

Case Report

EFFECTIVENESS OF THERAPEUTIC YOGA IN REDUCING KNEE PAIN AND PERIPHERAL EDEMA IN AN ELDERLY PATIENT: A CASE REPORT

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ABSTRACT

Musculoskeletal disorders and age-related degenerative changes frequently contribute to chronic knee pain and peripheral swelling in older adults, resulting in reduced mobility, impaired balance, and diminished quality of life. Therapeutic yoga has emerged as a complementary intervention that combines physical postures, breathing techniques, relaxation, and mindfulness to improve functional capacity and overall well-being. This case report describes the effects of a structured therapeutic yoga program in a 68-year-old male presenting with chronic knee pain accompanied by swelling in both hands and lower limbs. The individualized intervention included gentle joint mobilization exercises, supported standing and seated yoga postures, breathing practices (Pranayama), and guided relaxation performed under supervision. Sessions were conducted regularly over a period of several weeks with gradual progression according to the patient's tolerance. Following the intervention, the patient demonstrated a noticeable reduction in pain intensity, decreased swelling, improved joint mobility, enhanced walking endurance, and better performance in activities of daily living. Subjective improvements in sleep quality, confidence, and emotional well-being were also reported. These findings suggest that therapeutic yoga may serve as a safe, feasible, and beneficial adjunct to conventional management for elderly individuals experiencing chronic musculoskeletal pain and peripheral edema. Larger controlled studies are warranted to validate these observations and establish standardized therapeutic yoga protocols.

Keywords: Therapeutic yoga, Knee pain, Peripheral edema, Swelling, Elderly, Rehabilitation, Yoga therapy, Musculoskeletal disorders.

INTRODUCTION

The global increase in life expectancy has resulted in a growing elderly population, accompanied by a higher prevalence of chronic musculoskeletal disorders that significantly affect mobility, independence, and quality of life. Knee pain is among the most common complaints in older adults and is frequently associated with age-related degenerative changes, osteoarthritis, muscle weakness, ligament stiffness, and reduced joint flexibility. Persistent knee pain often limits walking, climbing stairs, standing for prolonged periods, and performing routine daily activities, ultimately contributing to physical inactivity and functional disability. In addition to pain, many elderly individuals experience swelling in the upper and lower extremities, which further compromises joint movement, manual dexterity, and balance. These combined impairments can negatively influence psychological health by increasing stress, anxiety, social isolation, and dependence on caregivers.(1,2)

Peripheral swelling involving the hands and lower limbs may arise from several physiological and pathological mechanisms, including reduced venous return, impaired lymphatic drainage, inflammatory processes, prolonged sedentary behavior, cardiovascular disorders, and age-related circulatory changes. Regardless of its underlying cause, persistent swelling often results in stiffness, discomfort, heaviness of the limbs, and decreased functional capacity. The coexistence of knee pain and peripheral edema presents an additional challenge in elderly rehabilitation because both conditions interact to reduce mobility and discourage participation in physical activity. Consequently, comprehensive rehabilitation strategies that simultaneously address pain, flexibility, circulation, muscle strength, and psychological well-being are increasingly recommended.(3,4)

Conventional management of chronic knee pain typically includes analgesics, non-steroidal anti-inflammatory drugs (NSAIDs), physiotherapy, strengthening exercises, weight management, and, in advanced cases, surgical intervention. Although these approaches may provide symptomatic relief, prolonged pharmacological treatment may be associated with adverse effects such as gastrointestinal irritation, renal dysfunction, cardiovascular complications, and drug interactions, particularly in older adults with multiple comorbidities. Furthermore, some patients continue to experience persistent pain and functional limitations despite conventional treatment, prompting interest in safe, non-pharmacological complementary therapies that can be integrated into routine rehabilitation. (1,5)

Yoga is a holistic mind-body discipline that originated in ancient India and integrates physical postures (Asanas), breathing techniques (Pranayama), relaxation practices, and meditation. Unlike conventional exercise programs that often focus primarily on muscular conditioning, therapeutic yoga emphasizes controlled movement, proper body alignment, mindful breathing, and awareness of physical sensations. These components collectively improve flexibility, muscular strength, balance, joint stability, coordination, and mental relaxation. The adaptable nature of yoga allows postures to be modified according to an individual's age, medical condition, pain level, and physical capacity, making it particularly suitable for elderly patients with chronic musculoskeletal disorders. (6,7)

The physiological benefits of therapeutic yoga are multifactorial. Gentle stretching and controlled movements enhance joint lubrication, increase range of motion, improve periarticular muscle strength, and reduce mechanical stress on affected

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joints. Slow rhythmic muscle contractions facilitate venous return and lymphatic circulation, which may contribute to the reduction of peripheral swelling. Simultaneously, diaphragmatic breathing and Pranayama improve respiratory efficiency, autonomic nervous system regulation, and tissue oxygenation while reducing sympathetic nervous system overactivity. Relaxation techniques decrease muscle tension, reduce perceived pain intensity, and improve sleep quality, thereby promoting overall physical and psychological well-being. (6–9)

A growing body of scientific evidence supports the use of yoga as a complementary intervention for chronic musculoskeletal conditions. Randomized controlled trials and systematic reviews have demonstrated that regular yoga practice can reduce pain intensity, improve physical function, increase flexibility, enhance balance, and improve health-related quality of life in individuals with knee osteoarthritis and other chronic pain disorders. Improvements have also been reported in emotional health, self-efficacy, and overall functional independence among older adults participating in supervised yoga programs. Although the precise mechanisms continue to be investigated, current evidence suggests that yoga exerts beneficial effects through biomechanical, neurophysiological, inflammatory, and psychological pathways. (5,7,8,10)

Therapeutic yoga is increasingly being incorporated into integrative rehabilitation programs because of its low-impact nature, affordability, minimal equipment requirements, and favorable safety profile when practiced under qualified supervision. Individualized yoga therapy enables practitioners to tailor interventions according to disease severity, physical limitations, and rehabilitation goals while maintaining patient comfort and minimizing the risk of injury. Such personalized interventions are particularly valuable for geriatric populations, where treatment plans must account for age-related physiological changes and multiple health conditions. (6,9)

The present case report describes the implementation of an individualized therapeutic yoga program for a 68-year-old male experiencing chronic knee pain together with swelling of the hands and lower limbs. The report aims to highlight the potential role of therapeutic yoga in reducing pain, improving joint mobility, decreasing peripheral swelling, enhancing functional independence, and improving overall quality of life. This case also contributes to the growing evidence supporting the integration of yoga therapy into comprehensive rehabilitation strategies for elderly patients with chronic musculoskeletal disorders.

CASE REPORT

A 68-year-old male presented to the yoga therapy clinic with persistent bilateral knee pain and swelling affecting both hands and lower limbs. The symptoms had progressively worsened over several months, making prolonged standing, walking, stair climbing, and household activities increasingly difficult. Morning stiffness lasting approximately 20–30 minutes was reported along with fatigue during routine activities. The patient also described reduced flexibility and decreased confidence while walking because of discomfort and instability.

Clinical assessment demonstrated restricted knee joint mobility, tenderness around the knees, mild functional limitation during sit-to-stand activities, and visible swelling in the hands and lower extremities. Pain intensity was moderate during weight-bearing activities. Vital signs remained stable, and the patient was medically fit to participate in supervised therapeutic yoga sessions after physician clearance.

An individualized yoga therapy protocol was developed considering the patient's age, physical limitations, and functional capacity. Each session lasted approximately 50–60 minutes and was practiced five days per week under supervision. The intervention emphasized slow, pain-free movements and proper alignment.

The therapeutic program included:

[1] Utthita Bhekasana with Partner

- When we stretch on knee its circulate blood
- Deeply stretches the quadriceps, groins, and front thighs
- Strengthens the back muscles and aligns the spine.
- Improves concentration, and balancing skills



Figure 1: Utthita Bhekasana with Partner

[2] Utthita Trikonasana (Extended Triangle Pose)

This standing posture stretches the legs, hips, and sides of the body while strengthening the lower limbs. It improves balance, posture, and spinal mobility.[Figure 2]



Figure 2: Utthita Trikonasana

[3] Utthita Hasta Padangusthasana (Extended Hand-to-Big-Toe Pose)

A balancing posture that strengthens the legs and core while improving flexibility of the hamstrings and hips, calf muscle,

knee, heel & Ankle. It also enhances concentration and body awareness.[Figure 3]



Figure 3: Utthita Hasta Padangusthasana

[4] Uttanasana (Standing Forward Bend)

A forward-bending pose that stretches the hamstrings, calves, and spine while calming the nervous system. It relieves fatigue and improves blood circulation to the brain.[Figure 4]



Figure 4: Uttanasana (Standing Forward Bend)

[5] Shirshasana with Wall (Supported Headstand)

A supported inversion using a wall for safety and stability. It improves circulation, enhances concentration, and strengthens the shoulders and upper body.[Figure 5]



Figure 5: Shirshasana with Wall

[6] Chakrasana on Bolster (Supported Wheel Pose)

A restorative backbend performed with a bolster to reduce strain while opening the chest and spine. It improves flexibility and promotes deep breathing.[Figure 6]

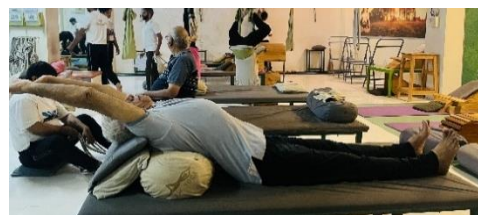


Figure 6: Chakrasana on Bolster

[7] Bharadvajasana on Chair

A gentle seated spinal twist using a chair for support. It improves spinal mobility, relieves back stiffness, and aids digestion.[Figure 7]



Figure 7: Bharadvajasana on Chair

[8] Bharadvajasana with Partner

This assisted spinal twist allows deeper yet controlled rotation of the spine. It improves flexibility and relieves tension in the back and shoulders.[Figure 8]



Figure 8: Bharadvajasana with Partner

[9] Jathara Parivartanasana (Abdominal Twist Pose)

A supine twisting posture that massages the abdominal organs and increases spinal flexibility. It helps reduce lower back stiffness and improves digestion.[Figure 9]



Figure 9: Jathara Parivartanasana

[10] Supta Padangusthasana I, II & III (Reclining Hand-to-Big-Toe Pose Variations)

These supported leg stretches improve flexibility of the hamstrings, hips, and inner thighs. They also enhance joint mobility and reduce muscular tightness.[Figure 10]



Figure 10: Supta Padangusthasana I, II & III

[11] Pawanmuktasana (Wind-Relieving Pose)

A gentle pose that massages the abdominal organs and relieves gas and bloating. It also stretches the lower back and hips, promoting relaxation. [Figure 11]



Figure 11: Pawanmuktasana

[12] Supta Bharadvajasana

A reclining spinal twist that gently stretches the spine and relaxes the nervous system. It relieves back discomfort and improves spinal flexibility. [Figure 12]



Figure 12: Supta Bharadvajasana

[13] Supta Marichyasana

A restorative reclining twist that releases tension in the spine, hips, and shoulders. It encourages relaxation and improves mobility.[Figure 13]



Figure 13: Supta Marichyasana

[14] Eka Padh Supta Parivritta Padangusthasana

A one-leg reclining twist that stretches the hamstrings and improves spinal rotation. It enhances hip mobility and relieves lower back tension.[Figure 14]



Figure 14: Eka Pada Supta Parivritta Padangusthasana

[15] Leg Traction

A therapeutic technique that gently elongates the leg muscles and hip joints. It helps relieve stiffness, improves circulation, and reduces joint compression.[Figure 15]



Figure 15: Leg Traction

[16] Back Traction

A supported traction technique that decompresses the spine and relaxes the back muscles. It helps reduce spinal discomfort and improves posture.[Figure 16]



Figure 16: Back Traction

[17] Knee Traction from Front

A therapeutic mobilization technique that gently relieves pressure in the knee joint. It improves joint movement and reduces stiffness.[Figure 17]



Figure 17: Knee Traction from Front

[18] Knee Traction from Front on Bed

This supported variation provides gentle knee decompression while ensuring comfort. It helps improve knee mobility and reduce pain.[Figure 18]



Figure 18: Knee Traction from Front on Bed

[19] Rope 1 & Rope 2

Rope-supported yoga practices provide stability and allow safe stretching, traction, and spinal decompression. They improve flexibility, alignment, and therapeutic effectiveness.[Figure 19]



Figure 19: Rope 1 & Rope 2

[20] Fold-Leg Shavasana

A modified relaxation pose performed with the knees bent for greater comfort and reduced lower back strain. It promotes deep relaxation, reduces muscle tension, and calms the mind.[Figure 20]



Figure 20: Fold-Leg Shavasana

The intensity and duration of postures were gradually increased according to the patient's comfort while avoiding pain-provoking movements. Education regarding posture correction, home exercises, hydration, and activity modification was also provided.

Following several weeks of consistent practice, the patient reported a marked reduction in knee pain during walking and standing. Swelling in the hands and lower limbs gradually decreased, and joint stiffness became less pronounced. Functional mobility improved, allowing the patient to walk longer distances with greater confidence. Sit-to-stand transitions became easier, balance improved, and the patient experienced better sleep quality and overall well-being. No adverse events were observed throughout the intervention period.

DISCUSSION

This case highlights the potential role of therapeutic yoga as a complementary intervention for managing chronic knee pain accompanied by peripheral swelling in older adults. The improvement observed in pain, mobility, and functional performance is consistent with previous studies demonstrating that yoga enhances flexibility, muscular endurance, proprioception, and joint stability while reducing pain perception. (3,5,6)

Gentle stretching and strengthening postures may improve peri-articular muscle function, thereby reducing mechanical stress on the knee joint. Dynamic movements combined with con-

trolled muscle activation also facilitate circulation and lymphatic return, which may contribute to the reduction of peripheral swelling observed in this patient. Additionally, breathing exercises improve oxygenation and autonomic regulation, while relaxation techniques reduce sympathetic overactivity and stress-related muscle tension. (4,6,7)

The individualized and progressive nature of therapeutic yoga is particularly advantageous in elderly populations because exercises can be modified according to physical capacity and medical status. Unlike high-impact exercise programs, yoga provides low-impact movement with emphasis on body awareness, balance, and controlled breathing, making it suitable for individuals with chronic musculoskeletal conditions. (2,5)

Although this report describes encouraging clinical improvement, it represents the experience of a single patient. Future randomized controlled trials involving larger populations, standardized yoga protocols, and objective outcome measures are required to establish stronger evidence regarding the effectiveness of therapeutic yoga for chronic knee pain and peripheral edema. (7,8)

CONCLUSION

This case report demonstrates that a structured therapeutic yoga program may effectively reduce knee pain, decrease swelling of the hands and lower limbs, improve functional mobility, and enhance quality of life in an elderly patient. The integrated practice of yoga postures, breathing exercises, and relaxation techniques provided a safe and well-tolerated complementary intervention without adverse effects. Therapeutic yoga may therefore be considered an important adjunct to conventional rehabilitation for older adults with chronic musculoskeletal complaints. Further high-quality clinical studies are recommended to confirm these findings and establish evidence-based treatment guidelines.

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