Chapter 2

DIALYSIS

Chapter 2

Dialysis

HELPFUL TIP

Choosing a home-based dialysis option may make you feel nervous. You might worry about managing on your own, or what you would do if an emergency arose. Write down your questions and concerns and talk with others who have chosen the type of dialysis you're interested in. You may be able to do this through your clinic. Or contact the Kidney Connect peer support program at 1-866-390-PEER (7337) where you'll be matched with a trained volunteer. More information is available on **kidney.ca**. You can also ask questions and/or share your concerns with our online community at **kidneyconnect.ca**.

When your kidneys start to fail and are functioning around 15%-20% of their normal capacity, your kidney healthcare team will be closely monitoring your condition and will help you determine when you may need to start dialysis. It is recommended that you start dialysis when you have symptoms of kidney failure, not just when your kidney function drops below a certain percentage.

Symptoms to watch for

- Severe fatigue
- Nausea
- Decreased appetite and weight loss
- Shortness of breath
- Itchiness

Dialysis is a treatment: it does not cure kidney disease or make kidneys well again, and it does not fully replace your kidney function. Unless you receive a kidney transplant or choose non-dialysis supportive care, you must continue to have dialysis for the rest of your life.

In this chapter, we discuss ***independent dialysis*** (peritoneal dialysis and hemodialysis at home) and ***dependent dialysis*** (hemodialysis at a hospital or clinic). The type of dialysis that's best for you will depend on other health factors as well as your personal circumstances and lifestyle. Talk to your healthcare team about which type might be best for you.

TYPES OF DIALYSIS

	PERITONEAL DIALYSIS	HEMODIALYSIS
Independent (generally done at home)	Continuous ambulatory peritoneal dialysis (CAPD) Automated or continuous cycler peritoneal dialysis (APD, CCPD)	Home hemodialysis
Dependent (done in a hospital, clinic or dialysis centre)	None	In-centre hemodialysis at a hospital, clinic or dialysis centre

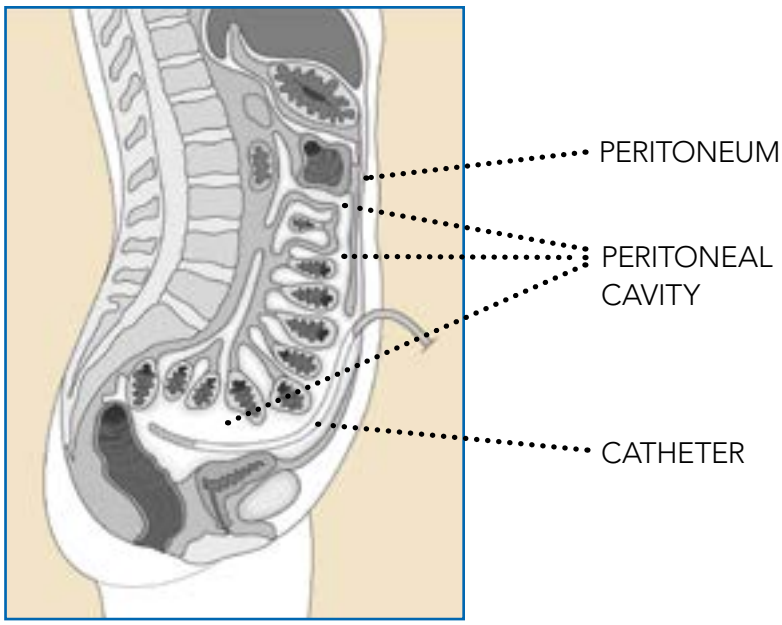
See **Chapter One:**
Exploring your treatment options for an overview of the available options.

NOTES:

Peritoneal dialysis

What is peritoneal dialysis?

Peritoneal dialysis removes waste products and excess water from your body by using the ***peritoneal cavity*** on the inside of your abdomen to clean your blood.



PERITONEAL CAVITY AND CATHETER

Dialysis

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Your peritoneal cavity is filled with a special dialysis fluid called dialysate. Excess water and wastes pass from the blood through the lining in the peritoneal cavity and into the dialysis fluid. The fluid is then drained from your body and discarded.

How is access to the peritoneal cavity established?

Dialysis fluid enters the peritoneal cavity through a tube called a catheter. The catheter is surgically inserted in your abdomen, usually below and to one side of your navel. It stays there for as long as you are using this form of dialysis. Catheters are made of a soft non-irritating plastic.

Catheters are inserted either at the hospital bedside using local anesthetic, or in the operating room, depending on which type of catheter is best for you, and on your individual situation. Your doctor and your peritoneal dialysis team will assess your situation and explain the options to you.

The insertion of the catheter may be briefly uncomfortable, but peritoneal dialysis is not painful. You will need to take proper care of the catheter area to avoid infection.

What are the types of peritoneal dialysis?

With peritoneal dialysis you always have dialysis fluid in your peritoneal cavity, so your blood is constantly being cleaned. The fluid is changed at regular intervals. There are two types of peritoneal dialysis:

- ***Continuous ambulatory peritoneal dialysis (CAPD)***
- ***Automated or continuous cycler peritoneal dialysis (APD, CCPD)***

Continuous ambulatory peritoneal dialysis (CAPD)

In CAPD, you carry about two to three litres of dialysis fluid in your peritoneal cavity all the time. An ***exchange*** is usually done four times a day by draining out the old fluid and refilling your peritoneal cavity with fresh fluid. The exchanges are done regularly throughout the day – often early in the morning, lunchtime, late in the afternoon, and at bedtime. Each exchange can take from 20 to 45 minutes. During this time you can do other things like eat your meals or get ready for bed. Sometimes an extra exchange is done while you sleep. This involves the use of special equipment - see below. Once you have completed an exchange, you are not connected to any tubes or bags and can carry on with your normal activities.

There are different ways of doing CAPD and training usually takes about one week. Ask your healthcare team for more information.

Automated or continuous cycler peritoneal dialysis (APD, CCPD)

In APD or CCPD, a machine called an automatic cycler performs exchanges every night while you sleep. In the morning when you come off the machine, some dialysis fluid is usually left in your peritoneal cavity for the day. How much fluid is left will somewhat depend on your size. In the evening, you drain this fluid out when you connect yourself to the automatic cycler for the night. While CCPD allows you to do dialysis at home with no interruptions to your day, it does require that you be attached to the machine every night for eight to ten hours. Some people may also do an additional exchange or two during the day. These people need that extra amount of dialysis to provide adequate removal of waste products.

The decision to do CAPD or APD will be made with your healthcare team. Some people do better with one type and others do better with the other. A special test called a PET (Peritoneal Equilibration Test) and measures of dialysis adequacy will help your healthcare team decide which method is best for you.

NOTES:

Dialysis

For more information on tax deductions related to dialysis done at home (both PD and HD), please see the Tax Tips document at **kidney.ca** or contact your local Kidney Foundation office.

NOTES:

You will be responsible for ordering your own supplies and someone must be home to take delivery of them. You will also need to store your supplies in a relatively large space where they won't freeze or be exposed to heat or humidity. You won't have to pay for these supplies yourself because they are covered by your provincial/territorial medical insurance. You may also be able to claim a tax deduction for the space in your home used for storing your PD supplies.

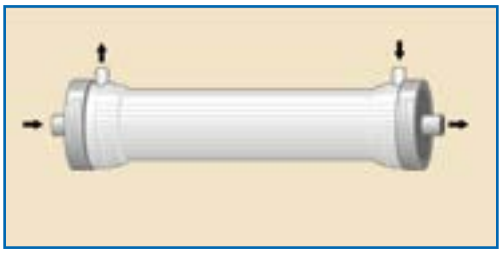
Hemodialysis

Hemodialysis means "cleaning the blood" and that's exactly what this treatment does. Blood is withdrawn from the body by a machine and passed through an artificial kidney. It is called an "artificial kidney" because it cleans the blood, although not as efficiently as a healthy kidney.

How do hemodialysis machines work?

There are several different kinds of dialysis machines, but they work in almost the same way. A ***dialyzer*** (artificial kidney) is attached to the machine. The dialyzer has two spaces: a space for blood and a space for ***dialysis fluid***. Dialysis fluid is a special liquid which helps remove waste products from the blood. A very thin artificial ***membrane*** separates the two spaces in the dialyzer from each other. Blood passes on one side of the membrane and the dialysis fluid passes on

the other side. Waste products and water pass from the blood through the membrane into the dialysis fluid and are removed from the body. Freshly cleaned blood is constantly returned to the body. Only a small amount of blood is out of the body at one time – about one cup. You have five to six litres of blood in your body.



DIALYZER

HEMODIALYSIS MACHINE

NOTES:

Dialysis

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How is excess water removed from the body?

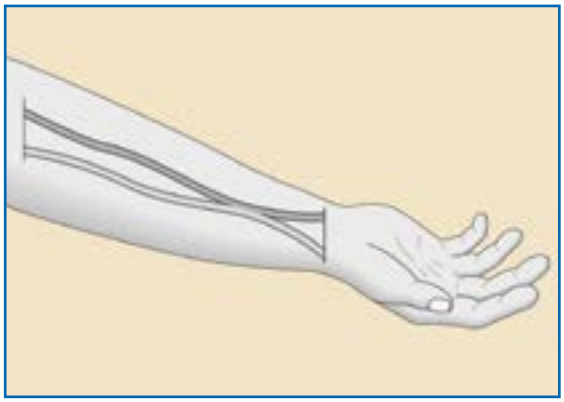
One of the functions of normal kidneys is to remove excess water. When your kidneys are not working well, your body may not produce very much urine and so your body doesn't have a way to remove excess water. Excess water is removed during dialysis by a process called ***ultrafiltration***. Blood entering the dialyzer is placed under pressure to push excess water through the dialyzer membrane. Settings on the dialysis machine can be adjusted to remove as much or as little water as necessary.

How are you attached to the dialysis machine?

You can be attached to the dialysis machine in several different ways. The commonly used methods of providing access to the bloodstream for hemodialysis are:

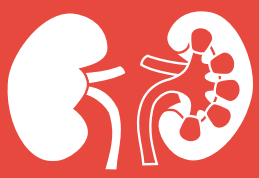
- Fistula (arterio-venous fistula or AVF for short)
- Graft (arterio-venous graft or AVG for short)
- ***Central venous catheter (CVC)***

Arterio-venous fistula



FISTULA

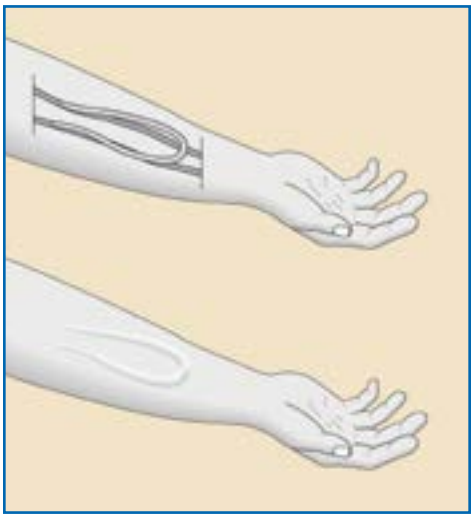
The fistula is the best method of providing access to the bloodstream. Of all the options, it has the smallest chance of infection or clotting. To make a fistula, an ***artery*** and a ***vein*** in your arm are surgically connected. The flow of blood in arteries is much faster and stronger than the flow of blood in veins. So when the two are joined, blood from the artery causes the vein to become larger and stronger. The enlarged vein is then used as the access site for inserting needles to connect you to the dialysis machine. Fistulas can be used about six to twelve weeks after surgery.



Arterio-venous graft

A graft is another way of providing access to your bloodstream. Sometimes it's used because a person's arteries and veins are not suitable to make a fistula.

To make a graft, a short piece of special tubing is placed under the skin to connect an artery and a vein. This graft is used as the site for inserting needles for hemodialysis. Grafts can normally be used within two to four weeks of surgery, if necessary, because there is no need to wait for them to enlarge – the graft is already the right size.



GRAFT

Care of fistulas and grafts

Once established, fistulas and grafts need very little special care. You can work, exercise and bathe normally. However, since your fistula or graft is your lifeline for hemodialysis, you will need to protect it. Your healthcare team will give you more information on how to care for your fistula or graft.

IMPORTANT

During aggressive sports or heavy manual work, there may be a chance that your fistula might be damaged. You should discuss the risks with your healthcare team. They might suggest you use a fistula guard to protect your fistula.

NOTES:

To care for your fistula or graft, avoid...

- Having your blood pressure taken on that arm
- Having blood drawn or IVs inserted in that arm
- Wearing tight watches and sleeves on that arm
- Sleeping on that arm or keeping it bent for long periods of time

Dialysis

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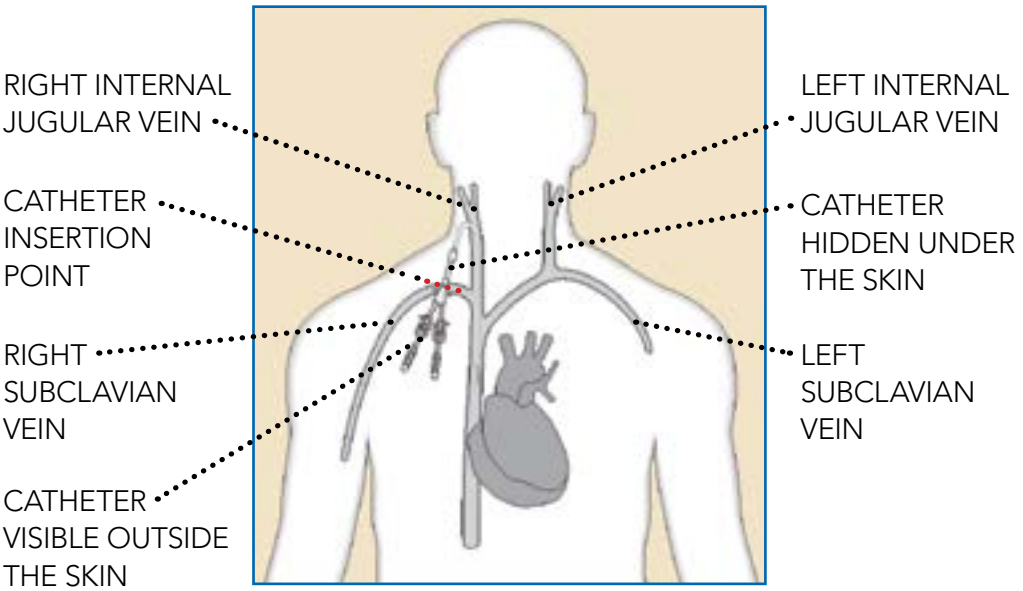
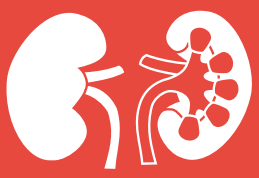
Central venous catheter

A central venous catheter may also be called a central venous "line". It is two soft tubes joined together side-by-side. One end of the catheter is inserted into a large vein, with the other end sticking out through the skin. The most commonly used vein is the ***jugular vein*** at the side of the neck. The catheter is inserted using a local anesthetic to numb the skin. It is then covered with a dressing. The catheter is left in place until a permanent access site (fistula, graft, or peritoneal dialysis catheter) is ready.

A central venous catheter is normally only used when a fistula or graft cannot be created, usually because the veins in the arms and legs are too small. When access to the bloodstream is needed quickly, a catheter is used temporarily until a better permanent access site is ready.



CENTRAL VENOUS CATHETER



Care of central venous catheters

The major short-term risks of central venous catheters are clotting and infection. To try to prevent clotting, the dialysis nurse will fill the catheter with a solution at the end of each dialysis treatment.

To try to prevent an infection in your catheter, many things will be done. Special dressings may be placed on the skin and caps on the lines will be used. You must not get it wet (while swimming or taking a bath). You must not let anyone use the catheter unless they have first spoken directly with your dialysis team. If you do get an infection, you might get fevers or chills, or just not be yourself. If this happens, you need to tell your dialysis team right away. An infection might be treated with a cream or antibiotics. Sometimes the catheter needs to be removed and replaced to help treat the infection.

Does hemodialysis hurt?

Insertion of the needles causes pain, but only for a brief time. For some people, this can be difficult. Sometimes prescription anesthetic creams and/or training in relaxation techniques can help. Occasionally nausea, muscle cramps or dizziness can occur. Some symptoms may be related to drinking too much fluid between treatments, but there may be other reasons. If these symptoms occur, let your dialysis team know. Often the symptoms can be improved with changes to your dialysis prescription.

Independent (home) hemodialysis

Home hemodialysis gives you the opportunity to manage your dialysis care in your own home instead of travelling to a clinic or hospital for treatment. Most people who do home hemodialysis find that they have a more flexible schedule and better health results because they can dialyze more often or for longer periods of time.

The length of the training program varies from region to region and can take a minimum of six weeks. You will be taught everything you need to know to do the hemodialysis yourself, and in most cases, a partner is taught at the same time. In some centres, you can't do home hemodialysis if you don't have a support person or partner.

NOTES:

Dialysis

Some centres offer hemodialysis overnight at the hospital although this option is not available everywhere.

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Some dialysis centres in Canada are able to oversee and support ***home nocturnal hemodialysis***. With this method, you carry out dialysis four to six nights a week, for six to eight hours while you sleep at home. Home nocturnal hemodialysis greatly improves the removal of waste products from the body. It has also been found to improve well-being, allow you a more liberal diet and reduce the need for medications. It also frees up the daytime for other activities.

To do home hemodialysis, you have to set up a comfortable permanent place in your home for you, your dialysis machine and water system. Your home training team will help you determine what is required. You may need to install special plumbing connections and electrical outlets.

The hospital or dialysis centre usually provides the dialysis machine and arranges the necessary modifications to your home. However, you may claim on your income tax return any costs that the dialysis centre does *not* cover to make changes to your home to accommodate your dialysis. You may also claim a portion of the cost of keeping the dialysis machine in your home (for things like utilities, insurance, heating, maintenance and repairs). Your home hemodialysis program will help you order your supplies. You won't have to pay for the supplies yourself since they are covered by your provincial/territorial medical insurance.

How much hemodialysis is best?

Twelve hours of hemodialysis each week (for example, three treatments of four hours) is usually sufficient to clean the blood well enough to control your symptoms. It will also help to balance various substances in your body. However, it does not come close to the function that normal kidneys perform. Most people find that PD or home hemodialysis will allow them to dialyze more frequently than dialysis provided in a hospital or clinic, giving them better health outcomes, more energy and fewer dietary restrictions.

Dependent (in-centre) hemodialysis

There are dialysis units in many hospitals across the country. They have everything you need for dialysis, including specially trained nursing staff and technicians to look after you and connect you to the dialysis machine. Many hemodialysis programs have satellite units (also called regional centres or community units) some distance from the main unit.

For in-centre hemodialysis you will typically have to travel to the hospital or satellite unit at least three times per week. Each hemodialysis treatment normally takes four to five hours. Some people call a treatment a "run". Your blood circulates through the dialysis machine many times during each run, being cleaned a little bit more each time.

NOTES:

TRANSPORTATION

Many people have issues with transportation to and from hemodialysis treatments. Parking may also be difficult and/or expensive. Your social worker may be able to offer helpful suggestions for these challenges.

NOTES:

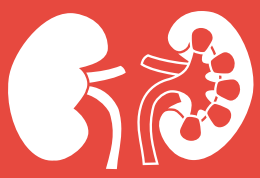
Potential complications and issues with dialysis

There are a number of potential complications for people with kidney failure on dialysis. Fortunately, there are often effective methods of treating them. Below we discuss the most common complications and how they are treated. Remember, these are *possible* complications – they are not necessarily ones that you will experience.

Anemia

A condition commonly caused by chronic kidney disease is ***anemia***, which is a reduction in the number of red blood cells in the blood. Patients may have a reduction in red blood cells for several reasons: from eating less iron-rich food, by losing small amounts of blood from frequent blood tests, from blood lost in the hemodialysis tubing after each session and due to the effects of chronic disease. Over time, this can lead to anemia. The kidneys make a hormone called ***EPO*** (***erythropoietin***) when the body senses a reduction in red blood cells. EPO tells your bones to make more red blood cells. As kidney disease progresses, your body is not able to make enough EPO in response to low red blood cells. When anemia is mild, there may not be any negative effects on the body. However, as anemia becomes more severe, it may lead to low energy, tiredness, shortness of breath and sometimes, increased sensitivity to cold.

The only real way to know if you have anemia is to have a blood test to check your red blood cells and, specifically, your ***hemoglobin***. The hemoglobin value is a measure of the total red blood cell content of blood. Testing will help you know if your hemoglobin levels are within your target range.



MY TARGET RANGES

My Hemoglobin Target Range is: _____ to _____

My Iron Targets:

Transferrin Saturation
(iron readily available in blood): _____

Ferritin (long-term iron stores): _____

Treatment options for anemia

- Dietary changes (increasing iron-rich foods)
- Vitamin supplements (vitamin B12, folic acid, multivitamin formulated for kidney disease)
- Prescription medications (erythropoietin [EPO], iron)
- Blood transfusions

NOTES:

EPO

To tell your bones to make more red blood cells, you may be prescribed a medication called EPO – it acts like your body's natural EPO hormone. It's given by injection one to three times per week, either under the skin (subcutaneously) or intravenously. The EPO dose may be changed often in order to keep the hemoglobin in the target range. However, pushing the hemoglobin level too high for a long time with EPO can put you at risk for stroke. Your kidney healthcare team will make sure to adjust the EPO to keep it at the right level for you.

NOTES:

When it comes to foods, phosphorus and phosphate mean more or less the same thing. Check the labels of the foods you eat and avoid products that contain "phosphate" or "phosphoric". See page 54 for a more complete list of ingredients to avoid.

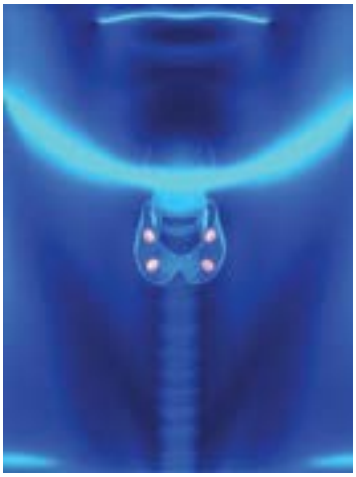
Iron

Since iron is an important building block for red blood cells, you may be prescribed iron, either in pill form or intravenously, to maintain your iron stores. Iron pills are best absorbed on an empty stomach and must be taken *at least two hours before or after any other medications*, especially calcium, levothyroxine (Synthroid®) and some antibiotics. The main side effect from iron pills is dark stool (this is normal) and constipation. If you suffer from constipation, your pharmacists and/or healthcare team can provide helpful advice on how to minimize this condition.

Chronic kidney disease – mineral and bone disorder (CKD-MBD)

The disordered balance of minerals, specifically phosphate and ***calcium***, is another problem often associated with chronic kidney disease. Your body has a complex system to balance these minerals for optimal bone health. Below we explain some important concepts that will help you understand the role of the medications you may be prescribed.

Phosphorus and calcium help to keep bones strong and healthy. Normal kidneys help balance the levels of phosphate and calcium in the blood by controlling the amount of these minerals eliminated in urine. As kidney disease worsens, the kidneys are not able to remove all the extra phosphate (that comes from your food) leading to high phosphate levels in your blood.



In addition, damaged kidneys are not able to activate vitamin D obtained from the sun and your diet. The active form of vitamin D helps your body absorb calcium from your diet. If your kidneys are not able to activate enough vitamin D, this may result in low calcium levels in your blood. The parathyroid glands, located in your neck behind the thyroid, play an important role in regulating the level of calcium in your blood.

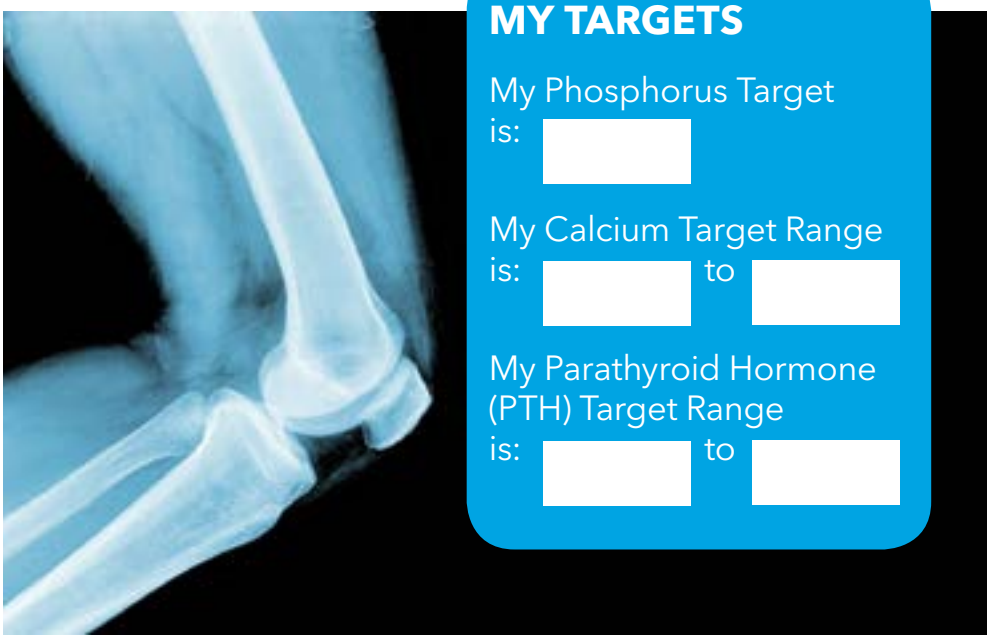
These glands release parathyroid hormone (PTH) when they sense a drop in calcium levels in your blood. PTH raises calcium levels in the blood by removing calcium from bone. When calcium levels in the blood return to normal, the parathyroid glands stop releasing PTH.

The high phosphate and low activated vitamin D levels (commonly found in people with chronic kidney disease) also stimulate the parathyroid gland. If high phosphate levels go untreated for a long time, the parathyroid glands become overactive leading to high PTH levels that remove more calcium from bone than needed. As a result, this may affect the health of your bones. High phosphate and calcium levels in the blood may also lead to calcification (hardening) of blood vessels and other soft tissues, which can lead to serious health problems.

Mineral and bone disorder can be prevented with proper food choices and medications. If your phosphate level is too high, you will develop severe itching and weak bones. To reverse this, you should reduce the amount of high phosphate foods in your diet as directed by your kidney dietitian.

See **Chapter Three:**

Diet and dialysis for more information on how to manage your phosphate levels.



MY TARGETS

My Phosphorus Target is: _____

My Calcium Target Range is: _____ to _____

My Parathyroid Hormone (PTH) Target Range is: _____ to _____

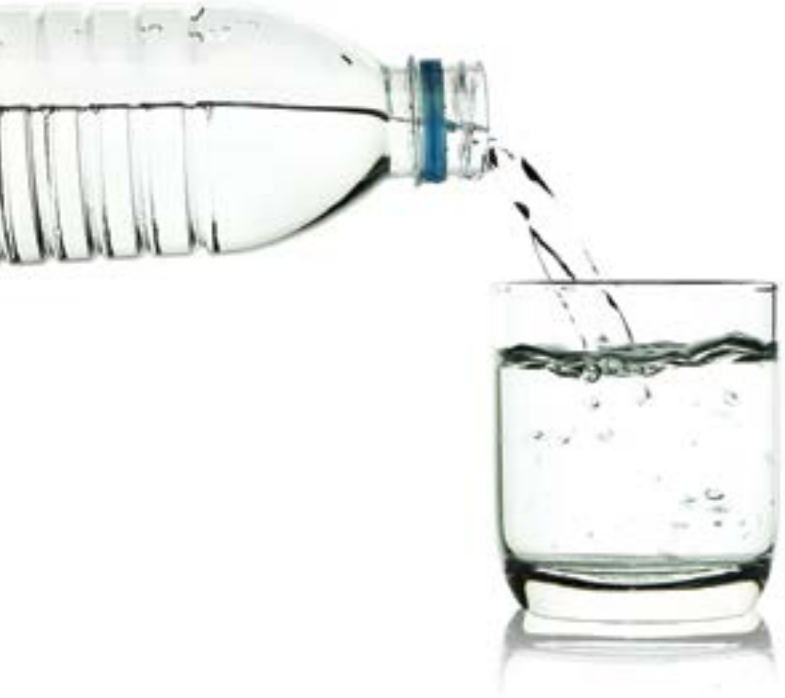
NOTES:

NOTES:

Your doctor may also prescribe ***phosphate binders*** that bind with phosphate in your intestine causing it to be removed in your stool. Phosphate binders work best when they are taken with the first bite of each meal so that they can bind with the phosphate in your food. The most commonly prescribed phosphate binder is calcium. The major side effect of calcium-based phosphate binders is constipation. If you suffer from constipation, your pharmacists and/or healthcare team can provide helpful advice on how to minimize this condition.

If your phosphate is well balanced but your PTH levels are high and/or your calcium levels are low, you may be prescribed an *activated form of vitamin D*, available by prescription only. A commonly prescribed active vitamin D is *calcitriol*.

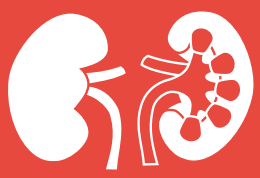
You will have regular blood tests to monitor your mineral balance. It is normal to have ongoing changes in the dosage of your prescribed phosphate binders and/or active vitamin D. Sometimes you will even be advised to stop or restart these medications in order to keep these minerals in balance.



Too much water, too much sodium – fluid overload

An important function of healthy kidneys is to remove excess fluid and sodium (salt) from the body. With advanced kidney disease, the kidneys may not produce as much urine as before. As a result, the body becomes overloaded with fluid.

Fluid overload leads to rapid weight gain, high blood pressure and ***edema***. Edema means swelling due to fluid build-up. Sometimes, fluid stays in the lungs causing coughing and shortness of breath. Excess fluid is also sometimes seen as swelling in the ankles and around the eyes.



When on dialysis, you can avoid fluid overload by limiting your intake of sodium and fluid; salt makes you thirsty and holds water in your body.

High blood pressure

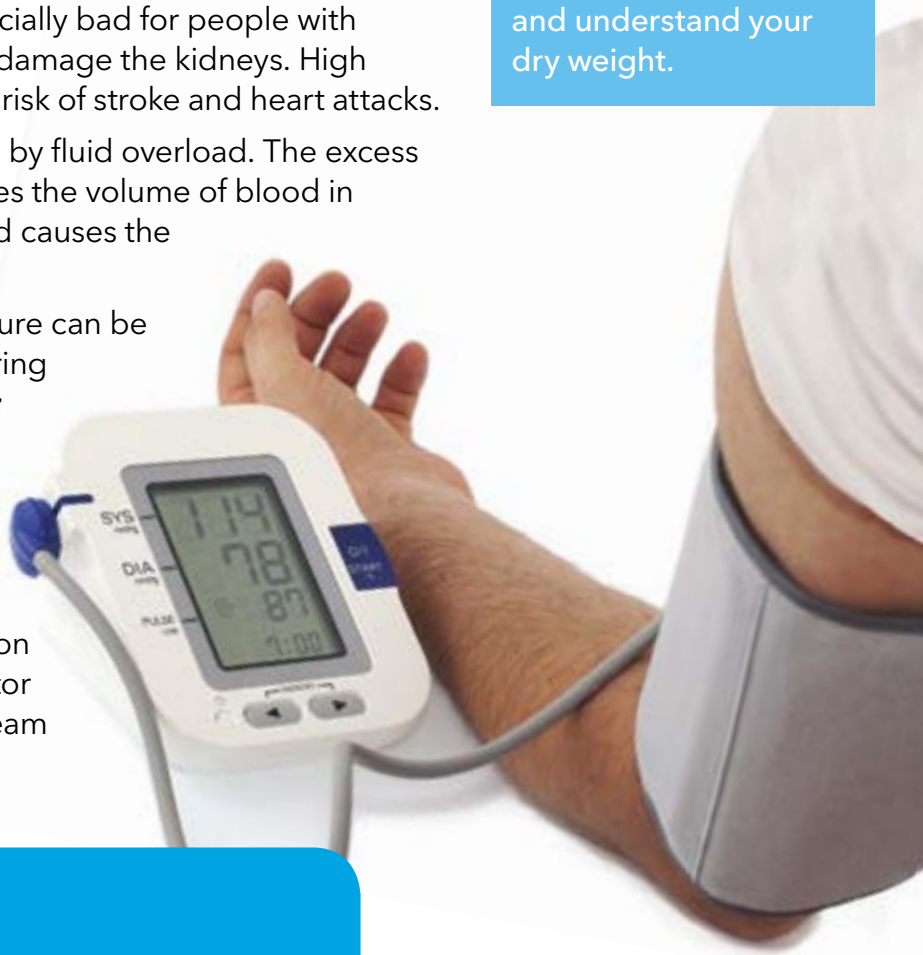
High blood pressure (also called ***hypertension***) is a common problem for people with kidney disease. Normal kidneys produce a hormone that regulates blood pressure. Diseased kidneys often produce abnormal amounts of this hormone causing high blood pressure. High blood pressure is especially bad for people with kidney disease because it can further damage the kidneys. High blood pressure can also increase your risk of stroke and heart attacks.

High blood pressure is made worse by fluid overload. The excess sodium and water in the body increases the volume of blood in the arteries. The extra volume of blood causes the pressure in the arteries to increase.

For some people, high blood pressure can be controlled by removing more fluid during dialysis to achieve their ***target weight*** (also called ***dry weight***), the weight at which their blood pressure is normal and fluid content is neither high nor low. Some people will also need some type of high blood pressure medication. If you are taking medication for high blood pressure, ask your doctor or other member of your healthcare team about its possible side effects.

WEIGHT SCALE

It may be helpful to have a highly accurate scale at home to keep track of your weight. It will help you monitor your overall sodium and fluid intake and understand your dry weight.



MY TARGETS

My Target Blood Pressure is: _____

My Target Dry Weight is: _____

NOTES:

Be sure to ask when the medication should be taken; for example, it is usually *not* taken before dialysis treatments. Most people should follow a low sodium diet to help manage hypertension.

Low blood pressure

Low blood pressure can be a side effect of hemodialysis. When too much fluid is removed from the blood during hemodialysis, it can cause your blood pressure to drop, which can make you feel dizzy, nauseous and/or give you painful muscle cramps. You can try to avoid this issue by knowing your dry weight and your fluid removal goal at each treatment, and by preventing too much fluid intake (or build-up) between hemodialysis runs so that less fluid is removed in a treatment.

Your healthcare team will also be able to help you during treatment if you experience low blood pressure.

Nerve changes

Some people with kidney disease experience changes in nerve function, usually in the legs and feet, or arms and hands. Your doctor can provide you with advice for managing these symptoms.

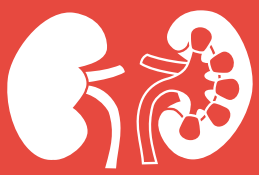
Symptoms of nerve changes

- Restless legs
- Burning sensation
- Numbness
- Tingling

Skin changes

People with kidney disease, particularly those on dialysis, often have skin problems. The most common is itchiness, which can be annoying, and is often difficult to treat. There are many reasons for itchy skin in people with kidney failure:

- High levels of phosphate
- High levels of urea, which means poor kidney function or not enough dialysis
- Dry skin
- Infections (like scabies)
- Other possible reasons that doctors and researchers do not yet understand



The most effective way to avoid skin problems is to prevent them from occurring in the first place. Dry skin, especially during cold winter months, is a common problem. People on dialysis are prone to dry skin, which can cause itching.

A number of strategies can be used, alone or in combination, to treat itching. A first step is to control the phosphate in your diet, take phosphate-binding medications if needed, and get the right amount of dialysis. If these don't work, your doctor may prescribe special creams, medications or ultraviolet light treatments.

For temporary relief from itching, try using a cold compress. Soak a face cloth in cool water and press it against the itchy area for five to ten minutes. Repeat as often as necessary. Afterwards, apply a fragrance-free, oil-based cream for dry skin.

Tips for healthy skin

- Use a room humidifier to keep the air in your home moist.
- Use a special soap made for dry or sensitive skin.
- Use a scent-free skin cream after your bath or shower when your skin is still damp to keep your skin from drying out.
- Avoid long hot baths or showers – they can make the itching worse.
- Wear soft cotton fabrics – avoid wool and rough polyesters.
- Use as little laundry detergent as possible – it irritates the skin. Or use a fragrance-free detergent formulated for sensitive skin.
- Never use rubbing alcohol on your skin – it dries it out.
- Avoid scented products – the chemicals that produce the scent often irritate the skin.

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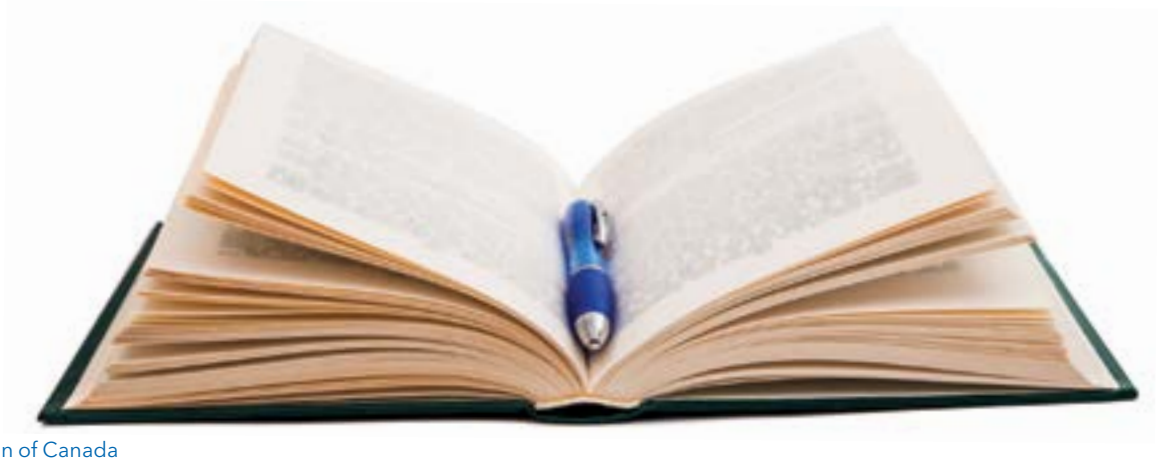
Overcoming an emergency start on dialysis

The ideal way to start dialysis is to have seen your kidney healthcare team for at least a year, to have learned about treatment choices, to have made early decisions and then to have followed them through. This means that when you start dialysis:

- you're on the method of your choice
- you're receiving dialysis as an outpatient
- you already have a PD catheter, an AV fistula or an AV graft, as needed

Unfortunately, some people start dialysis, without prior planning, as a hospitalized inpatient and/or with a central venous catheter. This is often called a "crash start", or an "emergency start". There are many reasons why this happens, some of which are unavoidable. Regardless of the reason, there are ways to lessen the impact of an emergency start on dialysis. Here are some of them.

1. **Education.** Start (or complete) your education about how the kidneys work, both healthy and diseased. Learn about kidney failure treatment options. Even if you start on hospital-based hemodialysis, you should work with your healthcare team to determine which treatment option is best for you and your ongoing therapy. Find out if you are a candidate for transplantation. If you're not, perhaps you are a candidate to do dialysis at home (either peritoneal dialysis or home hemodialysis), which has many advantages over hospital-based dialysis for suitable patients.



2. **Get the best vascular access for dialysis.** If you started hemodialysis with a central venous catheter, find out why and whether an AV fistula or AV graft is possible. While not everyone is eligible, a fistula or graft is usually better than a central venous catheter for long-term dialysis. Try to get your most appropriate vascular access in place as soon as possible.
3. **Diet and medications.** Remember that dialysis alone does not do everything that normal kidneys do. That is why diet and medications are also required. Even the combination of dialysis, diet and medications does not work as well as healthy kidneys. Learn why you need to follow a certain diet and why you need each of your medications. Some medications will be stopped when dialysis starts, while others may need a change in dose or the timing of the dose. Other medications may be added. Make sure a doctor and pharmacist carefully review your medications.
4. **Dry weight and high blood pressure.** Learn about the concept of dry weight and work with your team to limit your fluid weight gain between treatments. If you have high blood pressure or swelling, then slowly but surely reducing dietary sodium intake and removing more fluid on dialysis can lead to better blood pressure control, fewer blood pressure pills and less swelling.
5. **Medication and your targets.** Make sure you are on the right medications. Most facilities do blood work every four to six weeks so you can understand how well your medications are working. Ask to review it, learn about targets and work with your team to achieve them.
6. **Take control.** Stay positive, optimistic and take control of your own care as much as possible.

See **Chapter Three:**

Diet and dialysis for more information about the role of diet and medications.

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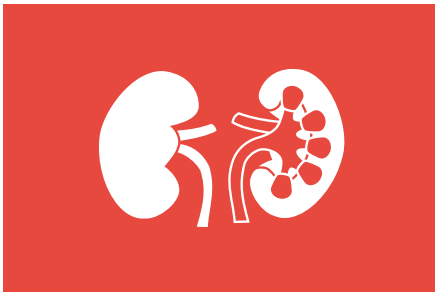
How to cope in an emergency situation (power failure, weather-related, etc.)

In an emergency, you may have to evacuate from your home with little warning, you may have to miss a dialysis session or you may not be able to do dialysis at all. Many dialysis programs have information on Emergency Preparedness – ask them to give you their handouts. Here are some valuable tips to help you prepare.

- Unless you are injured, stay where you are. Listen to the radio for instructions from local officials. (Keep a battery-operated radio and extra batteries on hand.)
- Continue dialysis if you can. If you are unable to do dialysis, you will need to start the ***emergency diet*** *(provided by your clinic staff).* This diet is designed to slow the build-up of waste products in the body.
- If you need to be evacuated, bring your medications, medical information and identification with you so any caregiver will understand your needs.
- Keep your fistula, graft or catheter area clean to avoid infections.



Contact information

- Make sure your clinic knows how to contact you in an emergency.
- If your regular dialysis clinic is not available, you will be contacted and redirected as to where and when you should go. If you can get online, check your renal program's web site for updates on emergency procedures.

Medical supplies

- Keep an extra supply of all your medications at home. You may also be prescribed a medication to lower the potassium levels in your blood – you'll need to keep this medication on hand in case you can't do dialysis. Your kidney healthcare team will give you instructions on how and when to take it.
- If you do home dialysis, have a seven-day backup of all dialysis supplies.

Medical information

- Keep copies of your medication list and identification cards in an area you can easily access.

Food and water

- Have enough food and water to follow the emergency diet for three days.

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Dialysis

Summary

- Peritoneal dialysis cleans your blood inside your abdomen (peritoneal cavity) and is generally performed at home.
- Hemodialysis cleans your blood in a machine and can be done at the hospital, clinic, dialysis centre or at home.
- Potential complications and issues that may arise with dialysis include anemia, mineral and bone problems, fluid overload, high or low blood pressure, and nerve and skin changes.
- Sometimes dialysis must be started on an emergency basis and this can create special challenges; there are ways to minimize these challenges.
- Emergency situations may arise (such as weather-related disasters or extended power failures) which may prevent you from doing dialysis; there are precautions you can take in advance and emergency procedures you can follow.

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