



Yoga as therapy: When is it helpful?

Good evidence supports the use of specific types of yoga for low back pain, depression, and anxiety. Fair evidence is available for 4 other indications.

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PRACTICE RECOMMENDATIONS

› Consider recommending *Iyengar yoga or Viniyoga* for the treatment of chronic low back pain in patients who express an interest in this modality. **(B)**

› Consider recommending yoga for the treatment of depression and anxiety symptoms in patients who are interested in exploring this approach. **(B)**

Strength of recommendation (SOR)

- (A)** Good-quality patient-oriented evidence
- (B)** Inconsistent or limited-quality patient-oriented evidence
- (C)** Consensus, usual practice, opinion, disease-oriented evidence, case series

Yoga is practiced by 15.8 million Americans,¹ and is often recommended as therapy for a variety of medical conditions. However, the scientific literature on yoga is limited in scope and quality. This article presents good evidence for yoga as treatment for chronic back pain, depression, and anxiety, and fair evidence for treating asthma, symptoms of menopause, hypertension, and mobility issues in the elderly.

Yoga's rising popularity as therapy

Yoga is a system of movement and breathing exercises meant to foster mind-body connection. Its roots are in ancient Indian practices codified by the writer Patanjali in the first or second century BCE.²

The practice of yoga was introduced to the Western world by a series of popular gurus from the 1930s to 1970s and consists primarily of *asanas*, or postures, and breathing exercises known as *pranayama*. Since then, yoga has been further subdivided into different schools and brands (**TABLE**^{1,2}), some of which are extremely taxing and vigorous and should be performed only by fit and healthy individuals, while others are gentle and accessible to anyone. Yoga has steadily gained in popularity, and nearly half of those who practice it say they do so to improve their health.¹

How useful is the research on yoga therapy?

Yoga has been a subject of Western scientific inquiry for more than 100 years. It has been deemed effective for treating conditions from hypertension to epilepsy,³ but many claims are poorly substantiated. Most studies report on a single case or series. The few investigational studies are mainly very small, of short duration, and lacking in appropriate blinding.

Moreover, yoga practices used in the interventions vary markedly, making comparison of results difficult. Interventions range from a single 1-hour session to weekly sessions

TABLE

Common forms of yoga^{1,2}

Hatha	General term for yoga incorporating postures, as opposed to breathing or meditation exercises. Also used to describe a basic, beginner style with less challenging postures.
Vinyasa	Fluid, flowing style wherein students move continuously between postures with coordinated breathing. Most classes are geared towards fit, physically able students.
Iyengar	Style known for emphasis on props to maintain proper body alignment even in less flexible students. Accessible to anyone. Training for teachers is more formal and rigorous than with other disciplines.
Ashtanga	Vigorous school of yoga where students move rapidly and smoothly from one posture to the next. Recommended for more athletic students.
Bikram	Practiced in a room heated to over 100°F to increase flexibility. The same sequence of postures and pranayama is used in every session. Best for physically able practitioners. (Also known as “hot” yoga.)
Viniyoga	Incorporates breathing and chanting exercises. Postures are gentle, and students flow from one to the next. Can be done by less fit students.
Kundalini	Flowing style of yoga with emphasis on breathing techniques. May have more spiritual aspects than other styles. Probably for more physically fit students.
Kripalu	Incorporates emotional and spiritual aspects similar to psychotherapy. Breathing and postures are combined in classes, which can be physically challenging.
Anusara	Emphasis on alignment similar to Iyengar. Also incorporates chanting and breathing exercises. Known for warm, lighthearted atmosphere in classes.
Sudarshan Kriya	A series of breathing techniques with differing rates and levels of airway resistance that practitioners claim can balance the autonomic nervous system.

over several months to inpatient treatment that includes many lifestyle modifications. Some studies required subjects to practice physically demanding asanas, while others focused on pranayama or practices similar to guided relaxation.

Helping patients navigate the yoga domain

The variability in practices described as “yoga” and the lack of a standardized credentialing for yoga teachers make it challenging for patients to find a source suitable for their particular needs. Although choosing a style of yoga appropriate to one’s fitness level and finding an experienced instructor are not straightforward undertakings, physicians familiar with the styles, risks, and benefits of yoga can help direct patients seeking this type of therapy.

The Yoga Alliance is the best-known credentialing organization; it offers a 200-hour and 500-hour curriculum covering anatomy, yoga philosophy, and hands-on practice, and grants credit for years of experience in teaching.⁴ However, the Yoga Alliance be-

gan its current credentialing project just 7 years ago, and it is far from ubiquitous in the industry. Some types of yoga, such as Iyengar and Bikram, have their own certification systems that teachers may preferentially use.

■ **Therapy credentialing.** The International Association of Yoga Therapists (IAYT) was founded in 1989 to define yoga therapy and to organize practitioners attempting to use yoga to treat health conditions. As of July 2012, it had published suggested curricula for yoga therapists requiring 800 hours of study.⁴ Clearly, it will take time for these standards to become disseminated through the industry. At this point, IAYT membership does not require any certification or credentials.⁴ Moreover, the broad and decentralized nature of yoga practice means that any type of teacher and therapist credentialing or licensure will be controversial and not universally accepted among practitioners. Because of the relative newness of teacher and therapist licensing programs, many experienced and well-respected instructors may lack formal credentials or certifications.

Patients should do extensive research

before choosing a type of yoga and an instructor (see “Finding a yoga instructor” on page E4). They should choose a type of yoga suited to their fitness level and general health (TABLE^{1,2}) to avoid serious injury, which can include fractures, neuralgia, and arterial dissection.²

The evidence for yoga’s benefits for specific conditions

The promotion of yoga as medical treatment is rife with dubious claims, but there is solid evidence for its benefits in some common conditions. The evidence summaries that follow reflect searches on Medline, via PubMed, and the Cochrane Database using the phrase “yoga review.”

Back pain

Often a stress-related musculoskeletal problem, back pain seems an appropriate indication for treatment with yoga, and there is a large body of literature on the subject.⁵ In a systematic review, Chou and Huffman⁶ found only 3 studies meeting inclusion criteria on yoga’s effectiveness for subacute or chronic low back pain. One large study found 6 weeks of Viniyoga was superior to conventional exercise programs and a self-care booklet in reducing pain and “bothersomeness” scores, as well as reducing the need for analgesic medication.⁷ Physician visits for back pain were not reduced in the treatment group, however.⁷ Also included in the systematic review were 2 smaller studies of Iyengar yoga on low back pain; results did not rise to statistical significance.⁶

A review by Posadzki and Ernst⁸ included 4 randomized controlled trials (RCTs) not included in Chou and Huffman, although only one of these had >50 subjects. Yoga practices for the treatment groups were mostly Iyengar and Viniyoga and lasted for 12 to 24 weeks, although one study used a 7-day intensive inpatient treatment program. Yoga practitioners had lower pain scores and lower Roland Morris Disability scores.⁸ A 2004 Clinical Inquiry in *The Journal of Family Practice* found limited evidence to suggest yoga may speed healing for patients with chronic back pain.⁹

Most recently, Cramer et al¹⁰ found 12 studies meeting inclusion criteria that reported on Viniyoga, Iyengar, and Hatha yoga interventions. Ten of these studies were included in the meta-analysis, which strongly favored yoga over control interventions for reducing pain and disability scores.¹⁰

Depression and anxiety

Yoga therapy for depression and anxiety has been commonly studied, given that aspects of mindfulness and relaxation are thought to be important parts of treatment. Moreover, patients uncomfortable with pharmacologic therapy for their disorders may be amenable to yoga treatment. In a recent Clinical Inquiry, Skowronek et al¹¹ found evidence (strength of recommendation [SOR] **B**) for yoga to treat depression and anxiety symptoms based on 3 recently published review articles that commented on a total of 23 RCTs.

A handful of additional review papers on this subject have selected slightly different groups of studies to include in their analyses, but all have found generally positive results.¹²⁻¹⁴ Inclusion criteria varied: one review omitted breathing-only modalities such as Sudarshan Kriya yoga, while another included them.^{12,14} One omitted Mindfulness-Based Stress Reduction (MBSR), which is a program developed in the United States based on several Eastern and Western methodologies including yoga.¹² MBSR already has a large body of literature supporting its use for anxiety and depression.¹²

One of these reviews,¹² which involved a meta-analysis of 9 studies regarding depression, also included a meta-analysis of 5 studies on yoga for anxiety. Pooled results for depression showed significant benefit for yoga over usual care, and smaller but still significant benefit for yoga over aerobic exercise or other relaxation techniques. For anxiety, pooled analysis showed yoga to be equal to usual care but superior to other relaxation modalities.¹² As with earlier reviews, study groups were heterogeneous and included young and older adults, caregivers for dementia patients, and those receiving inpatient treatment for alcohol dependency; symptoms of depression ranged from mild to severe.¹²



Iyengar yoga and Viniyoga have been shown effective in reducing chronic low back pain.

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Finding a yoga instructor

Two organizations may be useful in helping your patient locate a yoga instructor or therapist in your area. The International Association of Yoga Therapists (IAYT) and the Yoga Alliance both offer online search tools: <http://iayt.site-ym.com/search/custom.asp?id=1156> (IAYT) and <https://www.yogaalliance.org/yogaregistry> (Yoga Alliance). Important areas of questioning for potential therapists include length of teaching experience, training programs completed, and the amount of experience the instructor or therapist has had in working with individuals with a specific medical condition. It may be prudent in certain situations to refer patients to a physical therapist for evaluation before beginning yoga study.

In a review focusing on anxiety disorders, Kirkwood et al¹⁵ located 8 trials, 6 of which were randomized. Many of these were published in the 1970s and 80s. The yoga interventions varied and included weekly Kundalini sessions, pranayama techniques, and *savasana* (a pose in which practitioners lie supine while focusing on breathing and muscle relaxation). These practices were compared with anxiolytic medication, progressive muscular relaxation, placebo capsule, and no treatment. All found a statistically significant reduction in anxiety indices in the yoga treatment groups, and the authors noted that the positive effects of yoga for those suffering from obsessive-compulsive disorders are particularly well documented.¹⁵ More recently, Li and Goldsmith¹⁶ reviewed 6 interventional studies that included some trials without randomization, blinding, or a control group. Subjects of the studies included cancer patients, postmenopausal women, pregnant women, and firefighters. Six of 9 trials showed improvement in externally validated anxiety indices such as the State-Trait Anxiety Inventory or Perceived Stress Scale.

Asthma

With its focus on awareness of breath and the mechanics of breathing, yoga would seem a natural adjunct to conventional asthma therapy. One systematic review found 4 trials (3 RCTs) that showed statistically significant improvements in spirometric measurements in patients with asthma who practiced yoga techniques.¹⁷ An additional 3 RCTs showed

no improvements with yoga over conventional treatments.¹⁷ Overall, the reviewers noted that study quality was poor, although they said several studies were appropriately designed. Again, the interventions described as “yoga” varied considerably, from Iyengar-type classes to meditation-focused techniques to pranayama exercises. Follow-up ranged from 6 weeks to 6 months.¹⁷

A more recent and thorough review found 14 RCTs using yoga to treat asthma symptoms.¹⁸ The investigators performed pooled analysis despite significant heterogeneity in the studies. The analysis showed some improvement in the yoga group compared with usual therapy, but no difference in comparison with sham yoga or non-yoga breathing exercises.¹⁸

Symptoms of menopause

Studies have focused on alternative or adjunctive therapies for menopause symptoms, primarily hot flashes, since hormone replacement therapy and other conventional medical therapies have been found to have a high incidence of adverse effects. However, evidence that yoga can reduce hot flashes is sparse.

A Cochrane review examined the effects of exercise on hot flashes and found 2 RCTs using yoga as a treatment modality. Neither one found statistically significant differences between the yoga groups and conventional exercise groups.¹⁹ The authors concluded there was insufficient evidence to show yoga was more effective than other forms of exercise on vasomotor symptoms of menopause. However, a large RCT included in the Cochrane review did show lower stress levels and decreased overall symptoms in the yoga arm.²⁰

The yoga intervention in this study consisted of pranayama, sun salutation (a repetitive sequence of 12 yoga postures), and cyclic meditation.²⁰ Lee et al²¹ reviewed the 2 studies used in the Cochrane paper as well as 5 other studies. Two were RCTs showing that yoga intervention was not superior to a no-treatment control. Four studies showed favorable results for yoga interventions; however, one was a nonrandomized controlled trial and 3 lacked control groups.

Cramer et al²² attempted pooled analysis of 5 studies, including those in the Cochrane paper, with similar results: Yoga interventions were not efficacious for somatic, vasomotor, or urogenital symptoms of menopause. Yoga was somewhat efficacious for psychological symptoms associated with menopause.²² More recently, an RCT (N=249) found that yoga reduces vasomotor symptoms no more frequently than non-yoga exercise.²³

Hypertension

Yoga is often said to reduce blood pressure (BP), which would make sense given the emphasis put on relaxation by many schools of yoga. In the past 2 years, 3 review articles have been published, as well as 2 relevant RCTs not included in those reviews.

Hagins et al²⁴ found 17 RCTs using yoga to treat adults with hypertension and prehypertension. These included both blinded and unblinded studies, and yoga interventions were compared with usual treatment, education, or non-yoga exercise. The authors included only studies of asanas intervention, and excluded interventions using only breathing or relaxation techniques.²⁴ In meta-analysis, pooled data showed the yoga treatment decreased both diastolic BP (DBP) and systolic BP (SBP) by 3 to 4 mm Hg compared with usual treatment, but not when compared with other exercise therapies.²⁴ Reviewers concluded that yoga was likely as effective for lowering BP as other types of physical activity.²⁴

In a review without meta-analysis, Posadzki et al²⁵ also found 17 blinded RCTs using yoga to treat hypertension or prehypertension in adults. Eleven of the 17 studies favored yoga, with 8 showing a decrease in SBP and 5 in DBP.²⁵ All but 2 studies were found to be of poor quality, especially with regard to blinding.²⁵ The authors noted that studies using subjects with prehypertension or hypertension with comorbidities were more likely to show significant results, speculating that yoga may be more effective for these populations.²⁵

In an ambitious review article on yoga as treatment for a variety of risk factors for cardiovascular disease, Cramer et al²⁶ located 28 RCTs that addressed effects of yoga on

BP. Seven of the studies in the Posadzki review²⁵ were included. Meta-analysis showed a statistically significant decrease in SBP of 5.85 mm Hg and in DBP of 4.12 mm Hg.²⁶ Although wide in scope, this meta-analysis included many studies of healthy patients without hypertension who could conceivably have differing neuroendocrine responses to yoga practice.

In a pilot RCT, Cohen et al²⁷ found a significant decrease in BP among subjects randomized into Iyengar yoga classes for 24 weeks compared with a control group educated about lifestyle modification. A larger study with 102 subjects is currently underway.²⁸ These studies were unique in that no subjects were currently being treated with antihypertensive medications^{27,28}; most other trials on this subject enrolled participants on antihypertensive medications if their regimens had been stable for some time.

In an RCT published recently by Hagins et al,²⁹ 68 subjects with pre- or stage I hypertension were randomized into Ashtanga yoga classes or non-aerobic exercise classes formulated to burn equivalent METs. After 12 weeks of treatment, the yoga subjects' BP had significantly decreased from starting values, but was not improved compared with the exercise subjects.²⁹ This further supports the assertion that yoga is equivalent to other forms of physical activity in decreasing BP among hypertensive subjects.

Balance and stability in the elderly

With its emphasis on strength, balance, and body awareness, yoga would seem a helpful intervention for older patients at risk of injury from falls. Unfortunately this area of research lacks significant numbers of controlled trials. In a Cochrane review of exercise interventions for improving balance in the elderly, the reviewers were unable to find any studies specifically using yoga that met their criteria.³⁰ Jeter et al³¹ attempted a review more recently, and found 15 studies meeting inclusion criteria, 5 of which were RCTs. Overall, however, the poor quality of the studies and variation in both the type of yoga used as intervention and measurements of balance precluded pooled analysis, although some studies did have positive results.

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Search engines offered by the Yoga Alliance and the International Association of Yoga Therapists can help patients to locate a yoga instructor or therapist in their area.

A small but well-designed pilot RCT was recently published showing that an Iyengar yoga intervention significantly improved timed one-leg balancing among community dwelling older adults.³² However, this study did not show a significant difference in a standardized fall risk survey after the intervention.³²

■ **Cautioning against yoga in this context** are several articles chronicling increased

risks of some yoga exercises, especially for those with osteoporosis or other risks for fractures.³³ At this point, the well-documented risks of yoga practice in this group probably outweigh the unsubstantiated rewards. **JFP**

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