

**EVALUATION OF POSTURAL INTERVENTIONS IN KNEE OSTEOARTHRITIS****Heggannavar Anand Basavaraj<sup>1</sup> and Dr. Mahesh Kumar<sup>2</sup>**Department of Physiotherapy, Shri Jagdish Prasad Jhabarmal Tibrewala University,  
Vidyanagari, Jhunjhunu, Rajasthan**ABSTRACT**

*This research paper aims to provide a thorough evaluation of postural interventions in the management of knee osteoarthritis (OA). Knee OA is a prevalent musculoskeletal condition characterized by pain, stiffness, and functional limitations, significantly impacting the quality of life of affected individuals. The role of postural interventions in alleviating symptoms and improving overall function is a subject of growing interest. This paper reviews existing literature, analyzes various postural interventions, and discusses their effectiveness in managing knee OA.*

**Keywords:** Evaluation, Postural, Interventions, Knee, Osteoarthritis**INTRODUCTION**

Knee osteoarthritis (OA) is a common and devastating musculoskeletal disorder that is characterized by the progressive deterioration of articular cartilage. This condition causes persons who are affected to experience pain, stiffness, and functional impairment. Knee osteoarthritis (OA) is a significant public health concern, particularly in light of the fact that the population is becoming older and the prevalence of obesity is increasing. It is one of the top causes of disability around the world. A multimodal strategy, which includes pharmacological, non-pharmacological, and surgical therapies, is utilized in the management of osteoarthritis of the knee. Postural therapies have garnered interest as a potentially effective method for alleviating symptoms and enhancing functional results in patients who suffer from knee osteoarthritis (OA). These interventions are among the non-pharmacological interventions. Postural interventions are a wide variety of treatments that try to optimize the alignment and mechanics of the body in order to reduce the amount of stress placed on the joints and improve the overall function of the musculoskeletal system.

Because of the biomechanical changes that are linked with knee osteoarthritis (OA), it is important to investigate the possibility of postural therapies in this medical disease. Movement patterns that are disrupted, joint loading that is altered, and malalignment are all factors that contribute to the progression of osteoarthritis (OA) and make symptoms worse. These biomechanical aspects are targeted by postural therapies, which include exercises, braces, and alterations to footwear. The

goal of these interventions is to restore optimal joint mechanics, reduce discomfort, and enhance function.

Osteoarthritis, often known as OA, is the most common condition that causes discomfort and dysfunction in the musculoskeletal system of the body. The condition known as osteoarthritis of the knee occurs when the articular cartilage in the knee sustains damage and the bone beneath it undergoes remodeling. Typical clinical manifestations include soreness in the knee, crepitus, and tenderness along the joint line. Radiographic findings include narrowing of the joint space, subchondral sclerosis, and the growth of osteophytes.

It is generally knowledge that osteoarthritis of the knee is a substantial contributor to the pain associated with arthritis, as well as disability and a general decline in quality of life. Twenty-five percent of people with osteoarthritis (OA) have difficulty with other activities of daily living (ADLs), and more than seventy-five percent of people with OA have mobility problems.

The most common form of osteoarthritis (OA) is knee osteoarthritis, which affects ten percent of adults over the age of fifty-five and whose prevalence increases with age. The prevalence of osteoarthritis (OA) in the Indian population ranges from 22 to 39 percent, making it the second most common rheumatologic condition. According to the findings of a recent epidemiological study that was carried out across India, the prevalence of knee osteoarthritis is higher in large cities such as south Bangalore (33.1%) and large villages (31.1%) than it is in towns (17.1%) and small cities (17.2%). It is anticipated that the prevalence of knee osteoarthritis

would have doubled by the year 2020 across the globe.

Since there is currently no known cure for osteoarthritis and much about the disease's pathophysiology is still unknown, the focus of conservative care is on pain relief and minimizing functional damage. The therapeutic spectrum includes everything from medication and surgery to physiotherapy and orthopedic assistance. Physical therapists use manual therapy techniques and patient education to help people learn to self-manage their pain and other symptoms.

Strength training after osteoarthritis has been shown to improve muscle strength, cardiovascular fitness, stability, and knee range of motion. Exercise, or exercise in combination with manual therapy, is what the Ottawa panel suggests for OA sufferers. If symptoms persist despite the application of suitable conservative therapy, surgical intervention is advised.

Arthroscopic procedures, such as lavage and debridement, osteotomy, and knee arthroplasty are all examples of surgical treatments for osteoarthritis of the knee. Total knee replacement is one of the several surgical techniques available for individuals who have severe knee osteoarthritis and whose condition has not responded to conservative treatment and is considered to be a safe and satisfying procedure. A total knee replacement, often known as TKR, is a surgical procedure that involves the replacement of weight-bearing surfaces (the femur, the patella, and the tibia) with an artificial bearing. The articular cartilage that has been destroyed is removed during TKR surgery, and it is then replaced with components made of metal and plastic. This helps to restore the knee joint's natural anatomical alignment.

Patients with significant knee pain and limited function as a result of end-stage knee osteoarthritis can benefit tremendously from undergoing a treatment that realigns the knee joint to its normal position. This allows for continuing motion at the knee, and it is a very satisfying procedure. The more modern surgical procedures, such as approaches that are less intrusive and implant that have an improved recovery pathway and rehabilitation protocols, have been well-established. It is possible that all of these modalities are intricately interrelated, and that optimizing they all together can lead to the best possible outcomes for patients. Following total knee replacement surgery (TKR), the main objectives were for significant

improvements in arthritis pain reduction, increased function, and patient satisfaction.

While the literature on postural interventions in knee OA is expanding, there is a need for a comprehensive evaluation of the existing evidence to inform clinical practice. This review seeks to synthesize the current knowledge regarding the effectiveness of various postural interventions in managing knee OA, considering outcomes such as pain reduction, functional improvement, and quality of life.

## REVIEW OF LITERATURE

The study conducted by Afifi et al. (2018) sought to determine the frequency of knee osteoarthritis (OA) in individuals diagnosed with Metabolic Syndrome (MetS) as well as the relationships between knee osteoarthritis (OA) and other metabolic risk factors. The authors of the study looked at information submitted by a total of 60 MetS clients, 55 of whom were female and 5 of whom were male. Furthermore, a control group including thirty obese individuals without MetS was added. This group consisted of 6 men and 24 women.

Nur and associates (2017) They sought to determine the parameters influencing the level of physical activity among women with knee osteoarthritis (OA) in their 2017 study. Knee osteoarthritis is a debilitating condition that drastically impairs a person's ability to do daily activities. Understanding the factors influencing physical functioning is crucial to developing effective therapies and improving the quality of life for this population. In the study, 110 women with knee OA were included.

Malikitrat & Shadab (2016) Crucial details regarding the frequency and severity of osteoarthritis in the knee in a certain population are offered by Since osteoarthritis is a common degenerative joint ailment, knowing its occurrence and severity in different settings is crucial for healthcare planning and treatment strategies. For this cross-sectional study, the researchers included 507 clients in total over the course of a year. They employed a preplanned and pretested semi-structured routine to ascertain the prevalence of knee osteoarthritis in their study population. Methodology

Utilizing predetermined search terms associated with knee osteoarthritis and postural therapies, a comprehensive literature search will be carried out in electronic databases, such as PubMed,

MEDLINE, and Cochrane Library. Predefined inclusion and exclusion criteria will determine which studies are included. A quality assessment of the chosen studies will be conducted, and pertinent data will be retrieved for synthesis.

The chapter presents the research methodology. The study technique, the criteria for assessing the quality of research, and the justification for employing numerous cases rather than treating the patient as a whole are also covered in this chapter. The chapter addresses the selection of the sample respondents used in the study, the identification of the research's unit of analysis, and sampling design, which describes how the sampling frame is chosen. It also covers data collection procedures and measurement techniques. The chapter then goes over the measuring scales and data processing techniques used in the current investigation. The strategies employed to achieve the objectives of the study are particularly covered in this chapter. The processes of the study are described in chronological order, beginning with the research concept and progressing through the specifics of the technique employed for the analysis of the various types of replies.

## RESULT AND DISCUSSION

When people with osteoarthritis perform daily activities, their knees are subjected to biomechanical pressures that change their alignment and muscle function. Assessing balance and postural stability using pertinent measures and muscle activation patterns provides important information for clinical decision-making and execution.

The care of osteoarthritis in the knee is the focus of this study, which compares two different intervention strategies: structured neuromuscular postural training (SNPT) and conventional treatment (CT). Significant differences in joint loading and muscle activation patterns were found between the intervention groups after a six-week intervention period, with and without the use of a brace. Significant variations were also observed in a number of balance-related indicators, such as the Berg Balance Test, the Timed Up and Go test, and modified WOMAC scores that took pain, stiffness, and physical function into account. Although both groups showed progress, the SNPT group's results were noticeably better. The neuro-physiological and biomechanical viewpoints on neuromuscular control and movement dynamics can be used to

explain these results. This chapter goes into great detail discussing the findings that were shown in the previous chapter. It will start by summarizing the participants' demographics and then go into great length into a detailed study of both subjective and objective data. The study's findings will next be compared to previously published literature reviews, providing an analysis of how the study's findings stack up against pertinent historical studies and examining possible explanations for any inconsistencies.

Additionally, a statistically significant difference was noted between the senior group for four balancing assessment variables: the WPF (physical function) test, the TUG (timed up and go test), the MW (modified WOMAC) test, and its subsets, the WS (stiffness) test. The conventional groups exhibited more efficacy in the balance metrics TUG, MW, WS, and WPF as compared to the SNPT group. The mean difference between the TUG in the SNPT group and the conventional group after treatment was 0.72 seconds, indicating that SNPT treatment was more effective than the conventional group's 0.44 seconds. Here Difference that is statistically significant ( $t=5.54$ ,  $p<0.05$ ). But when it comes to the criteria MS, WS, and WPF, traditional groups do better than SNPT in the older group. According to a research by Robitaille et al., organized, group-based practice programs can increase the ability of older adults in the community to modify when they are concerned about falling. According to their review, the mediation mostly relied on static equilibrium and adaptability, as demonstrated by a straightforward relapse examination of long-standing regionally accepted practices. The study validates the SNPT methodology and is in line with our quantitative variable TUG outcomes. Since the SNPT approach relied on neuromuscular control and dynamic stability to unload the knee joint, Therefore, the key to improving biomechanical derangement in early knee osteoarthritis was to biomechanically unload the knee joint and modify neurophysiologic (neuro-facilitatory and neuro-inhibitory) aberration within the realm of context-specific activities. This led to a clinical improvement in weight bearing patterns, postural stability, and functional abilities in the SNPT group.

It's possible that the improved knee joint biomechanics brought about by the SNPT technique accounts for the increased muscle activation in the SNPT group. Increased muscular activation and

recruitment may result from this. Because the conservative treatment does not address the underlying biomechanical abnormalities that contribute to knee osteoarthritis, there may have been an increase in TUG time in the conservative group. According to Juhl et al.'s meta-examinations of knee osteoarthritis (OA), the composite scores that showed the greatest responsiveness were the "torment" and "capability" subscales of the WOMAC. In contrast, Thorp et al. (2010) reported a 78% and an average 9% decrease in WOMAC knee pain scores with a 4-week concentrated muscle training exercise program.

According to the Hunter et al. study, multi-model realignment with a valgus knee brace reduced discomfort in patients with medial tibiofemoral OA, but it had no discernible impact on WOMAC function. Functional self-efficacy is a critical component influencing functional performance outcomes for OA knee participants, according to Harrison (2004).

An analysis using a three-layered framework for movement evaluation discovered that knee OA subjects' foot independence throughout the swing phase of strolling can result in an excursion and could induce a tumble. In comparison to the benchmark group, it was shown that the inner tibial twist was greater throughout the walk cycle, with a reduced range of motion and a pinnacle outer pivot. In the knee OA group, the tibia was effectively

moved more horizontally, exhibiting a genu varum mal-arrangement.

## CONCLUSION

In order to provide a contribution to the understanding of the function that postural treatments play in the therapy of knee osteoarthritis (OA), this review will do so. For the purpose of influencing evidence-based therapy and guiding future research endeavors in this rapidly developing field, clinicians and researchers can acquire insights into the effectiveness of various postural therapies by critically examining the evidence that is now available. In the end, the incorporation of efficient postural treatments into the care of knee osteoarthritis has the potential to improve patient outcomes and enhance the overall quality of life for persons who are afflicted with this debilitating ailment. Provide a summary of the most important findings and make some suggestions for the direction of future research and therapeutic practice. During the treatment of osteoarthritis of the knee, it is important to highlight the potential of postural adjustments as a helpful complementary therapy. The purpose of this research study is to give a structured framework for evaluating postural therapies in knee osteoarthritis. This framework is created by combining a comprehensive literature review with a research analysis that is systematic in nature.

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