SUNWAY
MEDICAL CENTRE
Velocity Kuala Lumpur

We Care for Your Kidney

Understanding Chronic Kidney Disease

Where Are Your Kidneys Located?

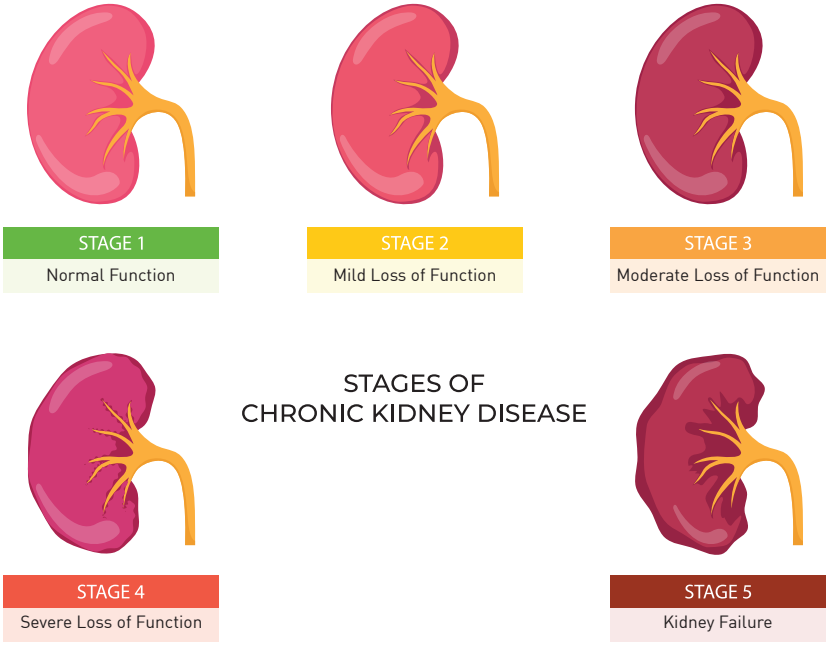
Your kidney are two bean-shaped organs, each about the size of a fist. They sit just below your ribcage, on each side of the spine.

Functions of Your Kidneys

- Balance minerals like sodium and potassium in your blood
- Filter waste and excess fluid from your blood
- Help control blood pressure
- Support red blood cell production and strong bone health

Definition of Chronic Kidney Disease

- Chronic kidney disease (CKD) is when the kidneys have become damaged over time.
- Developing CKD is usually a very slow process with very few symptoms at first. Hence, it is called "silent" disease. CKD is divided into 5 stages to help guide treatment decisions.



Stage of CKD	eGFR Result	What Does It Mean?
Stage 1	90 or higher	- Mild kidney damage - Kidneys work as well as normal
Stage 2	60-89	- Mild kidney damage - Kidneys still work well
Stage 3a	45-59	- Mild to moderate kidney damage - Kidneys don't work as well as they should
Stage 3b	30-44	- Moderate to severe damage - Kidneys don't work as well as they should
Stage 4	15-29	- Severe kidney damage - Kidneys are close to not working at all
Stage 5	less than 15	- Most severe kidney damage - Kidneys are very close to not working or have stopped working (failed)

What Causes CKD?

- Diabetes: High blood sugar can harm kidney blood vessels
- High Blood Pressure (Hypertension): Puts strain on your kidney blood vessels
- Glomerulonephritis: Inflammation in the kidney's filtering units
- Polycystic Kidney Disease: A genetic condition that causes cysts in the kidneys
- Repeated kidney infections or blockages

Risk Factors of CKD

- Age (Over 60)
- Family history of kidney disease
- Smoking
- Obesity

Chronic Kidney Disease Stages

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
90% or more of kidney function	60% - 89% of kidney function	30% - 59% of kidney function	15% - 29% of kidney function	Less than 15% of kidney function

Symptoms of CKD

As CKD gets worse, you might notice that you have the following symptoms:

Fatigue, weakness

Increased or decreased urine volume

Dry, itchy skin

Swollen feet, arms, face

Pink, red, or brown urine

Temperature and pressure rise

Lower back pain

Foamy urine

Frequent urination

Tests to Check for CKD

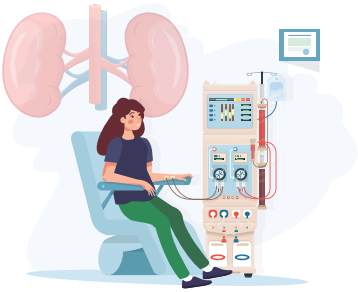
- Blood Test (eGFR)
- Urine Test: Protein (albumin) in your urine
- Blood Pressure Check
- Imaging Test or a Kidney Biopsy

Complications of CKD

- **High blood pressure:** The kidneys help regulate blood pressure, and damage can lead to hypertension.
- **Anaemia:** A low red blood cell count can make you feel weak or tired.
- **Bone problems:** CKD affects the balance of minerals like calcium and phosphate, leading to weaker bones.
- **Fluid build-up:** May cause swelling in the legs, ankles, or lungs — leading to shortness of breath.
- **Heart disease:** CKD increases the risk of heart-related conditions such as heart attack and heart failure.

Haemodialysis

Haemodialysis is a treatment to filter wastes and water and balance important minerals, such as potassium, sodium, and calcium in your blood from your blood as your kidneys did when they were healthy.



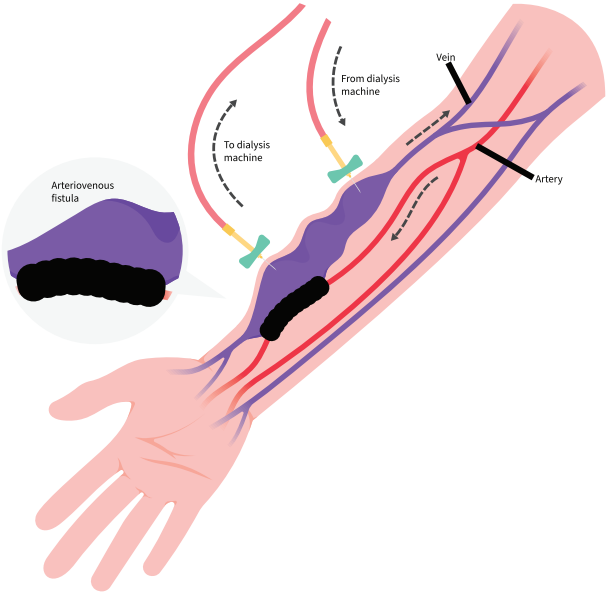
Why Should I Not Shorten Time or Miss Any Dialysis Sessions?

A healthy kidney works 24 hours a day, 7 days a week, filtering about 90%–100% of waste and excess fluid from the body. For patients with kidney failure, haemodialysis is typically done at least three times a week, with each session lasting around four hours. However, dialysis only replaces a fraction of the filtration that healthy kidneys can perform.

Care of Arteriovenous Fistula & Catheter

What is an Arteriovenous Fistula?

- Arteriovenous fistula gives access to your bloodstream for haemodialysis. It is made by joining an artery and a vein during surgery.
- Fistula placement :



Care of Your Fistula or Graft

Do:

- Check your fistula a few times a day for a thrill or bruit.
- Feel your fistula for a thrill if you:
  - Have low blood pressure
  - Feel lightheaded
  - Feel dizzy
- Wash your fistula arm with soap and water before each haemodialysis treatment.

Do Not :

- **Do not** let anyone take your blood pressure or a blood sample, or start an injection on your fistula arm.
- **Do not** apply constant pressure on your fistula. Constant pressure can slow the blood flow in your fistula.
- **Do not** carry or place the strap of a heavy bag over your fistula.
- **Do not** wear a watch or tight clothing or place a purse strap over your fistula. This could slow blood flow to your fistula.
- **Do not** sleep on your fistula arm.
- **Do not** use a razor on your fistula arm.
- **Do not** pick any scabs on your fistula arm.
- **Do not** play contact sport (like volleyball or football) that may involve hard hits to your fistula. Try sports like swimming instead.

What to Do If You Have Bleeding at Your Fistula Site

- Apply firm pressure with 2 fingertips for 15 minutes.
- After 15 minutes, check the fistula site to see if the bleeding has stopped. If the bleeding has not stopped, keep applying pressure to the fistula site.
- Check your thrill to make sure you can still feel it while you are applying pressure to the fistula site.
- Do not apply a pressure dressing, as this may slow the blood flow to your fistula.

Signs of Infection in an Arteriovenous Fistula

The signs of an arteriovenous access-site infection are:

- Swelling or redness in your access arm, hand, or around the access site
- Soreness or tenderness at the access site
- Drainage or pus coming from the access site
- Redness that starts at the access site and spreads outward
- A feeling of excessive warmth around the access site, arm, or hand
- Fever

Go to the Emergency Department If You Experience Any of the Following

- Redness, drainage, bleeding or tenderness at the fistula or fistula incision site
- Can't feel the thrill
- Swelling, tingling, numbness or discoloration in your fistula arm or hand
- Trouble moving the fingers on your fistula arm
- Feverish (temperature above 38°C/100°F) or chills

Care of Catheter

A catheter is often used for dialysis before a fistula is created or matured. Common catheter placement sites include the neck (internal jugular vein) or upper chest. Compared to a fistula, catheters carry a higher risk of infection and can become dislodged more easily.

Preventive Measures

To prevent the risk of catheter-related bloodstream infections:

- Ensure the catheter dressing is dry. A wet or dirty dressing can promote bacterial growth.
- Inform your healthcare provider immediately if you experience fever, chills, or feel generally unwell.
- Notify your healthcare provider if you notice any redness, swelling, pus, or bleeding around the catheter site.
- Wear a surgical mask whenever the catheter is being connected to or disconnected from the dialysis machine.
- Do not remove or expose the catheter dressing.
- Do not apply any ointment or powder to the catheter exit site unless advised by your healthcare provider.

Dietary Tips

Fluid

How to control fluid level?

- Drink up to **500ml-750ml** a day depending on how active you are and how much urine you produce.
- The amount of fluid that you can take can be best judged by your interdialytic weight gain.
- Interdialytic weight should not exceed a safe range of **2.0kg to 2.5kg.**
- Distribute your fluid allowance throughout the day.

Tips to keep within your restricted fluid allowance:

- Avoid high sodium food
- Use small cups and glasses

Dialysis removes only limited amount of fluid. Prevent fluid accumulation by:

- Controlling fluid intake
- Controlling sodium intake

Phosphorus & Calcium

- Phosphorus and calcium play an important role in the health of our bones and teeth as well as our body metabolism.
- When our kidneys fail, phosphate levels in our blood rise despite dialysis. High blood phosphate levels tend to attract calcium from bones leading to formation of hard calcium phosphate deposits in soft tissue.
- The side effects are:
  - Brittle bones
  - Skin itchiness
  - Joint pain
  - Eye irritation
- How can I control blood phosphate level and keep my bones healthy?
  - Eat low phosphorus diet
  - Take phosphorus binders with meals

Saturated Fat & Cholesterol

- When blood cholesterol levels are high, changes in the diet are necessary to minimise the risk of getting a heart attack. This involves reducing saturated fat and cholesterol intakes.

Limit coconut milk–based gravies

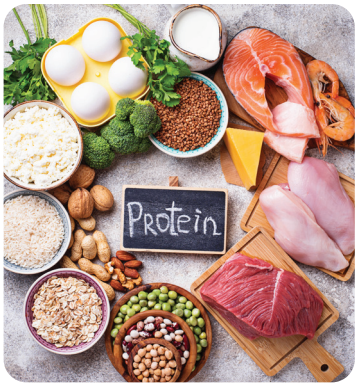
Trim fat off meat and poultry

Remove skin from poultry before cooking

Avoid processed meat

Protein

- Protein is found in both animal and plant-based foods.
  - Animal sources such as poultry, meat, fish, seafood, eggs, and milk provide high-quality protein.
  - Plant sources like legumes, pulses, and cereals provide lower-quality protein.
- Too much protein can lead to:
  - High blood urea levels, which may cause nausea and vomiting
  - High blood phosphate levels, which may lead to bone problems
  - High blood potassium levels, which can cause irregular heart rhythms



Potassium

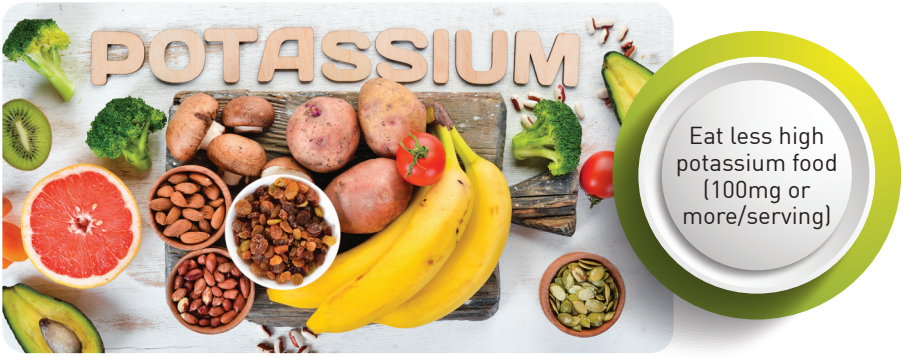
High blood potassium levels can cause irregular heartbeat and heart failure.

Where does potassium come from?

- Potassium has no taste and is found in most foods, particularly fruits, vegetables, beverages, pulses, legumes, and spices.

Good practice tips:

- Potassium is soluble in water. Therefore, cutting vegetables into small pieces and soaking them for 1–2 hours in 2–3 changes of warm water can help reduce their potassium content.
- Drain away the liquid from canned fruits and vegetables.
- Peel off the skin from fruits.
- Use whole spice rather than ground or spice powders.
- Avoid herbal and traditional remedies.



Sodium / Salt

High sodium/salt intake can result in fluid retention and increased thirst, thereby increasing blood pressure.

Tips to reduce sodium/salt intake:

- Read labels on processed foods and recognise the various forms of sodium such as baking soda, monosodium glutamate (MSG), sodium tartrate, etc.
- Request no added salt, MSG, or soy sauce when ordering food at restaurants or hawker stalls.
- Drain and rinse canned foods to reduce sodium content.
- Flavour your food without salt by using herbs and whole spices.
- Limit processed foods, as sodium is often added as a preservative.
- Avoid adding salt, soy sauce, chilli sauce, or tomato sauce at the table.

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