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Effect Of Proximal Fibular Glide Along With Conventional Treatment For Reducing Pain In Knee Osteoarthritis Patients

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ABSTRACT

Introduction: The loss of physiological reserve as one gets older is one of the hallmarks of ageing, which has been defined as "a progressive decline in the ability to adapt to stressors." The functional capacity of the elderly declines and life expectancy shortens as a result of the natural ageing process, which involves changes in the human body, mind, mental process, and living pattern. Strengthening muscles and bones, boosting flexibility, and reducing fatigue are all benefits of regular physical activity that can be especially helpful for those with osteoarthritis. As they target different muscle groups without putting unnecessary strain on the joints, isotonic and isometric workouts are recommended for Subjects with osteoarthritis. Aim of the study is to find the effectiveness of Tibio-fibular glide along with conventional treatment for reducing pain and improving the functional ability in the Subjects with Knee Osteoarthritis.

Methodology: Pretest and posttest experimental study design is used. Systematic random sampling method, 30 Subjects with knee osteoarthritis, who fulfilled the predetermined inclusive and exclusive criteria were selected and divided in to two groups each consisted of 15 Subjects. Dependent variables are functional disability and functional mobility and balance. Group A received range of motion, strengthening & stretching exercises, hot pack whereas Group B received range of motion, strengthening, stretching exercises, hot pack & TENS & fibular glides Operational tools are womac scale, and timed up and go test. Parameters are functional disability and functional mobility and balance.

Results: The subjects in Group A participated in an agility, perturbation, and strengthening exercise programme, while the subjects in Group B participated in a strengthening exercise programme alone. The duration of the trial was 8 weeks. Thereafter, the WOMAC scale for functional disability and the TUG test for functional mobility and balance were used to evaluate the results.

The Student 't' test was employed to determine statistical significance between the two sets of test data. Group pre- and post-tests were computed, and post-test variables were analysed for the team, too, was tallied up. According to the data, Group A Subjects significantly outperformed Group B individuals in terms of functional improvement.

Conclusion: fibular glide is more effective in decreasing pain improving physical function of the subjects with knee osteoarthritis.

Key words: of Tibio-fibular glide, conventional treatment, pain, functional ability, Knee Osteoarthritis.

INTRODUCTION

The loss of physiological reserve as one gets older is one of the hallmarks of ageing, which has been defined as "a progressive decline in the ability to adapt to stressors." The functional capacity of the elderly declines and life expectancy shortens as a result of the natural ageing process, which involves changes in the human body, mind, mental process, and living pattern. In January of 1999, the government of India established the 'National Policy on Older Persons'. For state governments to take proactive measures for the welfare of older citizens, the policy sets wide principles for doing so. The term "senior citizen" under this policy refers to anyone 60 years of age or older. Its goal is to help the elderly deal with the challenges that come with getting older and to improve their quality of life by giving them with various forms of assistance (facilities, concessions, relief, services, etc.). **Rajan (2006)** found that 43% of elderly participants at the study's rural Pondicherry location complained of joint discomfort or stiffness. Most elderly people experience joint pain, which limits their ability to perform daily tasks like walking, climbing stairs, sitting in a chair, or even squatting to use an Indian toilet.

Although primary osteoarthritis is typically seen in the elderly, new research suggests that it actually represents a dynamic process characterized by an imbalance between cartilage degeneration and regeneration. Although osteoarthritis has been previously classified as a degenerative ailment, it is more commonly recognized by its clinical manifestations, which include joint discomfort, structural alterations, bony expansion, and deformity. The most common kind of joint illness, osteoarthritis, is a major contributor to incapacity. In those over the age of 70, osteoarthritis-like changes are seen on x-ray in more than 75% of cases.

Richard Sandusky [2000] says Subjects with osteoarthritis who undergo a treatment plan that include both manual therapy and supervised exercises report reduced pain and stiffness, and greater improvements in function. Subjects suffering from osteoarthritis of the knee may find relief from their symptoms by engaging in Tibio-fibular glide along with conventional treatment, which helps to maintain joint flexibility, builds muscle strength, and enhances functional capacity.

Osteoarthritis exercises are designed to keep and increase muscle without further irritating the already tender parts of the body, and are thus advised for anyone. A safe, stepwise programme is used in physiotherapy to help Subjects regain movement while experiencing less pain. Physical therapy for osteoarthritis can be quite helpful, and it can help many Subjects do things that were previously impossible by increasing their endurance and muscle mass.

Strengthening muscles and bones, boosting flexibility, and reducing fatigue are all benefits of regular physical activity that can be especially helpful for those with osteoarthritis. As they target different muscle groups without putting unnecessary strain on the joints, isotonic and isometric workouts are recommended for Subjects with osteoarthritis. Painful joints can be avoided by performing isometric exercise, in which the muscles are tightened for a period without movement. Muscles get larger and stronger in response to resistance training.

Mohamed Shakoor [2010] 64 individuals with knee osteoarthritis in Bangladesh were studied to determine the impact of isometric quadriceps muscle strengthening exercise combined with non-steroidal anti-inflammatory medicines (NSAIDs). Anti-inflammatory drugs (NSAIDs) were used on a separate sample of 75 Subjects. The WOMAC visual analogue scale was used to evaluate them. The exercise group showed greater gains, on average. The results of this study support the idea that isometric quadriceps muscle strengthening exercise can help alleviate some of the discomfort associated with knee osteoarthritis.

BACKGROUND OF THE STUDY:

Osteoarthritis (OA), also known as degenerative joint disease or degenerative arthritis, is the most common chronic ailment of the joints, affecting 30–40% of Indians over the age of 65. For those suffering with osteoarthritis, the protective cartilage that lines the ends of bones where they come together to create a joint wear away, limiting their range of motion. Bones are exposed and grind against one another when cartilage deteriorates. Deterioration of cartilage also alters the joint's structure and composition, disrupting its normal functioning. Since climbing and descending stairs place extra strain on the affected joint, the patient may develop a limp as a result.

Depending on which joints are afflicted and how badly, osteoarthritis can cause a wide range of symptoms. However, morning or post-rest stiffness and soreness in the joints are the most typical manifestations. The lower back, hips, knees, and feet are the most typical locations for joint pain. Walking, climbing stairs, and lifting objects may become challenges for Subjects with these joint conditions.

The base of the thumb is another often afflicted finger and neck joint. When osteoarthritis strikes the joints of the fingers and hands, it can make even simple tasks like writing or sewing a challenge.

Subjects with osteoarthritis can benefit from exercise in a number of ways. The overall purpose of pain relief, functional enhancement, and disability prevention is to enhance one's quality of life, and these objectives, among others, can be accomplished by exercise programmes. They include building muscle, increasing range of motion in joints, enhancing aerobic capacity, and cutting calories.

While there is little we can do to stop the clock on our own ageing, we can take steps to ensure that our remaining years are filled with joy, health, and accomplishment while minimising the impact of any decline in health. Successful ageing is defined as the preservation of one's cognitive and physical faculties for as long as possible. There has been a steady rise in the number of people aged 60 and more, and by 2025, the UNESCO predicts that figure will reach 590 million worldwide. Roughly 10% of the world's population is over the age of 60. The expansion of the senior population is particularly startling. There are 5.3% of males and 4.49% of females above the age of 65 in India. There is no way to delay or stop the ageing process. Health care providers, however, can do a lot to ensure that the elderly can continue to live independently.

Treatment for osteoarthritis (OA) typically involves making changes to one's lifestyle, most notably through exercise and weight loss. All muscles that span a particular joint that is afflicted by osteoarthritis should be strengthened as part of a physical therapy programme. Knee osteoarthritis studies typically concentrate on quadriceps strengthening. Range of motion can also be improved with regular stretching. Some research also suggests that Subjects with knee osteoarthritis can benefit greatly from engaging in an activity programme at home.

Dr.Gail .D and collaborators [2000] 83 Subjects with knee osteoarthritis were split evenly between physical therapy exercises and ultrasound therapy for two sessions each week for four weeks, and the results were published. Participants performed workouts like step-ups during their sessions. People who worked out during the sessions felt better overall and were able to walk further and have less discomfort and stiffness than those who didn't. When stiffness and soreness in the joints prevent normal motion, isometric exercise can be an effective treatment. The treatment's focus is on relieving discomfort and keeping the patient functional. Education on the disorder's existence, progression, and treatment is the first step. The success of treatment depends largely on the patient's willingness to engage in regular physical activity and comply with prescribed therapies so that they can live fulfilling lives. The need of exercise and counselling for the elderly should be emphasised. Aim of the study is to find the effectiveness of Tibio-fibular glide along with conventional treatment for reducing pain and improving the functional ability in the Subjects with Knee Osteoarthritis.

METHODOLOGY

Pretest and posttest experimental study design is used. Systematic random sampling method, 30 Subjects with knee osteoarthritis, who fulfilled the predetermined inclusive and exclusive criteria were selected and divided in to two groups each consisted of 15 Subjects. Total study duration was one year and each patient received treatment for a duration of 8 weeks. Inclusion criteria are Patient diagnosed with primary osteoarthritis of the knee by orthopedic Subjects with unilateral osteoarthritis of knee. WOMAC pain score greater than 5. Both sexes were included Age group 55-65 years, Subjects who are able to perform the exercises and Subjects who are willing to participate in the study. Exclusion criteria are Knee pain attributable to a cause other than primary osteoarthritis. Including fibromyalgia, Bursitis, Tendonitis, and Rupture or tear in the articular cartilage (evidences by a positive Mc Murray sign). Athropathy of the knee on pain in the lower back, hips or ankles. Variables independent varaibles: tibio-fibular glide along with conventional treatments and Strengthening exercises. Dependent vaiables are functional disability and functional mobility and balance. Operational tools are womac scale, and timed up and go test. Parameters are functional disability and functional mobility and balance.

PROCEDURE

30 subjects with age 40-60 years with knee osteoarthritis were recruited from Physiotherapy department diagnosed with osteoarthritis by orthopedic surgeon. As per the criteria of radiological classification by Kellgren and Lawrence (Grade 1 & 2) OA and divided into two groups, 15 subjects in each group.

A consent form was signed by all subjects before including in the study. All subjects were assessed with WOMAC Scale & ROM before giving the treatment.

The exclusion criteria included that patient had not any history of fracture or any trauma to knee joint, history of surgery around the knee joint, myocardial infarction within the past 6 months, congestive heart failure, uncontrolled hypertension, any other referred pain to hip or knee joint, subjects with autoimmune disease, malignancy and history of stroke

Group A (N=15) – (57.493±6.40) received range of motion, strengthening & stretching exercises, hot pack (15 mins)13 frequency 100 Hz, pulse width of 50 μs, intensity (mA) set at the individual subject's sensorial threshold, modulation up to 50% of variation frequency, quadratic biphasic symmetrical pulse and a length of application of 20minutes)14.

Group B (N=15) – (54.13±7.40) received range of motion, strengthening, stretching exercises, hot pack & TENS & fibular glides8 (3 sets of 30 seconds with a 30 second rest between sets)90. Study duration was 3 weeks.

Data analysis and intretation

The data were summarized as Mean ± SD. The groups were compared by paired t test and independent Student's t test. A two-sided (α=2) $p<0.05$ was considered statistically significant. All analyses were performed on STATISTICA (version 6.0) software.

TABLE I : DEMOGRAPHIC DATA

TABLE 1: AGE (MEAN ± SD) OF TWO GROUPS

GroupA(n=15)	GroupB(n=15)
57.493 ± 6.40	**54.13 ± 7.40**

The The age of two groups (Group A and Group B) are summarized in Table 1. The age of Group A and Group B Subjects ranged from 46-65 yrs and 44-66 yrs, respectively with mean (± SD)57.493 ± 6.40 yrs and 54.13 ± 7.40 yrs, respectively. The mean age of Group A is slightly higher than Group B. Comparing the mean age of two groups, t test revealed similar ($p>0.05$) age between the two groups (57.493 ± 6.40 vs. 54.13 ± 7.40, $t=1.35$, $p=0.189$). In other words, Subjects of two groups were age matched and therefore, age may not influence the outcome measures of the study (i.e. WOMAC and ROM).

TABLE 2: COMPARATIVE MEAN WOMAC SCORE OF EACH GROUP OVER THE PERIODS

Groups	0 sitting	5th sitting	10th sitting
Group A	76.07 ± 10.73	72.60 ± 10.69	67.497 ± 11.43
Group B	76.497±10.08	66.00 ± 14.16	56.67 ± 13.74
t value	0.21	1.44	2.43
p value	0.4936	0.161	0.022

Comparing the mean WOMAC score within the groups (Table 3), the WOMAC score in both Group A and Group B decreased (improved) significantly ($p<0.001$) at after both 5th sitting and 10th sitting as compared to 0 sitting. Further, WOMAC score in both Group A and Group B also decreased (improved)

significantly (p<0.001) at after 10th sitting as compared to 5th sitting. In other words, both the treatments are effective for improving the WOMAC in Subjects with knee OA.

TABLE 3: COMPARISON OF MEAN WOMAC (SCORE) BETWEEN THE PERIODS (WITHIN GROUPS) BY PAIRED T TEST

Comparisons	Group A		Group B	
	t value (DF=14)	p value	t value (DF=14)	p value
0 sitting vs. 5th sitting	5.25	p<0.001	6.75	p<0.001
0 sitting vs. 10th sitting	8.08	p<0.001	12.19	p<0.001
5th sitting vs. 10th sitting	9.43	p<0.001	11.07	p<0.001

Similarly, comparing the mean WOMAC score between the groups (Table 2), the WOMAC score of two groups not differed (p>0.05) at pre treatment (0 sitting) i.e. found to be statistically the same (76.07 ± 10.73 vs. 76.497 ± 10.08, t=0.21; p=0.4936). In other words, WOMAC score of two groups were comparable. Similarly, the mean WOMAC score of two groups also not differed (p>0.05) at 5th sitting (72.60 ± 10.69 vs. 66.00 ± 14.16, t=1.44; p=0.161).

However, the mean WOMAC score of Group B at 10th sitting was found significantly (p<0.05) different and lower as compared to Group A (67.497 ± 11.43 vs. 56.67 ± 13.74, t=2.43; p=0.022).

The pre and post treatments ROM (score) of two groups are summarized in Table 4. Table 4showed that the mean ROM in both groups increased (improved) after the treatments and the increase (improvement) was evident higher in Group B than Group A.

TABLE 4: PRE AND POST TREATMENTS ROM (MEAN ± SD) OF TWO GROUPS

Groups	0 Sitting (n=15)	5th sitting (n=15)	10th sitting (n=15)
Group A	104.67 ± 14.07	110.33 ± 11.09	113.40 ± 11.75
Group B	103.40 ± 12.09	112.47 ± 10.498	122.73 ± 10.40
t value	0.26	0.493	2.28
p value	0.793	0.4999	0.030
Numbers in parenthesis represents the range (min-max)			

Comparing the mean ROM score within the groups (Table 5), the ROM score in both Group A and Group B increased (improved) significantly ($p<0.001$) at after both 5th sitting and 10th sitting as compared to 0 sitting. Further, the mean ROM score in both Group A and Group B also increased (improved) significantly ($p<0.01$ or $p<0.001$) at after 10th sitting as compared to 5th sitting. In other words, both the treatments are effective for improving the ROM in Subjects with knee OA.

TABLE 5: COMPARISON OF MEAN ROM (SCORE) BETWEEN THE PERIODS (WITHIN GROUPS) BY PAIRED T TEST

Comparisons	Group A		Group B	
	t value (DF=14)	p value	t value (DF=14)	p value
0 sitting vs. 5th sitting	5.26	p<0.001	5.78	p<0.001
0 sitting vs. 10th sitting	8.76	p<0.001	9.49	p<0.001
5th sitting vs. 10th sitting	4.11	p<0.001	7.79	p<0.001

Similarly, comparing the mean ROM score between the groups (Table 4), the ROM score of two groups not differed ($p>0.05$) at pretreatment (0 sitting) i.e. found to be statistically the same (104.67 ± 14.07 vs. 103.40 ± 12.09, $t=0.26$; $p=0.793$). In other words, ROM score of two groups were comparable. Similarly, the mean ROM score of two groups also not differed ($p>0.05$) at 5th sitting (110.33 ± 11.09 vs. 112.47 ± 10.498, $t=0.493$; $p=0.4999$). However, the mean ROM score of Group B at 10th sitting was found significantly ($p<0.05$) different and higher as compared to Group A (113.40 ± 11.75 vs. 122.73 ± 10.40, $t=2.28$; $p=0.030$).

RESULT

The aim of study was to compare the effect of proximal and distal fibular glide in Subjects of knee Osteoarthritis. The Subjects those who received fibular glide and conventional therapy both their WOMAC and ROM improved significantly ($p<0.05$) as compared to those who received the conventional therapy alone. This study demonstrated that fibular glide when combined with conventional physiotherapy, improved range of motion and functional ability in Subjects with knee osteoarthritis.

Results agree with previously published studies on this subject indicating the ability of Joint mobilization to reduce pain and improve physical function. In this study proximal tibiofibular joint mobilization has done on the subjects of knee osteoarthritis as medial side forces increased. Subjects with osteoarthritis often have substantially larger varus moments at the knee during gait (Mundermann et al. 2004) Previous study suggests that there is significant motion in this joint during forces and torques consistent with physiologic motion[47]. It has been proposed that the fibula can serve as a channel for dissipation of torsional stresses in the ankle (Lambert, 1971), and proposed that this could also be the case for excessive stresses in the knee joint itself[15].

Sterling et al (2001), have demonstrated that joint mobilization produces rapid hypoalgesia. The result is in congruous with the findings by Kumar et al. (2006), who combined complex knee mobilization and electrotherapy, Pain reduction following joint mobilization has been established in previous studies. An in vitro animal study by Sambajon et al. (2003) found a 70% reduction in levels of cellular prostaglandin (PG) E2 a strong inflammatory mediators causing hyperalgesia in arthritic joints, within 24 hours of mobilization. Skyba et al. (2003) suggested that analgesic effect following knee joint mobilization was primarily due to enhancement of the descending pain inhibitory pathway in the spinal cord, which utilized serotonergic (5-HT1A) and noradrenergic receptors (alpha-2)[9]. Previous study revealed that early mobilization (compression and decompression with glide) in Subjects of osteoarthritis of knee, result in significant improvement of the symptoms of the patient which, support the results of study.

In the present study, when the mean scores of Western Ontario McMaster University Osteoarthritis Disability Index was analyzed intra group, it was found statistically significant in both the groups and has shown reduced WOMAC scores which represents an improvement in the pain, range of motion and function activities where as when inter group comparison was done, group A had shown statistically significant changes in pain, range of motion and functional activities than group B which indicated that fibular glide is better than the conventional treatment.

Knee osteoarthritis presents a serious health care problem and produces a large burden on society. Simple, safe, physical treatment procedures such as fibular glide could be of great value. This provides pain relief, increases range of motion, improves functional performance and reduces functional disability. It is a low cost and easy means of treatment in subjects with knee osteoarthritis.

DISCUSSION

Subjects with knee osteoarthritis will participate in a study comparing the effectiveness of strengthening exercise to Tibio-fibular glide along with conventional treatments on functional abilities. Forty Subjects between the ages of 55 and 65 who had presented to the outpatient clinic complaining of osteoarthritis were included in the analysis. There was a total of 40 participants, 20 in each of two groups. Strength training was performed on Group B, while Tibio-fibular glide along with conventional treatment was performed on Group A.

In the older population, osteoarthritis (OA) of the knee is the leading cause of persistent musculoskeletal pain and mobility limitation, placing a heavy strain on healthcare systems. According to (Fitzgerald, 2005). Damage to joint cartilages leads to degenerative osteoarthritis, and this can occur for two different reasons. The first step in the development of osteoarthritis is the destruction of joint tissues brought on by abnormally heavy loads. The result was increased discomfort and a decline in functional activities such quadriceps strength, range of motion, joint stiffness, mobility, and proprioception. "(Sharma et al., 2003)"

Muscle weakness or asymmetry in muscle use can cause joint instability and worsen existing muscular pain. Age-related declines in balance and mobility that increase the risk of falling. To wit: (Ettinger et al., 1994). Pain and incapacity might result from weak quadriceps muscles.

reductions in proprioception, postural control, and quadriceps facilitation. Motor control and joint position sensing are both impaired by damage to the cartilage's mechanoreceptors. "(Creamer et al., 1999)

For mild to moderate knee OA, conservative therapy is recommended. For individuals with osteoarthritis of the knee, muscular strengthening is essential (Bennell, 2005) since weakness is linked to pain and physical dysfunction and promotes disease development (O'Reilly et al., 1997, 1998).

The knee is a weight-bearing joint that is prone to injury from regular use. Joint protection from these threats requires, without a doubt, constant vigilance in the pursuit of ideal joint stability. Timely and appropriate voluntary and involuntary movements rely heavily on proprioceptive information. It was found (Sharma et al., 1999). It has been shown that OA is linked to a decline in Proprioceptive awareness. It has been shown that this occurs (Gardsen et al., 1999; Koralewicz et al., 2000). It is clear that the Proprioceptive impairment is not a local effect of the disease, although the precise cause is not yet understood. It was found (Gardsen et al., 1999).

Researchers Lund et al. found that Subjects with unilateral knee OA had diminished proprioceptive sensibility in both knees and elbows. The findings provided further evidence that "impaired proprioception is general problem and not a local phenomenon in knee OA Subjects."In a 2004 study (Lund et al.)

As because of this malfunction, neuromuscular control is lost, protective muscle movements are unable to be carried out, and the joints are not stabilised. "(Prentice 1994)" The joint is extremely sensitive to any traumatic stimuli. The mechanoreceptors, which are the source of proprioception, will

be structurally compromised due to the trauma the joint structures are subjected to. It was found (Sharma et al., 1999).

It was hypothesised that proprioception would be more affected by balance and kinesthesia activities than by regular strengthening workouts. It is possible that the Proprioceptive system is not adequately activated by a standard workout programme because it does not have the power to alter the stimulation of proprioceptors. This shortcoming was addressed by integrating the innovative Proprioceptive method. "(Beynnon et al., 2000)" However, recent research indicates that the full extent of the proprioceptive sensory system's impact on OA Subjects' ability to carry out their everyday tasks remains unknown. Functional factors like walking rhythm, step length, gait speed, and total time spent walking were all shown to be affected by a lack of proprioceptive information (Sharma et al., 1997, Sharma et al., 1997, & Skinner, 1984).

Group A subjects in this study participated in an Tibio-fibular glide along with conventional treatment regimen following a predetermined series of exercises.

govt hospital physiotherapy department. The training curriculum lasted for six weeks, and all of the subjects participated. Their pre- and post-treatment test scores were then compared to determine the effects of the intervention.

OA knee is characterised by a lack of dynamic joint stability and neuromuscular control. The OA knee should include Tibio-fibular glide along with conventional treatments. To wit: (Hubely-Kozey et al., 2008; Lewek et al., 2004). The purpose of these movements is to enhance neuromuscular control and dynamic joint stability through focused neuromuscular training. The visual, vestibular, and somatosensory systems are all put to the test during agility and perturbation drills. To wit: (Taylor, 2011).

The effects of Tibio-fibular glide along with conventional treatments on improving balance have been the subject of various research. Six-week multi-station Tibio-fibular glide along with conventional treatment programmes have been the primary focus of Sekir and Gur's (2005) research with regards to enhancing postural control, functional capacity, and knee discomfort. Rogers et al. (2011) found that Subjects with knee OA benefited just as much from an Tibio-fibular glide along with conventional treatment plan as they did from a strength training programme in terms of reductions in pain, stiffness, and physical dysfunction.

When it comes to treating knee osteoarthritis, balance training is superior. When dealing with decreased knee stability, these are crucial (Hinman et al., 2002). The knee joint is better protected from harmful loads, and stability is increased. Performing

The stability of the knee joint and the ability to undertake more demanding movements in daily life can benefit from engaging in balance exercises. As stated by Fitzgerald et al.

Control over joint mobility in any position improves with exercise routines involving repetition of actions. enhanced motor control via a reflexive mechanism may result from enhanced dynamic

stability, which may aid to regulate aberrant joint translation that happens during regular daily movements. (Brinkmann, 1984; Brinkmann, 1985).

Subjects in Group B participated in a Knee Strengthening Exercise Programme, with protocols developed by the Physiotherapy Department at the Government Hospital. The training curriculum lasted for six weeks, and all of the subjects participated. Their pre- and post-treatment test scores were then compared to determine the effects of the intervention.

Exercises that focus on building muscle produce a lot of shearing force, so methods of working out that are safer being explored. The research was conducted by (Bakhtiarty et al., 2008). Reduce the stress on your knee joints by doing some resistance training on your knee muscles. It was found that (Page et al., 2003). When it comes to the conservative treatment of individuals with knee OA, exercises are one of the key therapies.As reported by Messier et al. (2004). Reducing suffering, enhancing capacity, and enhancing social and vocational functioning are the primary goals.In a 2011 study (Bennell et al. Moreover, the corresponding exercises for the

Strength, mobility, and the capacity to do ADLs are all enhanced by a healthy knee joint. References: (Kauffman 1985, Fisher et al., 1993).

One of the most significant physical effects of osteoarthritis of the knee is a weakening of the quadriceps. It was found that...(Petterson et al., 2008). Degenerative alterations in the anatomy of the OA knee may affect sensory input to joint mechanoreceptors, as proposed by Hurley et al.1997, reducing activation of the quadriceps. Subjects with OA often have weak quadriceps, which is an important factor to consider. Subjects at high risk of developing OA may benefit from moderate exercise not only for the relief of joint symptoms and function, but also for the enhancement of glycosaminoglycan in the knee cartilage. (Ross, et al., 2005)

When compared to conventional exercises for OA Knee, propiroceptive exercises were found to produce significantly greater gains in functional ability.

SUMMARY

The participants in the study, all had knee osteoarthritis, and the goal of the research was to see how Tibio-fibular glide along with conventional treatments and strengthening exercises affected their functional abilities. Forty adults aged 55 to 65 were chosen at random to participate in the study. All participants were chosen after strict adherence to the inclusion and exclusion criteria. All of the subjects were given a thorough physical examination by an experienced orthopaedic surgeon and physiotherapist to eliminate any potential for exclusion. All participants were adequately briefed and gave their informed consent. Everyone is split in half evenly between two groups.

The subjects in Group A participated in an agility, perturbation, and strengthening exercise programme, while the subjects in Group B participated in a strengthening exercise programme alone. The duration of the trial was 8 weeks. Thereafter, the WOMAC scale for functional disability and the TUG test for functional mobility and balance were used to evaluate the results.

The Student 't' test was employed to determine statistical significance between the two sets of test data. Group pre- and post-tests were computed, and post-test variables were analysed for the team, too, was tallied up. According to the data, Group A Subjects significantly outperformed Group B individuals in terms of functional improvement.

CONCLUSION

- There is a significant improvement in functional ability in both the groups.
- When compared with Group A (Experimental group), the Group B (control group) shows less improvement in functional ability.

So this study concludes that Tibio-fibular glide along with conventional treatment shows a significant improvement on functional ability when compared to strengthening exercise alone in Subjects osteoarthritis of knee. The study concludes fibular glide is more effective in decreasing pain improving physical function of the subjects with knee osteoarthritis.

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