

Qigong for Multiple Sclerosis: A Pragmatic, Randomized Feasibility Study

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Introduction

• Qigong is a traditional Chinese mind-body exercise, similar to Tai Chi

• Tai Chi and Qigong have been shown to improve balance, fatigue, and quality of life for many chronic conditions.¹⁻⁷



Objectives

- **Primary:** Assess feasibility of a pragmatic trial of community qigong classes
- **Secondary:** Explore preliminary effects of qigong on balance, gait, and quality of life

Methods

Study Design

- Randomized-controlled feasibility trial of qigong (n=10) vs wait list control (n=10)
- Outcomes assessed at baseline, 12 & 24 weeks

Inclusion Criteria

- ≥18 years old and self-reported MS diagnosis
- Able to walk 50 feet w/o assistive device
- Stable for ≥ 3 mos on DMTs for MS or balance medications

Exclusion Criteria

- Regular qigong, tai chi or yoga practice ≥1/mo w/in past 6 mos
- Relapse w/in 30 days prior to first study visit

Feasibility Criteria for Success

- Recruitment of participants within 8 months
- 80% retention of study participants
- Adherence to qigong classes (70%) and home practice (2 days/week)
- Ability to participate in qigong movements (Y/N)

Secondary Outcome Measures

- Timed 25-Ft Walk, Timed Up and Go, Four Square Step tests
- MS Impact Scale, MS Walking Scale, Modified Fatigue Impact Scale
- PROMIS: Quality of life, fatigue, anxiety and depression

Statistical Analyses

- Independent t-tests comparing between-group change from baseline to 12 wks
- Paired t-tests for exploratory within-group qigong

Results

Table 1: Descriptive statistics

	Control (n=10)	Qigong (n=10)
Age (years, SD)	46 (10.6)	42(8.9)
Female	80%	70%
College degree or higher	80%	70%
Type of MS		
Relapsing Remitting	90%	90%
Secondary Progressive		10%
Unknown	10%	
Use of Disease Modifying Therapy	60%	50%
Moderate Exercise ≥ 1 times/week	100%	90%

Feasibility Outcomes

- Recruitment achieved in 8 months
- 60% retention of Qigong group, 100% controls
- 50% retention of wait list controls in Qigong
- Mean adherence 70% of classes, 3 of 7 days/week home practice
- Qigong group able to fully participate with minor modifications to some movements



Secondary Outcomes

- No differences between qigong group & controls
- Pre/post-qigong found improvement in global mental health (p=0.04), and trend toward improved fatigue (p=0.06)

Table 2. Between-group change in secondary outcome measures comparing qigong vs control using independent t-tests

Control (n=10)	Baseline (M)	Follow-up (FU)	Change (FU-M)	t	P-value
T25FW					
Control	5.45 (1.45)	5.16 (1.10)	-0.03	-2.56	0.02
Qigong	5.23 (0.97)	5.72 (1.16)	0.49		
TUG					
Control	8.86 (1.81)	7.66 (1.13)	-0.29	-1.80	0.112
Qigong	7.72 (1.93)	8.13 (2.34)	0.41		
FSST					
Control	10.14 (2.58)	9.22 (1.53)	-0.52	0.13	0.90
Qigong	10.22 (1.73)	9.62 (1.56)	-0.59		
PROMIS					
Global health (mental)					
Control	45.0 (23.57)	41.5 (20.15)	-3.5	1.15	0.27
Qigong	46.83 (28.00)	48.33 (28.07)	12.5		
MSIS29					
Control	42.69 (15.60)	42.21 (15.99)	-0.48	-0.81	0.43
Qigong	44.02 (10.00)	47.36 (13.58)	3.33		
MSWS12					
Control	36.17 (14.61)	38.17 (18.14)	2.0	-0.51	0.62
Qigong	49.44 (19.99)	54.16 (25.47)	4.7		
Global health (physical)					
Control	43.48 (6.65)	45.49 (7.16)	2.01	-0.86	0.41
Qigong	43.60 (8.93)	47.87 (10.11)	4.27		
Anxiety					
Control	45.85 (7.26)	46.76 (8.19)	0.91	0.22	0.83
Qigong	41.55 (7.45)	41.93 (3.19)	0.38		
Depression					
Control	59.01 (8.31)	57.29 (5.91)	-1.72	-0.49	0.63
Qigong	57.27(7.76)	57.03 (8.02)	0.23		
Fatigue					
Control	54.42 (9.02)	52.93 (7.14)	-1.49	-0.10	0.92
Qigong	54.58 (5.72)	53.32 (5.58)	-1.27		
Physical fun					
Control	54.66 (10.48)	58.15 (10.47)	3.49	1.61	0.13
Qigong	59.85 (6.49)	59.22 (5.39)	-0.63		
Global health (total)					
Control	44.98 (6.94)	44.44 (5.10)	-0.54	1.26	0.23
Qigong	43.95 (6.59)	41.38 (7.75)	-2.56		

Table 3. Exploratory analysis of within-group change for all qigong participants (qigong + wait list control) using paired t-tests.

n=10	Pre-Qigong mean (SD)	Post-Qigong mean (SD)	Mean Difference (95%CI)	T	P-value
T25FW	4.97 (0.83)	5.28 (1.50)	0.31 (-0.58 to 0.04)	-2.61	0.03
TUG	7.42 (1.54)	7.54 (1.98)	-0.42 (-0.72 to 0.32)	-0.42	0.69
FSST	9.38 (1.71)	8.95 (1.54)	0.42 (0.04 to 0.89)	2.07	0.07
MFIS	53.50 (21.86)	40.50 (18.02)	13.00 (0.51 to 26.51)	2.18	0.06
MSIS29	43.10 (12.58)	40.90 (13.37)	2.21 (0.48 to 12.89)	0.48	0.65
MSWS12	43.67 (17.70)	43.35 (23.77)	0.33 (0.76 to 9.43)	0.08	0.94
PROMIS					
Global health (mental)	46.22 (8.77)	49.14 (8.84)	-2.92 (-5.67 to -0.17)	-2.40	0.04
Global health (physical)	43.72 (6.92)	45.96 (6.10)	-2.24 (-4.26 to 1.79)	-1.26	0.24
Anxiety	58.14 (5.18)	57.07 (6.25)	1.07 (-1.91 to 6.05)	0.49	0.64
Depression	53.54 (7.43)	50.62 (6.34)	2.92 (0.99 to 6.83)	1.69	0.13
Fatigue	59.72 (6.93)	55.16 (7.88)	4.56 (1.01 to 10.13)	1.85	0.10
Physical fun	43.96 (5.56)	44.23 (7.52)	-0.27 (-4.09 to 3.55)	-0.16	0.88



Results

Perceived Benefits and Challenges

- 100% of participants who completed the qigong intervention reported perceived benefits including improved energy, mood, flexibility, sleep and mobility.
- 30% reported some discomfort with qigong

Table 4. Selected quotes from participants who reported benefits and challenges of community qigong classes.

Perceived Benefits	Challenges
"Learned more about qi, flows and meridians and how to help myself using them. Gave me time to practice meditation and benefit from others in the class and their energy"	"Some bending and stretching poses were strenuous and mildly uncomfortable."
"I felt like I slept better and moved more."	"Back pain possibly from over exercising."
"I felt more centered emotionally and I felt energized."	"About the 4th week my legs started to get worse. Extreme spasticity."
"Increased functionality and control of one of my legs, majority of the help was just from the stretching."	"Some back and leg nerve pain until I modified two of the exercises."
"My negative inner voices have been lessened, I'm noticeably less depressed and less dragged down by mental issues. Physically, I'm able to stand, walk, run, carry things, in fact, do all physical activities better and longer without trouble or needing help."	"The one...class I attended was physically and emotionally uncomfortable - I didn't feel like the instructor gave enough explanation of modification of poses, the room was hot, and I was uncomfortable with many others in class without MS and who were more advanced in qigong."

Future Directions

- Varied levels of classes, including simpler or more meditative forms of qigong to meet specific needs of participants
- Refined inclusion criteria to capture potential effects of physical function

Conclusion

- This study allowed for an assessment of qigong for people with MS in a 'real world' setting
- Some feasibility outcomes were not met, suggesting the need to modify current design to better meet participants' needs and increase retention
- Exploratory analyses suggest trends in improvement of mental health and fatigue that may warrant further investigation with a modified qigong intervention

References

1. Amato S, Nocera JR, Vollaiahajous S, et al. The effect of Tai Chi exercise on gait initiation and gait performance in persons with Parkinson's disease. *Parkinsons Relat Disord.* 2013;18(11):955-960. doi:10.1016/j.parkrel.2013.06.007.
2. Li F, Harmer P, Fitzgerald K, et al. Tai chi and postural stability in patients with Parkinson's disease. *N Engl J Med.* 2012;366(6):511-519. doi:10.1056/NEJMoa1209111.
3. Ni X, Liu S, Lu S, Shi X, Guo X. Efficacy and safety of tai chi for Parkinson's disease: a systematic review and meta-analysis of randomized controlled trials. *PLoS One.* 2014;9(6):e99377. doi:10.1371/journal.pone.0099377.
4. Schmitz-Hübner T, Pyfer O, Seifried K, Fimmers R, Klockgether T, Walterer U. Qigong exercise for the symptoms of Parkinson's disease: a randomized, controlled pilot study. *Mov Disord.* 2006;21(8):943-948. doi:10.1002/mds.20705.
5. Chan SHK, Ho RTH, Wang C-M, Yuen LP, Sham JS, Chan CHH. Effects of qigong exercise on fatigue, anxiety, and depressive symptoms of patients with chronic fatigue syndrome-like illness: a randomized controlled trial. *Evid Based Complement Alternat Med.* 2013;2013:485341. doi:10.1155/2013/485341.
6. Ho RTH, Chan SHK, Wang C-M, et al. A randomized controlled trial of qigong exercise on fatigue symptoms, functioning, and telomerase activity in persons with chronic fatigue or chronic fatigue syndrome. *Ann Behav Med.* 2012;44(2):160-170. doi:10.1007/s12160-012-9381-6.
7. Oh B, Butow P, Mullin B, et al. Impact of medical Qigong on quality of life, fatigue, mood and inflammation in cancer patients: a randomized controlled trial. *Ann Oncol.* 2012;23(11):608-614. doi:10.1093/annonc/mdr79.

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