



Why do we have kidneys?

Your kidneys are vital for your survival. They have several extremely important functions. Their main tasks are to filter waste substances out of your blood and balance the levels of salts and water in your body.

The location of your kidneys

Most people have two kidneys, although it is possible to live a normal life with one. They are shaped like beans and roughly the same size as your fist. To find out where your kidneys are located, do like this: put your hands around your hips. Then slide them upwards until you can feel your ribs with your fingers. Your kidneys are then at the back, under your thumbs. You cannot feel them, but they are right there, well embedded in your body.

How your kidneys work

Depending on your weight, you have 4.5-6.5 liters of blood circulating in your body. The blood is transported into and through your kidneys by the renal arteries. Every day approximately 1500 liters of blood passes through your kidneys and are treated, thanks to roughly one million small filters. These filters are called nephrons and are so small that you need a microscope to see them. Most kidney diseases are caused by attacks on the nephrons. When they lose their filtering abilities, dangerous levels of fluid and waste products can build up.

Your blood needs to be cleaned

When your body has taken the nutrition it needs from the food you eat, some of the waste products are sent back to your blood. One of the key functions of your kidneys is to continuously filter these waste substances out of the blood. You could say that your kidneys are the 'cleaning station' for your blood. If the kidneys do not remove the waste products, they will build up in the blood and severely damage your body.

Your kidneys have other functions

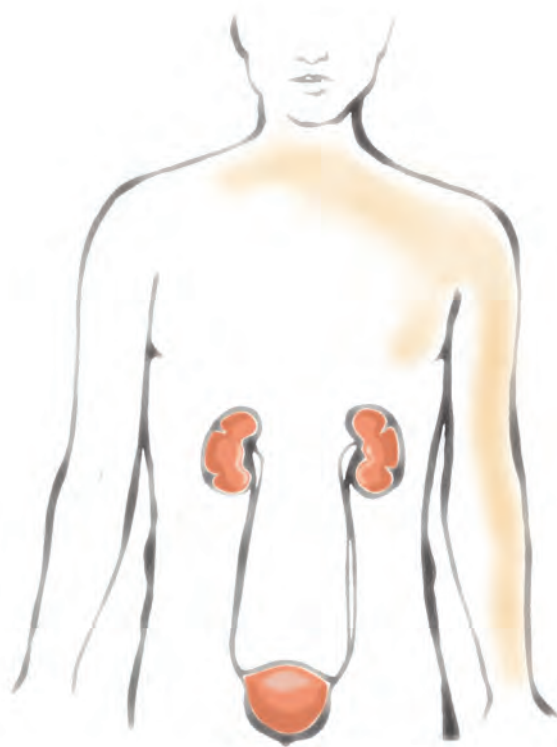
Your kidneys have other functions than cleaning your blood. They are important to balance the volume of fluids and minerals in your body.

Getting rid of wastes and water

The substances that are filtered in the kidneys are mixed with water and transformed into urine. The urine leaves the kidneys through small tubes (the ureters) and is collected in the bladder. The urine containing the waste products and water leaves your body through the urethra.

Kidneys are always busy

The kidneys also produce active vitamin D which is needed for absorbing calcium from the food. Calcium is, among other things, important for building your bones. In addition, your kidneys help regulate your blood pressure and stimulate the production of red blood cells. So, no doubt, the functioning of your kidneys is vital for your well-being.





Why do kidneys fail?

There are many different reasons for decreased kidney function. Two of the most common are **diabetes** and **high blood pressure**.

Diabetes

There are two types of diabetes. Diabetes type 1 means that your body does not produce enough insulin to break down the sugar in your blood. Diabetes type 2 means that you are not making effective use of the insulin you produce.



If diabetes is not controlled properly, sugar will start to build up in your blood. When the amount of sugar becomes too high it can cause damage which will reduce the ability of your kidneys to filter out waste products and fluids. Although treatment of diabetes has improved, many people with diabetes may still develop kidney damage after 20-30 years.

High blood pressure/Hypertension

High blood pressure occurs when the pressure of your blood against the walls of your blood vessels increases. High blood pressure will damage the small blood vessels in your kidneys and prevent the filtering process from working properly. The reasons for high blood pressure are to a large extent unknown. However, in many cases they seem to be connected with your general health, lifestyle and diet.



Kidney inflammation (glomerulonephritis)

Another common type of kidney disease is inflammation in the kidney's filtering units. This may cause a decrease in the output of urine, the spilling of blood and protein into the urine, and swelling of hands and feet (oedema).



Other causes for kidney failure

Polycystic kidney disease is an inherited disease which can cause large cysts to form in the kidneys and lead to kidney failure.



Obstructions Obstructions in the outflow of urine cause urine to flow back up to the kidneys which may damage the kidneys. Obstructions can be caused by: Narrowing of the urethra which often develops before birth, kidney stones, tumors or an enlarged prostate gland in men.



Repeated **urinary infections** may also be a reason for kidney failure.

Causes unknown

About 20 per cent of dialysis patients never find a cause for their kidney failure. These patients often come for treatment for the first time when their kidney failure is far advanced and at this stage it is difficult to establish the reason for their disease.



Symptoms of Chronic Kidney Disease

Kidneys have many different important functions for your body. Therefore, Chronic Kidney Disease can affect your body in many ways.

A step-by-step development

Your kidneys have a built-in ability to accommodate and “hide” problems in their function. That is why Chronic Kidney Disease can continue to develop for a long time without you being aware of it. You might not discover you have kidney failure until only very minimal kidney function is left. Needless to say, it is important to be on the watch out for early signs and symptoms of Chronic Kidney Disease.

Difficult to discover symptoms

Most of the signs and symptoms of kidney failure are not specific to Chronic Kidney Disease and can occur in many other common conditions. Sometimes the disease might go almost without symptoms. Detecting a kidney disease at an early stage can be quite difficult.

Symptoms to look out for

If you recognise one or several of the following symptoms, you are advised to contact your doctor for a deeper investigation:

- You feel tired and weak.
- You lose appetite and suffer from nausea.
- You get itching on parts or your whole body.
- Your skin is becoming pale and is easily bruised.
- You experience a shortness of breath.
- Your legs show signs of swelling.
- You get puffiness around your eyes.
- You have difficulties in concentrating.
- You show signs of memory loss and experience difficulties in sleeping.
- You experience headaches more frequently.
- Your feet and hands get numb.





Stages of Chronic Kidney Disease

Chronic Kidney Disease occurs when you suffer from gradual and permanent loss of kidney function over time. There is no way to cure Chronic Kidney Disease but you can do your best to slow the progression.

Five disease stages

Basically, your kidneys are considered healthy and normal as long as they have a normal filtering function and no signs of blood or protein in the urine. The level of filtering function depends on your age and many other factors that can have an impact on your kidneys. If your kidney function is permanently decreased you are considered to have Chronic Kidney Disease. Your kidneys may gradually lose their ability to filter wastes out of your blood. The Chronic Kidney Disease process, is divided into five stages . At stage 1-4 focus is to preserve kidney function while at stage 5 dialysis or transplantation are the only alternatives for you to cope with your disease.

Stage 1-2: you may not notice it

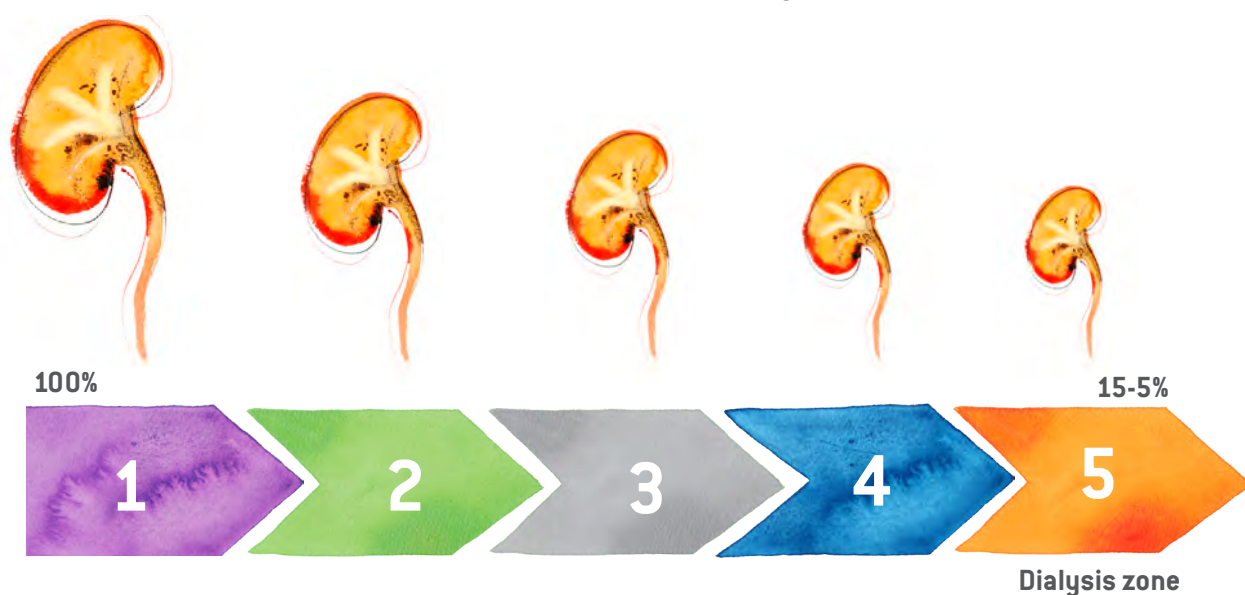
During stage 1-2 you are probably not aware that you have a reduced kidney function. If you have been diagnosed by a doctor, you may have received some medication. It is important that your blood pressure is regularly monitored and adequately controlled. If you have diabetes you should regularly control that your blood glucose is at the right level. Together with your doctor you can keep the situation under control.

Stage 3: need for actions

At stage 3 your kidney function has fallen to between 30 and 60 percent of its full capacity. You should be in contact with a medical team to regularly evaluate your condition. It has now become extremely important to follow the progress of your disease and to do everything to slow its progression . The aim at this stage is to delay, and if possible prevent, the progression to stage 4-5 . You are most likely to be prescribed a number of drugs and you might be on a diet and exercises programme. Together with your doctor and medical staff you need to start planning for the consequences of the disease and the possible need for dialysis or kidney transplantation.

Stage 4-5: your kidneys can no longer do their job

Kidney failure occurs when the kidneys have lost around 85 to 90 percent of their filtering capacity. The result is an accumulation of wastes, water and other substances that may be dangerous in your blood. When the disease has progressed this far, you need dialysis or a kidney transplant to stay alive. Now it is time for you to finally decide about the treatment that is available and most suitable for you.



Please note that the information above only constitute general information on and descriptions of chronic kidney disease and treatment options and is not to be regarded as medical advice. Before changing any aspect of your treatment, you must always consult your doctor to make an assessment in your individual case.

DIAVERUM



When your kidneys fail

Your kidneys are vital organs that keep your blood clean and chemically balanced. Healthy kidneys clean the blood by filtering out extra water and waste products. They also produce hormones that keep your bones strong and blood healthy.

Kidney failure

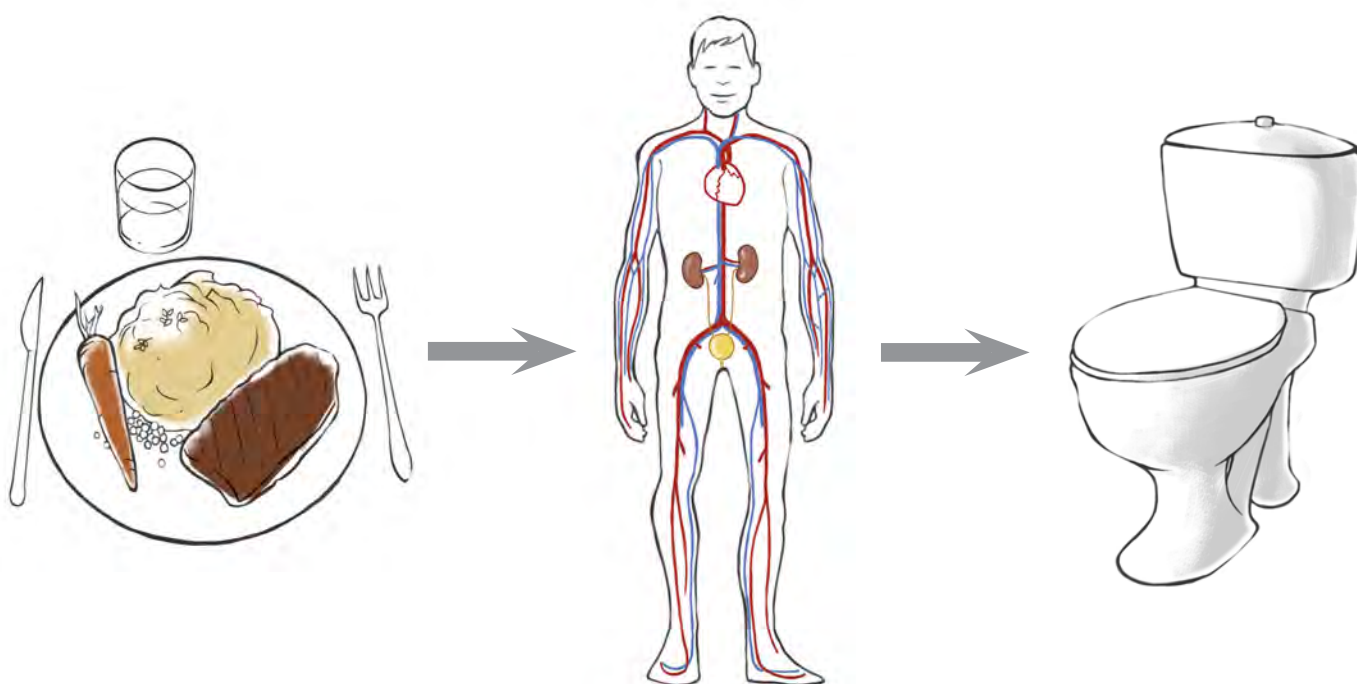
If the kidneys are damaged, patients no longer urinate or produce a lot less urine while waste products continue to be produced. These waste products and water build up in the bloodstream. This condition is called uremia. Your hands or feet may swell, you may become breathless. Your blood pressure may rise and your body does not make enough red blood cells. You may develop fatigue, nausea, and loss of appetite. Untreated uremia may lead to seizures or coma and will ultimately result in death.

When the kidneys function at 15 percent or less, this is called kidney failure. When this happens, treatment is needed to replace the work of your failed kidneys. Your kidney function can only be replaced by dialysis or by transplantation.

Replacing your kidney function

For patients recently diagnosed with kidney failure, the prospect of dialysis can be a frightening experience. To offset the anxiety associated with dialysis treatment, it is important to prepare yourself, well in advance, of treatment to ensure you are physically, mentally and emotionally ready for this life sustaining treatment.

Most likely, the planning for this has started much earlier to prepare you for this new stage of your life. Your medical team will discuss the options with you and help you make a decision that will match your personal and medical needs. Often the preparation for dialysis and transplantation will start at the same time.





Types of treatment

When severe loss of kidney function occurs, their function must be replaced. For many people a successful kidney transplant is the best way to do this. However, this treatment option is not possible for all patients and some patients have to wait a long time to receive a kidney transplant.

Where transplant is not possible, dialysis is used to replace some of the important lost functions of the kidneys. There are two main types of dialysis: Peritoneal dialysis and haemodialysis. These treatments have different impacts on daily life.

Peritoneal dialysis

Peritoneal dialysis (PD) is performed at home. The therapy can either be performed over night for 8-10 hours or in 4 to 5 short procedures carried out over the day. This takes 1 to 2 hours per day to complete. Whichever way it is carried out peritoneal dialysis gives flexibility and can be fitted around work, family and social commitments. Usually patients come to the hospital outpatient clinic every 3-6 months for follow up. Many people on PD are able to enjoy a normal diet without too many restrictions, but may need to moderate certain types of food.



Haemodialysis

Haemodialysis (HD) is usually performed in hospital or in dialysis clinics 3 or possibly 4 or more times per week. The procedure usually takes a minimum of 4 hours but may take up to 6 hours. On top of the time for treatment the dialysis day also involves travel to and from hospital or clinic, waiting for treatment to start and waiting for transport home. In total hemodialysis in hospital can take many hours out of the day which has an impact on work, family and other commitments. Most people on hemodialysis also have to have restrictions on diet and fluid intake.

Sometimes other options for haemodialysis are available. These include self care or home dialysis and also daily or nocturnal dialysis. These options aim to increase flexibility, allow a normal diet without too many restrictions and promote the quality of life for a patient on dialysis.

Each type of dialysis has pros and cons and not all may be available in your dialysis clinic. By learning as much as you can about the types of dialysis, you will be able to make the best decision for yourself.





How does dialysis work?

*Dialysis removes waste and fluids from your body that your kidneys are not able to remove. Dialysis also aims to keep your body in balance by correcting the levels of various toxic substances in your blood. Without **dialysis**, all patients with kidney failure would die from the build up of toxins in the bloodstream.*

Principals of dialysis

There are two main types of dialysis: haemodialysis and peritoneal dialysis. Whichever treatment is chosen the aims of dialysis are very similar. Dialysis is designed to replace several functions of the kidney. The therapy must: remove waste products, remove excess fluid and balance the amount of chemicals (electrolytes) and other substances in your body. Effective dialysis requires: a semi permeable membrane, blood supply, dialysis fluid and a method of removing excess fluid.

Semi permeable membrane

In dialysis a semi permeable membrane separates the blood from the dialysis fluid. This membrane allows some substances to pass through, but not others. It allows waste products, water, electrolytes and other substances to be removed from the blood into the dialysis fluid (and sometimes in the other direction) by a process called diffusion. The movement of waste products and other substances is dependent on the membranes permeability, the size and structure of the various substances, the dialysis fluid makeup, and the blood supply to the membrane.

Blood supply

The better the blood supply to the membrane the more efficient the dialysis treatment. In haemodialysis blood supply can be controlled by the dialysis machine whereas in peritoneal dialysis blood supply is dependent on internal body make up.

Dialysis fluid

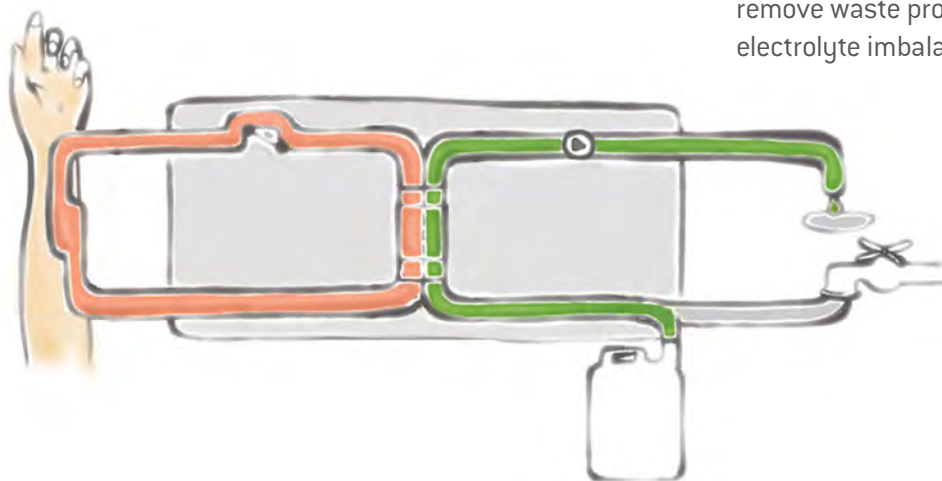
In both dialysis modes the dialysis fluid enables waste products to be removed from the blood. In addition to this, it contains a range of substances which help to correct imbalances that occur as a result of kidney failure.

Fluid removal

Fluid removal is achieved by very different processes in haemodialysis versus peritoneal dialysis. In haemodialysis the dialysis machine uses pressure to pull fluid across the membrane from the blood and into the dialysis fluid. In Peritoneal dialysis glucose is used in the dialysis fluid, this has the effect of encouraging fluid to move out of the blood and into the dialysis fluid.

Aim of dialysis

Whichever dialysis treatment is used the aim is to: remove waste products, remove excess fluid, correct electrolyte imbalances and to correct the pH of the body.





Haemodialysis

Haemodialysis cleans the blood in a treatment that is performed outside of your body. In this treatment your blood is circulated through a filter (dialyser) connected to a dialysis machine. Each treatment usually takes 4-5 hours and it has to be performed at least three times a week.

How haemodialysis works

The dialyser is where waste products and fluid are removed from your blood. The key feature of the dialyser is that it has a series of thin semi-permeable membranes. The function of the membranes is to act as a barrier between the blood and dialysis fluid and to allow selective movement of substance out of and into your blood.

The principle looks quite complicated but is quite simple: Sterile plastic tubes are connected to the dialyser, one to transport your blood to the dialyser and the other to return it to your body. The tubes and dialyser (blood circuit) are connected to a dialysis machine. The machine safely controls the flow of blood through the blood circuit which is usually 250-450 ml/min. The total volume of the circuit is around 150 ml. One complete dialysis session usually takes 4-5 hours.

How your dialysis session works

Before you begin your haemodialysis, you need to have a vascular access in place. At the start of each session you will need to have a small procedure to prepare the vascular access for connection to the blood circuit.

During the entire dialysis session you will sit or lie comfortably on a chair or a bed, you will be able to read, listen to music or sleep. You may also use your mobile phone to make necessary calls or your computer to work, watch movies or access the internet.

You may be given some medication through the blood circuit during your treatment. The nurses will also regularly monitor both you and the dialysis machine.

When the dialysis session is complete another small procedure will be used to disconnect you from the blood circuit.

You might feel tired after the session

Haemodialysis is not painful as such, however, you are likely to experience some side effects. It is quite common to feel tired after a long dialysis session. A way to cope with this symptom is to adjust your diet and to exercise regularly. This might boost your energy levels. Some people may experience nausea, feel dizzy or have muscle cramps during the dialysis. If you have these problems, your medical team will do everything to help you cope with them.





Peritoneal dialysis

Peritoneal dialysis takes place inside your body. A sterile dialysis fluid is infused into your abdomen. It stays there for several hours. It is then drained into a waste bag bringing out waste products and excess water from your blood. This procedure is either repeated 4-5 times every day or is performed overnight.

How peritoneal dialysis works

2-3 liters of sterile dialysis fluid is inserted into your abdomen through a special tube called a catheter. The cleaning process uses the membrane in your abdomen as a natural filter. As blood passes through the membrane, chemicals in the dialysis fluid draw waste products and excess water out of the blood into the fluid. After 4-5 hours, the 'dirty' fluid is drained from your abdomen into a waste bag. This drainage takes about 20-30 minutes. After that, new sterile fluid is instilled using gravity into your abdomen and the process starts all over again. This process of draining out the old fluid and instilling new fluid is called an 'exchange'. This type of peritoneal dialysis is called Continuous Ambulatory Peritoneal Dialysis or CAPD. It has to be done seven days a week, with 4-5 exchanges each day.

Peritoneal dialysis during the night

CAPD is by the most common form of peritoneal dialysis. However, peritoneal dialysis can also be performed by a machine while you sleep. This is known as Automated Peritoneal Dialysis or APD. The exchange of dialysis fluid takes place during 8-10 hours each night. In the morning, the machine does a 'final fill' which will last through the day. This procedure has to be repeated every night.

Putting in the catheter

Peritoneal dialysis requires access to the abdomen. This is done via a catheter. It is a thin tube that is usually inserted beside your navel. It is permanently connected into your body. In the beginning this might feel a bit

strange for both practical and psychological reasons. Keeping the catheter and the area around it clean is extremely critical. You will be trained how to achieve this and avoid infections.

Can I live a normal life?

As a peritoneal dialysis patient you can go on doing most of the things you did before you started this treatment. Family life, work, exercise, holidays and your sexual life are limited in some ways, but less of a problem than you might think. Diet restrictions are quite few. You are basically advised to eat high-protein food because proteins are removed from your body through the dialysis fluid. You might also have to limit how much you drink. As part of the process, you will be able to discuss these questions with a dietitian.





Self-care haemodialysis

Some clinics encourage patients to take an active role in their treatment. Self-care haemodialysis can be performed in the normal in-centre dialysis clinics. Often self-care clinics are located away from the main dialysis clinic for example in small hospitals or health centres or in a free standing clinic.

In this type of setting, instruction is given about the procedures required to do the dialysis. Patients do some of these procedures, but nursing staff continue to assist them. This means patients take a much more active part in the dialysis treatment and sometimes take full control.

The training period depends on how much responsibility is to be taken for the treatment. Training can be given in small batches so the patient gradually takes more control of their treatment.

During training, the patient learns to do some of these tasks when they feel confident, for example:

- prepare equipment and supplies
- place the needle in the vascular access
- monitor the machine
- check blood pressure and pulse
- keep records of the treatments
- clean the equipment and the room where dialysis is done

The benefits of self-care haemodialysis include:

- More control over the treatment
- Better informed about dialysis, medications and treatment outcomes
- Patients are surrounded by “well” patients who have an interest in their dialysis
- There is often more flexibility with the dialysis schedule.

The disadvantages of self-care haemodialysis include:

- Extra time is needed for setting up and dismantling the machine
- A schedule must be followed for dialysis times and days
- Travel time to and from the unit & parking

In some clinic you may be given the opportunity to perform some or all self care activities depending upon what you feel comfortable to do. This is called shared care. In this situation the nurse will agree on a plan with you and will regularly review your current shared care activities.





Home haemodialysis

A small but growing number of clinics offer home haemodialysis in addition to standard HD treatments. The clinic will provide a machine for use in the home. Supplies will be delivered to the home once or twice a month. The patient starts learning to do the treatment at the clinic, working with a dialysis nurse. Many people who do home HD also have a helper who trains with them at the clinic. The training period is usually 3-8 weeks.

During training, the patient learns to:

- prepare equipment and supplies
- place the needle in the vascular access
- monitor the machine
- check blood pressure and pulse
- keep records of the treatments
- clean the equipment and the room where dialysis is done
- order supplies

The potential disadvantages of home haemodialysis include:

- A place is required in the home for a chair and dialysis machine
- Space is needed to store dialyzers, concentrate canisters, disinfectants, syringes, needles, medications, blood tubing and other supplies
- Burn-out of patients or helper can happen

The benefits of home haemodialysis include:

Home HD lets the patient set the schedule. The patient can choose treatment times to fit other activities, such as going to work or caring for a family member. Often patients give themselves more dialysis which means that they:

- Feel better and have better blood pressure control
- Have less restriction on diet and fluid
- Put in their own needles which is good for their access
- Save time because they do not have to travel to and from the dialysis clinic.
- Make fewer trips to the outpatient clinic - the patient is usually seen at the hospital every 4-8 weeks.





Treatment flexibility with haemodialysis

People who dialyse on a standard 3 times per week haemodialysis schedule have 4 days each week when wastes and fluid build up in their bodies.

Dialysing five to seven times per week means wastes and fluid do not build up as much in the body. Muscle cramps and other symptoms that are common in people using the standard HD may be less common in those who perform more frequent dialysis because wastes and fluid are cleared more often.

Treatment plans usually follow one of two schedules:

Short daily treatments: two or three hours during the day at least five or six times a week.

Long nightly treatments: six-eight hours per night on three to six nights per week.

These schedules can be tailored to fit each person's needs.

With short daily treatments patients do not have to dialyse as long. Daily treatments keep blood pressure more stable and controlled than standard HD.

With nightly dialysis people dialyse at night while they sleep, they have the whole day free for other activities. The longer time of nightly HD allows for a slower blood flow rate. This gentle treatment is easy on the patient's access and heart. Because the treatments are so long, they remove more wastes than short treatments can.

If the treatment is done at home it gives the patient the best benefits. It is more difficult to do this type of treatment in a dialysis clinic but not impossible, as long as the treatment is allowed by regulations.

Many people who do these treatments no longer need blood pressure pills and can reduce other medications. The treatments also enable flexibility for work and social activities.





Kidney transplantation

Kidney transplantation is a great option if you want the best possible quality of life as a patient. It is important to point out that transplantation is not a cure for Chronic Kidney Disease it is only a treatment. You will continue to need lifelong medication. But for many patients, kidney transplantation will provide more independence and allows you to live a more normal life.

Not only a benefit - also a risk

If you are considering transplantation, your medical team and other specialists will help you understand what kidney transplantation is all about. Although you might benefit from a transplant, there is no guarantee that you will have a better quality of life. There are also risks connected with kidney transplantations. If you are a candidate for receiving a kidney transplant, you will therefore undergo extensive testing to ensure that you are suitable for transplantation. The characteristics of your immune system have to be identified closely. Also, you must be in a good physical condition. When you are on the waiting list for a transplant, you must follow a strict agenda when it comes to diet, medication and general life style.

Shortage of organs

Kidneys for transplant can come from living donors that are related to you or from none related persons such as spouses, or close friends. In some countries they may also come from unknown donors that are still alive and want to make an un-selfish donation. Many come from people who have died. In general terms, there is a shortage of organs for transplantation. You may have to wait for months, or even years, before getting a transplant. The waiting can be quite frustrating. Your medical team will give you all necessary information about regulations and waiting lists.

Are you a candidate?

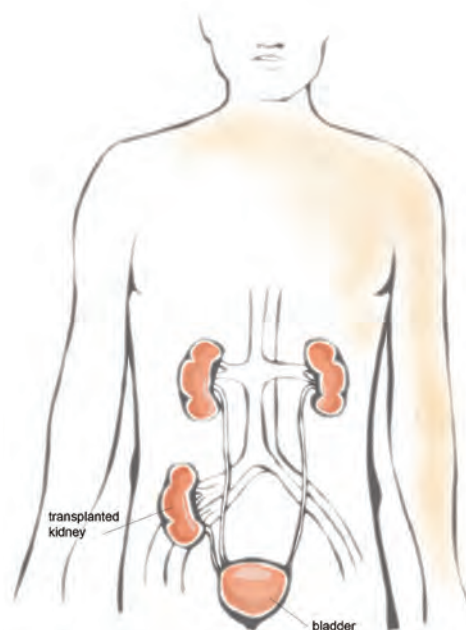
Not everyone is suitable and fit for a kidney transplant. You might have another disease that makes transplantation too complicated and risky. When a kidney transplant becomes available it must match your characteristics. The more similar the donor is in these characteristics, the greater the chance of long-term success of the transplant. In general terms, a transplant from a living donor related to you gives the best results.

A major operation

Transplant surgery is a major operation. It means that you have to stay in hospital during 4-7 days. After the operation you have to take medicines for the rest of your life to prevent the kidney from being rejected. This medication has to be monitored closely by your medical team. You are also at a higher risk of having infections than healthy people. During the first year after transplantation you will have to make regular visits to your medical team for monitoring and tests.

Learn from experience!

Kidney transplantation will bring positive as well as negative changes to your life. You may find it beneficial to discuss your concerns with someone who has undergone transplantation. The medical team will be able to put you in contact with someone to talk to.





What is a vascular access?

Before you begin your haemodialysis treatment, you need to have a vascular access in place. The vascular access is necessary to get your blood into the blood circuit and return it to your body. Once created, a well functioning vascular access allows a good volume of blood to be transported by the dialysis machine to the dialyser and returned to your body.

Types of vascular access

The blood flow in a normal vein in your arm is too low to give the flow required for an effective dialysis. This means that to get the required flow a vascular access must be made and there are several different types.

AV-Fistula

An arterio-venous fistula (AV-Fistula) is created by joining an artery to a vein during a small operation.

The operation to create the fistula is usually carried out at least six weeks before haemodialysis begins. The fistula is usually situated in your arm and takes several weeks to fully develop.

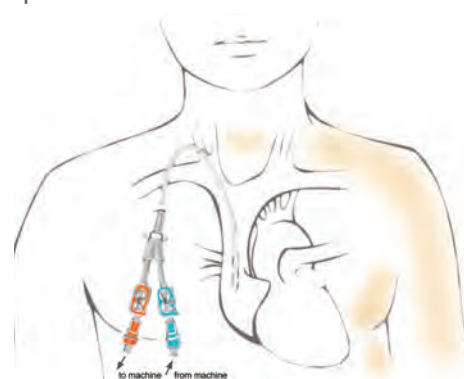
This is the preferred access type because complications such as clotting and infection are less likely to occur with a fistula than with other access types. A well functioning fistula can last for many years.



Central venous catheter

If your need for dialysis has not been identified early enough an urgent and usually temporary access will be formed. This is most often by means of a catheter in your neck.

Complications when using a catheter are more frequent compared to when using an AV-fistula or graft and include clotting episodes and infection. They can also cause damage to the central vein where the CVC is placed.



Graft

If your vessels are too small or weak to make a fistula, then a synthetic tube (Graft) is placed under the skin to connect the artery and the vein. Grafts are usually placed in the arm but can also be in the leg. A small operation is required to make the graft and it can take a few weeks before it is ready to use.

Clotting episodes and infections are more likely to occur with a graft than a fistula.

During dialysis

Usually 2 needles are inserted into the fistula or graft at the start of dialysis. Before insertion the skin is thoroughly cleaned. At the end of the treatment the needles are removed from the fistula or graft. Once it has stopped bleeding a plaster or dressing is applied to protect the access site you can usually remove this several hours after the dialysis has finished.

If you have a catheter a sterile procedure is used to connect and disconnect you from the blood circuit.

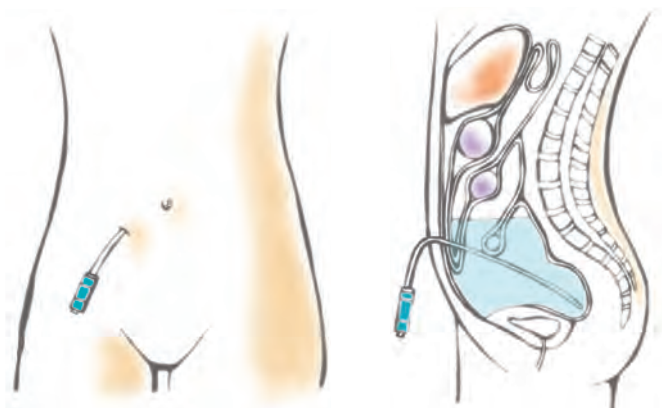


Continuous Ambulatory Peritoneal Dialysis (CAPD)

Continuous Ambulatory Peritoneal Dialysis (CAPD) is the most common form of peritoneal dialysis. The dialysis happens daily inside of your body. You need to change the dialysis fluid several times during the day and this can be done at home or at work, while you are living your daily life.

How CAPD works

A permanent soft flexible plastic tube (catheter) is inserted into your abdomen under local or general anaesthetic. Two or three weeks later, the catheter will be ready for use and CAPD can commence.



1.5 to 3 litres of dialysis fluid are run via the catheter into your abdomen. The fluid stays in your abdomen for about 4 to 6 hours. This is called the dwell time. During this time the solution pulls out water and waste from your body. After the dwell time, the fluid is drained out again via the catheter and disposed of into the toilet. A new clean dialysis fluid is run into your abdomen. This process of draining and replacing fluid is called an exchange. The exchange takes about 30-40 minutes and is usually repeated 4 times a day. The frequency of exchange and volume of fluid used determine the efficiency of waste product removal.

Supplies for CAPD

All the dialysis fluid, lines and equipment for exit site care and washing your hands will be delivered to your home every month. The dialysis fluid is delivered to you in plastic bags and you may receive bags with several different types of solution. Your prescription will inform you how often and when you should use the different dialysis fluids.

Glucose – the driving force for water removal

To extract the adequate amount of water from your body you need to have the right strength of the dialysis fluid. The dialysis fluid most commonly consists of a glucose (sugar) solution which is able to pull water out the blood vessels in the peritoneal membrane. This process is called ultrafiltration.

Training

To be able to perform your exchanges yourself you need to have a proper education. You have to learn how to connect and how to disconnect safely. You will be taught how to perform the exchange procedure and how to identify and cope with any potential problems. The training usually takes several days, it takes place in the dialysis clinic or hospital and you will perform the first sessions in there.



Automated Peritoneal Dialysis (APD)

Automated Peritoneal Dialysis (APD) is sometimes known as Continuous Cycling Peritoneal Dialysis (CCPD). APD works in the same way as Continuous Ambulatory Peritoneal Dialysis (CAPD). The peritoneal membrane filters the waste and excess fluid into the dialysis fluid. The difference is that fluid exchanges are all done automatically by a machine, at night, leaving the daytime free.

How does APD work?

APD is designed to be simple and to be performed in your own bedroom. Dialysis takes place at night, while you sleep, over 8-10 hours. There is a connection routine last thing at night and a disconnection routine in the morning. When you disconnect in the morning you will be left with the short capped off tube only.

The first step is that you set up the machine with the required dialysis fluid for the night's treatment and some sterile lines. Next you connect your PD catheter to the sterile lines on the machine. The machine measures the fluids needed for each fluid exchange and times the delivery of this carefully.

The peritoneal cavity is filled with dialysis fluid automatically. The waste dialysis fluid is drained automatically. The PD fluid can be drained from the peritoneal cavity either into a drain bag which needs to be emptied in the morning or through a drain line to the bathroom for disposal.

The last 'fill' of dialysis fluid is usually kept in the abdomen during the day and drained out at night once the connection is made. Sometimes you may be required to do one CAPD exchanged during the day.

Machines and equipment

The machines are the size of a small wheeled suitcase and are easily portable. The machine is designed to cope with normal sleeping patterns. The treatment can be interrupted to enable you to visit the bathroom.

Newer machines have programmable data cards – prescribed treatment details can be programmed onto this and data from each dialysis session can be captured. Apart from the machine there will still be practical issues of storage and disposal of used supplies.





Preparing for haemodialysis

Body weight monitoring

When the kidneys fail they cannot remove enough fluid from the body and dialysis must perform this task. All hemodialysis patients will have a 'dry weight'. This dry weight is your weight without the excess fluid that builds up between dialysis treatments. Fluid is removed during dialysis to return you to your dry weight by the end of the treatment. Ideally, the goal is to target a weight where you will be normally hydrated, not feel thirsty and feel comfortable.

The build up of fluid can lead to complications such as breathlessness and high blood pressure, so it is important to carefully monitor body weight and to control excess fluid build up. Most patients will be weighed and have their blood pressure taken before dialysis. They will also be assessed for signs of excessive fluid accumulation between treatments which includes breathlessness and swollen hands and feet.

At the end of dialysis blood pressure and weight will be measured again and an assessment made of whether the post weight appears to be satisfactory. It is important that this weight is regularly reviewed because



a small gain in flesh weight can lead to symptoms such as faintness, nausea and low blood pressure during the treatment.



Caring for the AV access

It is important to take care of your fistula or graft access to prevent complications. Complications can occur even if you are careful, but are much less common if you take a few precautions:

Wash the access with soap and warm water each day, and always before dialysis. Do not scratch the area or try to remove scabs.

Check the area daily for signs of infection, including warmth and redness.

Check that there is blood flow in the access daily. There should be a vibration (called a thrill) over the access. If this is absent or changes, notify your dialysis clinic.

Take care to avoid traumatising the arm where the access is located; do not wear tight clothes or jewellery, do not carry heavy items, try not to sleep on the arm. Do not allow anyone to take blood or measure blood pressure on this arm.



The treatment

Dialysis treatments can be long and boring. You will be able to read or sleep during treatment, and you usually have access to a television. You may have access to the internet so that you can use a laptop or tablet.

There are some restrictions: eating and drinking may be limited whilst you are on treatment because it can cause your blood pressure to drop. Visitors are usually restricted in a dialysis clinic due to the risk of infection.



Importance of hygiene

Patients on dialysis may be more prone to developing infections, which can require the prescription of more medication and may lead to several days' admission to hospital. Infections in the vascular access can also lead to access failure and the need for a new access to be formed. Although there are many contributing factors to these infections, most are preventable.

Hand hygiene

Hands can carry millions of micro-organisms. Most are harmless, but some that are picked up can cause infection and illnesses. When we do not wash our hands we can spread these organisms to other people or give them to ourselves by touching our eyes, nose, mouth or cuts on our body. Hand washing when entering and leaving the clinic is a simple but effective means of protecting yourself from infection.



Care with fistula and grafts

Before needle insertion you will be required to wash your arm, this process removes any temporary micro-organisms from the skin. These are usually present on the skin of all people and can be a source for infection during the insertion process. At

the end of dialysis you will be asked to wear a glove when holding the gauze over the puncture site. This helps to prevent microscopic amounts of blood contaminating your fingers and being passed on to any surface that you touch.

Care with catheters

Catheters are more prone to infections than fistula or grafts and require special hygiene. You will be required to wear a mask during the connection and disconnection process, this prevents any bacteria in your nose from landing on the ends of the catheter and exit site. You will be given instructions on how to care for your catheter and the dressing and how to recognise early signs of infection. You will also be given advice about bathing.

Flu vaccination

Flu is a highly infectious illness that spreads rapidly through the coughs and sneezes of people who are carrying the virus. People with kidney failure are more vulnerable to the effects of flu, even if you are fit and healthy. This means you could develop flu complications, which are more serious illnesses such as bronchitis and pneumonia which could result in hospital admission. Flu can also make existing medical conditions worse. To reduce the risk of complications it is important to have your annual flu jab.



Medication for patients on dialysis

Many of the drugs that you need when you start dialysis are the same as the ones you needed before the start of treatment. Some drugs will need to be adjusted and medical supervision will be required. Below you will find the most common specific medications used for dialysis patients.

ESAs

Kidneys are the main source of the production of erythropoietin (EPO), a blood stimulating hormone. In renal failure there is a shortage of this hormone, which results in low red blood cell production which leads to anemia. Erythropoiesis Stimulating Agents (ESAs) stimulate red blood cell production and are administered as injections, mostly at the end of the treatment.

Iron

Iron is needed for hemoglobin and red blood cell production. Iron supplementation is sometimes needed and is often given intravenously.

Vitamin D

Vitamin D is partly transformed (activated) by the kidneys and its production decreases in renal failure. It helps the absorption of calcium in the gut and helps to keep the bones strong. The shortage of active Vitamin D might lead to bone disease marked by pain and bone weakness. Active Vitamin D can be given both orally and intravenously.

Phosphate binders

Phosphate comes from protein-rich food and is normally excreted by the kidneys. In renal failure, phosphate accumulates in the body as the kidneys do not have the capacity to excrete it. Excess phosphate can form bony deposits in the tissues and increase the calcification of blood vessels. Phosphate binders taken with every meal decrease absorption of phosphate in the gut and reduce the amount of phosphate in the blood.

Antihypertensive therapy

As the kidneys are involved in controlling blood pressure, Blood-pressure lowering medication is common among patients with renal impairment. High blood pressure is a cardiovascular risk factor that requires close control. When dialysis treatment is started the need for these drugs usually decreases, sometimes to a level that they might be taken away totally.

Blood Thinners (Anticoagulants)

If you are on haemodialysis blood thinners will be given to avoid blood clotting in the lines and dialyser during the treatment. This is given at the start of and also can be given during the treatment session.

Other medications

Can include medication for cardio-vascular disease, for diabetes mellitus, for hyperlipidemia, for depression, for sexual dysfunction, pain relief, etc.





Diet management

There is no one renal diet that is best for all patients at all stages of their illness. It is important that you have a healthy diet in general terms. It is common to find that when kidney patients' illness progresses, they may not eat enough due to lack of appetite and generally feeling tired. It is important to continue to eat proper meals.

Protein

Protein helps you maintain muscle and repair tissue. The better nourished you are, the healthier you will be. You will also have greater resistance to infection.

Your body breaks protein down into a waste product called urea. Eating mostly high-quality proteins is important because they produce less waste. High-quality proteins come from meat, fish, poultry, and eggs.

Phosphorus

Phosphorus is a mineral found in many foods. Usually, people on dialysis are limited in the amount of food containing phosphorus that they can eat per day. If you have too much phosphorus in your blood, it favours tissue calcification. Phosphorus may make your skin itch and can affect your blood vessels.

Foods like milk and cheese, dried beans, peas, colas, nuts, and peanut butter are high in phosphorus. You probably will need to take medication called a phosphate binder to prevent excess dietary phosphate from getting into your blood.

Potassium

Potassium is present in almost all foods, especially fruits and vegetables. Healthy kidneys keep the right amount of potassium in the blood. But for you as a patient with kidney failure, your potassium levels may vary a lot. Potassium levels can rise between dialysis sessions and affect your

heartbeat. It may even cause death. It is important to carefully follow the advice you are given to control your potassium levels.

Foods which have a high potassium level include almonds, apricot, artichoke, avocado, bananas, beans, carrot juice, baked potatoes, chocolate, dried fruit, fruit juice, honey melon, milk, nuts, potato chips, prunes and prune juice, raisins, lentils, spinach, tomatoes, tomato juice and tomato sauce, wine berries and yoghurt.

Sodium (Salt)

Salt is naturally present in most foods and is also used to add flavor to meals. You must always check the amount of sodium present in your food.

Sodium controls the fluid balance in your body so it is important to reduce the sensation of thirst and restrict the sodium intake to avoid fluid accumulation.

Ask your clinic team about the diet you should follow.





Fluid management

Patients on dialysis have to control their fluid intake carefully, this is especially the case if you are not producing urine. Haemodialysis patients usually have to control their fluid intake more carefully than patients receiving peritoneal dialysis.

Control your thirst

The best way to reduce fluid intake is to reduce thirst caused by the sodium you eat. Excess sodium in your diet encourages you to drink too much.

Sodium is found in salt. Most canned foods and frozen dinners contain large amounts of sodium. Avoid salty foods like crisps. Choose low-sodium products.

The vast majority of our salt intake is added to food when cooking or eating it. Dialysis patients should aim to consume about half as much salt as other people.

Control your fluid intake

You can keep your fluids down by drinking from smaller cups or glasses. Any food that is liquid at room temperature contains water. These foods include soup, milk, yoghurts, jelly and ice cream. Many fruits and vegetables also contain lots of water. They include melons, watermelons, grapes, apples, oranges, tomatoes, lettuce and celery. All these foods add to your fluid intake.

Fluid management with Haemodialysis

Fluid can build up between haemodialysis sessions, causing swelling and weight gain. The extra fluid affects your blood pressure and can make your heart work harder. You should aim for that your weight increases by around 0.5 kg per day between treatments.

Your dry weight is your weight after a haemodialysis session when all of the extra fluid in your body has been removed. If you let too much fluid build up between sessions, it is harder to get down to your proper dry weight. This increases the risk of intolerance of dialysis (hypotension, cramps..) Your dry weight may change over a period of time if your flesh weight changes.

Fluid management with Peritoneal Dialysis

Fluid intake is not quite as restricted as it can be for hemodialysis patients, but you should still watch for fluid retention problems.





Complications of haemodialysis treatment

Haemodialysis treatment is not devoid of possible complications. Some of the main complications are related to the removal of waste and fluid during the treatment and some associated with other aspects of the haemodialysis process.

Complications related to the removal of waste and fluid

Complications related to the removal of waste and fluid can be mild to severe, depending on your physical health and how well you follow medical advice.

Low blood pressure: is the most common side effect experienced during the haemodialysis treatment. This is also called hypotension. Low blood pressure occurs when too much fluid or too quickly is removed from the blood, during haemodialysis. Avoid excess fluid accumulation between dialysis sessions for a better dialysis tolerance.

Muscle cramps: can be experienced during the haemodialysis treatment. These muscle cramps, usually in the legs, can be uncomfortable or sometimes painful. The exact cause of muscle cramps can vary from patient to patient.

Nausea: patients may feel nauseated or vomit during or after a haemodialysis treatment.

These side effects can be better managed if you carefully follow the health care team's recommendations regarding salt and fluid intake.

Other complications of the haemodialysis treatment

Breathlessness: Often patients arrive to dialysis with breathlessness. This is usually due to having excess fluid in the body. However, breathlessness can occur following connection to the dialysis machine. If you experience shortness of breath during the session quickly report it to your nurse.

Flushing: Some patients have flushing at the start of treatment, this may be obvious to staff or may be an internal feeling. You may experience symptoms including: feeling hot, your pulse is racing, your chest feels tight.

Arrhythmias: Sometimes you may feel that your heart beats fast or irregular. This has many causes. Report quickly to your nurse.

Fever and chills: You should always report any unfamiliar symptom to the clinic staff in the clinic.





Haemodialysis access complications

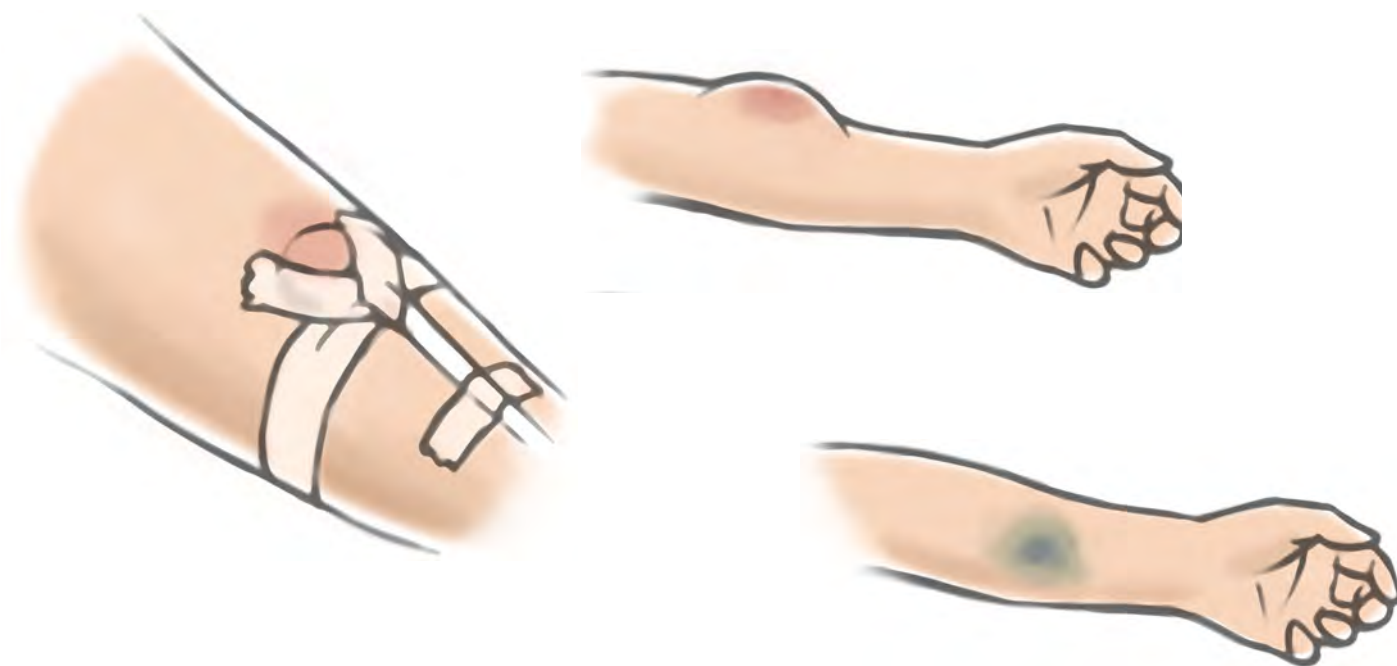
Complications associated with vascular access include infection, blood loss, air embolism and needle infiltration. These are usually rare complications but can have serious outcomes. The likelihood that they will occur depends on the type of access, arterio-venous fistula, graft or catheter, and how well you follow medical advice.

Infection: is a risk for all patients and it is therefore important that you follow clinic procedures regarding hygiene and caring for your access. Depending on the type of access you have you will be advised how to best care for it to reduce possible complications.

Blood loss: can occur when a needle falls out of an arterio-venous fistula or graft access. The risk is reduced if you follow the clinic procedure for taping needles and securing bloodlines and if you do not cover your access during the haemodialysis treatment.

Needle infiltration: is often called 'blowing the fistula'. This sometimes occurs when the fistula is new, but can also occur if you move a lot during the treatment, especially moving and bending the fistula arm. It is therefore important to ensure you are careful with your fistula arm during the treatment.

Air embolism: is a risk especially for patients with catheters. It is important not to fully cover yourself with a blanket during the treatment since it is then not possible for the nurses to see you and your access.





Physical symptoms of end stage kidney disease

Dialysis is a lifesaving treatment for those with end stage kidney disease. However physical symptoms from the treatment or the disease itself are reported by many patients. These symptoms can be mild or severe, depending on physical health and whether or not you are following medical advice.

Itchy skin: There may be several causes, but it is commonly thought that high phosphorous and calcium levels are responsible.

Muscle weakness: is a very common complaint. Possible reasons for this muscle weakness include:

Activity: Patients are often less active than people with normal kidney function. Increased physical activity has been shown to improve muscle weakness.

Diet: Poor nutrition may be a complication. Your diet should contain enough protein and calories to maintain optimal health.

Chemical changes: May damage some of the body's fats and proteins. To minimize this risk, you should receive an adequate amount of dialysis.

Bone and mineral deficiency: can lead to weakness of your bones.

Poor mobility: is often associated with muscle weakness.

Fatigue and drowsiness: may be a result of the dialysis process, especially when large amounts of fluid are removed or may be a symptom of anxiety or depression.

Breathlessness: can occur in the presence of heart disease or excessive fluid accumulation. When breathlessness is associated with excess fluid your hands and feet are also often swollen. This is usually, but not always, combined with high blood pressure. Anaemia can also contribute to this.

Pain: Causes can vary and many patients have more than a single cause of their pain. Bone pain is common and often caused by bone mineral deficiency. Pain in hands and feet is often caused by problems with blood vessels and nerves.

Some patients feel they should not complain about the symptoms that they experience. The staff can often make certain adjustments that can significantly improve your well-being.





Informing other people

As a dialysis patient you are about to enter a new and very different phase of your life. This can be very stressful. You may occasionally even feel angry and resentful towards your treatment. In this process it is important that you do not keep things for yourself. Because the changes you are facing will affect everyone close to you.

A shared problem is a problem halved

The doctors and nurses of your clinic are always there to help you. Ask questions and discuss your feelings and problems with them. Share your concerns. Often with a little bit of information things suddenly fall into place and you might begin to see the light in the tunnel. Other dialysis patients can also often help since they have first-hand experience of what you are going through. Do not hide away your feelings. It is important to remember that there are many people around you willing to share your problems and concerns and to support you. By involving them you will create necessary breathing space for yourself.

Be open about your situation

Try not to hide that you are a dialysis patient. Inform people around you what it means to you and your relation with them. You have to remember that it is not only you, the patient, who feels the effects of Chronic Kidney Disease. There are also people around you – family, relatives, friends and colleagues – who worry about you and how this will affect their future. As a dialysis patient you might sometimes get the impression that people – even if they are very close to you – might find it difficult to talk about the situation. This can be quite distressing. But do not give up. Have patience and encourage your family to be informed with you. As they gain more knowledge about the disease and its treatment, it will be easier to discuss your situation more openly. Everyone will gain from this.

Your family is a resource

Your need for dialysis will have a significant impact on your family life. A strong support and understanding from those close to you can make coping with

dialysis much easier. Involve your family in your treatment! Encourage them to inform themselves as much as possible about Chronic Kidney Disease and its consequences. Knowledge, understanding and encouragement are important in this aspect from both sides.

Continue your working life

If you work talk to your employer and try to work out how your contribution to your work can be beneficial to both parts. In most cases, you can probably continue to work close to normally. Be sure to inform them in a proper and relevant way. If you have a physically demanding job you may agree with your employer to work part-time or to change to something less strenuous. Never try to be superman, but work to your own capabilities. If you go to school, changes can be done with little difficulty to accommodate your situation. Please seek help from your medical team as well. They might be able to guide you through different options.





Living an active life

*As a dialysis patient you can have a fairly good and normal life. Your medical team will do everything they can to help you. But in the end it all depends on you. **Have a positive mind!** Look for opportunities rather than problems. Enjoy life to the best of your ability.*

Continue to work!

Starting dialysis does not mean you have to stop working unless you have an extremely heavy job. Encourage and push yourself to go to your job. This will provide a distraction for you. Most employers are understanding and helpful and will help arrange your situation so that you can cope with it in a good way. If you go to school you should be able to continue as usual.

Keep fit!

You should do as much exercise as you feel comfortable with. It improves your health and wellbeing. It also gives you a feeling of living a normal life. And that is important. There are, however, some restrictions. If you have a fistula, graft or neckline, you must avoid contact sports such as rugby, and ask your doctor for advice when it comes to swimming.



Drive as normal!

The general rule is that you can continue to drive. This makes your life more flexible. During the first two months of haemodialysis it is advisable not to drive immediately after your treatment. If you happen to be a professional truck, taxi or bus driver, you should discuss with your doctor whether your condition permits you to continue your job as normal.

No smoking, please!

Smoking is dangerous in general terms. So you cannot afford that extra risk if you are a dialysis patient. If you are considered for transplantation it is even more important not to smoke. Smoking damages your blood vessels and might affect the success of a transplanted kidney. Alcohol is permitted as long as it is matched against your normal fluid and diet allowances. Ask your medical team for advice.



Take a holiday break!

Everyone should be able to enjoy a holiday. This is nowadays also true if you are a dialysis patient. It only requires some planning. Talk to your medical team and ask them to help you organise your holiday in the best possible way. They can advise you where to go and how to take care of your dialysis during your holiday. There are many Diaverum clinics to choose from, both in your own country and abroad, allowing you to feel confident that you will get the best possible care.



Coping with dialysis life

When something as life changing as kidney failure comes along, it is natural to feel anxious, afraid and worried over what the future holds. All of a sudden, there is a big question mark over the life that was planned and an uncertainty over what will replace it.

Loss of renal function and the dependence on dialysis lead to dramatic life changes. Your healthcare team have an important role to play in helping you adjust to life on dialysis.

The aim of your treatment is for you to be able to lead as normal a life as possible. Many patients see dialysis as a necessary inconvenience. They dialyse to live, not live to dialyse!

It is important to understand how your quality of life can be affected by dialysis. The common problems that patients experience include:

Anxiety: this may have a significant impact on your daily functioning. Symptoms include feelings of being unable to predict, control or obtain what you want. Your heart is often racing during parts of the dialysis treatment or you are anxious about coming to treatment.

Difficulties sleeping: can be due to a variety of factors but anxiety is one of the most common. Difficulties sleeping can be due to poor sleeping and waking habits and to unhealthy lifestyle choices.

Depression: can be mild, moderate or severe. It is a diagnosis that is given to a group of symptoms. These include; persistent low mood, lack of interest in activities, changes in sleep and appetite, lack of concentration and fatigue.

Problems with sex: many dialysis patients experience a decreased sex drive. This can occur as a physical side effect to kidney failure. It can also be associated with changes in how you see your body image, depression and anxiety.

It can often be difficult for you to realise that you are having difficulties coping with the life changes you are experiencing. And it can often be difficult for you to discuss your feelings with your healthcare team.

If you feel you are having problems coping with a life on dialysis, try not to keep things to yourself. Speak to a member of the healthcare team at the clinic; ask to see someone you feel at ease with. Clinic staff have many years' experience working with kidney patients and there are few situations they have not seen before. Often with a little bit of information, or with small changes to your treatment, things become easier to understand that help you begin to see things in a better way.

Do not be afraid to share your concerns and we will do our best to help. A problem shared is a problem halved.





About my rights as a patient

- being a CKD patient in Diaverum

Patient rights and responsibilities are an important part of a patient's care. Their compliance will contribute to more effective care and greater satisfaction for both patients and clinic staff.

Principles of patients' rights and responsibilities

As a patient, you are entitled to:

1. Be treated courteously with dignity and respect
2. Receive complete and easily understood information about your condition and treatment options before consenting to specific care choices
3. Receive qualified second opinions
4. Actively participate in decisions about your healthcare
5. Receive timely referral and access to needed specialty care and other services
6. Have the confidentiality of your medical records and communications with providers respected
7. Have your legal advanced directives or living wills adhered to
8. Receive all the information about your rights and laws and regulations affecting your care.
9. Receive all the information about your responsibilities to yourself, to the clinic staff and to other patients
10. Receive all information about the clinic operation
11. Freely express your opinion or complaints about our services without fear of reprisal or discrimination
12. Be treated fairly without regard to sex or cultural, economic, educational or religious background, to sexual orientation, or to the source of payment for your care

Principles of patients' responsibilities

As a patient you have the responsibility to:

1. Follow a healthy lifestyle
2. Understand your health plans
3. Actively participate in decisions about your health care and treatment
4. Inform clinical staff of any health problems you have had between treatments
5. Comply with all aspects of your dialysis treatment as directed by your doctor
6. Do not show inappropriate behavior
7. Treat other patients, visitors and clinic staff with consideration and respect
8. Comply with the rules of the clinic





About my right as a patient

Philosophy of care – Diaverum responsibility

Our aim is to provide the best quality of care and to assure that your treatment is as comfortable as possible.

We will aim at all time to:

- Treat you as an individual
- Respect your privacy and dignity
- Respect your personal beliefs and values
- Listen to you and respect what you have to say
- Keep you informed about your medical treatment and all changes
- Make sure that you understand the information you have been given
- Provide a calm and caring atmosphere
- Guarantee a high standard of hygiene
- Maintain a safe environment
- Promote your comfort and try to enhance your quality of life
- Promote your self-reliance and support you to be as active as possible
- Support you to live the best life possible outside of dialysis
- Act as your support in other matters when necessary
- Develop knowledge and competence and keep up to date with best practice



We ask that you respect us and our work.



Patient associations

- Patient Resources

We encourage our patients to be well informed about their treatment options and to understand the things that can affect your quality of life. The more involved you are in managing your condition and your time, the better you will feel. There are many resources, available to patients searching for information and services related to kidney disease.

Kidney Patients' Association

Country Kidney Patients' Associations are probably the organisations that can better provide help and support to kidney patients, their careers and family as they are present in all Countries and provide personal and individual support if needed.

Their objectives:

- To improve the quality of life of chronic renal patients in all aspects by promoting prevention and research of chronic kidney disease
- Raise awareness of the need for organ donation for transplantation
- Increase public knowledge of kidney disease through public awareness campaigns, free health screenings, health education materials and others
- Provide information and education for patients and relatives
- Advocating for patients making sure patients views are heard in the development of treatments and services through the different Healthcare Institutions
- Offer a peer support program where patients and carers can talk in confidence to other patients and carers
- Provide social and legal support and advice if needed

Diaverum has a consolidated relationship with several patients' associations and gives constant attention to them as they play an important role in promoting patient empowerment.

Your health care team in the clinic will inform you about the different resources you can find in your Country, which services they provide and the best way to contact them.

Do not hesitate to ask your Doctor or Staff if you have any questions or concern related to your treatment or other aspects of your live.





Diaverum – A world leader in renal care

Diaverum is one of the world's leading providers of renal care and the largest independent service provider in Europe. Our experience in renal care dates back 20 years, when the first dialysis clinic in what is now Diaverum was established. Since then, Diaverum has been at the forefront of the renal services market. We care for more than 22,000 patients in 18 countries in 270 clinics worldwide.

Diaverum's local presence means that we understand the healthcare systems, the patients and the particular circumstances that exist in each of the 18 countries where we are active. In addition, we have a global perspective and understanding. We can capture best practices, exchange experiences, and share learning derived from our entire global organisation. Diaverum's global perspective and local experience is reflected in our organisation, where central functions provide such support as medical expertise, quality follow-ups, education, training and other best practices, while the manager of each clinic has far-reaching responsibility and the freedom to make decisions. Together with the local staff the clinic manager shapes the services offered to each individual patient.

We know our patients, their needs, and their strong desire to live a normal daily life, not being confined by their illness. Our aim is that our patients can experience a warm, friendly and homely atmosphere when visiting our clinics, and when leaving we hope they feel revitalised.

Individual Renal Care – Patient is in focus of everything we do according to those priorities:

- Prevention
- Enhanced quality of life
- Caring for the whole patient
- Efficiency of the treatment

Our Vision

First choice in renal care

Our Mission

To improve the quality of life for renal patients

Our Values

Competent, Inspiring, Passionate



Competent



Inspiring



Passionate



Welcome letter

Dear patient,

Just a few lines to give you a very friendly welcome to Diaverum.

Diaverum Group has a network of more than 250 clinics all around the world, where we are sure you will feel revitalised, not only physically but also spiritually. We also have specific programs to help improve your quality of life and make it as easy as possible, such as Holiday Dialysis for example.

Although our path under the name of Diaverum is quite short, only five years, our history comes from more than 15 years ago, when our former name was Gambro Healthcare and we belonged to the Gambro Group. In 2008 we split from Gambro and we became an independent service company.

The name Diaverum communicates two key aspects of our philosophy. The first part, “Dia” means Dialysis, our main activity, a full dedication to renal services. The second part “Verum” means Truth in Latin. Therefore, with this name we want to represent honesty, transparency and feasibility that characterise our company.

Our philosophy places the patient in the centre of everything we do, and the quality of the service we deliver with our treatments. All our staff has a high degree of commitment and expertise, a strength and key factor, in order to guarantee excellent medical results and a high level of efficiency in our operations.

If you have any additional question about Diaverum, and what it means for you as a patient, please do not hesitate to contact staff members at your clinic, and they will kindly answer all your doubts.

Yours sincerely,





Diaverum Clinic Team

Our values are present in every single member of our team: Competent, Inspiring and Passionate Care Team. When being a patient in Diaverum you will notice that a warm and friendly atmosphere will welcome you. You will be introduced from the first day to our staff who will look after you all the time in the clinic and beyond.

Our staff

Medical/Clinical team:

- **Doctors** are nephrologists who guarantee that Diaverum Medical Standards of Care and clinical and quality objectives are achieved. As physicians specializing in kidney care, nephrologists determine the treatment plan that best suits a patient's unique health and lifestyle needs.
- **Clinic Managers** are the final responsible for managing all clinic resources.
- **Nurses** carry out the treatment according to the nephrologist's prescriptions and are members of the clinical care team. Nurses oversee each dialysis treatment from start to finish. They will support you during your treatment, will answer your questions, and will provide you with information and education to enhance your well-being.
- **Nurse assistants** collaborate with nurses and will take care of your comfort. They will as well attend your demands.
- **Cleaning Staff** are responsible for our clinics looking clean and tidy.

Administrative Team:

- manages patient and clinic administrative data. They will help you with appointments and will also arrange all the documentation you may need when going on vacation.

Technicians:

- take care about the water plant and are responsible for the maintenance and well-functioning of dialysis machines.

Support staff:

- **Dieticians** will together with you plan the best diet for you, aligned with your treatment.
- **Social workers and psychologist** will be available to help you with your concerns and psychological problems.

Each member of our staff is always wearing an identity tag with his/her name and position.





Practical Issues (General)

In all of our clinics, you will be treated by a very professional team of doctors and nurses, that we are sure will make you feel better. Your first dialysis treatment has already been scheduled.

It would be a pleasure for us to show you, and any member of your family, our clinic before you start your treatment. This gives you the opportunity to get to know the facilities, the staff, and to ask any question you may have.

During this first visit to the clinic and the incoming days you will be provided by some practical information about the clinic. This information will include:

- Name of Clinic Team.
- Normal hours of operation.
- Clinic contact phone number during normal hours of operation.
- Contact phone number outside of normal hours of operation.
- General clinic information.
- Patient specific information - appointment time, transport etc.
- Administrative functions - holiday dialysis, shift change requests, etc.
- Fire/emergency evacuation instructions
- Information about data protection

The whole Diaverum team hopes you have a comfortable and revitalising stay in our clinics.

Diaverum Team

