

Using Tai Chi and Qigong to Treat Parkinson's Disease: Utilizing Artificial Intelligence to Summarize 8 Traditional Chinese Medicine Studies

Robert W. McGee

Fayetteville State University

Abstract

Parkinson's disease is a progressive neurodegenerative disorder in which pharmacologic treatment alone often fails to address the full spectrum of motor and non-motor symptoms or to halt functional decline. Tai chi and qigong, core modalities within traditional Chinese medicine, combine slow, coordinated movements with breath regulation and meditative focus and have increasingly been investigated as adjunctive therapies for Parkinson's disease. This paper uses an artificial intelligence assistant to extract and synthesize findings from 8 peer-reviewed studies, including systematic reviews, meta-analytic work, randomized controlled trials, and a long-term cohort study, that have evaluated tai chi-based or related mind-body interventions in individuals with Parkinson's disease. Across these reports, tai chi training was associated with clinically meaningful gains in balance, postural control, gait parameters, and fall reduction, with additional evidence for improvements in motor scores, mood, cognition, sleep, and overall quality of life in early-stage patients. Mechanistic investigations suggest that these benefits may be mediated through enhanced functional brain connectivity, modulation of inflammatory markers and neurotrophic factors, and favorable shifts in energy metabolism, although sample sizes remain modest and protocols are heterogeneous. Taken together, the AI-generated summaries indicate that tai chi and related traditional Chinese mind-body practices warrant consideration as complementary components of multidisciplinary Parkinson's disease management and justify larger, methodologically rigorous trials with better-specified interventions and longer follow-up.

Keywords: Tai Chi, Qigong, Parkinson's disease, balance, motor function, gait, non-motor symptoms, meta-analysis, randomized controlled trial, complementary therapy, neuroplasticity, fall prevention.

INTRODUCTION

Tai chi and qigong are both forms of traditional Chinese medicine (TCM). The origins of tai chi are steeped in myth, but some studies estimate that tai chi started around the twelfth or thirteenth century. Qigong is much older, going back several thousand years. Many studies have found that the application of tai chi and qigong yield multiple health benefits for a wide range of ailments [1-17]. Several bibliometric studies have been conducted on the health benefits of these forms of traditional Chinese medicine [18-22]. In recent years artificial intelligence has been used as both a research and administrative tool in Western medicine [23-30]. The present study utilizes artificial intelligence to summarize studies where tai chi and qigong have been used to treat Parkinson's disease.

Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by motor symptoms such as

tremor, rigidity, bradykinesia, and postural instability, as well as non-motor symptoms including depression, cognitive impairment, and sleep disturbances. Traditional pharmacological treatments often provide symptomatic relief but may not address all aspects of the disease or prevent progression.

Tai Chi and Qigong, ancient Chinese mind-body practices involving slow, deliberate movements, breathing control, and meditation, have emerged as promising complementary therapies. This compilation summarizes 8 studies, primarily systematic reviews, meta-analyses, and RCTs, to evaluate their effects on PD patients,

Corresponding Author: Robert W. McGee

Fayetteville State University

highlighting improvements in balance, mobility, motor function, and quality of life while exploring underlying mechanisms and practical implications.

METHODOLOGY

Studies were selected from the PubMed database. Grok, an artificial intelligence assistant, was then used to summarize the studies.

THE STUDIES

The studies are summarized below.

Study1 [31]

Study Design: Systematic overview assessing quality of 10 past systematic reviews on Tai Chi for PD (2008-2017) using AMSTAR2/PRISMA.

Participant Details: Aggregated from reviews, but specifics not provided.

Intervention Protocols: Tai Chi, but details not specified.

Key Findings: Promising for PD, but quality limitations; no specific stats.

Potential Mechanisms for Medical Professionals: Not explained.

Benefits for Tai Chi/Qigong Enthusiasts: Promising complementary benefits, Qi cultivation.

Strengths: Comprehensive quality assessment.

Limitations: High overlap, small samples, poor reporting.

Clinical Recommendations: Larger RCTs for magnitude/durability

Study2 [32]

Study Design: Evidence-based review on integrative therapies for PD, including Tai Chi.

Participant Details: Not detailed.

Intervention Protocols: Tai Chi, but specifics not provided.

Key Findings: Potential for mobility, mood, sleep, quality of life; insufficient stats.

Potential Mechanisms for Medical Professionals: Not explained.

Benefits for Tai Chi/Qigong Enthusiasts: Improves mood/sleep for holistic well-being.

Strengths: Updates evidence.

Limitations: Insufficient content.

Clinical Recommendations: Consider integrative use; more research.

Study3 [33]

Study Design: Study protocol for single-blind RCT comparing biomechanical-based Tai Chi to physical activity over 12 weeks.

Participant Details: 40 early-stage PD (Hoehn and Yahr 1-3), ages not specified, sex not detailed.

Intervention Protocols: Biomechanical-based Tai Chi (7 forms), 12 weeks, 3 sessions/week, 60 minutes.

Key Findings: Hypothetical improvements in gait/posture; no stats yet.

Potential Mechanisms for Medical Professionals: Enhances proprioception, muscle strength for stability.

Benefits for Tai Chi/Qigong Enthusiasts: Improves movement, cognitive function for Qi/well-being.

Strengths: Tailored for PD, comprehensive measures.

Limitations: Protocol only; difficulties in instruction following.

Clinical Recommendations: Potential balance/gait training; develop apps for access.

Study4 [34]

Study Design: Critical review of clinical studies (RCTs, non-RCTs, uncontrolled) on Tai Chi for PD up to 2008.

Participant Details: Not detailed.

Intervention Protocols: Tai Chi, but specifics not provided.

Key Findings: Mixed: superior to exercise in UPDRS/falls in one RCT, no effects in others; no stats.

Potential Mechanisms for Medical Professionals: Not explained.

Benefits for Tai Chi/Qigong Enthusiasts: Potential balance/fall reduction for Qi cultivation.

Strengths: Feasibility of RCTs noted.

Limitations: Methodological flaws, small samples.

Clinical Recommendations: Further research on balance/falls.

Study5 [35]

Study Design: RCT comparing Tai Chi, resistance training, stretching over 24 weeks.

Participant Details: 195 participants, mean age 68-69 years, 30.8-41.5% female; PD stages 1-4, mean duration 6-8 years.

Intervention Protocols: Tailored Tai Chi (8-form), 24 weeks, twice weekly, 60 minutes.

Key Findings: Improved maximum excursion (5.55% points, 95% CI 1.12-9.97, $p=0.01$ vs resistance); directional control (10.45% points, 95% CI 3.89-17.00, $p=0.002$); lower falls (IRR 0.33, 95% CI 0.16-0.71, $p=0.005$ vs stretching).

Potential Mechanisms for Medical Professionals: Enhances sway strategies, neuromuscular rehabilitation via weight shifting.

Benefits for Tai Chi/Qigong Enthusiasts: Boosts stability, Qi through rotational movements.

Strengths: Large sample, high adherence, sustained effects.

Limitations: No non-exercise control, “on” state only.

Clinical Recommendations: Recommend for postural stability/fall reduction in PD.

Study6 [36]

Study Design: One-year RCT with Tai Chi, brisk walking, control; assessments at 0/6/12 months including motor, fMRI, cytokines, metabolomics, HIP2 mRNA.

Participant Details: 95 early-stage PD (Hoehn-Yahr 1-2.5), mean age 61.9-62.7 years, 29.41-46.88% female; duration 3.82-5.91 years.

Intervention Protocols: Tai Chi, 12 months; frequencies/lengths in supplements (not detailed).

Key Findings: Improved BBS ($p=0.006$ at 6m), UPDRS-III ($p<0.001$ at 12m); enhanced VN/DMN connectivity ($p=0.044/0.023$); downregulated IL-1 β (correlated BBS $p\leq 0.031$); upregulated HIP2 mRNA ($p<0.001$, correlated UPDRS $p<0.005$).

Potential Mechanisms for Medical Professionals: Brain network enhancement, inflammation reduction, metabolism improvements (TCA cycle, adenosine).

Benefits for Tai Chi/Qigong Enthusiasts: Supports energy metabolism, Qi via neuroplasticity.

Strengths: Longitudinal, multi-modal mechanisms.

Limitations: Not specified.

Clinical Recommendations: Long-term Tai Chi for motor symptom relief via multiple pathways.

Study7 [37]

Study Design: 3.5-year follow-up cohort comparing Tai Chi-trained PD patients to non-exercise controls.

Participant Details: 330 participants (143 Tai Chi, 187 control); ages, sexes, PD stages/durations not detailed.

Intervention Protocols: Tai Chi, 3.5 years; frequencies/lengths not specified.

Key Findings: Reduced UPDRS deterioration, delayed antiparkinsonian therapy increase (specific stats not provided); benefits in motor/non-motor symptoms.

Potential Mechanisms for Medical Professionals: Not explained.

Benefits for Tai Chi/Qigong Enthusiasts: Long-term symptom relief for holistic health.

Strengths: Long follow-up, control comparison.

Limitations: Not mentioned.

Clinical Recommendations: Beneficial for delaying therapy escalation; recommend long-term.

Study8 [38]

Study Design: One-year RCT with Tai Chi, brisk walking, control on non-motor symptoms.

Participant Details: 95 recruited (66 completed), early-stage PD; ages, sexes not specified.

Intervention Protocols: Tai Chi, 1 year; frequencies/lengths not detailed.

Key Findings: Improved PDCRS ($p=0.003$), ESS ($p\leq 0.037$); enhanced somatomotor network ($p=0.003$); downregulated eotaxin/upregulated BDNF ($p\leq 0.037$); elevated HIP2 mRNA ($p=0.003$).

Potential Mechanisms for Medical Professionals: Brain function enhancement, inflammation reduction, neurotrophic support.

Benefits for Tai Chi/Qigong Enthusiasts: Cognition/sleep gains for Qi/well-being.

Strengths: Long-term, mechanism investigation.

Limitations: Not mentioned.

Clinical Recommendations: For non-motor symptoms like cognition/sleep in early PD.

CONCLUDING COMMENTS

The 8 studies reviewed in this AI-assisted synthesis collectively portray tai chi as a feasible and generally safe adjunct to standard care for people living with Parkinson's disease. Randomized and longitudinal data point to improvements in postural stability, balance confidence, gait, and fall risk, along with benefits in motor and selected non-motor domains that are clinically relevant

for maintaining independence. Studies that incorporated neuroimaging, inflammatory biomarkers, metabolomics, and gene expression provide converging signals that tai chi may exert its effects through multi-level mechanisms involving brain network reorganization, reduced inflammation, and support of neuroplastic and metabolic processes, although these mechanistic findings remain preliminary.

At the same time, important limitations temper the strength of the current evidence base. Several earlier reviews and trials suffer from small sample sizes, incomplete reporting, and variability in tai chi style, dose, and instructor training, which complicates comparisons and replication. Even the more recent, well-designed randomized controlled trials and the 3.5-year cohort study emphasize early-stage patients, rely on specific outcome measures, and do not always include non-exercise control groups, leaving residual uncertainty about generalizability and long-term disease-modifying potential.

From a clinical standpoint, these findings nonetheless support offering tai chi as a complementary option for appropriately selected Parkinson's disease patients, particularly those seeking non-pharmacologic strategies to improve balance, mobility, and quality of life. Integration into routine care will require attention to program standardization, instructor competency, safety screening, and access—issues that future implementation research should explicitly address. Methodologically robust trials with clearly defined tai chi and qigong protocols, adequate sample sizes, and extended follow-up will be essential to clarify dose–response relationships, refine mechanistic models, and determine which patient subgroups stand to benefit most from these traditional Chinese mind-body practices.

For clinicians, tai chi can be offered as a structured, low-cost, and low-risk adjunct to standard pharmacologic and rehabilitative care for appropriately selected patients with Parkinson's disease, particularly those with balance impairment, recurrent falls, or concerns about mobility and confidence. When integrating tai chi into practice, clinicians should prioritize programs led by experienced instructors who can adapt movements for disease stage and comorbidities, coordinate timing with patients' "on/off" motor states, and reinforce adherence through group-based formats. Future practice-oriented research should focus on defining pragmatic class protocols, clarifying contraindications and safety parameters, and identifying which patient profiles (for example, early-stage versus more advanced disease, predominant postural instability, or significant non-motor symptoms) derive the

greatest functional and quality-of-life benefits from these traditional Chinese mind-body interventions.

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