



# ACUPUNCTURE: AN INTRODUCTION FOR HEALTH PROFESSIONALS

Authors:

**Dr John McDonald**, PhD

**Dr Claudia Citkovitz**, PhD

**Sandro Graca** MSc, Lic TCM, FABORM

**Judith James** MPH LLB(Hons)

## What is acupuncture?

The practice of acupuncture involves inserting very fine needles into specific points on the body to produce a wide variety of physiological responses. Acupuncture point locations have been detailed in literature, in body maps and even in cast bronze statues, such as the famous Bronze Man cast by Wang Weiyi in 1026 AD/CE. In 2008, the World Health Organisation Western Pacific Regional Office published WHO Standard Acupuncture Point Locations in the Western Pacific Region following an exhaustive process involving leading acupuncture academics and practitioners from around the world. The selection of acupuncture points is based on traditional theories of Chinese medicine and supported by an extremely large clinical literature, which distils the clinical expertise of many generations of acupuncturists.



## Where did acupuncture come from?

The earliest known documented use of acupuncture is dated to around 221BC/BCE, in the *Ci Shu* (Needling Book), which was discovered only recently by archeologists in China. The *Ci Shi* added to the already extensive literature on acupuncture theory, practice, and case histories from China from the third century BC/BCE, and from Japan and Korea dating from the sixth century AD/CE.

Today acupuncture is not only an integral part of the healthcare systems of China, Japan and Korea, but is also practised in many other countries. Acupuncture has spread around the world, initially in the hands of Asian emigrants, in and before the 19th century. In the 20th and 21st centuries, acupuncture has been practised and taught by a variety of populations in many countries.



## What does acupuncture treat?

Among acupuncture's multiple clinical impacts, the most thoroughly researched are acupuncture's analgesic, anti-inflammatory, and anti-emetic effects. However, numerous other physiological responses have been identified in clinical and mechanisms research. In two recent evidence maps of acupuncture published in 2022 by the British Medical Journal (BMJ) and the US Department of Veterans Affairs, the following conditions were rated as large or moderate effect sizes and high or moderate certainty of evidence:

**migraine, tension-type headache, allergic rhinitis, fibromyalgia (pain, fatigue and sleep), shoulder pain, neck pain, non-specific low back pain and myofascial/chronic musculoskeletal pain** <sup>1,2</sup>.

**Healthdirect**, a public health information website endorsed by the Australian Government Department of Health and Aged Care and most state and territory Health Departments, offers this advice:

*“Acupuncture may help relieve common types of pain including: neck and shoulder pain, headaches and migraines, fibromyalgia”<sup>3</sup>.*

## What is the evidence base for acupuncture?

Modern research into acupuncture to explore effectiveness and safety began in earnest in China in the 1950s with the establishment of government-funded acupuncture research centres, and has grown rapidly in recent years. The number of controlled clinical trials of acupuncture in the Cochrane Central Register of Controlled Trials has risen from 2,015 in February 2009 to 19,518 in February 2024. By way of comparison, the number of physiotherapy trials in the Cochrane database rose from 747 to 17,005 in the same period. According to the BMJ evidence map of acupuncture in 2022, acupuncture is currently

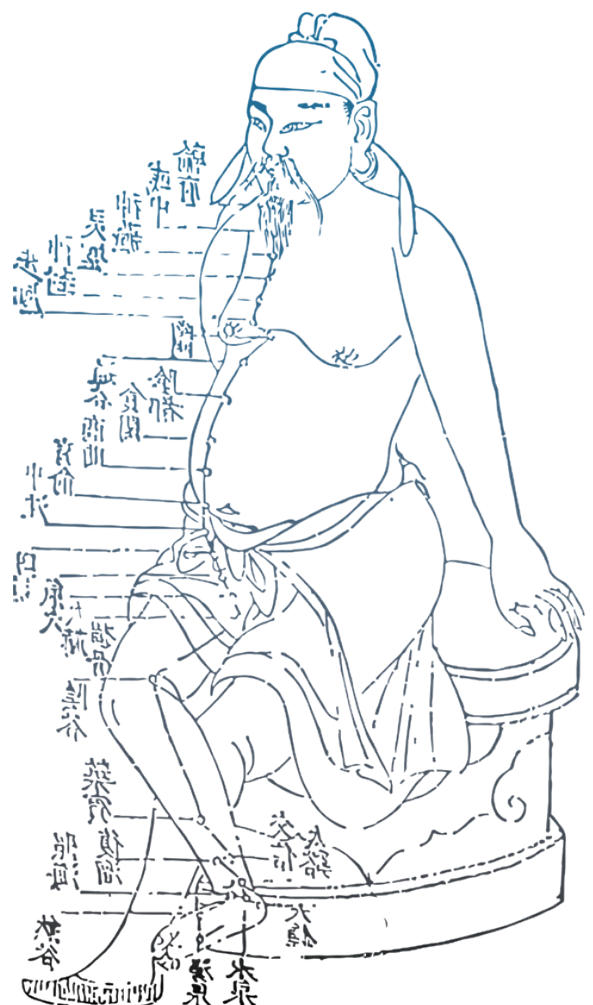
underutilised, especially for a number of conditions with robust supporting evidence. In addition to the conditions previously mentioned, the BMJ evidence map reports some quality evidence for vascular dementia, post-stroke aphasia, and increase in lactation<sup>1</sup>.

As of September, 2022, acupuncture researcher Stephen Birch identified there were 9,340 positive recommendations for acupuncture for 538 conditions in 3,809 clinical practice guidelines or less formal treatment guidelines such as **Healthdirect**<sup>4</sup>.

### The scope of practice for acupuncture

suggested by the historical literature, and by current clinical guidelines, is thus demonstrably larger than the few conditions for which research has currently reached high to moderate certainty. High and moderate-certainty evidence of acupuncture has historically lagged behind its clinical use and will likely continue to do so. The aforementioned steady increases in numbers of acupuncture trials and recommendations show that research projects continue to develop worldwide, thereby contributing to the robust level of acupuncture evidence.

*High and moderate-certainty evidence of acupuncture has historically lagged behind its clinical use and will likely continue to do so.*



## How does acupuncture work?

Apart from the clinical research into acupuncture's effectiveness and safety, much research has investigated the physiological mechanisms of acupuncture. What is currently known is that acupuncture has lasting effects on chronic pain with large trials finding that 85% to 90% of pain relief experienced on the last day of treatment still persisted at 12 months post-treatment<sup>5,6</sup>. Acupuncture has been shown to modulate both central and peripheral nervous systems, and fMRI studies have shown that acupuncture can reverse pathological neuroplastic changes in the somatosensory cortex, associated with chronic pain<sup>7-9</sup>.

Acupuncture has been found to be effective for relieving inflammatory pain, cancer pain, visceral pain, and neuropathic pain<sup>10</sup>. In peripheral neuropathy, acupuncture can not only relieve pain, but also promote regeneration of peripheral nerves<sup>11</sup>. Apart from the well-known endogenous opioids involved in acupuncture analgesia, many other mediators have been shown to be involved including adenosine, histamine, Substance P (SP), calcitonin gene-related

peptide (CGRP), nitric oxide, norepinephrine/noradrenalin, serotonin, dopamine, and gamma-amino butyric acid (GABA)<sup>12-14</sup>. The anti-inflammatory effects of acupuncture have been explored including the mediators, receptors, and signalling pathways involved<sup>14-16</sup>. Many of the mediators and receptors involved in the anti-inflammatory effects of acupuncture overlap with those involved in acupuncture analgesia, notably histamine, SP, and CGRP. Recent research has focused on the role of TRPV1 and TRPV4 receptors in the anti-inflammatory effects of acupuncture, the dual role of mast cells in analgesia and inflammation, as well as the effects of acupuncture on glymphatic drainage<sup>17</sup>.

Other demonstrated effects of acupuncture include relieving nausea and vomiting<sup>18</sup>, regulation of gastric acidity and motility<sup>19,20</sup>, promoting glymphatic drainage<sup>21</sup>, modulating sympathetic/parasympathetic tone<sup>22</sup>, promoting production and release of oxytocin and prolactin<sup>23</sup>, and normalising circadian rhythms of melatonin/cortisol to improve sleep<sup>24</sup>.

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## Is acupuncture safe?

A recent systematic review and meta-analysis included a total of 22 articles reporting on 21 studies covering 12.9 million treatments<sup>25</sup>. The reviewers concluded that: Acupuncture can be considered among the safer treatments in medicine. SAEs [serious adverse events] are rare, and the most common minor AEs [adverse events] are very mild. In 2010, Zhang et al. published a review of acupuncture safety which included 98 case reports and 17 case series<sup>26</sup>. They concluded that:

*Acupuncture can be considered inherently safe in the hands of well-trained practitioners.*



Research on acupuncture for allergic rhinitis



## What is integrative oncology?

Integrative oncology, where acupuncture is included along with standard care to improve quality of life for cancer sufferers, is now well-established in many countries, especially in the USA, Germany, Austria, and Israel. Recently, a team of integrative oncology experts published the first international, multidisciplinary, peer-reviewed recommendations for safe and evidence-informed acupuncture practice in integrative oncology<sup>27</sup>. Major oncology centres in the USA that provide integrative oncology include Osher, Dana-Farber, MD Anderson, Fred Hutch, and Memorial Sloan Kettering Cancer Centers. A recent clinical guideline for the treatment of cancer pain was produced by a collaboration between the American Society of Clinical Oncology (ASCO) and the Society for Integrative Oncology (SIO)<sup>28</sup>.



## Are acupuncturists registered by AHPRA?

Chinese Medicine was registered in Australia in 2012 under the auspices of the Australian Health Practitioners Regulation Agency (AHPRA) and the Chinese Medicine Board of Australia (CMBA) in three categories: Acupuncturist, Chinese herbal medicine practitioner, and Chinese herbal medicine dispenser. Similar national registration has recently been enacted in Portugal and New Zealand. The United States of

America has various state-based licensing regimes for acupuncturists, beginning in Nevada in 1973. Canada also has regulation for acupuncturists, varying from province to province. Acupuncturists in the United Kingdom are currently self-regulated. So, of the “Five Eyes” nations, against which health regulation in Australia is benchmarked, only the United Kingdom currently lacks formal regulation of acupuncturists.

## What is the current status of registered acupuncturists?

 Australian acupuncturists have been registered by the Australian Health Practitioners Regulation Agency (AHPRA), similarly to the other registered health professions, since 2012. The Chinese Medicine Board of Australia (CMBA) sits under AHPRA and collaborates with AHPRA on developing policies and codes of practice for registered acupuncturists.



Registered acupuncturists are generally regarded as part of the allied health sector, however there is no universal consensus on definitions of allied health among various state and federal bodies. Registered acupuncturists' services are covered by most private health funds

and have been for decades. While each state and territory has different arrangements regarding work cover, with some states/territories opting for individual service-provider registration, generally registered acupuncturists are accepted as work cover providers. Some registered acupuncturists have registered as service-providers to the National Disability Insurance Scheme (NDIS), however as this sector is under major review, it is unclear where this will land. Currently, however, registered acupuncturists are not included in The Chronic Disease Management scheme, Medicare or Veterans Affairs White and Gold Cards.

## How can you find a registered acupuncturist?

**The Australian Health Practitioner Regulation Agency** maintains an up-to-date register of all Chinese Medicine Practitioners who are registered as acupuncturists.

The link for their practitioner search function is:

<https://www.ahpra.gov.au/Registration/Registers-of-Practitioners.aspx>.

**The Australian Acupuncture and Chinese Medicine Association Limited (AACMA)** also offers a practitioner search function for all AACMA members who are registered acupuncturists: <https://www.acupuncture.org.au>.



## Resources

Evidence Based Acupuncture has published a series of evidence summaries on around 10 conditions. [www.evidencebasedacupuncture.org](http://www.evidencebasedacupuncture.org)

## References

1. Lu L, Zhang Y, Ge S, et al. Evidence mapping and overview of systematic reviews of the effects of acupuncture therapies. *BMJ open*. 2022;12(6):e056803. [Back to Page 2 / Page 3](#)
2. Shekelle P AJ, Mak S, Begashaw M, Miake-Lye I, Severin J, Larkin J. . Evidence Map of Acupuncture as Treatment for Adult Health Conditions: Update from 2013–2021. . In: Affaris DoV, ed. Washington DC: Office of Research and Development, Department of Veterans Affairs; 2022. [Back to Page 2](#)
3. Health Direct. 2024; <https://www.healthdirect.gov.au/acupuncture>. [Back to Page 2](#)
4. Birch S. From Research to Clinical Practice: Towards Integrative Medicine. 35th ICMART World Medical Acupuncture Congress; 2022; Bologna, Italy. [Back to Page 3](#)
5. Vickers AJ, Cronin AM, Maschino AC, et al. Acupuncture for chronic pain: individual patient data meta-analysis. *Arch Intern Med*. 2012;172(19):1444-1453. [Back to Page 4](#)
6. MacPherson H, Vertosick EA, Foster NE, et al. The persistence of the effects of acupuncture after a course of treatment: A meta-analysis of patients with chronic pain. *Pain*. 2016. [Back to Page 4](#)
7. Napadow V, Kettner N, Ryan A, Kwong KK, Audette J, Hui KK. Somatosensory cortical plasticity in carpal tunnel syndrome--a cross-sectional fMRI evaluation. *Neuroimage*. 2006;31(2):520-530. [Back to Page 4](#)
8. Lin JG, Kotha P, Chen YH. Understandings of acupuncture application and mechanisms. *American journal of translational research*. 2022;14(3):1469-1481.
9. Harris RE. Acupuncture “Rewires” the Brain ... with Lasting Effects. *J Altern Complement Med*. 2017;23(6):405-406. [Back to Page 4](#)
10. Chen ZH, Yang L, Yan GR, et al. Role of transient receptor potential vanilloid subfamily 1 in mediating the analgesic effects of acupuncture on pathological pain:. *World Journal of Acupuncture - Moxibustion*. 2023. [Back to Page 4](#)
11. Shi H, Yuan X, Fan W, Yang X, Liu G. An umbrella review of the evidence to guide decision-making in acupuncture therapies for chemotherapy-induced peripheral neuropathy. *Journal of Cancer Research and Clinical Oncology*. 2023;149(17):15939-15955. [Back to Page 4](#)
12. Zhang R, Lao L, Ren K, Berman BM. Mechanisms of acupuncture-electroacupuncture on persistent pain. *Anesthesiology*. 2014;120(2):482-503. [Back to Page 4](#)
13. Goldman N, Chen M, Fujita T, et al. Adenosine A1 receptors mediate local anti-nociceptive effects of acupuncture. *Nat Neurosci*. 2010;13(7):883-888. [Back to Page 4](#)
14. Trento MMS, Moré AOO, Duarte ECW, Martins DF. Peripheral receptors and neuromediators involved in the antihyperalgesic effects of acupuncture: a state-of-the-art review. *Pflugers Arch*. 2021. [Back to Page 4](#)

## References continued ...

15. McDonald JL, Cripps AW, Smith PK, Smith CA, Xue CC, Golianu B. The anti-inflammatory effects of acupuncture and their relevance to allergic rhinitis: a narrative review and proposed model. Evidence-based complementary and alternative medicine : eCAM. 2013;2013:591796. [Back to Page 4](#)
16. McDonald JL, Cripps AW, Smith PK. Mediators, Receptors, and Signalling Pathways in the Anti-Inflammatory and Antihyperalgesic Effects of Acupuncture. Evidence-based complementary and alternative medicine : eCAM. 2015;2015:975632. [Back to Page 4](#)
17. McDonald J, Graca S, Citkovitz C, Taylor-Swanson L. A Review of Key Research and Engagement in 2022. Journal of integrative and complementary medicine. 2023;29(8):455-461. [Back to Page 4](#)
18. Streitberger K, Ezzo J, Schneider A. Acupuncture for nausea and vomiting: an update of clinical and experimental studies. Auton Neurosci. 2006;129(1-2):107-117. [Back to Page 4](#)
19. Wang JJ, Liu XD, Qin M, et al. Electro-acupuncture of Tsusanli and Shangchuhu regulates gastric activity possibly through mediation of the vagus-solitary complex. Hepatogastroenterology. 2007;54(78):1862-1867. [Back to Page 4](#)
20. Yu Z. Neuromechanism of acupuncture regulating gastrointestinal motility. World J Gastroenterol. 2020;26(23):3182-3200. [Back to Page 4](#)
21. Goldman N, Hablitz, LM, Mori, Y, Nedergaard, M. The Glymphatic System and Pain. Medical acupuncture. 2020;32(6):373-376. [Back to Page 4](#)
22. Hamvas S, Hegyi P, Kiss S, Lohner S, McQueen D, Havasi M. Acupuncture increases parasympathetic tone, modulating HRV - Systematic review and meta-analysis. Complement Ther Med. 2023;72:102905. [Back to Page 4](#)
23. Ko JH, Kim S-N. A Literature Review of Women's Sex Hormone Changes by Acupuncture Treatment: Analysis of Human and Animal Studies. Evidence-Based Complementary and Alternative Medicine. 2018;2018:3752723.
24. Spence DW, Kayumov L, Chen A, et al. Acupuncture increases nocturnal melatonin secretion and reduces insomnia and anxiety: a preliminary report. J Neuropsychiatry Clin Neurosci. 2004;16(1):19-28. [Back to Page 4](#)
25. Bäuml P, Zhang W, Stübinger T, Irnich D. Acupuncture-related adverse events: systematic review and meta-analyses of prospective clinical studies. BMJ open. 2021;11(9):e045961. [Back to Page 4](#)
26. Zhang J, Shang H, Gao X, Ernst E. Acupuncture-related adverse events: a systematic review of the Chinese literature. Bull World Health Organ. 2010;88(12):915-921c.
27. de Valois B, Young T, Zollman C, et al. Acupuncture in cancer care: recommendations for safe practice (peer-reviewed expert opinion). Supportive Care in Cancer. 2024;32(4):229. [Back to Page 5](#)
28. Mao JJ, Ismaila N, Bao T, et al. Integrative Medicine for Pain Management in Oncology: Society for Integrative Oncology-ASCO Guideline. J Clin Oncol. 2022;40(34):3998-4024. [Back to Page 5](#)



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