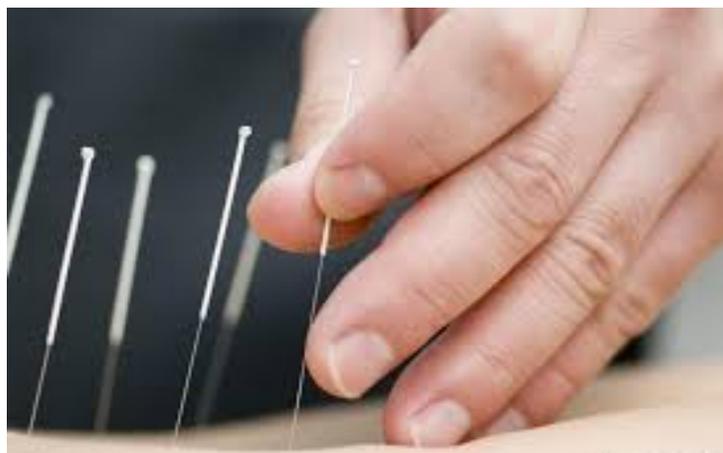




WHAT DO WE KNOW ABOUT ACUPUNCTURE



ACUPUNCTURE EFFECTIVENESS

Disclaimer: As graduated Master in Oriental Medicine and Acupuncture this review has the intention to share information trying to lead an acceptable understanding of acupuncture, which I hope will help to identify the Traditional Chinese Medicine including on that the practice of acupuncture as safe and useful for several diseases

A LITTLE BACKGROUND

During a visit to China in 1971 a reporter James Reston who works for the New York Times had his appendix removed (appendectomy) after surgery he experienced some discomfort and was treated for this with acupuncture. He was surprised to find that the acupuncture treatment helped his discomfort. After his experience, he wrote an article titled "*Know, About My Operation in Peking*". Apparently this article impacted his readers causing interest in acupuncture.

James Reston wrote his article using the following statement, and I quote him: ²⁶

"inserted three long, thin needles into the outer part of my right elbow and below my knees and manipulated them... That sent ripples of pain racing through my limbs and, at least, had the effect of diverting my attention from the distress in my stomach. Meanwhile, Doctor Li lit two pieces of an herb called ai, which looked like the burning stumps of a broken cheap cigar, and held them close to my abdomen while occasionally twirling the needles into action. All of this took about 20 minutes, during which I remembered thinking that it was rather a complicated way to get rid of gas... but there was a noticeable relaxation of the pressure and distension within an hour and no recurrence of the problem thereafter."

However, a search in *The New York Times* shows that acupuncture was first reported in 1854, and about once yearly until 1971. Apparently since 1971 Acupuncture were accepted in USA. The support for that was that direct experience he had when it was used acupuncture needles as anesthesia instead of drugs, also it was used to provide comfort and organs balance for fast recovery, from that date already passed some decades, that positive encounter open the doors from USA for Oriental Medicine, and specially acupuncture. The effectiveness and safety of acupuncture, was experienced and witnessed. With a growing evidence-base, a sparkling safety profile, and a demonstrated track record of effectiveness, medical professionals are increasingly recommending it and patients are increasingly choosing it for relief and results. Several large Hospital around USA are using TCM as Complementary, alternative Medicine (CAM).

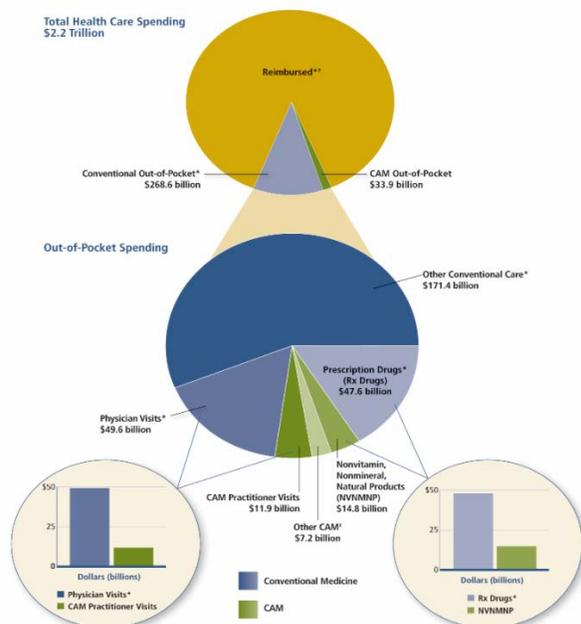
ACUPUNCTURE IS AN OPTIONAL TREATMENT FOR MANY DISEASES

Acupuncture is an **optional** treatment for patients, and it becomes as the Complementary and alternative medicine for many diseases, starting with that: the pain control and management, of this point which is greatly accepted as many times better than what conventional medicine can offer. Statistics related with American's expenditures to use Complementary and Alternative Medicine (CAM) is growing, study results bring this amount \$ 33.9 billion. ^{20, 21}

Additionally, there are tremendous results using *biophysical research* ²² to know how acupuncture work closely related with the Primo Vascular System confirming a 1960's theory from Dr. Kim Bong who has insisted that Meridians are a circulation system with flowing liquids. Finally many evidences were found some years ago that confirmed that research which was actually accurate. ^{22, 23, 24, 25}

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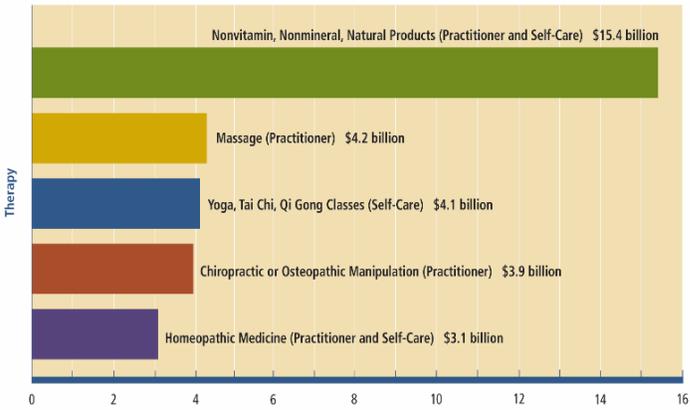
The National Institute of Health (NIH) has the National Center of Complementary, Alternative Medicine (NCCAM) ^{20, 21} which provide access for research related with the Traditional Chinese Medicine and Acupuncture (the whole includes Tai Chi, Qi Gong, Herb ology). Some States, like Florida includes acupuncturists as a Physicians. The National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM) has in place 4 board exams (Oriental Medicine (TCM), Western Medicine (Bio-Medicine), and Acupuncture and Herb ology, all necessary to become certified. With all that in place Oriental Medicine become a serious practice in USA.



* National Health Expenditure Data for 2007. U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services Web site. Accessed at: http://www.cms.gov/NationalHealthExpendData02_NationalHealthAccountsHistorical.asp#RHP Page on June 25, 2009.
 ** Reimbursed spending includes employer and individual private insurance, Medicare, Medicaid, State Children's Health Insurance Program, other private and public spending, and some CAM.
 † Other CAM includes yoga, tai chi, qi gong classes, homeopathic medicine, and relaxation techniques.

In the 2007 National Health Interview Survey (NHIS) ⁽²⁰⁾, approximately 38 percent of adults reported using complementary and alternative medicine (CAM) in the previous 12 months. The CAM component of the NHIS, developed by the National Center for Complementary and Integrative Health (NCCIH) and the National Center for Health Statistics (NCHS), also collected data about CAM costs, including cost of CAM use, frequency of visits made to CAM practitioners, and frequency of purchases of self-care CAM therapies.

Out-of-Pocket Costs for Select CAM Therapies*



83 million adults spent \$33.9 billion out-of-pocket on CAM. CAM costs are 11.2% of total out-of-pocket expenditures on health care⁽²¹⁾

* Totals for nonvitamin, nonmineral, natural products and homeopathy include both CAM practitioner costs and costs of purchasing CAM products. Totals for massage and chiropractic and osteopathic manipulation are only CAM practitioner costs. Totals for yoga, tai chi, and qi gong classes are only the cost of purchasing CAM products.

The figures above is showing results generated by research work and completed with statistics, and sometimes it does not totally satisfy potential users and or just those who criticize acupuncture. However, data and literature related with acupuncture are based on poor reading and interpretation of either the data or the literature, and in some cases they are based on pure fantasy.

WHICH IS THE GENERAL PERCEPTION

There are arguments which are used to produce discussion related with acupuncture and the effectiveness or not for certain health issues treatments. One of the most visited and discussed was generated by Mel Hopper Koppelman^(o). I will practically disclose his whole argument addressing first the three most common words used in the anti-acupuncture thinking:

(1) It is a placebo, (2) it is dangerous, and (3) it is not evidence based.

1. It is a placebo _o

Attributing to the acupuncture as a beneficial effects down to placebo is a very common argument. However, it needs to be pointed out that position does not address that if acupuncture works or not; as a possible explanation as to *how* it works, or the mechanism behind its effectiveness. Indeed, saying that acupuncture is **“just a placebo”** is to acknowledge that it is indeed effective. I would argue that if you are trying to find effective treatments for patients the more relevant question is, for a particular condition or symptom, how does it compare to the standard treatment?

As an example of acupuncture treatment for migraines. A recent Cochrane Review of acupuncture for the treatment of migraines concludes that while there does not seem to be a significant difference in effect size between acupuncture and placebo acupuncture, both are more effective than prophylactic pharmaceuticals with fewer side effects ⁽¹⁾.

Breaking down the statement above:

- Prophylactic drugs have been demonstrated to be more effective for preventing migraines than placebo treatment in the form of a sugar pill ⁽²⁾.
- And both true acupuncture and fake acupuncture are more effective than the drug, which in itself exerts a placebo effect in addition to the known pharmacological action.

These results take it as evidence that acupuncture does not really work and that it is all in the mind. But what these results actually show is that even if acupuncture is a placebo, it works better than conventional treatment. I say that if acupuncture can exert a placebo effect greater than the combined effect of placebo and biological action of a drug. Based on this research, if I or someone that I cared about had a migraine, I know which treatment I would choose.

Here is what Simon Singh and Edzard Ernst’s are thinking about the statements above:

“Demonstrating that a treatment is effective is the number-one priority in medicine; understanding the exact details of the underlying mechanism can be left as a problem for subsequent research.” ⁽³⁾

Acupuncture is *just* a placebo?

In many randomized placebo-controlled trials, acupuncture performs equally well to the placebo control for certain conditions whereas for other conditions it is significantly more effective. But unlike drug trials that can use sugar pills as a convincing biologically-inert placebo control, testing complex interventions like acupuncture is more challenging and different strategies have been used over the years. So when

looking at a “placebo controlled” trial of acupuncture, the first question to ask is what exactly where they using as a placebo control?

Sham (fake and or random acupuncture points), which is either the insertion of needles in non-acupuncture points or acupuncture needles that have been inserted shallowly, is often used for this purpose. However, many have argued and I would echo that this is merely a different type of acupuncture and not a true placebo control as it is not biologically inert. “Non-penetrating shams,” which are treatments where the acupuncture needle is not actually inserted at all, are a better choice.

We know that placebo interventions can be effective and that acupuncture has been shown to be effective. Here is a question:

“Is acupuncture just acting as a placebo by creating a positive expectation for beneficial results or does acupuncture have a measurable mode of action that is distinct from expectation?”

It turns out that a number of researchers have looked into this question and note some compelling differences:

- Acupuncture stimulates different areas of the brain from placebo acupuncture
- Acupuncture has strong effects on opioid receptor binding in the brain in both the short- and long-term whereas sham acupuncture only has a small effect that is similar to traditionally used placebos
- Acupuncture stimulates significant differences in daily cortisol secretion and heart rate variability as compared to placebo acupuncture (4)

So while a growing body of research supports the conclusion that both acupuncture and placebo acupuncture are more effective at treating a number of conditions than standard medical treatment, research into the mechanism of acupuncture and the action using brain scanning and various biomarkers demonstrates that the way it works is distinct from expectation.

2. It is Acupuncture Dangerous?

All of the scholarly critiques of acupuncture that I’ve come across say something along the lines of:

“If it were just a silly inert placebo, it would not be so bad.

But it is actually **dangerous**. I mean, people have actually **died**.”

Acupuncture by numbers

In the book: [do you believe in Magic?](#) Dr. Paul Offit included numbers to acupuncture related mortality such as:

“The final argument against acupuncture is the hardest to refute. Acupuncture needles are not without risk. At least eighty-six people have died from acupuncture.”(5)

Eighty-six is a **highly** specific number. We do not really know or are we not aware from where exactly did this number come from?

A reference here would have been helpful, and is that eighty-six people *ever*? Globally? Difficult to assess or to know it if we do not have a denominator.

Without the denominator it can be possible to use this perspective, and it is not precisely for acupuncture: The Eighty-six number is the number of preventable deaths that occurred in the United States as a result of medical error, and that happens every two hours from 2008-2011(6). Because of that it is the making as the 3rd leading cause of death after heart disease and cancer. (7)

It is correct, more people use hospitals than acupuncture in the U.S. but that does not come close to touching the difference in death rate. If acupuncture is dangerous, I really have no idea what to call conventional Western medicine given the current healthcare model.

To clarify, acupuncture does have risks, particularly when practiced by a non-acupuncturist or a non-well trained acupuncturists, but the rate of adverse events overall is extremely low (8), especially when compared to conventional medicine.

Interesting trend from Ernst and colleagues reveal acupuncture safety:

“Serious complications after acupuncture continue to be reported. Many are not intrinsic to acupuncture, but caused by mal-practice of acupuncturists. This might explain why surveys of adequately trained therapists failed to yield such complications.”(9)

In other words, acupuncture is dangerous when it is done wrong. Particularly, by people without adequate training. I will suggest that a whole lot of procedures are dangerous when performed by people without adequate training. Get acupuncture from a properly trained and qualified acupuncturist and then even acupuncture’s staunchest critics agree that it is ridiculously safe.

3. There is no scientific evidence

The above statement is often expressed, almost always, in my experience, by people who have read a research paper on the subject, the bottom line is, they argue, there is no scientific evidence to support it. It is not part of evidence-based medicine.

The supposition here is that acupuncture is completely unscientific, as diametrically opposed to conventional medicine which is entirely scientific and evidence-based. This idea comes under the umbrella of conventional medicine is “evidence-based and scientific”, it deserves a bit of exploring before heading over to the scientific evidence-base for acupuncture. It has to be reviewed those references (22, 23, 24, 25)

THE ACUPUNCTURE SUPPORT AND RELATIONSHIP WITH HEALTH CARE

Three points to be reviewed:

a) Most conventional treatments are evidence based?

According to the BMJ’s Clinical Evidence (which it may be not accurately) conventional treatments are categorized in the following way when the research literature supporting their use is examined:

- Beneficial: 11%
- Likely to be beneficial: 24%
- Trade-off between benefits and harms: 7%
- Unlikely to be beneficial: 5%
- Likely to be ineffective or harmful: 3%
- Unknown effectiveness: 50%

It needs obviously to be very deep researched, apparently and based on the BMJ’s on the above, from out of 6 measurements only 11% of conventional treatments have strong evidence of their effectiveness and safety whereas the vast majority are not evidence-based and some are even known to be harmful (not confirmed and or crossmatch research). According to the BMJ, most conventional treatments do not actually have a strong scientific evidence-base for their effectiveness. But of the ones that do, how certain can we be that the research is accurate?

b) Scientific Evidence is a really valid support and or it is in general not really accurate

For a variety of reasons, including funding sources, poor research design, and good old bog standard bias, most published research findings end up being unrepeatable and/or overturned. And it is on these very results that the entire institution of evidence-based conventional medicine is poised. Shaky foundations, indeed. When your doctor prescribes you a drug or recommends a treatment, assuming that these decisions are even based on the most up to date and highest quality research, there is a good chance that those conclusions will be shown to be flat out wrong in due course. According to Professor John Ioannidis' very well-respected and highly cited article on research methods, most published research findings are actually false. (10)

c) Research funding sources come from Drug Pharmaceutical Industry

As touched on in the Ioannidis paper, funding source, and not just good old fashioned scientific investigation of reality, significantly affects which conclusions research studies come to, and forced to face some facts (which are not necessarily pleasant) namely that biomedical research funded by the pharmaceutical industry consistently over-estimates the safety and effectiveness of pharmaceuticals as compared to reality (11, 12) and that is a fact that the majority of biomedical research are funded by the pharmaceutical industry. (13)

So, based on the above, it probably will could be evaluated the Bio-Science (BS) on the whole conventional medicine = evidence-based medicine as not that accurate.

Effectiveness versus non-effectiveness

This point of view and perception regarding that effectiveness and non-effectiveness come from evidence base results which is using as an actual example related with the most used cancer treatment:

Chemotherapy, in 5 years survivorship was attributed with 2.3% in Australia and 2.1% in the USA (18, 19), the overall contribution of curative and adjuvant cytotoxic chemotherapy to 5-year survival in adults was estimated to be 2.3% in Australia and 2.1% in the USA.

Some time ago, it was said that Clinical Evidence summary is not solely for treatments offered in conventional practice but for any treatments for which enough Radiation, Chemotherapy Treatment have been undertaken.

The biggest question: Acupuncture have a scientific evidence base?

Acupuncture is an ancient practice of medicine, it has more than 2,500 years and the whole time was, be practiced with alive human beings. The positive and or negative responses to treatments were immediately assessed and adjusted based on patient's response to treatment.

The origins of the modern medicine has his bases on Egyptians, Greeks, and Romans. It was based on Science, occultism, preacher's, magic's, shamanism. All are valid, it depends where was practiced the medicine. Middle East, East, Occident, Orient. Each meridian and parallel has their own history and background. There are thousands of years of history related and linked with medicine.

So in this more realistic context, that some aspects of conventional medicine are evidence-based but most, not so much.

Is the use of acupuncture supported by scientific evidence?

Before it is answered, a short refresher on what is meant by "strong scientific evidence" in medicine. The gold standard of medical research methods is considered to be the Randomized Controlled Trial, which when conducted well greatly reduces the chance that a result is due to something other than

treatment effects. A systematic review seeks to identify all such trials for a given treatment, and then objectively summarize the findings. The Cochrane Collaboration is one such organization that conducts systematic reviews, and their studies are widely accepted as being impartial and of the highest quality.

Singh and Ernst summarize it:

“An evidence-based approach to medicine, as previously discussed, means looking at the scientific evidence from clinical trials and other sources in order to decide best medical practice. The systematic review is often the final stage of evidence-based medicine, whereby a conclusion is drawn from all the available evidence. In each case, the wholly independent Cochrane Collaboration presents its conclusions about the effectiveness of whatever is being systematically reviewed. Hopefully this background to the Cochrane Collaboration has helped to convey its reputation for independence, rigor and quality.” (14)

Doing a research in the database from Cochrane of systematic reviews returns 95 reviews of acupuncture for a variety of conditions, from various pain conditions to glaucoma to cocaine dependence. Most of these reviews are unable to draw firm conclusions due to a combination of small number of trials done, the poor quality of these trials, and the heterogeneity of the trials.

However, a number of these reviews have found evidence for the efficacy and safety of acupuncture as compared to standard treatment including for migraines, tension type headaches, irritable bowel disease, fibromyalgia, chronic low-back pain, and various types of nausea. As the quality of acupuncture studies continues to improve, the strength of the evidence continues to grow.

Based on that it can be said: for certain conditions, according to the most rigorous scientific methods available, there is strong scientific evidence for the efficacy of acupuncture.

Biomarkers

While the Cochrane reviews are focused on interventions for conditions, a very exciting and vast area of research is the effect of acupuncture in modulating certain biomarkers. It is increasingly understood in conventional medicine that a small number of biochemical mechanisms, like low-level chronic inflammation, underlay a very wide number of chronic diseases, from type 2 diabetes to depression to cardiovascular disease and to cancer.

Acupuncture has been shown to down-regulate and beneficially effect a host of inflammatory mechanisms including down-regulating the expression of many pro-inflammatory cytokines as well as suppressing COX-1 and COX-2 (like taking an NSAID but without the increased risk of ulcers).(15)

For this particular inflammatory issue is commonly used specific acupuncture points combined with eat using moxibustion. Acupuncture has also been shown in a number of studies to improve the function of the hypothalamus-pituitary-adrenal axis (HPA-axis), which is basically the physical network through which stress exerts harmful effects on the body. (16) This large and growing body of research on the benefits of acupuncture effects on various fundamental biomarkers helps to explain why it is successfully used for such a wide-variety of clinical conditions.

Conclusion

“This brings us to an interesting situation: any provably safe and effective alternative medicine is not really an alternative medicine at all, but rather it becomes a conventional medicine.” (17)

It comes from: *Trick or Treatment*, Singh and Ernst tell us the mentioned above.

In the case of acupuncture. Both the NHS in the UK and the NIH in the US consider acupuncture to be a recommended treatment for a growing number of conditions. Acupuncture is offered in an increasing number of hospitals in the US, due specifically to growing patient demand and the clinical efficacy. The U.S. Military uses it to reduce pain medication, and trying to avoid drug use for Post-Traumatic Stress Disorders (PTSD) and an increasing number of insurance providers cover it.

It is not the intention of this review to generate discrepancy with the health system, the goal of this is to produce complementation, alternatives and integrative bases to become a fully accepted and integrated the practice of Oriental Medicine and Acupuncture included with that the safe of it and with the low or no side effects.

REFERENCES:

0. Mel Hopper Koppelman, "HOW TO WIN AN ARGUMENT WITH AN ACUPUNCTURE HATER"
1. Linde, K., Allais, G., Brinkhaus, B., Manheimer, E., Vickers, A., & White, A. R. (2009). Acupuncture for migraine prophylaxis (Review). *Cochrane Database of Systematic Reviews*, (1).
2. Tfelt-Hansen, P. (2006). A review of evidence-based medicine and meta-analytic reviews in migraine. *Cephalalgia : an International Journal of Headache*, 26(11), 1265–1274. doi:10.1111/j.1468-2982.2006.01194.x
3. Singh, D. S., & Ernst, P. E. (2009). *Trick or Treatment?* Random House.
4. Enck, P., Klosterhalfen, S., & Zipfel, S. (2010). Autonomic Neuroscience: Basic and Clinical. *Autonomic Neuroscience: Basic and Clinical*, 157(1-2), 68–73. doi:10.1016/j.autneu.2010.03.005
5. Paul A Offit, M. D. (2013). *Do You Believe in Magic?* Harper.
6. James, J. T. (2013). A new, evidence-based estimate of patient harms associated with hospital care. *Journal of Patient Safety*, 9(3), 122–128. doi:10.1097/PTS.0b013e3182948a69
7. FASTSTATS – Leading Causes of Death. (n.d.). FASTSTATS – Leading Causes of Death. Cdc.Gov. Retrieved July 2, 2014, from <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>
8. Hammerschlag, H. M. R., & Hammerschlag, R. (2012). Acupuncture and the Emerging Evidence Base: Contrived Controversy and Rational Debate. *Journal of Acupuncture and Meridian Studies*, 5(4), 141–147. doi:10.1016/j.jams.2012.05.001
9. Ernst, E., Lee, M. S., & Choi, T.-Y. (2011). Acupuncture: Does it alleviate pain and are there serious risks? A review of reviews. *Pain*, 152(4), 755–764. doi:10.1016/j.pain.2010.11.004
10. Ioannidis, J. P. A. (2005). Why Most Published Research Findings Are False. *PLoS Medicine*, 2(8), e124. doi:10.1371/journal.pmed.0020124
11. Sismondo, S. (2008). How pharmaceutical industry funding affects trial outcomes: Causal structures and responses. *Social Science & Medicine*, 66(9), 1909–1914. doi:10.1016/j.socscimed.2008.01.010
12. Lexchin, J. R. (2004). Implications of Pharmaceutical Industry Funding on Clinical Research. *Annals of Pharmacotherapy*, 39(1), 194–197. doi:10.1345/aph.1E224
13. Dorsey, E. R. (2010). Funding of US Biomedical Research, 2003-2008. *Jama*, 303(2), 137. doi:10.1001/jama.2009.1987.
14. Singh, D. S., & Ernst, P. E. (2009). *Trick or Treatment?* Random House.
15. McDonald, J. L., Cripps, A. W., Smith, P. K., Smith, C. A., Xue, C. C., & Golianu, B. (2013). The Anti-Inflammatory Effects of Acupuncture and Their Relevance to Allergic Rhinitis: A Narrative Review and Proposed Model. *Evidence-Based Complementary and Alternative Medicine*, 2013(4), 1–12. doi:10.1007/s00424-005-1457-8

16. Cho, Z. H., Hwang, S. C., Wong, E. K., Son, Y. D., Kang, C. K., Park, T. S., et al. (2006). Neural substrates, experimental evidences and functional hypothesis of acupuncture mechanisms. *Acta Neurologica Scandinavica*, 113(6), 370–377. doi:10.1111/j.1600-0404.2006.00600.x
17. Singh, D. S., & Ernst, P. E. (2009). *Trick or Treatment?* Random House.
18. Morgan G, Ward R, Barton M. The *contribution of cytotoxic chemotherapy to 5 year survival in adult malignancies*. *Clin Oncol*. 2004; 16:549-60.
19. Segelov, E. *The emperor's new clothes: Can chemotherapy survive?* *Australian Prescriber*. 2006; 29 (1):2-3.
20. The 2007 National Health Interview Survey (NHIS), NCCAM
21. 83 million adults spent \$33.9 billion out-of-pocket on CAM. CAM costs are 11.2% of total out-of-pocket expenditures on health care
22. Primo Vascular System. Miroslav Stefanov 1,2,* , Michael Potroz 2, Jungdae Kim 2,3, Jake Lim 2, Richard Cha 2,4, Min-Ho Nam 2
23. Motion properties of Sanals of the primo vascular system under magnetic field. Sang Suk Lee*
Department of Oriental Biomedical Engineering, College of Health and Science, Sangji University, Wonju, South Korea
24. Hoon Gi Kim, formative research on the primo vascular system and acceptance by the Korean Scientific Community: The gap between creative basic science and practical convergence of technology.
25. Historical Observations on the Half-Century Freeze in Research between the Bonghan System and the Primo Vascular System Kyung Aih Kang
26. 1971 a reporter James Reston who works for the New York Times

