Adapted yoga to improve physical function and health-related quality of life in physically-inactive older adults: a randomised controlled pilot trial

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Background

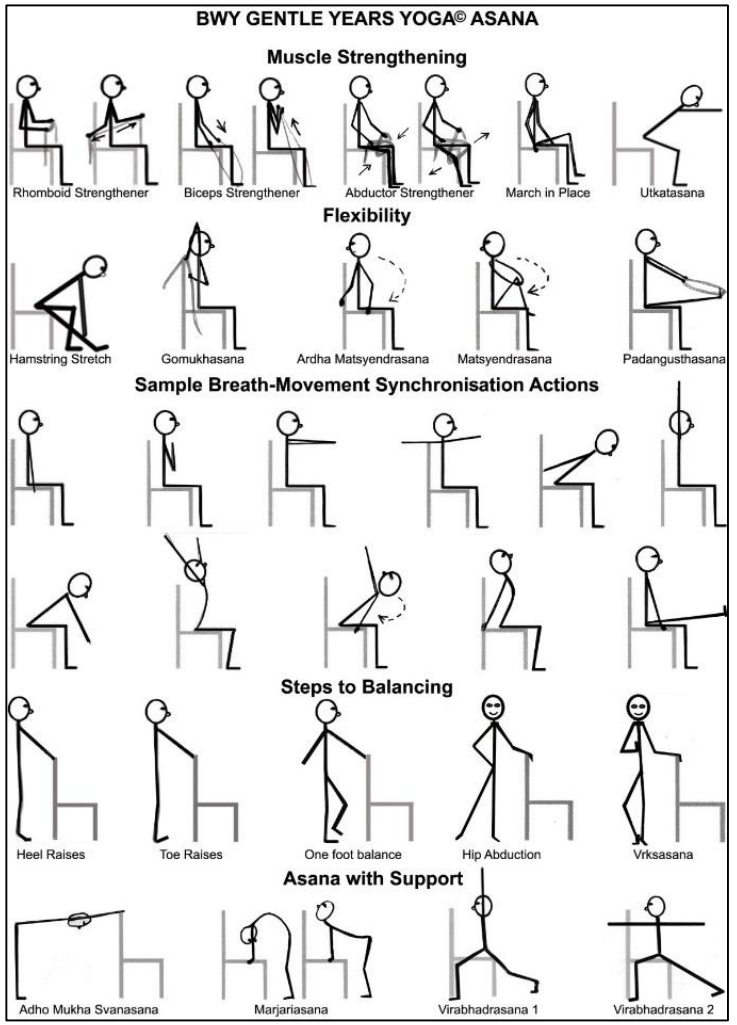
- Yoga is a centuries-old health and wellbeing activity from India that involves a combination of physical postures or poses (asana), breathing exercises (pranayama), integrated breath-movement sequences, relaxation, and concentration/ meditation.
- Many styles of Yoga have been developed over the years, but the differences are usually subtle and the traditional asana are usually the same.
- The proposed benefits of regular Yoga practice are many and varied, including increases in muscular strength, flexibility and balance, reduced stress, anxiety and depression, and an enhancement of overall well-being and quality of life.
- RCTs and systematic reviews also support the beneficial effects of Yoga in older adults; however, the evidence base is not without limitations.
- The present study was an independent evaluation of a yoga programme that has been designed specifically for physically-inactive older adults: the British Wheel of Yoga (BWY) Gentle Years Yoga© programme.

Methods – Overview

Study design	Two-arm, parallel-group, randomised controlled pilot trial
Participants	52 physically-inactive adults aged ≥60 years who were able to exercise
Intervention	BHF physical activity booklet & 10-week programme of Gentle Years Yoga©
Comparator	Booklet only; waiting-list control
Outcome measures	Physical function (Short Physical Performance Battery, SPPB), flexibility (back scratch, sit and reach), health status (EQ-5D), mental well-being (WEMWBS) *– all assessed at baseline and 3 months*

Methods – Intervention

- Allocation to one of four community-centre-based group classes
- 10 × 75-min sessions over 12 weeks
- Session content:
  - Introduction to weekly theme
  - Seated and standing poses
  - Educative postural advice
  - Breath work
  - Concentration activities
  - 5 to 15 minutes of relaxation
- Encouragement to exercise at home



Results – Participants

- Screened: n=82
- Randomised: n=52 (yoga = 25, control = 27)
- Post-randomisation withdrawals: n=5 (yoga = 4, control = 1)
- Analysed: n=47 (yoga = 21, control = 26)

Characteristic	As analysed	
	Intervention (n=21)	Control (n=26)
Age in years, mean (SD)	73.9 (6.4)	75.1 (7.5)
Female sex, n (%)	21 (100)	22 (85)
White ethnicity, n (%)	21 (100)	26 (100)
Employment status, n (%)		
Employed full-time	0 (0)	1 (4)
Employed part-time	3 (14)	0 (0)
Retired	18 (86)	25 (96)
Living situation, n (%)		
Community dwelling	19 (90)	24 (92)
Care home resident	2 (10)	2 (8)
Number of medications, median (range)	3 (0 – 8)	4 (0 – 12)
Number of morbidities, median (range)	1 (0 – 4)	2 (0 – 6)

Results

- Median class attendance was 8 (range 3 to 10)
- 14/21 (67%) attended at least 8 sessions
- 1 adverse event: aggravation of lower back pain

	Intervention (n=21)		Control (n=26)		Mean difference at 3 months (95% CI)*
	Baseline	3 months	Baseline	3 months	
Physical function					
SPPB total score, 0 – 12	9.5 (1.9)	10.0 (1.8)	8.2 (2.3)	8.2 (2.2)	0.9 (-0.3 to 2.0)
Standing balance, s	27.51 (4.55)	29.00 (3.08)	26.96 (6.03)	27.44 (4.82)	1.50 (-0.98 to 3.97)
Sit to stand, s	16.45 (6.63)	14.64 (4.52)	22.59 (11.90)	19.63 (8.10)	-1.73 (-4.08 to 0.62)
Four-metre walk time, s	4.10 (0.83)	4.04 (0.87)	5.81 (4.46)	5.28 (1.84)	-0.63 (-1.47 to 0.21)
Flexibility					
Chair sit-and reach, cm	-7 (9)	-2 (10)	-8 (14)	-8 (13)	5 (0 to 10)
Back scratch, cm	-11 (13)	-7 (12)	-18 (17)	-16 (17)	2 (-2 to 7)
Health status					
EQ-5D utility index	0.72 (0.16)	0.81 (0.12)	0.64 (0.20)	0.63 (0.22)	0.12 (0.03 to 0.21)
EQ Visual Analogue Scale	71 (13)	83 (11)	64 (17)	63 (17)	17 (8 to 26)
Mental well-being					
WEMWBS	49 (12)	56 (9)	52 (8)	52 (10)	6 (1 to 11)

*Adjusted for site and baseline score

Results – Interviews

- 20/21 completed a telephone interview
- The interviewees reported a range of physical, mental and social benefits
- Three selected quotes:

"I got more movement in my shoulder … my hip movement became better … it's easier going up and down stairs" (female, 68 years)

"it calmed my mind, and I could think and not feel sad … it relieved the stress and sadness" (female, 79 years)

"you make so many friends … you have another circle of friends, so that is beneficial" (female, 74 years)

Discussion

- Findings/effect sizes were generally consistent with those from other Yoga trials in older adults.
- Some of the physical function tests suffered from ceiling effects (e.g. balance) and low responsiveness (e.g. walking pace over 4 m).

- Strengths: blinded outcome assessment; low rates of attrition and missing data; the involvement of multiple teachers (n = 7) and intervention fidelity checks.
- Limitations: small sample size; short-term follow-up; that the participants were predominantly female (which limits generalisability of the results); a lack of quantitative data on adherence to the home-based Yoga practice.

Conclusions

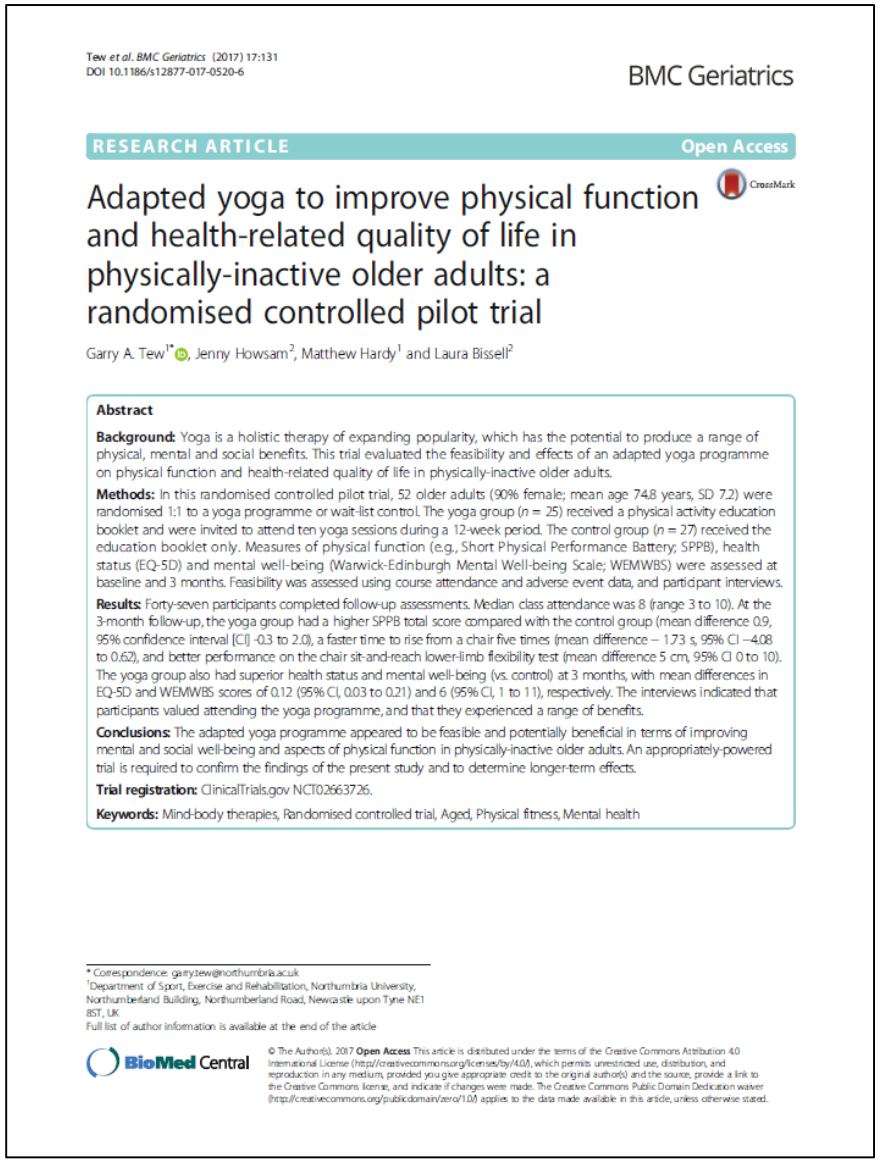
- A weekly, group-based, adapted yoga programme with home practice appeared to be a safe, feasible and acceptable activity for older adults with a broad range of health problems.

- The outcome data suggested that the programme can lead to improvements in physical function, flexibility, health status, and mental well-being.

- Further research is recommended to confirm and expand on these findings.

What next?

- Paper in BMC Geriatrics
- GYY programme endorsed by BWY
- BWY offers training courses in GYY
  - 15 yoga teachers on first cohort
- NIHR bid for full-scale trial
  - Specific focus on multimorbidity



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Abstract

Background: Yoga is a holistic therapy of expanding popularity, which has the potential to produce a range of physical, mental and social benefits. This trial evaluated the feasibility and effects of an adapted yoga programme on physical function and health-related quality of life in physically-inactive older adults.

Methods: In this randomised controlled pilot trial, 52 older adults (90% female; mean age 74.8 years, SD 7.2) were randomised 1:1 to a yoga programme or wait-list control. The yoga group ($n = 25$) received a physical activity education booklet and were invited to attend ten yoga sessions during a 12-week period. The control group ($n = 27$) received the education booklet only. Measures of physical function (e.g., Short Physical Performance Battery; SPPB), health status (EQ-5D) and mental well-being (Warwick-Edinburgh Mental Well-being Scale; WEMWBS) were assessed at baseline and 3 months. Feasibility was assessed using course attendance and adverse event data, and participant interviews.

Results: Forty-seven participants completed follow-up assessments. Median class attendance was 8 (range 3 to 10). At the 3-month follow-up, the yoga group had a higher SPPB total score compared with the control group (mean difference 0.9, 95% confidence interval [CI] -0.3 to 2.0), a faster time to rise from a chair five times (mean difference − 1.73 s, 95% CI −4.08 to 0.62), and better performance on the chair sit-and-reach lower-limb flexibility test (mean difference 5 cm, 95% CI 0 to 10). The yoga group also had superior health status and mental well-being (vs. control) at 3 months, with mean differences in EQ-5D and WEMWBS scores of 0.12 (95% CI, 0.03 to 0.21) and 6 (95% CI, 1 to 11), respectively. The interviews indicated that participants valued attending the yoga programme, and that they experienced a range of benefits.

Conclusions: The adapted yoga programme appeared to be feasible and potentially beneficial in terms of improving mental and social well-being and aspects of physical function in physically-inactive older adults. An appropriately-powered trial is required to confirm the findings of the present study and to determine longer-term effects.

Trial registration: ClinicalTrials.gov NCT02663726.

Keywords: Mind-body therapies, Randomised controlled trial, Aged, Physical fitness, Mental health

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