

Department of NURSING
Department of OCCUPATIONAL THERAPY
Department of ORTHOPAEDIC SURGERY
Department of PHYSIOTHERAPY

Knee Replacement Surgery

A Guide for Patients and Carers



Foreword

Dear Patients and Carers,

If you have received this booklet, it is likely that your doctor has explored a knee replacement surgery with you. This booklet aims to help you along your Knee Replacement Surgery journey.

Please bring this booklet with you to all appointments and when you come for surgery.

The content will cover:

- What to expect
- What is your role as a carer
- What you need to prepare
- How to care for yourself before and after the surgery

PLEASE NOTE:

- This guide is not a diagnosis or confirmation of the treatment that you will receive. Please check with your doctor or a healthcare specialist for medical advice.

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Understanding Knee Replacement Surgery

Basic Information about your Knee Replacement Surgery

What is this Surgery?

It is surgical procedure where the affected parts of your knee are replaced with an implant made of metal and plastic, called a prosthesis.

Benefits of Surgery

For most individuals, the surgery will relieve your knee pain and help your knee joint move better. You will be able to resume most of your daily activities such as walking and driving.

Limitations of Surgery

As the prosthesis is not a perfect replacement for your natural knee, you will have to avoid participating in high-impact activities such as jumping or running. These will place excessive stress on the knee prosthesis.

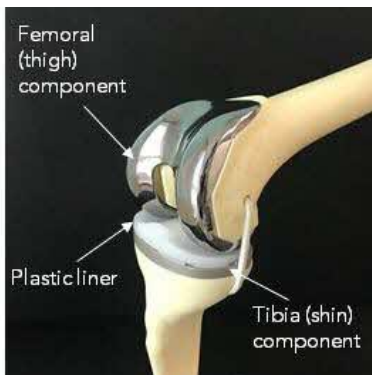
Common Conditions for Knee Replacement

Your doctor may recommend knee replacement surgery if you have:

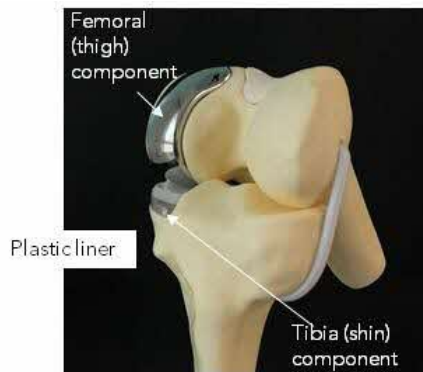
- Severe pain in the knee that restricts your daily activities
- Severe wear and tear of the knee due to conditions such as Osteoarthritis, Rheumatoid Arthritis and Post-Traumatic Arthritis
- Pain that did not respond well to non-surgical options, such as weight management, medications and injections

Types of Knee Replacements

Partial knee replacement is performed when only one part of the knee is damaged, usually the medial (inner) compartment. Total Knee Replacement is performed when multiple compartments of the knee are damaged.



Total knee replacement



Partial knee replacement

Types of Prostheses. Knee Replacement Surgery.

<https://www.ttsh.com.sg/Patients-and-Visitors/Pages/Find-Conditions-and-Treatments-Details.aspx?condition=Knee-Replacement-Surgery>

Risks of Surgery

While serious post-operation complications are **not common** in patients undergoing Knee Replacement Surgery, potential complications that may occur (but not limited to) are:

- Bleeding/bruising
- Deep Vein Thrombosis
- Fracture
- Infection
- Loosening of implants
- Nerve and Blood Vessel Injury
- Numbness
- Stiffness/instability
- Stroke/Heart Attack

These risks will be explained to you in detail during your consultation with your doctor. Your doctor will also assess your health condition before the operation.

Your Healthcare Team



Surgeon

Performs your knee replacement surgery



Nurse

Assists with medical care

- Administering medication
- Wound dressing
- Vital signs monitoring



Case Coordinator

- Facilitates discharge planning
- Clarifies your expectations about knee surgery



Physiotherapist (PT)

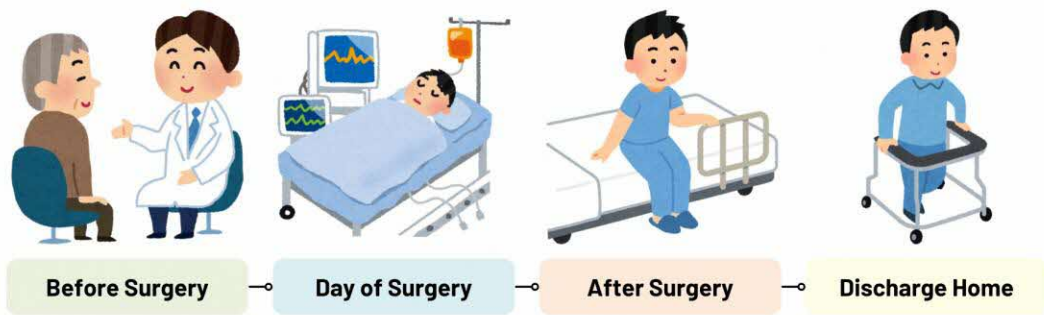
- Mobility training
- Prescribes exercise for muscle strength, joint function and endurance



Occupational Therapist (OT)

- Assess your ability to manage daily activities and provide recommendations
- Advise on home modifications to make your home safer

Your Knee Replacement Journey



Before Surgery	<ul style="list-style-type: none">• Appointment with Pre-admission Counselling And Evaluation (PACE) clinic• Phone call from your case coordinator one to two weeks prior to surgery
Day of Surgery	<ul style="list-style-type: none">• In the Operation Theatre for surgery for two to three hours• You may have a therapy session
After Surgery	<ul style="list-style-type: none">• Admitted to the wards for one to three days on average• Hospital ward routines (i.e. Meals, wound care, pain control)• Therapy sessions
After Discharge	<ul style="list-style-type: none">• Home or centre-based therapy sessions• Doctor’s follow up appointment

Preparing Yourself Before the Operation

Instructions on Managing Smoking and Alcohol-intake

It is important to be in the best physical health before your surgery.

Quit Smoking

Gradually cut down and stop smoking one month before surgery. Stopping smoking before surgery can significantly reduce the risk of complications during and after your surgery.

Benefits to quit smoking:

- Faster recovery from anesthesia
- Shorter stay in hospital
- Less likely to develop infections
- Bones repair and heal faster
- Wounds can heal more quickly



Discuss with your doctor to find out how you can do this.

Limit Alcohol Intake

Do not drink alcohol 48 hours before your surgery.

Detriments of drinking alcohol:

- Increases surgical risks
- Interferes with anaesthesia
- Affects your sleep quality



Other practical preparations you can consider to help you cope better at home includes:

Home Environment Preparations

- Consider **living with your carer** until you are independent
- Make sure your chair/bed is of suitable height (refer to page 10)
- Remove loose rugs and clutter on the floor
- Ensure frequently used items are within reach
- Keep your home well lit

Scan the QR code for more falls prevention tips at home



Plan ahead for your daily activities

Consider how you can arrange help for more strenuous activities. Some examples

- Hire/seek help for **heavy chores** (e.g. washing toilet, laundry)
- Arrange for food/grocery **delivery services**.
- Plan **escort and transportation** for discharge and subsequent follow-up appointments.
- Explore **online banking** for bills payment.



Suitable Seats, Chairs and Bed

General principle for seating

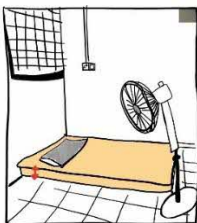
1. Seat Height: your **hip** should be positioned slightly above your knees.
2. If possible, choose sturdy seats with **back and arm rest** for better support.



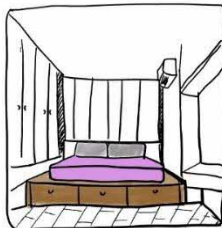
Low chairs
without armrests



Soft, deep-seated sofas



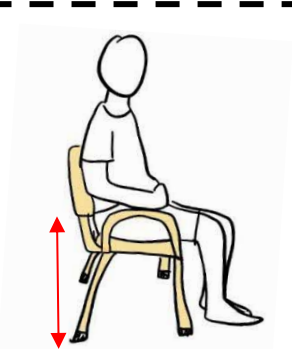
Floor mattress



Low
platform beds



Squatting
Toilet

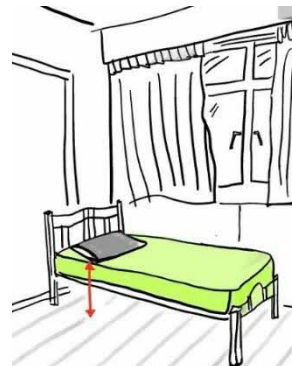


Chairs



Remember to check
the height of these
places:

- Bed
- Toilet
- Chairs
- Sofa



Bed



Make Your Toilets Safe



Prevent falls in the toilet by

- Sitting down to shower
- Using wall-mounted grab bars during movement
- Increase height of the toilet bowl with a commode chair or toilet seat raiser

Do not squat on the toilet bowl



Do not stand to shower if you still require a walking aid for mobility



HDB EASE Programme

provides home modifications with subsidies.

Eligible for Singaporean HDB flat owner with a family member aged 65 and above.

To apply visit go.gov.sg/hdb-ease-esvc

To find out more visit go.gov.sg/hdb-ease

Or call the Branch Service Line **1800-225-5432**

(Weekdays 8.00am -5.00pm)

Steps and Stairs

Inform your physiotherapist if you must climb stairs at home. You may require assistance to navigate these steps and stairs.

**Steps at home
entrance**



Stairs inside your home



If your house has more than one floor, it is recommended to move your bedroom and **keep your activities to the first floor.**

Scan this QR code to access a series of educational videos to better prepare for your knee replacement surgery.



My Notes

Day of Surgery

Fasting Guidelines

You will need to limit food and drink intake to prepare for your surgery.

While you are resting in the observation unit after your operation, you may ask the nurses for a snack until your next meal.

If your operation is **before 1:00pm**

- Stop eating at 00:00 midnight
- Last cup of water (250mls) before 06:00am

If your operation is **after 1:00pm**

- Light breakfast before 07:00am (bread/biscuit with coffee/tea without milk)
- Last cup of water (250mls) taken before 11:00am

Post-Operative Routines in The Hospital

After your surgery, your nurses will assist you with some of these routines in the hospital. You will need to continue to manage some of these routines at home on discharge.



Vital signs checking



Medication



Swelling control



*Anti-embolic
Stockings*



*Positioning your legs
during rest*



Wound care

Vital Signs Monitoring

After your operation, your temperature, pulse blood pressure and oxygen saturation will be monitored during your hospital stay.

- **First 6 hours: hourly monitoring**
- **Subsequently: once every 4-8 hours**

While this frequent monitoring may impact your sleep, it is a crucial for the team to promptly identify any changes in your health status.

Pain Management

Some pain after the operation is expected. Adequately managing pain is important for comfort and recovery as it allows you to start your rehabilitation early and effectively.

Pain control can come in the form of medications and alternative management.

A) Medication	
Take your painkillers 30 minutes before demanding activities (e.g., exercise/shower) to relief pain.	
Commonly prescribed painkillers include:	
<ul style="list-style-type: none">• Paracetamol• Celebrex or Arcoxia• Gabapentin	<ul style="list-style-type: none">• Lyrica (Pregabalin)• Oxynorm (Oxycodone)
Side effects of the medications may include:	
<ul style="list-style-type: none">• Nausea and vomiting	<ul style="list-style-type: none">• Numbness/weakness in the operated leg

B) Alternative pain management:	
<ul style="list-style-type: none">• Repositioning leg• Apply ice pack• Gentle exercises	<ul style="list-style-type: none">• Relaxing activities (Play music, watch TV etc.)

Reducing Risk of Blood Clots

Thrombo-embolic Deterrent (TED)




stockings are compression stockings worn to:

- Improve blood circulation
- Prevent blood clots forming in your legs



Alternatively, **compression pumps** may be applied.

Calf pumps over TED stockings

		
Ask your healthcare team to show you how to put on and take off your TED stockings.	Getting out of bed and walking remains as the best method to reduce risk of blood clots forming after your operation.	DO NOT walk on the stockings, roll them above the ankles or use footwear

Positioning Your Legs

It is important that your operated knee can be kept straight and bent to 90° for daily activities.



A towel ankle roll to keep your operated knee straight

Swelling Control

Ice can help to relieve pain, swelling and inflammation of the knee. It is placed over the knee for 20 minutes. It is normal to feel slightly cold or painful over the knee followed by numbness initially.

- Inform the nurse and remove the ice pack immediately if you feel extreme cold, pain or burning sensation.
- Continue with ankle pumps (page 25) while elevating your leg when ice is applied to your knee.



Operated knee elevated with two pillows

During your stay, your operated knee may be placed on the continuous passive motion machine, which moves the knee to improve range of motion and prevent stiffness. Please continue your exercises as prescribed by your physiotherapist as the machine does not replace them.



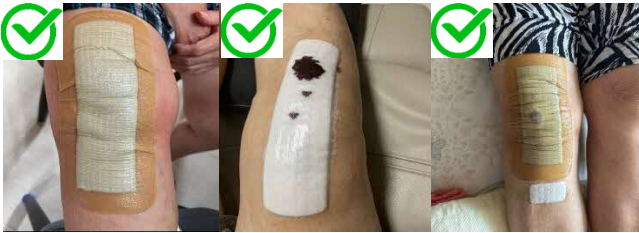
Continuous passive motion machine

Wound Care and Management

In the wards, your medical team and nurses will help you with your wound dressing. It is normal to experience:

- Tenderness, tightness, itchiness, and/or numbness at the wound site
- Bruising and swelling, which will gradually reduce over 3-4 weeks
- Blood stains on the dressing

If you notice excessive bleeding or yellow discharge, please refer to page 37 (Seeking Medical Advice After Discharge).



Dressings with
slight blood
stains

Excessive
bleeding or
yellow
discharge



Do not apply cream or lotion onto the wound
before it heals.

Routines To Bring Home

Vitals Monitoring	Ankle Roll
<ul style="list-style-type: none"> Only if instructed by your healthcare team 	<ul style="list-style-type: none"> (Optional) Apply ankle roll when resting to straighten knee
Medication	TED stockings
<ul style="list-style-type: none"> Take your painkillers every 6 hourly Time your painkillers with demanding activities The goal is to wean off the painkillers gradually 	<ul style="list-style-type: none"> Continue wearing them up to one-month post-surgery If you're actively walking at home, put it on at night when you sleep.
Swelling control	Wound Care/Dressing
<ul style="list-style-type: none"> Continue apply ice pack for up to 3 months Apply for 20 minutes, 3-4 times a day Apply ice after exercises and demanding activities 	<ul style="list-style-type: none"> Check wound dressing daily Refer to 'Showering' section on Pg 33 to read about keeping your wound dry and clean during shower.

Your Rehabilitation Journey

Day 0 - 3

Hospital Ward Routines
Early mobilisation in the hospital



On Discharge

Continue exercises and
daily activities at home

2 - 3 Months of Rehabilitation

3 - 5 sessions at a
Day Rehabilitation Centre

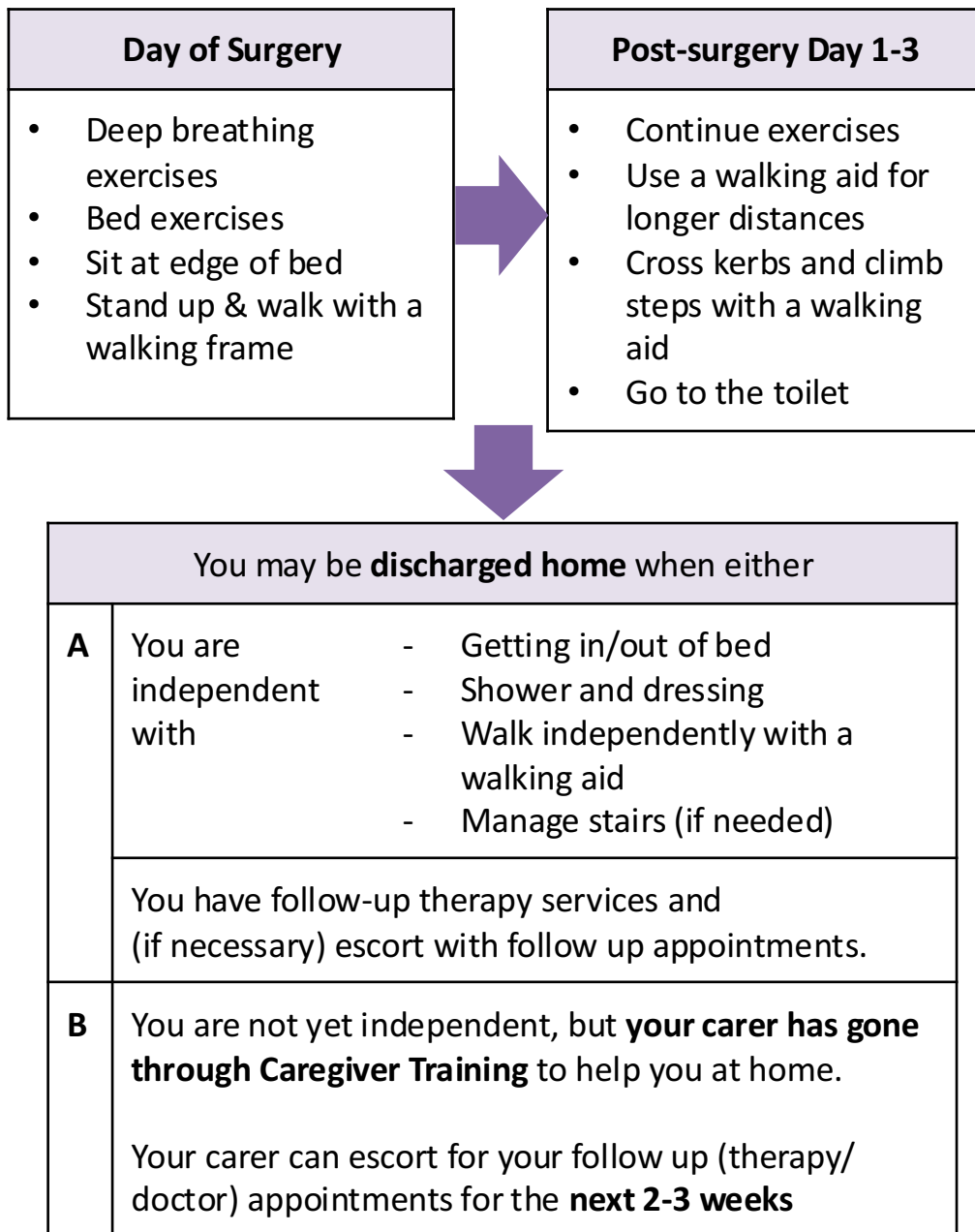


The Rehabilitation Process

Early mobilisation will help to prevent blood clots in your legs, prevent muscle weakness and deconditioning, which facilitates early return to normal function.

You may require a walking aid for the **first 4-6 weeks** to facilitate the healing of your knee. It is important to attend your follow-up appointments as scheduled.

Progression of Your Rehabilitation



Starting Rehabilitation After Surgery

Your Physiotherapist will

- help you move out of the bed, practice standing, and possibly start walking on the day of surgery.
- prescribe you a walking aid to assist you in standing and walking.

Examples of walking aids you may require:



Rollator
Frame

Walking
Frame

Broad
Based
Quad
Stick

Narrow
Based
Quad
Stick

Walking
Stick

Unless advised otherwise by your doctor, you can move your knee and put your weight through the leg.

While waiting for your physiotherapists to see you, you may begin to perform Deep Breathing (Page 24) and Ankle Pumps (Page 25) in bed.

You should continue the exercises taught by your physiotherapist to help regain your knee movement gradually, as it is more difficult to regain it after six months.

Rehabilitation Exercises

While doing the exercises, it is normal to feel mild discomfort, stretching or pulling pain initially. Your wound and implant will not be affected if you follow your physiotherapist's instructions.

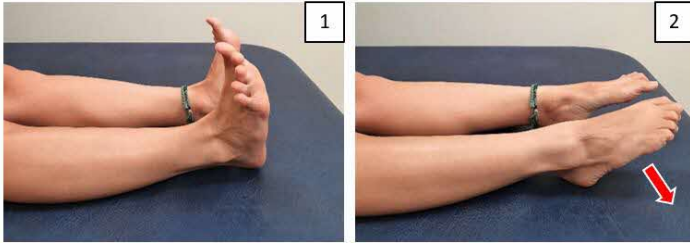
Bed Exercises

1. Deep Breathing ☐



- a) Breathe in through your nose, while raising your arms.
- b) Breathe out slowly through your mouth while lowering your arms.
- c) Repeat 10 times every waking hour

2. Ankle Pumps ☐



- a) Move your ankle up by pointing your toes towards your knee.
- b) Move your ankle down by pointing your toes away from your knee.
- c) Repeat 10-20 times every waking hour

3. Static Quads ☐



- a) Place a rolled-up towel under the heel of your operated leg.
- b) Tighten the muscles above your operated knee to straighten the knee.
- c) Hold for _____ seconds then relax.
- d) Repeat for _____ repetitions, 3 times a day

4. Knee Bending ☐



- a) Slide the heel of your operated leg towards your buttocks.
- b) You may use a towel to bend your knee further.
- c) Hold for _____ seconds and relax.
- d) Repeat for _____ repetitions, 3 times a day.

5. Knee Straightening in Bed ☐



- a) Place a rolled-up towel under your operated knee.
- b) Straightening your knee and lift up your heel
- c) Hold for _____ seconds and then relax.
- d) Repeat for _____ repetitions, 3 times a day.

6. Straight Leg Raise



- a) Straighten your operated leg and lift it up till your heel is away from the bed.
- b) Hold for _____ seconds.
- c) Lower the leg slowly while keeping the leg straight.
- d) Repeat for _____ repetitions, 3 times a day.

Seated Exercises

1. Seated Knee Straightening in Chair □



- a) Straighten your operated knee as shown.
- b) Hold for _____ seconds and then relax.
- c) Repeat for _____ repetitions, 3 times a day.
- d) Use your un-operated leg to help if needed.

2. Seated Knee Bending in Chair □



- a) Place your un-operated leg in front of your operated leg
- b) Use your un-operated leg to gently bend your operated leg
- c) Hold for _____ seconds and then relax.
- d) Repeat for _____ repetitions, 3 times a day.

Kindly only perform exercises that have been ticked and advised by your Physiotherapist.

Draw a TICK (✓) if you have done so.

DATE							
EXERCISE							
<div>Knee Bending</div> <div>  <input type="checkbox"/> </div>	am						
	pm						
	night						
<div>Knee Straightening in</div> <div>  <input type="checkbox"/> </div>	am						
	pm						
	night						
<div>Straight Leg Raise</div> <div>  <input type="checkbox"/> </div>	am						
	pm						
	night						
<div>Knee Straightening in</div> <div>  <input type="checkbox"/> </div>	am						
	pm						
	night						
<div>Seated Self Knee</div> <div>  <input type="checkbox"/> </div>	am						
	pm						
	night						

**AVOID
EXTREME** movements of
your knees.
No squatting,
kneeling and
going down steep
stairs/slopes

AVOID LIFTING
heavy objects or pushing
heavy objects with your
knee

Avoid
these movements
after your knee replacement

Your healthcare team will be able to
advise on safe activities and
movements for your daily activities

**AVOID
HIGH-IMPACT ACTIVITIES**
That involves sudden
forceful stopping and
starting (e.g. tennis)

AVOID PIVOTING
or twisting your
operated leg



Daily Activities

Putting on Pants



Put operated leg into the pants first and remove it last



Use grab bars/ armrest/ walking aid to steady yourself when standing up



DO NOT put on pants, socks or shoes while standing.

Instead, perform these activities while seated on a sturdy chair.

Toileting

Always bring your walking aid to the toilet



Do not squat on the toilet bowl or use squatting toilets



Use sturdy support (such as grab bars) to stabilise yourself when getting up from the toilet

Standing toileting for males

Place walking frame over the toilet bowl and keep your hands on the frame for support.



Showering

1. Waterproofing Your

Wound Dressing

Keep your dressing dry by reinforcing with *cling wrap/plastic* and *Micropore tape*.



2. Skin Hygiene

Gently wipe and clean the surrounding skin using a wet-wipe of damp towel after shower

It is **strongly recommended** to sit down for shower

Tips for Showering

Keep necessary items within arms' reach
(towel, soap, clothes, walking aid, etc.)

Put on pants in a
dry and clean area



Use a long-
handled brush to
clean your leg if
needed

Wash soap off the floor
before walking out of the
shower area

Tips for Returning to Routine Tasks



Sweeping

- Plan for seated breaks
- Gradually reduce the duration of breaks in between sweeping



Laundry



- Avoid squatting down, use a chair instead
- Fold your clothes in a seated position
- Keep drying laundry at shoulder height
- Avoid hanging clothes overhead



Cooking

- Plan for seated breaks
- Make simple dishes (shorter standing duration, use lighter pots)

Always keep one hand on your walking aid for stability.

Gradually resume light activities about 1 week after surgery.

Going Out of The House

Car transfer:

Getting in and out of the car

- Ensure the back of your knees touch the car seat before sitting
- Swing one leg in at a time while seated
- When alighting; ensure both place both legs on the floor before push to stand with support

Use
the nearest
Drop-
off point

Avoid
cars with very
high/low car
seats



Appropriate Footwear

Provides necessary support and traction, promoting stability and balance. Preventing slips, trips, and falls can reduce the potential for injuries that could delay your overall recovery.



Loose footwear
No friction



Good friction
Back strap
Well fitted

Other Daily Activities

Can I return to driving?

Consult your Surgeon during your follow-up visit. Depending on your recovery progress, it should take 4-6 weeks post-surgery to resume driving.



When can I resume physical activities?

Your Surgeon and Physiotherapist will advise you when it is safe for you to participate in low impact activities such as swimming and golf.



When can I return to work?

Clarify with your doctor during your follow up review if it is suitable to return to work after your 1-month hospitalisation leave.



If necessary, they may also recommend a referral to a Return-to-work Occupational Therapist to help you integrate back into the workplace.



Important Information

Seeking Medical Advice After Discharge

Non-emergency

- Contact Tan Tock Seng Hospital Orthopaedic Clinic at **68894055/ 68894079** to seek advice for medical certificate, appointment and medication top-up related matters.

Monday to Friday : 8 - 5pm

Saturday : 8 - 12pm

Sunday & Public Holiday: Closed

Emergency

- 24 hours helpline - Knee/Hip Arthroplasty Ward 9F at **9195 8305**
- After office hours, you are advised to seek treatment at the Accident & Emergency Department or your Polyclinic or General Practitioner.

When Should You Seek Medical Attention?



Follow-up Appointments

Doctor:

Your first visit to the **Orthopaedic Clinic** will be around 2-6 weeks after the surgery.

Wound Dressing:

You will be advised by the team on your follow-up appointment for:

- Wound inspection and dressing change
- Removal of stitches after surgery (if needed)

Therapy

After Two Weeks

- You will continue rehabilitation at a Day Rehabilitation Centre (DRC) for at least 3-5 sessions.
- The Agency for Integrated Care (AIC) will contact you regarding DRC matters.
- For more information; you may access the AIC Website <https://www.aic.sg>



AIC Hotline

1800-650-6060

Mon – Fri: 8:30 am – 8:30 pm

Sat: 8:30 am – 4.00 pm

Clinic B1A
TTSH Medical Centre, Level B1
Contact:
8890 9359 (TKR Coordinator - only during
office hours)
6256 6011 (General Enquiries)



Scan the QR Code with your smart phone
to access the information online or visit
<https://for.sg/ttsh-health-library>

Was this information helpful?
Please feel free to email us if you
have any feedback regarding what you
have just read at
patienteducation@ttsh.com.sg



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