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# Yoga and Heart Disease

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# Yoga and Heart Disease

## **Abstract**

Yoga is a term that surfaces frequently when searching for techniques to improve health. Yoga is often used synonymously with physical exercise, flexibility, and relaxation. However, yoga's journey into medical science and research has been and continues to be a "Long and Winding Road." There are multiple, published and ongoing studies conducted about the effects of yoga on various ailments such as diabetes mellitus, stress, obsessive-compulsive disorder and heart disease. Heart disease is the number one killer of both men and women in the United States, causing nearly 26% off all deaths (Syman). The American Heart Association has set a goal to "Improve cardiovascular health in Americans by 20% and reduce deaths by 20% all by the year 2020" (American Heart Association). The objective of this paper is to highlight the potential benefits of the ancient practice of yoga and how it is beginning to change the landscape of modern American medicine and the treatment of heart disease.

One does not have to look far to find the term *Yoga* when searching techniques to improve health. At this time in American history, yoga is synonymous with physical exercise, flexibility, and relaxation. However, yoga's journey into medical science and research has been and continues to be a "Long and Winding Road." When searching databases, you quickly see there are multiple, published and ongoing studies conducted on the effects of yoga on various ailments such as diabetes mellitus, stress, obsessive-compulsive disorder and heart disease. Heart disease is the number one killer of both men and women in the United States, causing nearly 26% off all deaths (Syman). The American Heart Association has set a goal to "Improve cardiovascular health in Americans by 20% and reduce deaths by 20% all by the year 2020" (American Heart Association). The objective of this paper is to highlight the potential benefits of the ancient practice of yoga and how it is beginning to change the landscape of modern American medicine and the treatment of heart disease.

The reference to "Long and Winding Road" by *The Beatles* was not random. In the past, the band has been attributed with introducing yoga to Americans. That statement however is misleading. Yoga has been making an impression on American society since the mid 19th century when the first English translation of *The Bhagavad-Gita* became available (Mishra). This ancient text written more than 2000 years ago is an Indian epic poem that highlights *yoga*, which translates from ancient Sanskrit to English as "the union of the physical self with the cosmic self" (Pizer). The *Bhagavad-Gita* highlights three principle practices to gain spiritual enlightenment: the practice of *karma yoga* or yoga of service, *jnana yoga* or the yoga

of knowledge, particularly self-knowledge and *bhakti yoga* or yoga of devotion (International Sivananda Yoga Vedanta Centres). Reading the *Bhagavad-Gita*, you can see that there is little mention of the physical practice of yoga or *asana*; regardless, this text is the foundation of the history and philosophy of yoga (Pizer).

During the early 20th century, the American public viewed yoga as an "occult activity, to be feared and loathed" (Love, 2006). Yoga in America during this time had a very dark connotation. To the American consumer of news, yoga was considered, "no longer just a queer pastime; it was evil, a con, a cult - uncivilized, heathen, and anti-American" (Love, 2006). Both government (through legislation and erroneous investigations) and media, including tabloids and major journals/newspapers such as the Washington Post continued to depict yoga in an unfashionable and defaming way throughout the 1920's -1930's.

By the 1940's, there was a "softening" of the media and its relationship with yoga (Love, 2006). Yoga, it turned out, was no longer a novelty or fad and was in fact, not going away. By the mid 1950's, people were joining in community rooms to try yoga. By the 1960's, there were an estimated 20,000-100,000 registered yoga practitioners nationally, as estimated by the New York Times (Love, 2006). Enter *The Beatles* in 1967 and their brief but humbling experience with the swami Maharishi Mahesh Yogi, founder of Transcendental Meditation (TM), who later rejected them from his teachings, saying, "While the boys did well with meditation, they would not represent him or TM" (Love, 2006). During the 1970's-1980's interest in yoga began to slow, in part due to the natural backlash of "all things hippie" (Love, 2006) and the rise of the "Jane Fonda" style of heart-thumping aerobics (Love, 2006).

Yoga's rise to popularity began again in the early 1990's. The Lancet medical journal published the results of a California based physician, Dean Ornish's research that indicated lifestyle changes, including yoga-based stress management, could reverse heart disease (Love, 2006). By all accounts, this was the first time the U.S. medical community had considered the effects of yoga on the human body in a way that may have an impact on disease.

For the purpose of medical study, yoga is an intervention based on a mind-body approach that couples "physical movement with internally directed focus on the breath" (Jane W. Young, 2001). This approach differs from traditional interventions such as aerobics or fitness classes, which focus on "external instructional cues" (Jane W. Young, 2001). Another term used to study yoga clinically is mind-body therapies (MBTs), defined as "techniques designed to enhance the mind's capacity to affect bodily functions and symptoms" (Complement Ther Med., 2008). The mind-body approach teaches the client to be attentive to the intrinsic energy from which the client may eventually "perceive greater self-control and empowerment" (Jane W. Young, 2001). There are two main categories of MBT: relaxation techniques, which include deep breathing and meditation, and somatic techniques, which incorporate exercise with relaxation such as yoga (Complement Ther Med., 2008). Fundamentally, yoga teaches that body, mind and breath are intimately connected and therefore a disturbance in one may be expressed in the others (Jane W. Young, 2001). This primary principle of yoga is what fuels research into yoga's affect on the heart and cardiovascular system.

Heart disease is any disorder that affects the heart, including arrhythmias, myocardial infarction, coronary artery disease, and diseases of the valves, congenital heart defect, and others. Heart disease, often used synonymously with

cardiovascular disease, does not include the peripheral or systemic blood vessels. Exercise affects both cardiovascular disease and heart disease. The heart is a muscular organ, like all muscles, it becomes stronger with exercise, and therefore can pump more effectively (MedicineNet.com). Well documented, exercise has an important role in the prevention and treatment of heart disease. The American Heart Association recommends at least 150 minutes of moderate exercise or 75 minutes of vigorous exercise weekly to help prevent heart disease (American Heart Association).

There are risk factors associated with the development of heart disease, some of these risk factors are "modifiable" while others, such as genetics are not (MedicineNet.com). An exercise regimen can affect the modifiable risk factors, such as hypertension, type II diabetes, stress, and obesity (American Heart Association). Many of the current studies linking yoga and the reduction of heart disease, look at how the practice of yoga affects the physiology of the heart, thus reducing the risk for heart disease. The common theme in many of the reviewed studies is that yoga has a primary impact on the body's stress response (Levy, 1993). Dr. Joel Levy, of St. Luke's Episcopal Hospital in Houston, Texas, reviewed complementary therapies as an adjunctive treatment for those participating in cardiac rehabilitation. He concluded that many studies have linked stress with negative cardiovascular events. He also suggests that stress management techniques can take many forms such as yoga, meditation, and massage (Levy, 1993).

A study published in the *Journal of the Association of Physicians of India* in July of 2000, concluded that yoga would be a "feasible" treatment for patients diagnosed with severe coronary artery disease based on research from New Delhi, India. When the coronary arteries begin to narrow due to atherosclerosis, (fatty

cholesterol deposits within the vessels) the heart becomes deprived of vital oxygen and patients become at risk for angina (chest pain), myocardial infarction (heart attack), and sudden cardiac death (MedicineNet.com). The aforementioned study followed 42 men diagnosed with severe coronary artery disease for one year. All the men modified their diets, continued their medications, and in addition, one group of men were asked to perform yoga for 90 minutes a day; both exercise, and deep breathing components of yoga were used. The rest of the men were the control group, and not asked to perform yoga. At the conclusion of the study, the group that participated in the daily yoga practice, had showed "significant increase in exercise capacity, a reduction of episodes of chest pain, less need to have their arteries unblocked (angioplasty), decreased body weight and decreased cholesterol" (Journal of the Association of Physicians of India, 2000).

Atrial fibrillation (AF) is the most common rhythm disorder of the heart, with over a half million new diagnoses each year (Medicine Net, 2010). The heart's basic anatomy is made up of four chambers: the right atria, where returning from the body, deoxygenated blood enters, and then is pumped into the right ventricle. From there the deoxygenated blood enters the lungs for oxygenation and carbon dioxide exchange. The oxygenated blood then travels from the lungs through the left atria and into the left ventricle where the heart ultimately pumps the oxygenated blood to the entire body.

For the heart to contract efficiently, the coordination of electrophysiology must be intact. Normally, the SA node in the right atria controls and determines the heart rate or rhythm. A normal resting heart rate is between 60-100 beats per minute. The SA node is a bundle of cells that conduct electricity from the right atria; the electricity then travels through the heart via specialized tissues connecting the

atria with the ventricles and then to the AV Node, which resides in the right ventricle. This traveling electrical impulse triggers the heart to pump (Medicine Net, 2010). In AF, there is a disturbance in the conductivity physiology of the heart; abnormal discharges originating elsewhere from the SA Node cause the heart to pump in an irregular and often rapid rhythm, sometimes up to 300 bpm. This defective conductivity causes the heart to pump ineffectively and puts the patient at risk for heart failure, pulmonary edema, and stroke. Stroke is the major concern for patients with AF. The ineffective pumping of the left ventricle causes blood to pool in the chamber, creating blood clots as the blood coagulates from lack of movement. These blood clots can travel into the body and block major arteries in the brain, causing stroke (Medicine Net, 2010).

The current standard of treatment for AF includes: medical management i.e. drugs to prevent stroke (aspirin, Warfarin), and/or slow the heart rate (beta blockers, Digoxin, etc.). If necessary, chemical cardioversion is used: medicines prescribed to chemically convert/maintain normal rhythm (such as Amiodorone). Also, treatment includes reversing risk factors for AF - stopping the use of stimulant drugs and excessive alcohol intake as well as controlling heart failure, hyperthyroidism, and hypertension. Finally, other treatments involve using more invasive procedures meant to convert the heart to a normal rhythm: cardioversion, Maze, AV node ablation and/or the implantation of defibrillators or pacemakers (Medicine Net, 2010).

Currently a study being conducted by Dr. Dhanunjay Lakkireddy, cardiologist, taking place at University of Kansas Hospital looks at the influence of yoga on patients with the diagnosis of atrial fibrillation (AF). Exposed to yoga as a young child, Dr. Lakkireddy learned from his grandfather, a practiced yogi, who

would work with the young Dhanunjay in his native India. He rediscovered yoga as a physician when a patient reported to him that the symptoms of her AF had improved after she started practicing yoga (Lakkireddy, 2011).

Having conducted research before, Dr. Lakkireddy (an electrophysiology specialist) built a study that would look at the effects of yoga on paroxysmal atrial fibrillation. Dr. Lakkireddy enrolled 49 patients with paroxysmal AF and required a 6-month commitment from each participant. For the first 3 months, the participants were instructed to engage in the usual physical activity they were accustomed to doing. The next 3 months during the "study" phase, the patients participated in a supervised yoga program, which included physical postures, meditation, breathing exercises, and relaxation. 45-minute sessions were conducted 3 times per week, with each participant also encouraged to practice daily at home. The program was designed to "allow beginners to progress safely from basic movements to more advanced practices over the course of the study" (KU Med, 2011). The results were measured throughout the study by portable heart monitors (which monitored and recorded any cardiac "event") as well as patient symptom logbooks. Participants were asked during the entire study to complete short surveys to assess anxiety, depression, and overall quality of life scores. At the end of the 6 months, data showed a "significant (nearly 40%) reduction in irregular heart beats of the atrial fibrillation patients in the study phase when compared with the control phase. Dr. Lakkireddy also reported a "drastic" improvement in the quality of life scores of the patients, with significant reductions in both depression and anxiety scores (Lakkireddy, 2011).

Dr. Lakkireddy concluded, "It appears yoga has a significant impact on helping to regulate patients' heartbeat and improves their overall quality of life.

Any intervention that helps in reducing the arrhythmia burden in atrial fibrillation can have a huge impact on public health" (Lakkireddy, 2011). Dr. Lakkireddy's intention with his study of yoga was to look at how yoga might affect AF as an adjunctive therapy for his patients, not a replacement for medical treatment. He stresses the importance of continuing anticoagulant therapy, because "yoga cannot prevent stroke." Dr. Lakkireddy admits he does not exactly understand how yoga is working, but suggests it might prevent the "peaks in sympathetic and parasympathetic tones that precede AF episodes", as well as reducing systemic inflammation and endothelial dysfunction. He plans to do more research into these mechanisms, as he also understands, "yoga helps to reduce blood pressure, cholesterol, and stress" (Lakkireddy, 2011). He concludes, "Yoga is a comprehensive lifestyle change that can have a broad effect" (Lakkireddy, 2011).

Research into the use of yoga and treating heart disease is in its infancy (Harvard Heart Letter 1, 2010). What does the future hold for research into the effects of yoga and heart disease? I have highlighted a very small portion of the available studies, but from them we begin to see the possibilities and that yoga can improve hypertension, heart failure, dysrhythmias, improve cardiac rehabilitation and reduce stress (Harvard Heart Letter 1, 2010). As a medical professional, I am entering into the field of medicine during a very exciting time. Physicians, nurses, researchers, and others are paving the way by building on a current body of work that suggests the ancient practice of yoga and its synergy of mind, body, and breath can and does impact our health in many ways. As Dr. Lakkireddy (2011) said, "Everything has to start somewhere."

## Bibliography

American Heart Association. (n.d.). Retrieved Apr 10, 2011, from [www.heart.org: http://www.heart.org/HEARTORG/GettingHealthy/PhysicalActivity/GettingActive/Physical-activity-improves-quality-of-life\\_UCM\\_307977\\_Article.jsp](http://www.heart.org/HEARTORG/GettingHealthy/PhysicalActivity/GettingActive/Physical-activity-improves-quality-of-life_UCM_307977_Article.jsp)

CDC. (2010, Dec 21). [www.cdc.gov/heartdisease/facts.htm](http://www.cdc.gov/heartdisease/facts.htm). Retrieved Apr 13, 2011, from [www.cdc.gov](http://www.cdc.gov): <http://www.cdc.gov/heartdisease/facts.htm>

Complement Ther Med. (2008). The prevalence and correlates of mind-body therapy practices in patients with acute coronary syndrome. *Complement Ther Med*, 5, 254-261.

Harvard Heart Letter 1. (2010). *Yoga Could be Good for Heart Disease*. Harvard College of Medicine, Health Reference Center Academic. Boston: President and Fellows of Harvard College.

International Sivananda Yoga Vedanta Centres. (n.d.). *Five Points of Yoga*. Retrieved from [Sivananda.org](http://www.sivandana.org): <http://www.sivandana.org/teachings/fivepoints.html#relaxation>

Jane W. Young, P. C. (2001). Effects of a Yoga Intervention on Symptoms of Stress in Individuals Recovering from Heart Disease. *Annual in therapeutic recreation*, 13-22.

Journal of the Association of Physicians of India. (2000). Yoga May Curb Heart Disease. *Journal of the Association of Physicians of India*, 48, 687-694.

KU Med. (2011, April 02). [www.kumed.com/default.aspx?id=5598](http://www.kumed.com/default.aspx?id=5598). Retrieved April 13, 2011, from [www.kumed.com](http://www.kumed.com): <http://www.kumed.com/default.aspx?id=5598>

Lakkireddy, D. D. (2011, April 02). Yoga Found to Reduce AF Episodes. 2. (S. Hughes, Interviewer) HeartWire.

Levy, K. J. (1993). Standard And Alternative Adjunctive Treatments in Cardiac Rehabilitation. *Texas Heart Institute Journal*, 20, 198-212.

Love, R. (2006). Fear of Yoga. *Colombia Journalism Review*, 45 (4), 80-90.

Medicine Net. (2010, Jan 10). [www.medicinenet.com/atrial\\_fibrillation/article.htm#tocb](http://www.medicinenet.com/atrial_fibrillation/article.htm#tocb). Retrieved Apr 13, 2011, from [www.medicinenet.com](http://www.medicinenet.com): [http://www.medicinenet.com/atrial\\_fibrillation/article.htm#tocb](http://www.medicinenet.com/atrial_fibrillation/article.htm#tocb)

MedicineNet.com. (n.d.). <http://www.medterms.com/script/main/art.asp?articlekey=31193>. Retrieved from <http://www.medterms.com>.

Mishra, P. (n.d.). *Sunday Book Review*. Retrieved from NY Times:  
<http://www.nytimes.com/2010/07/25/books/review/Mishra-t.html>

Pizer, A. (n.d.). *About.com/Yoga*. Retrieved from About.com:  
<http://www.yoga.about.com/od/bhagavadgita/a/thegita.htm>

Syman, S. (n.d.). Retrieved from Yoga Journal Magazine:  
<http://www.jogajournal.com/wisdom/2509>