

Review Research Paper

The Health Benefits of Tai Chi and Qigong

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This study reviews the evidence on the effectiveness of tai chi and qigong, two forms of traditional Chinese medicine, on the treatment of the ten most prevalent illnesses – heart disease, cancer, chronic lower respiratory diseases, obesity, Alzheimer’s Disease, diabetes, substance abuse disorders, influenza and pneumonia, kidney disease, and mental health conditions. Microsoft Copilot, an artificial intelligence chatbot, was used to identify the top ten diseases. The PubMed database was then used to find case studies for each of the ten most prevalent diseases. A sample of relevant studies was summarized. The findings were that tai chi and qigong have been shown to be effective in treating these ailments in many medical studies.

Keywords: tai chi, qigong, Traditional Chinese Medicine, TCM, artificial intelligence, Microsoft Copilot, common diseases

INTRODUCTION

Tai chi is considered both a martial art and a set of health exercises [2, 3, 8]. Its original emphasis was on martial arts. However, in recent decades, the focus has been more on its health benefits than on its martial arts applications. Qigong [pronounced chee gong] is not a martial art, per se, although it is an integral, internal part of tai chi [1]. Both tai chi and qigong are forms of moving meditation that originated in China and have spread to the West in recent decades.

One difference between tai chi and qigong is that the external movements of tai chi form sequential patterns [1-10], much like Japanese katas or Korean poomsae, whereas qigong exercises can be done as individual exercises [1] and need not form any particular pattern or sequence, although the exercises can be structured as a set [11-28], much like yoga exercises can, but need not be performed in a set pattern.

Qigong exercises [1, 18, 20-21] are easier to learn than tai chi patterns. Acquiring proficiency in tai chi takes years, perhaps even a decade or more, whereas qigong exercises can be learned fairly quickly. However, the health benefits of both forms of exercise can begin to accrue after a few practice sessions, even if mastery is never attained.

No one knows for sure who created either tai chi [5, 8, 9] or qigong [1, 20, 21] or when they were created. Their origins are steeped in myth. All we know for sure is that tai chi is several hundred years old and qigong is several thousand years old. They are both considered forms of

Traditional Chinese Medicine [TCM], along with acupuncture, acupressure, herbal medicine and Chinese massage. One thing that differentiates Chinese medicine from Western medicine is its emphasis on illness prevention rather than illness treatment. TCM focuses on strengthening the body’s natural immune system so that individuals do not need to be treated for illness.

Many studies have been done on the effectiveness of tai chi and qigong on the treatment of a wide range of illnesses [29-57]. Many of those studies were done in China, with the results published in Chinese. However, in recent decades, the results of many studies have been published in English, making it possible for Western medical professionals to become aware of the possibilities of introducing tai chi and qigong into their medical practices, often as supplemental treatments to those usually provided to their patients. The main purpose of the present paper is to briefly discuss how tai chi and qigong have been used to treat a wide range of ailments, both in China and the West so that medical professionals can learn about the possibilities that tai chi and qigong have to offer. Incorporating them into a medical practice is cost-effective, and there are no serious side-effects.

Some Studies

Microsoft Copilot [58] is one of the more popular chat bots being used these days. It has a wide range of uses,

including medical research [59-88]. We decided to use it to identify the most frequent serious illnesses in the United States as an initial step in our present research, which is aimed at discovering a sample of medical studies that have incorporated the use of either tai chi or qigong to treat some common illnesses. The instruction we gave it is given below.

INSTRUCTION: Make a list of the ten most common serious illnesses in the United States. Include references.

COPILOT REPLY

Here are the ten most common serious illnesses in the United States, along with references:

1. Heart Disease: The leading cause of death in the U.S., heart disease includes conditions such as coronary artery disease and heart attacks [89].
2. Cancer: Various forms of cancer, including lung, breast, and colorectal cancer, are among the top causes of death [89].
3. Chronic Lower Respiratory Diseases: This category includes chronic obstructive pulmonary disease (COPD), emphysema, and chronic bronchitis [89].
4. Obesity: A significant public health issue, obesity is linked to numerous other health conditions, including heart disease and diabetes [89].
5. Alzheimer's Disease: A progressive neurodegenerative disease that affects memory and cognitive function [89].
6. Diabetes: A chronic condition that affects how the body processes blood sugar (glucose) [1].
7. Substance Abuse Disorders: Includes alcohol and drug abuse, which can lead to a range of health issues and fatalities [89].
8. Influenza and Pneumonia: Infectious diseases that can be particularly severe for the elderly and those with weakened immune systems [89].
9. Kidney Disease: Chronic kidney disease can lead to kidney failure and the need for dialysis or transplantation [89].
10. Mental Health Conditions: Includes depression, anxiety disorders, and other mental health issues that significantly impact quality of life [89].

These conditions are major contributors to morbidity and mortality in the U.S., and addressing them requires a combination of medical care, lifestyle changes, and public health initiatives [89].

Reference

89 Bryan, Alexis. 10 Most Common Health Conditions in The U.S. In 2024. Talktomira.com, January 1, 2024. <https://www.talktomira.com/post/10-most-common-health-conditions-in-the-u-s>

AUTHOR COMMENTS

Copilot cited only one reference. However, that reference was sufficient for the purpose of making a list of 10 common diseases. At this time it is worth mentioning that it is a good idea to check the references Copilot and other chat bots provide because some prior studies have found AI to produce inaccurate [90-94] or biased [95-103] results. A due diligence check was made, and it was determined that the information provided by Copilot was accurate in this case. The referenced source provided additional information for those who might be interested in learning more about the top-10 diseases.

The next step was to find studies that have incorporated tai chi or qigong into the treatment of these ten maladies. We went to the PubMed [104] database and searched for studies on these 10 diseases that incorporated either tai chi or qigong. We found hundreds of relevant studies, including some bibliometric studies [105-120]. Space does not permit a full discussion of each of the ten categories. Below is a small sampling.

Heart Disease

In a Changchun, China study, Li et al. [121] explored the effects of tai chi on coronary heart disease (CHD) risk by measuring miR-24 and miR-25 serum levels. They examined 326 CHD patients who were divided into a control group (CG) and a tai chi TG) group. The tai chi group practiced five movements of the Yang 24 form for an hour, while the control group practiced other exercises for an hour. They then compared their daily living ability and exercise of self-care agency scores. After six months, the exercise of self-care agency, activities of daily living ability, left ventricular ejection fraction and SF-36 scores were significantly higher ($p < 0.05$) in the tai chi group than in the control group. The tai chi group had significantly lower ($p < 0.05$) scores for arrhythmia and atrioventricular block recovery, hospital stay, self-rating depression scale and self-rating anxiety scale scores were lower for the tai chi group. Their serum levels were also significantly lower ($p < 0.05$). The study concluded that the practice of tai chi improved chronic heart disease prognosis "by affecting serum levels of the miR-24 and miR-155." Other studies also found that the practice of tai chi has beneficial effects for patients with chronic heart disease [122-127].

Cancer

Huston and McFarlane [127] conducted a literature review on the effect of tai chi on 25 specific conditions, including cancer. They found fair evidence to suggest that the practice of tai chi enhanced the quality of life for cancer patients. Arring et al. [128] conducted a systematic review of literature from 1990-2019, which indicated that qigong and tai chi can be beneficial for Post treatment of cancer survivors. Cheung et al. [129]

concluded that tai chi and aerobic exercise can have a positive effect on patients with lung cancer. Maind et al. [130] found that the practice of tai chi and qigong could reduce pain intensity in cancer patients. Zeng et al. [131] conducted a literature review and concluded that the practice of tai chi and qigong had a positive effect on quality of life, fatigue, cortisol level and immune system in cancer patients.

Chronic Lower Respiratory Disease

Huston and McFarlane [127] found six systematic reviews that concluded excellent evidence that tai chi is effective for patients going through COPD rehabilitation. Xiong et al. [132] found that patients suffering from chronic respiratory disease could benefit from exercise training of various kinds, including tai chi, aerobic exercise, aquatic exercise, resistance and high-intensity intermittent exercises. Another study [133] found similar results. Zhang et al. [134] conducted a systematic review and meta-analysis of 39 randomized control trials of studies published between 1999 and 2021 involving COPD patients. They concluded that yoga and tai chi resulted in significant improvement in the FEV1% predicted value, and that pulmonary rehabilitation programs improved exercise capacity, dyspnea and quality of life in COPD patients.

Liu et al. [135] conducted a single-blind randomized control trial involving 102 participants who had mild to severe stable COPD. Patients participated in a two-month supervised exercise routine, followed by a 10-month rehabilitation program. The tai chi group fared significantly better than the other groups on the St. George's Respiratory Questionnaire ($p < 0.001$). Another study [136] concluded that tai chi and yoga improve physical activity, pulmonary function and quality of life of COPD patients.

Obesity

Siu et al. [137] conducted a randomized, controlled, assessor-blinded trial in Hong Kong of 543 adults over 50 years old who had central obesity. The three groups were evenly split into a control group, which received no exercise intervention, a group that engaged in conventional aerobic exercise and strength training, and a group that practiced tai chi. At the end of the 12-week program, both intervention groups reduced waist circumference compared to the control group ($p < 0.001$), and also reduced weight significantly compared to the nonintervention group ($p < 0.05$). The two intervention groups maintained their reduction in waist circumference and weight after 38 weeks, but only the tai chi group maintained the beneficial effect on HDL-C over the 38-week period.

A 12-week Chinese study involving 103 middle-aged and older adults who had type 2 diabetes mellitus (T2DM)

consisted of those who practiced fitness qigong, tai chi and a control group. The authors concluded that qigong exercises might have a better effect on patients with a longer duration of type 2 diabetes, and that tai chi might be risky for people with central obesity. A literature review of studies involving several martial arts, including karate, kung fu and tai chi might have a positive effect on glycemic control, obesity and metabolic diseases [138].

Alzheimer's Disease

Huston and McFarlane [127] identified five systematic reviews indicating that tai chi improved cognitive capacity, and two systematic reviews that found tai chi to improve cognitive impairment and dementia. A literature review of neurodegenerative diseases concluded that tai chi has positive benefits for those who suffer from Alzheimer's as well as other diseases such as Parkinson's [139]. Another study provided instructions on how individuals suffering from Alzheimer's or Parkinson's can adapt tai chi practice to improve their daily life [140].

Diabetes

A study aimed at exploring the optimal exercise parameters for using tai chi to improve glucose and lipid levels for type 2 diabetes mellitus patients examined sixteen randomized control trials and concluded that the Yang-24 form practiced with high frequency and short duration might be optimal for enhancing glucose and lipid metabolism. The study specifically mentioned using the Yang-24 form for 45-60 minutes per session, repeated 5 to 7 times a week for at least four to seven weeks [141].

A study aimed at determining the effects of tai chi practice on glucose and lipid metabolism on patients with type 2 diabetes mellitus concluded that tai chi therapy is significantly superior in improving the FBG, HbA1c, TG and HDL-C in type 2 diabetes patients [142]. It recommended tai chi practice for both prevention and treatment of diabetes patients. It reached this conclusion because the tai chi group was better than the control group at decreasing fasting blood glucose ($p < 0.0001$), glycated hemoglobin ($p = 0.001$) and triglyceride ($p < 0.0001$), and in increasing the concentration of high-density lipoprotein cholesterol ($p < 0.0001$). Several other studies have also found that the practice of tai chi can have a beneficial effect on diabetes patients [143-145].

Substance Abuse Disorders

Breslin et al. [146] described a model outpatient substance abuse treatment program that included tai chi, dance and movement therapy, art therapy, recreational skills and other skills with the intent of increasing the patient's self-confidence and self-esteem. Zhang et al. [147] conducted a meta-analysis of nine studies to determine the impact of qigong and tai chi on the mood of

people with substance abuse disorders. The overall findings were that qigong and tai chi were able to reduce depression ($p < 0.01$) and anxiety ($p < 0.01$) significantly. Zhu et al. [148] assessed the effects of tai chi exercise on individuals who had amphetamine dependence. Their study examined 60 male participants from Shanghai over 12 weeks. The control group received standard care that included gesture language exercise, physical activity and self-education. This group did not experience any significant improvement. The tai chi group improved significantly in terms of quality of life for drug addiction test scores in the areas of physiology ($p = 0.005$), society (0.001), physical symptoms ($p = 0.042$), and societal interaction ($p = 0.001$). The study concluded that tai chi is an exercise that has promise for those suffering from stimulant dependence.

Another Shanghai study by Zhu et al. [149] found that mind-body exercises such as yoga, qigong or tai chi were significantly better than conventional rehabilitation exercises for those suffering from substance abuse disorder. Those in the experimental group practiced a mind-body exercise one hour a day, five days a week for three months. Significant differences were found for systolic ($p < 0.01$) and diastolic ($p < 0.01$) blood pressure, pulse ($p < 0.01$), flexibility ($p < 0.01$), aerobic endurance ($p < 0.01$) and vital capacity ($p < 0.05$).

Influenza and Pneumonia

Yang et al. [150, 151] conducted a study to determine whether moderate practice of tai chi and qigong would improve immune response to the influenza vaccine in older adults. Participants were injected with the influenza vaccine and half of them did moderate tai chi and qigong exercises over a five-month period. The study found that there was a significant ($p < 0.05$) increase in the duration and magnitude of the antibody response to the vaccine for the experimental group when compared to the control group.

Kidney Disease

Not many studies exist on the beneficial or detrimental effects of complementary and integrative medicine (CIM) such as tai chi, yoga or meditation on kidney transplant recipients, although the prevalence of such medicine is thought to be between 12-45 percent. There is a knowledge gap that needs to be filled by more studies on this topic [152]. A consensus has not yet been reached on the efficacy and safety of the utilization of tai chi for patients suffering from chronic kidney disease (CKD), although numerous studies have been unable to find any adverse side effects of using tai chi as a complementary form of treatment for a wide range of diseases and ailments. Ha et al. [153] conducted a systematic review in order to summarize what is already known about the effects of using tai chi in general, as well as using it to

treat patients who suffer from CKD. They found that the practice of tai chi might have a modest influence on the progression of CKD, although the evidence that tai chi has a positive effect on bone density is at present insufficient. They call for more rigorous long-term studies to determine whether tai chi could be an effective complementary medical treatment for CKD.

A Taiwanese study of 46 patients found that a weekly one-hour practice session of tai chi over a 12-week period resulted in significant improvements in the quality of life and physical functioning of end-stage renal disease patients on hemodialysis. The tai chi group fared significantly better than the control group. The Yang style short-form was used in this experiment [154].

An Iranian study of 25 hemodialysis patients found that tai chi significantly improved their quality of life in several ways, including health and functioning ($p < 0.001$), psycho spiritual ($p < 0.001$) and socioeconomic ($p < 0.001$) dimensions, family dimension ($p = 0.002$) and satisfaction domain ($p = 0.008$). The total quality of life score for both domains was significant ($p < 0.001$). The tai chi intervention consisted of one 60-minute class per week for 12 weeks, supplemented by home practice at least twice a week. Patients were given a tai chi CD to take home to assist in their practice [155].

Mental Health Conditions

Huston and McFarlane [127] found several studies that concluded that the practice of tai chi had a beneficial effect on anxiety, schizophrenia, PTSD and attention deficit disorder. Other studies have also found that using tai chi or qigong as a treatment or supplementary treatment has a beneficial effect on a wide range of health conditions and suggest that these treatments may be effective in reducing symptoms of depression, mood disturbances, anxiety and stress [156, 157]. Other studies have also found qigong to be effective in the treatment of mental disorders [158].

A study of 125 Spanish postmenopausal women found that an exercise program of qigong resulted in significant improvements to sleep latency, sleep quality, sleep efficiency, sleep duration, anxiety and depression compared to those in the control group. The regimen used Ba Duan Jin qigong over a 12-week period [159].

CONCLUSION

The evidence is clear that tai chi and qigong can be effective in treating a wide range of ailments and can be used to strengthen the body's natural immune system. These tools of traditional Chinese medicine have been used for centuries in China and a few other countries. Their use is becoming more prevalent in some Western countries, although their use as supplementary interventions is currently limited by the lack of knowledge on the part of medical professionals.

If any recommendations are to be made, it would be that Western medical practitioners should consider using tai chi or qigong in their own medical practices, since these two Chinese medical procedures have proven to be successful and effective in many prior studies. Most Western studies that have been conducted on the effectiveness of tai chi and qigong have utilized them as supplementary rather than primary treatments. Using these two Chinese medical techniques as supplementary treatments would be safe, since prior studies have found no adverse side-effects have resulted from their use.

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