Williams K, Abildso C, et al. Evaluation of the Effectiveness of Iyengar Yoga Therapy on Chronic Low Back Pain. Spine 2009;34(19):2066-2-76.

Reviewed, no change to conclusions, December 2016

Design: Randomized clinical trial

Population/sample size/setting:

- 90 patients (69 women, 21 men, mean age 48) treated for chronic low back pain in the orthopedics department of the University of West Virginia
- Eligibility criteria included age 18-70, BMI<37, low back pain at least 3 months, Oswestry Disability Index (ODI) score between 10 and 60, pain VAS between 3 and 8 cm (30 to 80 mm), and ability to get up and down from the floor without assistance
- Exclusion criteria included low back pain due to spinal stenosis, tumor, infection, osteoporotic fracture, ankylosing spondylitis, spondylolisthesis with radiculopathy, kyphosis, scoliosis, radicular pain with weakness, failed back syndrome, pregnancy, fibromyalgia, major depression, substance abuse, current litigation, having practiced yoga in the previous year, or an open workers compensation for low back pain

Main outcome measures:

- Randomized to yoga (n=43) or control (n=47)
- Yoga consisted of 24 weeks of twice-weekly classes of 90 minutes duration, led by a certified Iyengar yoga instructor, with 9-16 persons in each class
- In addition to twice-weekly classes, yoga group was asked to practice yoga 30 minutes per day on non-class days, and was furnished with a DVD and an instruction manual with photographs and instructions
- Control group continued with self-directed standard medical care; no attempt was made to regulate treatment, but the group was contacted by phone monthly for information about pain and medication use; participants in the control group were offered the yoga classes 6 months after study conclusion
- Majority of participants were college-educated women with household incomes greater than $50,000 per year, and 63% had prior usage of complementary/alternative medicine (CAM)
- Primary outcomes were ODI, pain VAS, and depression measured with the Beck Depression Inventory (BDI), along with self-reported medication usage
- Outcomes were taken at baseline, at 12 weeks, 24 weeks, and 6 months after the end of the intervention; the assessment instruments were completed by a research assistant blinded to the participants' group assignment
- 12 participants in the yoga group did not complete the assigned course of yoga; 1 was due to exacerbation of pain by yoga, 6 were scheduling conflicts, 2 were due to family illness, 2 had lost jobs, and 1 was lost to follow-up
- 4 control participants dropped out did not complete the follow-up evaluations
- Both intention-to-treat (ITT) and per protocol analyses were done

- ITT analysis for ODI showed a mean decrease of 7.3 points (29%) in the yoga group at 24 weeks, with a decrease of only 2.3 points (10%) in the control group; for pain VAS, the corresponding decreases were 17.6 mm (42%) and 4.4 mm (10.7%), and for the BDI, the decreases were 4.2 (45.6%) and 0.5 points (6%)
- The per-protocol analyses similarly showed larger changes for the yoga than for the control group; the ODI changes at 24 weeks were 9.6 and 1.9 points, the VAS changes 23.1 and 7.0 mm, and the BDI changes 5.1 and 0.7 points
- At 6 months after the end of the 24 week treatment period, there were small increases in ODI and VAS compared to the 24 week measurements; the yoga group continued to have lower ODI, VAS, and BDI scores than the control group
- At the 6 month follow-up, 68% of yoga participants were still practicing yoga an average of 3 times per week for an average of 30 minutes

Authors' conclusions:

- Iyengar yoga decreases functional disability, pain intensity, and depression in the setting of chronic low back pain
- Because one third of participants had minimal disability (ODI between 10 and 20), the effect of yoga may have been influenced by a floor effect (which tends to underestimate the treatment effect)
- Iyengar yoga differs from other forms of yoga in having props for external support and traction, resting poses at the beginning of the classes, and in excluding back bending poses

Comments:

- The method of randomization is somewhat unclear; the participants were given envelopes with group assignment, but it is not clear whether allocation concealment was done
- The analysis (Bonferroni adjustment) is fairly conservative, giving significance levels of $p=0.0125$ for most analyses; together with having a blinded research assistant collect the data, the authors appear to have made reasonable efforts to control sources of bias
- Most of the participants had previous experience with CAM, but the nature of this experience is not described; recent experience with yoga was an exclusion criterion, but the other alternative treatments explored by the patients is not clear

Assessment: Adequate for evidence that yoga which avoids back bending may decrease pain and disability from mechanical low back pain