

## Short Communication

## Yoga for Chronic Low Back and Neck Pain

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Spinal pain is a major public health problem in all industrialized countries. Almost everybody can expect to experience at least some low back and/or neck pain in their lifetime [1,2]. Although the majority of patients with acute spinal pain recover quite rapidly without any specific treatment, about 10% of those patients are at risk of developing chronic low back or neck pain. Thereby, spinal pain has become the largest category of medical claims, placing a major burden on individuals and health care systems [3].

Low back pain and neck pain are the two conditions for which most often complementary therapies are used [4] and yoga is among the most commonly used complementary treatments for spinal pain [5]. About 15 million American adults report having practiced yoga at least once in their lifetime, 20% of those using yoga explicitly for treatment of back or neck pain [6]. Rooted in Indian philosophy, yoga has been a part of traditional Indian spiritual and medical practice for millennia. While yoga traditionally also comprises advice for ethical lifestyle and spiritual practice [7], it is most often associated with physical postures (asanas), breathing techniques (pranayama), and meditation (dyana) in North America and Europe [8]. Different yoga schools have emerged that put varying focus on physical and mental practices. However, even exercise-based yoga interventions differ from purely gymnastic exercises in that the yoga practitioner focuses his mind on the postures with inner awareness [9].

Spinal pain is ome of the areas for which the therapeutic value of yoga has been most extensively studied. A 2012 meta-analysis included 10 randomized controlled trials with a total of 967 patients that compared yoga to a variety of control conditions [10]. While yoga trials often suffer from marked methodological drawbacks, the trials on low back pain generally had low risk of bias; only 2 trials were classified as having high risk of bias. Besides several trials with relatively small sample size, this meta-analysis also included 3 trials with more than 100 participants (n=101-313), which can be considered large-scale for trials on complementary therapies [11-13]. While a variety of different yoga styles were used, all of them included physical postures. The metaanalysis found strong evidence for short-term effects of yoga on pain, back-specific disability, and global improvement. The positive effects on pain and disability persisted at long-term follow-up. However, no evidence was found for effects on health-related quality of life. Based on the included studies, yoga appeared to be a safe intervention. [10] Recently, a further randomized trial tried to identify the optimal dose of yoga interventions for chronic low back pain. This trial compared 1 weekly yoga class over a period of 12 weeks to 2 weekly classes and found no differences in effectiveness and safety [14].

The effects of yoga on chronic neck pain had not been investigated until recently. In 2012, two randomized controlled trials compared the effects of a 9-week yoga intervention to a manualized home-based exercise program [15,16]. A trial of 77 chronic neck pain patients found favorable effects of yoga on pain at rest, pain at motion, neckrelated disability, depression, and physical quality of life [15]. A second randomized trial on 51 chronic neck pain patients found comparable effects on pain at rest and neck-related disability. However, while this trial found no effects on pain at motion or physical quality of life, additional benefits were found for mental quality of life [16]. Moreover, this trial also assessed physiological outcomes: pressure pain threshold in the neck and shoulder region, cervical range of motion, and cervical proprioception all improved after the yoga intervention compared to exercise. It seems reasonable that reduced muscle tonicity, muscle pain, and increased awareness of body postures during the yoga classes could have influenced functional status of neck muscles. This is also highlighted in a qualitative study on 18 patients with chronic neck pain [9]. During in-depth qualitative interviews, patients reported change on several dimensions of human experience after the yoga intervention: physically, most participants cited renewed body awareness, both during their yoga practice and in their daily lives. Cognitively, participants reported increased perceived control over their health. Emotionally, they noted greater acceptance of their pain and life burdens. Behaviorally, they described enhanced use of active coping strategies. Finally, socially, they reported renewed participation in an active life. The interviews suggested that body awareness appeared a key mechanism in the effects of yoga for chronic neck pain [9]. In a 12-month follow-up of one of the randomized trials, a further important precondition for long-term effectiveness was revealed: overall, the positive effects of the yoga intervention on pain intensity and neck-related disability were preserved for at least 12 months after the end of the intervention. However, long-term improvement was strongly associated with sustained yoga practice after the end of the intervention. This simple means that benefits were higher the more the patients continued to practice at home after the end of the yoga classes. Conversely, long-term improvements were not related to compliance during the intervention period [17]. In both randomized trials on chronic neck no serious adverse events occurred [15,16].

In conclusion, yoga seems to be a safe and effective means for both chronic low back and chronic neck pain. While a dose-effect relationship of sustained practice has been suggested for long-term effects, there does not seem to be an increased benefit when raising frequency from 1 to 2 weekly sessions. Being more than exercise, yoga seems to be able to improve body awareness, pain acceptance, and coping. Future research should investigate the differential effects of different yoga styles and dismantle yoga to separately investigate the possible effects of different components of yoga such as physical postures, breath control, and meditation. Especially for chronic neck pain, comparisons with guideline-endorsed interventions such as supervised exercise are still needed to draw final conclusions on the effectiveness of yoga for chronic spinal pain. In the meantime, yoga can be recommended as an evidence-based intervention for chronic low back pain and – preliminarily – also for chronic neck pain.

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