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Impact of Hamstring Active Release Technique Programme on Pain, Range of Motion and Hamstring to Quadriceps Strength Ratio in Patients with Knee Osteoarthritis: A Study Protocol

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Introduction: Knee osteoarthritis, a degenerative joint disease of the tibiofemoral and patellofemoral joint, arises from the progressive breakdown of articular cartilage, leading to pain, stiffness, and functional limitations. This degenerative process can result in significant muscle and capsule tightness, periarticular muscle weakness, altered gait patterns, and increased knee adduction moments. Hamstring tightness is one of such common findings. Current management strategies often involve a multidisciplinary approach, including different exercise therapy and manual therapy. However, there is a growing interest in exploring alternative and complementary therapies. One such alternative therapy is the Active Release Technique (ART), which is a form of alternative manual therapy that aims to address soft tissue restrictions and improve muscle function. Hardly there is any literature exploring its effectiveness in patients with knee osteoarthritis.

Need of this study: This study will be conducted to provide potential benefits of the ART programme in the management of grade 1 and 2 knee osteoarthritis.

Aim: To outline the methodological design to be used for determining the effectiveness of the hamstring ART programme on pain, range of motion and the hamstring-to-quadriceps strength ratio in patients with grade 1 and 2 knee osteoarthritis.

Materials and Methods: This study will employ a randomised controlled trial design. Participants of both genders, aged 35-55 years, meeting the inclusion criteria for grade 1 and 2 knee osteoarthritis, will be recruited and will be randomly allocated to two groups using computer-generated randomisation. The intervention group will receive the Hamstring ART in conjunction with conventional physiotherapy, while the control group will receive conventional physiotherapy alone. Pre- and post-intervention assessments will include pain intensity measured using the numeric pain rating scale range of motion assessed using a universal goniometer, and hamstring-to-quadriceps strength ratio measured using the modified Sphygmomanometer test.

Keywords: Knee joint, Knee osteoarthritis, Exercise therapy, Physical therapy modalities, Musculoskeletal manipulations