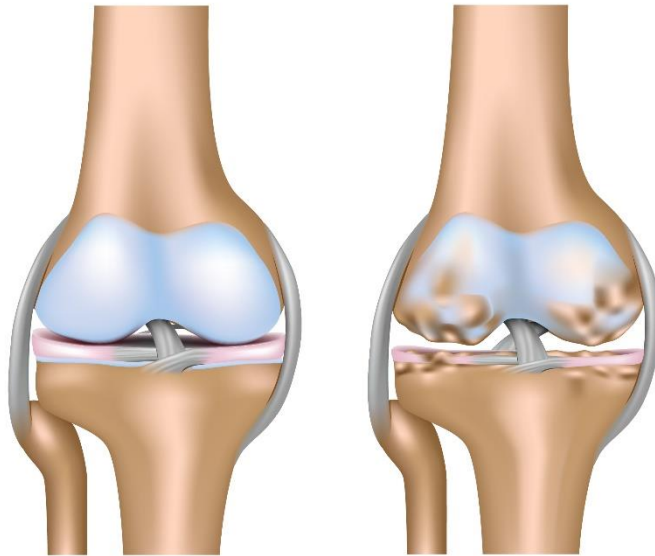


Total Knee Replacement Guidebook



China Medical University
Hospital Orthopedics Ward
Cares About Your Health

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Introduction to Total Knee Replacement

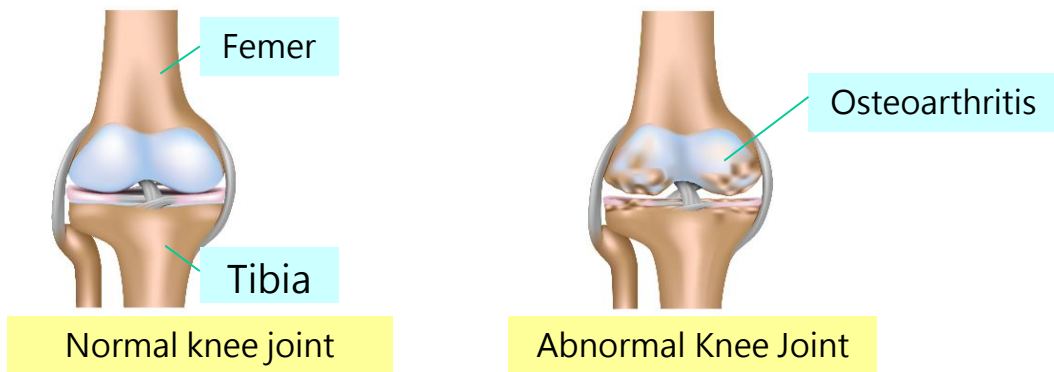
About Knee Joint

The knee joint includes bones, ligament, joint cavity and meniscus, cartilage, thighbone (femur), and calf bone (tibia). When we walk around, it will affect the motion of thighbone and calf bone, causing knee joint abrasion. Therefore, the cartilage and synovial fluid will be needed to reduce abrasion.

Why does a patient need to replace with artificial knee joint?

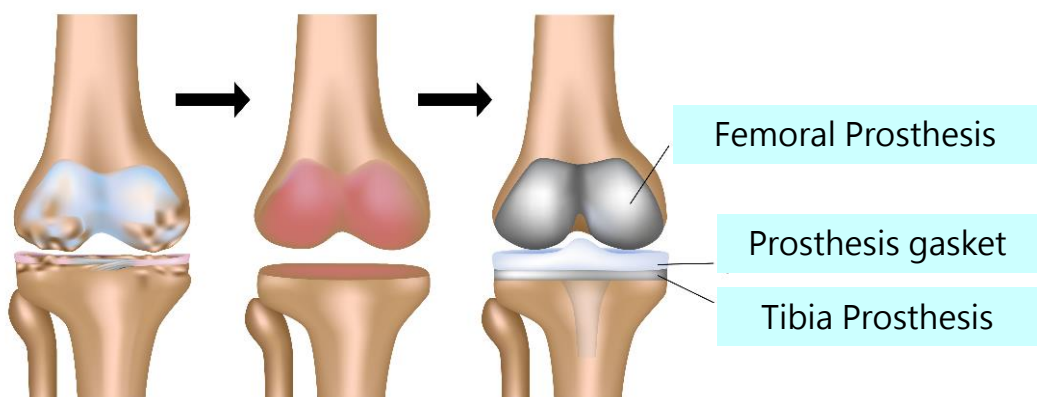
1. Eliminate the pain caused by knee joint related diseases.
2. Correct knee deformity.
3. Increase knee joint mobility.
4. Improve and enhance knee joint function.

※ When your knees are aching and stiff, it will restrict you from engaging in daily activities. If the medicinal treatment fails and you could not even walk, you will need to discuss with the orthopedic surgeon for artificial knee joint replacement.



Structure of Artificial Knee Joint

Artificial knee joint includes the metal and plastic parts. The metal part include femer, tibia, and patella joint casted from titanium alloy or cobalt chrome alloy . The plastic part is made of High Density Polyethylene (HDPE) that attaches to the metal part of tibia and patella joint. The purpose is to reduce the abrasion with the metallic joint surface of femer.



Admission and Post-Operative Notice

Purpose

To carry out the surgery with success and quickly recover the health, the meticulous pre-operative preparation can reduce the operative risks and promote the post-operative recovery and prevent occurrence of complications.

The following examinations are required when you are admitted to the hospital.

1. Chest X-Ray
2. Knee X-Ray
3. Blood Test
4. ECG
5. Diagnosis and Physical Examination

Pre-operative Preparation and Notice

1. After discussing with the doctor and explanations, complete the surgery and anesthesia consent.
2. If you are currently take other medicine, please inform your doctor and he/she will determine if you need to take the original medicine.
3. Do not take OTC medicines. Do not smoke or drink.
4. Drink water to prevent urinary tract infection.
5. Do not inject or scratch the affected area.
6. Wash the body and hair well before sleep to prevent infection.
7. Those with chronic constipation can ask the nurse to help with glycerin enema.
8. There will nurses who will teach you and practice using the bedpan and urinal in bed, deep breathing and coughing as well as knee exercise.
9. Do not drink liquid or eat any food after 12AM for anesthesia and surgery.
10. On the day of surgery, and venous catheter (IV injection) will be inserted in you.
11. You must remove removable dentures, glasses, necklace, rings, and other ornaments. Remove nail polish, if any, which allows the medical staff to check the blood circulation in your extremities.
12. The nurse anesthetists will visit you before the surgery, depending on your situations.

Post-Operative Notice

Post-Operative Care in the Recovery Room

When you complete the surgery and wake up in the recovery room, you will first feel the chills, weak, and lightheaded. Then you will slowly feel the wound pain. The nurse in the recovery room will provide the following care:

1. Measure blood pressure, breath and pulses.
2. Encourage you to take a deep breath and cough.
3. The nurse will administer painkiller per doctor instruction when you feel wound pain.
4. Please notify the nurse if you feel nausea and vomiting.
5. After your conditions are stabilized, the staff and family will accompany you back to the ward.

Post-Operative Care in Ward

1. After returning to the ward, the nurse will measure your blood pressure, body temperature, pulses, and other vital signs.
2. If the patient does not feel nausea and uncomfortable upon returning to the ward, the patient can drink some water and may take progressive diet if no vomiting in 30 minutes.
3. The elastic bandage around the affected limb prevents oozing blood from the wound and blood clot blocking.
4. Wound drainage will be placed for 2~3 days.
5. The patient can engage in simple rehabilitation exercises on the first day after the surgery.
6. The nurse will observe the skin color, temperature and pain on the tip of your surgical area at all times.
7. Keep the wound clean and dry after the surgery. Stitches will be removed in about 10-14 days.
8. The nurse or family will help the patient turn over once every 2 hours.
9. Avoid compressing or twisting the urinary catheter to prevent bladder distention.



Intravenous Therapy Care

Avoid Compression

1. Do not take or hang heavy objects using the arm with vascular access.
2. Do not use the arm as pillow.
3. Do not wear watches or ornaments on wrist with vascular access.
4. Do not measure blood pressure, draw blood or inject IV in wrist with vascular access.

Prevent Infection

1. Keep forearm with vascular access dry and avoid water contact.
2. Treat skin rash, redness and swelling early.
3. Do not scratch the forearm with vascular access to prevent wound formation.
4. If the gauze bandage is wet, contaminated and with blood, please notify the nurse to replace new gauze and tape.

Blocking Signs

1. Minor pain, swelling surrounding skin, firm sensation, feeling different.
2. If the patient discovers signs of blood vessel blocking, please consult with the nurse and the nurse may stop the infusion and replace the IV injection when necessary.



Wound the Drainage Tube Care

You will have some drainage tubes on your body after the surgery, understand and carefully take care of the drainage tube as it will affect the results of surgery. The purpose of installing drainage tubes and treatment of various anomalies are introduced as follows:

Purpose

1. Drainage: Avoid formation of hematoma as excess blood clot will be unfavorable for wound healing and could cause infection.
2. Observation: The secretion from the wound drainage could be used to determine any blood oozing from the wound.
3. Reduce post-operative swelling and discomfort to facilitate rehabilitation.

Precautions After Therapy (Examination)

1. Observe if the drainage tube is secured and unobstructed.
2. Avoid compression or bending that cause clotting.
3. Observe the color, quantity, property (generally from dark to light color, from more liquid to less liquid) of the drainage fluid. If there is any change, notify the nurse immediately.

Removal Time

- Usually when the drainage fluid falls under 50c.c./day, the doctor will consider removing the tube.



Hanging by the bedside

Wound Care

1. Infection prevention should be prioritized.
2. Note if there is any red swelling and pain on the skin surround the wound.
3. Note if there is any fever. If so, it could be sign of infection and please return to the hospital for treatment immediately.
4. You can restore normal diet after the surgery with more consumption of high-protein food such as egg, fish, and meat. Fish soup can boost wound healing.
5. Most people would not move because of the drainage tubes on their bodies. There is not too much restriction and the patient can get off the bed and walk around to boost wound healing and help with drainage. Simply avoid pulling the tube.

Pain Treatment

Effective pain control can alleviate the discomfort after the surgery and promote recovery from the illness.

Purpose

1. Patients can get off the bed to move around, which will promote wound healing and reduce complications.
2. Patients can receive adequate sleep, restore physical strength early and reduce the time for hospitalization.

Method

1. Slowly inhale and exhale to relax.
2. Use the pillow to support and elevate the affected leg, which can reduce swelling and pain.
3. Read newspapers and magazines or listen to the music to divert attention from pain.
4. Massage the legs to relax the muscles.
5. Use the hand to secure the affected area and prevent wound puling when turning over or moving the body.
6. Ask the doctor to prescribe painkiller if necessary.
7. Use the ice pillow as ice compress to reduce swelling and pain. Take a break for 30~60 minutes after using the ice pillow for 20~30 minutes. If the skin feels dumb, painful and becomes grey-white color, stop using ice compress.

Ice pillow preparation

- 1) Fill the ice cubes to $\frac{1}{2}$ - $\frac{1}{3}$ of capacity and add moderate amount of water to melt the sharp edges of ice cubes into smooth corners.
- 2) Place the ice pillow flat and gently press the ice pillow to let the air out, which will prevent ice cube from melting too fast and secure the ice cubes.
- 3) Clamp tight the opening of ice pillow. Lift the ice pillow upside down with the opening facing down to check for any water leakage.
- 4) Use a plastic bag for the ice pillow and put on the ice pillowcase.
- 5) Replace the ice cubes once every 2 hours.



Ice Pillow



Storing Ice Pillow

Urinary Catheter Care

Precautions After Inserting Urinary Catheter

1. Drink adequate water daily to maintain 2,000c,c, of urine and reduce the likelihood of infection and inflammation with urinary tract.
2. Keep the urinary catheter unobstructed and prevent the catheter from compression or folding.
3. Keep the UCD lower than the waist to prevent urine reflux and infection.
4. If the patient feels pain, the body temperature rises, urine becomes muddy, or carries blood with stench, it could be because the urinary system is infected, notify the nurses immediately.
5. In every 8 hours or if the urine bag has accumulated enough urine, discharge to prevent the urine from reflux and infection.
6. Clean and disinfect the urinary catheter twice a day. Clean the catheter anytime when there is foreign object.



Do not touch the ground

How to care Urinary Catheter

- Female: Rinse the perineum at least twice. Fill the rinsing bottle with lukewarm water and rinse bottom-up from the urethral orifice. Use a cotton swab to wipe top-down and then inside-out. Do not wipe back and fourth repeatedly.
- Male: Use a cotton swab to sterilize the urethral orifice and the urinary catheter every day, wiping in circular motion from the inserted area.

Bladder Training

1. Purpose: Retrain bladder reflex and muscle tension.
2. Method:
 - 1) Empty the bladder.
 - 2) Tighten the middle section of the urinary catheter with a rubber band and loosen the rubber band every 2 hours or when the patient has the urge to urinate.
 - 3) Patients are encouraged to drink 3,000c.c. of water daily.
 - 4) If the patient has the urge to urinate or has distention of bladder, notify the nurse before removing the urinary catheter.

Post-Operative Rehabilitation Exercise



Early Rehabilitation
Exercise Film for Total
Knee Replacement

Post-Operative rehabilitation exercises can help you get off the bed easily and enhance rehabilitation.

Ankle Pumps Exercise

Purpose: Do this exercise starting one day after the surgery to reduce edema, promote blood circulation, and maintain the muscular strength of calves.

Method: 1. Dorsiflexion— Bend the toes upwards to the calves



2. Plantar flexion exercise — Keep toes downwards to plantar flexion



Quadriceps Exercise

Purpose: Keep the muscle strength of the front thigh to prevent muscular dystrophy and prepare for getting off the bed.

Method: 1. Lie flat and straighten the operated leg, place a towel under the knee.



2. Contract thigh muscles so the knee crease is attached to the towel. Press the knee downward and count to 5 seconds before loosening. Stop for 5 seconds and repeat for at least 20~30 times. 4 laps a day.



Straight Leg Raise Exercise

Purpose: Increase muscle strength.

Method: Lie flat, straighten the knees, raise the operated leg straight up, count to 5 seconds and put down the legs. Stop for 5 seconds before repeating.



How to Use CPM (Continuous Passive Motion)

Purpose

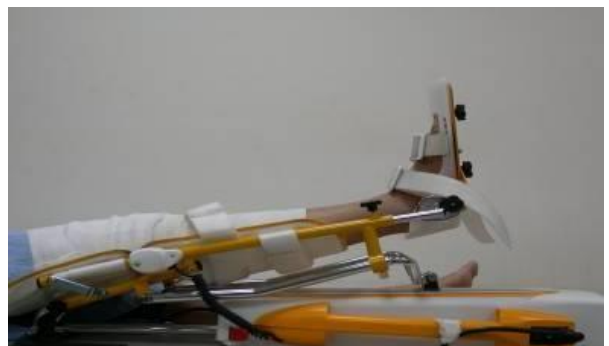
1. Prevent arthrogyrosis or stiffness.
2. Progressively increase the mobility angle of knee joint.
3. Quickly restore tendon function and shorten therapy time.

Precautions

1. Apply hot compress to the leg muscles for 20 minutes before exercise. Do not apply the hot compress directly on the wound, which requires medical prescription for execution.
2. If the medical prescription does not restrict special angle, start with 30 degree and progressively increase the angle according to the level of tolerance.
3. Please follow the operational instructions on the instrument and under the guidance of nurses for correct use.

Method

1. Lie flat and place the operated leg on the machine. Adjust the leg length and secure.



2. Turn on the power to activate the machine. Adjust to proper angle and speed. Increase by 5~15 degree, according to the tolerance of the patient.



Use and Notes for Walkers

Purpose

Transfer some weight to the upper extremities to reduce burden on the legs. Meanwhile, use them to expand the overall bottom for enhancing stability.

Precautions

1. Adjust until the elbow is slightly bent.
2. Regularly inspect and replace worn rubber le. In case of detachment, cracks or erosion, replace immediately.
3. Due to limited space at home, choose folding-type walker. Non-folding walker could easily make the patient fall in a narrow environment.
4. Pay attention to the height of front crossbar of the walker when purchasing because lower crossbar could hinder the user from approaching the bathroom toilette and resulting in inconvenience of using the bathroom.
5. Do not hang miscellaneous items on the walker to prevent the objects from affecting the balance due to increase burden or swinging.

Use

1. Adjust the walker height, keep the elbow bent at between 15~20 degree hold the handle with both hands and push the walk forward for about 25~30CM.



2. Step out using the operated leg.



3. Use both arms to support the body, and step out with leg without operation.



Dietary Instructions for Orthopedic Patients

1. Keep a balanced daily intake of six major groups of food so that the body can fully receive various nutrients. The six groups of food include:
 - Dairies.
 - Grains
 - Beans, fish, egg, and meat
 - Vegetables
 - Fruits
 - Oils and nuts and seeds.
2. The protein tends to become quickly deficient after a surgery or injury (e.g. bone fracture). The patient should choose protein food high in biological value such as milk (non-fat or skim milk), egg, lean meat, fish, poultry (skinless) and others as supplement of nutrients. Vegetarians can choose soy beans and their products to supplement the plant proteins.
3. Calcium is the main substance constituting bones. Patients of bone fracture will lose massive calcium and should replenish in food. Milk is the main source of calcium in food. Other food rich in calcium includes: dried small fish, oyster, clams, egg yolk, soy beans, and their products (e.g. bean curd skin, and 5-spice dried bean curd), dark-green vegetables, black moss, seaweed, black sesame, white sesame, and yeast (yeast candy).
4. To speed up wound healing and boost immunity against infectious disease, food rich in vitamin C (fruit, dark-green and yellow-red vegetables) such as guava, citrus fruit, lemon, and tomato should be consumed more.
5. Vitamin D helps bone calcification and plays an important role in promoting calcium use. Food rich in vitamin D includes: egg yolk, milk, animal liver (e.g. pig liver, cow liver), cod liver oil...etc. Moreover, sunlight can activate the vitamin D in skin and getting frequent suntan is also an ideal way to obtain vitamin D.
6. Adequate water. Water can adjust the body temperature, help digestive absorption, prevent and improve constipation. Bedridden patients over long period of time should increase water consumption and drink approximately 2,000~3000c.c. of water per day (approximately 20c.c.~30c.c. per kilo weight).



Precautions for Returning Home from Hospital

1. Use of walking sticks and walkers:
The patient' s knee joint could not sustain body weight temporarily in 2~3 months after the surgery and must use walking sticks or walkers to walk, until advised by the doctor.
2. Proper rest and exercise:
Progressively increase your activities to avoid becoming to tired. Keep proper rest after activities so the joints stay under normal position. Try to relax and stay comfortable.
3. Maintain ideal weight to reduce burden on the knee joint.
4. Avoid excess burden on the knee joint in daily activities to reduce the likelihood of joint abrasion: For example, carrying heavy objects with a cart instead of hang carrying and using the handrails for getting up and down the stairs.
5. After the knee joint surgery, please avoid the following motions: squatting, mountain climbing, going up/down the stairs, running, carrying heavy items, walking long distance.
6. Follow the activity restriction given by the doctor until the next revisit.
7. The patient can swim and ride bicycles in 6 months after the surgery, restoring normal life.
8. The patient is advised to revisit the hospital under the following conditions:
 - Inflammation of the wound with drainage.
 - Increased pain.
 - Knee joint injury that causes walking difficulty.

