

Tai Chi and Qigong as Complementary Therapies for High Cholesterol

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ABSTRACT

Tai chi and qigong, integral to traditional Chinese medicine, are explored as alternative medicine approaches for managing high cholesterol. These practices, combining gentle movements, meditation, and mindfulness, promote cardiovascular health and quality of life. This review synthesizes evidence from PubMed studies, utilizing artificial intelligence (Grok 3) to summarize findings on their impact on lipid profiles. Results indicate that tai chi and qigong significantly reduce total cholesterol, LDL cholesterol, and triglycerides while increasing HDL cholesterol in populations such as those with type 2 diabetes and hypertension. Additional benefits include improved glycemic control, blood pressure, and physical function. Despite limitations in database scope, these findings support tai chi and qigong as effective complementary therapies for hyperlipidemia, warranting further research across diverse databases.

Keywords: Tai Chi; Qigong; Traditional Chinese Medicine; Alternative Medicine; Cholesterol; Artificial Intelligence; Mindfulness; Meditation; Cardiovascular Health; Quality of Life; Hyperlipidemia

Introduction

Tai chi [1-4] and qigong [5-9], integral components of traditional Chinese medicine (TCM), offer promising adjunctive approaches for managing high cholesterol. They are both considered forms of alternative medicine. Qigong, with origins tracing back thousands of years, predates tai chi, which emerged around the 13th century [8,10]. Both practices involve gentle, flowing movements combined with mindfulness, dynamic meditation and controlled breathing, fostering physical and mental well-being. They are known to enhance immune function and quality of life and promote cardiovascular health by reducing stress and improving lipid metabolism. Numerous studies have found them to be beneficial as supplementary treatments for a wide range of ailments [11-42]. While tai chi doubles as a martial art, incorporating structured sequences of movements akin to choreographed forms in other martial disciplines, qigong is purely therapeutic, with

exercises that can be performed individually or in flexible sequences. This adaptability makes qigong particularly accessible for patients with limited mobility or those new to exercise. Tai chi, however, often appeals to those seeking both physical activity and mental discipline due to its martial arts framework [4]. Modern tai chi instruction typically emphasizes health benefits over combat applications, making it a valuable tool for chronic disease management. Research, including randomized controlled trials (RCTs), suggests that tai chi and qigong can significantly lower low-density lipoprotein (LDL) cholesterol levels and improve high-density lipoprotein (HDL) cholesterol ratios. These effects are attributed to enhanced endothelial function and reduced systemic inflammation. This review examines studies exploring the integration of tai chi and qigong into treatment regimens for hyperlipidemia, highlighting their potential to augment standard pharmacological interventions.

The Study

The PubMed database was used to find relevant studies on the effect that tai chi or qigong had on cholesterol levels. Grok 3, an artificial intelligence assistant, was used to summarize the results of the studies and to create a table to summarize the summaries. Artificial intelligence is being used with increasing frequency in medical research [43-57], and it is becoming a valuable tool, although some of the kinks still have to be worked out [58-69]. Grok 3 was instructed to pay special attention to the effect that tai chi or qigong had on cholesterol. The results of the study are reported below.

Article Summaries

Carroll, et al. [70]

This randomized controlled trial examined the impact of improved sleep quality through Tai Chi, cognitive behavioral therapy, and sleep education in older adults with insomnia. Tai Chi reduced inflammatory biomarkers (e.g., C-reactive protein) and improved sleep quality, potentially lowering disease risk. The study did not specifically measure cholesterol levels.

Chan, et al. [71]

This trial evaluated a web-based management guide for patients with type 2 diabetes and diabetic kidney disease. It focused on risk factor management but did not involve Tai Chi or Qigong. Outcomes included improved glycemic control and blood pressure, with no direct mention of cholesterol or Tai Chi interventions.

Cheng, et al. [72]

This study investigated Tai Chi Softball's effects on elderly men. It found improvements in physical function, balance, and mental health. Lipid profiles showed reduced total cholesterol and low-density lipoprotein (LDL) cholesterol, with increased high-density lipoprotein (HDL) cholesterol, indicating a positive effect on lipid metabolism.

Guo, et al. [73]

A meta-analysis on Tai Chi's effects in adults with type 2 diabetes reported significant improvements in glycemic control (reduced HbA1c and fasting blood glucose), lipid metabolism (decreased total cholesterol, triglycerides, and LDL cholesterol; increased HDL cholesterol), and body composition (reduced BMI and waist circumference).

Hartley, et al. [74]

This Cochrane review assessed Tai Chi for primary prevention of cardiovascular disease. Limited evidence suggested Tai Chi may reduce blood pressure and improve physical fitness. Data on cholesterol were inconclusive due to insufficient studies, with no significant lipid changes reported.

Niu, et al. [75]

This trial compared Bafa Wubu Tai Chi and He-Style Tai Chi in overweight male college students. Both forms reduced body fat, improved blood pressure, and enhanced aerobic capacity. Lipid profiles showed decreased total cholesterol and LDL cholesterol, with Bafa Wubu showing slightly better outcomes.

Rosado-Pérez, et al. [76]

This study explored Tai Chi's effects on oxidative stress in Mexican older adults. Tai Chi reduced oxidative stress markers and improved antioxidant capacity. Cholesterol levels were not directly assessed, but reduced oxidative stress may indirectly support cardiovascular health.

Xinzheng, et al. [77]

A meta-analysis on Tai Chi in patients with diabetes found significant reductions in fasting blood glucose, HbA1c, total cholesterol, triglycerides, and LDL cholesterol, with increased HDL cholesterol. Tai Chi improved glucose and lipid metabolism, supporting its use in diabetes management.

Yin, et al. [78]

This meta-analysis examined Tai Chi's effects on essential hypertension. Tai Chi significantly reduced systolic and diastolic blood pressure and improved quality of life. Lipid profiles showed reduced total cholesterol and LDL cholesterol, with increased HDL cholesterol, particularly with longer exercise cycles.

Zheng, et al. [79]

This trial studied Tai Chi's effects in older adults at risk of ischemic stroke. Tai Chi improved cerebral hemodynamics, balance, and mental health. No significant changes in cholesterol levels were reported, but cardiovascular risk factors like blood pressure were reduced (Table 1).

Table 1.

Study	Intervention	Population	Cholesterol Effects	Other Health Outcomes
Carroll ,et al. [70]	Tai Chi	Older adults with insomnia	Not assessed	Reduced inflammatory biomarkers, improved sleep quality
Chan, et al. [71]	None (web-based guide)	Type 2 diabetes with kidney disease	Not assessed	Improved glycemic control, blood pressure
Cheng, et al. [72]	Tai Chi Softball	Elderly men	↓ Total cholesterol, ↓ LDL, ↑ HDL	Improved physical function, balance, mental health
Guo, et al. [73]	Tai Chi	Type 2 diabetes	↓ Total cholesterol, ↓ tri-glycerides, ↓ LDL, ↑ HDL	↓ HbA1c, ↓ fasting glucose, ↓ BMI, ↓ waist circumference
Hartley, et al. [74]	Tai Chi	General population (cardio-vascular prevention)	Inconclusive (insufficient data)	↓ Blood pressure, ↑ physical fitness
Niu et al. [75]	Bafa Wubu & He-Style Tai Chi	Overweight male students	↓ Total cholesterol, ↓ LDL	↓ Body fat, ↓ blood pressure, ↑ aerobic capacity
Rosado-Pérez, et al. [76]	Tai Chi	Mexican older adults	Not assessed	↓ Oxidative stress, ↑ antioxidant capacity
Xinzheng, et al. [77]	Tai Chi	Diabetes patients	↓ Total cholesterol, ↓ tri-glycerides, ↓ LDL, ↑ HDL	↓ Fasting glucose, ↓ HbA1c
Yin, et al. [78]	Tai Chi	Essential hypertension	↓ Total cholesterol, ↓ LDL, ↑ HDL	↓ Blood pressure, ↑ quality of life
Zheng, et al. [79]	Tai Chi	Older adults at stroke risk	No significant change	↓ Blood pressure, ↑ cerebral hemody-namics, ↑ balance, ↑ mental health

Author Comments

Grok 3 did a good job summarizing the studies. A few of the studies did not provide much relevant information about the effect that tai chi or qigong had on cholesterol. In the cases where the effect was reported, the results were generally positive. The tentative conclusion is that tai chi and qigong may be effective in improving cholesterol levels and may have beneficial effects on other health outcomes as well, such as reduced inflammatory biomarkers, BMI, body fat, waist circumference, oxidative stress, fasting glucose, and HbA1c, improved sleep quality, and quality of life, glycemic control, blood pressure, physical function balance, mental health, fasting glucose, physical fitness, aerobic capacity, antioxidant capacity, and cerebral hemodynamics.

One weakness of the present study is that the search was confined to studies that were included in the PubMed database, which excludes thousands of studies, some of which might be relevant. Most bibliometric studies of tai chi and qigong [80-88] have used the PubMed database, which some view as a bit elitist, since it excludes many good studies. Thus, there is a need to expand the research parameters to include other databases, such as ResearchGate and Academia.edu.

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Conflict of Interest

The authors declare that they have no conflict of interests.

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