



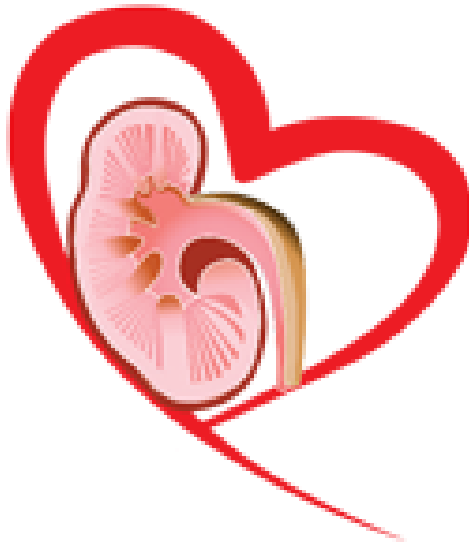
CARE *for* **KIDNEYS**
FOUNDATION

A Registered Non-Profit Charitable Organization

Kidney Care is at the Heart of our Foundation

CARE FOR YOUR KIDNEYS Part II

A PATIENT'S GUIDE



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I would like to thank all of those individuals involved in producing this educational book for patients. The printing of this educational booklet was made possible through the Care for Kidneys Foundation. The purpose of this booklet is to educate those patients living with kidney disease so they can improve and maintain their health.

The Care for Kidneys Foundation is a non-profit charitable organization dedicated to improving the health and quality of life of patients living with kidney disease and those at risk of developing kidney disease. If you found this material helpful, please consider donating to this cause, so we can continue to provide material like this to patients with hypertension and kidney disease in the future.

For more information on the Care for Kidneys Foundation and ways in which you can support the foundation please visit <http://www.careforkidneys.org>

Sincerely,

Dr. A. Kadri
Director,
Care for Kidneys Foundation

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What Is Stage 4 and 5 Chronic Kidney Disease?

If you are reading this book it is because your doctor has diagnosed you with Stage 4 or 5 chronic kidney disease. You may have had chronic kidney disease for some time now and it has progressed to stage 4 or 5. It is also possible you have just been diagnosed with stage 4 or 5 chronic kidney disease without knowing you had kidney disease before. Either way, the information in this book will help you understand your disease and the future management. If you have not read "Chronic Kidney Disease: A Patient's Guide" which is the first book in this series, please ask your doctor for a copy and read it first. This book will cover more in depth information about stage 4 and 5 kidney disease but will require you to have a good understanding of chronic kidney disease before starting.

If you have been diagnosed with Stage 4 or 5 chronic kidney disease, that means that your glomerular filtration rate (GFR) has fallen below 30. To recap from our first book, the stages of chronic kidney disease are defined as follows:

STAGE 1: GFR \geq 90 and other signs of kidney damage.

STAGE 2: GFR 60-89

STAGE 3: GFR 30-59

STAGE 4: GFR 15-29

STAGE 5: GFR <15 or on dialysis.

Stage 4 and 5 chronic kidney disease are important points in the progression of your disease because this may be the first time you start to notice symptoms related to your kidney disease. In addition, you will now have to work harder than ever with your physician to slow down the progression of your disease as much as possible. You may now require special medications to help with the functions that your kidneys are unable to perform anymore. If your disease continues to progress, you may need dialysis or kidney transplant therapy to replace your kidney function. This is an involved process and this is the time to start talking about this with your physician.

This book will serve to help guide you through this process and make sure you are as informed as possible, so you can get the most out of your healthcare visits, and take the best possible care of your kidneys!

What Are New Symptoms I May Experience?

As we discussed in the last book, chronic kidney disease is often without symptoms in the early stages. For this reason you may not have experienced symptoms up until now. This could change as your disease progresses further, and now that you have entered stage 4 or 5, you will be more likely to experience symptoms from your kidney disease.

The most common things you may notice at this point includes the development of edema (fluid retention). Edema is caused by salt and water retention. Your kidneys used to be good at getting rid of salt and water, but now that you have entered advanced stages of kidney disease their ability to do this will be lowered. Edema is often seen as swelling of the legs, but in certain cases it can cause fluid to build up in your lungs and cause shortness of breath. Salt and water retention also leads to high blood pressure, and you may start to notice your blood pressure rising.



Now that your kidney disease has advanced your kidneys will not be as good at clearing the toxins that are produced in your body. This can lead to lethargy, fatigue, decreased appetite, nausea, vomiting, itchy

skin and sometimes confusion. Rarely the toxins can cause damage to your heart and cause chest pain.

Your kidney's are responsible for producing erythropoietin, which stimulates your bone marrow to make hemoglobin, you are now at risk for losing this ability. This could lead to anemia (low hemoglobin) which can cause you to feel fatigue, develop a pale complexion and feel short of breath.

Other issues that can occur include high levels of potassium in your blood. Your kidneys help to regulate potassium and get rid of extra potassium in your blood. They will not be able to do this as well anymore. This does not usually cause symptoms but if the levels get too high this can be dangerous for your heart.

What is High Blood Pressure?

There are many diet, lifestyle and medication changes which can help to slow the progression of your disease, and help with the management of your disease. This depends on the cause of your disease. For example if you have diabetes, you must do your best to control your blood sugar levels. Please discuss the specifics of your disease with your physician. However, regardless of what the cause of your chronic kidney disease, these are general measures you should take:

Smoking

If you smoke, you should work with your doctor to quit as soon as possible. Smoking can lead to progression of kidney disease and will also increase your risk of cardiovascular disease.

Blood Pressure Control

Regardless of what caused your chronic kidney disease in the first place, keeping your blood pressure under good control is important to slow down further damage to your kidneys. If you do not have one already it is strongly advised that you obtain a blood pressure machine to measure your blood pressure at home. You can record these readings and bring them to your doctor. They are the most accurate readings and will help you and your doctor work towards healthy blood pressure control. Now that you have more advanced kidney disease, you may see elevation of your blood pressure due to retaining salt and water. Your blood pressure target will be between 130-150/90 or less and depends on factors such as age or other risk factors you may have.

Sodium Intake

If you have high blood pressure you should work to reduce the amount of sodium in your diet. Sodium is often hidden in prepared and processed foods. You should read the packaging of anything you buy to evaluate how much sodium you take in. Also avoid adding table salt to food you make. You should aim for a sodium intake of $\leq 2\text{g}$ per day. Your doctor and dietician will help you work on this.

Because you have advanced chronic kidney disease your risk for cardiovascular disease is high. For this reason you should adjust your diet to lower your risk of heart disease. This includes eating plenty of fruits and vegetables, and reducing the amount of fat and cholesterol in your diet.

Weight Loss

If you are overweight, you should try to reduce your weight in a healthy manner. Please see your physician for advice on how to do this, but for the most part this includes healthy eating and regular exercise. Being overweight will increase your risk for diabetes, high blood pressure and cardiovascular disease. Diabetes and high blood pressure may further damage your kidneys. It is important to avoid crash or fad diets as they may leave you dehydrated and cause further kidney damage.

Exercise

Exercise has many benefits including lowering blood pressure, weight loss and increasing cardiovascular fitness. It is important you maintain heart healthy exercise on a regular basis. This includes 20-30 minutes of moderate intensity exercise 4-5 times per week.

Avoid Dehydration

Becoming dehydrated and having too little fluid can harm your kidneys further. Due to the advanced nature of your kidney disease, you are particularly sensitive to this. For this reason it is important you do your best to stay well hydrated with water. Energy drinks sometimes contain excess sodium which can lead to fluid retention causing edema and increase your blood pressure. For this reason it is best to maintain your hydration mostly with water. Because your kidneys are not as efficient with eliminating sodium and water, you may find that you develop swelling. If this is the case talk to your physician about more tailored advice regarding your fluid intake.

Healthcare Visits, Medications and Tests

It is important that you see your doctor regularly. Continuous monitoring is important for maintaining your kidney health. It is important to also be adherent with all medications prescribed by your doctor. If a particular medication is not working for you then discuss it with your doctor for alternatives.

Certain medications can harm the kidney. Let all physicians you see know you have kidney disease when they are prescribing you new medications. Also be careful of over the counter medications as some can harm your kidney if you have chronic kidney disease. Plain Tylenol is safe in recommended amounts. Discuss any other over the counter medications with your physician before use if you have chronic kidney disease.

You may be on a medication called an ACE (angiotensin converting enzyme) inhibitor or ARB (Angiotensin Receptor Blocker). These medications were often prescribed either for your blood pressure or to help slow the progression of your kidney disease. While they are good for your kidneys they can become harmful if you become dehydrated.

For this reason if you experience a prolonged dehydrating illness such as the flu (severe vomiting or diarrhea) and are unable to eat and drink well for more than 48 hours, you should stop taking this medication temporarily until you feel better. This also applies for diuretics and anti-inflammatory medications. If you are in doubt, consult with your physician.

Sometimes you may need to go for a medical test which require "dye" to be injected into your blood stream. Certain types of dye can cause harm to your kidney function. If this is the case please let your physician know if you have advanced kidney disease prior to your test. There may be medication adjustments and fluids prescribed at the time of your test to minimize the risk to your kidneys.

What New Medications May My Doctor Prescribe?

Now that you have advanced chronic kidney disease your doctor may have to prescribe certain medications to help with your symptoms. In addition you may need medications to help with the complications of kidney disease. Some of the different medications you may need are outlined below.

Diuretics

These are medications which are used to get rid of excess salt and water from the body. If you have high blood pressure or develop swelling as a result of your kidney disease your doctor may prescribe these to you. Commonly used diuretics are furosemide (Lasix) or Hydrochlorothiazide (HCTZ).

Erythropoietin Injections

Because your kidneys no longer make the hormone erythropoietin, your bone marrow may not make enough hemoglobin. For this reason your doctor may prescribe you erythropoietin injections to help increase your hemoglobin to adequate levels. This injection is usually taken once or twice weekly under the skin and you or a family member can be taught to administer it. The dose will be titrated to make sure your hemoglobin levels are adequate.

Activated Vitamin D

From our last book, you know that vitamin D goes through many steps before it becomes the active form. Your kidneys are responsible for the last step in this activation. Now that your kidney disease is advanced your kidneys may lose this ability and your doctor will have to

prescribe you a form of vitamin D that is already activated to take. This will help keep your bones strong and reduce your risk of fractures.

Phosphate Binders

When you reach stage 5 kidney disease your kidneys will lose their ability to get rid of phosphate. Phosphate levels can build up in the body and lead to problems with your calcium balance. To help lower phosphate levels your doctor may prescribe you pills (usually calcium pills) to take with your meals. Calcium will bind the phosphate in your food and prevent it from being absorbed into your body.

Sodium Bicarbonate

As your kidney disease progresses acid levels can build up in your blood. This can make you feel unwell. For this reason your doctor may prescribe you sodium bicarbonate. Bicarbonate helps to buffer and neutralize the acid. This may be needed to protect your heart and bones health. Sodium bicarbonate may also cause fluid retention because of the sodium component. Therefore if you have problems with swelling your doctor may not prescribe this to you.

Statins

This is a class of medications that works to lower cholesterol. You may already be on this type of medication. If you are not though, your doctor may choose to prescribe it to you. With advanced kidney disease you are high risk for developing cardiovascular disease, and statins work to reduce cholesterol and reduce the risk of cardiovascular disease.

What Dietary Changes Will I Need To Make?

Normally the food you eat is broken down in your stomach and transported to your cells. These nutrients are then used by your cells and waste products formed by using them are put back into your blood. In addition potassium and phosphorus found in food is also stored in your body. It is your kidneys job to get rid of these waste products and balance sodium, potassium and phosphorus at appropriate levels. As part of your care, it is important to seek dietary counselling as needed to discuss your diet further but below is some general information for you to follow:

Calories

It is important for you to understand your calorie needs. Some people with kidney disease need to gain weight, some people need to lose it. Depending on your situation you may need to eat more or less calories than you currently are.

That being said, eating the right type of calories are important. Patients with kidney disease are at increased risk for cardiovascular disease, and for that reason a balanced diet that does not contain high contents of fat and cholesterol is needed.

Potassium

Potassium is found in many foods, and is eliminated from the body by the kidneys. With advanced kidney disease, the potassium you eat will build up in your blood more than before. High levels of potassium can lead to abnormal heart rhythms and even death. For this reason if your physician notices your potassium levels increasing they will recommend a low potassium diet.

Many foods are high in potassium. These include bananas, potatoes, tomatoes, oranges, avacados, kiwis, berries and dry fruit. If you do eat any of these try to limit yourself to smaller portion sizes. Preparing foods like potatoes by soaking and boiling them can also reduce the potassium levels.

It is important to seek dietary advice and guidance to get a full sense of which foods in your diet contain high levels of potassium if your potassium levels become elevated. If you have no swelling or breathing problems, your doctor will often ask you to increase your water intake as this helps flush potassium out of your system. On occasion, your medications will also need to be adjusted.

Sodium

Sodium is found in salt, and other foods. Most canned preparations including soups, prepackaged meals, deli meats and frozen dinners contain large amounts of sodium.

Large amounts of sodium will cause you to retain water and lead to swelling. This will result in high blood pressure which will cause faster progression of your kidney disease. High blood pressure can also place strain on your heart and cause it to fail in the long term.

The best way to avoid sodium is to eat fresh foods that require preparation, instead of processed foods. It is also important not to add salt to your food. **It is extremely important you do not use salt substitutes that contain potassium, and high levels of potassium can lead to abnormal heart rhythms and death.**

Dietary counselling may be needed to help you with tips on preparing foods with low sodium content.

Phosphorus

This is a mineral found in a large number of foods. Having too much phosphorus in your blood can cause problems with calcium levels and with your bones making them extremely fragile. In the long term high levels of phosphorus may lead to build up of calcium in the arteries of your heart.

Foods such as milk, peanut butter, nuts and cheese are high in phosphorous. Your kidneys start losing their ability to get rid of phosphorus well as their function declines. For this reason you may need to limit the amount of phosphorus in your diet and you may need to take calcium as explained above.

Your healthcare staff will work with you to help reduce the phosphorus in your diet.

Protein

Your body uses protein for energy and generates waste products in the process. These waste products are eliminated by your kidneys.

Because of this eating excess protein may cause the levels of waste to build up in your blood. You may not have to limit the amount of protein you eat but should avoid eating excess protein. For this reason you should avoid pure protein based nutritional or exercise supplements.

Vitamins

Because your advanced kidney disease has put limitations on your diet, you may not be getting all the essential vitamins you need. Your doctor may prescribe you a vitamin to make sure you meet your healthy intake. Because excess levels of some vitamins can be harmful make sure you let your doctor know about everything you are taking.

How Will I Be Monitored?

Now that you have stage 4 or 5 chronic kidney disease you will have to be monitored more closely than ever. This is because your kidneys are very sensitive and any small changes could cause them to fail further. At this point you will be seeing a nephrologist if you are not already. You will see them between 3-6 times per year, and may have blood work done more often as well. As you progress further into late stage 5 kidney disease you may even have more frequent lab testing and clinic visits.

As part of your care you will likely see other healthcare professionals that are part of the overall team. This may include nurses, pharmacy specialists, dieticians, and social workers. This is to make sure all your care needs are being addressed and to get you prepared for potentially needing dialysis or kidney transplant therapy in the future. While our goal is to help you avoid the need for this therapy, we also want to keep you alive and well long enough so that you are well prepared for it if necessary.

Your doctor will soon start to talk to you about dialysis and kidney transplantation and what your preferences would be during this time. This can be difficult for some people to talk about but it is important to make a plan with your doctor. Patients who start on dialysis having made a plan do much better than those who start without having made one.

What Is Dialysis And When Will I Need Dialysis?

Dialysis is the process of using a machine containing a semi-permeable membrane (dialysis filter) to remove waste and excess water from your blood.

Normally your kidneys work to control the levels of salt and water in the body, as well as filter toxins from your blood. These products are then released in urine through your bladder.

As your kidney failure progresses into late Stage 5 also termed "end stage renal failure" this elimination of toxins and regulation of salt and water does not happen well. Because of this, it must be done artificially through a process called dialysis. This can be done using a machine or your own body.

There is no right answer to when you will need dialysis. It all depends on a combination of your kidney function and most importantly how you feel. Generally speaking you should expect to start dialysis in the near future after reaching stage 5 chronic kidney disease. For some people this happens within weeks to months. Other patients may go months to years without starting. The major factor in starting dialysis is when you start to feel unwell from the symptoms of advanced kidney disease. Because we cannot predict when you may not need to start it is important to make a plan for starting before you need to!

How Is Dialysis Performed? What Types of Dialysis Are There?

There are two major ways in which dialysis can be done:

- 1) Intermittent Hemodialysis or Home hemodialysis
- 2) Peritoneal Dialysis

These will be discussed in more detail later. The major difference between the two is that hemodialysis involves using a machine to help clean your blood, while peritoneal dialysis uses your own body to clean your blood **in a different way** than your kidneys.

No matter which type of dialysis you choose with your doctor, they all require creating "access" to your body. This access is then used to clean the blood through various mechanisms.

For Intermittent hemodialysis and home hemodialysis there are 3 types of access which can be used (discussed in detail later).

- 1) AV Fistula
- 2) AV Graft
- 3) Central Venous Catheter

For peritoneal dialysis, a peritoneal dialysis catheter is used to access your body through your abdomen.

Your access will need to be created before you can begin dialysis treatments.

Which Type of Dialysis Is Right For Me?

With all of the options it is hard to decide which type of dialysis is right for you. Peritoneal and home dialysis can be performed by yourself or a loved one at home, which lets you maintain your independence. In addition because they are performed at home you have more control over your schedule and more freedom.

You may notice a significant increase in your quality of life by choosing one of these two methods. You will have more freedom over your schedule, more independence, spend less time travelling and be able to perform treatments up to 7 days a week.

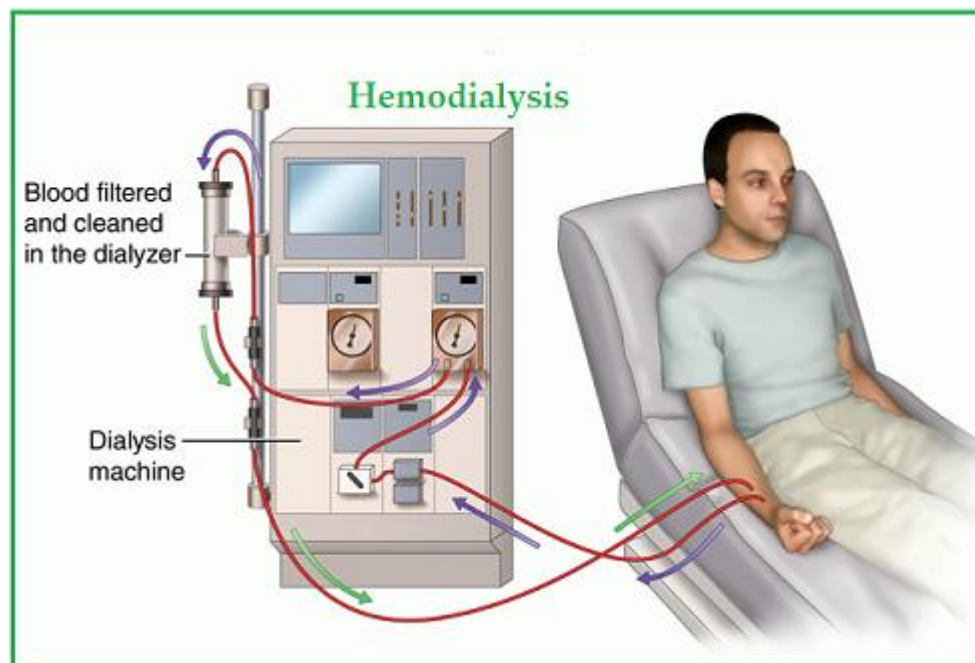
If you do not feel you can perform dialysis at home, please talk to your doctor as there is often much help available to make dialysis at home possible. You will never know until you ask!

If you are unable to do dialysis at home even after evaluation and supports you can always do hemodialysis at a dialysis unit approximately 3 times a week. You will have to travel there and may have less control over your schedule.

What Is Hemodialysis?

Hemodialysis is a type of dialysis where a machine takes over the job of your kidneys and filters and cleanses your blood artificially.

The machine pumps your blood from the body, runs it through a semi-permeable membrane, which acts as a filter and returns it to your body cleaner than before. While doing hemodialysis toxins and waste products are removed from your blood. At the same time potassium, salt and acid levels are regulated. Lastly excess water is removed from your blood so that you do not develop edema. It is important to note that you are not getting new blood, or losing blood during this process. All blood is your own, and is returned to you, the machine simply cleans it. Hemodialysis can be performed in a dialysis unit or at home.



Dialysis Unit

If you have dialysis at a unit, you will need to arrange travel to and from the center. If this is not possible a social worker may be able to help with arranging third party transportation through available community resources.

At the dialysis unit nurses and doctors will be able to monitor you closely. Nurses will also hook you up to the machine before your treatment, monitor you during the treatment and unhook you after.

If you have dialysis in a unit you will usually have treatments 3 times per week. Each treatment is usually about 4 hours long.

Home Hemodialysis

Home hemodialysis is where you perform dialysis through the use of a machine at home instead of at a dialysis unit. If you have dialysis at home, you will have to learn how to use the machine and hook yourself up to it. You will need to undergo training to do this. Training usually takes 6 weeks to complete, but may sometimes take slightly longer.

A machine is brought to your home and after modifications to your water and electrical supply (if needed), you perform dialysis 3-7 times per week for a set number of hours each time. How often and for how long will be decided with your physician. Since there are no nurses available, you are responsible for hooking yourself up to and unhooking yourself from the machine. You are also responsible for setting up, operating and caring for your machine.

Home hemodialysis offers a lot of freedom for your own schedule but requires a large amount of independence and responsibility, as well as very intense training in the beginning. You will dialyze at a training site

3 times per week and when you are able to perform dialysis adequately by yourself you will start at home. Once you get the hang of it though, it can be as easy as riding a bike!

Although we encourage most people to consider a home based therapy, home hemodialysis is not realistic for everyone. You must undergo extensive training and be reasonably self-sufficient to be successful. Don't underestimate yourself and talk to your doctor about your suitability for a home therapy!

Preparing For Hemodialysis

Before you can begin hemodialysis, an "access" must be created. In the case of the first two options outlined below, several months will be needed to create and get the access ready for use.

There are 3 types of access used for Hemodialysis. They include:

- 1) AV Fistula
- 2) AV Graft
- 3) Central Venous Catheter

The access creates a way for the blood to move from your body to the machine for cleaning, and then be returned back to the body.

AV fistulas and AV grafts are usually created long before hemodialysis is needed because they take time to heal and be ready for use. They are usually created in the non-dominant arm. **It is important to keep the veins in your arms healthy so that they can be used to create a fistula when needed. Try whenever possible to avoid having blood drawn from an arm where fistula is being planned and if needed try to use only small hand veins for blood work.**

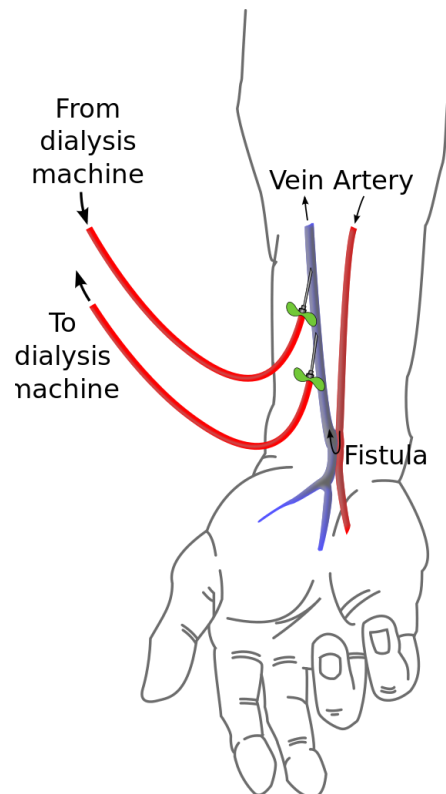
AV Fistula

This is the preferred type of access. It is less likely to have infections and complications compared to catheters.

It requires you to undergo a minor surgical procedure to create a direct connection between your artery and vein in that extremity. It is usually done in the lower arm. This type of access is located under your skin. During dialysis two needles are used to connect the fistula to the

machine. Blood is removed from your body through one needle, and returned to your body through the other.

An AV fistula is usually created many weeks to months before it is used for dialysis. This is to allow time for the area to heal and for the fistula to "mature" so that needles can be inserted into it.



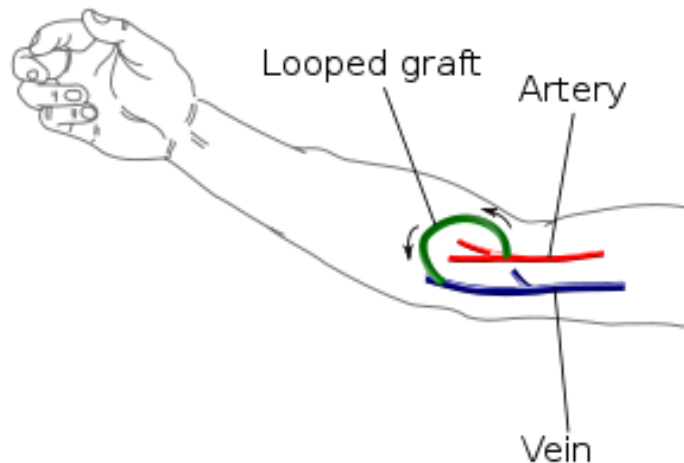
AV Graft

Your veins may not be suitable for creating a fistula. This can happen when the veins in your arm are very small or become damaged. This may be due to repeated blood draws from a particular vein or various other reasons.

In this case your doctor may suggest an AV graft for dialysis access. For this, a surgeon will use a flexible synthetic tube to create a path between an artery and a vein in your arm.

The graft will remain under the skin and is used in a similar way to the fistula described above. The biggest difference is that the two needles which are put into the access for dialysis are inserted into the synthetic tube and not into your vein.

Grafts can be used as quickly as two weeks after they are created. However they do have higher rates of complications than fistulas including narrowing of your blood vessels and infections.



Caring For Your Fistula or Graft

Regardless of whether you have a Fistula or Graft for access, it is important you care for them in a similar way.

This is done to prevent complications. Complications can still occur even if you are careful but they are much less frequent.

- 1) Wash your area of access with soap and warm water each day, and always before dialysis.
- 2) Do not scratch the area.
- 3) Check the area daily for signs of infection including redness and warmth.
- 4) Check the area for blood flow daily. There should be a vibration over the area. If this is absent or changes notify your dialysis unit.
- 5) Take care not to injure the arm where the access is located. Avoid tight clothing, heavy lifting or sleeping on the arm.
- 6) Do not allow anyone to take blood from or measure blood pressure on the arm containing your access.

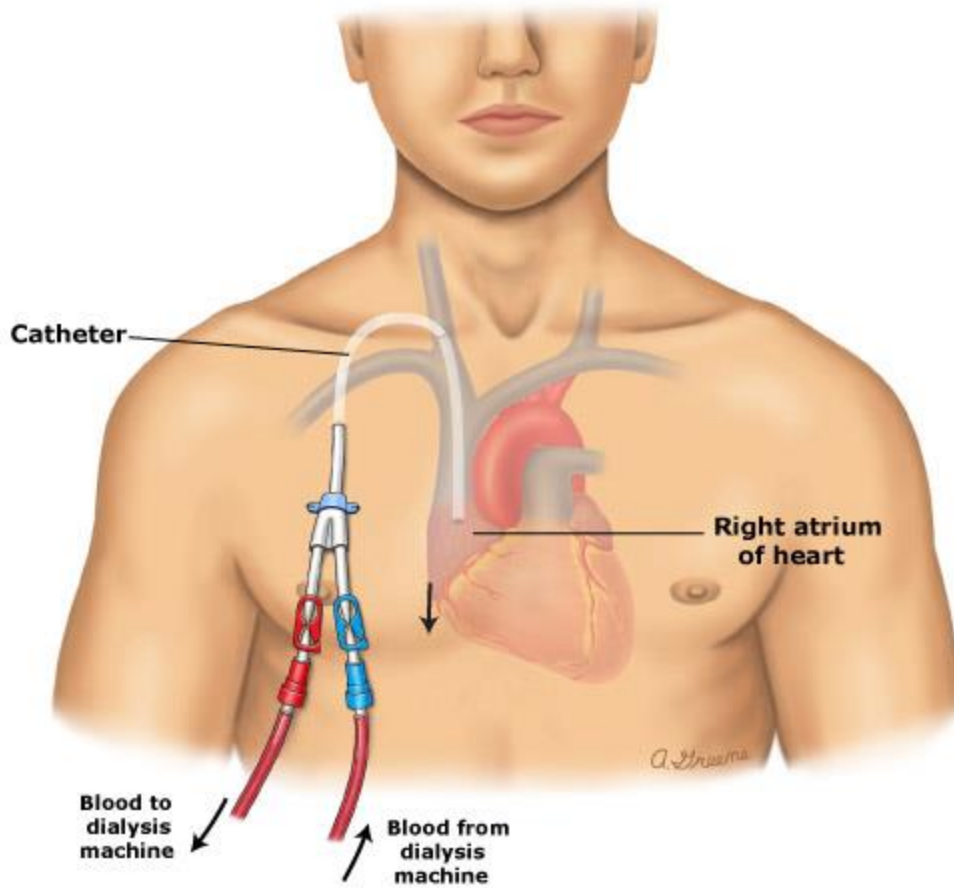
Central Venous Catheter

This is the third, and **least preferred method** of access for hemodialysis. **It is the most likely to encounter serious complications such as infections that could cause you to become quite ill.**

It is a thin flexible tube that is placed into a large vein in your neck and travels down to your heart. The tube exits your skin and has two ports, which are used to connect you to the dialysis machine. One port removes blood from your body while the other port returns blood. It is important that only dialysis healthcare professionals use these ports.

This type of access can be used immediately and is usually used when dialysis must be started urgently and no fistula or graft is present. It should only be used temporarily and if you need one you should be transitioned to a graft or fistula as soon as possible. Sometimes it is used permanently if a fistula or graft is not possible or if you run into problems maintaining a fistula or graft.

Catheters have the highest risk of infection and complications of all three types of access.



What Is Peritoneal Dialysis?

Peritoneal dialysis, involves using your own body to clean your blood in a way that is different from your kidneys.

A membrane inside your abdomen called the peritoneal membrane acts like a filter which is used to clean the blood in your body.

Peritoneal dialysis requires the placement of a peritoneal dialysis catheter (PD catheter), which is used to infuse clean fluid into your abdomen around the membrane. This fluid then removes toxins and excess water from your blood through the membrane. The fluid is then drained out through the catheter. The drained fluid can be disposed of in the toilet. This catheter comes out of the abdomen and is hidden under your shirt.

Peritoneal dialysis requires training, and requires you to be independent, or have someone at home to help you. It may not be possible if you have had many previous abdominal surgeries or serious medical problems. If you are interested in peritoneal dialysis talk to your physician about it.

What Are The Types Of Peritoneal Dialysis?

There are two main types of peritoneal dialysis. They are:

1) Continuous Ambulatory Peritoneal Dialysis (CAPD)

2) Automated Peritoneal Dialysis (APD)

The main difference between the two is that APD involves using a machine to perform the dialysis while you sleep. On the other hand in CAPD, you are responsible for performing the dialysis yourself multiple times throughout the day.

APD may be done while sleeping, while CAPD requires you to perform "exchanges" (more on this later) throughout the day.

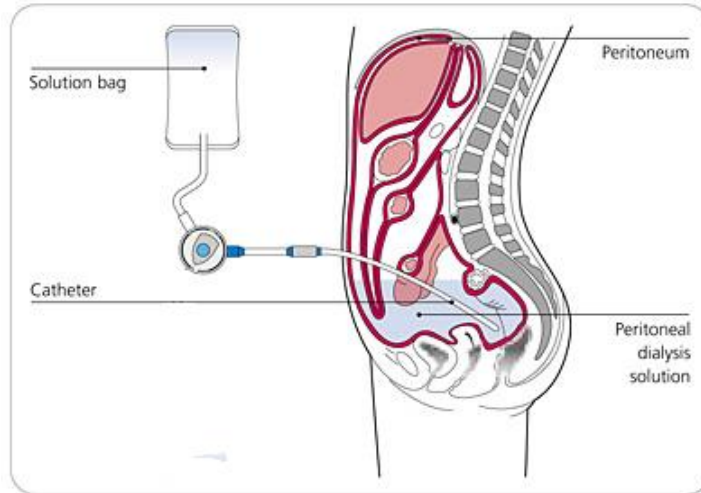
Continuous Ambulatory Peritoneal Dialysis (CAPD)

In CAPD you will instill clean fluid (Dialysate) through your catheter into your abdominal cavity. This will stay in there for a set duration of time (usually about 4 hours). You will start this when you first wake up in the morning.

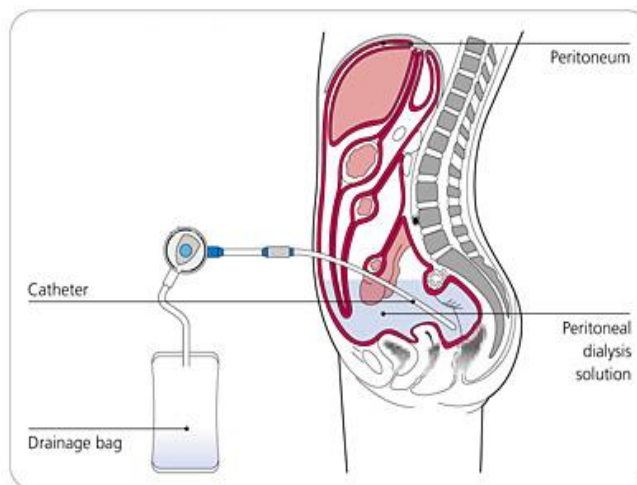
After several hours, this fluid will become filled with toxins and excess water from your body and will have to be drained. At this time you will drain the fluid through your catheter and put fresh dialysate fluid back in. This process is repeated 3-4 times during the day. One full exchange will take you 15-20 minutes to perform.

At night you will repeat this prior to going to bed and then leave that fluid in overnight and begin again in the morning. You will receive extensive training on all of this before beginning at home by yourself.

To fill your abdomen with clean solution, you will hook the dialysate bag up to your catheter and let it drain into your abdominal cavity under gravity until the bag is empty.



To drain fill your abdomen of dirty fluid, you will hook the collection bag up to your catheter and let it drain out of your abdominal cavity to gravity until drainage stops.



Automated Peritoneal Dialysis (APD)

In APD, you will hook your catheter up to a machine at night before you sleep. This machine will perform the "exchanges" for you throughout the night over a set period of time. The size and number of exchanges that occur will be decided by your physician. You are responsible for setting up the machine each night, hooking yourself up and unhooking yourself in the morning.

This treatment is done every night but offers you more freedom during the day. Sometimes if you need it the machine will fill your abdomen for the last cycle in the morning before you disconnect yourself. You will then carry that fluid around for most or all of the day and drain it in the afternoon or evening before starting again.

Before beginning with your machine at home, you will receive training on how to use the machine, hook yourself up and unhook yourself. You will be taught in a supervised setting until you are comfortable.