

Acupuncture Actigraph Sleep Discovery

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Acupuncture benefits sleep. Researchers conducted a rigorous investigation and determined that acupuncture is safe and effective for the relief of insomnia. [1] Specifically, acupuncture improves sleep efficiency, total sleep time, and alleviates overall insomnia severity. Findings from the same study

document that acupuncture alleviates depression and anxiety in patients with insomnia. [2]

This study stands apart from many similar investigations due to its strict controls. True acupuncture outperformed sham (simulated) acupuncture. Combined with randomization and other stringent controls, the results are definitive. The results were determined using both objective and subjective instruments. The researchers conclude, “Acupuncture is an effective and safe method to improve insomnia patients' sleep quality and promote their psychological health.” [3]

Actigraphy

Actigraphy was used to determine sleep efficiency and total sleep time to ensure scientific accuracy. [4] The actigraph monitor was worn by participants on the wrist. The ambulatory device is capable of measuring a variety of parameters including sleep quality, sleep onset, sleep latency, sleep duration, and awakenings. First developed for military use, actigraphs are now used extensively in academic research environments. Supplementing the objective data were Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS) scores. Based on the data, the researchers conclude, “Acupuncture treatment is more effective than sham acupuncture treatment in increasing insomnia patients' sleep quality and improving their psychological health.” [5]

The study was designed to measure possible lasting effects of true and sham acupuncture. Important to the core study design was the inclusion of the traditional emphasis on the arrival of a deqi sensation at the needle sites. This sensation is often perceived as a dull pressure or electrical shooting sensations.

Traditional Design

The researchers comment that the arrival of deqi was not included in many prior studies. They note that this is non-compliance with common practice of manual needle stimulation techniques used by licensed acupuncturists to achieve positive patient outcomes. In this study, the true acupuncture needling techniques included the elicitation of deqi and the sham procedures involved stimulation of the acupoints with insertion tubes without needle stimulation. Care was taken to ensure that the single-blinded study design was implemented by appropriately trained researchers. The research team was comprised of members from the Shanghai University of Traditional Chinese Medicine, Beijing Fengtai Hospital of Traditional Chinese and Western Medicine, University of Maryland School of Medicine (Baltimore), and the University of Hong Kong.

At the Healthcare Medicine Institute, we appreciate the rigor of the study's design, implementation, and documentation. The acupuncture point prescription used in the study design was meticulously described in detail and matches acupuncture point prescriptions included in one of our acupuncture continuing education courses on the treatment of insomnia. The researchers used 6 key acupuncture points:

- **Baihui (GV20)**
- **Shenting (GV24)**
- **Yintang (GV29)**
- **Anmian (EX-HN22)**
- **Shenmen (HT7)**
- **Sanyinjiao (SP6)**

The acupuncture needles and methods of insertion were documented. GV20 was applied with a 0.3 mm diameter, 40 mm length needle. The angle between the needle tip and scalp was 30 degrees. The needle was inserted to a depth of 0.5 cun. GV24 was applied with a 0.3 mm diameter, 25 mm length needle. The angle between the needle tip and scalp and the depth of insertion were identical to GV20. Yintang was pinched and then a 0.3 mm diameter, 25 mm length needle was inserted obliquely to a depth of 0.5 cun.

Anmian was applied with a 0.3 mm diameter, 40 mm length needle. Needle insertion depth at a perpendicular angle was 0.5 cun. The tip of the needle was pointed towards the nose. HT7 was applied

with a 0.3 mm diameter, 25 mm length needle perpendicularly to a depth of 0.5 cun. SP6 was applied with a 0.3 mm diameter, 40 mm length needle perpendicularly to a depth of 1–1.5 cun. The researchers note that 1 cun was standardized to 25 mm for purposes of the study.

Rotating, lifting, and thrusting acupuncture techniques were applied to elicit a deqi response. Each treatment session lasted for a total of 30 minutes. All participants had 3 acupuncture treatments per week for 4 weeks, for a grand total of 12 acupuncture sessions per participant. All patients rested in a supine position and wore eye masks to enhance therapeutic isolation from the environment.

Acupuncture treatments were applied by licensed acupuncturists with a minimum of clinical experience of 5 years. All participants wore actigraph sleep monitors and completed surveys every 2 weeks for a grand total of 8 weeks. Importantly, the final follow-up period was 4 weeks after completion of all acupuncture treatments. This was used to determine the enduring effects of acupuncture, which were confirmed by the data. Insomnia severity indices “improved dramatically in the acupuncture group at two weeks post-treatment (F 1/4 11.3, p 1/4 0.001), four weeks post-treatment (F 1/4 33.6, p < 0.001), 2 weeks follow-up (F 1/4 39.4, p < 0.001) and four weeks follow-up (F 1/4 34.1, p < 0.001).” [6]

Foundations

The researchers provided a detailed account of their scientific method but also included important Traditional Chinese Medicine (TCM) foundations as the basis for the acupuncture point selection employed. According to TCM theory, insomnia results from a “vicious cycle of ‘daytime low-spirit’ and ‘nighttime hyper-arousal state’.” [7] They note that Governing Vessel (GV) acupoints were included in the study design given their accepted use both historically and in modern use by licensed acupuncturists. The GV is related to insomnia, governs all yang channels, and connects all yin channels. They add that by regulating the GV with acupuncture, yin and yang are balanced and the day-night cycle is restored to a normal pattern.

The reference to the Governing Vessel’s relevance to the treatment of insomnia appears to be a reference to traditional indications for treatment. In TCM, the Governing Vessel is closely connected with the function of the brain and heart, which are both considered as playing an important role in regulating sleep.

There are several main pathways of the Governing Vessel (Du Mai). One branch originates in the perineum before ascending along the spine to acupoint GV16, at the neck, before entering the brain. Another branch originates at the inner canthus, a commonality with the Bladder Channel, prior to ascending the forehead and converging at the vertex, before entering the brain. Another branch originates

at the lower abdomen and ascends across the navel, passes through the heart, and enters the trachea before ascending across the cheek and encircling the mouth, prior to terminating below the middle of the eye.

The researchers stressed the importance of experienced, licensed acupuncturists performing manual acupuncture techniques. They note that the deqi sensation (e.g., soreness, fullness, heaviness, and numbness at the acupoints) was achieved with rotating, lifting, thrusting, flicking, and other needling techniques. They add that the inclusion of deqi elicitation was included to increase the therapeutic effectiveness and to accurately reflect techniques applied during an actual acupuncture treatment in a clinical setting.

Notes

1. Yin, Xua, Minghui Gou, Jian Xu, Bo Dong, Ping Yin, Fernand Masquelin, Junyi Wu, Lixing Lao, and Shifen Xu. "Efficacy and safety of acupuncture treatment on primary insomnia: a randomized controlled trial." *Sleep Medicine* (2017), pg 198.

2. *Ibid.*

3. *Ibid*, pg. 199.

4. Short MA, Gradisar M, Lack LC, et al. The discrepancy between actigraphic and sleep diary measures of sleep in adolescents. *Sleep Med* 2012;13: 378e84.

5. Yin, Xua, Minghui Gou, Jian Xu, Bo Dong, Ping Yin, Fernand Masquelin, Junyi Wu, Lixing Lao, and Shifen Xu. "Efficacy and safety of acupuncture treatment on primary insomnia: a randomized controlled trial." *Sleep Medicine* (2017), pg 193.

6. *Ibid.*

7. *Ibid*, pg. 199.