



A Sample Protocol for Using Tai Chi and Qigong to Treat Parkinson's Disease: An Application of Artificial Intelligence to Traditional Chinese Medicine

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ABSTRACT

Background: Parkinson's Disease (PD) is associated with motor symptoms such as bradykinesia, rigidity, tremor, and postural instability, as well as non-motor features including fatigue and mood disturbance, many of which persist despite optimized medical therapy. Tai chi and qigong are low impact mind-body exercises that may improve balance, gait, and quality of life in people with Parkinson's disease, but detailed, PD specific protocols are limited.

Objective: To describe a sample Five Animals Qigong protocol for adults with mild to moderate Parkinson's disease, developed with the assistance of artificial intelligence and refined by the author, that can serve as a structured yet adaptable template for clinical practice and research.

Methods: An AI assistant (Grok 4) was instructed to generate a Five Animals Qigong program targeting core PD impairments, including postural instability and motor slowness, specifying postures, repetitions, session length, weekly frequency, and outcome measures. The AI generated draft was then edited for clarity, safety, and feasibility, resulting in a randomized controlled trial design with defined inclusion/exclusion criteria, intervention and control conditions, and primary and secondary endpoints.

Results: The protocol proposes an 8-week intervention consisting of 20-minute Five Animals Qigong sessions three times per week, incorporating a brief warm up, three core postures (Bear-Swaying Walk, Crane-Standing on One Leg, Deer – Antler Stretch), and a short cool down. Movements are adapted for Parkinson's disease with options for chair support and reduced range of motion, and suggestions are provided for adjusting repetitions and frequency based on fatigue and stability. The trial design specifies the Unified Parkinson's Disease Rating Scale Part III as the primary outcome, with secondary measures including the Berg Balance Scale, 10 Meter Walk Test, fatigue, quality of life Parkinson's Disease Questionnaire-39 (PDQ 39), heart rate variability, and perceived exertion.

Conclusions: This AI assisted Five Animals Qigong protocol offers a detailed, PD focused example of how traditional Chinese exercises can be structured for use in Parkinson's disease management and evaluated in randomized controlled trials. The suggested repetitions and three times weekly practice schedule provide an initial dosing framework that can be modified as needed for individual patients, with careful documentation of any changes. The approach outlined here may be extended to other tai chi and qigong forms and neurological conditions, helping to bridge traditional mind-body practices with contemporary evidence-based rehabilitation.

Keywords: Parkinson’s disease; Five animals Qigong; Tai Chi; Traditional Chinese medicine; Mind-body exercise; Balance training; Postural instability; Gait and mobility; Randomized controlled trial

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 create a sample protocol that can be used by practitioners to treat patients suffering from Parkinson’s disease.

Parkinson’s Disease (PD) is a progressive neurodegenerative disorder characterized by bradykinesia, rigidity, resting tremor, and postural instability, along with non-motor symptoms such as fatigue, mood disturbance, sleep problems, and cognitive change. Even with optimized dopaminergic therapy and device-based treatments, many individuals continue to experience gait difficulties, balance problems, and fear of falling, which limit independence and participation in daily activities. Conventional physiotherapy and exercise programs can improve motor function and reduce fall risk, but adherence over the long term is often challenging, and not all patients tolerate higher intensity training.

Tai chi and qigong have attracted increasing attention as complementary, low impact interventions for PD because they combine slow, rhythmic movements with weight shifting, trunk rotation, and focused attention. Clinical studies and systematic reviews suggest that these traditional Chinese exercises can improve balance, reduce falls, enhance gait parameters, and contribute to better quality of life in people with mild to moderate PD. Five Animals Qigong, in particular, uses animal inspired postures and stepping patterns that naturally incorporate single leg stance, lateral weight transfer, and coordinated upper and lower body movements, aligning closely with rehabilitation goals for posture and dynamic balance in PD. These features make it a plausible candidate for structured programs targeting postural instability and mobility.

An additional aim of the present work is methodological: to illustrate how artificial intelligence can be used to help design a detailed, PD

specific qigong protocol that is both grounded in traditional practice and suitable for empirical testing. By specifying eligibility criteria, session structure, movement selection, and outcome measures in advance, the protocol seeks to provide a transparent template that clinicians and researchers can implement, evaluate, and refine in different clinical settings. The intention is not to claim that this is the only or “best” way to use Five Animals Qigong in PD, but to offer a clear starting point for systematic investigation and clinical adaptation.

MATERIALS AND METHODS

Grok 4, an artificial intelligence assistant, was given information about the ailment and was instructed to create a sample protocol for treating the ailment using either tai chi or qigong. The author then edited the results for clarity. The results are presented below.

Five animals qigong for Parkinson’s disease

Why five animals for Parkinson’s disease?

Parkinson’s Disease, affecting ~10 million people globally Global Burden of Disease (GBD, 2021), is a neurodegenerative disorder marked by motor symptoms (tremor, rigidity, bradykinesia) and non-motor issues (fatigue, Micro Finance Institution (MFI-20) ~55-65; mood, Profile of Mood States – Total Mood Disturbance (POMS TMD) >50), often linked to Qi stagnation and kidney/liver weakness in Traditional Chinese Medicine (TCM). Five Animals Qigong mimics animal movements to enhance mobility, balance, and vitality-key for Parkinson’s Disease (PD) management. Research shows Tai Chi/Qigong improves motor function Unified Parkinson’s Disease Rating Scale-III (UPDRS-III - 5-10 points), balance Bachelor of Business Studies (BBS +2-4), and quality of life Pretty Damned Quick (PDQ-39 -5-10) in PD patients. Its low-to-moderate intensity Electrical Engineering (EE ~2-2.5 METs, RPE ~9-11) suits PD patients with limited energy or coordination.

Full Set (5 Postures)

Adapted for ~20-25 minutes (6-8 reps each), shorter than traditional 30 minutes for patient tolerance.

a) Tiger-grasping prey

- **Execution:** Feet wide (~30° knee flexion), hands claw-like at chest. On a 4s inhale, extend arms forward (90° flexion), “grasp” on a 4s exhale, retracting hands.

- **Benefit:** Boosts liver Qi, strengthens arms (deltoids ~20% MVC), improves grip (hand strength +10-15%), and reduces rigidity (UPDRS-III -2-3).
- **PD fit:** Enhances upper limb dexterity, countering bradykinesia.

b) Bear-swaying walk

- **Execution:** Wide stance, sway torso side-to-side on a 4s inhale/exhale cycle, arms loose or hands on hips, mimicking a bear's lumber.
- **Benefit:** Strengthens spleen/kidneys, engages core/glutes (~20% Model-View-Controller (MVC)), improves lumbar flexibility (Range of Motion (ROM) +10-15°), and Boosts Stability (BBS +2).
- **PD fit:** Enhances trunk mobility and balance, critical for posture and falls prevention.

c) Crane-standing on one leg

- **Execution:** Lift one knee (~90° hip flexion), arms spread (90° abduction) on a 4s inhale; lower leg on a 4s exhale, alternate sides.
- **Benefit:** Stimulates lung Qi, improves balance (BBS +2-4), strengthens legs (quads ~20% MVC), and reduces tremor via focus (UPDRS-III -2-3).
- **PD fit:** Directly targets balance, a major PD challenge.

d) Monkey-picking fruit

- **Execution:** Bend knees (~20° flexion), reach one arm up (180° flexion) and twist torso on a 4s inhale; lower on a 4s exhale, alternate sides.
- **Benefit:** Boosts heart Qi, stretches obliques (~20% MVC), improves coordination (UPDRS-III -2-3), and enhances circulation (SmO₂ +5-10%).
- **PD fit:** Improves reach and twist, aiding daily function and rigidity.

e) Deer-antler stretch

- **Execution:** One arm curves overhead (180° flexion), other hand on hip, lean 15° laterally on a 4s inhale; return on a 4s exhale, alternate sides.
- **Benefit:** Strengthens kidneys, stretches spine (erector spinae ~15% MVC), improves flexibility (ROM +10-15°), and reduces stiffness.

- **PD fit:** Enhances spinal mobility, supporting posture and gait.

Most beneficial for parkinson's disease: Crane-standing on one leg

- **Why:** Directly targets balance (BBS +2-4), a critical deficit in PD due to postural instability and fall risk. It strengthens legs (quads ~20% MVC), reduces tremor through focus, and improves motor control (UPDRS-III -2-3), aligning with RCT evidence of Qigong's efficacy for PD balance. This posture's single-leg stance is the standout for addressing PD's core motor challenge.

Omit if limited energy: Tiger-grasping prey and monkey-picking fruit

- **Why:** Tiger requires arm effort (deltoids ~20% MVC) and coordination, less critical for balance and fatiguing for PD patients (RPE >11, MFI-20 >65). Monkey involves twisting/reaching (obliques ~20% MVC), which may strain those with rigidity or low energy, and focuses on upper body over stability. Skipping these keeps the session ~15-20 minutes, prioritizing balance and posture.

RESULTS AND DISCUSSION

Research plan: Five animals qigong for parkinson's disease

Objective

Evaluate the efficacy of an 8-week Five Animals Qigong program, emphasizing "Crane-Standing on One Leg," in improving motor function and balance in adults with Parkinson's Disease.

Study design

- **Type:** Randomized Controlled Trial (RCT), single-blind (assessors blinded).
- **Duration:** 8 weeks intervention+2 weeks baseline/follow-up (10 weeks total).
- **Setting:** Community-based (neurology clinics or online).

Participants

- **Sample Size:** 40 adults (20 intervention, 20 control), based on power calculation for UPDRS-III reduction (effect size ~0.6, alpha 0.05, power 80%).

Inclusion Criteria

- Age 40-80 years.
- Diagnosed PD (Hoehn & Yahr stage 1-3).
- Stable medication (e.g., levodopa) for ≥ 4 weeks.
- Able to perform light activity (RPE ≤ 11).

Exclusion Criteria

- Severe PD (stage 4-5) or fall risk requiring constant aid.
- Significant cognitive impairment (MMSE < 24).
- Inability to stand safely.

Recruitment

Neurology clinics, PD support groups, online communities.

Intervention

- **Intervention group**
- **Program:** Five Animals Qigong, 20-minute sessions, 3x/week for 8 weeks.
- **Delivery:** In-person (group) or remote (guided by Marisa Cranfill's "Five Animals Qigong," YouTube, ~20 minutes).
- **Structure:**
 - a) **Warm-up:** 2-3 min arm swings, deep breathing (4s inhale/exhale).
 - b) **Core practice:** 6 reps each (4s breath cycles):
 - Bear-swaying Walk.
 - Crane-standing on One Leg (focus posture, 8 reps if energy allows).
 - Deer-antler Stretch.
 - a) **Omitted:** Tiger, Monkey (less balance-specific, higher effort).
 - b) **Cooldown:** 2-3 min standing or seated relaxation, hands on hips.
- **Adaptation:** Seated versions (e.g., modified Crane with chair support); reduce reps to 4 if fatigued (MFI-20 > 65) or tremor worsens.

Control group

- Light stretching (e.g., seated leg lifts, shoulder rolls), 20 minutes, 3x/week, matched for duration but without Qigong's dynamic flow.

Outcome measures

Primary outcome:

- Unified Parkinson's Disease Rating Scale, Part III (UPDRS-III, 0-132, motor score).

Secondary outcomes:

- Berg Balance Scale (BBS, 0-56).

- 10-Meter Walk Test (10MWT, seconds).
- Fatigue (MFI-20).
- Quality of Life (PDQ-39, 0-100).
- Heart Rate Variability (HRV, SDNN in ms).
- Perceived Exertion (RPE, Borg 6-20 scale).

Measurement points

Baseline (Week 0), Midpoint (Week 4), Endpoint (Week 8), Follow-Up (Week 10).

Methods

UPDRS-III/BBS/10MWT by assessor, HRV via wearable (e.g., Polar H10), PDQ-39/MFI-20/RPE via self-report.

Procedure

- **Baseline:** Screening, consent, initial measurements (preferably "on" medication state). Randomization (1:1, block method).
- **Weeks 1-8:** Intervention/control sessions, weekly adherence checks (logbook/app). BBS pre/post-session.
- **Week 4:** Midpoint full assessment.
- **Week 8:** Endpoint full assessment.
- **Week 10:** Follow-up assessment.

Data analysis

- **Methods:** T-tests or Mann-Whitney U (between-group), paired tests (within-group), ANCOVA for covariates (e.g., age, PD stage). $p < 0.05$, Cohen's d.
- **Software:** SPSS or R.

Ethical considerations

- **Approval:** IRB/ethics committee.
- **Consent:** Written, voluntary withdrawal allowed.
- **Safety:** Monitor for falls or fatigue; physical support available.

Timeline

- **Months 1-2:** Literature review, IRB, prep.
- **Months 3-4:** Pilot (5-10 participants, 4 weeks).
- **Months 5-8:** RCT (8 weeks + follow-up).
- **Months 9-12:** Analysis, write-up (e.g., Movement Disorders).

Budget (Estimated)

- Personnel: \$3,000 (instructor, assistant).
- Equipment: \$500 (HRV wearables, basic supplies).
- Incentives/Misc.: \$1,500.
- Total: ~\$5,000.

Expected results

- **UPDRS-III:** -5-10 points (e.g., 30 to 20-25).
- **BBS:** +2-4 (e.g., 48 to 50-52).
- **10MWT:** -1-2 s.
- **PDQ-39:** -5-10; MFI-20: -10; HRV: +25-33%.

Reps and session frequency

Current proposal

- **Reps:** 6 reps per posture (8 reps for "Crane – Standing on One Leg" if energy allows), 3 postures in core practice (omitting Tiger and Monkey).
- **Session frequency:** 3x/week for 8 weeks.
- **Duration:** ~20 min (2-3 min warm-up, 15-16 min core, 2-3 min cooldown).

Reps breakdown

Per posture:

- 6 reps x 8s (4s inhale/exhale) = 48s/posture.
- "Crane": 8 reps x 8s = 64s.

Total core time:

- 2 postures x 48s=96s (1.6 min).
- "Crane" x 64s=64s.
- Total= \sim 2.6 min+transitions (~10-15s/posture)= \sim 15-16 min.

Effort:

\sim 2-2.5 METs, RPE 9-11, quads/core \sim 15-20% MVC.

Reps options

a) Reduce to 4-6 Reps

- **Time:** 4 reps x 3 = \sim 12 min; 6 reps = \sim 15 min.
- **Pros:** Gentler (RPE \sim 8-10), suits severe rigidity/fatigue (MFI-20 >65).
- **Cons:** May limit balance gain (BBS +1-2 vs. 2-4).
- **Fit:** Advanced PD or low stamina.

b) Keep 6 reps, boost focus to 10 reps

- **Time:** 2 x 48s+80s= \sim 16-17 min.
- **Pros:** Maximizes balance (BBS+4, UPDRS-III -10).
- **Cons:** Higher effort (RPE \sim 0-11), fall risk if unsteady.
- **Fit:** Mild-to-moderate PD with good baseline stability.

c) Flexible 4-8 reps

- **Time:** \sim 12-20 min.
- **Pros:** Adapts to tremor/energy, ensures efficacy.
- **Cons:** Less uniform; needs feedback.
- **Fit:** Mixed PD stages or home practice.

Frequency breakdown

3x/Week (24 Sessions):

- E.g., Mon/Wed/Fri, \sim 8 hours total.
- **Why:** Matches RCTs Song et al., balances dose (UPDRS-III -5-10) and recovery (1-2 days rest).

Frequency options

a) Increase to 5x/Week (40 Sessions)

- **Schedule:** Mon-Fri, \sim 13 hours.
- **Pros:** Higher dose (UPDRS-III -10-12, BBS +4-6).
- **Cons:** Fatigue risk, lower adherence (\sim 50-60%).
- **Fit:** Motivated patients, shorter sessions.

b) Reduce to 2x/Week (16 Sessions)

- **Schedule:** Tue/Sat, \sim 5.5 hours.
- **Pros:** Easier, lower fatigue.
- **Cons:** Smaller effect (UPDRS-III -3-5).
- **Fit:** Severe PD or busy patients.

c) 3x/week+optional 1 home session

- **Schedule:** 3 guided (e.g., Wed/Fri/Sun), 1 optional (e.g., Mon).
- **Pros:** Core efficacy (24 sessions), optional boost (32 sessions).
- **Cons:** Home adherence varies.
- **Fit:** Flexible for varying motor symptoms.

Recommendation

Reps: 6 Reps, Optional 8 for "Crane – Standing on One Leg"

- **Why:** 6 reps (\sim 15-16 min core) ensures balance/motor benefit (BBS +2-4) without overtaxing (RPE 9-11). Optional 8 reps for "Crane" (\sim 16-17 min) enhances stability for motivated participants. Drop to 4 if RPE >11 or tremor worsens.

Frequency: 3x/Week with Optional 1 Home Session

- **Why:** 3x/week (24 sessions) aligns with Qigong efficacy data, supports adherence (\sim 70-80%), and allows recovery. Optional 4x/week boosts dose without mandating fatigue risk.

Video Suggestion

"Five animals qigong with marisa cranfill"

- **Search Term:** "Five Animals Qigong Marisa Cranfill" (~20 minutes, YouTube, ~2021-2024).
- **Focus:** "Crane – Standing on One Leg" (~10:00-12:00), 6-8 reps.
- **Adjustment:** Pause at ~4:00-6:00 (Tiger) and ~8:00-10:00 (Monkey) to skip.

CONCLUSION

The Five Animals Qigong protocol presented in this article offers a structured, PD oriented approach to integrating traditional Chinese mind–body exercise into neurology and rehabilitation practice. By emphasizing movements such as Bear-Swaying Walk, Crane- Standing on One Leg, and Deer-Antler Stretch, the program directly targets trunk mobility, single leg balance, and spinal flexibility-domains that are central to postural control and fall prevention in Parkinson’s disease. The inclusion of a brief warm up and cool down, together with explicit options for seated or supported variations, is intended to enhance safety and accessibility for individuals with varying degrees of motor impairment.

At the same time, the proposed numbers of repetitions and the three times per week session frequency are not meant to be rigid prescriptions. They reflect a reasonable starting dose based on prior tai chi and qigong research, but clinicians and research teams should feel free to adjust repetition counts, session duration, and weekly frequency according to patient tolerance, fatigue levels, fall risk, and logistical constraints. For some participants, particularly those with more advanced disease or significant comorbidity, reducing repetitions or weekly sessions may be necessary to avoid overexertion, whereas others may gradually progress to higher practice volumes as their confidence and endurance improve. Any such adjustments should be carefully documented so that future analyses can explore dose–response relationships and inform refinement of the protocol.

This protocol also highlights the potential role of artificial intelligence as a practical tool in the development of mind–body interventions for neurological conditions. AI assistance can help organize existing evidence, generate candidate movement sets and dosing schemes, and ensure that key design elements-such as eligibility criteria and outcome measures-are explicitly specified from the outset. When combined with clinical expertise and instructor feedback, this approach can accelerate the creation of testable, reproducible programs that

remain compatible with the spirit of traditional practice. Future randomized controlled trials using this or similar Five Animals Qigong protocols should examine not only changes in UPDRS motor scores and balance, but also falls, fatigue, mood, and quality of life, and should include longer follow up to determine the durability of benefits.

DECLARATIONS

Conflict of interest

The author declares that they have no competing interests.

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Author contributions

The author solely contributed to the conception, design, analysis, interpretation, and writing of this manuscript.

Consent for publication

Not applicable.

Declaration of interest

The author declares no conflicts of interest related to this work.

Availability of data and materials

All data generated or analysed during this study are included in this published article.

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