

What Does Yoga Research Say About...? A Deeper Dive into Journal Articles for Discerning Yogis by Rachel Lanzerotti

Now that we've covered basic anatomy of understanding research, it's time for a deeper dive into dissecting a journal article! For example, I did a quick search on pubmed [<https://www.ncbi.nlm.nih.gov/pubmed/>] ("yoga and neck") and was delighted to see an article about the effects of yoga on patients with chronic nonspecific neck pain. It's a recent (2019) systematic review! Let's take it apart together, shall we?

Below is the *abstract*, which summarizes the article. It's what you'll see when you click on the name of the article, from the pubmed link. [Accessed 8/12/19 from: <https://insights.ovid.com/pubmed?pmid=30813206>]

First you take a look through on your own, making a few notes for yourself if you wish. And then read on, and I'll point out a few things that I see here....

Medicine (Baltimore). 2019 Feb;98(8):e14649. doi: 10.1097/MD.00000000000014649.

Effects of yoga on patients with chronic nonspecific neck pain: A PRISMA systematic review and meta-analysis.

Li Y1,2, Li S3, Jiang J4, Yuan S1,2.

Abstract

BACKGROUND:

Chronic nonspecific neck pain (CNNP) has a high prevalence and is more common among younger people. Clinical practice suggests that yoga is effective in relieving chronic pain.

OBJECTIVES:

This meta-analysis aimed to quantitatively summarize the efficacy of yoga for treating CNNP.

DATA SOURCES:

We searched for trials in the electronic databases from their inception to January 2019. English databases including PubMed, MEDLINE, Cochrane Library, Embase, Scopus, the Cochrane Central Register of Controlled Trials, and Ind Med; Chinese databases including China National Knowledge Infrastructure (CNKI), WanFang Database, and VIP Information. We also conducted a manual search of key journals and the reference lists of eligible papers to identify any potentially relevant studies we may have missed. We placed no limitations on language or date of publication.

STUDY ELIGIBILITY CRITERIA:

We included only randomized controlled trials (RCTs) and q-RCTs evaluating the effects of yoga on patients with CNNP. The primary outcomes for this review were pain and disability, and the secondary outcomes were cervical range of motion (CROM), quality of life (QoL), and mood.

PARTICIPANTS AND INTERVENTIONS:

Trials that examined the clinical outcomes of yoga intervention in adults with CNNP compared with those of other therapies except yoga (e.g., exercise, pilates, usual care, et al) were included.

STUDY APPRAISAL AND SYNTHESIS METHODS:

Cochrane risk-of-bias criteria were used to assess the methodological quality, and RevMan 5.3 software was used to conduct the meta-analysis.

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RESULTS:

A total of 10 trials (n=686) comparing yoga and interventions other than yoga were included in the meta-analysis. The results show that yoga had a positive effects on neck pain intensity (total effect: SMD=-1.13, 95% CI [-1.60, -0.66], Z=4.75, P<.00001), neck pain-related functional disability (total effect: SMD=-0.92, 95% CI [-1.38, -0.47], Z=3.95, P<.0001), CROM (total effect: SMD=1.22, 95% CI [0.87, 1.57], Z=6.83, P<.00001), QoL (total effect: MD=3.46, 95% CI [0.75, 6.16], Z=2.51, P=.01), and mood (total effect: SMD=-0.61, 95% CI [-0.95, -0.27], Z=3.53, P=.0004).

CONCLUSIONS AND IMPLICATIONS OF KEY FINDINGS:

It was difficult to make a comprehensive summary of all the evidence due to the different session and duration of the yoga interventions, and the different outcome measurement tools in the study, we draw a very cautious conclusion that yoga can relieve neck pain intensity, improve pain-related function disability, increase CROM, improve QoL, and boost mood. This suggests that yoga might be an important alternative in the treatment of CNNP.

SYSTEMATIC REVIEW REGISTRATION NUMBER:

Details of the protocol for this systematic review and meta-analysis were registered on PROSPERO and can be accessed at www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42018108992.

Here we go. Now that you had a chance to read it on your own, we can compare notes. What I got from this on a quick first read is that they looked at 10 randomized and controlled trials for a total of 686 participants, since the beginning of time to the present and across languages. (686 is the “n” in the Results section.) This information immediately gives me more confidence than I’d have in a single trial or study.

The conclusions caution that the yoga interventions were varied (in content and duration) and the methods diverse (measurement tools used). Put a few exclamation points next to that, please!! In my view, this is among the most common challenges in yoga research today, and especially when we’re trying to compare findings across studies. We’ll see more about this shortly....

Even with this caveat, the authors “draw a very cautious conclusion that yoga can relieve neck pain intensity, improve pain-related function disability, increase CROM [cervical range of motion], improve QoL [quality of life], and boost mood.” Wow, okay then! Sign me up!

Wait, so what does that mean for us as yoga teachers and therapists? Here’s a slightly deeper dive into the abstract, with key areas highlighted and a few of my notes, interpretations, and questions in red.

Effects of yoga on patients with chronic nonspecific neck pain: A PRISMA systematic review and meta-analysis. [a study of studies on yoga and neck pain that took all of the data from multiple studies over time and analyzed it again]

Li Y, et al. *Medicine* (Baltimore). 2019. [recent]

Abstract

BACKGROUND: Chronic nonspecific neck pain (CNNP) has a high prevalence and is more common among younger people. Clinical practice suggests that yoga is effective in relieving chronic pain.

OBJECTIVES: This **meta-analysis** [a study of studies, analyzing data collected by several studies] aimed to **quantitatively summarize** [crunching the numbers] the efficacy of yoga for treating CNNP.

DATA SOURCES: We searched for trials in the electronic databases **from their inception to January 2019** [across time]. English databases including PubMed, MEDLINE, Cochrane Library, Embase, Scopus, the Cochrane Central Register of Controlled Trials, and Ind Med; Chinese databases including China National Knowledge Infrastructure (CNKI), WanFang Database, and VIP Information. We also conducted a manual search of key journals and the reference lists of eligible papers to identify any potentially relevant studies we may have missed. **We placed no limitations on language or date of publication.** [even more comprehensive! They gathered far and wide for this meta-analysis]

STUDY ELIGIBILITY CRITERIA: We included **only randomized controlled trials (RCTs) and q-RCTs** [what types of studies, with RCTs as highest standard against bias] evaluating the effects of yoga on patients with CNNP. The **primary outcomes** for this review were pain and disability, and the secondary outcomes were cervical range of motion (CROM), quality of life (QoL), and mood.

PARTICIPANTS AND INTERVENTIONS: Trails that examined the clinical outcomes of yoga intervention in adults with CNNP compared with those of other therapies except yoga (e.g., exercise, pilates, usual care, et al) were included.

STUDY APPRAISAL AND SYNTHESIS METHODS: Cochrane risk-of-bias criteria were used to assess the methodological quality, and RevMan 5.3 software was used to conduct the meta-analysis.

RESULTS: A total of **10 trials (n=686)** [in reviewing everything out there on the topic, researchers found 10 trials that met their criteria, with data on a total of 686 participants; the full text of the journal article reveals that they started with 347 studies and discusses how they narrowed eligibility] comparing yoga and interventions other than yoga were included in the meta-analysis. **The results show that yoga had a positive effects [sic] on neck pain intensity** [good news? even though I have a pet peeve about typos in journal abstracts and articles... tell me more...] (total effect: SMD=-1.13, 95% CI [-1.60, -0.66], Z=4.75, **P<.00001** [we look for small “P values” like this one, establishing “statistical significance”]), neck pain-related functional disability (total effect: SMD=-0.92, 95% CI [-1.38, -0.47], Z=3.95, P<.0001), CROM (total effect: SMD=1.22, 95% CI [0.87, 1.57], Z=6.83, **P<.00001**), QoL (total effect: MD=3.46, 95% CI [0.75, 6.16], Z=2.51, P=.01), and mood (total effect: SMD=-0.61, 95% CI [-0.95, -0.27], Z=3.53, P=.0004). [if you start to glaze over, what I see here is that P-values are particularly low, with greater statistical significance, for yoga’s comparable effect on *neck pain intensity* and *cervical range of motion*. However, changes in quality of life and mood also are significant.]

CONCLUSIONS AND IMPLICATIONS OF KEY FINDINGS: **It was difficult to make a comprehensive summary** [here’s the big caveat about the findings’ limitations] of all the evidence due to the different session and duration of the **yoga interventions** [yoga can mean so many things], and the different **outcome measurement tools** [methods and materials for measuring and calculating change] in the study [are we comparing apples and oranges across studies? what were the yoga interventions and how did they measure... can we compare what these trials did in the room and how they recorded what they did?], we draw a very cautious conclusion that yoga can relieve **neck pain intensity** [the article’s title mentions “chronic and nonspecific neck pain,” so no specific diagnosis and probably excludes acute pain or injury; the full text of the journal article defines in more detail], improve pain-related function disability, increase CROM, improve QoL, and boost mood. **This suggests that yoga might be an important alternative in the treatment of CNNP.** [This leaves the door open for more research grants and studies that build on these outcome areas. In essence, we still don’t know which form(s) of yoga or which practices produce what outcomes, but there is enough evidence to investigate further.]

SYSTEMATIC REVIEW REGISTRATION NUMBER: Details of the protocol for this systematic review and meta-analysis were registered on PROSPERO and can be accessed at www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42018108992.

What else did you see?

If you are still (or more) curious now, or perhaps wondering whether there's anything here that might inform how you teach or practice, **your next step would be to go to the "full text."** For this article, we're lucky because it's freely available online. Many require access to medical platforms or a pay-per-article fee. [Accessed 8/12/19: https://journals.lww.com/md-journal/fulltext/2019/02220/Effects_of_yoga_on_patients_with_chronic.86.aspx]

When I navigate to the full text, I often want to know how researchers (and/or the studies they selected for review) define or describe "yoga"? There's no way to know from the abstract— other than the caveat about its limitations, and so we'd need to go a layer deeper and look at the full text. Small studies occasionally share their specific protocol or practice sequences as part of the full text or appendices.

The full text also highlights strengths and limitations of the approach and its findings. It adds more details of the statistical analysis. Disclosures of who funded the study. A reference list that might contain other clues to research treasures. How to cite the study or contact its authors (which I've done when I really, really wanted to know more about their protocol.)

The full text holds so many juicy details about every aspect of the systematic review and meta-analysis. If there's anything to be gleaned for our yoga teaching or therapy practice, it will be found there. Likewise, it may be a humbling reminder of what we can or cannot say with confidence about yoga's benefits and best practices... yet.