Yoga for Back Pain, Cranberry for Cystitis Prevention, Soy Isoflavones for Hot Flashes, Curcumin for Pre-Diabetes, and Breathing Retraining for Asthma

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Yoga Improves Chronic Low Back Pain and Associated Psychological Effects

Level 1 (likely reliable) evidence


At least 10% of US adults suffer from chronic low back pain (CLBP) lasting over three months.1 Conventional interventions—consisting primarily of pharmacotherapy, local injections, surgical procedures, and physical therapy (PT)—often fall short. Back pain is the most common reason Americans report using complementary and alternative medicine (CAM) of any kind.2 Popular CAM choices for CLBP include chiropractic, acupuncture, massage, and the practice of yoga, which researchers investigated in the present study.

Eighty patients admitted to a residential health center in Bangalore, India for CLBP were randomized to one of two seven-day interventions: comprehensive yoga program vs. physical therapy program.3 Yoga consisted of postures and breathing exercises (asana and pranayama) specifically designed for patients with CLBP, meditation, along with counseling and lectures based on yoga philosophy. Physical therapy consisted of non-yogic exercise for low back pain plus matched counseling and educational sessions. Comparing yoga to physical therapy, mean scores decreased for pain (visual analog scale) by 49% vs. 17.5%, depression (Beck Depression Inventory) by 47% vs. 19.9%, state (momentary) anxiety by 20.4% vs. 1.2%, and trait (general) anxiety by 15.9% vs. 2.3% (P ≤ .001 for all comparisons). Spinal mobility was improved by 49.5% in the yoga group vs. 34.6% in the PT group (not statistically significant). There were no worrisome adverse events.

Several outpatient studies on CLBP, all with methodological limitations, have demonstrated the benefits of yoga for pain and/or disability.4–8 This carefully designed and executed trial was unique in that it involved a short-term, residential intervention and included the added dimension of psychological sequelae. Also unusual was the use of an adequate attention control, which was employed in only one of these other trials.8 It should be noted that yoga is anything but monolithic, and CLBP patients should be advised to steer clear of certain “westernized” yoga practices (eg, “power” yoga) that may increase the risk of injury. In follow-up studies, researchers may consider the persistence of beneficial effects beyond the study period, degree of incorporation of learned behavior into everyday lifestyle, and generalizability to non-Indian populations.

Cranberry Products May Not Reduce Risk of Symptomatic Urinary Tract Infection

Level 2 (mid-level) evidence


Urinary tract infections (UTIs) are a common problem, causing seven million office visits, one million emergency care visits, and 100,000 hospitalizations a year in the United States.9 Highly susceptible populations include women with recurrent infections, pregnant women, older adults, children, neuropathic bladder patients, and cancer patients undergoing radiation treatment. Cranberry products have been used for decades as a means of preventing UTIs. In vitro, cranberry is capable of inhibiting proanthocyanidin (PAC) A linkages, making it difficult for bacteria, especially Escherichia coli, to adhere to the bladder lining. The threshold at which an anti-adherence effect is achieved (known as the PAC equivalent) is 36 mg of cranberry proanthocyanidins. Twice daily dosing is typically recommended.10

This Cochrane review evaluated the effectiveness of cranberry products for the prevention of UTI in susceptible populations as defined above. It expands a previous 2008 review from 10 to 24 trials with a total of 4473 participants. All but five trials suffered from at least one inherent limitation including lack of blinding, unclear allocation concealment, or a
SOY ISOFLAVONES REDUCE HOT FLASH FREQUENCY AND MAY REDUCE HOT FLASH SEVERITY IN MENOPAUSAL WOMEN

**Level 1 (likely reliable) evidence**


Hot flashes are transient vasomotor events that produce symptoms of warmth, sweating, flushing, and occasionally palpitations and anxiety. The most common menopause-related symptom, hot flashes, may last for years and be sufficiently distressing to require medical attention. Until recently, clinicians commonly recommended hormonal replacement therapy (HRT) as treatment. But safety concerns raised by the publication of the Heart and Estrogen/Progestin Replacement Study, the Women’s Health Initiative Trial, and the Million Women Study have led to a sharp reduction in the use of HRT for this purpose. Soy isoflavones (genistein and daidzein) with their well-established phytoestrogenic effects have long been considered a promising alternative. Since the first clinical trial almost 20 years ago, more than 50 trials have investigated the effectiveness of soy foods and isoflavone-containing products for hot flashes. While this research has hinted at a clinically relevant benefit, the magnitude of any favorable effects has remained obscure. In the present study, researchers set out to clarify the benefits of soy isoflavone extract (as opposed to soy foods or soy protein) and identical synthesized isoflavones on the frequency and severity of hot flashes in perimenopausal women not taking other estrogenic agents.

In their systematic review of 19 randomized, placebo-controlled trials, isoflavone intake ranged from 30 to 135 mg/day (median 54 mg/day) with treatment durations of six weeks to 12 months. Median hot flash frequency was 8.3 per day. Only five of the trials were rated as high quality. Among 13 trials with 1196 women, mean placebo-subtracted change in hot flash frequency ranged from −3% to −57% (statistically significant in all but three trials). Among nine trials with 988 women, mean placebo-subtracted change in hot flash severity ranged from +9% to −57% (statistically significant in only four trials). Meta-analyses showed a mean placebo-subtracted reduction of 20.6% (95% confidence interval [CI] 12.9%–28.4%) and 26.2% (95% CI 10.2%–42.2%) for hot flash frequency and severity, respectively, but with heterogeneity. Subgroup and meta-regression analyses suggested greater reductions in hot flash frequency with treatment duration >12 weeks vs. ≤12 weeks (P = .004) and genistein dose >18.8 mg/day vs. ≤18.8 mg/day (P = .065).

A recent small study found that 70% of women seeking to avoid HRT would be satisfied with a non-hormonal strategy that produced only a 50% reduction in hot flashes. Despite a common perception in the literature that studies examining soy isoflavones for hot flashes have yielded mixed results, this meta-analysis supports their beneficial effect on both symptom frequency and severity. The favorable effect on hot flash frequency was further supported by a dose–response effect for genistein and a greater reduction with longer duration of treatment. Given their pro-estrogenic activity, concerns have been raised regarding the safety of soy isoflavones in women with breast cancer or at increased risk for it. However, there is no convincing clinical evidence that isoflavone exposure from any source adversely affects breast tissue, and recent epidemiologic studies have suggested that it may actually be protective.

**CURCUMIN EXTRACT MAY REDUCE RISK OF PROGRESSION TO TYPE 2 DIABETES**

**Level 3 (lacking direct) evidence**


Curcumin is a principal constituent of turmeric (Curcuma longa), a popular ingredient in Asian cuisine that adds color and flavor to curry. Turmeric has had many
In this double-blind placebo-controlled trial, curcumin extract effectively prevented the development of type 2 diabetes in pre-diabetic patients over a nine-month period. A subsequent study will be required to determine whether curcumin is beneficial over the long term. While these results are encouraging, it is important to note that they all represent surrogate, disease-oriented outcomes. Prolonging the onset of ADA-defined type 2 diabetes with curcumin may or may not have an impact on future morbidity, mortality, or quality of life.

BLAST FROM THE PAST

BREATHING RETRAINING MAY BE ASSOCIATED WITH IMPROVED ASTHMA-RELATED QUALITY OF LIFE

Level 2 [mid-level] evidence


Prior to the advent of pharmacotherapy, breathing exercises were commonly employed for the treatment of asthma.28

Like all incurable, chronic diseases, asthma is a complex condition that requires sub-optimally to medication management alone. For some patients, environmental triggers are either unknown or unavoidable. Mostly due to study heterogeneity, a Cochrane review (2004) of seven controlled trials was unable to arrive at firm conclusions regarding the benefit of breathing exercises for asthma patients.29

A subsequent small trial (n = 85) comparing an integrated breathing and relaxation modification program with a “usual care” control reported improvements in asthma-related health status, symptoms, and mood in adults.30 To minimize the non-specific effects of professional attention, researchers in the current study compared the effectiveness of breathing retraining vs. an educational intervention for the management of asthma.31

Researchers randomized 183 asthma patients with moderate impairment of health status to three sessions of either physiotherapist-supervised breathing training (BT) or nurse-delivered asthma education (CT). Patients in the BT group received explanations of normal vs. “dysfunctional breathing,” plus individual sessions on regular diaphragmatic and nasal breathing that they were encouraged to practice at least 10 minutes daily. In the CT group, general information on the nature of asthma was followed by individual sessions explaining atopy concepts and treatment rationale without personalized asthma advice. At six months, the BT intervention was associated with an improvement in an asthma-related quality of life score vs. control (0.38, 95% confidence interval [CI] 0.08–0.68) according to an intention-to-treat analysis (per protocol difference was 0.64 (95% CI [0.28–1.01]). Assuming, as the researchers did, that a change ≥ 0.5 on this scale is clinically relevant, 32 71.3% vs. 56.2% experienced a clinically meaningful improvement (P = .03, number needed to treat [NNT] = 6). Measures of hyperventilation, anxiety, and depression also significantly improved in the CT group at six months (P < .05). However, there were no significant differences in airway physiology, inflammation, or hyper-responsiveness.

The results of this trial suggest that a brief breathing retraining program supervised by a physiotherapist can significantly improve asthma-related quality of life, along with other patient-centered outcomes, in cases of moderately severe asthma. The use of an attention control makes it more likely that these benefits are in fact related to the new breathing techniques adopted by the patients. Although the absolute difference in asthma-related quality of life score fell below an acceptable threshold for clinical significance,32 the within-group change seen with BT retraining was comparable to that seen in some asthma drug trials.31 The anticipated observation of no change in disease-centered, physiologic measures despite an improvement in patient-centered, quality of life outcomes lends mechanistic support to the presumption that asthma is a complex disease at least partially responsive to non-pharmacologic interventions.


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