
TEN Exercises for Knee Osteoarthritis

Osteoarthritis is a non-inflammatory condition of the joints where the joint and its internal structures e.g. cartilage, ligaments and the joint fluid (synovial fluids) gets degenerated, thereby exposing the sensory nerves of the joint to regular wear and tear, causing pain and sometimes excess accumulation of the joint fluid. The commonest joints are the weight bearing joints for obvious reasons and knee is mostly affected in India. Since the problem lies in structural damage, the terminal management is to go for a total prosthetic joint replacement. However, apart from structural damage acquired, the chronicity of the disease affects the strength of the adjoining muscles, the ligaments, the quality of life and mood. Resulting mental depression is thus not infrequent.

Targeted physical therapy of knee is designed to address the following issues:

1. Improvement of muscle mass and strength around the knee joint.
2. Improvement of the biomechanics of the joints thus preventing development of deformity
3. Offloading of the joint by strengthening the muscles, resulting in creation of a window of opportunity for cartilage repair.
4. Improvement in pain score and sense of betterment.

The following physiotherapeutic manoeuvres are being discussed in brief for persons who are suffering from Osteoarthritis and need to practice these for at least 10 sets 4 times daily.

A. HAMSTRING STRETCH:

As the figure states you can practice this either in sitting posture, on a chair or in lying down position. Take a Towel or a similar looking cloth of adequate length and strength and wind it up around the foot and hold them with both of your hands. As you can see, pull your leg with your hands and push the towel with your legs stretching it out. You will feel a tightness of the muscles of the hamstring groups i.e. muscles behind the thigh. Again relax the leg and repeat the procedure. DO IT for 10 SETS and move to the next exercise.



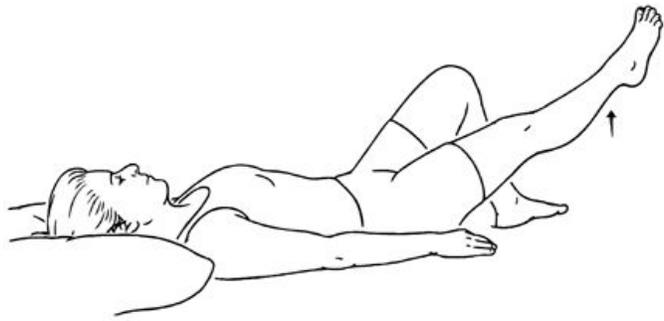
B. CALF STRETCH:

Follow the position as per the image. Support yourself against the wall and try to walk against the wall by putting one step forward as per the image. In doing so your calf muscles will be tested as it tries to take your body forward against the resistance. Do it with the other leg too. DO the entire sequence for 10 SETs for each leg and move to the next exercise.



C. STRAIGHT LEG RAISING :

This is a very simple but useful technique. Simply lie down on your back. Try to lift your legs with the knee joint extended into the air as high as possible. Now bring down to an angle of say 30 degrees and hold it there for 5 seconds and then gradually come down but do not touch the ground. Again HOLD it few inches above the ground and again lift it up. This is going to be very difficult as the entire leg does not get rested on the ground. DO this entire manoeuvre for 5 times and repeat it with the next leg. Rest a while in lying down position and move to the next exercise.



D. QUADRICEPS DRILL:



The big group of muscles in the front of the thigh is called quadriceps and it is named so because it has 4 big muscles which make the bulk of the thigh. As per the image you can see that while in any position you have to contract the thigh muscles without practically moving the leg so that the patella is tightened. The figure will explain what actually happens after you do this process. The muscles get strengthened and it can be seen as the muscles get prominent. Try to do this at least 20 times in each thigh. This is easy and one of the most productive exercises.

E. PILLOW SQUEEZE:

The image is self explanatory. Either lie down or sit on a chair and take a big soft pillow between your legs and try to squeeze it by bringing in both the knees together in an attempt to squeeze the pillows. This exercise strengthens the muscles necessary for stabilisation of the knee so that there is no unwanted lateral movement at the knee joint thus preventing deformities.



F. HEEL RAISE:

This is a simple exercise where you need to stand in flat foot and then gradually lift the heels and stand on your toes. You can try standing on a small stool of around 4" tall and do the same. Try to stay on your toes for at least 5 seconds every time you do the exercise. Do 5 sets for each leg and move on to the next exercise.



G. STEP UP:

This is quite a simple exercise and the figure is self explanatory. You need a step to do this exercise. It can be done on stair case easily. Just break one step of the stair and then get down and do it with alternate legs. Try to do this for at least 20 steps for each leg.

H. YOGA & PRANAYAM:

Proper Yoga and Pranayam can release endogenous pain killers of our body known as ENDORPHINS who can alleviate pain and increase exercise endurance. It is recommended to do YOGA or PRANAYAM for at least 15 mins per day.

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I. SWIMMING (OUTDOOR ACTIVITIES)

Swimming is the best suited outdoor activity for patients suffering from Osteoarthritis. It causes exertion of most of the large muscles of the body and there by resulting in easy weight loss. Further, as it is a resistance exercise, the strength of muscles also increases.

There are a few individuals who do not know

swimming or are uncomfortable with the pool. It is strongly recommended that even if they do not swim in the pool, they should dip themselves into neck deep water and walk in the water at the same depth for at least 35-40mins. The buoyancy of the water will help to bear the weight of the body and the knee joints will be off –loaded. This will be almost equivalent to regular brisk walking and help in weight loss too.



J. STATIC CYLCING:

Static cycling is one of the best exercises for increasing power and strength of the leg muscles. In this exercise the knee is never flexed at more than 90 degrees and hence the joint is not strained. This can be done either at home or in the gym. The resistance of the machine can be adjusted and it should always be started from lesser resistance to greater ones.

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NOTES:

Kindly keep the following information in your knowledge:

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- Osteoarthritis is a dead end disease and it is not curable with any form of medication. Total Prosthetic Knee Replacement is the only definitive treatment available in medical science till date.
 - Offloading of the joints and increasing the muscle strength of the joints is the corner stone of physiotherapeutic management.
 - Dedicated Physical Therapy can change the quality of life by reducing pain, restoring the disorganised joint biomechanics, improving cartilage and ligament repair and increasing exercise endurance.