

Building the Case for Telehealth Yoga for Minors With Arthritis and Chronic Pain: A Perspective

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Abstract

Childhood arthritis has a prevalence of around 300 000 US children. It has no cure, and is just one of many juvenile conditions associated with pain, fatigue, and a lifetime of medical care. Yoga has demonstrated effectiveness in improving symptoms and quality of life for adults with arthritis. Yoga can be easily adapted according to affected joints, movement limitations, and changes in disease status. It combines movement that is necessary for arthritis management and maintaining physical function, along with mental practices that help to address common psychosocial comorbidities such as depressive symptoms and affect. No research has been published on the effects of yoga in minors with arthritis and chronic pain. In-person yoga may not be feasible for this population because many patients live hours from their specialist healthcare. As telehealth becomes more acceptable, online yoga may offer an additional tool for symptom management and improved quality of life in juvenile chronic pain conditions. Clinical trials are necessary to evaluate the safety, feasibility, acceptability and effectiveness of teleyoga in the whole-person management of juvenile arthritis and chronic pain conditions.

Keywords

yoga, telemedicine, rheumatology, juvenile, arthritis, chronic pain

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Arthritis and Chronic Pain

Arthritis is the leading cause of disability in the US, with an estimated prevalence of almost 60 million adults.¹ It is associated with chronic pain, stiffness, swelling, impaired physical function and reduced quality of life. Rather than being comprised of a single diagnosis, arthritis is an umbrella term that includes over 100 different conditions, all with no cure. Current treatments address symptoms without changing underlying disease processes² or focus on the underlying disease but fail to fully ameliorate symptoms and address impacts of the disease on daily life.³ Arthritis prevalence is increasing and has been projected to rise 49% from 2010 to 2040.⁴ It is part of a larger trend for chronic pain conditions in general, with one-fifth of all Americans reporting pain every day or most days.⁵ While arthritis is often thought of as a musculoskeletal concern, it has far-reaching impacts on all areas of life, including energy, mood, relationships, employment, and self-concept.⁶

Current recommendations for arthritis management include non-pharmacological strategies such as yoga and other mind-body practices to complement conventional medical care.^{7,8} Such approaches may aid in reducing symptoms while improving overall quality of life.

Yoga for Arthritis

Clinical trials have assessed the feasibility, acceptability, and effectiveness of yoga and mind-body practices for improving

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chronic pain and other arthritis-related outcomes such as physical fitness, function, inflammation, mood, and quality of life.⁹⁻¹² While reviews indicate study limitations such as small samples and reporting quality concerns, existing evidence shows favorability for the use of yoga and other mind-body practices alongside standard medical care. An overview of systematic reviews including meta-analysis suggests that mind-body practices such as yoga, t'ai chi and qigong may be effective for improving pain, self-efficacy, and physical function.⁶ In a systematic review including studies of mind-body practices for rheumatoid arthritis, these interventions were associated with improved patient-reported outcomes (vitality, functioning and mental health) and parameters of disease activity (pain, joint tenderness and morning stiffness).¹³ This review found even greater benefit for patients with recurrent depression, and the potential for reduced medication use in this population. Another systematic review of 23 studies found that yoga improved quality of life for patients with rheumatic diseases, including functional capacity, physical aspects, emotional aspects, social aspects, and general health.¹⁴ In a systematic review with meta-analysis, yoga was also associated with improved depressive symptoms and improved sleep quality for patients with osteoarthritis, fibromyalgia, rheumatoid arthritis and chronic fatigue syndrome, while yoga was similar to other exercise modalities for depression.¹⁴ Qualitative research also suggest that yoga is acceptable for patient with these conditions,^{15,16} and that practices may be sustained beyond the intervention period.^{9,17}

These interventions largely focus on rheumatoid arthritis and knee osteoarthritis, but include a variety of rheumatic diseases that may vary considerably in terms of symptomatology, disease severity, physical limitations and demographic characteristics. Additionally, yoga interventions are incredibly diverse with some focused mostly on the biomechanics of yoga postures and others including a full array of yoga practices for mind and body, such as movement, breathwork, chanting, relaxation, meditation and even applied philosophy. Interventions in the research literature today have been mostly delivered in-person with varying degrees of support for home practice between sessions. While we can extrapolate from the evidence that various yoga practices appear to be safe and acceptable for adults living with arthritis, we cannot establish best practices for specific arthritis populations.

Juvenile Arthritis

While arthritis is often associated with older adults, these conditions can occur throughout the lifespan. Approximately 300 000 US children are living with juvenile idiopathic arthritis,¹⁸ which is one of several juvenile rheumatic diseases. Like its adult counterparts, juvenile arthritis also has no cure and medical management has limitations.¹⁹ Additionally, children with arthritis may experience isolation and struggle

with the inability to engage in some preferred activities.²⁰ Recent initiatives have aimed to support this population with whole-person management, including summer camps, family events, and educational resources provided by the Arthritis Foundation.²¹

Yoga for Minors

A variety of research studies have been conducted that deliver yoga to children. Such studies with healthy children have demonstrated that yoga is feasible before school and associated with improved academic skills,²² as well as improved measures of fitness such as flexibility and balance.²³ Mental health outcomes such as mood, body esteem and body appreciation improved for preadolescent yoga participants who viewed it favorably and wanted to continue practicing.²⁴ Yoga can also be feasible and acceptable for minors with chronic pain conditions. Children with sickle cell disease²⁵ and with functional abdominal pain disorders²⁶ experienced decreased pain with yoga practice compared to attention control and standard care, respectively.

While school-based interventions meet students where they are, juvenile arthritis is rare and too few students with these conditions are enrolled in the same school for a school-based trial to be feasible. Patients often see their health care specialist for quarterly routine visits and may travel several hours for these visits, making clinical centers an infeasible location for clinical trials that require weekly or biweekly yoga classes. The increase in the feasibility and acceptability of telehealth visits and online education options makes tele-yoga a possible avenue for offering yoga to minors with arthritis and other chronic pain conditions.

Yoga for Juvenile Idiopathic Arthritis

Forty-five percent of JIA patients reported using yoga to help manage their disease over a decade ago²⁷ and that prevalence is likely to have risen considerably in subsequent years.²⁸ However, little on this topic has been published in the medically-indexed literature. Only a single case study reports findings from yoga for JIA in a published manuscript. Additionally, preliminary evidence has been presented at a research conference for an otherwise unpublished trial of yoga for JIA.

The case study reports an n-of-1 experiment with a 17-year-old female with JIA using an ABAB quasi-experimental design with outcomes including daily self-assessment of pain and stiffness along with questionnaires for psychosocial functioning and disease activity.²⁹ Participation in 3 in-person group yoga classes plus home practice with a video suggested improvements in disease symptoms and disease activity along with anecdotal reports of acceptability and attribution of improved symptoms to the intervention.

A conference abstract reports findings from a small single group trial delivering group in-person yoga to adolescents

with JIA.³⁰ Participation in the intervention by enrolled participants was low (13/25) and participants traveled 29.0 ± 41.7 miles to attend classes. Eight participants who completed a satisfaction survey reported enjoyment of yoga, pain reduction, and an interest in continued practice with no adverse events. None of the clinical or psychosocial outcomes demonstrated statistically significant changes ($n = 13$), though some trends suggest potential improvement with a larger sample size. There was no utilization of the video provided for home practice.

Teleyoga in Arthritis and Chronic Pain

Recent research has demonstrated the feasibility and effectiveness of yoga interventions delivered in an online environment for adults with arthritis and chronic pain conditions. A randomized controlled trial (RCT) of 120 participants with ankylosing spondylitis demonstrated improved pain, function and mental health with 3 months of teleyoga compared to usual medical care alone.³¹ The teleyoga intervention was deemed feasible with only 4 participants lost to follow-up (due to time constraints and irregular attendance), compared to 9 lost to follow-up from the control group.

Another RCT compared an optional unsupervised online yoga program to an education-only control for adults with knee osteoarthritis.³² Over 12 weeks, participants assigned to yoga participated in two-thirds of the recommended sessions on average and experienced improved function and reduced difficulty with function than the controls. Knee pain during walking did not differ between groups but more participants in the yoga group achieved clinically important differences in knee pain and function. Though the program was unsupervised, any adverse events were minor.

While teleyoga for children with chronic conditions would differ substantially from interventions designed for adults, these studies reflect the feasibility of delivering a yoga intervention online that is appropriately tailored for a population with health conditions that require special considerations for yoga delivery and practice.

Use and acceptance of telehealth in general has increased tremendously due to changing needs and constraints of the COVID-19 pandemic. A qualitative study of patients with heart and lung conditions reported enjoyment and value from a teleyoga intervention, especially considering their high symptom burden and social isolation, although technology barriers such as poor video quality arose for some participants.²⁶ 1 participant from a teleyoga intervention for fall prevention stated that they would not have participated in the yoga practice at all if it wasn't online.³³ Others in the study cited the convenience and accessibility of teleyoga as important factors, while feeling less competition or distraction from peers and less embarrassment related to limitations and appearance. Yoga instructors have also reported increased comfort and skill with delivering yoga online to increase safety and connection while reducing technology

challenges.³⁴ These include interviews with participants, more verbal instruction, a focus on self-awareness, greater attention and support, a slower and more structured class, simplified poses, changes to their own environment, and more technology support.

Two research protocols have been published for trials of online yoga for JIA. A three-group randomized controlled trial of Canadian adolescents with JIA intends to enroll 25 participants comparing 12 weeks of 60-minute weekly live online yoga plus video recordings to the same dose of online aerobic dance or an electronic pamphlet, testing feasibility for a full-scale RCT.³⁵ The yoga practice consists of stretching and strengthening poses, breathing practices and deep relaxation that has been tested in adults with RA.³⁶ The other is a 12-week RCT comparing an intervention combining pre-recorded yoga asana videos plus home resistance training and a health education program to health education alone for 50 Chinese participants ages 8-16 with enthesitis-related arthritis (a form of JIA).³⁷ No findings have been reported for either of these trials of teleyoga for JIA.

Safety and Feasibility Considerations

There are special considerations for ensuring safety and feasibility of yoga for those living with arthritis and chronic pain conditions, which may be less essential for yoga interventions designed for the general public. Arthritis and chronic pain conditions can impact different joints for each person, and the same joint may be impacted very differently for each individual, even changing from 1 day to the next. This requires that multiple options for each pose and practice be offered so that each individual can choose an appropriate version for themselves. To do that, students must also be taught self-awareness and discernment to select appropriate practices on a given day. Participants should also consult with their health care provider to determine whether any positions or movements might warrant avoidance or extra caution. A thorough intake by the yoga provider will help guide adaptations, and quick private check-ins before class can ensure appropriateness of practices for that particular session. Many online platforms allow private messaging, which can keep such communication confidential. And while prerecorded practices may be convenient and accessible, ideally a live instructor is present to respond in real time with safety recommendations and feedback. This also requires that participants have cameras on and angled to ensure visibility. Participants may also be utilizing household items as props instead of commercial yoga props, which should be reviewed with the instructor to ensure safety and stability in their use.

Some of the above considerations will apply to teleyoga with minors. For younger minors especially, prop use and practice selection may be a collaboration between the yoga provider, participant, and adult caretaker. It may also be helpful to establish communication directly between the rheumatologist and yoga provider to ensure that unsafe

practices that compromise unstable joints are avoided. Yoga practices should also be designed for the developmental stage of the participants, which requires that younger and older participants are separated for age-appropriate practice delivery. Younger children often enjoy a more playful practice with shorter times in each activity and characters or narratives woven throughout. Older children may do fine with a practice that more closely resembles adult yoga. School and extra-curricular activities may scheduling a challenge and the particular importance of community-building among peers should not be overlooked.

Future Directions

While teleyoga shows theoretical promise for youth with chronic conditions, preliminary research is necessary to establish safety and feasibility, followed by clinical trials to determine effectiveness and best practices. Such findings can inform recommendations and referrals from pediatric specialists to patients and their families. Additionally, there is a need for yoga providers who are trained in subspecialties of yoga for kids/teens, therapeutic/accessible yoga for those with health concerns, and teleyoga delivery. The combination of knowledge and experience in all 3 of these areas will be necessary to meet the developmental and clinical needs of this population with teleyoga interventions.

The limited existing research on this topic suggests that in-person attendance is a barrier to yoga participation by JIA patients,³⁰ which could be gleaned from the low prevalence of the disease and the geographic distances that must be traversed for in-person group sessions. While teleyoga may be a clear solution to this issue, utilization of pre-recorded videos was useful in a single case study²⁹ but completely unutilized in a group clinical trial.³⁰ Synchronous online sessions may therefore be a better fit for this population, which would require overcoming another stated barrier of schedule concerns. Of the 2 published protocols, one will utilize recorded material³⁷ and the other will involve synchronous online sessions.³⁵ The feasibility of these trials may assist in determining the optimal intervention format for this population.

To truly understand the needs and concerns of a population, stakeholder development work is needed that engages patients, families, and providers in the process of designing a yoga intervention that is optimally safe, feasible, accessible, acceptable, and hopefully also effective. With the current and increasing prevalence of yoga overall, JIA families are seeking yoga already.²⁷ Current community-based yoga offerings are not necessarily safe or appropriate for JIA, further supporting the need for a well-tested teleyoga program that patients can access from any geographical location in a way that engages them fully for long-term, evidence-based self-care practices. Given the effectiveness of yoga for adult arthritis management, finding a JIA-appropriate approach to yoga could transform the

experience of life with arthritis for this underserved patient population.

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