



Qigong or Yoga Versus No Intervention in Older Adults With Chronic Low Back Pain—A Randomized Controlled Trial

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Abstract: The aim of this study was to assess the effectiveness of the reduction of chronic lower back pain in older adults using either yoga classes or qigong classes compared with no intervention. Older adults (65 years of age and older) with chronic low back pain were enrolled in and randomly allocated to: 1) yoga (24 classes, 45 minutes each, during 3 months), 2) qigong (12 classes, 90 minutes each, during 3 months), or 3) a control group who received no additional intervention. The pain intensity item of the Functional Rating Index after 3 months was used as primary outcome parameter. A total of 176 patients were randomized (n = 61 yoga, n = 58 qigong, n = 57 control; mean age 73 ± 5.6 years, 89% female). The mean adjusted pain intensity after 3 months was 1.71 for the yoga group (95% confidence interval [CI], 1.54–1.89), 1.67 for the qigong group (95% CI, 1.45–1.89), and 1.89 for no intervention (95% CI, 1.67–2.11). No statistically significant group differences were observed. Possible explanations for this lack of pain relief might include the ineffectiveness of interventions, inappropriate outcomes, or differences in pain perception and processing in older adults.

Perspective: The aim of this study was to assess the effectiveness of the reduction of chronic lower back pain in older adults using either yoga classes or qigong classes compared with no intervention. This 3-armed randomized trial with 176 older adults showed that yoga and qigong were not superior to no treatment in reducing pain and increasing quality of life.

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Key words: Yoga, qigong, older adults, low back pain.

Back pain is a very common complaint. In a large German telephone survey, the 12-month prevalence of any type of back pain was reported to be

66% in women and 58% in men.²⁶ The 1-day prevalence of back pain was reported to be between 32 and 49% for different German regions.³⁴

Low back pain (LBP) is also a very common medical complaint seen in older adults. Two representative German telephone surveys from 2003 and 2007 showed a linear increase in the prevalence of chronic back pain with age.^{26,30} LBP is especially believed to increase with age, with a peak prevalence at approximately 50 to 60 years, but the limited data that are available on this prevalence are contradictory.³³ Up to 40% of the older adults with LBP report persistent complaints after 12 months.³³ The Dutch Back Complaints in Elders (BACE) cohort study showed that patients older than 75 years report significantly more disabilities and comorbidities but that there was no differences among age groups in average back pain severity within the previous week.³² Older adults are also under-represented in clinical trials involving LBP treatment. A recent meta-analysis that included 274 randomized controlled trials

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(RCTs) concluded that older adults are largely excluded from RCTs evaluating LBP management.²⁷ Limited data are available concerning medication use by older adults with LBP.

In the Dutch BACE cohort, 72% of the included patients reported taking pain medication at baseline, the most frequent medications being nonsteroidal anti-inflammatory drugs (57%) and paracetamol (49%).¹⁰ Polypharmacy is considered a general problem in geriatric care in Germany; it poses a risk for side effects and drug interactions among older people. Ninety-six percent of adults older than 70 years of age living in Germany's capital, Berlin, are taking an average of 6 drugs per day.²² Therefore, nonpharmaceutical treatments such as exercise and physical therapy are considered alternative or complementary treatment options. However, their clinical effectiveness and usefulness in older adults have not been systematically evaluated.

In India, the term, yoga, has been used for at least 2.5 thousand years, but it has had different meanings. These meanings range from yoga as a means to establish and maintaining health to learning the ability to consider yoga to be a philosophical (but not religious) system. Currently, in Western culture, yoga is understood as a complex system of yoga exercises with breathing, concentration, and meditation techniques. The aim of teaching yoga to older adults is to improve their neuromuscular coordination and body control and to exert a positive influence on their sense of coherence.⁹ The role and usefulness of yoga on pain management in older adults has not yet been thoroughly investigated¹⁸; however, clinical trials have shown clinical effectiveness and cost-effectiveness in younger adults with chronic LBP.^{1,8,13,28} A recent meta-analysis by Cramer et al⁸ found 10 RCTs with a total of 967 patients with chronic LBP of which 8 studies had a low risk of bias. They found clinically relevant effects for short-term pain relief (standardized mean difference [SMD] = .48; 95% confidence interval [CI], .6–.31, $P < .01$) and moderate effects on long-term pain relief (SMD = .33, 95% CI, .59–.07, $P = .01$). In addition, short term effects were observed for back pain disability (SMD = .59, 95% CI, .87–.30, $P < .01$) and global improvement (risk ratio = 3.27, 95% CI, 1.89–5.66, $P < .01$) as well as long term effects for back pain disability (SMD = .35, 95% CI, .55–.15; $P < .01$).

Qigong is a traditional Chinese practice and a part of Chinese medicine. It is used to promote health and well-being and to treat medical conditions. It combines gentle body movements with breathing and mindfulness. Qigong is defined as “the art and science of refining and cultivating (“gong”) internal energy (“qi”).^{7,19} In clinical trials, qigong and tai chi have been shown to improve physical function and reduce fall risk, blood pressure, depression, and anxiety in older adults.³¹ To date, it is unclear whether qigong is useful in treating chronic pain in older adults.^{21,25,39,40} In a randomized, noninferiority, clinical trial including younger adults, it was not found that qigong was noninferior to exercise.²

The purpose of the current study was to assess in older adults the effectiveness of yoga or qigong, compared

with a no intervention control group, for treatment of chronic LBP.

Methods

Design

This study was a 3-armed, RCT that compared the effectiveness of either a yoga or qigong group intervention with no therapy (waiting list control group). This study followed the common guidelines for clinical trials (Declaration of Helsinki, ICH-GCP revised version, which is suitable for a nonpharmacological trial, Somerset West [South Africa] 1996) and was approved by the Ethics Committee of the Charité Universitätsmedizin Berlin (Approval No. EA 1/001/11). The study was registered at clinicaltrials.gov (Identifier: NCT01303588; <https://clinicaltrials.gov/show/NCT01303588>).

Participants

Patients were eligible for participation in this trial if they fulfilled the following inclusion criteria: adults 65 years of age or older, chronic LBP for at least 6 months, intensity of back pain according to the pain item of the Functional Rating Index (FRI) ≥ 2 over the past 7 days, and providing written informed consent.

The following exclusion criteria were applied: acute disc prolapse or protrusion with acute neurological symptoms within the past 3 months, severe organic or psychiatric disease precluding participation in the trial, pain due to cancerous effects on bones, use of pain medication that works over the central nervous system pain agents (eg, opioids), drug and/or alcohol addiction, participation in another clinical trial within the past 6 months, participation in yoga or qigong training within the past 12 months, and preplanned start of a physiotherapy within the study duration.

We recruited participants in Berlin, Germany, by distributing brochures and handouts, holding information events in retirement homes, and advertising in newspapers. We planned that half of the participants included in our study would live on their own and that half would live in retirement homes.

Patients were prescreened for the main eligibility criteria using telephone interviews and were invited to complete a clinical examination at either the retirement home or the research department's outpatient clinic. We aimed to include a broad spectrum of older adults including those living in retirement homes. The participants in retirement homes were recruited directly at the retirement homes, to assure that they could participate.

Randomization

Randomization was carried out using the ranuni function of SAS software (version 9.1; SAS Inc, Cary, NC). The allocation ratio of yoga:qigong:control group was 1:1:1. The randomization was stratified according to the participant housing situation (living in a retirement home or living alone) and blocked with a fixed block length, which was unknown to the study staff. The randomization list was transferred to a generated Microsoft Access

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