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Acne

Son BK, Yun Y, Choi IH. **Efficacy of ah shi point acupuncture on acne vulgaris.** Acupuncture in Medicine. 28(3):126-9, 2010.

Thirty-six patients were randomized to receive acupuncture either at general acupuncture points only or at both general acupuncture points and ah shi points 12 times over 6 weeks. After 12 treatment sessions, there was a significant reduction in the inflammatory acne lesion counts, the Skindex-29 scores and the subjective symptom scores from baseline in both groups, but no significant difference between groups. Acupuncture treatment of moderate acne vulgaris was associated with reduction of inflammatory lesions and improvement of the quality of life.

Addiction

Black S, Carry E, Webber A, et al. **Determining the efficacy of auricular acupuncture for reducing anxiety in patients withdrawing from psychoactive drugs.** Journal of Substance Abuse Treatment. 41(3):279-87, 2011.

One hundred one patients addicted to psychoactive drugs were assigned to 1 of 3 groups: 1) the National Acupuncture Detoxification Association (NADA) auricular acupuncture protocol (ear acupuncture); 2) sham auricular acupuncture; or 3) treatment as usual control group. Anxiety was measured pre- and post-intervention. The intervention was not more effective than the control group or the sham group. The use of auricular acupuncture for addiction treatment was not supported in this study.

Allergic Rhinitis

Brinkhaus B, Ortiz M, Witt CM, et al. **Acupuncture in patients with seasonal allergic rhinitis: a randomized trial.** Ann Intern Med. 158(4):225-34, 2013.

This study evaluated the effects of acupuncture in patients with seasonal allergic rhinitis in 422 persons. There were 3 interventions: Acupuncture plus rescue medication (cetirizine), sham acupuncture plus rescue medication or rescue medication alone. Twelve treatments were provided over 8 weeks in the first year. Acupuncture led to statistically significant improvements in disease-specific quality of life and antihistamine use measures after 8 weeks of treatment compared with sham acupuncture and with rescue medication alone.

Brinkhaus B, Hummelsberger J, Kohlen R, et al. **Acupuncture and Chinese herbal medicine in the treatment of patients with seasonal allergic rhinitis: a randomized-controlled clinical trial.** Allergy. 59(9):953-60, 2004.

Fifty two patients with typical symptoms of seasonal allergies were randomly assigned to either an active treatment group of acupuncture and Chinese herbal medicine or a control group of placebo acupuncture and a non-specific Chinese herbal formula. All patients received acupuncture treatment once a week and Chinese herbal formula three times daily for six weeks. Compared with patients in the control group, patients in the active treatment group showed a significant after-treatment improvement on three out of four measurement scales. The results of this study suggested that traditional Chinese therapy may be an effective and safe treatment option for patients with seasonal allergic rhinitis.

Ng DK, Chow PY, Ming SP, et al. **A double-blind, randomized, placebo-controlled trial of acupuncture for the treatment of childhood persistent allergic rhinitis.** Pediatrics. 114(5):1242-7, 2004.

Eighty five children with persistent allergic rhinitis were randomized to receive either active acupuncture or sham acupuncture for 8 weeks. Acupuncture was performed twice per week for both groups. There were significantly lower daily rhinitis scores and more symptom-free days for the group receiving active acupuncture, during both the treatment and follow-up periods. This study showed that active acupuncture was more effective than sham acupuncture in decreasing the symptom scores for persistent allergic rhinitis and increasing the symptom-free days. No serious adverse effect was

identified. A large-scale study is required to confirm the safety of acupuncture for children.

Angina Pectoris

Ballegaard S. **Acupuncture and the cardiovascular system: a scientific challenge.** *Acupuncture Medicine.* 16(1):2-9, 1998.

A randomized controlled trial of 49 patients with angina pectoris received acupuncture. Cardiological, neurophysiological and psychological observations were made. Needling was found to improve the working capacity of the heart and was found to activate cardiovascular autoregulatory mechanisms in 24 healthy persons. A controlled trial group of 69 patients with severe angina pectoris were followed for 2 years after treatment. The incidence of cardiac death or myocardial infarction was 7% compared to 15-20% for the control group. Surgery was postponed in 61% of patients due to improvement, and the annual number of in-hospital days was reduced by 90%.

Asthma

Reinhold T, Brinkhaus B, Willich SN, Witt C. **Acupuncture in patients suffering from allergic asthma: is it worth additional costs?** *J Altern Complement Med.* 2014 Mar;20(3):169-77.

Three hundred and six patients were included in this study. Treating patients who have allergic bronchial asthma with acupuncture in addition to routine care resulted in additional costs and better effects in terms of patients' quality of life. Acupuncture therefore seems to be a useful and cost-effective add-on treatment.

Scheewe S, Vogt L, Minakawa S, et al. **Acupuncture in children and adolescents with bronchial asthma: a randomized controlled study.** *Complement Ther Med.* 19(5):239-46, 2011.

This randomized controlled trial evaluated the immediate effects of acupuncture as an add-on therapy in children and adolescents with bronchial asthma in 46 acupuncture and 47 control patients. With acupuncture, the peak expiratory flow variability differed significantly from that of the control patients' group. The acupuncture group also differed significantly in terms of anxiety. The lung function tests showed no differences between groups.

Back Pain, Chronic

Cho YJ, Song YK, Cha YY, et al. **Acupuncture for chronic low back pain: a multicenter, randomized, patient-assessor blind, sham-controlled clinical trial.** *Spine.* 38(7):549-57, 2013.

This study investigated the effectiveness of acupuncture for chronic low back pain (cLBP) in 130 adults aged 18 to 65 years with nonspecific LBP lasting for at least last 3 months. Participants received individualized real acupuncture treatments or sham acupuncture treatments for more than 6 weeks (twice a week) from Korean Medicine doctors. Significant difference in VAS score for bother someness and pain intensity score of cLBP was found between the two groups at 8 weeks. In addition, those two scores improved continuously until 3-month follow-up. Disability and depression scores improved in both groups.

Hunter RF, McDonough SM, Bradbury I, et al. **Exercise and Auricular Acupuncture for Chronic Low-back Pain: A Feasibility Randomized-controlled Trial.** *Clinical Journal of Pain.* 28(3):259-67, 2012.

This randomized controlled trial investigated how auricular (ear)acupuncture affects chronic back pain. Auricular acupuncture was safe and demonstrated additional benefits when combined with exercise for people with chronic lower back pain.

Hopton A, MacPherson H. **Acupuncture for chronic pain: is acupuncture more than an effective placebo? A systematic review of pooled data from meta-analyses.** *Pain Pract.* 2):94-102, 2010.

Acupuncture improved back pain, knee pain and headache in the short term. It improved knee pain and tension-type headache in the long term.

Trigkilidas D. **Acupuncture therapy for chronic lower back pain: a systematic review.** *Ann R Coll Surg Engl.* 92(7):595-8, 2010.

Four studies in this review indicated that acupuncture can be better than usual care in treating chronic low back pain, especially when patients have positive expectations about acupuncture.

Haake M, Muller H, Schade-Brittinger C, et al. **German Acupuncture Trials (GERAC) for Chronic**

Low Back Pain: Randomized, Multicenter, Blinded, Parallel-Group Trial With 3 Groups.

Archives of Internal Medicine. 167(17):1892-1898, 2007.

In this randomized controlled trial of 1162 chronic low back pain patients aged 18 to 86 years, patients had ten 30-minute sessions of acupuncture, sham acupuncture consisting of superficial needling at nonacupuncture points, or conventional therapy, a combination of drugs, physical therapy, and exercise. At 6 months, response rate was 47.6% in the acupuncture group, 44.2% in the sham acupuncture group, and 27.4% in the conventional therapy group. Low back pain improved after acupuncture treatment for at least 6 months. Effectiveness of acupuncture, either verum or sham, was almost twice that of conventional therapy.

Brinkhaus B, Witt CM, Jena S, et al. Acupuncture in patients with chronic low back pain: a randomized controlled trial. Archives of Internal Medicine. 166(4):450-7, 2006.

In this randomized controlled trial, three groups totaling 298 patients received either acupuncture, minimal acupuncture (superficial needling at nonacupuncture points) or a waiting list control. Between baseline and week 8, pain intensity decreased in all groups. Acupuncture was more effective in improving pain than no acupuncture treatment in patients with chronic low back pain; there were no significant differences between acupuncture and minimal acupuncture.

Sator-katzenschlager, SM, Scharbert G, Kozek-Langenecker SA, et al. The short- and long-term benefit in chronic low back pain through adjuvant electrical versus manual auricular acupuncture. Anesthesia & Analgesia. 98(5):1359-64, 2004.

In this randomized double-blind controlled study, auricular electroacupuncture (EA) was compared to conventional manual auricular acupuncture (CO) to test its ability to relieve pain in chronic low back pain patients. Sixty one patients received either electroacupuncture or manual acupuncture for one treatment weekly over 6 weeks, with the needles withdrawn after 48 hours of insertion. Pain relief was significantly better in the EA group during the study and the 3-month follow up period as compared with the CO group as was psychological well-being, activity, and sleep. In addition the use of analgesic rescue medication was less and more patients returned to full-time work in the electroacupuncture group. Neuropathic pain in particular improved in patients treated with EA.

Manheimer E, White A, Berman B, et al. Meta-analysis: acupuncture for low back pain. Annals of Internal Medicine. 142(8): 651-63, 2005.

Randomized controlled trials comparing needle acupuncture with sham acupuncture, other sham treatments, no additional treatment or another active treatment for patients with low back pain were included in the review. The meta-analysis showed that acupuncture is significantly more effective than sham treatment and no additional treatment for the short-term relief of chronic back pain. While acupuncture effectively relieved chronic low back pain, results for acute low back pain were sparse and inconclusive.

Blood Pressure

Flachskampf FA, Gallasch J, Gefeller O, et al. Randomized trial of acupuncture to lower blood pressure. Circulation. 115(24):3121-9, 2007.

160 outpatients with uncomplicated arterial hypertension received either a 6-week course of active acupuncture or sham acupuncture (22 sessions of 30 minutes' duration). Seventy-eight percent were receiving antihypertensive medication, which remained unchanged. There was a significant difference in post-treatment blood pressures between the active and sham acupuncture groups at the end of treatment. In the active acupuncture group, mean 24-hour ambulatory systolic and diastolic blood pressures decreased significantly after treatment by 5.4 mm Hg and 3.0 mm Hg respectively. At 3 and 6 months, mean systolic and diastolic blood pressures returned to pretreatment levels in the active treatment group.

Cancer-related symptoms

Victorson D, Beaumont JL, Mahadevan R, et al. Acupuncture-Related Quality of Life Changes Using PROMIS Computer Adaptive Tests in a Pragmatic Trial with Oncology and General Integrative Medicine Patients: The Role of Baseline Acupuncture Expectations. The Journal of Alternative and Complementary Medicine. July 2016, ahead of print. doi:10.1089/acm.2015.0121. This study examined longitudinal changes in quality of life (QOL) in patients receiving acupuncture treatment using PROs from the NIH Patient Reported Outcomes Measurement Information System (PROMIS). It showed the positive effects of acupuncture over time on anxiety, depression, pain

interference, and sleep disturbance regardless of pre-treatment expectations.

Molassiotis, A, J. Bardy, J. Finnegan-John, et al. **Acupuncture for cancer-related fatigue in patients with breast cancer: A pragmatic randomized controlled trial.** *Journal of Clinical Oncology.* 30(36):4470-4476, 2012.

Three hundred two outpatients with breast cancer were randomly assigned to usual care and 227 patients to acupuncture plus usual care. Treatment was delivered by acupuncturists once a week for 6 weeks through needling three pairs of acupoints. The usual care group received a booklet with information about fatigue and its management. The intervention improved general fatigue as well as mental and physical fatigue, anxiety and depression, quality of life and well-being. Acupuncture was an effective intervention for managing the symptom of cancer-related fatigue and improving patients' quality of life.

Cancer Pain Relief

Alimi D, Rubino C et al. **Analgesic effect of auricular acupuncture for cancer pain: a randomized, blinded, controlled trial.** *Journal of Clinical Oncology.* 21(22):4120-6, 2003.

This study examined the efficacy of auricular acupuncture in decreasing pain intensity in cancer patients. Ninety patients were randomly divided into three groups: one group received two courses of auricular acupuncture and two placebo groups received auricular acupuncture at placebo points. Pain intensity decreased by 36% at 2 months from baseline in the group receiving acupuncture; there was little change for patients receiving placebo (2%). The difference between groups was statistically significant. The observed reduction in pain intensity represents a clear benefit from auricular acupuncture for these cancer patients who were in pain, despite stable analgesic treatment.

He JP, Friedrich M, Ertan AK, Muller K, Schmidt, W. **Pain-relief and movement improvement by acupuncture after ablation and axillary lymphadenectomy in patients with mammary cancer.** *Clinical & Experimental Obstetrics & Gynecology.* 26(2):81-4, 1999.

Forty-eight patients with mammary cancer treated with acupuncture after ablation and axillary lymphadenectomy were compared with 32 patients with the same operation who did not receive acupuncture. Statistically significant differences were found in pain relief and arm movements in the group that received acupuncture on the 5th and 7th post-operative days and up to discharge.

Cardiac Arrhythmia

VanWormer AM, Lindquist R, Sendelbach SE. **The effects of acupuncture on cardiac arrhythmias: a literature review.** *Heart & Lung.* 37(6):425-31, 2008.

Acupuncture has been documented to improve many aspects of cardiovascular functioning. According to the eight studies reviewed, 87% to 100% of participants converted to normal sinus rhythm after acupuncture. Acupuncture seems to be effective in treating several cardiac arrhythmias. Given these positive results, more rigorous studies are now needed with standardized treatment protocols, diverse patient populations, and long-term follow-up.

Carpal Tunnel Syndrome

Khosrawi S, Moghtaderi A, Haghightat S. **Acupuncture in treatment of carpal tunnel syndrome: A randomized controlled trial study.** *J Res Med Sci.* 17(1):1-7, 2012.

This study assessed the short-term effects of acupuncture in treatment of mild to moderate carpal tunnel syndrome in a randomized controlled trial comparing night splinting, vitamin B1, B6 and sham acupuncture for 4 weeks to 8 sessions of true acupuncture over 4 weeks and night splinting in 64 patients. Acupuncture improved the overall subjective symptoms of carpal tunnel syndrome and can be used in comprehensive care programs of these patients.

Chemotherapy-related Nausea and Vomiting

Yeh CH, Chien LC, Chiang YC, et al. **Reduction in nausea and vomiting in children undergoing cancer chemotherapy by either appropriate or sham auricular acupuncture points with standard care.** *Journal of Alternative & Complementary Medicine.* 18(4):334-40, 2012 Apr.

Chemotherapy-induced nausea and vomiting (CINV) symptoms were assessed in 10 patients just prior to and for 7 days following three rounds of chemotherapy drugs (CTX). Patients received standard care (SC) and just prior to receiving the second round of CTX, patients were randomized into one of two treatment conditions: ear acupressure in addition to standard care (AAP) or auricular acupressure using sham auricular points (SAP) in addition to standard care. For the third round of CTX, they were

switched to the other treatment group. Patients in the AAP group reported significantly lower occurrence and severity of nausea and vomiting than patients in the SC group. There were no significant differences of nausea and vomiting for patients between the AAP and SAP groups. These early findings showed evidence that AAP was acceptable to the children and their parents to prevent/treat CINV.

Chemotherapy-induced nerve pain

Schroeder S, Meyer-Hamme G, Epplee S. **Acupuncture for chemotherapy-induced peripheral neuropathy (CIPN): a pilot study using neurography.** *Acupuncture in Medicine.* 30(1):4-7, 2012. Chemotherapy-induced peripheral neuropathy (CIPN) can produce severe nerve pain and is a potential reason for terminating or suspending chemotherapy treatments. A pilot study evaluated the therapeutic effect of acupuncture on CIPN as measured by changes in nerve conduction studies (NCS) in six patients treated with acupuncture for 10 weeks in addition to best medical care and five control patients who received the best medical care but no specific treatment for CIPN. In five of the six patients treated with acupuncture, NCS improved after treatment. The data suggest that acupuncture has a positive effect on CIPN. The encouraging results of this pilot study justify a randomized controlled trial of acupuncture in CIPN on the basis of NCS.

Chronic Obstructive Pulmonary Disease

Suzuki M, Muro S, Ando Y, et al. **A randomized, placebo-controlled trial of acupuncture in patients with chronic obstructive pulmonary disease (COPD): the COPD-acupuncture trial (CAT).** *Arch Intern Med.* 172(11):878-86, 2012.

Shortness of breath (dyspnea on exertion) is a major symptom of chronic obstructive pulmonary disease (COPD) and is difficult to control. This study of 68 patients with COPD evaluated whether acupuncture is superior to placebo needling in improving dyspnea in patients on standard medication. Participants were randomly assigned to real acupuncture (34 patients) or placebo needling (34 patients) for 12 weeks. After 12 weeks, the 6-minute walk test was significantly better in the real acupuncture group vs. the placebo acupuncture group. Patients with COPD who received real acupuncture also experienced improvement in the 6-minute walk distance during exercise, indicating better exercise tolerance and reduced shortness of breath. This study clearly demonstrates that acupuncture is a useful additional therapy in reducing dyspnea on exertion in patients with COPD.

Congestive Heart Failure

Kristen AV, Schuhmacher B, Strych K, et al. **Acupuncture improves exercise tolerance of patients with heart failure: a placebo-controlled pilot study.** *Heart.* 96(17):1396-400, 2010.

Seventeen patients with congestive heart failure participated in this randomized controlled pilot study. Patients who received acupuncture demonstrated better post-exercise recovery after maximal exercise. In addition, they displayed greater heart rate variability than patients in the placebo group. Overall, these findings indicate that acupuncture may help improve the exercise tolerance of patients with congestive heart failure.

Depression

MacPherson H, Richmond S, Bland M, et al. **Acupuncture and Counselling for Depression in Primary Care: A Randomised Controlled Trial.** *PLOS Medicine.* 10(9): e1001518, 2103.

This study evaluated acupuncture vs. usual care and counseling vs. usual care alone for 755 patients who continue to experience depression. The primary outcome was the difference in mean Patient Health Questionnaire (PHQ-9) scores at 3 months. Patients attended a mean of ten sessions for acupuncture and nine sessions for counseling. Compared to usual care, there was a statistically significant reduction in mean depression scores at 3 months and 12 months for acupuncture and counseling when compared to usual care alone.

Mischoulon D, Brill CD, Ameral VE, et al. **A pilot study of acupuncture monotherapy in patients with major depressive disorder.** *Journal of Affective Disorders.* 141(2-3):469-73, 2012.

This pilot study examined the effectiveness and safety of an acupuncture protocol as monotherapy for major depressive disorder. Thirty outpatients received 8 weeks of standardized 30-minute acupuncture treatment using 5 specific body points and concurrent electroacupuncture (2Hz current) at two points along the head, once or twice weekly. Depression scores decreased in both the once and twice weekly groups. Response rates were 62% for the once-weekly acupuncture group and 22% for the twice-weekly acupuncture group. Standardized acupuncture treatment was safe, well-tolerated and effective,

suggesting good feasibility in outpatient settings. Replication in controlled trials is warranted.

Lyons Z, van der Watt G, Shen Z, Janca A. **Acupuncture and Chinese herbs as treatments for depression: an Australian pilot study.** *Complementary Therapies in Clinical Practice.* 18(4):216-20, 2012.

This study looked at the effectiveness of acupuncture and Chinese herbs as treatments for depression, and to assess beliefs, attitudes and treatment experience. Nineteen participants received acupuncture or acupuncture and Chinese herbs combined for five weeks. Acupuncture was given for 30min twice a week and herbs were taken three times a day. A Beliefs and Attitudes questionnaire was administered at baseline and Treatment Experience questionnaire post treatment. Outcome measure was improvement in depressive symptoms at the end of treatment period. Acupuncture was effective in reducing depressive symptoms. However, herbs did not have an additional treatment effect. Beliefs and attitudes were positive.

Ortiz M, Manbera R, Schnyera RN, et al. **Acupuncture for Depression during Pregnancy: a Randomized Controlled Trial.** *Obstet Gynecol.* 115:511–20, 2010.

In this randomized controlled trial of 150 pregnant women with major depressive disorder, patients either received 12 true acupuncture treatments or sham acupuncture or massage over 8 weeks. The short acupuncture protocol demonstrated symptom reduction and a response rate comparable to those observed in standard depression treatments of similar length and could be a viable treatment option for depression during pregnancy.

Zhang W, Yang X, Zhong B. **Combination of acupuncture and fluoxetine for depression: a randomized, double-blind, sham-controlled trial.** *Journal of Alternative & Complementary Medicine.* 15(8): 837-44, 2009.

This study assessed the efficacy and safety of acupuncture in combination with fluoxetine as an intervention for major depressive disorder (MDD). A total of 80 patients were randomized to two groups: VA group received true acupuncture, 10 mg/day fluoxetine and placebo; SA group received sham acupuncture and 20-30 mg/day fluoxetine. Acupuncture was applied 5 times a week over a period of 6 weeks. At the end of the treatment period, the therapeutic response rates were not statistically significant between groups (80.0% for the true acupuncture group and 77.5% for the sham acupuncture group, respectively). Patients in the true acupuncture group showed better improvement in symptoms of anxiety and side-effects of antidepressants.

Additionally applied standardized acupuncture to low-dose fluoxetine for depression is as effective as a recommended dose of fluoxetine treatment. Depressive patients with severe anxious symptoms and/or intolerable side-effects of antidepressants can benefit from it.

Manber R, Schnyer RN, Allen JJ, et al. **Acupuncture: a promising treatment for depression during pregnancy.** *Journal of Affective Disorders.* 83(1):89-95, 2004.

Sixty-one pregnant women with major depressive disorder were randomly assigned to one of three treatments delivered over 8 weeks: an active acupuncture, an active control acupuncture, and massage. Response rates at the end of the acute phase were statistically significantly higher for acupuncture(69%) than for massage(32%), with an intermediate control acupuncture response rate (47%). The acupuncture group also exhibited a significantly higher average rate of reduction in depression scores from baseline to the end of the first month of treatment than the massage group. Although generalizability is limited by the small sample size, acupuncture holds promise for the treatment of depression during pregnancy.

Roschke J, Wolf C, Muller MJ, et al. **The benefit from whole body acupuncture in major depression.** *Journal of Affective Disorders.* 57(1-3):73-81, 2000.

This single blind, placebo-controlled study investigated the efficacy of acupuncture added to drug treatment in major depression. Seventy patients with a major depressive episode were randomly assigned to three different treatment groups: active acupuncture, placebo acupuncture and a control group. All three groups were also treated with the antidepressant mianserin. The active acupuncture group received acupuncture at specific points considered effective in the treatment of depression. The placebo group was treated with acupuncture at non-specific locations and the control group received pharmacological treatment plus clinical management. Acupuncture was given three times a week for four weeks. Patients who received acupuncture improved slightly more than patients treated with mianserin alone and the course of their depression improved more than treatment with mianserin alone.

However, no differences were detected between placebo and active acupuncture.

Dermatitis

Pfab F, Kirchner MT, Huss-Marp J, et al. **Acupuncture compared with oral antihistamine for type I hypersensitivity itch and skin response in adults with atopic dermatitis: a patient- and examiner-blinded, randomized, placebo-controlled, crossover trial.** *Allergy*. 67(4):566-73, 2012.

Itch is the major symptom of atopic dermatitis (AD). This study evaluated acupuncture and antihistamine itch therapy (cetirizine) on type I hypersensitivity itch and skin reaction in atopic dermatitis in 20 patients with AD, comparing true acupuncture, cetirizine, placebo interventions and no intervention. Both true acupuncture and cetirizine significantly reduced type I hypersensitivity itch in patients with AD, compared with both placebo and no intervention. Timing of acupuncture application was important, as it had the most significant effect on itch.

Diabetes mellitus

Liang F, Koya D. **Acupuncture: is it effective for treatment of insulin resistance?** *Diabetes Obes Metab*. 2010; 12(7):555-69.

Acupuncture improved metabolic disorders such as hyperglycemia, overweight, excessive appetite, elevated blood lipids, inflammation, and insulin defect, all of which contribute to the development of insulin resistance.

Dry Mouth (due to Cancer and radiation therapy)

Garcia MK, Chiang JS, Cohen L, et al. **Acupuncture for radiation-induced xerostomia in patients with cancer: A pilot study.** *Head Neck*. 31(10):1360-8, 2009.

This pilot study evaluated if acupuncture can alleviate radiation-induced dry mouth (xerostomia) in patients with cancer treated with radiation. Nineteen patients received acupuncture twice a week for 4 weeks. Xerostomia inventory and patient benefit questionnaire scores were significantly better after acupuncture on weeks 4 and 8 than at baseline. At week 8, there was a significant difference in physical well-being. At weeks 5 and 8, there were significant differences in the total score. Acupuncture was effective for radiation-induced xerostomia in this small pilot study.

Morganstein WM. **Acupuncture in the treatment of xerostomia [dry mouth]: Clinical report.** *General Dentistry*. 53(30):223-226, 2005.

This article reviews the causes and symptomatology of xerostomia (dry mouth) and approaches for treating it, including the use of acupuncture. Seven patients with xerostomia were treated once a week for four to five weeks using acupuncture, followed by two or three biweekly sessions. Eight months after treatment, all patients reported a reduction in dry mouth symptoms, as well as an increase in saliva flow and the ability to eat and speak, and improved sleep. It is recommended that acupuncture be considered as a viable adjunct when treating xerostomia.

Dysmenorrhea (pain during menstruation)

Smith CA, Crowther CA, Petrucco O, et al. **Acupuncture to Treat Primary Dysmenorrhea in Women: A Randomized Controlled Trial.** *Evidence-Based Complementary and Alternative Medicine*. 2011;2011:612464.

This randomized controlled trial included 92 women between 14 and 25 with a diagnosis of primary dysmenorrhea. At 6 months, patients who received acupuncture reported significantly lower scores in all outcome measures than patients in the placebo group. At the 3 and 12 month intervention periods, there was no significant difference between the acupuncture and placebo groups. Overall, the results suggest that acupuncture may have a small effect in treating primary dysmenorrhea.

Fibromyalgia

Vas J, Santos-Rey K, Navarro-Pablo R, et al. **Acupuncture for fibromyalgia in primary care: a randomized controlled trial.** *Acupunct Med*. 2016 Feb 15. pii: acupmed-2015-010950

153 participants with fibromyalgia were randomly assigned to either individualized acupuncture (IA) or sham acupuncture (SA) for one session per week lasting 20 minutes in addition to usual pharmacological treatment. Results revealed that the decrease in pain intensity at 10 weeks was greater in the IA group than in the SA group.

During the follow-up period, significant differences in favor of the IA group persisted at 12 months. Individualized acupuncture treatment in patients with fibromyalgia proved effective for pain relief compared with placebo treatment. The effect persisted at 1 year and its side effects were mild and

infrequent. The use of individualized acupuncture in patients with fibromyalgia was recommended.

Martin DP, Sletten CD, Williams BA, and Berger IH. **Improvement in fibromyalgia symptoms with acupuncture: results of a randomized controlled trial.** Mayo Clinic Proceedings. 81(6):749-57, 2006.

Twenty-five patients with fibromyalgia receiving true acupuncture were compared with a control group of 25 patients who received simulated acupuncture. All patients met American College of Rheumatology criteria for fibromyalgia and had tried conservative symptomatic treatments other than acupuncture. Total fibromyalgia symptoms were significantly improved in the acupuncture group compared with the control group during the study period. Fatigue and anxiety were the most significantly improved symptoms during the follow-up period. Activity and physical function levels did not change.

Assefi NP, Sherman KJ, Jacobsen C, et al. **A randomized clinical trial of acupuncture compared with sham acupuncture in fibromyalgia.** Annals of Internal Medicine. 143(1):10-9, 2005.

In this randomized, controlled clinical trial, 100 adults with fibromyalgia were given twice-weekly treatment for 12 weeks with an acupuncture program that was specifically designed to treat fibromyalgia, or 1 of 3 sham acupuncture treatments. The mean subjective pain rating among patients who received acupuncture for fibromyalgia did not differ significantly from that in the sham acupuncture group.

Deluze C, Bosia L, Zirbs A, Chantraine A, Vischer TL. **Electroacupuncture in fibromyalgia: results of a controlled trial.** British Medical Journal. 305(6864):1249-52, 1992.

In a randomized controlled trial of 70 patients given electro-acupuncture or sham acupuncture, seven out of eight outcome measures showed a significant improvement in the acupuncture group and no improvement in the sham treatment group. Differences between the groups were significant for five and of the eight outcome measures.

Headache/Migraine

Sun Y, Gan TJ. **Acupuncture for the management of chronic headache: a systematic review.** Anesthesia & Analgesia. 107(6):2038-47, 2008.

Thirty-one studies were included in this review. The combined response rate in the acupuncture group was significantly higher compared with sham acupuncture either at the early follow-up period or late follow-up period. Combined data also showed acupuncture was superior to medication therapy for headache intensity, headache frequency, physical function, and response rate.

Facco E, Liguori A, Petti F, et al. **Traditional acupuncture in migraine: a controlled, randomized study.** Headache. 48(3):398-407, 2008.

This randomized controlled trial of 127 patients with migraine without aura compared sham acupuncture to real acupuncture plus Rizatriptan (a medication used to treat migraine). Subjects who received true acupuncture treatment demonstrated the most consistent improvements on the migraine disability assessment questionnaire.

Linde K, Streng A, Jurgens S, et al. **Acupuncture for patients with migraine: a randomized controlled trial.** JAMA. 293(17):2118-25, 2005.

In this randomized controlled trial involving 302 patients (88% women), mean age of 43 years, with migraine headaches, patients were treated at 18 outpatient centers with acupuncture, sham acupuncture, or waiting list control for 12 sessions per patient over 8 weeks. No difference was detected between the acupuncture and the sham acupuncture groups, but there was a difference between the acupuncture group compared with the waiting list group. The proportion of responders (reduction in headache days by at least 50%) was 51% in the acupuncture group, 53% in the sham acupuncture group, and 15% in the waiting list group. Acupuncture was no more effective than sham acupuncture in reducing migraine headaches although both interventions were more effective than a waiting list control.

Melchart D, Streng A, Hoppe A, et al. **Acupuncture in patients with tension-type headache: randomized controlled trial.** BMJ. 331(7513): 376-82, 2005.

In this randomized controlled multicenter trial, 270 patients in 28 outpatient centers (74% women,

mean age 43) with episodic or chronic tension-type headache were treated with acupuncture, minimal acupuncture (superficial needling at non-acupuncture points), or waiting list control for 12 sessions over eight weeks. The number of days with a headache decreased by 7.2 days in the acupuncture group compared with 6.6 days in the minimal acupuncture group and 1.5 days in the waiting list group. The acupuncture intervention investigated in this trial was more effective than no treatment but not significantly more effective than minimal acupuncture for the treatment of tension-type headache.

Vickers AJ, Rees RW, Zollman CE, et al. **Acupuncture for chronic headache in primary care: large, pragmatic, randomised trial.** *BMJ.* 328(7442):744, 2004.

Researchers tested 401 patients aged 18 to 65 who had two or more migraine or tension-type headaches a month. All patients received standard care from their general practitioner, and 161 also received acupuncture (up to 12 treatments over three months). It was found that patients who received a combination of acupuncture plus medication reported fewer and less-intense headaches than those who were given medication alone. At 12 months, patients who had received acupuncture reported 22 fewer days of headaches per year, 15% less medication use, 25% fewer visits to their doctors and 15% fewer missed days at work. The researchers concluded that acupuncture leads to persisting, clinically relevant benefits for primary care patients with chronic headache, particularly migraine.

Heart Failure

Kristen AV, Schuhmacher B, Strych K, et al. **Acupuncture improves exercise tolerance of patients with heart failure: a placebo-controlled pilot study.** *Heart.* 96(17):1396-400, 2010.

Seventeen stable patients with congestive heart failure (CHF) receiving optimized heart failure medication were randomized into a true acupuncture and placebo acupuncture group. No improvements of the cardiac ejection fraction or peak oxygen uptake were found, but the ambulated 6 minute walk distance was remarkably increased in the true acupuncture group. Post-exercise recovery after maximal exercise, ventilatory efficiency and heart rate variability were also improved after true acupuncture. Acupuncture may become an additional therapeutic strategy to improve the exercise tolerance of patients with CHF, potentially by improving skeletal muscle function.

Herpes Zoster Pain (Shingles)

Ursini T, Tontodonati M, Manzoli L, et al. **Acupuncture for the treatment of severe acute pain in herpes zoster: results of a nested, open-label, randomized trial in the VZV Pain Study.** *BMC Complement Altern Med.* 11:46, 2011.

Within the VZV Pescara study, pain was assessed in herpes zoster patients both at the beginning and at the end of treatment. One hundred and two patients were randomized to receive either acupuncture (52 patients) or standard drug therapy (50 patients) for 4 weeks. Both interventions were largely effective. This controlled and randomized trial provides the first evidence of a potential role of acupuncture for the treatment of acute herpetic pain.

Infertility

Smith CA, Ussher JM, Perz J, et al. **The effect of acupuncture on psychosocial outcomes for women experiencing infertility.** *Journal of Alternative & Complementary Medicine.* 17(10):923-30, 2011.

A randomized controlled trial was conducted assessing the effects of acupuncture on thirty-two women diagnosed with infertility. The women received six sessions of acupuncture over an eight week period. Women in the acupuncture group reported less social concern and less relationship concern compared to the wait list control. The women from the acupuncture group also reported a physical and psychological sense of relaxation and calmness, and a changed perspective in relation to coping. It was concluded that acupuncture may be useful in assisting with the reduction of fertility related stress.

Andersen D, Løssla K, Andersen AN, et al. **Acupuncture on the day of embryo transfer: a randomized controlled trial of 635 patients.** *Reprod Biomed Online.* 2010 Apr. [Epub ahead of print].

In this randomized controlled trial of 635 patients undergoing in vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI), patients either received acupuncture according to traditional Chinese medicine or sham acupuncture. Acupuncture given at the time of embryo transfer had no significant effects on pregnancy rates of live birth rates in patients undergoing IVF or ICSI.

Manheimer E, Zhang G, Udoff L, et al. **Effects of acupuncture on rates of pregnancy and live birth among women undergoing in vitro fertilisation: systematic review and meta-analysis.** *BMJ.*

336(7643):545-9, 2008.

This review of seven randomized controlled trials with 1,366 women undergoing in vitro fertilization, compared those who received acupuncture within one day of embryo transfer to those who received sham acupuncture or not added treatment. Complementing the embryo transfer process with acupuncture was associated with significant and clinically relevant improvements in clinical pregnancy, ongoing pregnancy and live birth.

In vitro fertilization

Moy I, Magdy A, Milad P, et al. **Randomized controlled trial: effects of acupuncture on pregnancy rates in women undergoing in vitro fertilization.** *Fertil Steril.* 95(2):583-7, 2011.

In this randomized controlled trial of 160 patients, sham acupuncture was compared to true acupuncture given 25 minutes before and after in vitro fertilization. No significant difference was observed in the pregnancy rates of women receiving true acupuncture treatment and those receiving sham acupuncture.

Irritable Bowel Syndrome

Macpherson H, Tilbrook H, Bland MJ, et al. **Acupuncture for irritable bowel syndrome: primary care based pragmatic randomised controlled trial.** *BMC Gastroenterol.* 12(1):150, Oct 2012.

This study evaluated the effectiveness of acupuncture for irritable bowel syndrome in primary care when used in addition to usual care. Two hundred thirty-three patients with irritable bowel syndrome for approximately 13 years were randomized to 10 weekly individualized acupuncture sessions plus usual care or usual care alone. There was a statistically significant difference between groups at three months favoring acupuncture with a reduction in IBS Symptom Severity Score of -27.43. Acupuncture provided an additional benefit over usual care alone and this benefit was sustained over the longer term. Acupuncture should be considered as a treatment option to be offered in primary care alongside other evidenced based treatments.

Lembo AJ, Conboy L, Kelley JM, et al. **A treatment trial of acupuncture in IBS patients.** *American Journal of Gastroenterology.* 104(6):1489-97, 2009.

In this randomized controlled trial of 230 adult patients with irritable bowel syndrome (IBS), both groups showed improvements in their symptoms over the course of the study.

Schneider A, Enck P, Streitberger K, et al. **Acupuncture treatment in irritable bowel syndrome.** *Gut.* 55(5):649-54, 2006.

Forty-three patients with IBS were randomly assigned to receive either acupuncture or sham acupuncture for 10 sessions. Both groups improved significantly in global quality of life, with no differences between the groups. Acupuncture in IBS was found to be primarily a placebo response. Based on the small differences found between both groups, a larger study would be necessary to prove the efficacy of acupuncture over sham acupuncture for IBS.

Knee Pain

White A, Foster NE, Cummings M, et al. **Acupuncture treatment for chronic knee pain: a systematic review.** *Rheumatology.* 46(3):384-90, 2007.

Combining five studies in 1,334 patients, acupuncture was superior to sham acupuncture for both pain and function. The differences were still significant at long-term follow-up. Acupuncture was also significantly superior to no additional intervention. Further research is warranted to confirm these findings and provide more information on long-term effectiveness.

Lung Cancer

Kasymjanova G, Grossman M, Tran T, et al. **The potential role for acupuncture in treating symptoms in patients with lung cancer: an observational longitudinal study.** *Curr Oncol.* 20(3):152-7, 2013.

Most lung cancer patients experience multiple symptoms related either to the disease or its treatment including pain, depression, anxiety, nausea, and poor well-being. This study evaluated the effect of acupuncture as a potential treatment modality in 33 symptomatic lung cancer patients. All patients received 45-minute sessions of acupuncture, 1-2 times weekly for a minimum of 4 sessions. Statistically significant improvements in pain, appetite, nausea, nervousness, and well-being were seen. A clinically important improvement was reported by 61% of patients for pain and by 33% for well-being. A significant positive correlation between improved well-being and the number of acupuncture

sessions was observed. This is the first study to demonstrate that acupuncture may be an effective approach for improving symptoms — in particular pain and well-being-in lung cancer patients. Acupuncture is a safe and minimally invasive procedure, and it is potentially useful even in patients undergoing anticancer treatment.

Menopausal Symptoms

Hachul H, Garcia TK, Maciel AL, et al. **Acupuncture improves sleep in postmenopause in a randomized, double-blind, placebo-controlled study.** *Climacteric*. 16(1):36-40, 2013.

This study evaluated the effectiveness of acupuncture therapy on sleep parameters, depression symptoms and quality of life in postmenopausal women with insomnia. It included 18 postmenopausal women aged 50-67 years old divided into two groups of ten sessions each: acupuncture and 'sham' acupuncture. A polysomnography exam (PSG) and questionnaires (WHOQOL-BREF, Beck Depression Inventory and Pittsburgh Sleep Quality Index) were completed by all patients before and after the treatment period. Acupuncture resulted in significantly lower scores on the Pittsburgh Questionnaire and an improvement in psychological WHOQOL. It was effective in improving reported sleep quality and quality of life in postmenopausal women with insomnia.

Kim DI, Jeong JC, Kim KH, et al. **Acupuncture for hot flushes in perimenopausal and postmenopausal women: a randomised, sham-controlled trial.** *Acupunct Med*. 29(4):249-56, 2011.

The study included 54 perimenopausal or postmenopausal women with moderate or severe hot flushes who received either real or sham acupuncture. The real acupuncture group received 11 acupuncture treatments for 7 weeks, and the control group underwent sham acupuncture on non-acupuncture points during the same period. Both groups were followed for 8 weeks. The mean change in hot flush scores was -6.4 in the real acupuncture group and -5.6 in the sham group at week 7 respectively. Compared to sham acupuncture, acupuncture showed partial benefits on hot flush severity. Whether acupuncture has point-specific effects for hot flushes should be also considered in designing future research.

Sunay D, Ozdiken M, Arslan H, Seven A, Aral Y. **The effect of acupuncture on postmenopausal symptoms and reproductive hormones: a sham controlled clinical trial.** *Acupunct Med*. 29(1):27-31, 2011.

A total of 53 postmenopausal women were assigned to acupuncture or sham acupuncture. After treatment, total menopause scores and the somatic and psychological subscale scores were significantly lower in the acupuncture group than the sham group. The severity of hot flushes was found to be significantly decreased after treatment with acupuncture and LH levels were lower and oestradiol levels significantly higher than in sham group, but there was no difference in FSH levels. Acupuncture was effective in reducing menopausal complaints when compared to sham acupuncture.

Borud EK, Alraek T, White A, et al. **The Acupuncture on Hot Flushes Among Menopausal Women (ACUFLASH) study, a randomized controlled trial.** *Menopause*. 16(3):484-93, 2009.

In this randomized controlled-clinical trial women with 7 or more menopausal hot flashes a day received either acupuncture or advice on self care. Compared to the control group, the acupuncture group experienced greater improvements in all outcome measures with the exception of the urine excretion measurement. Moreover, patients in the acupuncture group experienced improvements in the vasomotor, sleep, and somatic symptom dimensions of the Women's Health Questionnaire compared with the control group.

Zaborowska E, Brynhildsen J, et al. **Effects of acupuncture, applied relaxation, estrogens and placebo on hot flushes in postmenopausal women: an analysis of two prospective, parallel, randomized studies.**

Climacteric.10(1): 38-45, 2007.

102 postmenopausal women with climacteric symptoms (e.g., hot flashes) received either oral estradiol therapy (17 beta-estradiol 2 mg), applied relaxation (60 minutes, once/week), electroacupuncture, or superficial needle insertion. People in all intervention groups experienced a significant reduction in hot flashes as compared to the placebo group. After 12 weeks, people who received acupuncture (both electroacupuncture and superficial needle insertion) experienced a similar reduction in hot flashes as those who received estrogen. People in the applied relaxation intervention also experienced a reduced hot flashes, though not as significant as in the acupuncture and estrogen groups. Six months after the treatments ended, people in the acupuncture and applied relaxation groups had an even greater decrease in hot flashes. Acupuncture and applied relaxation should be further evaluated to develop alternative

methods for women with menopausal complaints.

Migraine

Wachholtz AB, Malone CD, Pargament KI. **Effect of Different Meditation Types on Migraine Headache Medication Use.** Behavioral Medicine. 2015 Apr 11:1-8. [Epub ahead of print]

In this study, 92 people new to meditation who had frequent migraines (greater than 2 per month) were randomly assigned to one of four groups that used a meditation phrase or technique: (1) Spiritual Meditation (exp. "God is love"), (2) Internally Focused Secular Meditation (exp. "I am content"), (3) Externally Focused Secular Meditation (exp. "Sand is soft,"), or (4) Progressive Muscle Relaxation (technique). Participants practiced their assigned meditation technique for 20 minutes per day over 30 days while completing daily headache diaries. Headache frequency, headache severity, and pain medication use were recorded and assessed. Migraine frequency decreased significantly in the Spiritual Meditation group compared to other groups while severity was the same in all groups. All four groups showed decreased pain medication use over time – but there was a greater decline in the Spiritual Meditation group compared to other groups.

Wang LP, Zhang XZ, Guo J, et al. **Efficacy of acupuncture for acute migraine attack: a multicenter single blinded, randomized controlled trial.** Pain Medicine. 13(5):623-30, 2012.

This study compared the effects of real or sham acupuncture for acute migraine attacks. Every patient received a true or sham acupuncture treatment when having a migraine attack and, medications were allowed if the pain failed to be relieved two hours after the acupuncture. True acupuncture was superior to sham acupuncture in relieving pain and reducing the usage of acute medication.

Ferro EC, Biagini AP, da Silva IE, et al. **The combined effect of acupuncture and Tanacetum parthenium on quality of life in women with headache: randomised study.** Acupuncture in Medicine. 30(4):252-7, 2012.

This study investigated the effectiveness and tolerability of acupuncture (AC), the herbal medicine Tanacetum (TAN) or combined treatment on quality of life in women with chronic migraine. A total of 69 women volunteers were randomly divided into 3 groups: acupuncture 20 sessions over 10 weeks; TAN, at 150 mg/day; and AC+TAN. AC+TAN was significantly more effective than AC or TAN alone in overall health-related quality of life for pain and disability. The present work shows an improvement of the quality of life and better pain effect of acupuncture combined with TAN treatment on migraine pain in women when compared with acupuncture or TAN alone.

Multiple Sclerosis (MS)

Kerr Grieve J, Flucker S, O’Riordan J. **Acupuncture is an effective treatment for pain and other ms symptoms.** J Neurol Neurosurg Psychiatry. 2013 Nov;84(11):e2.

Twenty patients with MS completed a questionnaire with 25 questions on therapeutic indication and subjective benefits of acupuncture including pain relief, sleep pattern, mood improvement, energy levels, and mobility issues. Pain medication use and side effects of acupuncture were assessed. All of the patients had sought acupuncture for the relief of pain, and had been attending the clinic for between 3 and 24 months. The majority were receiving acupuncture at six weekly intervals. All participants described some reduction in pain, with 9 patients scoring the level of pain relief as 8/10 or better. Eighteen patients experienced pain relief for four or more weeks. Improvement of sleep pattern, mood, energy levels and mobility was also subjectively improved, though less strikingly than pain. Nine experienced a temporary increase in pain while 55% of patients reduced their use of pain medication and 3 stopped additional analgesia completely. The study showed clear benefit of acupuncture as a treatment for pain in patients with MS. Larger studies are warranted.

Quispe-Cabanillas JG, Damasceno A, von Glehn F, et al. **Impact of electroacupuncture on quality of life for patients with Relapsing-Remitting Multiple Sclerosis under treatment with immunomodulators: a randomized study.** BMC Complementary & Alternative Medicine. 12:209, 2012.

This study evaluated the effect of acupuncture on symptoms of MS. Thirty-one patients with Relapsing-Remitting Multiple Sclerosis being treated with immunomodulators received either true or sham electroacupuncture during regular visits to the doctor. Electroacupuncture improved various aspects of quality of life, including reduced pain and depression. It may significantly improve the quality of life of MS patients.

Nausea and Vomiting, Post-Operative

Korinenko Y, Vincent A, Cutshall SM, et al. **Efficacy of acupuncture in prevention of postoperative nausea in cardiac surgery patients.** *Annals of Thoracic Surgery.* 88(2):537-42, 2009.

This study evaluated the efficacy of a single preoperative acupuncture treatment in the prevention of post-operative nausea (PON) in patients undergoing coronary artery bypass graft or cardiac valve surgery, or both. Ninety participants were randomly assigned to receive either one preoperative acupuncture and standard postoperative care (acupuncture group) or solely standard postoperative care (control group). Acupuncture was performed 0.5 to 3 hours before surgery. The acupuncture group had a significantly lower incidence of nausea and a significantly lower score of nausea severity compared with the control group. No adverse effects due to acupuncture treatment were reported.

al-Sadi M, Newman B, Julious SA. **Acupuncture in the prevention of postoperative nausea and vomiting.** *Anaesthesia.* 52(7):658-61, 1997.

A double blind, randomized controlled trial of intra-operative acupuncture vs. placebo was performed in 81 patients undergoing same day gynecological laparoscopic surgery. The use of acupuncture reduced the incidence of postoperative nausea or vomiting in hospital from 65% to 35% compared with placebo and after discharge from 69% to 31% compared with placebo.

Streitberger K, Diefenbacher M, Bauer A, et al. **Acupuncture compared to placebo-acupuncture for postoperative nausea and vomiting prophylaxis: a randomised placebo-controlled patient and observer blind trial.** *Anaesthesia.* 59(2):142-9, 2004.

Female patients (n = 220) scheduled for gynaecological or breast surgery was randomly assigned to two groups receiving either acupuncture (n = 109) or placebo acupuncture (n = 111). The incidence of Post-operative nausea and vomiting and/or anti-nausea medication use within 24 hour after surgery was the main outcome measure. This showed no statistically significant difference between groups (43.7% acupuncture, 50.9% placebo). The secondary outcome, vomiting, was significantly reduced by acupuncture from 39.6% to 24.8%.

Neck Pain

Braun M, Schwickert M, Nielsen A, et al. **Effectiveness of traditional Chinese “gua sha” therapy in patients with chronic neck pain: a randomized controlled trial.** *Pain Med.* 12(3):362-9, 2011.

Gua sha is a traditional East Asian healing technique where the body surface is press-stroked with a smooth-edged instrument to intentionally raise therapeutic petechiae. Forty-eight outpatients with chronic mechanical neck pain were randomized into Gua sha or control groups and followed up for 7 days. Gua sha patients were treated once with Gua sha, while control patients were treated with a local thermal heat pad. Neck pain severity after 1 week improved significantly better in the Gua sha group compared with the control group. Significant treatment effects were also found for pain at motion, neck disability and quality-of-life. The treatment was safe and well tolerated. Gua sha was found to have beneficial short-term effects on pain and functional status in patients with chronic neck pain.

Sahin N, Ozcan E, Sezen K, et al. **Efficacy of acupuncture in patients with chronic neck pain--a randomised, sham controlled trial.** *Acupunct Electrother Res.* 35(1-2):17-27, 2010.

This study compared the effectiveness of electroacupuncture and sham acupuncture in the treatment of patients with chronic neck pain in 31 patients with chronic neck pain. There was a significant improvement in pain in the electroacupuncture group after therapy. Stimulation of conventional acupuncture points was not generally superior to needling of nonspecific points on the neck, and both treatments were associated with improvement of symptoms.

White P, Lewith G, Prescott P, et al. **Acupuncture versus placebo for the treatment of chronic mechanical neck pain: a randomized, controlled trial.** *Annals of Internal Medicine.* 141(12):911-9, 2004.

In this randomized trial, 124 patients 18 to 80 years of age who had chronic mechanical neck pain received 8 treatments over 4 weeks with acupuncture or with mock transcutaneous electrical stimulation of acupuncture points. Both groups improved statistically from baseline, and acupuncture and placebo had similar credibility. Acupuncture reduced neck pain and produced a statistically, but not clinically, significant effect (12%) compared with placebo. The beneficial effects of acupuncture for pain may be due to both nonspecific and specific effects.

David J, Modi S, Muko AA, Robertshaw C. **Acupuncture or physiotherapy for neck pain? Similar success rates.** *British Journal of Rheumatology.* 37(10):1118-22, 1998.

Seventy adult patients were assigned to receive either acupuncture or physiotherapy. Outcome measures were collected at the start of treatment, at 6 weeks and at 6 months. Both treatment groups improved in all criteria, with acupuncture being slightly more effective in patients who had higher baseline pain scores. No untreated control group was included in the study for comparison.

Obesity

Cho SH, Lee JS, Thabane L, Lee J. **Acupuncture for obesity: a systematic review and meta-analysis.** *International Journal of Obesity.* 33(2):183-96, 2009.

In the 31 studies reviewed, acupuncture was associated with a significant reduction in average body weight and an improvement in obesity. Further, long term research is needed.

Osteoarthritis

Mavrommatis CI, Argyra E, Vadalouka A, Vasilakos DG. **Acupuncture as an adjunctive therapy to pharmacological treatment in patients with chronic pain due to osteoarthritis of the knee: a 3-armed, randomized, placebo-controlled trial.** *Pain.* 153(8):1720-6, 2012.

The efficacy of acupuncture as an adjunctive therapy to pharmacological treatment of chronic pain due to knee osteoarthritis was studied. A total of 120 patients with knee osteoarthritis were randomly allocated to 3 groups: group I was treated with acupuncture and etoricoxib, group II with sham acupuncture and etoricoxib, and group III with etoricoxib. Acupuncture with etoricoxib was more effective than sham acupuncture with etoricoxib, or etoricoxib alone for the treatment of knee osteoarthritis.

Huang W, Bliwise DL, Carnevale CV, Kutner NG. **Acupuncture for pain and sleep in knee osteoarthritis.** *Journal of the American Geriatrics Society.* 58(6):1218-20, 2010.

Acupuncture may improve pain, sleep and quality of life in older people with knee osteoarthritis. This randomized controlled trial compared the effects of true or sham acupuncture on pain and sleep in 24 older patients with knee osteoarthritis. Those receiving true acupuncture reported greater improvement in pain, sleep ratings and general health, vitality and social functioning. Acupuncture may provide a therapeutic approach that avoids the potential complications of additional medications in older persons to relieve pain and improve sleep.

Berman BM, Lao L, Langengerg P, et al. **Effectiveness of acupuncture as adjunctive therapy in osteoarthritis of the knee: a randomized, controlled trial.** *Annals of Internal Medicine.*

141(12):901-910, 2004.

In this study of 570 patients with osteoarthritis of the knee, patients received true acupuncture, sham acupuncture or education. Patients in the true acupuncture group showed greater improvement in function than the sham acupuncture group at 8 weeks but not in the pain score or global assessment. At 26 weeks, the true acupuncture group experienced significantly greater improvement than the sham group in function, pain and global assessment. Acupuncture seems to provide improvement in function and pain relief as an adjunctive therapy for osteoarthritis of the knee when compared with credible sham acupuncture and education control groups.

Berman BM, Singh BB, Lao L, et al. **A randomized trial of acupuncture as an adjunctive therapy in osteoarthritis of the knee.** *Rheumatology.* 38(4):346-54, 1999.

Seventy-three patients with symptomatic osteoarthritis of the knee were randomly assigned to acupuncture or standard care in order to investigate its effectiveness as an adjunctive therapy to standard care for the relief of osteoarthritic pain and dysfunction. Patients receiving acupuncture improved on both measurement indices compared to those receiving standard treatment alone. Significant differences were seen at 4 and 8 weeks. No adverse effects were reported.

Linde K, Weidenhammer W, Streng A, et al. **Acupuncture for osteoarthritic pain: an observational study in routine care.** *Rheumatology.* 45(2):222-7, 2006.

In this observational study in routine care, 278 patients had primary osteoarthritis of the hip or knee, 239 had another type of osteoarthritis and 149 had more than one affected joint. Statistically significant and clinically relevant improvements were seen in all subgroups both after acupuncture treatment as

well as 6 months later.

Witt C, Brinkhaus B, Jena S, et al. **Acupuncture in patients with osteoarthritis of the knee: a randomized trial.** *Lancet.* 366(9480): 136-43, 2005.

In this randomized trial, 294 patients with chronic osteoarthritis of the knee were assigned to acupuncture, minimal acupuncture (superficial needling at non-acupuncture points), or a waiting list control in 28 outpatient centers for 12 sessions. After 8 weeks of treatment, pain and joint function improved more with acupuncture than with minimal acupuncture or no acupuncture. However, this benefit decreased over time.

Overactive Bladder

Emmons SL, Otto L. **Acupuncture for overactive bladder: a randomized controlled trial.** *Obstetrics & Gynecology.* 106(1):138-43, 2005.

Eighty-five women enrolled in this randomized, placebo-controlled trial to receive either an acupuncture treatment expected to improve their bladder symptoms or a placebo acupuncture treatment designed to promote relaxation. Women who received 4 weekly bladder-specific acupuncture treatments had significant improvements in bladder capacity, urgency, frequency, and quality-of-life scores as compared with women who received placebo acupuncture treatments.

Pain

Vickers AJ, Linde K. **Acupuncture for chronic pain.** *JAMA.* 311(9):955-6, 2014.

CLINICAL QUESTION: Is acupuncture associated with reduced pain outcomes for patients with chronic pain compared with sham-acupuncture (placebo) or no-acupuncture control?

BOTTOM LINE: Acupuncture is associated with improved pain outcomes compared with sham-acupuncture and no-acupuncture control, with response rates of approximately 30% for no acupuncture, 42.5% for sham acupuncture, and 50% for acupuncture.

Pain Control, Post-Operative

Asher GN, Jonas DE, Coeytaux RR, et al. **Auriculotherapy for pain management: a systematic review and meta-analysis of randomized controlled trials.** *J Altern Complement Med.* 16(10):1097-108, 2010.

In this systematic review of 17 studies auriculotherapy (ear acupuncture) was effective in the treatment of a variety of types of acute and chronic pain.

Lao L, Bergman S, Hamilton GR, Langenberg P, Berman B. **Evaluation of acupuncture for pain control after oral surgery: a placebo-controlled trial.** *Archives of Otolaryngology -- Head and Neck Surgery.* 125(5): 567-572, 1999.

Thirty-nine patients were randomly assigned to receive either real acupuncture or placebo acupuncture immediately after oral surgery. Patients in the acupuncture group were pain free nearly twice as long as those in the placebo group. When post-operative pain occurred, the acupuncture group required only about two-thirds the amount of medication as the placebo group for pain control.

Palliative Cancer Care

Lim JT, Wong ET, Aung SK. **Is there a role for acupuncture in the symptom management of patients receiving palliative care for cancer? A pilot study of 20 patients comparing acupuncture with nurse-led supportive care.** *Acupuncture in Medicine.* 29(3):173-9, 2011.

A pilot study documented changes in symptoms after acupuncture or nurse-led supportive care in patients with incurable cancer. Total symptom scores were reduced by an average of 22% after each acupuncture visit and by 14% after each supportive care visit. Acupuncture was well tolerated with no significant or unexpected side effects. Acupuncture had an immediate effect on all symptoms, whereas nurse-led supportive care had a larger impact 6 weeks after the final session

Parkinson's Disease

Yeo S, Lim S, Choe IH, et al. **Acupuncture stimulation on GB34 activates neural responses associated with Parkinson's disease.** *CNS Neurosci Ther.* 18(9):781-90, 2012.

This study investigated the reported association between acupuncture point GB34 and Parkinson's Disease (PD). Using functional MRI, neural responses of 12 patients with PD and 12 healthy

participants were examined before and after acupuncture stimulation. Acupuncture stimulation increased neural responses in particular brain regions which are impaired by PD. Areas associated with PD were activated by the acupuncture stimulation on GB34. Acupuncture treatment on GB34 may be effective in improving the symptoms of PD although more randomized controlled trials are needed.

Polycystic Ovary Syndrome

Stener-Victoria E, Waldenstrom U, Tagnfors, U, et al. **Effects of electro-acupuncture on anovulation in women with polycystic ovary syndrome.** *Acta Obstetrica et Gynecologica Scandinavica*.79(3):180-8, 2000.

In this longitudinal, prospective study, 24 women between the ages of 24 and 40 years with polycystic ovary syndrome and oligo/amenorrhea received 10-14 treatments of electroacupuncture(EA) over a 3-month period. Repeated EA treatments induced regular ovulation in 38% of the women. This group of women had a less androgenic hormonal profile before treatment and a less pronounced metabolic disturbance compared with the group with no effect. The findings suggest that for this selected group EA may offer an alternative to pharmacological ovulation induction.

Post-herpetic Neuralgia

Ursini T, Tontodonati M, Manzoli L, et al. **Acupuncture for the treatment of severe acute pain in herpes zoster: results of a nested, open-label, randomized trial in the VZV Pain Study.** *BMC Complementary & Alternative Medicine*. 11:46, 2011.

One hundred and two patients with herpes zoster were randomized to receive either acupuncture (n = 52) or standard drug therapy (n = 50) for 4 weeks. Both interventions were largely effective. No significant differences were found in response rates, pain reduction, and incidence of post-herpetic neuralgia after 3 months. No serious treatment-related adverse event was observed in both groups. This controlled and randomized trial provides the first evidence of a potential role of acupuncture for the treatment of acute herpetic pain.

Pregnancy—Assisted Reproduction

Paulus WE, Zhang M, Strehler E, et al. **Influence of acupuncture on the pregnancy rate in patients who undergo assisted reproductive therapy.** *Fertility and Sterility*. 77(4):721-724, 2002.

In a prospective randomized clinical study with 160 patients undergoing assisted reproductive therapy, the effects of acupuncture on pregnancy rate were evaluated. Patients undergoing assisted reproduction therapy (ART) were divided into two groups: embryo transfer with acupuncture (80 women) and a control group of embryo transfer without acupuncture (80 women). Acupuncture was performed 25 minutes before and after embryo transfer. The results showed that clinical pregnancies were documented in 42.5% of patients in the acupuncture group compared with 26.3% in the control group. Acupuncture appears to be a useful tool for improving pregnancy rate after ART.

Premenstrual Syndrome

Kim SY, Park HJ, Lee H, Lee H. **Acupuncture for premenstrual syndrome: a systematic review and meta-analysis of randomised controlled trials.** *BJOG: An International Journal of Obstetrics & Gynaecology*. 118(8):899-915, 2011.

Ten randomized controlled trials were included in this review. Acupuncture was found to be superior to all controls. A meta-analysis comparing the effects of acupuncture with different doses of progestin and/or anti-anxiety medications supported the use of acupuncture (four trials). Acupuncture significantly improved symptoms when compared with sham acupuncture (two trials). Acupuncture seems promising for symptom improvement in women with PMS and further rigorous studies are needed

Ee CC, Manheimer E, Pirotta MV, White AR. **Acupuncture for pelvic and back pain in pregnancy: a systematic review.** *American Journal of Obstetrics & Gynecology*. 198(3):254-9, 2008.

This review examined the effectiveness of needle acupuncture in treating pelvic and back pain in pregnancy. Acupuncture, as an adjunct to standard treatment, was superior to standard treatment alone and physiotherapy in relieving mixed pelvic/back pain. Women with well-defined pelvic pain had greater relief of pain with a combination of acupuncture and standard treatment, compared to standard treatment alone or stabilizing exercises and standard treatment.

Rheumatoid Arthritis

Wang C, de Pablo P, Chen X, et al. **Acupuncture for pain relief in patients with rheumatoid**

arthritis: a systematic review. *Arthritis & Rheumatism*. 59(9):1249-56, 2008

Eight studies with a total of 536 subjects were included in this review, 4 placebo-controlled trials and 4 active-controlled trials. Six studies reported a decrease in pain for acupuncture versus controls. Four studies reported a significant reduction in morning stiffness but the difference was non-significant. Five studies showed a reduction in inflammatory markers. Despite some favorable results in active-controlled trials, conflicting evidence exists in placebo-controlled trials on the effectiveness of acupuncture for rheumatoid arthritis. Rigorous and well-controlled randomized trials are warranted.

Rotator Cuff Tendinitis

Lathia AT, Jung SM, Chen LX. **Efficacy of acupuncture as a treatment for chronic shoulder pain.** *J Altern Complement Med*. 15(6):613-8, 2009 Jun.

This study evaluated acupuncture for chronic shoulder pain and compared individualized acupuncture to fixed, standard point acupuncture treatment in 31 patients with osteoarthritis or rotator cuff tendonitis. Patients received one of three treatments 12 times over 6 weeks: individualized acupuncture points according to the approaches of Traditional Chinese Medicine; fixed, standard acupuncture points conventionally used for shoulder pain; and sham nonpenetrating acupuncture. After 6 weeks of treatment, the mean total Shoulder Pain and Disability Index score improved in all three groups, but the change was clinically significant only in groups 1 and 2. No difference was seen between individualized acupuncture and standardized acupuncture treatments.

Kleinhenz J, Streitberger K, Windeler J, et al. **Randomized clinical trial comparing the effects of acupuncture and a newly designed placebo needle in rotator cuff tendinitis.** *Pain*. 83(2):235-41, 1999.

This four-week randomized single blind clinical trial of 52 patients showed acupuncture to be more effective than placebo needling in treating chronic shoulder pain in athletes.

Shoulder Pain, chronic

Lee JA, Park SW, Hwang PW, et al. **Acupuncture for shoulder pain after stroke: a systematic review.** *J Altern Complement Med*. 18(9):818-23, 2012.

Shoulder pain is common after a stroke and interferes with the function of the upper extremities. Seven studies were included in this systematic review of acupuncture for post-stroke shoulder pain. Acupuncture combined with exercise was shown to be effective for shoulder pain after stroke.

Molsberger AF, Schneider T, Gotthardt H, Drabik A. **German Randomized Acupuncture Trial for chronic shoulder pain (GRASP) – a pragmatic, controlled, patient-blinded, multi-centre trial in an outpatient care environment.** *Pain*. 151(1):146-54, 2010.

The German Randomized Acupuncture Trial for chronic shoulder pain (GRASP) included 424 outpatients with chronic shoulder pain (CSP) of 6 weeks or more. Patients were randomly assigned to receive Chinese acupuncture, sham acupuncture (sham) or conventional conservative orthopedic treatment (COT). The patients did not know what type of acupuncture they received and were treated by 31 office-based orthopedists trained in acupuncture. Percentages of responders three months after the end of treatment were true acupuncture 65%, sham 24%, and COT 37%; directly after treatment percentages of responders were true acupuncture 68%, sham 40%, and COT 28%. The results are significant for true acupuncture over sham and COT for both end points. There was greater improvement of shoulder mobility (abduction and arm-above-head test) for the true acupuncture group versus the control group immediately after treatment and after 3 months. The trial indicates that Chinese acupuncture is an effective treatment for chronic shoulder pain.

Sleep Apnea

Freire AO, Sugai GC, Togeiro SM, et al. **Immediate effect of acupuncture on the sleep pattern of patients with obstructive sleep apnoea.** *Acupuncture in Medicine*. 28(3):115-9, 2010.

This study investigated the immediate effect of manual acupuncture (MA) and electroacupuncture (EA) on the sleep pattern of patients presenting with moderate obstructive sleep apnea. Forty apnea patients were randomly allocated to manual treatment, electroacupuncture at 10 Hz or 2 Hz and a no-treatment control group. Apnea decreased significantly in the manual acupuncture and electroacupuncture 10 Hz groups, respectively. There were no significant changes in the electro-acupuncture 2 Hz group or in the control group. A single session of either manual acupuncture or electroacupuncture 10 Hz had an acute effect in reducing apnea as well as the number of nocturnal respiratory events of patients presenting

with moderate obstructive sleep apnea.

Stress and immune function in the elderly

Pavao TS, Vianna P, Pillat MM, et al. **Acupuncture is effective to attenuate stress and stimulate lymphocyte proliferation in the elderly.** Neuroscience Letters. 484(1):47-50, 2010.

This study investigated the effects of acupuncture on stress-related psychological symptoms and cellular immunity in young adults and elderly subjects. The acupuncture treatment consisted of six sessions of needle insertion at bilateral acupoints LI4, SP6 and ST36. Psychological variables (depression, anxiety and stress) were investigated by means of self-assessment inventories. Peripheral blood mononuclear cells were isolated and cultured in vitro to measure mitogen-induced T-cell proliferation as well as cellular sensitivity to dexamethasone. Acupuncture was able to significantly reduce depression, anxiety and stress scores. The intervention also increased T-cell proliferation, with greater intensity in the elderly group. Acupuncture lessened psychological distress and increased an important feature of cellular immunity.

Stroke

Johansson K, Lindgren I, Widner H, et al. **Can sensory stimulation improve the functional outcome in stroke patients?** Neurology. 43(11):2189-92, 1993.

Seventy eight patients with severe hemiparesis of the left or right side within 10 days of stroke onset were randomized to a control group receiving daily physiotherapy and occupational therapy or the same therapies plus acupuncture twice a week for 10 weeks. Patients given acupuncture recovered faster and to a greater extent than the control group, with a significant difference for balance, mobility, quality of life, and days spent at hospital/nursing homes.

Park J, White AR, James MA, et al. **Acupuncture for subacute stroke rehabilitation: a sham-controlled, subject- and assessor-blind, randomized trial.** Archives of Internal Medicine. 165(17):2026-31, 2005.

In this randomized subject and assessor-blind trial, 116 patients with a recent (greater than 4 weeks) episode of stroke were randomized to receive 12 sessions of either real or sham acupuncture during the span of 2 weeks. Acupuncture was not superior to sham treatment for recovery of activities of daily living and health-related quality of life after stroke, although there may be a limited effect on leg function in more severely affected patients.

Wong AM, Su TY, Tang FT, Cheng PT, Liaw MY. **Clinical trial of electrical acupuncture on hemiplegic stroke patients.** American Journal of Physical Medicine & Rehabilitation. 78 (2): 117-22, 1999.

In a study of 128 patients with post-stroke hemiplegia, patients treated with electrical acupuncture had a shorter hospital stay for rehabilitation and better neurological results, with a significant difference.

Hegyí G, Máté Á, Betlehem J, Petrovics G. **Rehabilitation of Handicapped Children Suffering from Infantile Cerebral Palsy with Combined Embedding Acupuncture (YNSA + Body Acupuncture) and Complex Physiotherapy.** INTERNATIONAL JOURNAL OF COMPLEMENTARY AND ALTERNATIVE MEDICINE (IJCAM) 3:(4) Paper 00084. 10 p. (2016)

Hegyí G, Szigeti GP, **Rehabilitation of Stroke Patients Using Yamamoto New Scalp Acupuncture: A Pilot Study,** JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE 18:(10) pp. 971-977. (2012) Link(ek): [DOI](#), [PubMed](#), [WoS](#), [Scopus](#) Link: [DOI](#)

Xerostomia (dry mouth) after radiation therapy

Braga Fdo P, Lemos Junior CA, Alves FA, Migliari DA. **Acupuncture for the prevention of radiation-induced xerostomia in patients with head and neck cancer.** Brazilian Oral Research. 25(2):180-5,2011.

This study evaluated acupuncture to minimize the severity of radiation-induced dry mouth in patients with head and neck cancer. A total of 24 patients were either treated with acupuncture before and during radiation therapy or a control group who received no acupuncture. Although all patients showed some degree of impairment in salivary gland functioning after radiation therapy, significant differences were found between the groups. Patients in the acupuncture group showed improved salivary flow rates

and decreased xerostomia-related symptoms. Acupuncture significantly minimized the severity of radiation-induced xerostomia and may be a useful therapy in the management of patients with head and neck cancer undergoing radiation therapy.