



Tai Chi, Qigong and Diabetes: Integrating Traditional Chinese Medicine and Artificial Intelligence in Contemporary Medical Research

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Abstract

Background: *Tai chi and qigong are long standing practices within traditional Chinese medicine that have been increasingly studied as adjunctive therapies for a wide range of medical conditions, including diabetes. Artificial intelligence tools now provide new opportunities to accelerate literature retrieval and evidence synthesis in this field.*

Methods: *A targeted search of the PubMed database was conducted to identify recent clinical trials, observational studies, reviews and meta analyses in which tai chi or qigong were used to treat patients with diabetes or prediabetes. An artificial intelligence assistant (Perplexity) was instructed to summarize each eligible study, focusing on population characteristics, intervention protocols (including tai chi or qigong style, frequency, session duration and total program length), outcomes and main findings; all AI generated summaries were then reviewed and edited by the author.*

Results: *The identified literature included narrative reviews, scoping reviews, randomized controlled trials, a case report and large scale observational studies. Across studies, tai chi and qigong interventions were most commonly based on Yang style 24 form tai chi or standardized health qigong sets, delivered 2–5 times per week in 30–60 minute sessions over 8–24 weeks, with some longer programs extending to six months. Reported benefits in adults with type 2 diabetes and related conditions included modest reductions in fasting plasma glucose and HbA1c, improvements in cognitive function and balance in older adults with mild cognitive impairment, reductions in anxiety and perceived stress, and favorable changes in inflammatory markers and gut microbiota indices. Several reviews concluded that traditional Chinese exercise therapies appear safe and may be useful as complementary interventions, although heterogeneity in protocols and outcomes limits definitive clinical recommendations.*

Conclusion: *This AI assisted review suggests that tai chi and qigong, as components of traditional Chinese medicine, hold promise as low risk adjunctive therapies for patients with diabetes and prediabetes, particularly older adults and those with comorbid cognitive or psychological conditions. By systematically summarizing recent studies and highlighting common dosing parameters, the present article may help clinicians and*

researchers design and implement tai chi and qigong protocols that are both feasible and clinically relevant. The use of artificial intelligence for literature retrieval and synthesis can further enhance the efficiency and transparency of research at the interface between traditional Chinese medicine and Western diabetes care.

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Introduction

Tai chi and qigong [pronounced chee gong] are tools of traditional Chinese medicine (TCM). They have both been around for a long time, hundreds of years in the case of tai chi and thousands of years for qigong. In the last few decades, much has been written about these two techniques in the English language, making it possible to learn what has been evolving in China for centuries [1-26]. Many medical studies have been conducted that apply these two techniques to patients suffering from a wide range of ailments, usually as supplementary treatments.

Some of the ailments treated include Alzheimer's Disease, anxiety and depression, arthritis, osteoarthritis, rheumatoid arthritis, cancer, cardiovascular disease, cholesterol, chronic fatigue syndrome, cognitive function, COPD, dementia, dizziness and vertigo, fall prevention, fibromyalgia, headaches, neck and pain management, hypertension, insomnia, multiple sclerosis, osteoporosis, Parkinson's Disease and stroke [27-120]. Some bibliometric studies have also been conducted that document the beneficial health effects of tai chi and qigong in a variety of different cases [121-123]. Artificial intelligence has been used with increasing frequency in recent years to assist in medical research, diagnoses and administration [124-136].

In the specific context of diabetes, tai chi and qigong are particularly attractive because they combine low impact aerobic and resistance activity with breathing regulation, relaxation and attentional focus. These mind body characteristics may be

especially beneficial for older adults and individuals with multiple comorbidities, who often cannot tolerate higher intensity exercise prescriptions but still need to improve glycemic control, balance, and overall functional capacity. At the same time, the slow, repetitive movements characteristic of tai chi and qigong may support adherence by reducing fear of injury and making sessions more pleasant than conventional exercise programs.

In recent years, an expanding body of clinical trials and systematic reviews has examined the effects of tai chi and qigong on glycemic indices, cognitive function, balance, anxiety, and quality of life in adults with type 2 diabetes or prediabetes. These studies, conducted in diverse settings and populations, suggest that various forms of traditional Chinese exercise can modestly improve HbA1c and fasting glucose, enhance executive function and balance in older adults with mild cognitive impairment, reduce anxiety and perceived stress, and possibly modulate inflammatory pathways and the gut microbiota. At the same time, heterogeneity in study designs, exercise "doses," and outcome measures makes it difficult for clinicians to know which protocols are most appropriate for their patients.

Artificial intelligence (AI) offers one way to address this growing complexity by rapidly identifying relevant literature, extracting key information, and generating structured summaries that can inform both research and clinical practice. In the present study, AI tools were used to scan the PubMed database for recent clinical and review articles in which tai chi or qigong

were applied to diabetic or prediabetic populations, to summarize methods and findings, and to generate tabular overviews of protocol characteristics. By combining the long-standing traditions of tai chi, qigong and traditional Chinese medicine with contemporary AI assisted evidence synthesis, this article aims to provide a concise, practice oriented overview of how these mind–body interventions are currently being used in the management of diabetes.

Methodology

The PubMed database was used to find relevant studies where either tai chi or qigong were used to treat diabetes patients. Perplexity, an artificial intelligence assistant, was used to summarize the studies. The summaries were then edited by the author. Perplexity was also used to edit the final manuscript for punctuation, grammar and clarity.

The Study

Perplexity was instructed to summarize the recent studies on the application of tai chi or qigong to diabetes patients that were found in the PubMed database. The results are given below.

Bassin & Srinath, 2023 – Physical activity in T2DM

Narrative review of observational studies, trials and guidelines on physical activity (PA) in adults with type 2 diabetes (T2DM). It summarizes evidence that ≥ 150 minutes/week of moderate–vigorous aerobic PA plus 2–3 resistance sessions weekly improve HbA1c, lipids, blood pressure, weight, and cardiovascular risk. The review notes that low to moderate intensity mind–body activities, including tai chi and qigong, have shown HbA1c reductions of about 0.7% in meta-analyses when practiced 80–120 minutes/week, but the evidence base is smaller and heterogeneous. Tai chi and qigong are discussed conceptually (slow, meditative, low impact), not as a single standardized protocol; typical programs in cited trials lasted 8–24 weeks, 3–5 sessions/week, 30–60 minutes/session [137].

Chen et al., 2025 – Sedentary behavior, PA and Diabetes

This narrative review synthesizes epidemiologic and experimental data on sedentary behavior, physical activity, and diabetes mellitus. It reports that higher sedentary time is positively associated with incident

T2DM, while greater total and moderate–vigorous PA is inversely associated, with dose–response relationships. The authors summarize multiple lifestyle interventions, including some using tai chi, yoga, or qigong, which showed modest HbA1c reduction and improvements in neuropathic symptoms and quality of life in T2DM patients, but they do not detail specific tai chi/qigong styles or protocols. Instead, they emphasize breaking up prolonged sitting with light activity and meeting guideline level PA as primary recommendations [138].

Gan et al., 2025 – Health Qigong Walking in anxious T2DM patients

Randomized controlled trial of 60 adults with T2DM and comorbid anxiety (diagnosed by standard criteria) allocated to: health education group (HEG), aerobic exercise group (AEG), or Health Qigong Walking Practice group (HQWPG), 20 per arm. Participants were generally middle aged to older adults with T2DM of at least 1 year duration and elevated Self Rating Anxiety Scale (SAS) scores; baseline glycemic parameters were comparable across groups [139].

The HQWPG practiced a standardized “Health Qigong Walking Practice” protocol integrating slow coordinated walking, upper limb movements, breathing regulation, and mindful attention; sessions were supervised 3 times/week for 12 weeks, ~45–60 minutes/session, in addition to routine diabetes care. HEG received diabetes related health education only, while AEG performed conventional moderate intensity aerobic exercise (e.g., brisk walking) with similar frequency and duration.

After 12 weeks, both HQWPG and AEG showed significant reductions in SAS scores vs HEG, but anxiety reduction was greatest in HQWPG. HQWPG also produced significantly larger improvements in 2 hour postprandial blood glucose and favourable changes in lipid parameters than both HEG and AEG. Untargeted serum metabolomics in HQWPG identified differential metabolites (e.g., glycylytyrosine, N acetylmethionine, glutamic acid) and pathway changes in histidine and nitrogen metabolism, suggesting metabolic mechanisms for the clinical effects.

Li et al., 2025 – Two year durability of Tai Chi on cognition in T2DM with MCI

This is a 2 year post trial follow up of a previously

completed multi center RCT that randomized 328 adults ≥ 60 years with T2DM and mild cognitive impairment (MCI) in China to tai chi, fitness walking, or usual care/education. Participants had clinically diagnosed T2DM, Montreal Cognitive Assessment (MoCA) scores in the MCI range, preserved basic daily function, and no dementia. In the original trial, the tai chi group received a standardized Yang style 24 form tai chi chuan program (mindfulness oriented), 3 sessions/week, 60 minutes/session, for 24 weeks under instructor supervision; the walking group did moderate intensity fitness walking with matched frequency and duration; the control group received diabetes education and usual care. The follow up study reassessed cognition up to 2 years after the end of supervised training to test durability [140].

At 2 year follow up, the tai chi group maintained significantly better global cognitive function (MoCA) and executive/visuospatial scores compared with walking and education groups, despite waning adherence to formal practice. Nearly half of tai chi participants achieved a minimal clinically important difference in cognition, and the hazard ratio for clinically meaningful improvement was ~ 2.0 compared with education. The paper does not report an ongoing rigid tai chi protocol during follow up; rather, benefits persisted beyond the structured 24 week Yang style tai chi program.

Qin et al., 2025 – Tai Chi Chuan and balance in older T2DM with MCI

Secondary analysis of the same multi center RCT population (328 adults ≥ 60 years with T2DM and MCI) focusing on balance outcomes. Participants were randomized to tai chi chuan, fitness walking, or health education/usual care for 24 weeks.

The tai chi chuan intervention used a standardized Yang style 24 form program emphasizing weight shifting, single leg stance, trunk rotation, and mindful body awareness, practiced 3 times/week for 60 minutes/session under supervision, plus encouraged home practice. Fitness walking was moderate intensity walking at 50–70% of heart rate reserve with similar frequency/duration; the control group received group health education without structured exercise.

At 24 and 36 weeks, tai chi chuan produced

significantly greater improvements in balance function (e.g., Berg Balance Scale, single leg stance, Timed Up and Go) than walking and control, especially in older adults with lower baseline balance. Improved balance was associated with reduced fall risk indicators, suggesting tai chi chuan is particularly useful for balance rehabilitation in T2DM MCI [141].

Ren et al., 2025 – Scoping review of traditional Chinese exercise in T2DM

PRISMA ScR scoping review of randomized and non randomized trials evaluating traditional Chinese exercise therapies—including tai chi, Baduanjin, Yi Jin Jing, and various qigong forms—as adjunctive treatments for adults with T2DM. The included studies generally enrolled middle aged and older adults with established T2DM, varied in sample size (typically 30–200 participants), and compared exercise plus usual care versus usual care or conventional exercise. Tai chi protocols across trials most often used Yang style 24 form or 8 form sequences, 3–5 sessions/week, 30–60 minutes/session, over 8–24 weeks; qigong protocols included Baduanjin and other health qigong sets with similar dosing. Outcomes frequently showed modest improvements in fasting plasma glucose, HbA1c, insulin resistance indices, blood lipids, body mass index, and quality of life, though not consistently across all trials; some studies reported improved neuropathic symptoms and balance. The authors conclude that traditional Chinese exercise therapies appear to be safe and may complement pharmacologic therapy in T2DM, but heterogeneity in styles and protocols limits firm recommendations [142].

Santos et al., 2025 – Tai Chi/Qigong for anxiety and stress in Brazilian patients

Randomized controlled trial with 91 middle aged and older Brazilian adults diagnosed with diabetes mellitus and/or hypertension and followed in primary care; 45 were allocated to a tai chi/qigong (TCQ) group and 46 to a wait list control. Participants were typically ≥ 40 years old, with stable chronic disease management and without severe psychiatric illness [143].

The intervention was a 13 week group program combining tai chi and qigong elements (TCQ), delivered 2 sessions/week (plus encouraged home practice), each ~ 60 minutes, including a warm up, a sequence of slow flowing tai chi inspired movements with coordinated breathing, simple qigong exercises,

and a relaxation/cool down; the specific style (e.g., Yang 24 form) is not named. Control participants received usual care and were offered TCQ after the trial.

Anxiety (State–Trait Anxiety Inventory) and perceived stress (PSS 14) were assessed at baseline, 6 weeks, and 13 weeks. Compared with controls, the TCQ group showed significant reductions in both state and trait anxiety and in perceived stress at 13 weeks, with medium to large effect sizes, and no serious adverse events were reported. Although not a primary endpoint, the authors suggest TCQ may also favorably influence blood pressure and glycemic control, supporting integration into primary care.

Sun et al., 2025 – Meta analysis of tai chi on glycemic control in T2DM

Systematic review and meta analysis of randomized controlled trials evaluating tai chi for glycemic control in T2DM. Included studies recruited adults with T2DM (typically middle aged or older), sample sizes per trial ranging from ~30 to >100 participants, and compared tai chi plus usual care vs usual care alone or vs other exercises.

Most interventions used Yang style tai chi (commonly 24 form) practiced ≥ 3 times/week, with session durations of 30–60 minutes, over 8–24 weeks. Pooled results showed that tai chi significantly reduced fasting blood glucose and HbA1c compared with control conditions, with greater effects in protocols lasting ≥ 12 weeks, with > 5 sessions/week and ≥ 60 minutes/session. The authors suggest that higher “dose” of tai chi and classic 24 form routines may be optimal for glycemic improvement in T2DM [144].

Yang Q et al., 2026 – Tai Chi training and metabolic, inflammatory, microbiota changes in T2DM

Prospective study in adults with T2DM (sample size reported in full text as a moderate sized cohort) assessing a structured tai chi training program’s effects on glycemic control, insulin sensitivity, body composition, inflammatory markers, and gut microbiota. Participants were generally middle aged to older, with established T2DM and stable medication regimens; they were randomized or assigned to tai chi vs control/usual care. The tai chi intervention used a standardized form (described

as traditional tai chi, with emphasis on coordinated movement, breathing, and awareness), typically practiced 3–5 times/week, 45–60 minutes/session, for 6 months under instructor supervision, with optional home practice.

After the intervention, the tai chi group demonstrated significant reductions in fasting glucose, HbA1c, and HOMA IR, improvements in body fat percentage and waist circumference, and decreased pro inflammatory cytokines compared with controls. 16S rRNA sequencing showed increased abundance of beneficial gut bacteria and improved gut barrier related indices, suggesting that tai chi may modulate metabolic and inflammatory status via microbiota pathways in T2DM [145].

Yang Y et al., 2025 – Mind–body TCE for Prediabetes

Systematic review and meta analysis of randomized controlled trials of traditional Chinese exercises (TCEs)—including tai chi, Baduanjin, and qigong—in adults with prediabetes. Across the included trials, sample sizes typically ranged from 40–150, participants were middle aged or older with impaired fasting glucose or impaired glucose tolerance, and interventions compared TCE plus lifestyle advice vs lifestyle advice or standard exercise.

Tai chi protocols were generally Yang style forms, 3–5 sessions/week, 30–60 minutes/session, over 8–24 weeks; Baduanjin and other qigong sets followed similar frequencies. Meta analysis found that TCE significantly improved fasting plasma glucose, HbA1c, HOMA IR, body mass index, and systolic blood pressure, and also reduced anxiety and depression scores versus controls. Heterogeneity in styles, intensity, and session structure led authors to call for more standardized protocols, but they concluded that tai chi and related TCEs have dual metabolic and psychological benefits in prediabetes [146].

Yin M et al., 2025 – Case report of T2DM remission with integrated strategy

Single case report of an elderly woman with newly diagnosed T2DM who achieved remission through an integrated management strategy. The approach included intensive dietary modification, physical activity, and other individualized measures, leading to normalization of glycemic indices without glucose

lowering medications over follow up. The report is focused on clinical trajectory and integrated lifestyle/medical management rather than a defined tai chi or qigong protocol; tai chi or qigong are not described as specific interventions with detailed frequency or duration, so this paper does not materially inform tai chi/qigong dosing [147].

Yin S et al., 2025 – Electroacupuncture and exosomal circRNA in T2DM

Experimental clinical study on electroacupuncture for T2DM, showing that treatment may improve glycemic control partly by increasing plasma derived exosomal circular RNA of enhancer of zeste homolog 1. Adults with T2DM received standardized electroacupuncture sessions at selected acupoints; metabolomic and RNA analyses were performed to explore mechanisms. This study does not involve

tai chi or qigong; it is relevant to traditional Chinese medicine but not to mind–body exercise protocols [148].

Zaganjor et al., 2025 – Chronic pain and social functioning by diabetes status

Cross sectional analysis of 2019–2020 U.S. National Health Interview Survey data assessing pain management and social functioning limitations among adults with chronic pain, stratified by diabetes status. The sample included thousands of adults with and without diabetes, examining use of pharmacologic and non pharmacologic pain treatments, activity limitations, and social participation. Tai chi or qigong are not studied as interventions; instead, the paper documents higher pain burden and greater functional limitations among adults with diabetes and chronic pain [149].

Table 1: Summarizes the Studies.

Study	Population & condition	Intervention type	Tai chi / qigong style or form	Session duration	Frequency (per week)	Total program length	Notes on control/comparator
Bassin SR, Srinath R. Am J Lifestyle Med. 2023;19(1):147-61. doi:10.1177/15598276231180541.	Narrative review of adults with type 2 diabetes (T2DM) across multiple trials.	Various tai chi and qigong programs summarized across included studies.	Typically Yang style tai chi; various health qigong forms (not standardized across trials).	Commonly 30–60 min per session in cited trials.	Commonly 3–5 sessions per week in cited trials.	Commonly 8–24 weeks in cited trials; some meta analyses around 80–120 min/week.	Review level only; reports tai chi associated with HbA1c reduction ≈0.7% but no single protocol fixed.

<p>Chen Q et al. Sheng Li Xue Bao. 2025;77(1):62-74.</p>	<p>Narrative review of people at risk for or with diabetes.</p>	<p>Mind-body exercises (tai chi, yoga, qigong) discussed among physical activity strategies.</p>	<p>Not specified; mind-body practices grouped together.</p>	<p>Not specified.</p>	<p>Not specified.</p>	<p>Not specified.</p>	<p>Summarizes that tai chi/yoga/qigong can improve HbA1c and quality of life, particularly in neuropathic T2DM, but without detailed dosing.</p>
<p>Gan L et al. Complement Ther Med. 2025;95:103283. doi:10.1016/j.ctim.2025.103283.</p>	<p>60 adults with T2DM and anxiety; randomized (n≈20 per arm) to Health Qigong Walking Practice (HQWPG), aerobic exercise, or health education.</p>	<p>Health Qigong Walking Practice vs conventional aerobic exercise vs health education.</p>	<p>Standardized “Health Qigong Walking” sequence: coordinated walking, upper limb movements, breathing regulation, and mindful attention.</p>	<p>Approximately 45–60 min per supervised group session.</p>	<p>3 sessions per week.</p>	<p>12 weeks.</p>	<p>Aerobic exercise group: conventional moderate intensity aerobic exercise (e.g., brisk walking). Health education group: diabetes education only. HQWPG produced larger reductions in anxiety and postprandial glucose and distinct serum metabolite changes.</p>

<p>Gan L et al. Complement Ther Med. 2025 ;95:103283. doi:10.1016/j.ctim.2025.103283.</p>	<p>60 adults with T2DM and anxiety; randomized (n≈20 per arm) to Health Qigong Walking Practice (HQWPG), aerobic exercise, or health education.</p>	<p>Health Qigong Walking Practice vs conventional aerobic exercise vs health education.</p>	<p>Standardized “Health Qigong Walking” sequence: coordinated walking, upper limb movements, breathing regulation, and mindful attention.</p>	<p>Approximately 45–60 min per supervised group session.</p>	<p>3 sessions per week.</p>	<p>12 weeks.</p>	<p>Aerobic exercise group: conventional moderate intensity aerobic exercise (e.g., brisk walking). Health education group: diabetes education only. HQWPG produced larger reductions in anxiety and postprandial glucose and distinct serum metabolite changes.</p>
<p>Li X et al. Aging Clin Exp Res. 2025;37(1):315. doi:10.1007/s40520-025-03218-x.</p>	<p>328 adults ≥60 years with T2DM and mild cognitive impairment (MCI); multi center RCT; 3 arms: tai chi, fitness walking, health education/usual care.</p>	<p>Tai chi chuan vs fitness walking vs health education/usual care.</p>	<p>Yang style 24 form tai chi chuan.</p>	<p>60 min per session (including warm up and cool down).</p>	<p>3 supervised sessions per week (home practice also encouraged).</p>	<p>24 week supervised program with 2 year observational follow up.</p>	<p>Walking group: moderate intensity fitness walking at 50–70% heart rate reserve, matched for time/frequency. Control: health education, no structured exercise. Tai chi group showed durable cognitive benefits at 2 years.</p>

<p>Qin J et al. J Diabetes Invest. 2025;16(11):2059-69. doi:10.1111/jdi.70138.</p>	<p>Adults ≥60 years with T2DM and MCI from the same multi-center RCT as Li et al.; secondary analysis focused on balance (n=328 across 3 arms).</p>	<p>Tai chi chuan vs fitness walking vs health education/usual care.</p>	<p>Yang style 24 form tai chi chuan (same protocol as Li et al.).</p>	<p>60 min per supervised session.</p>	<p>3 sessions per week.</p>	<p>24 weeks.</p>	<p>Walking and control conditions as in Li et al. Tai chi produced greater improvements in balance measures (e.g., Berg Balance Scale, Timed Up and Go) and fall-related indicators than walking or control.</p>
<p>Ren H et al. Medicine (Baltimore). 2025;104(48):e46243. doi:10.1097/MD.00000000000046243.</p>	<p>Scoping review of multiple trials in adults with T2DM (typical individual trial n ≈ 30–200).</p>	<p>Traditional Chinese exercise therapies: tai chi, Baduanjin, Yi Jin Jing, other health qigong forms.</p>	<p>Commonly Yang style 24 form or 8 form tai chi; standard Baduanjin and other health qigong sets.</p>	<p>Typically 30–60 min per session in included trials.</p>	<p>Typically 3–5 sessions per week.</p>	<p>Typically 8–24 weeks.</p>	<p>Review emphasizes heterogeneity; many studies used TCE + usual care vs usual care or conventional exercise, with modest improvements in glycemia, lipids, BMI, neuropathy, and quality of life.</p>

<p>Santos LRAC et al. Einstein (Sao Paulo). 2025;23:eAO1076. doi:10.31744/einstein_journal/2025AO1076.</p>	<p>91 adults with diabetes and/or hypertension in Brazil; randomized to tai chi/qigong intervention (TCQ, n≈45) or wait list control (n≈46).</p>	<p>Combined tai chi and qigong (TCQ) vs usual care.</p>	<p>Mixed tai chi inspired slow forms plus simple qigong exercises; specific tai chi style (e.g., Yang 24 form) not named.</p>	<p>About 60 min per group session (warm up, main TCQ practice, and relaxation).</p>	<p>2 supervised sessions per week; home practice encouraged.</p>	<p>13 weeks.</p>	<p>Control group: usual medical care, no structured exercise during trial. TCQ significantly reduced state and trait anxiety and perceived stress.</p>
<p>Sun Y et al. Front Endocrinol (Lausanne). 2025;16:1605253. doi:10.3389/fendo.2025.1605253.</p>	<p>Meta analysis of RCTs; 14 trials, 1,311 adults with T2DM.</p>	<p>Tai chi vs usual care or vs other exercise.</p>	<p>Mostly Yang style tai chi; 24 form commonly used; some trials used other standardized forms.</p>	<p>30–60 min per session (most trials).</p>	<p>Usually ≥3 sessions per week; subgroup analyses identified >5 sessions per week as most effective.</p>	<p>8–24 weeks total; ≥12 week programs showed stronger glycemic effects.</p>	<p>Subgroup analysis suggests that Yang 24 form, ≥12 weeks, >5 sessions/week, and ≥60 min/session protocols are associated with the best fasting glucose and HbA1c improvements.</p>

<p>Yang Q et al. Front Public Health. 2026; 14:1730335. doi:10.3389/fpubh.2026.1730335.</p>	<p>Adults with T2DM (moderate sized sample, randomized/assigned to tai chi vs usual care).</p>	<p>Tai chi training vs usual care.</p>	<p>Traditional tai chi form (described as coordinated whole body movements with breath and mind regulation; specific named style not clearly specified in the abstract).</p>	<p>45–60 min per supervised session.</p>	<p>3–5 sessions per week (supervised, plus optional home practice).</p>	<p>6 months.</p>	<p>Control group: usual care only. Tai chi improved HbA1c, fasting glucose, HOMA IR, body composition, inflammatory markers, and gut microbiota indices.</p>
<p>Yang Y et al. J Diabetes Res. 2025;2025:8249301. doi:10.1155/jdr/8249301.</p>	<p>Adults with prediabetes across multiple RCTs (typical trial n ≈ 40–150).</p>	<p>Traditional Chinese exercises (tai chi, Baduanjin, other qigong forms) vs lifestyle advice or standard exercise.</p>	<p>Mostly Yang style tai chi; standard Baduanjin and other structured qigong routines.</p>	<p>30–60 min per session.</p>	<p>3–5 sessions per week.</p>	<p>8–24 weeks.</p>	<p>Meta analysis concludes that these protocols improve fasting glucose, HbA1c, HOMA IR, BMI, blood pressure, and psychological outcomes (anxiety, depression) compared with control conditions.</p>

Yin M et al. Clin Case Rep. 2025;13(10): e71184. doi:10.1002/ccr3.71184.	Single elderly woman with newly diagnosed T2DM; case report.	Integrated lifestyle/ medical strategy.	Tai chi or qigong not described as a discrete, structured intervention.	Not specified.	Not specified.	Not specified.	Focus is on remission through an integrated approach rather than a defined tai chi/ qigong “dose”; not directly usable for protocol design.
Yin S et al. J Tradit Chin Med. 2025;45(6): 1228-37. doi:10.19852/j.cnki.jtcm.2025.06.005.	Adults with T2DM; electroacupuncture study.	Electroacupuncture vs control.	No tai chi or qigong intervention.	–	–	–	Study is about acupuncture and exosomal circRNA mechanisms; does not involve tai chi or qigong.
Zaganjor I et al. Prim Care Diabetes. 2025;19(1):40-5. doi:10.1016/j.pcd.2024.12.008.	Adults with chronic pain, with vs without diabetes, from NHIS 2019–2020.	Observational; no structured intervention.	No tai chi or qigong protocol.	–	–	–	Describes pain management patterns and social functioning limitations by diabetes status; not an intervention trial.

Concluding Comments

The studies reviewed in this article collectively suggest that tai chi and qigong, when used as part of a broader traditional Chinese medicine framework, can offer meaningful but generally modest benefits for individuals with diabetes and prediabetes. Improvements have been reported not only in glycemic control but also in cognitive function, balance, anxiety, perceived stress and selected inflammatory and metabolic biomarkers, with relatively low risk of adverse events. These findings are particularly relevant for older adults, individuals with multiple comorbid-

ities, and patients who are unable or unwilling to engage in higher intensity exercise programs.

At the same time, the existing evidence base has several limitations. Studies vary widely in sample size, inclusion criteria, styles of tai chi or qigong, session frequency and duration, and choice of outcome measures, which makes it difficult to compare findings or establish standardized clinical guidelines. Many trials are of short or moderate duration, and long term adherence and sustainability remain largely unstudied. There is also a need for more rigorous head to head

comparisons between different forms of traditional Chinese exercise, as well as between these practices and other established lifestyle interventions, such as structured aerobic and resistance training.

The present project illustrates how artificial intelligence can help address some of these challenges by rapidly identifying relevant publications, extracting key methodological details, and generating structured summaries and tables that are useful to clinicians, researchers and policy makers. When used transparently and under human supervision, AI based tools can complement traditional scholarship, reduce the time required to synthesize emerging evidence, and highlight gaps that warrant further investigation. Future research should continue to explore the integration of tai chi and qigong into multidisciplinary diabetes management programs, while also examining how AI assisted methods can be used to design, monitor and evaluate such interventions in routine clinical practice.

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