

By broadening yoga's application beyond stress-related ailments to include preventative and curative therapies, physicians today have an advantage in treating patients' illnesses and disorders. Specifically, yoga therapy complements patients' traditional medical treatment of osteoarthritis and other bone and joint disorders. Following anatomical guidelines, yoga teachers can adapt postures (asanas) to ensure patients' organs, joints, and bones are aligned to achieve physiologic changes. Recent studies performed by this author assessing the effect of yoga therapy on rheumatic diseases, such as osteoarthritis, and repetitive strain injuries, such as carpal tunnel syndrome, showed that yoga therapy caused physiologic changes, relieved pain, and improved motion.

**Key words:** osteoarthritis, yoga, Iyengar, exercise, repetitive strain injuries

## Yoga as a Complementary Therapy

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### Introduction

Physicians today are recognizing yoga as a complementary therapy and incorporating it in treatment of patients' diseases and disorders. This article addresses the use of yoga as a complementary management therapy for osteoarthritis (OA) and other bone and joint disorders. Recent studies of rheumatic diseases performed by this author showed that the use of yoga asanas (postures) positively affected study participants' well-being.<sup>1,2</sup> Additional studies illustrate that yoga could be added as a complementary therapy to the traditional management of arthritis.<sup>3-6</sup> To provide physicians with useful background knowledge about yoga, this article summarizes its origin and purpose and then explains how yoga can be used as a complementary therapy. By outlining the underlying principles of yoga, this article illustrates how the design and application of yoga can be rooted in the medical community.

### Understanding Yoga's Origin and Purpose

Yoga describes the joining of the body, mind, and spirit. In the classic 2000-year-old treatise on yogic philosophy, *The Yoga Sutras*,<sup>7</sup> the Indian sage Patanjali, known as "The Father of Yoga," defined yoga as "that which restrains the thought process and makes the mind serene." He emphasized that yoga provides a psychological approach to healing the body and achieving self-realization. By performing postures, known as asanas, and by controlling breathing, known as pranayama, individuals would be able to

cleanse their bodies' organs and systems and achieve a higher state of consciousness. Physicians who acknowledge the role of the mind in healing are practicing a yogic philosophy.

Hatha yoga, used in the studies cited in this article, affects the mind through the body. Defined as the yoga of physical activity that cultivates both the mind and body, Hatha yoga consists of cleansing and physical exercises in combination with meditation. Hatha yoga is one of several branches of yoga that includes Raja, the yoga of meditation, Karma, the yoga of service, Jnana, the yoga of wisdom, Bhakti, the yoga of devotion, and Tantra, the yoga of ritual. Most Westerners practice one of the Hatha yoga styles such as Iyengar, Bikram, Sivandanda, Kripalu, Kundalini, and Astanga (redefined today as Power Yoga). The Hatha yoga generally taught in the West is a system of postures and breathing exercises. Hatha yoga is usually seen as a way of preparing the body and mind for meditation. As a complete system, Hatha yoga is a comparatively recent development.<sup>8</sup>

### Broadening Yoga's Application beyond its Current Use

North Americans practice yoga for its proposed health benefits. Along with meditation, yoga asanas and pranayama have become popular in the United States and Canada; however, yoga's identity has been stripped of some of its essential qualities through marketing. Yoga's ability to maintain overall health, to alleviate symptoms, and to prevent ill-

ness has not yet been fully realized by most Westerners.

Many people taking yoga learn poses as an end in themselves to reduce stress or to look better. The real potential of these poses has been ignored. Relegated to a system of meditation or religious practice, or just another form of fad calisthenics epitomized by the headstand, the lotus posture, or another pretzel-like posture and used to displace calories and improve flexibility, yoga has been underutilized in Western medical traditions. Recent studies<sup>2–10</sup> illustrate that consumers and physicians could move yoga beyond the glorified images of headstands and could bring yoga into daily medical practice.

The Hatha Yoga Pradipika,<sup>12</sup> the classic manual on hatha yoga, proposes that yoga is both a preventative and curative system of the body, mind, and spirit. By broadening yoga's perceived applications, medical patients could receive the benefits of a noninvasive method to treat their illnesses and disorders.

### Explaining Yoga's Application as a Therapeutic Health Tool

Therapeutic yoga is the performance of postures for treating medical disorders. Some of the many current styles of Hatha yoga—Iyengar, Kundalini, Kripalu, and Sivandanda—have developed distinct approaches. Iyengar yoga, based on the teachings of living Yoga master BKS Iyengar, prescribes an orderly and progressive series of postures adjusted to meet a student's needs and physical conditions.<sup>7</sup> As a therapy, yoga works to refine human physiology. Performed properly, the asanas are believed to affect every gland and organ in the body. A knowledgeable teacher trained in the Iyengar tradition of yoga can adapt the body to positions to ensure that bones and joints are correctly aligned to achieve physiologic changes. Body weight is distributed evenly on the joints and muscles to prevent injuries. To accomplish desired results and to reduce strain, Iyengar yoga patients use props such as chairs, belts, blankets, and blocks to stabilize positions.

Each posture has a specific shape to which the body must be adapted—rather than the posture adapted to the body.<sup>12</sup>

Yoga is an appropriate complementary medical treatment for patients suffering from anatomical disorders such as bone and joint disorders. For patients suffering from OA of the finger joints, a sequence of asanas is chosen to realign the skeletal structure and loosen stiff joints. Because many musculoskeletal problems are mechanical, yoga offers an option to change alignment and alleviate musculoskeletal problems. The goal of Iyengar yoga is to realign bones, muscles, and joints. This realignment reduces stress and may enable patients to re-establish anatomical relationships.<sup>9</sup>

### Exploring Medical Evidence for Yoga's Positive Health Benefits

Yoga has been credited as a complementary therapy in a variety of articles.<sup>13–16</sup> References to the use of yoga therapies can be found in clinical trials in asthma,<sup>3,17</sup> pain management,<sup>18</sup> diabetes,<sup>19</sup> and mood; however, most of these studies have been open studies, and some are incomplete with little objective evaluation. The following studies cited in this article identify possible uses for yoga therapy, and highlight the need for additional studies in peer-reviewed journals.

#### Studying Musculoskeletal Problems: Raman's Use of Yoga to Treat Musculoskeletal Problems

Dr. Krishna Raman, a cardiologist practicing in Madras, India, combines Western medicine with yoga to treat common and complimented ailments. Raman's writings<sup>12</sup> describe how the Iyengar method of Hatha yoga can supplement traditional medicine and alternative approaches when treating musculoskeletal problems. Raman's studies are based on the following hypotheses: asanas may strengthen and align bones and muscles; inverted postures may be used to rest the legs; and forward bending poses may be used to stretch muscles.

A sequence of asanas derived from

Iyengar yoga are described for various types of back problems and arthritis,<sup>7</sup> but no objective documentation of their value accompanies these descriptions. Raman cautions that yoga teachers must teach and individuals must learn the correct methods, considering the disease; however, he does not detail how to teach and individualize these methods. Different ailments require different sequences. For example, a sequence for the knee is used to create joint space. The virasana sequence for the knee addresses alignment, flexibility, and blood flow by aligning the ankles, knees, and hips to create knee joint space and rest the knees and the legs (Figure 1). If performed properly, the legs and knees are rested in these poses.

Raman addresses specific metabolic diseases like gout and advises patients not to perform any exercises during acute attacks. In the case of rheumatoid arthritis, initial treatment with medication is prescribed. Once joint mobility improves, the patient may add yoga therapy if properly supervised and performed.

#### Studying Blood Pressure: Patel's Use of Yoga to Reduce Blood Pressure

Patel<sup>20</sup> observed reductions in blood pressure with yoga therapy and reported that a controlled study was underway; however, the follow-up report was not available for review. The original study cited that Hatha yoga relaxation slowed the breathing rate in chronic heart failure, reduced dyspnea, and reportedly improved pulmonary gas exchange and exercise performance.<sup>21</sup>

#### Studying Rheumatic Diseases: Garfinkel's Use of Yoga to Treat OA and Carpal Tunnel Syndrome

In the rheumatic diseases, the two small, controlled, but non-double-blind studies this author executed seem to be the only identifiable examples of studies in peer-reviewed journals assessing yoga's effect on rheumatic diseases.<sup>2,10</sup>

In the first study assessing the use of yoga as a complementary therapy for OA

of the fingers, 17 patients were randomly assigned either a yoga-based 10-week program or no additional treatment beyond the drugs received by both groups.<sup>10</sup> The intervention subjects received eight 60-minute group sessions focussing on stretching and strengthening exercises emphasizing upper body extension and alignment. The yoga group showed significantly greater decreases in pain and tenderness and improved range of motion; no differences were found in grip strength or joint circumference.

The second study, a randomized, blind, controlled trial in 42 employed or retired individuals with carpal tunnel syndrome, compared a twice-weekly supervised regimen using 11 yoga postures designed for strengthening, stretching, and balancing joint forces over eight weeks.<sup>2</sup> A control group was offered a standard wrist splint. The study showed statistically significant benefits for the patients' pain and grip strength in the yoga control group. The study did not find significant differences for either group in Tinel's sign or nerve conduction times. This small pilot study was encouraging, but not definitive. Long-term effects were not examined, and several objective measures did not show significant change. Other limitations of the study were a lack of comparison with other active interventions and the small group sizes. Future studies with a large group of participants may be needed to show benefit in more parameters.

### Using the Results from Other Studies to Illustrate how Yoga's Application Would Benefit Participants

Several studies have shown a benefit of stretching in treating knee OA. One study that focused exclusively on quadriceps strengthening demonstrated that patients lost flexibility<sup>4</sup>; this did not occur, however, in programs that included stretching.<sup>5,6</sup>

Several yoga asanas used in the treatment of knee OA, which emphasize fully extending the knee, can strengthen quadriceps, which is an important part of

most approaches to treating knee OA.

Beyond these clinical observations, a number of studies suggest that mechanical actions can have a physiologic effect at the cellular level. Researchers are just beginning to understand the resultant changes in cell function. Effects of mechanical and fluid pressure on structures (such as cartilage) also suggest that yoga postures might alter joint function. Low levels of intermittent fluid pressure that occur during joint distraction have been shown *in vitro* to decrease production of catabolic cytokines such as interleukin-1 and tumour necrosis factor-alpha.<sup>15</sup> In experimental settings, joint motion preserves cartilage that is lost by immobilization.<sup>22</sup> To avoid joint abuse, correctly supervised yoga may be one way to provide the motion and forces on joints needed to preserve integrity.

### Identifying the Medical Risks of Yoga

Some publications and articles that describe the use of yoga as treatment emphasize precautions. If performed incorrectly, asanas can be injurious and exacerbate the problem being treated. It is critical to know how to begin yoga for treatment. In the arthritic patient, asanas should be developed slowly. Sequences for various ailments and disorders are presented for application. One must question claims that have not been clinically tested, employing skepticism when methods are not described. One must be aware that the asanas described in yoga sources have not been clinically tested. For example, one must question an untested claim that virasana performed sitting on the heels helps rheumatism as well as hemorrhoids; the lack of a connection between these two conditions and the lack of a definition of rheumatism should raise skepticism about this claim.<sup>23</sup>

Yoga receives less attention from the medical community than other alternative therapies,<sup>24</sup> despite the evidence for some symptomatic benefit in musculoskeletal disease. Physicians may find some aspects of yoga useful in managing

symptoms for mechanical and muscular manifestations of musculoskeletal disease. Many rheumatologists will not recommend yoga because they do not know its benefits.

### Identifying Qualified Yoga Teachers

The numerous approaches to yoga and the wide variation among teachers and practitioners who are willing to offer yoga-based approaches to treatment can confuse both physician and patient. How to pick a yoga teacher is even less clear than how to pick a physician. Some credentialing is available,<sup>25</sup> but there is little agreement in the field as to what credentialing would mean or what it would encompass.

Not all yoga is the same, and how to select an appropriate instructor is unclear. Many Western-oriented presentations about yoga that exaggerate and make extravagant, inappropriate claims should be viewed with caution. If research is not documented, physicians and patients should not rely on those concepts. Programs that gradually build from the simplest asanas seem most reasonable. For most patients suffering from arthritis and musculoskeletal disorders, the more conservative gradual yoga approaches are the most sensible approaches for physicians to explore and authorize. More documented research is needed to validate claims for yoga's benefits.

### Identifying the Need for Further Studies

Yoga and other alternative therapies are difficult to evaluate. These investigations should not simply assess symptomatic relief but must take advantage of modern research techniques and look at objective effects on cells and organs. Creating a research study to determine whether a yoga-based regimen is preventative may be difficult to assess, yet well-structured trials would be valuable. The ancient tradition of yoga, properly used and evaluated, may be proven to have some mental and physical value.

To realize the value of complementary therapy, studies of alternative therapy

Figure 1:  
**Virasana Pose**

**1 Start on your hands and knees**

have your knees hip-width apart so the thighs are parallel with one another, and separate your feet until they are slightly wider than your hips and are pointing directly backwards

**2 Sit between your feet**

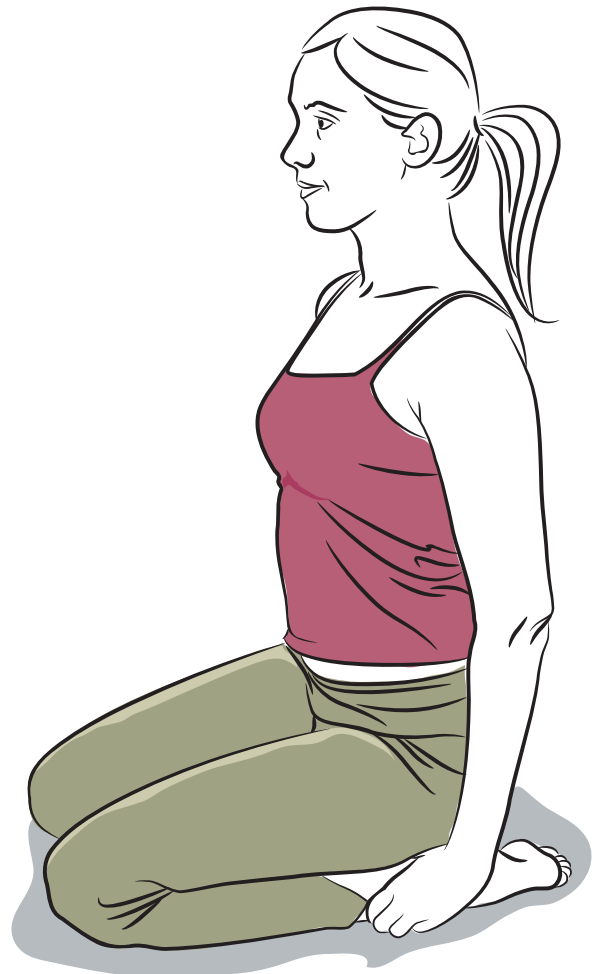
by first supporting yourself with your hands and then slowly lowering your hips to the floor. If there is any pain felt in the knees, **elevate your hips by placing a pillow beneath you.**

**3 Sit tall**

prevent slouching by tilting the pelvis slightly forward, drawing the abdomen in towards the spine.

**4 Rest your hands**

on your thighs or ankles, close your eyes, relax your shoulders and breathe smoothly, sitting still for at least one minute.



virasana pose

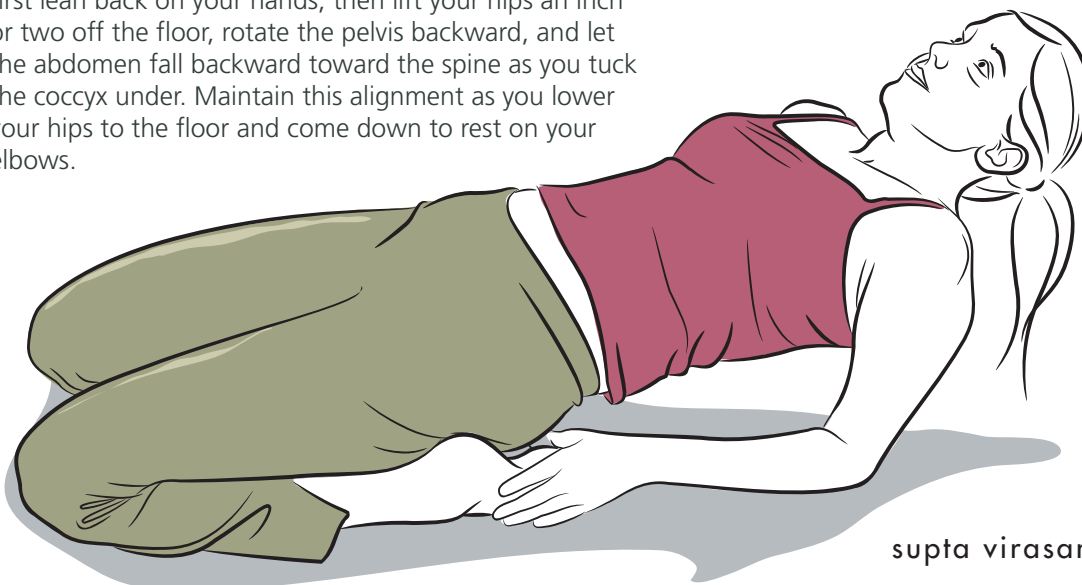
**Variation: Supta Virasana Pose**

**1 Sit in virasana**

and be sitting comfortably before proceeding

**2 Lean back on your elbows**

first lean back on your hands, then lift your hips an inch or two off the floor, rotate the pelvis backward, and let the abdomen fall backward toward the spine as you tuck the coccyx under. Maintain this alignment as you lower your hips to the floor and come down to rest on your elbows.



supta virasana pose


evaluated in clinically controlled trials may provide evidence to support the use of complementary therapy in treatment and prevention of diseases and medical conditions. Fontanarosa and Lundberg<sup>26</sup> wrote that “some advocates of alternative medicine argue that many alternative therapies cannot be subjected to the standard scientific method and thus, instead must rely on anecdotes, beliefs, theories, testimonials, and opinions to support effectiveness and justify continued use.” Most alternative therapies have not been evaluated using clinically controlled trials. As a result, a National Institutes of Health expert panel concluded that current evidence is inadequate for the development of high quality trials.<sup>27</sup> The lack of complete studies and the lack of evidence on safety and outcomes are unacceptable. Additional research should be completed. Physicians’ inquiry into complementary medicine should coincide with these studies. Physicians can become conversant with alternative medicine and understand its benefits and limitations. The focus of treatment should be on the patient, not on the classification of treatment as complementary or traditional medicine. Whatever the therapy, the clinical application must be based on the strength of the scientific evidence with statistical significance.

The future is promising for the scientific study of alternative therapies; however, it is essential to preserve the components of alternative medicine treatment, such as customizing the subjective aspects of alternative therapy. The creation of the National Center for Complementary and Alternative Medicine at the National Institutes of Health<sup>27</sup> will hopefully allow alternative therapies the opportunity to contribute to the future of medical research.

### Conclusion

The benefits of yoga’s application as complementary therapy for rheumatic diseases and musculoskeletal disorders are worthy of physicians’ inquiries. Anecdotal evidence, recent controlled studies, cost effectiveness, and the lack of side effects make further investigation of

yoga’s benefits a high priority.<sup>28</sup> Yoga’s nondiscriminatory application considering a patient’s age, condition, and medications taken would enable the physician to use this tool as a complementary therapy to traditional management and prevention of debilitating diseases.

Alternative therapy should be evaluated using clinically derived scientific methods in future studies. Fundamental health issues require critical and objective assessment. Whether a patient’s treatment is traditional or complementary, the goal of both is the same: to improve the health of the individual. To accomplish this, there is no alternative. 

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