vomiting.

At the same time, an explanation to satisfy Western science is evolving. Researchers exploring the mechanism behind acupuncture (and by extension acupressure) are finding evidence that chemical messengers in the nervous system could be the link between acupoint stimulation and a physiological response.

Too few health professionals are aware of the research results and the potential of acupressure wristbands to help relieve nausea and vomiting in travel sickness, morning sickness, post-operative care and chemotherapy. Even in severe cases, the bands may enhance the effect of anti-sickness drugs and allow dosage to be reduced.

Those practitioners who are aware of the benefits may not recognise that correct positioning on acupoint P6 is vital if the bands are going to work.

Yet with a little training, the therapy is simple, effective and cheap. Acupressure has been a neglected adjunct to modern medicine for too long. Can we afford to continue to ignore it?



Sea-Band Ltd, Lancaster Road, Hinckley,  
Leicestershire, LE10 0AW, England.  
Tel: +44 (0)1455 639750 Fax: +44 (0)1455 639751  
Email: [hq@sea-band.com](mailto:hq@sea-band.com). Website: [www.sea-band.com](http://www.sea-band.com)