National University Hospital

Robotic-Assisted Radical Prostatectomy (RARP)

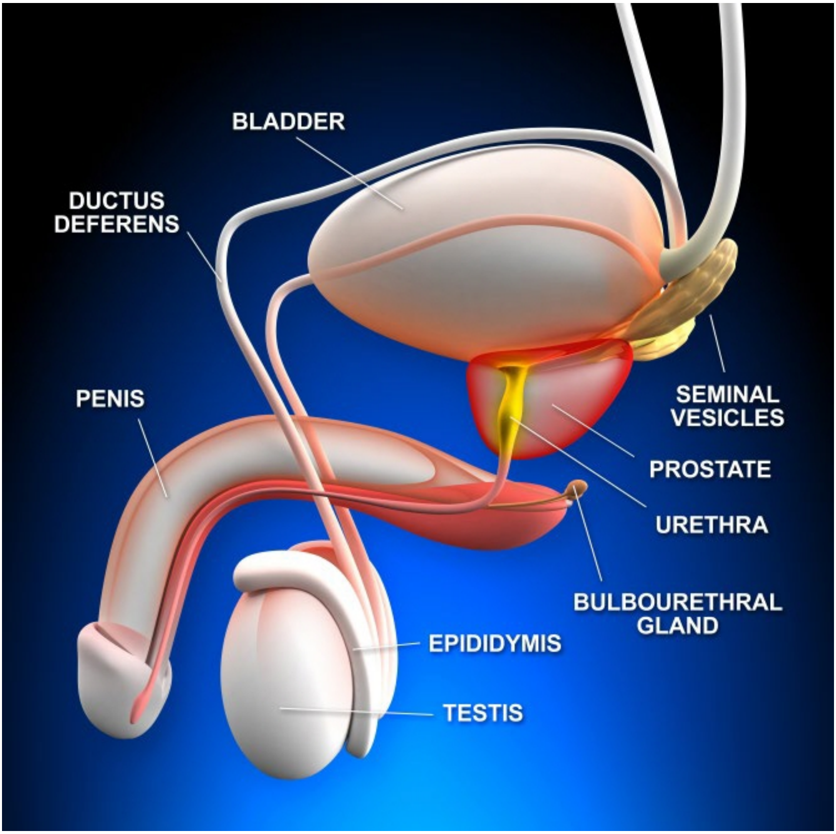
This booklet aims to provide information on the standard post-operative care and average recovery time for robotic-assisted surgery to treat prostate cancer. It outlines the advantages, possible risks and commonly asked questions about Robotic-Assisted Radical Prostatectomy (RARP).

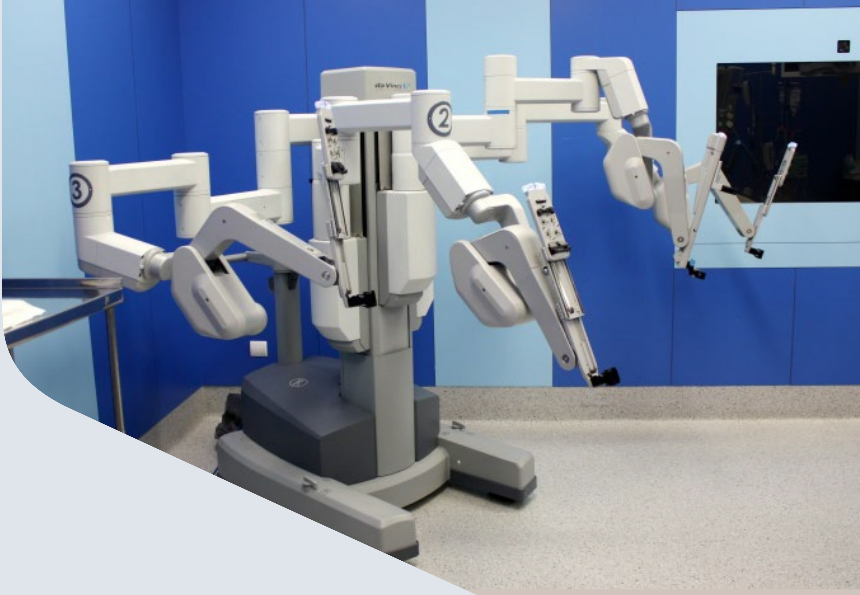
If you require detailed information, please consult your surgeon, or approach a Prostate Cancer Specialist Nurse at the NUH Urology Centre.

What is a radical prostatectomy?

A radical prostatectomy is a surgery to treat localised prostate cancer (cancer that has not spread out of the prostate gland). It is performed under general anaesthesia, during which you will be unconscious throughout.

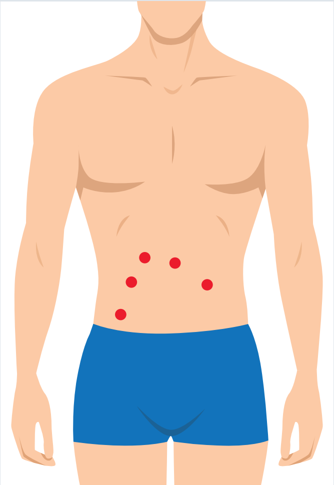
The surgery involves removing your prostate gland and seminal vesicles (glands that store semen). Lymph nodes will be removed if deemed fit by your surgeon.





What is Robotic-Assisted Radical Prostatectomy (RARP)?

Robotic-assisted surgery utilises a surgical system to assist your surgeon during the surgery. It is a laparoscopic surgery performed using the surgical system to remove the entire prostate gland. This enables your surgeon to perform minimally invasive surgery with more precision via smaller incisions.



The red dots represent the incisional ports used during the procedure.

During the surgery, your surgeon will be seated at the robotic console to control the robotic arms. The robotic system enables your surgeon to perform more controlled and precise movements within the limited space in the pelvis. Additionally, the magnification from the camera allows better visualisation and definition of the tissues within that limited space.

What are the advantages of robotic-assisted surgery compared to open surgery?

- **Reduced blood loss:** Blood loss for robotic-assisted surgery typically measures about 50-200ml which is lesser than that of an open surgery. This reduces the risk of requiring a blood transfusion.

- **Reduced pain after operation:** Robotic surgery is minimally invasive and will not cause a large abdominal wound. Patients seldom require strong doses of painkillers and can return to normal activities within a shorter period post-surgery.

- **Shorter hospital stays:** Most patients can return home 1-2 days after robotic-assisted surgery as compared to an average of 5-6 days after open surgery.

- **Smaller scars:** Robotic-assisted surgery involves minimal scarring, as smaller incisions are made.

- **Nerve-sparing surgery:** As with open surgery, robotic-assisted surgery allows the nerves to be preserved in selected patients, thus enabling erections to take place. The likelihood of preservation is increased in robotic-assisted surgery.

What else should I consider before the surgery?

Your surgeon will discuss the possibility of nerve preservation with you.

Although some form of erectile dysfunction is common following a prostatectomy, preserving the neurovascular bundles increases the possibility of having normal erections post-surgery. However, nerve preservations can only be done if there are no clear signs of cancer at the edge of the prostate next to the neurovascular bundles.

Overall, preserving the neurovascular bundles increases the chance of leaving some cancer cells behind.

Following the surgery, you will not be able to ejaculate any semen, resulting in infertility.

What are the possible risks?

Radical prostatectomy is a major surgery. Your surgeon will discuss the risks with you.

- **General anaesthesia:** Possible complications include chest infection, deep vein thrombosis (DVT), pulmonary embolism (blood clot in the lung), stroke or heart attack. If you experience any of these, you may be required to be warded in the intensive care unit (ICU) post-surgery.

- **Infection or hernia** can occur at the surgical sites.

- **Blood loss:** If bleeding is severe, you may need a blood transfusion and, in rare cases, additional surgery to control it. This occurs in only 2% of men undergoing the robotic-assisted approach.

- **Erectile dysfunction:** Some degree of erectile dysfunction is expected after radical prostatectomy (open or robotic-assisted). However, in men with preservation of the neurovascular bundles, the likelihood of recovery is higher.

- **Urinary incontinence** (inability to control urine): All forms of prostate surgery result in some degree of urinary incontinence in the short term. Regular pelvic floor exercises started before surgery will help shorten the recovery period by weeks or even months. However, depending on the extent of your cancer and surgery, recovery of complete continence (urinary control) may take up to a year. Permanent urinary incontinence is rare. Men aged below 65 tend to recover from urinary incontinence quicker than older men. You may need to wear pads (5-10% of patients continue to wear pads after one year) or have further surgery (1-2% of patients) to treat the problem.

- **Injury to rectum:** In rare occasions (<1%), there can be injury to your rectum (last section of your bowel) and a temporary colostomy may be required. This is where an opening is made in your large intestine and abdomen, so that your stool is passed into a bag attached to an opening of the intestine on your abdominal wall, bypassing your rectum.

- **Leakage of carbon dioxide gas** (used during surgery) into tissues: This usually manifests pain in one or both shoulders, which disappear as the gas is reabsorbed by your body.

- **Neuropraxia:** In rare cases, patients may experience numbness or tingling in the limbs due to positioning on the operating table. This usually resolves on its own within a few hours or days. The risk of prolonged muscle weakness is rare.

You may need further treatment such as radiation therapy or hormonal therapy following surgery if the cancer has spread outside of your prostate. These findings are based on a final report from a pathologist.

What happens before the surgery?

- Financial counselling to discuss the cost of the surgery and pre-admission tests.
- An Anaesthesiologist will assess your fitness for surgery.
- Consultation with a Prostate Cancer Specialist Nurse to prepare you for the surgery and explain what to expect during recovery. You will also be taught how to use an incentive spirometer to exercise your lungs.
- Appointment with a physiotherapist to learn pelvic floor exercises, which help strengthen your muscles and improve continence after surgery.
- If you smoke, you are strongly advised to stop before the surgery. Smoking increases the risk of complications, such as chest infections and delayed wound healing. If you require assistance to quit smoking, please speak to your nurse.

Incentive Spirometer

Day before the surgery

Please wait for a call from the hospital. You will be informed about the fasting duration, reporting time and location.

Surgery day

Report to the hospital at the advised time. Please bring along the incentive spirometer, clean sets of loose clothing, toiletries and comfortable anti-slip footwear. You will also be given tight elastic (TED) stockings or a foot pump to help prevent blood clots from forming in your legs during surgery.

TED Stockings

After the surgery

You will wake up with:

- **Urinary catheter:** A tube inserted into your bladder through the penis and attached to a drainage bag. The catheter will be left in place for approximately 3-14 days following surgery to allow the joint between your bladder and urethra to heal.

- **Abdominal drainage tube:** In some cases, an abdominal drainage tube, which is a clear tube that comes out from one of the small keyhole incisions, will be inserted during the operation. The tube helps remove fluid to prevent infection caused by fluid buildup at the surgery site. It is normally removed when you are still in the hospital. However, if drainage is prolonged, you may need to bring it home. If so, the ward nurse will teach you how to care for the drainage tube and chart the amount of fluid drained.

Urine bag   Connection port

Abdominal drainage tube

- **Six incision wounds (including the drainage tube site):** Wounds are generally kept covered until Day 3 or 4, after which they may be exposed.

- **Wound stitches:** The stitches used are dissolvable and do not need to be removed.

- **An intravenous (IV) drip:** This drip provides you with fluids and medication. It is usually removed the day after your surgery once you can tolerate food well.

You will be allowed to take sips of water when you wake up from the anaesthesia. Your oral intake will then be gradually increased and changed to solid foods after daily review by your surgeon.

Upon your return to the ward, the nurse will check your blood pressure, pulse, wounds and drain on a regular basis.

Management of post-surgery pain

Pain is usually well-controlled with a single oral painkiller. Please inform the ward nurse if the pain becomes unbearable and more painkillers will be administered.

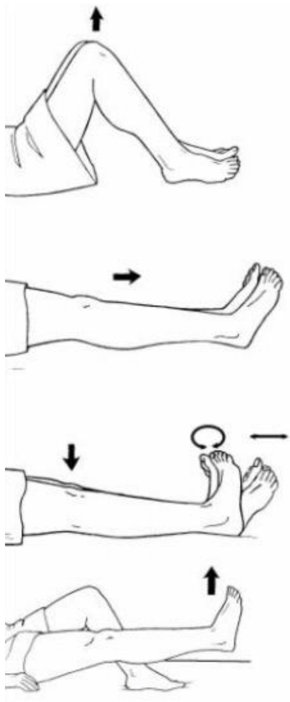
With adequate pain control, you should be able to resume regular activities upon discharge.

Exercise

You will remain in bed for a couple of hours after the surgery. During this time, you are encouraged to do the following exercises:

- **Deep breathing exercise:** Breathe 10 times per waking hour using the incentive spirometer. This is to prevent a chest infection.
- **Limb exercise:** Stretch your arms, move your feet and ankles, and wiggle your toes to encourage circulation in your legs.

You should be able to sit out of bed and walk around by the morning after surgery.



Examples of limb exercises

Leaving the hospital

Most patients are discharged within 1-2 days after their surgery. You will be able to leave the hospital if:

- You can move around as well as you did before surgery.
- You are able to care for your catheter and drainage bag.
- Your pain is well-controlled using the appropriate oral painkillers.

What can I expect when I get home?

You will experience fatigue as you have undergone a major surgery. Please give yourself some time to recover before returning to your normal activities.

You may experience some bloating. Wear loose clothes and try doing some low-impact exercise and walk around the house. This will help to get your bowel moving again after your surgery.

During the first few days, you may notice some urine leaking around your penis. This is normal and may occur because of bladder irritation due to the catheter. If this causes you discomfort, please contact the Prostate Cancer Specialist Nurse who will advise you. You may also notice a small amount of blood leaking from the penis during your first bowel movement after the surgery.

You will need to:

- Carry out proper catheter care to reduce the risk of infection. Your nurse will show you how this is done before you leave the hospital.
- Eat light, soft food until your bowel movements are back to normal.
- Avoid lifting anything heavy or do anything too strenuous (for example, lifting weights or running) for at least 6-8 weeks after your surgery. These may put too much strain on your stitches and therefore, delay your recovery.
- Look after your wounds. Showering is allowed after surgery. Keep your wounds clean and dry at all times. Do not apply lotions or creams on the wound sites.
- Allow yourself to rest for a couple of weeks before returning to work.

Urinary catheter removal

The procedure is generally well-tolerated. Please note the following:

- You will need to remain in the clinic for at least half an hour after removal of the catheter to ensure you can empty your bladder well.
- The nurse will assess your pelvic floor exercise technique.
- You will receive a follow-up phone call 2-4 days later to check on your well-being.

It is common to have some degree of urinary incontinence after having the catheter removed. You will need to wear diapers/pads for the first few weeks to a few months following removal of the catheter.

You need to regularly exercise your pelvic floor muscles. These exercises strengthen the muscles and help to regain continence. It is recommended to start pelvic floor exercises as soon as your catheter is removed and repeat the exercises daily. Your nurse will further advise you on the frequency required.

Most patients are pad-free within 3-6 months after their surgery and over 95% are pad-free after a year. On rare occasions, some men never regain full control of their continence. If this happens, you can discuss with your surgeon regarding the treatment options.

If you have any questions, please contact us:

Urology Centre
NUH Medical Centre, Zone B, Level 16
(65) 6908 2222
(65) 6772 5087
urology_centre@nuhs.edu.sg
Mondays to Fridays: 8.30am – 5.30pm (except Public Holidays)
Saturdays, Sundays & Public Holidays: Closed

Prostate Cancer Specialist Nurse
Mobile Number: (65) 8798 5402
Mondays to Fridays: 9am - 5pm
The nurses are available for catheter troubleshooting and consult up to 2 months post-surgery.

Please proceed to the NUH A&E after office hours.

Alternatively, you can scan the QR codes below to find out about RARP on Youtube.

Part 1: What is RARP?
https://for.sg/rarp-part1

Part 2: What happens during RARP?
https://for.sg/rarp-part2

Part 3: Post-Prostatectomy Urinary Catheter Care
https:.//for.sg/rarp-part3

Our Patient Care Institutions

National University Hospital
Ng Teng Fong General Hospital &
Jurong Community Hospital
Alexandra Hospital
National University Polyclinics
Jurong Medical Centre
National University Cancer Institute, Singapore
National University Heart Centre, Singapore
National University Centre for Oral Health, Singapore
NUHS Diagnostics
NUHS Pharmacy

Scan the QR code for more information on our patient care institutions.

OneNUHS Hotline: (65) 6908 2222
OneNUHS General Enquiries: contactus@nuhs.edu.sg
OneNUHS Appointments: appointment@nuhs.edu.sg
www.nuhs.edu.sg

The information in this brochure is meant for educational purposes and should not be used as a substitute for medical diagnosis or treatment. Please seek your doctor's advice before starting any treatment, or if you have any questions related to your health, physical fitness or medical condition.

Information is correct at time of printing [Sep 2025] and subject to revision without prior notice.