



Osteoarthritis (OA) is a condition involving degradation of joints, including articular cartilage and subchondral bone. Symptoms may include joint pain, tenderness, stiffness, locking, and sometimes an effusion. A variety of causes—hereditary, developmental, metabolic, and mechanical deficits—may initiate processes leading to loss of cartilage. When bone surfaces become less well protected by cartilage, bone may be exposed and damaged. As a result of decreased movement secondary to pain, regional muscles may atrophy, and ligaments may become more lax.

RISK FACTORS FOR OSTEOARTHRITIS

Beyond our control

1. Genetic factors
2. Ageing
3. Gender – more common in women
4. Previous injury or disease

Within our control

5. Weight gain
6. Muscle imbalance (developed due to muscle weakness, physical inactivity, poor postures)

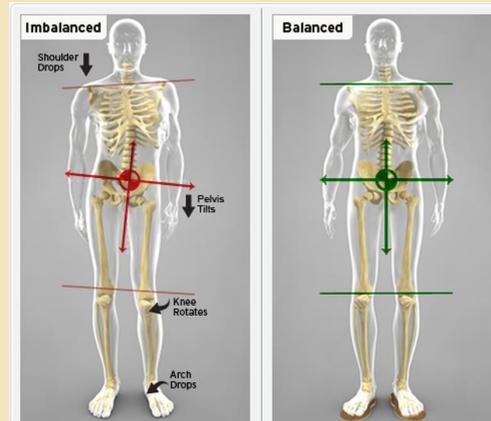
7. Skeletal structure misalignment (bow leg, knock knees, flat feet, scoliosis)

Muscle imbalance

Muscles attached around a joint should work in harmony to produce smooth joint motion. However, if one side of the opposing muscles is stronger than the other, you have a muscle imbalance. Muscle imbalance can lead to clicking joints and uneven wear and tear to the underlying cartilage.

Poor body postures, lack of general muscle tone at the back, abdominals, butt and thighs can predispose one to degenerative changes to the spine and lower limbs. Therefore, stretch your body regularly to maintain flexible muscles. Learn to improve the mobility and awareness of moving your spine, as well as how to work the muscles in your body correctly to off load the stresses and pressures at your weight bearing joints.

Try deep tissue massage regularly as maintenance to prevent your muscles from getting tight.



Skeletal structure misalignment

Skeletal structure misalignment can be controlled to a certain degree. Strong trunk and leg muscles can help with shock absorption and therefore, reduce the amount of stress placed on your weight bearing joints. Keep yourself active, stretch and pick the right form of exercises to do to strengthen your muscles and joints. Seek professional help if you are unsure how to start.

MANAGE FACTORS THAT IS WITHIN OUR CONTROL

Weight gain

Losing weight is a great challenge to many and it requires strong will and discipline. Skipping meals should not be the way to go because this will cause the body to go into a starvation mode and you may end up gaining weight. Instead, cut down on unhealthy foods such as deep fried, sweet and salty food and reduce the amount of carbohydrates intake (including rice, noodles, pasta, potato etc). Maintain protein and meat in your diet because these foods provide the natural building blocks for muscles to stay strong which is important to help support your joints and cartilage.

Exercise regularly about three times a week. Learn to assess the effectiveness of your workout using a heart rate monitor. Seek professional help if you are unsure how to start.

STRETCHES FOR OA KNEES

Regular stretches to the lower back, butt, thigh (front, side and back) and calf muscles help relief the tension felt at the knees. Do these stretches daily.

Pelvic curl in sitting

Lower back and hamstrings muscles tightness are inter-related. Improving spinal awareness and flexibility would help to decrease the tension felt at the back of your knees.



Sit up tall and arch your spine, then tighten and contract your abdominals to round your spine forward, form a "C" curve with your spine.

Repeat this 8 times. Do them three times daily.

Foam roller ITB stretch

ITB tightness is a significant contributing factor to the development of early knee clicking and pain.



Weight bear on your elbow, keep your hip, knee and ankle facing forward, iron the side of your thigh muscles using a foam roller. Roll up and down 10 times.

For the following stretches, hold each position for 8 deep breaths. Repeat 3 times. Do them three times daily.

Lower back stretches



Scoop your tummy in, reach forward and feel the stretch at your lower back.



Keep your shoulders and head flat on the support, bend one knee and rotate your hip to the side. Feel the stretch at the side of your lower back or butt.

STRETCHES (cont.) - hold each position for 8 deep breaths. Repeat 3 times. Do them three times daily.

Gluts stretch



Cross one leg over the other as shown. Keep your head and shoulders on the support while bringing one knee close to your chest. Feel the stretch at the side of your butt.

Hamstrings stretch



Keep both legs extended. Pull one leg up using a towel or strap. Feel the stretch at the back of your thigh.

Standing anterior thigh stretch



Stand up tall. Bend one leg back and pull its ankle close to your butt. Keep your knees together and thigh back. Feel the stretch at the front of your thigh.

Calf stretch



Stand against a wall in stride standing. Lean your body forward to feel the stretch at the back of your calf.

STRENGTHENING EXERCISES FOR OA KNEES

- Weight bearing exercise is beneficial because it trains muscle memory and facilitate the body to recruit the correct weight bearing muscles for walking.
- In addition to strengthening the legs, strong abdominals and upper trunk would help to off load the stress on all weight bearing joints, including the spine, hips, knees and ankles.
- Endurance and muscle strength are inter-related. Your muscles grow stronger with more number of repetitions. However, if you experience increasing pain and swelling during any of the exercises, please consult your physiotherapist. Modification of the exercises may be needed depending on the stages of your knee condition. Start off with 30 times a day. Gradually progress to 60 times daily.
- Eat well to facilitate your muscles to grow.

Work the butt (gluts) and front of the thighs (quadriceps)

Wall squat

Keep your trunk upright. Slide your back down against a wall or an exercise ball.



Maintain 90/90 position. Hold for 3 – 5 deep breaths. Then slowly rise up.

Ensure yours knees and toes are facing forward as your squat up and down.

Body weight squat / sit to stand

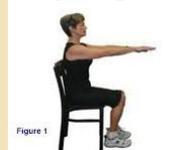


Figure 1

Lean your shoulders forward over your knees, squeeze your butt muscles to stand up.

To sit down, reach your buttock as far back as possible as you sit down.



Figure 2

Do not let your knees over-ride your toes. This is to reduce compressive force acting on your knees.

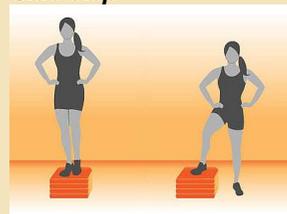
Cycling on stationary recumbent bike



Recumbent position places less stress on your knees. Cycle 30 minutes daily - 20 minutes forward and 10 minutes backward. This work different muscle groups.

Work the side butt (glut medius) and front of the thighs (quadriceps)

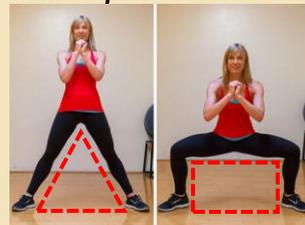
Side step



Tighten the side butt muscles as you step up sideways.

Keep your body upright. Do not allow side bending of your trunk.

Sumo squat



Squeeze the butt and turn your knees and toes outwards.

Bend your knees and make a rectangle with your legs.

Squeeze your butt to come up to standing.

Side leg raises



Lie on your side without turning your trunk.

Keep your hips, knees and ankles face forward.

Contract the side butt muscles and lift the leg up sideways.

Slowly release to lower.

Work the butt (gluts) back of the thighs (hamstrings)

Bridging



Scoop in your abdominals, tug in your pelvis and lift your butt off the support.

Feel the contraction at your butt. Then slowly lower.

Work the calves

Strong calves improve balance at the ankles and help stabilise the knees.

Calf raises



Hold on to a support. Roll your weight over to the ball of your feet and balance on your toes.

Feel the contraction at the back of your calves. Then slowly lower.

Work the abdominals

Abdominal strength and spinal mobility helps support your spine during daily functions.

Roll up



Tighten your abdominals and come up to sitting.

Try to reach for your feet. Slowly lower your spine back to lying down.