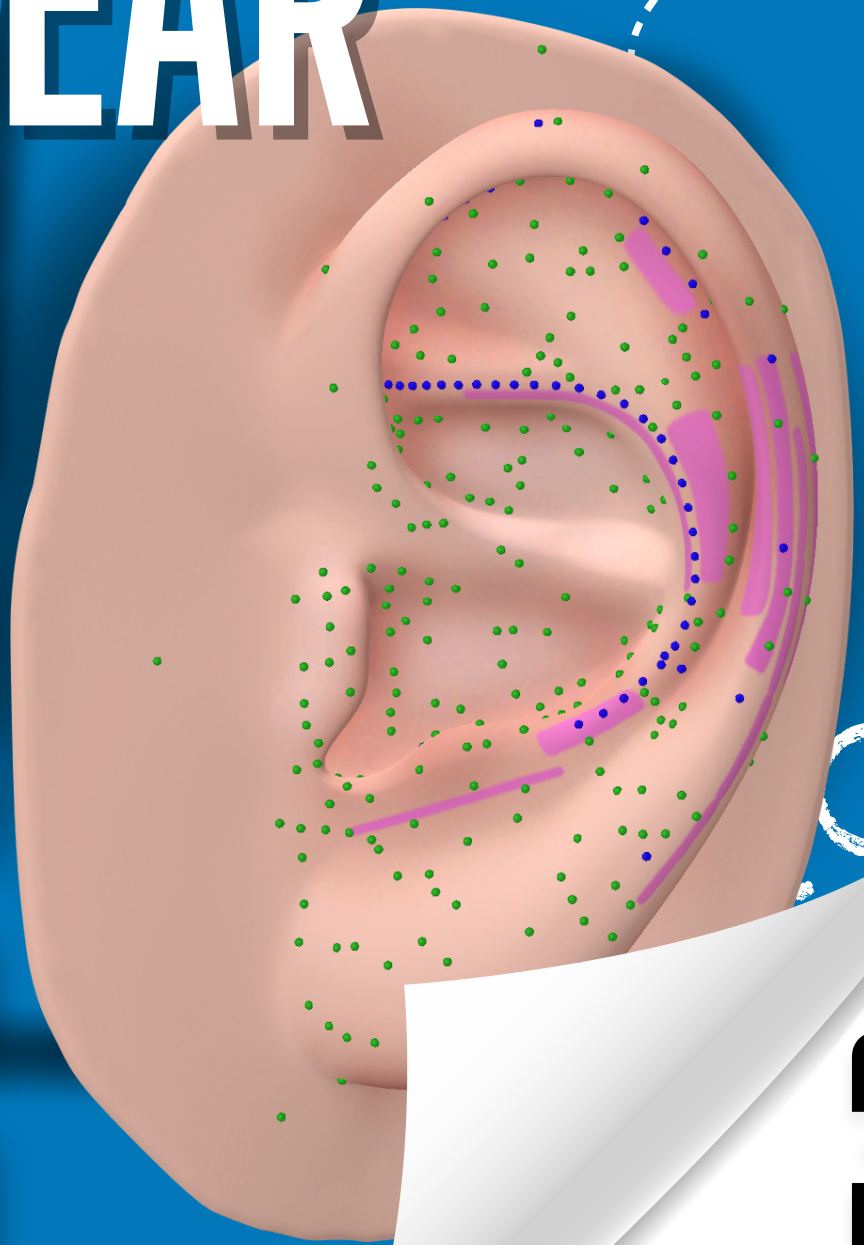


USE FOR THE EAR



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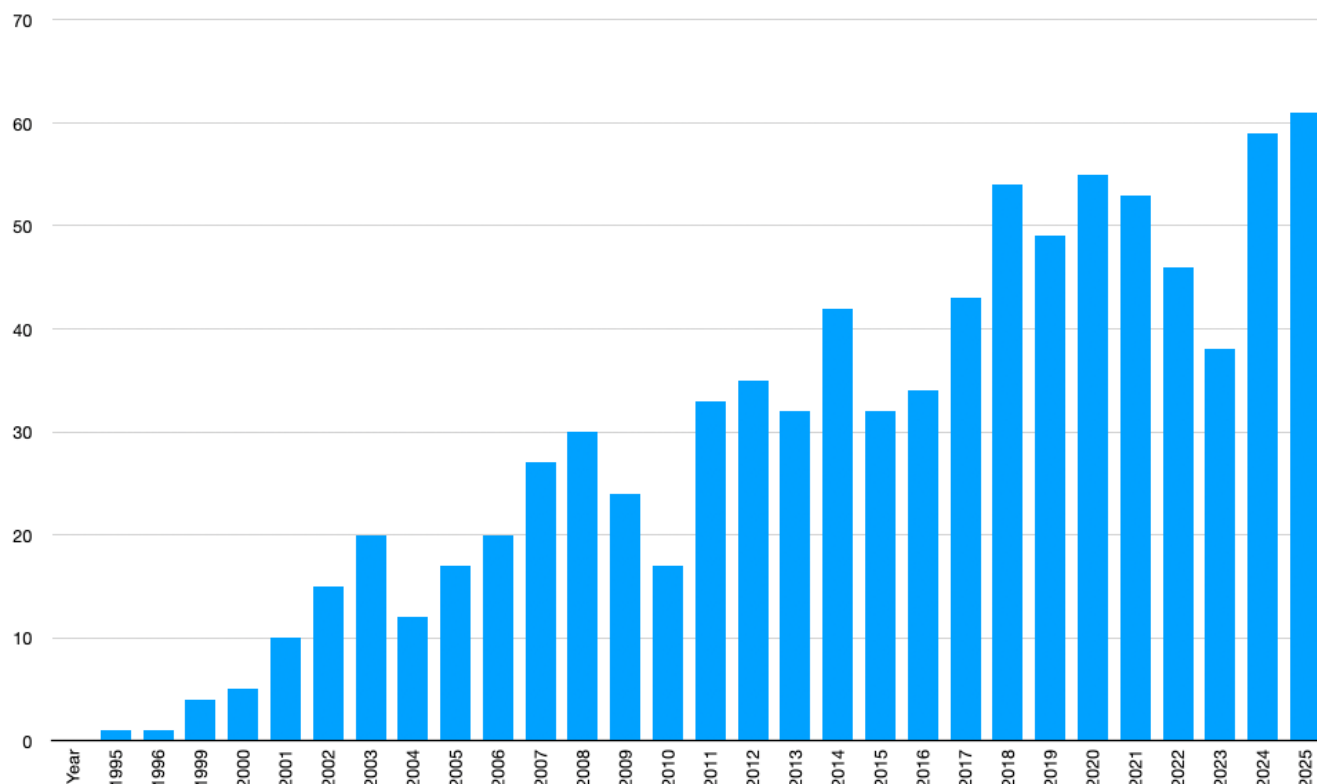
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Evidence for the Ear

Current Research Studies show the Power and Versatility of Auriculotherapy

Auriculotherapy, sometimes called **auricular acupuncture** or **ear acupuncture**, is one of the safest, most versatile treatments for a wide variety of conditions. It has long been used for pain, and recent studies are demonstrating other traditional and non-traditional uses are just as applicable. Auriculotherapy often succeeds where other treatments have failed, and it has the added bonus of presenting no side effects.

For these reasons and others, interest in auriculotherapy is increasing, as is research into this unique approach to health. The following chart shows the number of studies published annually on auriculotherapy each year since 1995:



Studies accessible on PubMed with Auriculotherapy as a keyword, by year

This report presents summaries of selected studies, covering a broad range of health conditions. The purpose is to acquaint you with the wide and varied applications of this incredible healing approach.

Dementia

- Study Title:** The effects of Ear Acupressure, massage therapy and no therapy on symptoms of dementia: A randomized controlled trial.
- Date:** October 16, 2014
- Summary:** A total of 111 dementia patients participated in this randomized controlled trial and were evaluated for pain, anxiety and depression. Interventions included ear acupressure, massage and nothing. The ear acupressure intervention group showed better improvements than the massage therapy intervention group in relation to pain and depression during the treatment period and at one month of follow-up. The best improvement in pain was achieved in the last (3rd) month of Ear Acupressure treatment. Regarding anxiety, the best results were also observed in the last month of treatment.
- Conclusions:** Ear Acupressure and massage therapy showed better results than the control group in relation to pain, anxiety and depression. However, Ear Acupressure achieved the most improvements.
- Citation:** Rodríguez-Mansilla J, González López-Arza MV, Varela-Donoso E, Montanero-Fernández J, González Sánchez B, Garrido-Ardila EM. The effects of Ear Acupressure, massage therapy and no therapy on symptoms of dementia: A randomized controlled trial. Clin Rehabil. 2014 Oct 16. pii: 0269215514554240.

Insomnia

- Study Title:** Auricular acupuncture for primary insomnia: a systematic review based on GRADE system.
- Date:** July, 2014
- Summary:** This study is a meta-analysis of 8 individual studies, involving 894 patients. Techniques included auricular acupuncture, sham auricular acupuncture, placebo auricular acupuncture and blank control. Auricular acupuncture showed the most improvement in Pittsburgh Sleep Quality Index (PSQI), sleep latency and sleep awakening times. In the comparison between auricular acupuncture and western medication, the PSQI was significantly higher for auricular acupuncture.
- Conclusions:** Auricular acupuncture may effectively improve sleep quality in primary insomnia. Further high-quality studies are needed.
- Citation:** Tan HJ, Lan Y, Wu FS, Zhang HD, Wu L, Wu X, Liang FR. [Auricular acupuncture for primary insomnia: a systematic review based on GRADE system.] Zhongguo Zhen Jiu. 2014 Jul;34(7):726-30. Review. Chinese.

Smoking Cessation

- Study Title:** A meta-analysis of ear-acupuncture, ear-acupressure and auriculotherapy for cigarette smoking cessation.
- Date:** September 1, 2014
- Summary:** This systematic review evaluated the effects of ear acupuncture, ear acupressure and auriculotherapy for cigarette smoking cessation (SC) at end-of-treatment (EoT), three, six and 12 months follow-up. 25 individual studies were reviewed, with a total of 3735 participants.
- Conclusions:** SC-specific ear acupuncture interventions were superior to inactive controls at EoT, three months follow-up, and six months follow-up, but data were insufficient at 12 months. There was no superiority or inferiority for ear acupuncture compared with SC-specific behavioral therapy or SC-specific body acupuncture.
- Citation:** Di YM, May BH, Zhang AL, Zhou IW, Worsnop C, Xue CC. A meta-analysis of ear-acupuncture, ear-acupressure and auriculotherapy for cigarette smoking cessation. *Drug Alcohol Depend.* 2014 Sep 1;142:14-23. doi: 10.1016/j.drugalcdep.2014.07.002. Epub 2014 Jul 11.

Stress

- Study Title:** Efficacy of Chinese auriculotherapy for stress in nursing staff: a randomized clinical trial.
- Date:** May, 2014
- Summary:** This randomized, single-blind clinical study aimed to evaluate the efficacy of auriculotherapy with and without a set protocol for reducing stress levels among nursing staff. A total of 175 subjects with medium and high stress scores participated in 3 groups: control, treatment with protocol, and treatment without protocol. Assessments were at baseline, after 12 sessions, and after 30 days.
- Conclusions:** Statistically significant differences between the Control and Intervention groups were found in the two evaluations, with the treatment without protocol group showing the greatest effect. Individualized auriculotherapy without a set protocol may be helpful in reducing the effects of stress.
- Citation:** Kurebayashi LF, Silva MJ. *Rev Lat Am Enfermagem.* Efficacy of Chinese auriculotherapy for stress in nursing staff: a randomized clinical trial. 2014 May-Jun;22(3):371-8.

Constipation

- Study Title:** Efficacy of auriculotherapy for constipation in adults: a systematic review and meta-analysis of randomized controlled trials.
- Date:** August, 2014
- Summary:** This systematic review and meta-analysis assessed the clinical evidence of auriculotherapy for constipation treatment to identify the efficacy of groups using Semen vaccariae (seeds) or magnetic pellets as taped objects in managing constipation. Fifteen randomized, controlled trials were included in this analysis.
- Conclusions:** The meta-analysis of 15 trials showed a moderate, significant effect of auriculotherapy in managing constipation compared with controls. The 15 RCTs also showed a moderate, significant effect of auriculotherapy in relieving constipation. Further rigorous RCTs from around the world are warranted to confirm the effect and safety of auriculotherapy for constipation.
- Citation:** Yang LH1, Duan PB, Du SZ, Sun JF, Mei SJ, Wang XQ, Zhang YY. Efficacy of auriculotherapy for constipation in adults: a systematic review and meta-analysis of randomized controlled trials. J Altern Complement Med. 2014 Aug;20(8):590-605. doi: 10.1089/acm.2013.0324. Epub 2014 Jul 14.

Weight Loss

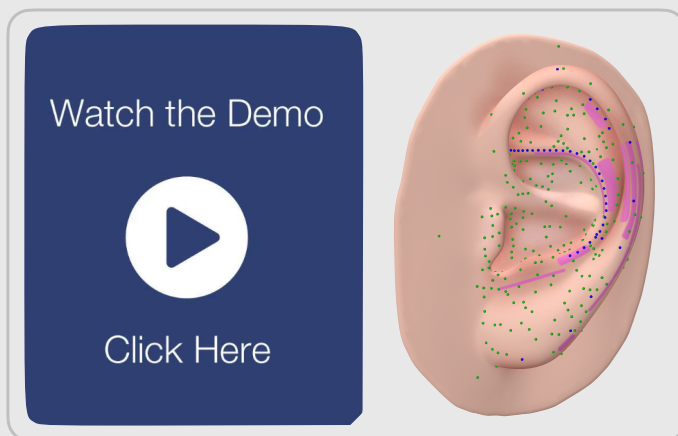
- Study Title:** The effects of auricular electroacupuncture on obesity in female patients--a prospective randomized placebo-controlled pilot study.
- Date:** February, 2014
- Summary:** Several studies show a significantly higher weight loss with acupuncture treatment. This is the first prospective, randomized, double-blinded study, testing the effects of auricular electroacupuncture on weight loss in obese female patients. 56 female obese patients (age>18, Body Mass Index, BMI>25) were randomized to receive either auricular acupuncture with electrical stimulation or placebo treatment for four days. The treatment was performed once a week for a period of six weeks. A follow-up visit was performed after 4 weeks. At each visit body weight, BMI (Body Mass Index) and body fat were measured.
- Conclusions:** Relative reduction of body weight was significantly greater in the verum group (-3.73%; CI=-4.70 to -2.76) than in the placebo group (-0.70%; CI=-1.57 to +0.16; p<0.001) There was also a significant reduction of BMI (p<0.001) in the verum group (-3.62%; CI=-4.39 to -2.84) compared to placebo (-0.82%; CI=-1.55 to -0.10; p<0.001). No patient reported side

effects related to acupuncture. Electrical auricular acupuncture could be a safe, additive, non-pharmacological treatment in obese patients.

Citation: Schukro RP1, Heiserer C2, Michalek-Sauberer A3, Gleiss A4, Sator-Katzenschlager S3. The effects of auricular electroacupuncture on obesity in female patients--a prospective randomized placebo-controlled pilot study. Complement Ther Med. 2014 Feb;22(1):21-5. doi: 10.1016/j.ctim.2013.10.002. Epub 2013 Oct 31.

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Hypertension

Study Title: Primary hypertension treated with acupuncture combined with auricular point sticking: a randomized controlled trial.

Date: March, 2014

Summary: Ninety patients with primary hypertension were randomly divided into a medication group and a combination acupuncture group. In the combination group, acupuncture and auricular point treatment were used. Acupuncture was applied at ST 9, GB 20 and GV 20, while auricular point treatment was used at Shenmen (TF4), Xin (CO15), Jiangyagou and Jiaogan (AH6a), once a day for 4 weeks. After treatment, the changes of 24 h ambulatory blood

pressure, angiotensin II (Ang II) level, creatinine level and syndrome scores were observed and the clinical efficacy was assessed in the two groups. Blood pressure improved in both groups, but the reduction of 24 h ambulatory blood pressure in the combination group was superior to that in the medication group. Serum Ang II level and plasma creatinine level of the patients in both groups decreased with a more marked decrease in the combination group. Similarly, syndrome scores decreased in both groups, with the combination group showing the most improvement. The total effective rate of the combination group was 95.6% (43/45), which was superior to 71.1% (32/45) of the medication group.

Conclusions: Acupuncture combined with auricular treatment for primary hypertension is better than captopril for the improvement of 24 h ambulatory blood pressure, AngII level and creatinine level, and can improve clinical symptoms.

Citation: Zhongguo Zhen Jiu. 2015 Mar;35(3):227-31 Chinese.

Menstrual Irregularities

Study Title: Effect of auriculotherapy on menstrual irregularities in single girls with polycystic ovarian syndrome and aged 18-35 years

Date: March, 2015

Summary: This is a clinical trial conducted on 60 females aged 18-35 years with clinical, laboratory, and sonography signs of polycystic ovary syndrome. The subjects were randomly assigned to two groups (auriculotherapy or medication) and underwent treatment for 2 and 3 months, respectively. Clinical signs were investigated in three steps in both groups. Data were collected through observation, laboratory tests, and sonography, and were analyzed by SPSS version 15. In 60 subjects, Chi-square test showed a significant difference in menstruation disorders in both groups 1 month after the start of intervention ($P = 0.001$); but 2 months after the start of intervention ($P = 0.11$) and immediately after the end of the intervention ($P = 0.16$), the difference was not significant. Three months after the end of the intervention, this variable showed a significant difference ($P = 0.02$).

Conclusions: Pharmaceutical treatment and auriculotherapy are both effective for menstruation disorders, but auriculotherapy is more effective on reduction of menstruation disorders, compared to pharmaceutical therapy in women with polycystic ovarian syndrome.

Citation: Iran J Nurs Midwifery Res. 2015 Mar-Apr;20(2):190-4.

Depression Associated with Obesity

Study Title: Effects of ear acupuncture therapy for obesity on the depression of obese women.

Date: August, 2014

Summary: After baseline testing, 30 eligible patients with body mass index (BMI) >29.9 kg/m(2) were included. The Beck Depression Inventory for Primary Care (BDI-PC) was used to assess changes in depression. BMI was also measured. Patients had six ear acupuncture sessions, every 15 days and were followed up for 3 months. Twenty four patients completed the study. The mean±SD age of patients was 42.9±9.0 years. Their mean±SD BMI was 39.0±4.7 kg/m(2) before acupuncture, decreasing to 37.2±4.3 kg/m(2) after acupuncture therapy (p<0.001). The mean depression score was 4.4±2.3 before acupuncture, decreasing to 2.7±1.4 (p<0.001) after treatment. There was no significant correlation between BMI and depression score before acupuncture therapy (p=0.104). After acupuncture therapy, no significant correlation was found between the percentage reduction of BMI and percentage reduction of the depression score (p=0.119).

Conclusions: Ear acupuncture therapy for obesity appears to also reduce depression of obese women. Further research into the effects of ear acupuncture in the management of obesity and depression is justified.

Citation: Acupunct Med. 2014 Oct;32(5):427-9. doi: 10.1136/acupmed-2014-010626. Epub 2014 Aug 6.

Methamphetamine Withdrawal

Study Title: Comparative study on effects between electroacupuncture and auricular acupuncture for methamphetamine withdrawal syndrome.

Date: March, 2014

Summary: Ninety male patients of methamphetamine addiction were randomized into an electroacupuncture group, an auricular acupuncture group and a control group, 30 cases in each one. In the electroacupuncture group, Neiguan (PC 6), Shenmen (HT 7), Zusanli (ST 36), Sanyinjiao (SP 6), Jiaji (EX-B 2) at T5 and L2 were selected bilaterally. In the auricular acupuncture group, jiaogan (AH(6a)), shenmen (TF4), fei (CO14) and gan (CO12) were selected unilaterally. The treatment was given 3 times a week, with 12 treatments total. In the control group, no treatment was applied. Before treatment and after 1, 2, 3 and 4 weeks treatment, the scores of methamphetamine withdrawal syndrome, Hamilton anxiety scale and Hamilton depression scale were measured in each group. Both treatment groups showed declines in withdrawal syndrome, anxiety and depression scores in weeks 2, 3 and 4, and in every assessment, treatment groups were significantly lower than control.

Conclusions: Electroacupuncture at the body points and auricular acupuncture play a significant therapeutic role in the treatment of methamphetamine withdrawal syndrome, anxiety and

depression. The longer time the treatment is with electroacupuncture at the body points, the more obvious the efficacy will be on the above symptoms.

Citation: Zhongguo Zhen Jiu. 2014 Mar;34(3):219-24.

Migraine Therapy

Study Title: Somatic acupuncture versus ear acupuncture in migraine therapy: a randomized, controlled, blind study.

Date: 2012

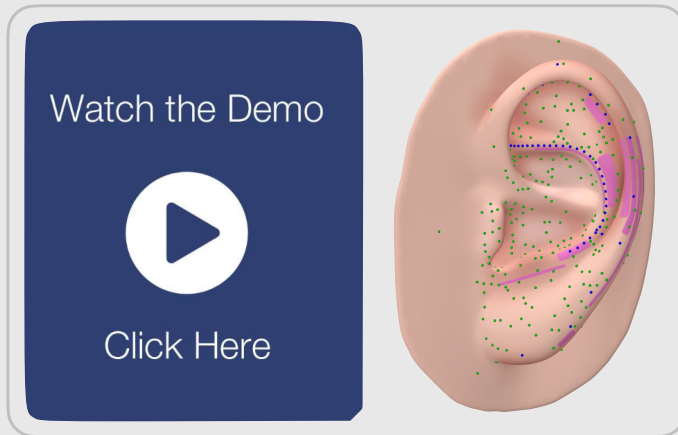
Summary: This study compares the clinical effectiveness of somatic and ear acupuncture for treatment of migraine without aura. 35 patients were divided into 2 groups, one receiving somatic and the other ear acupuncture. Both groups were treated once a week for 8 weeks and needles were stimulated manually. The severity of pain was evaluated with the Migraine Index and the visual analogue of Scott-Huskisson; other 2 tests were used to monitor the pain threshold and Zung's Self-rating Depression Scale was applied to assess variations in patients' mood. These tests were performed before the beginning and at the end of treatment and, for the follow up, after 1, 3 and 6 months from the end of therapy. On the basis of the migraine index, pain at the end of therapy was significantly lower than before the treatment, being residual pain 54.83% and 63.43%, respectively for somatic and ear acupuncture. Apparently, the 2 treatments were equally effective, as no significant difference could be assessed. On the contrary, a significant difference between the 2 groups was clear during the follow up: in fact, after 6 months residual pain was 16.80% and 48.83% for somatic and ear acupuncture, respectively ($p=0.038$). These results were confirmed by the Visual Analogue Scale (VAS) test and by the evaluation of pain threshold. It is noteworthy that also Zung's depression test showed a significant decrease of score was present in both groups, at all the times investigated with no difference between the two treatments.

Conclusions: These results, though preliminary, are quite promising in supporting the effectiveness of ear acupuncture for treatment of migraine without aura.

Citation: Acupunct Electrother Res. 2012;37(4):277-93.

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Myopia (Nearsightedness) in Children

Study Title: Effect of auricular pressing treatment on myopia in children.

Date: June 15, 2015

Summary: A total of 72 myopic children aged 8-9 years participated in the study giving a total number of 144 eyes. The children were divided into 2 groups. The experimental group, which contained 39 children, used Vaccaria seeds to stimulate the selected auricular points for three treatment courses. For the control group, which had 33 children, the therapy was not applied. There was no difference in the binocular naked vision between the experimental group and the control group before the intervention. In contrast, there was significant improvement in binocular naked vision in the experimental group after the intervention compared with the control group ($P < 0.05$).

Conclusions: Non-invasive auricular therapy, if combined with external medical application, may improve the function of myopia in the children. Children were receptive to auricular pressing technique.

Citation: Li Y., Zhang O., Liang W., & Li C., (2015). Effect of auricular pressing treatment on myopia in children. Journal of Traditional Medicine, 35(3). 281-284.

Temporomandibular (Jaw) Disorders with Stress

- Study Title:** Role of Auriculotherapy in the Treatment of Temporomandibular Disorders with Anxiety in University Students.
- Date:** October 1, 2015
- Summary:** 44 college students with high levels of anxiety and temporomandibular disorders (TMDs) were divided into 2 groups for treatment: an auriculotherapy (AA) group and an AA sham group. Seeds were applied to the shenmen, rim, sympathetic, brain stem, and temporomandibular joint (TMJ) points in the AA group. While for the AA sham group, seeds were applied to sham points in the external ear and wrist. Anxiety was significantly reduced in the AA group. This group also showed a decrease in tender points in the mandibular posterior region and in the right side of the submandibular region. Complaints of bilateral pain were reduced in the temporal tendon and in the left side of the ATM. In addition, electromyographic (EMG) activity was reduced during temporal muscle contraction.
- Conclusions:** Auriculotherapy was effective in the treatment of students with anxiety and TMDs. Auriculotherapy was found to be effective in the treating anxiety and TMDs of university students.
- Citation:** Denise H. L., Erika D. L. C., Caroline D. M, Bruna, C., Leonardo C. C., Andrea, M. S. &, Emilia C. C., (2015). Role of Auriculotherapy in the Treatment of Temporomandibular Disorders with Anxiety in University Students. Evid Based Complement Alternat Med. 281-284. Doi: 10.1155/2015/430143

Post Traumatic Stress Disorder

- Study Title:** Exploring Self-Reported Benefits of Auricular Acupuncture Among Veterans With Posttraumatic Stress Disorder.
- Date:** November 3, 2015
- Summary:** In the study, 17 active-duty veterans with posttraumatic stress disorder (PTSD) provided written comments to describe their experience after receiving a standardized auricular acupuncture treatment for a 3-week period. After the intervention, a variety of symptoms experienced by veterans with PTSD were improved. Four themes were observed from the data including: improved sleep quality, increased relaxation, decreased pain, and veterans were very receptive to the auricular acupuncture treatments.

- Conclusions:** Numerous benefits were observed following the auricular acupuncture treatments given to the veterans with PTSD. These treatments may facilitate healing and recovery for veterans experiencing PTSD. Further investigations are warranted into the mechanisms of action for auricular acupuncture in this population.
- Citation:** King C. H., Moore L. C., & Spence C. D., (2015). Exploring Self-Reported Benefits of Auricular Acupuncture Among Veterans With Posttraumatic Stress Disorder. *Journal of Holistic Nursing* 34(3) 291-9. Doi: 10.1177/0898010115610050

Acute Sore Throat

- Study Title:** Ear Acupuncture for Acute Sore Throat: A Randomized Controlled Trial.
- Date:** June 8, 2015
- Summary:** The study aimed to determine whether auricular acupuncture reduces pain, medication usage, and missed work hours when added to standard therapy in adult patients with acute sore throat. A total of 54 patients participated in the study and observed for 48 hours after treatment. Patients receiving auricular acupuncture reported lower pain scores than those who did not at 15 minutes, 6 hours, and 24 hours. They also reported taking fewer cumulative doses of pain medication at 6 hours, 24 hours, and 48 hours. There was no difference in time missed from work between the auricular acupuncture and standard therapy groups.
- Conclusions:** Battlefield auricular acupuncture is effective in reducing sore throat pain for 24 hours and decreased use of pain medication for up to 48 hours. Also, there was no visible effect on hours missed from work.
- Citation:** David, M., & Paul, C., (2015). Ear Acupuncture for Acute Sore Throat: A Randomized Controlled Trial. *Journal of the American Board of Family Medicine* 28(6). 607-705. Doi: 10.3122/jabfm.2015.06.150014

Chronic Low Back Pain

- Study Title:** Effect of a single session of ear acupuncture on pain intensity and postural control in individuals with chronic low back pain: a randomized controlled trial.
- Date:** June 16, 2016
- Summary:** 80 adults with low back pain (LBP) and pain intensity equal or greater than 4, in a 0-10 scale, were divided into 2 groups: one to Ear Acupuncture group (EAG), the other to placebo group (PG). Pain level and posture were assessed before intervention. The EAG

received ear acupuncture for 20 min and the PG was treated with detuned ultrasound. After the treatment, pain intensity was assessed again and the postural test was repeated. Pain intensity was the primary outcome and center of pressure sway area and speed were the secondary outcomes measured. Results revealed that pain intensity decreased in both groups after treatment, but decreased more in the EAG. For postural control, no effect of treatment and no interaction between treatment and postural condition on body sway were found.

Conclusions: Findings show that Ear Acupuncture is better than placebo in treating pain, but neither of the two has effect on postural condition on body sway.

Citation: Andrea, U., Bianca, C., Leonardo C., Ana, B., & Paulo, F., (2016). Effect of a single session of ear acupuncture on pain intensity and postural control in individuals with chronic low back pain: a randomized controlled trial. *Brazilian Journal of Physical Therapy* 20(4). 328-335. Doi: 10.1590/bjpt-rbf.2014.0158

Labor Pain

Study Title: Effects of auriculotherapy on labour pain: a randomized clinical trial.

Date: August 02, 2016

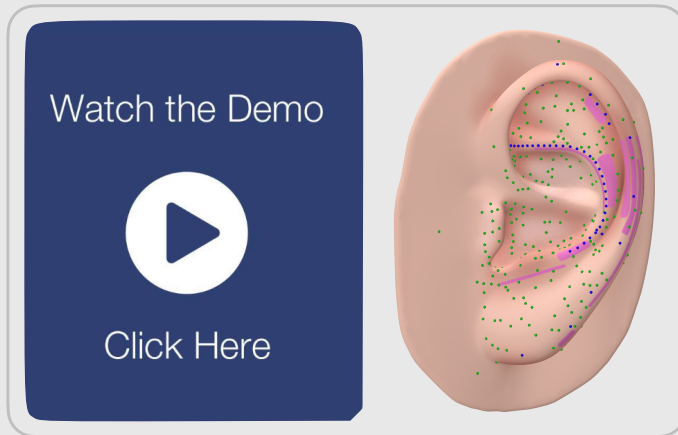
Summary: This is a randomized, controlled, double-blind trial with preliminary data where 30 pregnant women with gestational age ≥ 37 weeks, cervical dilatation ≥ 4 cm and two or more contractions in 10 minutes were randomly selected and allocated into 3 groups: auriculotherapy, placebo and control. Auriculotherapy was applied using crystal beads on four strategic points. No statistical significance was found between the groups with regard to pain; however, the women from the auriculotherapy group had lower intensity and less perception of pain at 30, 60 and 120 minutes of treatment. The average duration of labour was shorter in the auriculotherapy group; caesarean section rates were higher in the placebo group (50%) and the same in the other groups (10%).

Conclusions: Women treated with auriculotherapy had higher pain control and shorter labour duration. Placebo treatment showed a higher rate of cesarean section while auriculotherapy and control group have similar result.

Citation: Mafetoni, R. R., & Shimo, A. K., (2016). Effects of auriculotherapy on labour pain: a randomized clinical trial. *Rev Esc Enferm USP*. 50(5). 726-732. Doi: 10.1590/S0080-623420160000600003

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Immediate Pain Relief

- Study Title:** Ear Acupuncture for Immediate Pain Relief: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.
- Date:** March 1, 2017
- Summary:** This study aims to review selected English publications, randomized controlled trials on human subjects involving Ear Acupuncture as a treatment for pain, with results recorded within 48 hours. Ten studies met inclusion criteria. Based on their primary outcome measures, six studies showed EA being superior to its comparator, three showed no difference to comparators (which in all cases were analgesics), and one study showed significant pain decrease at the first time point and no significant decrease at the second. Six studies reported side effects; all were minor and transient.
- Conclusions:** Ear acupuncture may be a promising modality to be used for pain reduction within 48 hours with a low side-effect profile. However, intensive research is needed to establish definitive evidence of a clinically significant difference from controls or from other pain treatments.
- Citation:** Mukarami, M., Fox, L., & Dijkers, M. P., (2017). Ear Acupuncture for Immediate Pain Relief-A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Pain Med. 18(3). 551-564. Doi: 10.1093/pm/pnw215

Pain and Anxiety

- Study Title:** Auriculotherapy to reduce anxiety and pain in nursing professionals: a randomized clinical trial.
- Date:** April 6, 2017
- Summary:** An initial sample of 180 professionals were divided into 4 groups Control (G1), Seed (G2), Needle (G3) and Tape (G4). The instruments used were the State-Trait Anxiety Inventory, Pain Visual Analog Scale and Quality of Life instrument, applied at the start and after five and 10 sessions (five weeks). There was a statistical difference for anxiety according to the repeated measures ANOVA, with better results for the G3 in the final assessment. There was a reduction of pain of 36% in G3 and 24% in G2 and a 13% increase in the mental aspect of quality of life for the G3, although without statistical significance.
- Conclusions:** After 10 sessions, auricular protocol protocol (APPA) reduced the anxiety levels of nursing staff. However, further studies are suggested with new populations and in different contexts so that the results can be confirmed.
- Citation:** Kurebayashi, L. F., Turrini, R. N., Souza, T.P., Marques C.F., Rodrigues, R.T., & Charlesworth, K., (2017). Auriculotherapy to reduce anxiety and pain in nursing professionals: a randomized clinical trial. *Rev Lat Am Enfermagem*. 25. Doi: 10.1590/1518-8345.1761.2843

Emergency Pain Relief

- Study Title:** Does Ear Acupuncture Have a Role for Pain Relief in the Emergency Setting? A Systematic Review and Meta-Analysis.
- Date:** October 1, 2017
- Summary:** Seven databases and Google Scholar were searched up to April 27, 2017, using MeSH descriptors for three overarching themes (ear acupuncture, pain management, and emergency medicine). Six randomized controlled trials and two observational studies with a total of 458 patients, were retrieved after exclusions. The meta-analysis were conducted in 3 comparator groups: (1) ear acupuncture versus sham; (2) ear acupuncture-as-adjunct to standard care; and (3) ear acupuncture (both as sole therapy and adjuvant) versus control. There were no significant adverse effects and patient satisfaction improved. Results regarding if acupuncture reduced medication use were equivocal.
- Conclusions:** Ear acupuncture, either as stand-alone or as-an-adjunct technique, significantly reduced pain scores and has potential benefits for use in the Emergency Department. However, further studies will help define acupuncture's role and if it reduces use of analgesic medications.

Citation: Jan, A. L., Aldridge, E. S., Rogers, I. R., Visser E. J., Bulsara, M.K., & Niemtow, R. C., (2017). Does Ear Acupuncture Have a Role for Pain Relief in the Emergency Setting? A Systematic Review and Meta-Analysis. *Med Acupuncture* 29(5). Doi: 10.1089/acu.2017.1237

Post Stroke Depression (Combined with Acupuncture)

Study Title: Acupuncture combined with auricular point sticking therapy for post stroke depression:a randomized controlled trial.

Date: June 12, 2017

Summary: 60 patients with post stroke depression (PSD) were randomly divided into 2 groups: an acupuncture plus auricular application group (a combination group) and a medication group, 30 cases in each one. The total score and each factor scores of Hamilton's depression scale (HAMD) were observed in the two groups before and after treatment, and Asberg's antidepressant side-effect rating scale (SERS) and clinical effect were evaluated. After treatment, the total HAMD scores of the two groups decreased compared with those before treatment, with better effect in the combination group. The scores of the combination group after treatment were lower than those in the medication group, including the anxiety/somatization factor, sleep disturbance factor, hopelessness factor. The total effective rate of the combination group was 86.7% (26/30), which was better than 66.7% (20/30) of the medication group. The SERS score of the combination group was lower than that of the medication group.

Conclusions: Acupuncture combined with auricular point treatment can help improve the clinical symptoms of post stroke depression (PSD) and are found to be effective and safe.

Citation: Zhang, L., Zhong, Y., Quan, S., Liu, Y., Shi, X., Li, Z., & Wang, J. (2017). Acupuncture combined with auricular point sticking therapy for post stroke depression:a randomized controlled trial. *Med Acupuncture* 37(6). Doi: 10.13703/j.0255-2930.2017.06.003

Musculoskeletal Pain

Study Title: Effect of Auriculotherapy on Musculoskeletal Pain: A Systemic Review and Meta-Analysis

Date: February, 2022

Summary: A total of 885 studies were retrieved from nine databases (PubMed, Scopus, CINAHL, Web of Science, Ovid Medline, Cochrane Library, RISS, KMbase, and KISS). Sixteen studies were selected for meta-analysis, which satisfied the inclusion criteria and the evaluation of risk of bias. Demographic data, auriculotherapy types, intervention characteristics, auricular points, and outcomes related to pain (subjective pain scale, and amount of analgesic) were

extracted from all included studies. The effect size of auriculotherapy was analyzed through comprehensive meta analysis 3.0, and the presence of publication bias was analyzed through a funnel plot and Egger's regression.

Conclusions: The results of the meta-analysis (n = 16) revealed that the auriculotherapy was significantly superior to the control group on present pain in adults (Hedges' g = -0.35, 95% Confidence Interval [CI] = -0.55~-0.15). According to the results of subgroup analysis, the effect size of auricular acupuncture therapy (Hedges' g = 0.45, 95% CI = -0.75~-0.15) was higher than the auricular acupuncture (Hedges' g = 0.27, 95% CI = -0.53~0.00): the longer the intervention period, the greater the effect size.

Citation: Choi SY, Kim YJ, Kim B. [Effect of Auriculotherapy on Musculoskeletal Pain: A Systematic Review and Meta-Analysis]. J Korean Acad Nurs. 2022 Feb;52(1):4-23. Korean. doi: 10.4040/jkan.21121. PMID: 35274617.

Chronic Cervical Pain

Study Title: Auriculotherapy for Chronic Cervical Pain

Date: December 1, 2021

Summary: This study involved patients with at least 2 years of cervical pain and a neck disability index score (NDI) >5. AT was performed at detectable points once per week over 6 weeks. Patients were evaluated with the NDI and a visual analogue scale (VAS) for pain before and at 1 and 4 months after the final treatments. An analysis of variance test for repeated measures was used for comparisons.

Conclusions: During the study, 19 patients, with a mean ($\pm$ SD) age of 44.5 ± 15.2 years, were enrolled. The majority of the patients were right-handed (89%) and female (79%). The median (interquartile range) disease duration was 48 months (range: 24-66 months). An average of 4 ear points were used per session; the most frequent points used were: Shen men, Posterior Wall, Zero, and C1. Statistically significant decreases in NDI (15.58 ± 5.93) and VAS (4.76 ± 2.37) scores were observed at 1 and 4 months (8.84 ± 5.59 ; $P < 0.0001$ and 3.21 ± 2.12 ; $P = 0.003$, respectively) after AT treatment. AT can be used successfully as a complementary method to treat chronic cervical pain.

Citation: Sant'Anna MB, Sant'Anna LB, Chao LW, Sant'Anna FM. Auriculotherapy for Chronic Cervical Pain. Med Acupunct. 2021 Dec 1;33(6):403-409. doi: 10.1089/acu.2021.0039. Epub 2021 Dec 16. PMID: 34976273; PMCID: PMC8716473.

Orthodontic Pain

- Study Title:** Auriculotherapy used to manage orthodontic pain: a randomized controlled pilot study
- Date:** Dec 17, 2021
- Summary:** A sample of 36 subjects was selected, with patients randomly allocated into two homogeneous groups, Study Group (SG) and Control Group (CG), depending on the application/non-application of AT. Patients rated their pain scores monthly from 0 to 10, on visual analogue scales (VAS) at the time of bonding (T0) and again at two appliance adjustments (T1 and T2). At each of these treatment phases, VAS was applied in six different time moments (TM): immediately before, immediately after, after 4 hours, after 8 hours, after 24 hours, and after 72h hours. Descriptive statistical analysis, a Student's t-test, and a Chi-square test were applied to the collected data (statistical significance for $p < 0.05$).
- Conclusions:** SG patients reported lower pain levels than CG patients, both at T0, T1 and T2. Moreover, average pain intensity values were lower in the SG for all TM analyzed, with the t-test significant ($p < 0.05$) for most TMs.
- Citation:** Serritella E, Impellizzeri A, Liguori A, Galluccio G. Auriculotherapy used to manage orthodontic pain: a randomized controlled pilot study. *Dental Press J Orthod.* 2021 Dec 17;26(6):e2119381. doi: 10.1590/2177-6709.26.6.e2119381.oar. PMID: 34932772; PMCID: PMC8690330.

Sleep Disorders as a Result of Menopause

- Study Title:** The effect of auriculotherapy on improving sleep quality in postmenopausal women aged 45-60 years: A clinical trial study
- Date:** Dec 28, 2022
- Summary:** The present study is a clinical trial study that was performed on 82 postmenopausal women aged 45-60 years under the auspices of health centers in Mahshahr city, Iran from 2021-2022. Women with inclusion criteria were randomly divided into two groups (intervention and control). The intervention group underwent auriculotherapy for 4 weeks. The St. Petersburg Sleep Quality Questionnaire was completed by both groups at the beginning and 4 weeks after the start of the intervention. Finally, the data were analyzed by SPSS software version 22 and independent t-test, paired t-test and Chi-square test.
- Conclusions:** At the beginning of the study, both groups were homogeneous in terms of demographic variables. The results of data analysis using independent t-test showed that before the intervention, mental quality ($P = 0.513$), length of incubation period ($P = 0.285$), sleep duration ($P = 0.121$), sleep efficiency ($P = 0.513$), sleep disorders ($P = 0.685$), use of

sleeping pills ($P = 0.530$), daily functioning ($P = 0.60$), and overall sleep quality score ($P = 0.30$) in the control and intervention groups were not statistically significant. However, comparing the mean scores after the intervention in the control and intervention groups showed that mental quality ($P < 0.001$), incubation period ($P < 0.001$), sleep duration ($P < 0.001$), sleep efficiency ($P < 0.001$), sleep disorders ($P < 0.001$), use of hypnotics ($P = 0.002$), daily functioning ($P = 0.001$), overall sleep quality score ($P < 0.001$), sleep duration ($P = 0.822$), sleep efficiency ($P = 0.889$), sleep disorders ($P = 0.889$), use of sleeping pills ($P = 1.00$), daily performance ($P = 0.767$), overall sleep quality score ($P = 0.69$) were statistically significant between the two groups. In-group comparison using paired t-test in the control group showed that mental quality ($P = 0.128$), length of the incubation period ($P = 1.00$), and before and after the intervention did not differ significantly in the mean scores. However, a within-group comparison in the intervention group showed that mental quality ($P < 0.001$), incubation period ($P < 0.001$), sleep duration ($P < 0.001$), sleep efficiency ($P < 0.001$), sleep disorders ($P = 0.003$), use of sleeping pills ($P = 0.007$), daily functioning ($P < 0.001$), and overall sleep quality score ($P < 0.001$) before and after the intervention had a significant difference in the mean scores.

The results showed that auriculotherapy has significant effectiveness in improving the quality of sleep, and its dimensions and can be used as an effective method in this area that can be implemented at a low cost and easily. According to reports from participants and previous studies in this field, auriculotherapy did not have any side effects and can be used as a safe way to improve sleep quality.

Citation: Eidani M, Montazeri S, Mousavi P, Haghighizadeh MH, Valiani M. The effect of auriculotherapy on improving sleep quality in postmenopausal women aged 45-60 years: A clinical trial study. *J Educ Health Promot.* 2022 Dec 28;11:422. doi: 10.4103/jehp.jehp_243_22. PMID: 36824081; PMCID: PMC9942162.

Nausea in Pregnancy

Study Title: Auriculotherapy as a means of managing nausea and vomiting in pregnancy: A double-blind randomized controlled clinical trial

Date: Aug 4, 2020

Summary: In this randomized clinical trial, 128 pregnant women suffering from nausea and vomiting were selected and assigned to study groups. The data were collected using demographic information and Rhodes' questionnaires and analyzed in SPSS v.22.

Conclusions: After intervention, the average nausea score of the Rhodes index declined significantly in patients in the intervention group ($p < 0.001$). However, there was no significant ($p = 0.305$) difference between the two groups regarding vomiting. The results of the repeated measures showed that interventions had a significant effect on the total score of the questionnaire and also the scores regarding nausea ($p < 0.04$).

The appropriate use of effective points on ears to control nausea and vomiting as a non-medicine and complementary treatment can alleviate nausea among pregnant women.

Citation: Negarandeh R, Eghbali M, Janani L, Dastaran F, Saatchi K. Auriculotherapy as a means of managing nausea and vomiting in pregnancy: A double-blind randomized controlled clinical trial. *Complement Ther Clin Pract*. 2020 Aug;40:101177. doi: 10.1016/j.ctcp.2020.101177. Epub 2020 May 4. PMID: 32891268.

Nail Biting in Children

Study Title: Auricular Acupressure Improves Habit Reversal Treatment for Nail Biting

Date: Jan 25, 2019

Summary: In a pragmatic, randomized, crossover, pilot clinical trial, 83 nail biters (8-12 years old) received habit reversal treatment in combination with either auricular acupressure intended to reduce anxiety (Method A) or placebo auricular acupressure (Method B). The alternative protocol was employed after a two-month washout period. The primary outcome measured was the 41-item child self-reported version of the Screen for Child Anxiety Related Emotional Disorders, while the secondary outcomes were the nail growth status (NS), which represented the fingernail growth of each finger during habit reversal treatment, simplified plaque index (SPI), and the simplified gingival index (SGI) as measures of oral health. A paired sample t-test was used to assess the differences between Methods A and B, and the differences in the anxiety scores, NS, SGI, and SPI between the baseline and each time point.

Conclusions: Forty-one children successfully completed both arms of the treatments and attended all appointments. There were significant differences in the efficacy of habit reversal treatment, the anxiety score, the nail status, and the SGI in favor of Method A ($p < 0.001$).

Citation: Sun D, Reziwan K, Wang J, Zhang J, Cao M, Wang X, Wang X, Liu J, Li B, Dilimaolati R, Zhong L, Liu Y. Auricular Acupressure Improves Habit Reversal Treatment for Nail Biting. *J Altern Complement Med*. 2019 Jan;25(1):79-85. doi: 10.1089/acm.2018.0063. Epub 2018 Sep 5. PMID: 30183329

Chemotherapy-Induced Taste Alterations

Study Title: Evaluating the efficacy of auricular acupuncture for chemotherapy-induced taste alterations: A pilot randomized controlled trial

Date: Dec 6, 2023

- Summary:** We conducted a pilot randomized controlled trial involving 73 patients randomly assigned to an auricular acupuncture or a control group. The primary outcome was the severity of chemotherapy-induced taste alterations, and the secondary outcomes included quality of life and negative emotions of the patients.
- Conclusions:** A total of 49 participants completed the study. Compared to the control group, patients in the auricular acupuncture group showed significant reductions in discomfort, general taste alterations, and total scores on the Chemotherapy-induced Taste Alteration Scale (all $p < 0.05$). Furthermore, we observed significant improvements in quality of life, including physical function ($p = 0.007$), role function ($p = 0.006$), emotional function ($p = 0.016$), nausea and vomiting ($p = 0.021$), appetite loss ($p = 0.046$), and significant improvements in anxiety and depression ($p < 0.01$).
- Our findings suggest that auricular acupuncture may be a beneficial intervention for managing chemotherapy-induced taste alterations in patients with cancer receiving platinum-based chemotherapy. It may also contribute to improvements in quality of life and negative emotions. However, these results are preliminary, and further evaluation with larger randomized controlled trials is necessary.
- Citation:** Wang M, Xu Y, Wu Y, Liu C, Chen Y, Hua D, Liu Q. Evaluating the efficacy of auricular acupuncture for chemotherapy-induced taste alterations: A pilot randomized controlled trial. *Eur J Oncol Nurs*. 2023 Dec;67:102458. doi: 10.1016/j.ejon.2023.102458. Epub 2023 Oct 30. PMID: 37951073.

Attention Deficit Disorders in Children

- Study Title:** The Effect of Ear Acupressure on Behavioral Problems in Children with Attention-Deficit/Hyperactivity Disorder: A Randomized Clinical Trial
- Date:** Apr 1, 2024
- Summary:** This randomized controlled trial was conducted in 70 children with ADHD who were randomized into 2 groups. The intervention group received ear acupressure in treatment points and the control group received massage at neutral points. Behavioral problems were measured 3 times: (1) baseline; week 4; and week 8. The last timepoint was a follow-up, using the Child Behavior Checklist.
- Conclusions:** The intervention group had fewer behavioral problems at all 3 timepoints than the control group (Cohen's $d = 1.49$; 95% confidence interval at week 4: 20.97, 47.43). The ear acupressure group had a large effect size with respect to reduction of attention problems at week 4 ($d = 1.88$) and week 8 ($d = 1.48$) than the control group.
- Ear acupressure induced significant reduction of the behavioral problems of children with ADHD. Further research can evaluate the use and continuity of the effectiveness of this

treatment as a complementary treatment in addition to the usual treatments for these children.

Citation: Mahdavi F, Asgarian FS, Aghajani M. The Effect of Ear Acupressure on Behavioral Problems in Children with Attention-Deficit/Hyperactivity Disorder: A Randomized Clinical Trial. *Med Acupunct*. 2024 Apr 1;36(2):93-101. doi: 10.1089/acu.2023.0028. Epub 2024 Apr 11. PMID: 38659722; PMCID: PMC11036156.

Urinary Tract Symptoms

Study Title: Auriculotherapy in adults and elderly people with lower urinary tract symptoms: an integrative review

Date: May, 2021

Summary: An integrative literature review. Primary study search was carried out in nine relevant health databases. The characterization of studies regarding the method of application of auriculotherapy was based on the Revised Standards for Reporting Interventions in Clinical Trials of Acupuncture recommendations.

296 studies were found, 17 pre-selected and eight included in the review. Favorable results from auriculotherapy were evidenced in specific populations, such as elderly men with prostatic disorders and individuals undergoing surgical procedures. The main urinary symptoms addressed were frequency, urgency, nocturia, incomplete voiding, intermittency, weak flow, effort to start urination, incontinence, and urinary retention.

Conclusion: Despite the limited number of studies and weaknesses with regard to sample size and different intervention protocols, it is suggested that auriculotherapy, associated or not with other complementary therapies, may contribute to lower urinary tract symptom control in adults and elderly people.

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