

Yoga for Health **Bonnie Berk, RN, MS, ERYT**

I. Introduction

In today's high-pressure, fast-moving world, more and more people are experiencing stress-related illnesses like high blood pressure, depression and even musculoskeletal problems. The demands of the workplace, the family, and the world around us cause an imbalance and create a sense of "disconnect" between the mind and the body, the inner and outer self, the self and the world around us. And it is this disconnect that negatively affects our health and puts us in a state of "dis-ease."

In times of stress, the body activates the "fight-or-flight" response. Heart rate increases, blood flow is shifted to skeletal muscles, pupils dilate and immune function is altered. Immune system adaptations include a decrease in the number of T-lymphocytes, reduced natural killer cell activity against tumor cells and decreased production of cytokines. Research on stress and disease has also demonstrated that stress increases antibody titers to various viruses including the herpes virus in humans with latent infections (Baum & Posluszny, 1999).

Chronic stimulation of the stress response systems can have adverse effects on the cardiovascular and immune systems. The term "allostatic load" refers to the long-term effect of chronic stress on the body, the "wear and tear" (Kemeny & Gruenwald, 1999). Researchers believe that increases in the allostatic load increase vulnerability to certain diseases (Kemeny & Gruenwald, 1999).

Psychoneuroimmunology (PNI) is the medical field of investigation that studies the relationship of the mind and body, as well as its effect on health and disease. In ancient times, Hippocrates, the father of Western Medicine, taught his students to look at psychosocial factors surrounding individuals in order to understand certain diseases (Dacher, 1991). Yet, it has been fairly recent that the scientific community seriously considered the notion of mind-body unity and its effect on health and healing.

Over the last couple of decades, researchers have shown a relationship between stress and a wide variety of diseases (Kemeny & Gruenwald, 1999). Negative emotions, like depression, have been demonstrated to lower immune function. There is also evidence that the way a person perceives a stressful event impacts on immune function. In fact, perception of an illness has been shown to affect the course of diseases as in cancer and the Human Immunodeficiency Virus (HIV) infection (McCain & Zeller, 1996).

Recent studies show a bidirectional relationship between the central nervous and immune systems. Researchers continue to explore the mysteries of how diseases affect behavior as well as the role of psychosocial interventions on preventing disease, decreasing the severity of illness and positively impacting disease outcomes.

The word "yoga" means to unite or yoke together and the aim of developing a Yoga practice is to free the body of physical limitations and create balance by integration of

mind, body and spirit. And while most practitioners in the west focus on the physicality of yoga, many of the health benefits of yoga are derived from the slow, rhythmic breathing, mindful meditations and an ability to create an environment that supports relaxation and a sense of renewal.

In this way, yoga is an antidote for stress and a potentially powerful complement to living a healthy, balanced life. This chapter will give a brief overview of the history of yoga, a summary of the latest peer-reviewed and published research on the relationship of yoga and health and will discuss how yoga interventions can benefit a wide variety of emotional and physical illnesses.

II. History of Yoga

The earliest archeological evidence of Yoga's existence is found in stone engravings that date back to around 3000 B.C. Although some scholars believe it may have existed as long ago as stone age shamanism when our ancestors depended entirely upon spiritual healing. Both yoga and Shamanism have similar characteristics in their attempts to improve health and promote healing through spiritual mediation (Bance, 2007).

The oldest known yoga teachings are found in the Vedas, the sacred scripture of Brahmanism that is the basis of modern-day Hinduism. The Vedas are said to be the oldest sacred texts still used today. Most anthropologists agree that an oral tradition existed long before a literary tradition which gradually set in from about the 2nd century BCE. Yoga was used as a tool to live in harmony, mind, body and spirit. Yoga shares some characteristics not only with Hinduism but also with Buddhism. During the sixth century B.C., Buddha started teaching the importance of meditation and the practice of physical postures. At the age of 35, Siddharta Gautama, the first Buddhist to study yoga, achieved enlightenment, described as an intellectual understanding, an intuitive knowing and a total transformation of the heart and mind.

The Yoga Sutra was written by Patanjali around the second century and was an attempt to define and standardize classical Yoga. It comprises 195 sutras or "threads" as well as an "Eightfold-Path" referred to as the *Eight Limbs of Classical Yoga* which include:

- Yama: social restraints or ethical values;
- Niyama: personal observance of purity, tolerance, and study;
- Asanas: or physical exercises;
- Pranayama: breath control or regulation;
- Pratyahara: sense withdrawal in preparation for meditation (contemplation);
- Dharana: concentration;
- Dhyana: meditation; and
- Samadhi: ecstasy.

Yoga was introduced to the West during the early 19th century. It was first studied as part of Eastern Philosophy and began as a movement for health around the 1930's. By the 1960's, there was an influx of teachers from India who further developed the evolution of yoga. Swami Sivananda, a well-known teacher, who was a doctor in

Malaysia later opened schools in America and Europe. The most famous of his works is the *Five Principles of Yoga* which are:

- Savasana: proper relaxation;
- Asanas: proper exercise;
- Pranayama: proper breathing;
- Proper diet; and
- Dhyana: positive thinking and Meditation (contemplation)

Sivananda wrote more than 200 books on yoga and philosophy and had many disciples who furthered his work. Some of them were Swami Satchitananda who introduced chanting and yoga to Woodstock in the 60's; Swami Sivananada Radha who explored the connection between psychology and yoga, and Yogi Bhajan who started teaching Kundalini Yoga in the 70's (Bance, 2007).

In present day, yoga continues to proliferate and teachers from all faiths and backgrounds are spreading its teachings, crossing the boundaries of both culture and language. Here is a table comparing the different types of yoga that are currently being practiced today:

Comparison of Popular Yoga Styles				
Anasura	Ashtanga	Bikram	Integral	Iyengar
Heart-centered Yoga practice which varies according to the creative direction of the teacher. Anusara is sanskrit for "flowing with grace."	Poses are linked by breath in flowing sequences to produce internal heat and purifying sweat. Ashtanga means "eight limb practice." Based on eight limbs of Yoga.	A series of 26 poses and breathing exercises performed twice in a room heated to 105 degrees. Promotes detoxification and quick muscle warm-up. a.k.a. "Hot Yoga"	Integrates Hatha Yoga with other branches such as Karma Yoga (selfless service) and bhakti yoga (devotion) - emphasizes union with the divine.	Emphasis on healing mind and body with poses. Teaches awareness through mindful movement, anatomical precision and alignment in the poses. BKS Iyengar's book: <i>Light on Yoga</i> (1966) sparked Yoga practice in the west
Founder: John Friend (1959)	Founder: Sri K. Pattibhi Jois (1915)	Founder: Bikram Choudhury (1946)	Founder: Swami Satchidananda (1914-2002) : gave the opening speech at Woodstock (1969)	Founder: Sri BKS Iyengar (1918)

Comparison of Popular Yoga Styles				
Jivamukti	Kripalu	Kundalini	Power	Sivananda
Based on devotional yoga practice and ahimsa, non-harming. Combines a vigorous flow practice integrating classic yoga philosophy.	“Moving meditation” is how this form of yoga is described. Focus on relaxation and healing. Especially good for people with physical limitations.	Classes focus on kriyas or sequences including relaxation, reciting mantras and chanting. Based on moving energy up the spine.	A vigorous practice that is an American adaptation of Ashtanga Yoga. Focus on holding poses and building strength.	Incorporates techniques from all yoga paths – a spiritually based focus. All classes taught in Sanskrit. Pranayama, relaxation and 12 foundational poses.
Founders: Sharon Gannon (1951) and David Life (1950)	Founder: Swami Kripalu (1913-1981)	Founder: Yoga Bhajan (1929-2004)	Founder: Baron Baptiste (1963)	Founder: Swami Vishnudevananda (1927-1993)

Comparison of Popular Yoga Styles				
Yoga Therapy	Vinyasa	Viniyoga	Tantra	Phoenix Rising Yoga Therapy
<p>An individualized yoga practice for those with injuries or recovering from a traumatic event.</p> <p>A personalized plan for natural healing.</p>	<p>Freeform yoga flowing with the breath based on Ashtanga but may or may not be as intense depending on the teacher.</p> <p>Also called “Flow Yoga”</p> <p>“- a conscious evolution connecting each moment with the unifying breath.”</p> <p>- Shiva Rea</p>	<p>Focuses intensely on the breath, incorporating pranayama techniques and chanting into asana practice. Postures are gentle and students flow in and out of the poses, sometimes holding them, but usually briefly.</p> <p>Risk of Injury very low, making this style well suited for students with chronic disease.</p>	<p>Tantra views the body as a manifestation of the divine and a vehicle for self-transformation.</p> <p>Most of what we know of as yoga in the West owes much to this tradition.</p> <p>Uses the widest possible array of yogic tools.</p> <p>In addition to asana and pranayama, it incorporates mantra, visualization, and focused meditation. Also includes kriyas or cleansing practices.</p>	<p>A therapeutic approach developed by an Australian who comes from the Kripalu tradition.</p> <p>Integration of yoga and western psychology.</p> <p>The Therapist moves your body through a number of passive yoga poses and encourages discussion regarding thoughts, sensations and/or emotions.</p>
<p>Founder: Sri T. Krishnamacharya (1888-1989)</p>	<p>Based on Ashtanga Yoga</p>	<p>Founder: T.K.V. Desikachar, son of Krishnamacharya (Yoga Therapy)</p>	<p>Rolf Solvik and Rod Stryker are known for this technique—Himalayan Institute</p>	<p>Founder: Michael Lee</p>

When we talk about yoga for health, it is important to understand the wide variety of yoga practices and how they may or may not influence a person’s health. In fact, many people have hurt themselves performing yoga poses that may not be safe in certain instances.

As an example, if a person is suffering from disk injury to the spine, then poses that bring the torso forward might exacerbate discomfort. Someone with a history of neck

injuries might further injure themselves while performing inversions like headstands or shoulderstands. So before participating in any yoga class, it is of benefit to the practitioner to understand the intention of the class, the teacher's educational background in meeting special needs as well as being in a non-competitive environment.

To truly support the therapeutic benefits of any yoga practice, it is imperative for people to listen to their bodies and make modifications when necessary. The rule of thumb in any yoga class is "if it doesn't feel right for you, don't do it!" One size never fits all. The better a person understands their strengths as well as their limitations, the more benefits they will derive from the practice of yoga.

III. Therapeutic Health Benefits of Yoga

According to data published in 2004 in the *Journal of Alternative Therapies in Health and Medicine*, an estimated 15 million American adults have tried yoga at least once in their lifetime. Practitioners who were interviewed for that study reported they practiced yoga for wellness (stress reduction, improvement in quality of life), health conditions, and specific ailments like back or neck pain. And 90% felt yoga was very or somewhat helpful. (Riley, 2004).

In addition, IAYT reports that as people continue to practice yoga, overall biochemical profiles improve and antioxidants increase, suggesting yoga as an effective antidote for stress as well as playing an important role in prevention and management of many degenerative diseases (Arpita, 1990).

Psychologically, yoga has been shown to improve mood, decrease anxiety and depression as well as decrease hostility. Psychomotor functions improve as does eye-hand coordination, balance and depth perception, all important functions as we age (Raub, 2002).

While research in the field of yoga is still in its infancy, recent studies support individual experiences of decreasing symptoms, improving immune function and positively affecting overall health. The latest research studies indicate that practicing yoga may be efficacious for a variety of health conditions including menopause, irritable bowel syndrome, chronic pancreatitis, epilepsy, cancer, ADHD, diabetes, heart conditions, HIV/AIDS, chronic low back pain as well as depression. Studies have also seen a positive effect on pregnancy outcomes, cognition, spiritual well-being and quality of life.

Since there are many forms of yoga as well as practitioners from a variety of backgrounds and experiences, it has been difficult to study the impact of yoga on one's health. The following is an overview of the latest research on the positive effects of yoga on our health. Keep in mind, though, that many of these studies are preliminary and better research needs to be done in order to support yoga as a mainstream therapeutic modality.

A. Yoga and Women's Health Issues

The two times in a women's life when biological changes are most intense are first during the childbearing years and again at the end of a women's reproductive life, menopause. While hormonal fluctuations are affected by both physiological as well as psychological changes, yoga has been shown to positively impact pregnancy outcome, help to balance hormonal influences and reduce many of the common symptoms of the perimenopausal years including hot flashes and mood swings. Below is a summary of some of these studies.

Women's health	Study type	Cohort	Yoga intervention	Results	Published
Pregnancy	Prospective, matched, observational study	335 women between 18-20 weeks of pregnancy	169 women were assigned to practice yoga for one hour/day 166 women (control group) were assigned to walk 30 minutes twice a day. Both groups continued until delivery	Women in the yoga group had higher birth weight babies, lower incidence of preterm labor as well as less pregnancy-induced hypertension. The authors concluded that Yoga during pregnancy is safe and may improve birth weight, decrease preterm labor and reduce the incidence of pregnancy-induced hypertension	<i>Explore: Journal of Alternative and Complementary Medicine. 11(2).237-44. April. (2005).</i>
Menopause	Case study	6 women	70-minute Iyengar Yoga class 2/week for 8 weeks	5 women reported a decrease in menopausal symptoms and an increase in the quality of life	<i>Explore: The Journal of Science and Healing (2007)</i>
Hot flashes	Case study	14 Women	60 minute silent Meditative Yoga Practice 2 / week for 8 weeks in addition to home practice	Substantial improvements in all measures. Changes in vasomotor symptoms, especially hot flashes, were most prominent as a significant decrease	<i>Explore: Journal of Clinical Psychology in Medical Settings 14(3):266-273, (2007)</i>

B. Yoga's and Gastrointestinal Health

According to the International Foundation for Functional Gastrointestinal Disorders (IFFGD), about 20% of the general population experience irritable bowel syndrome, also referred to as spastic colon, mucous colitis, spastic colitis, nervous stomach or irritable colon (IFFGD, 2007). Irritable bowel syndrome, or IBS, is generally classified as a "functional" disorder, in which the body's normal activities in terms of the movement of

the intestines, the sensitivity of the nerves of the intestines, or the way in which the brain controls some of these functions is impaired. However, there are no structural abnormalities found by endoscopy, x-ray, or blood tests. For this reason, it is usually identified by the characteristics of the symptoms.

In people with IBS, symptoms result from a disturbance in regulation of bowel motility (independent movements of the intestines) usually causing abdominal pain, and a change in bowel patterns, such as diarrhea and constipation. Researchers and physicians believe that there is something negatively affecting the interaction between the gut or intestines, the brain, and the autonomic nervous system that somehow alters either motor function, sensory function or both.

Another common gastrointestinal problem that favorably responds to yoga is chronic pancreatitis, a long-standing inflammation of the pancreas that tends to alter its normal structure and function. Patients with chronic pancreatitis can experience persistent abdominal pain, diarrhea as well as severe nausea and weight loss. Due to malabsorption, evident in a high percentage of patients, this condition can continue to be a health problem as it progresses. Below are two studies indicating a positive effect of yoga on both IBS and chronic pancreatitis.

Gastro-intestinal health	Study type	Cohort	Yoga intervention	Result	Published
Irritable bowel syndrome (IBS)	Randomized trial of yoga for adolescents with IBS	20 girls, 5 boys ages 11-18	1-hour Yoga class 1/week for 4 weeks in addition to home practice	Significant decrease in symptoms	<i>Explore: Pain Research and Management (2007)</i>
Chronic Pancreatitis	Case Study	30 individuals with pain, anxiety and weight loss associated with their disease	(3) 1-hour yoga classes a week for 12 weeks	62% reduction in pain; 36% reduction in use of pain medication; 5% weight gain	<i>Explore: Gut.; (2006).</i>

C. Yoga Complementing Cancer Care

Many aspects of Yoga practice can benefit patients dealing with the physical, emotional and spiritual challenges of cancer treatments. Practicing postures helps restore physical function, while breathing exercises relax the body and still the mind. Meditation helps people connect to their spiritual selves as well as reverse the negative effects of stress and assists in maintaining a healthy immune system.

The fundamental issues that tend to predispose us to disease and affect our healing is the “disconnect” from ourselves and others. In everyday life, we tend to focus so thoroughly on the external world – meeting the requirements of job and family, hoping for

the satisfactions of future fulfillment – that we lose awareness of the actual, intimate, moment-by-moment experience of our own physical, mental and emotional selves.

Yoga helps us break down the distance from ourselves and brings us into close contact with our sensations and feelings. Knowing how our bodies really feel at any given moment, can help us make decisions that can positively affect our relationship to cancer healing. And perhaps the most compelling reason for cancer patients and survivors to use complementary therapies like Yoga, is that they show us how a person stricken with a serious illness, instead of “running away” from their threatened body, can connect more strongly to that body and begin to experience self-empowerment and overall sense of well-being.

In a literature search of yoga therapy articles, Bower (2005) found that nine studies conducted with cancer patients and survivors showed improvements in sleep quality, elevated mood, and even decreased many of the symptoms associated with cancer like fatigue and nausea in addition to improving overall quality of life.

According to one of the first scientific studies of its kind, women going through treatment for breast cancer felt better when they practiced yoga in a controlled six week program at the University of Texas M.D. Anderson Cancer Center. The most commonly practiced form of yoga in the west is Hatha Yoga, which comes from the Indian tradition and includes breathing, physical poses and meditation. However, researchers wanted to use Tibetan Yoga which emphasizes breathing, meditation and visualization over the physical poses. Below is a description of the study.

Cancer	Study type	Cohort	Yoga intervention	Result	Published
Breast Cancer	Pilot: Randomized, Controlled	61 women who had surgery for breast cancer and were receiving 6 weeks of radiation treatment; half of the women were assigned to the test group who took Tibetan yoga and the other half were not.	Twice a week yoga classes for six weeks	Women who participated in the yoga classes reported higher physical function, less fatigue, better sense of well-being and overall quality of life compared to women who did not attend the yoga classes.	<i>Explore: Lorenzo Cohen, Ph.D., associate professor and director of M. D. Anderson's Integrative Medicine Program</i>

D. Decreasing Hyperactivity in Children with Yoga

According to the National Institute of Mental Health (NIMH) (2007), Attention Deficit Hyperactivity Disorder (ADHD) is a condition in which children and, in some cases

adults, find it hard to control their behavior and/or to concentrate and pay attention. It is estimated that between 3 and 5 percent of children have ADHD, or approximately 2 million children in the United States. Many adults are unaware they even have ADHD. Typically, they often feel it's difficult to get organized, to get work done or even complete everyday tasks.

Possible causes of ADHD are a combination of factors including environmental exposure, brain injury, food additives and sugar as well as genetics. Typically, treatment includes medications, education and psychotherapy. In recent studies, by the NIMH, researchers have shown that children who only get medication without the other aspects of treatment do not do as well and the children who receive multimodal treatment needed less medication which is speculated to be a positive inducement for recommending the additional therapies (NIMH, 2007).

In Germany, researchers compared the effectiveness of Yoga and conventional motor exercises for children with ADHD (Haffner, 2006). Children in the Yoga group showed the greatest decrease in symptoms although overall, both groups improved over time. Those also taking medication along with practicing yoga improved the most. The conclusion was that yoga was an effective complement to treatment for ADHD. In another study, boys who practiced yoga more frequently at home in addition to attending group yoga sessions showed the greatest improvement in attention and behavior. Below is a summary.

ADHD	Study type	Cohort	Yoga intervention	Result	Published
ADHD Boys	Randomized, Controlled	19 ADHD boys were divided into two groups: a yoga group and a control group	The yoga group participated in 20 one hour yoga sessions. Patients in the control group participated in cooperative activities.	Both groups experienced improvements. Among the members of the yoga group, those who practiced more frequently at home in addition to attending the group sessions showed greater improvement in behavior and attention.	<i>Explore:</i> <i>Journal of Attention Disorders</i> (2004; 7 [4], 205–16)

This study suggests that yoga may be a useful complementary activity for children who already take medication to manage their ADHD especially at night when the effects of the medication commonly wear off. The researchers called for larger studies on yoga's potential benefits for these children.

E. Diabetes and Yoga

According to the Centers of Disease Control (CDC), health care providers are finding more and more children with type 2 Diabetes, a disease usually diagnosed in adults aged 40 years or older. Children who develop type 2 diabetes are typically overweight or obese and have a family history of the disease.

While many people with type 2 Diabetes can control their blood glucose by following a careful diet and exercise program, losing excess weight, and taking oral medication, Diabetes is becoming more common in the United States. From 1980 through 2005, the number of Americans with diabetes increased from 5.6 million to 15.8 million (CDC, 2007).

Stress can affect people with Diabetes in two ways. First, people under stress may not take good care of themselves. They may eat more, consume more alcohol or exercise less. They may forget, or not have time, to check their glucose levels or plan good meals. Second, stress hormones may also alter blood glucose levels directly.

According to the American Diabetes Association, diabetic mice exposed to physical or mental stress had elevated glucose levels (ADA, 2007). Since yoga helps to decrease the negative effects of stress, this would suggest that practicing yoga would help people manage their Diabetes. Below is another study suggesting a positive relationship between practicing yoga and controlling Type 2 Diabetes.

Diabetes	Study type	Cohort	Yoga intervention	Result	Published
Type 2 Diabetes	Randomized, Controlled	Twenty participants between the ages of 30 and 60 with mild to moderate non-insulin dependent diabetes being treated with diet and medication were compared with a control group of 36 adults also following a diet and taking medication for the control of diabetes.	The yoga group participated in a yoga class for 30-40 minutes every morning for 40 days.	Participants saw a decrease in hip-to-waist ratio (considered a risk factor for cardiovascular and metabolic disease), as well as a decrease in fasting glucose. And among obese participants, there was a decrease in serum levels of insulin, a positive factor in the management of diabetes.	<i>Explore: Nepal Medical College Journal. 7(2):145-7. December, 2005.</i>

As result of this study, the authors concluded that Yoga may be used as an adjunct to diet and drugs in the management of Type II Diabetes.

F. Yoga Promotes Cardiovascular Health

Coronary Heart disease (CHD) is one of the major causes of death in the United States for both men and postmenopausal women. Several studies have indicated a positive association between the practice of yoga and decreasing the three most important risk factors for CHD, hypercholesterolemia (increase in LDL-cholesterol), combined hyperlipidemia and hypertriglyceridemia (increase in triglycerides and LDL-cholesterol) (Prasad KVV et al. 2006). The chart below outlines a study showing the positive benefits of yoga on reducing the risk factors of coronary heart disease.

Almost 50 million Americans are believed to have hypertension, the number one risk factor for stroke, heart failure and kidney disease According to the 2002 National Health Interview Survey (NHIS), there are nearly 30 million users of relaxation techniques including meditation and yoga and 10 million users of yoga therapies; one fourth of those reporting mind-body therapies as “very helpful.” (Medical News Today, 2007). Below are results from other recent studies showing the benefits of yoga on cardiovascular health.

CV Health	Study type	Cohort	Yoga intervention	Result	For Further Information
Blood Lipid Profiles	Case Study	Researchers studied the effect of Pranayama (Yoga breathing) and Yoga asanas (poses) on the lipid profile in 64 healthy volunteers (41 men and 23 women aged 18-30 years)	One hour Yoga training for 90 days with no prior yoga experience	Researchers concluded that Yoga practices may be helpful in patients with lipid metabolism disorders such as diabetes mellitus, and coronary heart disease.	<i>Explore:</i> GISTNIC Division, National Informatics Centre, MCIT Government Of India, Hyderabad-500 063.
Hypertension	Systemic review of randomized or quasi-randomized controlled trials	Hypertensive men and non-pregnant women at least 18 years of age.	Comparing mind-body techniques (meditation, yoga and guided imagery) alone or in combination with conventional treatment to conventional treatment alone or no intervention/waiting list control.	12 published randomized trials found that Mind-body therapies like Yoga and meditation to significantly reduce systolic blood pressure. The greatest change was among Yoga participants.	<i>Explore:</i> Ali A, Katz D, Bracken M. (2007). Mind-body Practices for Hypertension: Systemic Review and Meta-Analysis. http://www.naturopathic.org

In the above study on hypertension, authors concluded that high quality scientific literature supports the use of mind-body therapies as a treatment for hypertension and suggests that these therapies may be “prudent choices for adjunctive treatment for motivated patients (Bracken, 2007).”

G. Yoga and Autoimmune Disease

The immune system protects the body from infection and disease. However, sometimes, the immune system confuses the self as a foreign substance and attacks the body by mistake. With over 80 types of autoimmune diseases, symptoms are similar which makes diagnosis difficult. Typically, there are flare-ups as well as remissions but the diseases rarely go away. For this reason, the majority of treatments are focused on reducing the symptoms (Medline Plus, 2007).

The *Art of Living Yoga Course* teaches breathing, movement and meditation techniques to individuals living with HIV/AIDS. One study showed significant improvements in mental and physical well-being immediately after the course but were not maintained over time. (Brasier et al. 2006). Similar to pharmacology of chronic diseases, once a treatment is found to be efficacious, in most cases, ongoing therapy is key for continued success. More studies need to be done in order to see if ongoing yoga practice is able to maintain that same sense of mental and physical well-being in this population as well as with other patients experiencing pain and/or discomfort from autoimmune diseases.

H. Psychological Benefits of Yoga for Patients with Depression

According to the *Harvard Mental Health Letter* (2006), “depression is sometimes called the common cold of mental health.” Unlike the common cold, though, depression rarely subsides within a week and affects men and women differently. Gender differences in depression may be due in part to biological causes such as hormonal fluctuations during the childbearing years which tend to have an influence on neurotransmitters in the brain (MayoClinic, 2008).

While antidepressants are useful in treating depression, they often cause unpleasant side effects and this is the most common reason people stop taking antidepressants (MayoClinic, 2008). Below is a study suggesting that yoga may help reduce depression.

Study type	Cohort	Yoga intervention	Result	For Further Information
Comparative study of the effects of anti-depressant medication with a combined approach of anti-depressant medication and Sahaja Yoga*,	30 adults (19 men) were randomly assigned to either medication alone or in conjunction with an 8-week Yoga class	One hour Sahaja Yoga* training for 8 weeks	Researchers found that both groups showed an improvement in depression symptoms, however the greatest improvement was seen in the combined medication and yoga group.	<i>Explore:</i> <i>Indian Journal of Physiology and Pharmacology. 49(4). 462-8 (2006).</i>

* Sahaja Yoga is a unique method of meditation based on an experience called self realization or spiritual awakening which can occur within each human being. The goal of Sahaja Yoga is to create an inner transformation by which one becomes moral, united, integrated and balanced.

To further validate the positive effective of yoga on depression, an article in the *Journal of Holistic Nursing* (2005), reviewed both published and ongoing research on yoga-based interventions for the treatment of depression. Overall, results suggested that yoga has potential as a therapeutic intervention for depression (Nurmi, 2005).

I. Musculoskeletal Benefits

Three common musculoskeletal ailments in our society today are low back pain, osteoarthritis and carpal tunnel syndrome. In fact, experts suggest that back problems are the second most common reason for visiting a medical doctor, the top reason for seeing a chiropractor and the leading cause of disability for people under the age of forty-five (McCall, 2007). Years ago, physicians would recommend that patients remain on bedrest with back problems, however, recently, there has been a shift in the standard approach and physicians now realize that lying in bed is counterproductive and gently moving around actually helps to heal the spine.

There are many forms of arthritis, although the most common is osteoarthritis (McCall, 2007). This form of arthritis is a result of the wear and tear that typically affects joints in the back, neck, hips, knees, fingers, etc. In a normal joint, the well-lubricated cartilage allows bones to slide smoothly over one another. In osteoarthritis, the protective cartilage is worn down or damaged in some way resulting in inflammation and subsequent pain both during movement and at rest.

The carpal tunnel is a narrow opening in the wrist formed by ligaments and bones. Pain results when the opening compresses the median nerve. For this reason, many physicians refer to this syndrome as “nerve compression syndrome.” The most common cause of carpal tunnel syndrome (CTS) is repetitive hand movements examples include knitting, computer use, and playing a musical instrument. In addition, anything that causes the space in the wrist joint to become more narrow like fluid retention in pregnancy, old fractures and/or arthritic changes can also cause CTS. Recently, there is also evidence that poor posture and the rounding of the shoulders may compress the median nerve with pain felt in the wrist as well. If left untreated, CTS may result in permanent nerve damage and muscle weakness in the hands (McCall, 2007).

Below is a table outlining several studies showing the positive benefits of yoga on these three common musculoskeletal disorders.

Musculo-skeletal	Study type	Cohort	Yoga intervention	Result	For Further Information
Low Back Pain	Randomized controlled trial comparing Yoga, conventional exercise and a self-care book for chronic back pain.	101 adults (66% women, mean age 44) with chronic low back pain, the majority of whom experienced pain for longer than one year.	Participants were randomly assigned to either a 12-week yoga intervention, a 12-week conventional exercise intervention or a home study/educational book intervention.	Participants in the yoga group experienced the greatest improvements in back function at 12 weeks. At 26 weeks, the yoga group also showed the greatest improvement as well as a decrease in use of pain medication compared to the other two groups. At 26 weeks, the yoga group and conventional exercise group both showed greater improvements in back function than the education book group.	Explore: <i>Annals of Internal Medicine.</i> 143. 849-56. December, (2005).
Osteoarthritis of the knee	Pilot study	Participants (11 enrolled, 7 completed the study)	. 90-minute lyengar yoga practice and performed the program once a week for 8 weeks.	Significant reduction in pain, physical impairments and negative emotions associated with their condition. Authors mention that 6 of the 7 were obese demonstrating the feasibility of using yoga as an intervention for obese individuals.	Explore: <i>Journal of Alternative and Complementary Medicine.</i> 11. 689-93. (2005).
Carpal Tunnel	Randomized Trial	42 patients	Half of the participants took part in an 8-week program of lyengar yoga while the control group received wrist splints.	People who had done yoga had less pain and a significant improvement in grip strength as compared to the controls.	Explore: <i>Journal of the American Medical Association (JAMA),</i> 1998.

IV. Summary

Yoga consists of ancient theories, observations and principles about the mind, body, spirit connection which are now being studied by modern medicine. Substantial research has been conducted to look at the health benefits of yoga - from the yoga postures (Asanas), yoga breathing (Pranayama) and meditation.

The positive effects of yoga have been explored in a number of patient populations including people with cancer, autoimmune disorders, cardiovascular disease, depression, diabetes, and gastrointestinal syndromes. Results have shown positive effects on a variety of outcomes, including decrease in pain, symptoms and disease-related stress. In addition, people who practice yoga on a regular basis tend to sleep better, deal with stress more effectively and experience an improvement in the overall quality of their lives. Much of what we know about the health benefits of yoga come from case studies, randomized trials and personal accounts. More research needs to be done in order to validate these outcomes. Nevertheless, the evidence to date is very compelling.

There is an old saying, "Don't throw the baby out with the bath water." While complementary therapies like yoga are a great adjunct to treating people with various health conditions, we must remember that western medicine is also a valuable tool in dealing with acute and chronic diseases. Western medicine has made great strides in helping to treat and cure many diseases and recently, medical schools are starting to teach a new paradigm which moves away from a disease-centered model to a holistic patient-centered model.

Still, in our society, there is more of a focus on treatment rather than prevention. And in the western culture, there is an attitude of immediacy. People want an easy solution to their problems like a "magic pill." Using yoga as medicine takes practice, patience and perseverance. In our society, people tend to distrust themselves and rely heavily on the medical establishment to stay healthy. Yoga teaches us through mindfulness how to listen to our bodies, notice how we are affected by the food we eat, the environment around us, and the way we live our lives.

By staying in tune with our bodies on a moment-to-moment basis, we can choose to make changes that positively impact our health. And if we are not successful in keeping ourselves healthy, we are fortunate to have an excellent partner in the medical establishment. But the responsibility of our health is ultimately ourselves and by practicing yoga, we not only stay connected to our bodies to keep ourselves healthy, we are able to deal with health problems more effectively should they arise.

In the many studies reported in this chapter, the best results were a combination of yoga with western medicine interventions. This speaks to the importance of blending the best of modern medicine with the proven healing properties of ancient wisdom. As healthcare practitioners embrace the benefits of complementary therapies, yoga along with other modalities will become more accepted and mainstream.

Yoga is an ancient eastern concept that has attracted millions of practitioners in modern times. Yoga connects mind, body and spirit through the breath reminding us of a Latin phrase: "*Mens sana in corpore sano*" – "A healthy mind in a healthy body." Through the practice of yoga, we become closer to truly understanding the interactive nature between illness and health and our innate ability to influence both.

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