



KIDNEY TRANSPLANT PROGRAM

After your transplant



TABLE OF CONTENTS

Life After Kidney Transplantation	3
About Your Surgery	3
After Your Surgery	3
Hospital Stay	3
Activity	3
Preventing Infection	3
Diet	3
Education	4
Wound Care	4
Support	4
Your Long-Term Outlook	4
General Financial Considerations	5
Medications	6
General Medical Guidelines	6
Medication Do's and Don'ts	6
Immunosuppression	7
Anti-Infectives	21
Virus Suppression	22
Acid Reducers	25
Resuming Life After Transplant	35
Clinic Visits	35
Lab Studies	35
Hematocrit (Hct)	35
White Blood Count (WBC)	35
Potassium (K)	36
Creatinine	36
Phosphorus	36
Cholesterol	36
Cyclosporine or Tacrolimus Level	36
Managing and Avoiding Complications	37
Rejection	37
Biopsies	38
Infection	38
Symptoms of Infection	39
Common-Sense Precautions	39
Avoiding Colds and the Flu	40
Pets	40
First Aid and Hygiene	40
West Nile Virus	41
Preventive Medicine	41
Medical Condition Alert Bracelet or Necklace	42

Kidney Transplant Program

Sexual Activity	42
Exercise	43
Going Back to Work	44
Self Monitoring	45
Health Maintenance Forms	47
A Kidney Smart Diet	56
Low-Cholesterol, Low-Fat, Low-Sugar Food Choices	57
Reach and Maintain Your Ideal Weight	58
Limit Alcohol Intake	61
Eating Out	61
Successful Restaurant Eating	61
Helpful Hints	62
Conclusion	63
Communication	63
Important Contact Information	64
Kidney Transplant Office Address and Phone Numbers	65
Resources	66
Notes and Questions	67

LIFE AFTER KIDNEY TRANSPLANTATION

About Your Surgery

The surgery itself takes about four hours. An incision will be made above your groin on either the right or left side. In most cases, your own kidneys will not be removed. Depending on the cause of your kidney failure, usually only one kidney will be transplanted.

The kidney will be attached at three connections:

- Donor artery is connected to one of your larger arteries, usually a leg artery.
- Donor vein is connected to one of your veins.
- The ureter (tube that drains urine from the kidney to the bladder) is connected to the bladder.

After all the connections are made, the incision is closed, and you will be taken to the post-anesthesia care unit, the surgical intensive care unit, or the inpatient care unit.

After Your Surgery

Kidney recipients typically have an incision in the lower abdominal area on either the right or left side. In some cases, the surgeon may choose to make the incision up and down in the middle of your abdomen.

You may have a drain in place draining fluid from your incision. A catheter is used to drain urine from your bladder. This will stay in place for 3 days or more.

Hospital Stay

You will be cared for by a team of doctors, nurses, transplant coordinators, pharmacists, social workers, and dietitians. An average hospital stay without complications is about four to seven days. During this time, your urine output and blood urea nitrogen (BUN) and creatinine are monitored to determine how well your new kidney is functioning.

Activity

Kidney transplant patients are usually up and moving by the next day. Physical activity is a priority and we will insist that you begin walking the day after surgery. You should walk at least twice a day, increasing your distance each time. Inactivity after your transplant will make you weak and increase the chances of medical problems and slow your long term recovery.

Use pain medications prior to starting an activity. While taking pain medication, drink plenty of fluid, and use a stool softener, and don't drive a car.

Preventing Infection

Hand washing is the key to preventing infection, especially during the first year. Many people will want to visit you after your transplant. Be sure to ask people to visit at a later time if they have been sick or if members of their family have been sick recently.

Diet

In most cases, you will be able to eat the first or second day after your transplant. Once your diet progresses, you will start preparing to go home. Your diet will be very different than it was prior to your

transplant. A transplant dietitian will visit with you while you are hospitalized to assist you in understanding the change.

Education

During your hospitalization, we will teach you what you will need to know to take care of yourself and your new kidney. The transplant coordinator will speak with you and your family about monitoring for infection, when to call the transplant team, and other common post-surgical topics. The transplant pharmacist will teach you about your medicines, and you will begin to take your medicines with the help of the staff nurses prior to going home.

Wound Care

Staples from your surgery will be in place for at least three weeks because steroids reduce tissue healing time. You may shower with staples and tubes in place. Cleanse sites with antibacterial soap. Pat dry, being careful not to pull. Do not use powder or lotion around incision or tube site.

Support

The Duke Kidney Transplant Team knows that going through a major medical procedure like this can be a trying time, and we want very much to help you through this process. Please let us know of any way we can help ease your anxiety and help you along the way.

Your Long-Term Outlook

While a kidney transplant represents a great hope for people with end-stage renal disease, various complications can occur after kidney and pancreas transplantation. These may include rejection, infection, technical complications, and recurrence of the original kidney disease. While complications are always a possibility, it is important to remember that the single most important factor in the outcome of your transplant is **YOU**. The best outcomes occur when you follow your health care team's instructions, monitor yourself for signs of rejection and infection, take your medications as directed, and attend your regularly scheduled appointments for blood tests and clinic visits. Furthermore, by communicating openly and freely with your team, we can stay on top of any issues and intervene early.

GENERAL FINANCIAL CONSIDERATIONS

Your personal cost of the transplant may be high especially during the first year after the transplant operation. It is not unheard of to have direct monthly medication costs of \$1,000 to \$2,000 early after transplant. Your direct costs for transplant medications are determined by your insurance plan coverage. The costs are in addition to the costs paid by your insurance pharmacy plan. The costs may decrease over time, since some of the medications are stopped, and/or dosages lowered because the risks of rejection and infection become somewhat less with the passage of time. For some individuals, Medicare, Medicaid, and/or private insurance companies may cover all or part of the costs of the medications. Any change in your insurance plan may result in changes to the cost associated with your medications. Please obtain detailed information from any new plan before making a change in coverage to avoid unexpected additional medication costs. You will have a transplant financial coordinator. You should call and review any new insurance plan with your financial coordinator prior to making a change. **Please always remember to bring all of your insurance cards to clinic appointments and when called for a transplant surgery.**

While the Duke Hospital transplant financial coordinator can help you understand the potential cost of medications to you, it is your responsibility to have verified medical insurance coverage for transplant medications before your transplant and ensure there are no lapses in coverage after transplant. If there was a recommendation to fundraise before transplant, it is your responsibility to ensure that any pre-transplant funds raised are available for use in your post-transplant care.

You will also be responsible for informing your transplant coordinator where you will have your discharge prescriptions filled. We encourage patients to use the Duke Cancer Center Specialty Pharmacy for at least the first month of their new medications. That way, they can be filled prior to discharge, and we are able to verify you have all your medications before you leave the hospital.

There are two outpatient pharmacists dedicated to our team out of the Cancer Center who can provide personalized transplant medicine care, mail order, review meds, etc.

The transplant team will either give you written prescriptions, or transmit your prescriptions to the pharmacy of your choice before your initial discharge from the hospital. Please, plan ahead and know well in advance the name and telephone number for your local pharmacy so the medication will be available for pick up when you go home. You may find it helpful to call your medical insurance representative, social worker, local pharmacist, or financial counselor for information and advice about the non-covered costs of the medications to you.

Some drug companies may provide free or reduced priced medication produced by their company to individuals with limited financial resources. For individuals who might qualify, the enrollment process can take months, and it is different for each company and medication. It cannot be relied on to meet your needs after transplant. The transplant team members are willing to help direct you to assistance programs if the need arises. Duke does not have a program that routinely provides medications after transplant.

MEDICATIONS

General Medication Guidelines

You will take medications to suppress your immune system every day as long as your transplant is working. These medications must be taken to prevent rejection of your transplanted organ. You can never stop these medications, unless instructed by your transplant physician. Remember, stopping or changing the doses of your medications without the approval of your doctor can make you very sick and can even result in the loss of your transplanted organ, and your life.

Follow these guidelines with all of your medications:

- Take all medications as directed. Stay with prescribed schedules and try not to miss any doses.
- The doses of your medications will change periodically. After you are home, the medication changes may be discussed with you over the phone. Be sure to write down the changes you are instructed to make on your medications list. The directions on your medication bottles will not be current if your doses change, so you will need to keep a list of all your medicines and doses.
- Always take your medication according to your most recent medication list. Destroy old lists when you make, or are given, a new one.
- It is extremely important that you take your medications at the same time each day. You may set your schedule around meals and bedtime. It can be easy to forget whether you took your pills or not. You may find it helpful to set up a system to remind you to do so. The seven-day pill box provided by the transplant pharmacist at the time of your initial discharge from the hospital may help you to remember.
- If you miss a dose, take it as soon as you remember, if it is within three hours of the time the dose was originally scheduled. If you are almost due for your next dose, do not take the missed dose, and do not double the next dose. Instead, go back to your regular dosing schedule, and notify the transplant coordinator. If you have questions or are unsure if you should take a dose, notify your transplant coordinator.
- If you are vomiting, having trouble keeping your medications down, or experiencing diarrhea, call the transplant coordinator to discuss what can be done since your antirejection medication levels may become low.
- Store all medications away from heat and direct light. Do not keep medications in the bathroom cabinet as heat and moisture may cause more rapid deterioration of the drug and decrease the medication's effectiveness.

Medication Do's and Don'ts

Do

- Inform the transplant office of any new medications prescribed by other physicians BEFORE you begin taking them.
- Keep track of how many refills you have on each medication, and bring a list of any needed refills to the transplant clinic.

- Keep the name and phone number of your local pharmacy handy.
- Keep the transplant office up-to-date on your allergies.
- Store all your medications in their original container in a cool, dry, place (not the bathroom) and away from direct light and heat. You may keep a week's worth of medications outside of their bottles as long as they are in your pill box.
- Keep a close track of the amount of medication you have on hand.

Don't

- Run out of medication before seeking refills.
- Wait until a weekend or after 4 pm to call for refills needed that day.
- Take any new over-the-counter medications, vitamins, herbal medicines, food supplements, or new medications prescribed by other physicians without checking with the transplant office.
- Depend on your pharmacist to notify you when you need prescription refills.

Immunosuppression

Cyclosporine (Neoral, Gengraf)



What does cyclosporine do?

CYCLOSPORINE (Neoral, Gengraf) is an antirejection or immunosuppressive medication. It can suppress or reduce the body's natural immunity, making it less able to fight infections and preventing the rejection of "foreign bodies." Cyclosporine helps to prevent rejection in transplant patients. There are several brands of cyclosporine capsules and they are not absorbed by the body equally. Make sure you always use the same brand unless your transplant coordinator tells you to switch brands.

How should I take this medicine?

Cyclosporine is available in 25 and 100 mg gel caps. Take cyclosporine capsules by mouth. It is usually taken twice daily at 9 am and 9 pm; the doses should always be spaced 12 hours apart. Take the capsules in a regular manner at the same time each day and at the same time in relation to meals. This will help you keep a constant amount of cyclosporine in your body. Do not take your medicine more often than directed or skip doses. You should avoid drinking grapefruit juice or eating grapefruits while you are taking cyclosporine. On the days that you come to transplant clinic appointments, you will have your blood drawn for a cyclosporine level. **On these days, do not take your morning cyclosporine dose until after your blood has been drawn.** Cyclosporine is very similar to tacrolimus (Prograf), another antirejection medicine. **You will take either cyclosporine or tacrolimus. You will never be on both at the same time.**

Why is a cyclosporine level important?

It is important to keep the cyclosporine level between 200 and 300 mg/mL in the first months after transplant. If the cyclosporine level is too high, you may have side effects. If the cyclosporine level is too low, you may have rejection. You will not usually have any symptoms that your drug level is not appropriate. This is why regular lab tests and clinic follow up visits are so important. The blood test for the cyclosporine level is always before your morning dose. On clinic days, or whenever the transplant team asks you to get a cyclosporine blood level checked, you will wait to take your morning dose of cyclosporine until your blood is drawn. Your dose may change over time based on your cyclosporine level, so you may not always be on the same dose. A member of the transplant team will let you know if you need to change your dose.

What if I miss a dose?

If you miss a dose, take it as soon as you can. If it has been more than 3 hours since you should have taken your dose, then wait and take the next scheduled dose. Do not take double or extra doses. Contact your transplant coordinator if you miss more than one dose. If you throw up after a dose and can see pill fragments in the vomit, then retake the dose.

Should I avoid any food?

You cannot have grapefruit or grapefruit juice when you take cyclosporine. Grapefruit slows the metabolism, or break down of cyclosporine by your liver. If you eat grapefruit or drink grapefruit juice while taking cyclosporine, the blood levels of cyclosporine can become toxic and cause serious side effects.

What other medicines can interact with cyclosporine?

Cyclosporine has a lot of drug interactions. This means that a lot of drugs can change your blood level of cyclosporine, or have similar side effects which “add up” when taken with cyclosporine. Do not take any medications prescribed by doctors outside of the transplant team without checking with your transplant coordinator first. These are some of the most important medications that may interact with cyclosporine:

- Antibiotics and other medicines for infections (rifampin, rifabutin, clarithromycin, erythromycin)
- Anti-inflammatory drugs (NSAIDs, such as ibuprofen, ketoprofen, naproxen)
- Medicines for cholesterol such as simvastatin, atorvastatin, lovastatin
- Grapefruit juice
- Amiodarone
- Aluminum hydroxide
- Cimetidine
- Orlistat
- St. John's Wort
- Warfarin
- □
- Seizure (convulsion) or epilepsy medicine (carbamazepine, oxcarbazepine, phenytoin, phenobarbital)
- Medicines for fungal infections, such as ketoconazole, fluconazole, voriconazole
- Some medicines for high blood pressure, such as verapamil and diltiazem

What side effects may I notice from taking cyclosporine?

Taking cyclosporine can produce many side effects. Some of the more common side effects that patients complain about are nausea, headache, and tremor. Many of the side effects go away after your body gets used to being on cyclosporine. The transplant team will be watching closely for side effects after your transplant. Always taking your cyclosporine as instructed by the transplant team can help prevent side effects. Contact your transplant coordinator about any unusual effects.

Serious side effects with cyclosporine can include:

- Confusion, depression
- High blood pressure
- High blood sugar
- High cholesterol
- Irregular heartbeat
- Numbness, tingling in the hands and feet
- Problems seeing or changes in vision
- Seizures (convulsions)
- Signs, symptoms of an infection, such as fever, chills, sore throat.
- Stomach pain.
- Wheezing or shortness of breath.
- Yellow-colored skin or eyes.
- Decreased kidney function
- High triglycerides
- High blood potassium
- Low blood magnesium

Some side effects usually do not require medical attention. Report them to your transplant coordinator if they continue or are bothersome:

- Acne
- Bleeding or tender gums, overgrowth of gum tissue
- Excessive hair growth on the face or body
- Leg cramps
- Loss of appetite
- Nausea, vomiting, diarrhea

- Headache
- Tremors

What do I need to watch for while I take cyclosporine?

You will be visiting the transplant clinic for regular checks on your progress, and for regular cyclosporine level checks. Do not change the brand of cyclosporine unless directed by your transplant coordinator.

Cyclosporine can increase your blood pressure. The transplant team will want to monitor your blood pressure and you may have to take other medicines to keep your blood pressure under control.

Cyclosporine can cause birth defects. Women should use effective birth control methods while taking cyclosporine. Women who become pregnant should discuss the potential risks and options with their physician.

Cyclosporine will decrease your body's ability to fight infections. Call your transplant coordinator if you have a fever, chills, sore throat or other symptoms of a cold or flu. Do not treat these symptoms yourself. Try to avoid being around people who are sick. Discuss whether or not you should receive vaccinations with the transplant team.

Cyclosporine may increase your risk for certain types of skin cancer, especially if you have psoriasis. To decrease your risk, wear protective clothing, including hats, and use sunscreen with a high protection factor (SPF 30 or greater) when exposed to the sun. Do not use tanning beds.

Cyclosporine can cause unusual growth of gum tissue and can make your gums bleed. Practice good oral hygiene, and be careful when brushing and flossing your teeth. See your dentist regularly.

You can take acetaminophen (Tylenol) for pain or headaches. All other pain medicines you can buy without a prescription, besides your regular daily aspirin dose, can cause kidney damage, especially while you are taking cyclosporine. You cannot take ibuprofen (Advil), ketoprofen (Orudis KT), or naproxen (Aleve) products.

Tell all of your physicians or health care professionals that you are taking cyclosporine.

Where can I keep my medicine?

Keep out of the reach of children in a container that small children cannot open.

Store it at room temperature – between 15°C-30°C (59°F-86°F). Throw away any unused medicine after the expiration date.

Tacrolimus (Prograf)



What does tacrolimus do?

TACROLIMUS (Prograf) is an antirejection or immunosuppressive medication. It can suppress or reduce the body's natural immunity, making it less able to fight infections and preventing the rejection of "foreign bodies." Tacrolimus helps to prevent rejection in patients who receive transplants. There are several brands of tacrolimus capsules and they are not absorbed by the body equally. Make sure you always use the same brand unless your transplant coordinator tells you to switch brands. Generic versions of this medicine will have different colors than those above.

How should I take this medicine?

Tacrolimus is available in 0.5 mg, 1 mg, and 5 mg capsules. Take tacrolimus capsules by mouth. It is usually taken twice daily at 9 am and 9 pm; the doses should always be spaced 12 hours apart. Take the capsules in a regular manner at the same time each day and at the same time in relation to meals. This will help you keep a constant amount of tacrolimus in your body. Do not take your medicine more often than directed or skip doses. You should avoid drinking grapefruit juice or eating grapefruits while you are taking tacrolimus. On the days that you come to transplant clinic appointments, you will have your blood drawn for a tacrolimus level. On these days, do not take your morning tacrolimus dose until AFTER your blood has been drawn. Tacrolimus is very similar to cyclosporine (Neoral, Gengraf), another antirejection medicine. You will take either tacrolimus or cyclosporine. You will never be on both at the same time.

Why is a tacrolimus level important?

It is important to keep the tacrolimus level between 8 and 10 ng/mL in the first months after transplant. If the tacrolimus level is too high, you may have side effects. If the tacrolimus level is too low, you may have rejection. The blood test for the tacrolimus level is always before your morning dose. On clinic days or whenever the transplant team asks you to get a tacrolimus blood level checked, you will wait to take your morning dose of tacrolimus until your blood is drawn. Your dose may change over time, based on your tacrolimus level, so you may not always be on the same dose. A member of the transplant team will let you know if you need to change your dose.

What if I miss a dose?

If you miss a dose and it is within three hours of the time the dose was due, you may take the dose. If it is more than three hours later than your dose was due, then wait and take the next scheduled dose. Do not take double or extra doses. Contact your transplant coordinator if you miss more than one dose, or if you are vomiting and unable to keep your medicine down.

Should I avoid any food?

You cannot have grapefruit or grapefruit juice when you take tacrolimus.

Grapefruit slows the metabolism, or break down of tacrolimus by your liver. If you eat grapefruit or drink grapefruit juice while taking tacrolimus, the blood levels of tacrolimus can become toxic and cause serious side effects.

What other medicines can interact with tacrolimus?

Tacrolimus has a lot of drug interactions.. This means that a lot of drugs can change your blood level of tacrolimus, or have similar side effects which “add up” when taken with tacrolimus. Do not take any medications prescribed by doctors outside of the transplant team without checking with your transplant coordinator first. These are some of the most important medications that may interact with tacrolimus:

- Antibiotics and other medicines for infections (rifampin, rifabutin, biaxin, erythromycin)
- Anti-inflammatory drugs (NSAIDs, such as ibuprofen, ketoprofen, naproxen)
- Grapefruit juice
- Amiodarone
- Aluminum hydroxide
- Medicines for fungal infections, such as ketoconazole, fluconazole, or voriconazole
- Cimetidine
-
- Orlistat
- Seizure (convulsion) or epilepsy medicine (carbamazepine, oxcarbazepine, phenytoin, phenobarbital)
- St. John's Wort
- Warfarin
- Some medicines for high blood pressure, such as verapamil and diltiazem
-

What side effects may I notice from taking tacrolimus?

Taking tacrolimus can produce many side effects. These mainly affect the kidneys and central nervous system. Some of the more common side effects that patients complain about are nausea, headache, and tremors. Many of the side effects improve after your body gets used to being on tacrolimus. The transplant team will be watching closely for side effects after your transplant. Always taking your tacrolimus as instructed by the transplant team can help prevent side effects. Contact your transplant coordinator about any unusual effects.

Serious side effects with tacrolimus can include:

- Blurred vision, increased sensitivity of the eyes to light
- Burning or tingling in the hands or feet
- Difficulty breathing, wheezing
- Fever, chills, sore throat, mouth sores, or hoarseness (signs of infection)
- Ringing in the ears
- Skin rash or itching (hives)
- Seizures (convulsions)
- Stomach, back, or general pain
- Swelling of the feet or legs, unusual or

- Mood changes, depression, confusion
- Decreased kidney function
- High blood sugar
- sudden weight gain
- Tremor
- Yellowing of skin or eyes
- High blood potassium
- Low blood magnesium
- High cholesterol

Some side effects usually do not require medical attention. Report them to your transplant coordinator if they continue or are bothersome:

- difficulty sleeping, nightmares
- hair loss
- headache
- loss of appetite
- nausea, vomiting, diarrhea or constipation
- tremor

What do I need to watch for while I take tacrolimus?

Tacrolimus is a strong medication and can produce serious side effects. The levels of tacrolimus in the blood need to be checked periodically and you will be visiting the transplant clinic on a regular basis to do so.

You will have an increased risk of infection while taking tacrolimus. Try to avoid people with infections. Call your transplant coordinator for advice if you get a fever, chills, sore throat or a cough, do not treat yourself. Do not have any vaccinations without your prescriber's approval.

Your blood sugar may increase. Call your transplant coordinator for advice if you have any of the following symptoms: increased thirst, dry mouth, pass urine frequently, notice a fruity odor on your breath, or feel tired and lose your appetite.

You can take acetaminophen (Tylenol) for pain or headaches. All other pain medicines you can buy without a prescription ,besides your regular daily aspirin dose, can cause kidney damage, especially while you are taking tacrolimus. You cannot take ibuprofen (Advil), ketoprofen (Orudis KT), or naproxen (Aleve) products.

Tell all of your physicians or health care professionals that you are taking tacrolimus.

Where can I keep my medicine?

Keep out of the reach of children in a container that small children cannot open.

Store at room temperature between 15°C–30°C (59°F–86°F). Throw away any unused medicine after the expiration date.

Mycophenolate (CellCept and Myfortic)



250mg capsule of Cellcept



180mg tablet of Myfortic

What do mycophenolate tablets or capsules do?

MYCOPHENOLATE MOFETIL (CellCept) or Mycophenolate Sodium (Myfortic) are medications used to decrease the immune system's ability to reject "foreign bodies." Mycophenolate prevents rejection in patients who receive organ transplants. Generic mycophenolate capsules or tablets are available.

How should I take this medicine?

Mycophenolate is available in 250 mg capsules and 180 mg tablets. This medicine is also available as a liquid. Take mycophenolate capsules and tablets by mouth. Mycophenolate is usually taken twice daily, and should be taken at regular intervals, usually at 9 am and 9 pm. Do not take your medicine more often than directed. Do not crush the tablets or open the capsules. Avoid contact with the contents of the capsules or broken tablets. If contact occurs, rinse thoroughly with water.

What if I miss a dose?

If it is within three hours of the scheduled dose, take it as soon as you can. If it is more than three hours since your scheduled dose, then wait and take the next scheduled dose. Do not take double or extra doses.

What other medicines can interact with mycophenolate mofetil?

- Antacids
- Iron supplements, like ferrous sulfate
- Cholestyramine
-

What side effects may I notice from taking mycophenolate mofetil?

Mycophenolate's most common side effect is upset stomach, particularly diarrhea. Taking mycophenolate with food can minimize stomach upset. Mycophenolate can sometimes decrease your blood counts (white blood cells and platelets). The transplant team checks your blood counts when you come to clinic. If your blood counts drop, they may decrease your dose.

Side effects that you should report to your physician or health care professional as soon as possible:

- Back pain or general pain
- Blood in urine
- Difficulty breathing, wheezing
- Dizziness or fainting
- Fever, chills, or sore throat
- Swelling of the feet or legs
- Swollen face or tongue
- Unusual bleeding or bruising
- Unusual tiredness or weakness

What do I need to watch for while I take mycophenolate mofetil?

You will receive frequent blood checks during the first few months you are receiving mycophenolate capsules at the transplant clinic, to check for low blood counts.

Mycophenolate can cause birth defects in animals. It is not known if it will cause birth defects in humans. Women who may have children must have a negative pregnancy test within 1 week of starting therapy. In addition, women must use two forms of effective birth control (condoms and birth control pills, for example) before, during, and for six weeks after finishing treatment. Women who become pregnant should discuss the potential risks and options with their physician.

Mycophenolate will decrease your body's ability to fight infections. Call your transplant coordinator if you have a fever, chills, sore throat, or other symptoms of a cold or flu. Do not treat these symptoms yourself. Try to avoid being around people who are sick.

Mycophenolate may increase your risk to bruise or bleed. Call your transplant coordinator if you notice any unusual bruising or bleeding.

Mycophenolate may increase your risk for certain types of skin cancer. To decrease your risk, wear protective clothing, including hats, and use sunscreen with a high protection factor when exposed to the sun. Avoid using tanning beds.

Where can I keep my medicine?

Keep out of the reach of children in a container that small children cannot open. Store in a cool, dry place. Throw away any unused medicine after the expiration date.

Sirolimus (Rapamune)



What does sirolimus do?

SIROLIMUS (Rapamune) is an antirejection or immunosuppressive medication. It can suppress or reduce the body's natural immunity, making it less able to fight infections and preventing the rejection of "foreign bodies." Sirolimus helps to prevent rejection in patients who receive transplants.

How should I take this medicine?

Take sirolimus tablets by mouth. Sirolimus is available in 1 mg and 2 mg tablets. Your doses may be taken with or without food, but make sure to take it the same way all the time. You should avoid drinking grapefruit juice or eating grapefruits while you are taking sirolimus. Do not take your medicine more often than directed or skip doses. Sirolimus is usually taken once daily. If you are also taking cyclosporine, take the sirolimus dose at least four hours apart from the cyclosporine dose (if you normally take your cyclosporine doses at 9 am and 9 pm, then take your sirolimus dose between 1 pm and/or 5 pm).

On the days that you come to transplant clinic appointments, you may have your blood drawn for a sirolimus level. On these days, do not take your sirolimus dose until after your blood has been drawn.

Why is a sirolimus level important?

It is important to keep the sirolimus level between 4 and 12 ng/mL. If the sirolimus level is too high, you may have side effects. If the sirolimus level is too low, you may have rejection. The blood test for the sirolimus level is always before your morning dose. On clinic days or whenever the transplant team asks you to get a sirolimus blood level checked, you will wait to take your morning dose of sirolimus until your blood is drawn. Your dose may change over time based on your sirolimus level, so you may not always be on the same dose. A member of the transplant team will let you know if you need to change your dose.

What if I miss a dose?

If you miss a dose, take it as soon as you can. Since sirolimus is taken once daily, you should take it as soon as you remember. If it is almost time for your next dose, take only that dose. Do not take double or extra doses.

Should I avoid any food?

You cannot have grapefruit or grapefruit juice when you take sirolimus. Grapefruit slows the metabolism, or break down of sirolimus by your liver. If you eat grapefruit or drink grapefruit juice while taking sirolimus, the blood levels of sirolimus can become toxic and cause serious side effects.

What other medicines can interact with sirolimus?

Sirolimus has a lot of drug interactions. That means that there are a lot of drugs that can change your blood level of sirolimus. Do not take any medications prescribed by doctors outside of the transplant team without checking with your transplant coordinator first. These are some of the most important medications that may interact with sirolimus:

- Antibiotics and other medicines for infections (Rifampin, rifabutin, Biaxin)
- Anti-inflammatory drugs (NSAIDs, such as ibuprofen, ketoprofen, naprosyn)
- Amiodarone
- Cyclosporine
- Cimetidine
- Grapefruit juice
- Medicines that treat cholesterol, such as simvastatin, atorvastatin, lovastatin
- Medicines for fungal infections, such as ketoconazole, fluconazole, voriconazole
- Some medicines for high blood pressure, such as verapamil and diltiazem
- Orlistat
- Seizure (convulsion) or epilepsy medicine (carbamazepine, oxcarbazepine, phenytoin, phenobarbital)
- St. John's Wort
- Warfarin

What side effects may I notice from taking sirolimus?

Some side effects should be reported to your transplant coordinator as soon as possible:

- Difficulty breathing
- Rapid heartbeat or chest pain
- Signs of infection, such as fever, chills, cough, sore throat, pain/difficulty passing urine
- signs of decreased platelets or bleeding - bruising, pinpoint red spots on the skin, black, tarry stools, and blood in the urine
- Signs of decreased red blood cells, such as unusual weakness or tiredness, fainting spells, light headedness
- Skin rash or hives

Some side effects usually do not require medical attention. Report to your transplant coordinator if they continue or are bothersome:

- Acne
- Difficulty sleeping
- Headache
- Diarrhea or soft stools
- Nausea, vomiting
- Stomach pain, indigestion

What do I need to watch for while I take sirolimus?

Kidney Transplant Program

Sirolimus can increase your cholesterol or lipid levels and cause protein in the urine. You will need frequent blood checks during the first few months you are receiving sirolimus to check for this effect and others.

Sirolimus will decrease your body's ability to fight infections. Call your transplant coordinator if you have a fever, chills, sore throat, or other symptoms of a cold or flu. Do not treat these symptoms yourself. Try to avoid being around people who are sick. Sirolimus may increase your risk to bruise or bleed. Call your transplant coordinator if you notice any unusual bruising or bleeding.

If you stop taking this medication, side effects can continue. Some side effects may not occur until years after the medicine was taken. These effects can include the development of certain types of cancer. Discuss this possibility with your physician or health care professional.

Patients who are able to have children should use effective birth control methods before, during, and for 12 weeks following sirolimus therapy.

Where can I keep my medicine?

Keep out of the reach of children in a container that small children cannot open.

Store it at room temperature between 15°C-25°C (59°F-77°F). Protect from the light. Throw away any unused medicine after the expiration date.

Prednisone (Deltasone)



Generic 5 mg prednisone examples

What do prednisone tablets do?

PREDNISONE (Deltasone) is a corticosteroid and antirejection medication. It can suppress or reduce the body's natural immunity, making it less able to fight infections and preventing the rejection of "foreign bodies." Prednisone helps to prevent rejection in transplant patients. Generic prednisone tablets are available.

How should I take this medicine?

Take prednisone tablets by mouth. Follow the directions on the prescription label. Take with food or milk to avoid stomach upset. If you are only taking prednisone once a day, take it in the morning to prevent difficulty sleeping at night. Your prednisone dose will gradually decrease over time; refer to your medication schedule for your exact doses each day.

What if I miss a dose?

If you miss a dose, take it as soon as you can. Do not take double or extra doses without advice.

What other medicines can interact with prednisone?

- Anti-inflammatory drugs (NSAIDs, such as ibuprofen)
- Barbiturate medicines for inducing sleep or treating seizures
- Digoxin
- Female hormones, including contraceptives or birth control pills
- Medicines for diabetes
- Phenytoin
- Rifabutin
- Rifampin
- Water pills
- Warfarin

What side effects may I notice from taking prednisone?

Side effects that you should report to your prescriber or health care professional as soon as possible:

- Bloody or black, tarry stools
- Confusion, excitement, restlessness, a false sense of well-being
- Eye pain, decreased/blurred vision, bulging eyes
- Fever, sore throat, sneezing, cough, other
- Muscle cramps, weakness
- Nausea, vomiting
- Pain in hips, back, ribs, arms, shoulders, legs
- Rounding out of face

- signs of infection, wounds that will not heal
- Frequent passing of urine
- Increased thirst
- Irregular heartbeat
- Menstrual problems
- Mental depression, mood swings
- High blood sugar
- Skin problems, acne, thin and shiny skin
- Stomach pain
- Swelling of feet, lower legs
- Unusual bruising, pinpoint red spots on the skin
- Unusual tiredness, weakness
- Weight gain; weight loss
- High cholesterol

Some side effects that usually do not require medical attention. Report to your transplant coordinator if they continue or are bothersome:

- Diarrhea or constipation
- Headache
- Increased or decreased appetite
- Increased sweating
- Nervousness, restlessness, or difficulty sleeping
- Upset stomach
- Unusual increased growth of hair on the face or body

What do I need to watch for while I take prednisone?

Do not suddenly stop taking prednisone. You may need to gradually reduce the dose, so that your body can adjust. Follow your medication schedule for instructions on how to reduce your prednisone dose over time. Contact your transplant coordinator if you have questions about your prednisone dose.

You will have an increased risk from infection while taking prednisone. Tell your physician or health care professional if you are exposed to anyone with measles or chickenpox, or if you develop sores or blisters that do not heal properly. Make sure to tell your physician or health care professional that you are taking prednisone before receiving any vaccine.

Alcohol can increase the risk of serious side effects while you are taking prednisone. Avoid alcoholic drinks.

Where can I keep my medicine?

Keep out of the reach of children in a container that small children cannot open. Store it at room temperature between 15°C-30°C (59°F-86°F). Throw away any unused medicine after the expiration date.

Anti-Infectives

Sulfamethoxazole / Trimethoprim (Septra, Bactrim, SMX-TMP)



What do SMX-TMP tablets do?

SMX-TMP (Bactrim, Septra) is a combination of two antibiotics, trimethoprim and sulfamethoxazole. It is used to prevent a special kind of pneumonia called pneumocystis carinii (PCP). This is a pneumonia that transplant patients can get because of their low immune systems. If you are allergic to SMX-TMP, which is a “sulfa drug,” you will take either dapsone or inhaled pentamidine instead. Generic SMX-TMP tablets are available.

How should I take this medicine?

You will take SMX-TMP for one year after transplant. Take SMX-TMP tablets by mouth. Do not take your medicine more often than directed or skip doses.

What if I miss a dose?

If you miss a dose, take it as soon as you can. If it is almost time for your next dose, take only that dose. Do not take double or extra doses. If you are taking one dose a day and have to take a missed dose, make sure there is at least 10 to 12 hours between doses.

What other medicines can interact with SMZ-TMP?

- Cyclosporine
- Dapsone
- Digoxin
- Medicines for diabetes
- Methotrexate
- Metronidazole
- Phenytoin
- Rifampin
- Warfarin

Check with your health care professional if you have questions about these interactions.

What side effects may I notice from taking SMZ-TMP?

Side effects that you should report to your prescriber or health care professional as soon as possible:

- Anemia, other blood disorders
- Allergic reactions
- Bluish fingernails, lips
- Difficulty breathing
- Fever or chills, sore throat
- Lower back pain
- Muscle aches, pains
- Pain/difficulty passing urine
- Skin rash, itching
- Unusual bleeding, bruising

- Increased sensitivity to the sun, ultraviolet light
- Joint aches, pains
- Unusual weakness or tiredness
- Yellowing of the eyes or skin

Some side effects usually do not require medical attention. Report to your prescriber or health care professional if they continue or are bothersome:

- Diarrhea
- Dizziness
- Headache
- Loss of appetite
- Nausea
- Vomiting

What do I need to watch for while I sulfamethoxazole-trimethoprim?

Keep out of the sun, or wear protective clothing outdoors and use a sunscreen. Do not use sun lamps or sun tanning beds or booths. Drink several glasses of water a day.

Where can I keep my medicine?

Keep out of the reach of children in a container that small children cannot open. Store it at room temperature between 15°C-25°C (59°F-77°F). Protect from light and moisture. Throw away any unused medicine after the expiration date.

Virus Suppression

Zovirax (Acyclovir)



What does acyclovir do?

ACYCLOVIR (Zovirax) is an antiviral agent. Acyclovir is used in some patients to prevent herpes simplex infection (HSV) after transplant. HSV is a virus that many people are exposed to at some point in their life. HSV may not make you sick when you are exposed to it before transplant. It does live dormant in your body for the rest of your life, however. After the transplant, when your immune system is weak, HSV can flare up and cause problems. If you have been exposed to HSV before transplant, you will take acyclovir after the transplant.

How should I take this medicine?

Acyclovir is available in 200 mg, 400 mg and 800 mg capsules or tablets. Take acyclovir caplets by mouth. You can take acyclovir with or without food. Take your doses at regular intervals. Do not take your medicine more often than directed. If you are at risk for HSV infection, you will take acyclovir once daily for three months after transplant.

What if I miss a dose of acyclovir?

If you miss a dose, take it as soon as you can. If it is almost time for your next dose, take only that dose. Do not take double or extra doses.

What other medicines can interact with acyclovir?

- Cimetidine
- Phenytoin
- Probenecid

What side effects may I notice from taking acyclovir?

Some side effects that you should report to your transplant coordinator as soon as possible:

- Reduced amount of urine passed
- Skin rash
- Hives
- Stomach pain
- Unusual weakness, tiredness

Some side effects usually do not require medical attention. Report to your transplant coordinator if they continue or are bothersome:

- Bone pain
- Dizziness
- Headache
- Nausea, vomiting

Where can I keep my medicine?

Keep out of the reach of children in a container that small children cannot open. Store at room temperature between 15° and 30°C (59° and 86°F). Throw away any unused medicine after the expiration date.

Valganciclovir (Valcyte)



What do valganciclovir tablets do?

VALGANCICLOVIR (Valcyte) is a medication used to prevent and treat viral infections caused by cytomegalovirus (CMV). Some patients will have to take valganciclovir after transplant to prevent or treat CMV. CMV is a virus that most of us are exposed to at some point in our lives. CMV may not make you sick when you are exposed to it before transplant. However, it does live dormant in your body for the rest of

your life after you are exposed to it. After the transplant when your immune system is weakened, CMV can flare up and cause problems with your kidneys, liver, stomach, and/or lungs.

How should I take this medicine?

Valganciclovir is available in a 450 mg tablet. Take valganciclovir tablets by mouth. Do not crush or open the tablets. If you are at risk for CMV disease, you will take either one or two valganciclovir tablets every day at dinner, for six months after your transplant. You may also have to take this later after your transplant, if you become sick with CMV infection. Take the daily dose with dinner to increase the amount of medication absorbed. Do not take your medicine more often than directed or skip doses.

What if I miss a dose of valganciclovir?

If you miss a dose, take it as soon as you can. If it is almost time for your next dose, take only that dose. Do not take double or extra doses.

What other medicines can interact with valganciclovir?

- Probenecid
-

What side effects may I notice from taking valganciclovir?

Some side effects should be reported to your transplant coordinator as soon as possible. Valganciclovir may decrease the number of white blood cells, red blood cells, and platelets. You may be at increased risk for infections and bleeding.

- Signs of infection: fever or chills, cough, sore throat, pain/difficulty passing urine
- Signs of decreased platelets, bleeding, bruising, pinpoint red spots on the skin, black, tarry stools, blood in the urine
- Signs of decreased red blood cells, unusual weakness or tiredness, fainting spells, light headedness, mouth sores
- Seizures (convulsions)
- Skin rash, itching/tingling/pain in hands, feet
- Confusion, dizziness, or unstable while walking

Some side effects usually do not require medical attention. Report these to your transplant coordinator if they continue or are bothersome:

- Diarrhea
- Heartburn
- Nausea, vomiting
- Tiredness
- Stomach pain
-

What do I need to watch for while I take valganciclovir?

You will need regular blood checks in transplant clinic to monitor for low blood counts. Valganciclovir can increase your risk for other infections or to bruise or bleed. Call your transplant coordinator if you have a fever, chills, sore throat, or other symptoms of a cold or flu. Do not treat these symptoms yourself. Try to avoid being around people who are sick. Call your transplant coordinator if you notice any unusual

bleeding. Be careful not to cut, bruise, or injure yourself because you may get an infection and bleed more than usual.

Valganciclovir may harm your unborn baby or, in men, decrease sperm production. You should contact your transplant coordinator if you believe or suspect you or your partner has become pregnant while you are taking valganciclovir. Both men and women must use effective birth control continuously while taking valganciclovir. Men should continue to use a condom for at least 90 days after stopping valganciclovir therapy. Do not nurse your baby while you are taking valganciclovir.

Where can I keep my medicine?

Keep out of reach of children. Store valganciclovir tablets at room temperature 15°C–30°C (59°F–86°F). Throw away any unused medicine after the expiration date.

Acid Reducers

Ranitidine (Zantac)



What does ranitidine do?

RANITIDINE (Zantac) is a type of antihistamine that blocks the release of stomach acid. Ranitidine is used to prevent and treat stomach and intestinal ulcers. Ranitidine is also used to control acid reflux (heartburn). Generic ranitidine tablets are available.

How should I take ranitidine?

Take ranitidine tablets by mouth. Swallow the tablets with a drink of water. If you only take ranitidine once a day, take it at bedtime. Do not take your medicine more often than directed or skip doses.

What if I miss a dose?

If you miss a dose, take it as soon as you can. If it is almost time for your next dose, take only that dose. Do not take double or extra doses.

What other medicines can interact with ranitidine?

- Cefpodoxime
- Ketoconazole
- Cefuroxime
- Theophylline

What side effects may I notice from taking ranitidine?

Some side effects should be reported to your physician or health care professional as soon as possible:

- Confusion
- Skin rash, itching
- Hallucinations

Some side effects usually do not require medical attention. Report these to your physician or health care professional if they continue or are bothersome.

- Agitation, nervousness
- Constipation
- Diarrhea
- Dizziness
- Headache
- Nausea

What do I need to watch for while I take ranitidine?

Do not self-medicate with aspirin, ibuprofen or other anti-inflammatory medicines. Do not smoke cigarettes or drink alcohol. Cigarettes and alcohol can also worsen acid reflux or heartburn. If you get black, tarry stools or vomit up what looks like coffee grounds, call your prescriber or health care professional at once.

Where can I keep my medicine?

Keep out of the reach of children in a container that small children cannot open. Store it at room temperatures below 40°C (104°F). Throw away any unused medicine after the expiration date.

Pantoprazole (Protonix) and Omeprazole (Prilosec)



Pantoprazole



Omeprazole

What does pantoprazole or omeprazole do?

PANTOPRAZOLE (Protonix) and omeprazole (Prilosec) prevents the production of acid in the stomach. They reduces symptoms and prevents injury to the esophagus, stomach, or intestines in patients with gastroesophageal reflux disease (GERD) or ulcers. Pantoprazole and omeprazole are used to prevent and treat stomach and intestinal ulcers.

How should I take pantoprazole or omeprazole?

Take pantoprazole or omeprazole tablets by mouth. Follow the directions on the prescription label. Swallow the tablets with a full glass of water; do not crush, break or chew. Take your doses at regular intervals. Do not take your medicine more often than directed or skip doses.

What if I miss a dose?

If you miss a dose, take it as soon as you can. If it is almost time for your next dose, take only that dose. Do not take double or extra doses.

What other medicines can interact with pantoprazole or omeprazole?

- Ampicillin
- Digoxin
- Ketoconazole
- Phenytoin
- Iron salts
- Diazepam
- Warfarin
- clopidogrel

What side effects may I notice from taking pantoprazole or omeprazole?

Some side effects should be reported to your prescriber or health care professional as soon as possible:

- Redness, blistering, peeling, loosening of the skin, including inside the mouth
- Shortness of breath
- Skin rash
- Swelling of the face, tongue, lips

Some side effects usually do not require medical attention. Report these to your prescriber or health care professional if they continue or are bothersome.

- Headache
- Diarrhea, constipation
- Increased thirst, urination

What do I need to watch for while I take pantoprazole or omeprazole?

It can take several days of therapy with pantoprazole or omeprazole before your stomach pains improve. Check with your prescriber or health care professional if your condition does not improve, or if it gets worse.

Where can I keep my medicine?

Keep out of the reach of children in a container that small children cannot open.

Store it at room temperature between 15°C–30°C (59°F–86°F). Protect from light and moisture. Throw away any unused medicine after the expiration date.

RESUMING LIFE AFTER TRANSPLANT

Clinic Visits

You will be seen frequently in the Transplant Clinic during the first six months after your discharge from the hospital. In the clinic, you will see different doctors and will not be assigned to a particular doctor. After one year, you will alternate visits with the transplant center and the nephrologist whom you saw while you were waiting for a transplant. As time passes and your condition improves, we will see you less often. However, you will need to take medications regularly and have regular lab checks.

The nephrologist or surgeon who examines you will assess for signs of rejection, illness, problems with blood pressure or blood sugar control, and general health issues. This is the best time to ask questions about your transplant, medications, or other problems that you have noted. An annual chest X-ray will be obtained, unless it has been done by your local physician. A transplant coordinator will give you written instructions regarding your medications, dates for local lab work and your next clinic appointment. The function of your transplant and general health will be assessed by checking your blood pressure, weight, blood, and other tests.

Lab Studies

Periodically, you will need to have blood chemistries and other lab studies done. You will get labs at every clinic visit. In addition, we will ask you to get labs done locally between your visits. This is a way to monitor for rejection, but we will also be monitoring drug levels. We will give you a letter to take to the local laboratory, instructing them about lab studies. Your transplant coordinator or transplant physician will give specific instruction when to get or obtain blood work. A list of common blood tests and their importance is below.

We will be checking either tacrolimus, Cyclosporine or other drug levels. Please remember that when blood is drawn, it should be done first thing in the morning, **before** you take your morning dose of tacrolimus, cyclosporine, or sirolimus. Your local laboratory will mail this sample to its reference lab. The blood sample should not be mailed to Duke. When the results come back, the lab will fax us the results. The results of other lab studies will be faxed to the transplant office . If you have your labs done locally and you haven't been called by the transplant coordinator within five business days, we may not have received the results and need to call for the result. Please notify us if you don't hear from us within 5 days of getting blood drawn.

Hematocrit (Hct)

The Hct measures the percentage of red blood cells in your blood. If you are anemic, you may feel tired and have a low energy level. After transplantation, some patients may have too many red blood cells and may need to have some blood removed.

White Blood Count (WBC)

A low WBC may be due to a virus or medication. If the WBC is high, it may indicate the presence of infection and your medication may need to be modified.

Potassium (K)

Potassium is an electrolyte needed for normal heart and muscle function. If it is low, you may need a potassium supplement. If it is high, you may need treatment to lower it.

Creatinine

This level indicates how well your kidney is working. After transplantation, everyone develops his or her own creatinine range, often above the laboratory normal. An elevated creatinine may be due to rejection or a high cyclosporine or tacrolimus drug level.

Phosphorus

Phosphorus works with calcium for bone development. Frequently, it is low after transplantation, and replacement therapy will be needed. Elevated levels, which may be due to an overactive parathyroid gland, will be evaluated with further lab work.

Cholesterol

This measures the amount of fats in the blood. High cholesterol levels may contribute to heart attacks and strokes. It is important to decrease the saturated fat content of your diet and exercise daily. Cholesterol-lowering medications may be used if a low-cholesterol diet is ineffective.

Cyclosporine or Tacrolimus Level

These two drugs are the cornerstones of immunosuppression. You will be on one or the other; it is critical that you are on just the right amount as too little can lead to rejection and too much can irritate the kidney. Blood must be drawn before you take your morning dose. Remember to take your medication with you so that you can take it after your blood has been drawn. These levels will be reviewed by your physician to determine the correct dosage for you.

MANAGING AND AVOIDING COMPLICATIONS

Rejection

Rejection of your transplanted kidney or pancreas can occur at any time following your surgery. Episodes of rejection most commonly occur during the first few months after transplant. These early episodes are called acute rejection and are commonly reversible. Chronic rejection generally occurs, after months or years following transplantation, it is generally not reversible. Early diagnosis and treatment are essential in treating these episodes. Try not to become too alarmed if you are told that you are experiencing rejection. Episodes of rejection are expected, and other than taking your immunosuppression medications correctly and following doctor's orders, there is nothing you can do to prevent them from happening.

Acute rejection can be reversed if it is detected early. For this reason, it is important for you to be able to recognize signs and symptoms of rejection. These include:

- Fever greater than 100.5°
- Decreased urine output, blood in urine
- Weight gain or swollen feet and ankles
- Pain, swelling, tenderness around the kidney
- General flu-like symptoms

Rejection may occur without any symptoms that you can detect. The best sign of rejection is a rising creatinine level. That is why you need to get your blood tested frequently.

Treatment of rejection usually consists of three to five daily doses of intravenous methylprednisolone. Also known as Solu-Medrol, this drug is an intravenous form of prednisone. You will usually be admitted to the hospital for this treatment, but can be given in the outpatient setting.

If the Solu-Medrol doesn't turn the rejection around, we have other medications to use. We can use Thymoglobulin. This drug destroys cells responsible for rejection. Treatment can vary from five to 10 days. It is given intravenously in the hospital.

If the rejection is thought to be mild, the way to reverse it may be by increasing your oral prednisone dose, then rapidly decreasing back to baseline. If this method is chosen, your transplant physician will give you specific instructions. You probably will not have to be in the hospital for this treatment.

As advances are made in the treatment of rejection and new medications are developed, you may be offered newer treatment options. The new medications and how they work will be explained to you when the treatment is offered. As always, we encourage you to ask questions. Almost always, rejection can be reversed. There is a type of rejection known as chronic rejection, which is progressive deterioration of the transplanted organ. There is no treatment for this type of rejection. Additionally, some episodes of acute, severe rejection cannot be reversed, and dialysis will need to be started again. The rejected kidney will be removed only if it causes you to be ill.

Biopsies

After your transplant, you may need to have a biopsy of your transplanted kidney. A biopsy is a piece of kidney tissue that is removed from your body with a needle and studied under a microscope. Biopsies are

usually done when the creatinine is increasing for unclear reasons. Biopsies can tell the transplant team just what is going on inside the kidney.

A biopsy of your transplanted kidney will be done in the hospital. You will be taken to the Radiology department, where a small amount of jelly will be placed on your abdomen over the kidney transplant. A small box-like instrument called a transducer is then rubbed over the jelly, and a picture of the transplanted kidney is shown on a nearby screen. This is an ultrasound picture. Your transplant physician will clean the skin over your kidney with an antiseptic solution, and numb a small area with Lidocaine. When the area of skin is numb, a tiny incision is made, and then a needle is inserted into the kidney, using the picture on the screen as a guide. You will feel a sensation of pressure as the needle goes into the kidney. Once the needle is in the proper place in the kidney, it only takes a few seconds to withdraw the piece of tissue. The biopsy needle makes a popping noise like a cap gun when it takes the tissue out. Pressure will be held over the needle site for a few minutes to stop any bleeding that may occur.

After the biopsy is finished, you will remain on a stretcher for several hours. You will be instructed to remain in bed for the next 4-6 hours, and the nurses will check your pulse and blood pressure frequently. Some transplant patients pass a small amount of blood in their urine after a biopsy. This is usually nothing to worry about and clears up quickly. Always let the nurses check the urine after a biopsy.

Preliminary results of the biopsy may be ready in a few hours, but the final results take about 24 to 36 hours. You will likely go home after the biopsy and we will call you with the results.

Infection

Your immune system is the part of your body that is responsible for fighting infection. When the immunosuppression drugs weaken this system to prevent rejection of the transplanted kidney, you become more susceptible to infections. Your susceptibility to infection is directly related to the amount of immunosuppression that you are receiving at any given time. Therefore you need to be most careful in the first few months following transplant and for the first month after rejection treatment.

Bacteria, viruses, or fungi may cause these infections and can be quite serious and even life threatening. It is, therefore, very important that you try to prevent infections by avoiding large crowds, especially in closed-in places, and people with contagious illnesses. It is very important that you learn to recognize signs and symptoms of infection and report them to the transplant team immediately so that the proper therapy can be started as soon as possible.

The highest level of immunosuppression is immediately after the transplant operation. One of the best methods to prevent infection is good handwashing. Everyone who comes into your room will be required to wash their hands thoroughly to prevent transfer of bacteria, viruses, and other microorganisms to you.

Symptoms of Infection

If you experience any of the following symptoms of infection, you should notify your transplant doctor or coordinator immediately. As always, if there is ever a question, please call and ask!

- Temperature greater than 100.5°F or 38°C
- Productive cough, change in color of sputum, or shortness of breath
- Sores, blisters, or lumps
- Chills or shaking episodes
- Flu-like symptoms or severe cold symptoms
- Drainage or swelling from a cut or wound
- Nausea, vomiting, or diarrhea that is severe and prolonged (lasting more than 24 hours)
- Increase in fatigue and decrease in exercise tolerance
- Cloudy, painful, foul smelling or very frequent urination
- Weight gain or loss of more than five pounds in a week

Common-Sense Precautions

Infection in a transplant patient can be quite serious, even life-threatening. It is therefore very important that you take some precautions to prevent infection whenever you can.

Especially during the first three months following your transplant, we urge you to practice frequent hand washing. We do not recommend wearing a mask, but encourage you to avoid crowded spaces with coughing and sneezing people. This is most important during the flu season. If you wash your hands frequently and avoid close contact with potentially sick people you will escape most common germs. We recommend that you and your family get a flu shot every year, early in the fall, unless your transplant was within the last six months. We also recommend regular vaccinations for pneumonia (every 5 years). You should avoid any live attenuated virus vaccines. Before getting vaccines, check with the transplant coordinator or physician.

It is important that you avoid large crowds, where someone with a contagious illness could be present. This does not mean that you must always stay at home; it just means using common sense. For example, plan to eat out when restaurants are not crowded, for an early lunch or dinner. Matinee showings of movies are rarely crowded, but later shows often are.

It is also important to avoid a crowd in your own home. If you are staying in a small apartment after transplant, do not invite guests and family members to come out and see you right away. It is best not to have a large number of houseguests at any one time for at least two months after your transplant. For those people who do visit, please be sure they have not had recent infections, colds or exposures to childhood illnesses like the measles.

Wear gardening gloves if you enjoy gardening or working with plants and flowers, since many infectious organisms live in the soil.

Avoiding Colds and the Flu

Now that you have a transplant, you will probably get the same number of colds and flu-like illnesses that you always did, but, understandably, these will cause you more concern than they did before. For both your physical and emotional health, therefore, you should do all you can to prevent colds and flu. This is largely a matter of careful hygiene and common sense.

You and all your family members should get a flu shot as soon as they are available each year. This is usually in October. If you have small children, discuss the flu shot with their pediatrician. The pneumonia vaccine is recommended (given every 5 years) as well.

It is very important to wash your hands very frequently, since most infections travel hand-to-hand rather than through the air.

Do not get into the habit of eating after people (out of bags or bowls of popcorn, for example), drinking after people, or reusing a bathroom glass.

Despite your best efforts, you will catch a cold or flu from time to time. When you do, you should call the transplant physician to see if you need antibiotics. Should symptoms of a cold linger, or if you develop a fever, symptoms of chest congestion, or a productive cough, be sure to call your transplant coordinator or the on-call coordinator as soon as possible. Often, colds and other illnesses will last longer before transplant because of immunosuppression.

Pets

If you have always enjoyed having a pet or pets in the house, there is no reason for that to change. However, you should take care to avoid contact with infection-causing organisms.

- Keep your overall number of pets to a minimum. Just as having too many people in one house is unhealthy, so is having too many pets.
- You should wear gloves when changing cat litter boxes, cleaning after birds, or cleaning pets' ears. If at all possible, get someone else to do these tasks.
- Be sure to take the pets to your veterinarian for their shots and check-ups.
- Pets should not be allowed to sleep on your bed.

First Aid and Hygiene

The natural ability of your body to heal wounds will be slowed because of the immunosuppressive medications.

- Clean any cut or injury with soap and water. Keep a clean, dry dressing on the wound.
- If healing is prolonged or if you experience pain, swelling, redness, or other signs of infection, see your health care provider immediately.
- Notify the transplant physician if you notice any unusual rashes, blisters, or other lesions on your skin.

Good care of your teeth and gums is also very important since your mouth can be a major source of infection. Visit your dentist every six months to avoid tooth and gum disease. Discuss with your transplant physician ahead of time whether you will need pre-dental antibiotic prophylaxis.

Contact your dentist before your appointment to obtain an antibiotic before having any dental work done. Remember to check with your transplant physician to make sure that the antibiotic prescribed by your dentist is compatible with your immunosuppressant medications.

Notify your transplant physician if you notice sores, ulcers, or white patches in your mouth.

West Nile Virus

West Nile Virus is a disease caused by a virus that is transmitted by a mosquito bite. With the introduction of West Nile Virus, immunosuppressed patients are at higher risk for this disease.

Prevention of West Nile Virus

Decrease the number of mosquitoes by eliminating sources of standing water:

- Flower pots
- Pet water bowls
- Birdbaths
- Swimming pool covers
- Clogged rain gutters

Decrease the number of mosquito bites by:

- Wearing protective clothing
- Staying inside at dawn and dusk
- Repairing torn window and door screens
- Use insect repellent: 10-50% DEET is sufficient

Food Safety

- Remember to wash all fresh fruits and vegetables before eating.
- Make sure meats are cooked at least medium (no pink).
- Do not eat raw seafood.
- Eating hot food is critical, and be careful with food that is warm but not hot, and avoid cold foods that have been sitting out.

Preventive Medicine

All the members of our team feel very strongly that you should continue to follow the common health prevention recommendations that apply to all patients. Your local doctor can arrange these studies.

- Women over age 40 should have yearly mammogram and Pap smears, per GYN recommendations (usually every three years if a previous Pap was normal).
- Everyone over age 50 should have his or her stool checked for trace blood and have a colonoscopy.
- Men over age 50 should have a yearly prostate exam and blood test for prostate cancer.
- Wear a hat and sunscreen on exposed areas of skin whenever going into the sun. Being on powerful immunosuppressive drugs may increase your risk for cancer, especially skin cancer.

We also routinely check all patients who are six months or more out from their transplant for high cholesterol. Prograf, cyclosporine, sirolimus, and prednisone can elevate cholesterol levels. If we discover that your cholesterol is elevated, we will recommend dietary changes or, in some cases, advise you to start taking a drug to help lower your cholesterol.

Medical Condition Alert Bracelet or Necklace

We strongly recommend that each transplant patient wear an identifying tag on either a bracelet or necklace after transplant. The following information should be included so that should you need emergency care, your doctor will know important information about you:

- Your name
- Transplant recipient
- Immunosuppressed
- Other serious conditions, such as diabetes, epilepsy, etc.

Sexual Activity

Sexual activity may be resumed after your incision heals, which is usually about six weeks after surgery. You should be careful at first to minimize the weight or strain that is put on your incision. Pain is the best indicator that too much weight is being put on the incision.

In today's world, sex is sometimes a life-and-death matter, and everyone who is sexually active should take precautions to make sex as safe as possible. This is especially true for you, as the immunosuppressive medications that you are taking make you more susceptible to sexually transmitted diseases as well as other infections.

The use of a latex condom is essential to safe sex. Using a condom does not guarantee that you will not get a sexually transmitted disease, but it is your best preventive measure. Some diseases that can be acquired sexually are hepatitis, CMV (cytomegalovirus), AIDS, herpes, and candida (yeast infection).

If you are certain that your partner is faithful, use of a condom may not be necessary. But since something as simple as a woman's common vaginal infection could cause serious infection in a male transplant patient, complete, candid communication with your partner is essential. In such a situation, even faithful partners should use a condom or abstain from sexual intercourse.

Single people must insist on using a condom when a relationship becomes sexual. This is not always an easy or comfortable thing to do, but you have come too far to make what could be a very dangerous mistake.

Finally, do not forget about birth control. Generally, you should wait at least one year after transplant before attempting to become pregnant. You should also discuss this completely with your transplant physician before stopping birth control. Your transplant coordinator and doctor are available to discuss these matters with you if so desire, so please don't be afraid to ask about your concerns.

Exercise

You will usually have some degree of weakness and decreased endurance from surgery and from limited activity before your transplant. Activity after discharge should be focused on increasing activity each day while incorporating some rest periods. Walking is an excellent activity. Light housekeeping will not harm you and is also a very good way to get back into shape.

Exercise strengthens your heart and tones and conditions muscles in your body. It reduces stress and tension. Exercise helps reduce high blood pressure, high cholesterol and triglyceride levels and helps control blood sugar levels. Exercise will help you feel better, look better, and have more energy for other activities.

In our program, we have many patients who participate in strenuous activities after their transplant, such as marathon running, barefoot skiing, golfing, and deer bow hunting. Staying in shape is not easy, but exercise can prevent some of the side effects of your medications and is one of the best things you can do to help yourself live a longer and healthier life.

What type?

Your exercise program should be one that uses large muscle groups for 30 to 45 minutes without stopping. Walking, biking, swimming, low-impact aerobics, cross country skiing, and jogging are exercises that will condition your heart and muscles. For the first six weeks, walking and/or stationary biking are most suitable until you heal from your surgery. If you swim for exercise, swim in chlorinated pools.

How long, how often, how much?

Following surgery, you need to walk or bike for short periods daily. As your endurance improves, you will be able to exercise longer. Your goal will be to exercise every day for 30 to 45 minutes without stopping. Strolling around the block, chatting with neighbors is fun, but it is not exercise. Walking briskly while swinging your arms and using some effort is fun and good for your heart! This will keep your heart rate high during exercise and make your heart stronger.

What about stretching?

Warming up muscles before exercise and cooling them down and stretching after exercise will reduce the likelihood of injury to muscles and tendons. Stretching will also improve your flexibility over time, and can also reduce pain. Stretches should be slow and gentle. Avoid bouncing since this causes very small tears in muscles.

What about warm-up and cooldown exercises?

Warm-up exercises increase your circulation and body temperature. The exercises should be low or low to moderate intensity and can include stretching. This will gradually raise your heart rate over five to 10 minutes and avoid injuring muscles. Walking is an excellent warm-up exercise.

Cool-down exercises are done at the completion of your work out. Slow walking and biking are ideal cool-down exercises. Cooling down is important to avoid pooling of blood in your limbs that can cause lightheadedness. It also allows time for your muscles to cool down and helps prevent muscle cramping.

Activity Restrictions

- No driving and no lifting more than five pounds for about four weeks after surgery.

Going Back to Work

It is our goal to make it possible for patients who have been employed to return to work after the transplant. Most patients can go back to work about three months after their transplant. Depending on the type of work you do and your financial situation, you may need to return to work as soon as possible. Do not return to work until cleared by your transplant physician.

Kidney Transplant Program

It may be best to start back to work part-time and eventually move toward full-time work. We will assist you in dealing with your employer and insurance company by providing them with any information they require to help you get back to work again.

SELF-MONITORING

Measurements of your body's functions, such as blood pressure, heart rate (pulse), temperature, and fluid status (weight), are vital signs. To help us monitor your progress and adjust your medications, we ask that you record your vital signs and weight each day. Recording vital signs is an important way you can help the transplant team help you do well after your kidney transplant.

Blood pressure (B/P)

You will need to get a blood pressure cuff that you can easily use to monitor your own blood pressure. BP cuffs that require a stethoscope for listening to blood pressures are very difficult to use when checking your own blood pressures. Instead, please obtain a semi-automatic blood pressure cuff that runs on batteries or electricity. With a semi-automatic cuff, you can easily put the cuff on your arm and pump it up. The machine then causes the cuff to deflate on its own and displays the BP reading. There are many good brands of semi-automatic BP cuffs available for around \$35 to \$95. Cuffs can usually be purchased in many pharmacies (drug stores), hospital supply stores or at discount stores with pharmacy services. Store personnel can help you make an appropriate selection.



Mytech® Technology Co., Ltd.



OMRON® HEALTHCARE

Become familiar with your usual blood pressure and pulse rate. Blood pressure readings have two parts. The top number is called the systolic blood pressure and the bottom number is called the diastolic blood pressure. Record your blood pressure and pulse rate this way in your home record:

Systolic BP/ Diastolic BP: 118/ 78

Pulse: 70

Always check your vital signs at rest. In most instances, we do not need to know how your vitals change with exercise. Sit and rest for at least five minutes before checking your vital signs.

When to call

In the period immediately before your transplant, your blood pressure was probably controlled by medication because your kidneys were not functioning properly. However, it is possible that you will continue to have high blood pressure or that you may develop high blood pressure (hypertension) again

Kidney Transplant Program

after kidney transplantation. When an individual's B/P is consistently too high, it is an indication that unnecessary stress is being placed on the body.

Recording vital signs

Since a single blood pressure reading taken during a clinic visit may be falsely high, we will depend on your home records to adjust your medications.

This is a high B/P reading: 160/90

If you have more than three of the above readings in one week, call the transplant office at 1-800-249-5864, Option 2, or 919-613-7777, Option 2, between 8 am and 4 pm and ask to talk to a coordinator.

This is a very high B/P reading: 180/110

If you get a very high reading, check your blood pressure cuff to make sure it is working correctly. Relax a few minutes and then recheck your pressure. If it remains high, page the kidney transplant coordinator on call 919-684-8111, and ask for pager 5153. It is very unlikely that your blood pressure would run very high, but this provides a reference point for when to call. If you are having other symptoms consistent with a blood pressure this high, you will be directed to go to the nearest Emergency Department for in-depth evaluation and treatment.

Heart Rate (Pulse)

Automatic blood pressure cuffs also display your heart rate or pulse. Your pulse is the number of heart beats per minute and will naturally increase with activity and exercise. Again, we are interested in knowing your heart rate at rest. Page the transplant coordinator on call for very low (less than 60) or very high (greater than 120) heart rates when at rest. See the sections on checking your pulse.

Temperature

Your temperature is generally lowest in the morning and highest in the evening. You should measure your temperature at the same time each day and whenever you feel feverish. Individuals who are immune suppressed are likely to have a lesser temperature response to infection. If you have recurring temperatures greater or equal to 100°F, or a single temperature greater than 101°F, you are to call the coordinator who is on call to discuss this and any other symptoms you may have. Do not take any medications that can lower your temperature, such as aspirin or Tylenol, unless instructed to do so by your transplant physician.

Weight

You are to weigh yourself daily in the morning when your weight is most likely to be the lowest of the day. Weigh yourself with the same type of clothing on and on the same scale each day. A weight gain of two pounds a day for two days is significant and needs to be reported to the transplant physician.

Intake and Output

For the first few weeks after transplant, you should keep track of how much fluid you take in and how much urine you make each day. The transplant coordinator or physician will tell you if there is a minimum or maximum amount you should drink. It is important to let us know if your urine output drops dramatically from one day to the next.

Blood Sugar

If you are diabetic, expect your blood sugars to be elevated. You will need to take your blood sugars four (4) times a day for the first month or so until the prednisone dose is reduced. Be sure to keep a record of your blood sugars. Call the transplant coordinator if your blood sugar is more than 400 or lower than 70.

HEALTH MAINTENANCE RECORDS

Please use the following sheets included in this material to track your health data as directed by your coordinator.

Kidney Transplant Program

Name:		Month:				Year:			
DAY	TIME	1	2	3	4	5	6	7	
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								
DAY	TIME	8	9	10	11	12	13	14	
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								
DAY	TIME	15	16	17	18	19	20	21	
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								
DAY	TIME	22	23	24	25	26	27	28	
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								
DAY	TIME	29	30	31					
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								

Kidney Transplant Program

Name:		Month:				Year:			
DAY	TIME	1	2	3	4	5	6	7	
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								
DAY	TIME	8	9	10	11	12	13	14	
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								
DAY	TIME	15	16	17	18	19	20	21	
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								
DAY	TIME	22	23	24	25	26	27	28	
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								
DAY	TIME	29	30	31					
WEIGHT	AM								
BLOOD PRESSURE	AM								
PULSE	AM								
TEMPERATURE	PM								
BLOOD PRESSURE	PM								
PULSE	PM								

Kidney Transplant Program

Name:			Month:				Year:			
Date	Breakfast		Lunch		Dinner		Bedtime			
	GLUCOSE	INSULIN	GLUCOSE	INSULIN	GLUCOSE	INSULIN	GLUCOSE	INSULIN		
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										

Kidney Transplant Program

Name:			Month:				Year:			
Date	Breakfast		Lunch		Dinner		Bedtime			
	GLUCOSE	INSULIN	GLUCOSE	INSULIN	GLUCOSE	INSULIN	GLUCOSE	INSULIN		
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										

Kidney Transplant Program

Name:			Month:				Year:			
Date	Breakfast		Lunch		Dinner		Bedtime			
	GLUCOSE	INSULIN	GLUCOSE	INSULIN	GLUCOSE	INSULIN	GLUCOSE	INSULIN		
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										

Kidney Transplant Program

Name:			Month :			Year:		
Date	Breakfast		Lunch		Dinner		Bedtime	
	Intake	Output	Intake	Output	Intake	Output	Intake	Output
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

Kidney Transplant Program

Name:			Month :			Year:		
Date	Breakfast		Lunch		Dinner		Bedtime	
	Intake	Output	Intake	Output	Intake	Output	Intake	Output
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

Exercise Log – Time Spent Walking, Swimming, or Biking, etc.

NAME		MONTH		YEAR	
DATE	Morning	Afternoon		Evening	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					

A KIDNEY SMART DIET

Diet and nutrition are very important aspects of everyday care after a kidney transplant. To keep your new kidneys and entire body healthy, the transplant team recommends you eat a well-balanced, low-salt, low-fat, low-cholesterol diet. Some of the medications you are taking can cause an increase in your appetite, high blood sugar, and fluid retention. Now that you have had your transplant and your condition has improved, it is important to begin a diet that promotes a healthy lifestyle. The basic principles for a healthful diet are discussed below. A dietitian will talk with you in detail about how to follow a diet beneficial for everyone, but especially essential for you.

Salt

Before your transplant, you had to restrict your salt intake. After your surgery, excessive salt will contribute to high blood pressure and fluid retention. Limiting the amount of sodium in your diet will help prevent these problems and protect your new kidney.

- Never add salt to food. Do not cook with salt.
- Keep the salt shaker off the table.
- Do not use salt-containing seasonings. Use herbs and spices in cooking to replace salt.
- Avoid foods with visible salt, like crackers, chips, pretzels, salted nuts, salted popcorn, and salted french fries.
- Limit highly processed foods. Canned, processed, and preserved foods contain high amounts of sodium. Examples include processed meats and cheeses, canned soups, frozen dinners, and pickles.
- Limit dinner and side dish mixes that come with sauce or seasoning packages, such as Hamburger Helper, Rice-A-Roni, and au gratin potato mixes.
- Limit high-sodium sauces, such as soy sauce, canned spaghetti sauce, packaged sauces, and gravy with seasoning mixes.
- Do not use potassium chloride salt substitutes, such as Lite Salt, No Salt, Salt Sense.

Fat

Some of your antirejection medications can increase your cholesterol level. High cholesterol levels cause fatty deposits to build up in the walls of the blood vessels and are associated with heart disease and blood vessel disease. Reducing the amount of saturated fat and cholesterol in the diet can lower cholesterol levels. Cholesterol levels can also be lowered if polyunsaturated fats are substituted for saturated fats and cholesterol in your diet. Even if your cholesterol level is normal, it is recommended that you decrease the fat and cholesterol content in your diet. Excess amounts of fat and sugar in the diet can also contribute to undesirable weight gain.

Don't forget that prednisone may increase your appetite and make it difficult to add lean muscle weight. Patients who have been overweight in the past will most likely have difficulty avoiding weight gain after their transplant. While prednisone may increase your appetite, it cannot "make" you fat. If you gain weight, it is because you are eating too much (more calories than your daily needs) and, perhaps, the wrong foods. Only you can control what you put into your mouth. Choose low-fat foods in controlled portions for a good start.

The formula for losing weight is simple: eat less and be more active. Putting this formula into practice isn't easy for most people, but achieving a normal weight is worth the effort to take care of your new kidney.

How much fat should you eat?

TOTAL DAILY CALORIES	MAXIMUM AMOUNT OF FAT (GRAMS)
1,500	50
2,000	67

If you're not sure of your typical calorie intake, here is a rough guide: 2,000 calories is an average for women 23 to 50, and 2,700 calories is an average for men. Whether these levels are right for you depends on your age, height, weight, and level of activity. If you are already too heavy, you should reduce the recommended number of calories and fats, and increase your activity.

Sugar:

Prednisone and other antirejection medications can increase the level of sugar in your blood. High blood sugars can cause many health problems; therefore, it is recommended you decrease the amount of sweets and sugars in your diet to limit this effect.

Low-Cholesterol, Low-Fat, Low-Sugar Food Choices

Some Nutrition Tips

- Limit your intake of meat, seafood, and poultry to no more than six ounces per day.
- Use chicken and turkey (without the skin) or fish in most of your main meals.
- Choose lean cuts of meat (flank, round, sirloin, extra lean ground beef). Trim all the fat before and after cooking.
- Use no more than five to eight teaspoons of fats and oils per day for cooking, baking, and salads.
- Use low-fat cheese, such as part-skim mozzarella and ricotta, in place of regular varieties, but read the label for fat content.
- Make your own breading with plain breadcrumbs after dipping in skim milk with an egg white.
- Instead of using oil or fat, spray popcorn lightly with a nonstick vegetable coating and then sprinkle with chili powder, onion powder, or cinnamon.
- Use a nonstick pan and vegetable oil pan-coating instead of butter, margarine, or oil when sautéing or frying foods.
- Read labels for terms that reveal the presence of cholesterol, trans fats, or saturated fat. Some examples are egg and egg-yolk solids; whole-milk solids; palm, palm kernel or coconut oils; milk or white chocolate; shortening; hydrogenated or hardened oils; lard; butter; and suet. Limit or eliminate foods that have these ingredients, if possible.
- Buy lean grades of meat, and trim visible fat. Prepare mixed dishes that combine meat with other foods (vegetable stew or pasta, for example). Avoid eating organ meat, such as liver, brain and kidney.
- Broil, bake, or roast meat, fish, and poultry, instead of pan-frying or deep-fat frying. Basting with wine, broth, lemon, or tomato juice will prevent drying and give good flavor.

- Eat more fish, poultry (without skin), and dried peas and beans.
- Substitute low-fat sandwich meats for higher fat cold cuts, and use low-fat hot dogs instead of regular varieties.
- Use yogurt as a substitute for sour cream in salad dressings or dips.
- Substitute sherbet, ice milk, or low-fat frozen yogurt for ice cream.
- Use only the egg whites or discard every other yolk and substitute a teaspoon of polyunsaturated oil for each discarded yolk in recipes.
- Reduce the amount of fat in recipes by a third to a half. If you use commercial cake mixes, for example, buy those to which you add the fat or oil. Use polyunsaturated oil and reduce the amount by a third while increasing the water. For example, if the recipe calls for three tablespoons of oil, use only two, but add an extra tablespoon of water. Or, try substituting all or part of the oil in quick bread or cake mixes with applesauce.
- Cut down on baked goods made with lard, coconut oil, palm kernel oil, or shortening, and those deep fried in fat, such as doughnuts.
- Reduce concentrated sweets and sugars; examples of healthier dessert choices include angel food cake, graham crackers, sugar-free Jell-O or pudding, and vanilla wafers.
- Instead of two-crust pies, serve single crust (open-face) pies.
- Use low-fat dried milk in coffee. Non-dairy creamers are generally high in saturated fats and hydrogenated fats.
- Use herbs or herb-flavored croutons to flavor salads or soups.
- Make your own topping with nonfat dried milk, or use a yogurt, tofu or fruit topping.
- Remember to read and understand labels. Simply because a label says natural it doesn't mean all the ingredients are natural or are good for you.
- Low fat does not mean low calories, and excess calories will be turned into fat, and stored as fat by your body.

Reach and Maintain Your Ideal Weight

Your dietitian will help you determine your ideal body weight. Being overweight increases your risk for developing heart disease, diabetes, high blood pressure, and complications from surgery. Being underweight also has its risks. Your dietitian will help you develop a plan to either lose or gain weight as needed. Following a healthy nutrition and exercise plan will help you reach and maintain an ideal body weight.

FOOD GROUP	FOODS TO CHOOSE	FOODS TO DECREASE
DAIRY PRODUCTS	Skim milk, ½% to 1% low-fat milk, nonfat dried milk; buttermilk (from skim milk), low-fat yogurt; low-fat cottage, farmer's, mozzarella cheese, (cheeses made with 5 gm of fat or less per serving), frozen low-fat yogurt sherbet, sorbet, ice milk.	2% low-fat milk, whole milk; buttermilk (from whole milk); condensed milk; evap milk; cream; half/half; natural cheeses (blue, Colby, cheddar, Swiss, Camembert)

MEAT,POULTRY, FISH & ALTERNATIVE PROTEIN SOURCES (Limit meat to six (6) ounces per day)	Lean cuts of beef, pork, lamb, wild game. Fresh/frozen fish, scallops, clams, crab. If watching cholesterol, limit shrimp and lobster intake to 3 oz/week. Canned tuna or salmon packed in water. Fresh/frozen chicken or turkey (without the skin). Extra lean ground beef; no more than 15% fat. Beans. Tofu.	Heavily marbled, fatty meat, bacon, sausage, ham, duck, goose. Virginia-cured style ham, bologna, salami, pastrami, pepperoni, corned beef, hot dogs (made from turkey, chicken, beef), organ meats (heart, kidney, liver, brains, chitterlings). Fried chicken/ fried fish.
EGGS	Egg whites, cholesterol-free eggs. 2 egg whites can be substituted for 1 whole egg in whole egg used in most recipes.	Egg yolks - 3 weeks, including cooking.
FRUITS	Fresh/frozen/canned in light syrup. Dried fruit. Fruit juices.	Coconut high in saturated fat.
VEGETABLES	Fresh/frozen/canned with low salt (no added meat/meat fat). Starchy vegetables, such as peas, corn, lima beans. Potatoes should be considered bread. No-added-salt tomatoes, tomato sauce, paste, and vegetable juice.	Vegetables prepared in butter, cream, cheese sauces, gravies. Fried vegetables prepared with fat back or bacon grease. Olives, pickles, relishes.
NUTS/SEEDS	All seeds. Nuts/nut butters (1-3 Tbsp. per day)	Coconut, cashews, macadamia nuts.
BEVERAGES	Tea, coffee, diet soft drinks, cocoa made with skim or 1% low-fat milk. Water. Fruit juices.	Cocoa made with whole milk. Soft drinks. Alcoholic beverages. High-caffeine beverages.
SOUPS	Low-fat soups, such as vegetable broth, nonfat bouillon, chicken noodle, tomato-based seafood chowders, minestrone, onion, split pea, tomato, vegetarian vegetable. Mix with water, skim or low fat (1/2% or 1%) milk.	Cream soups, soups made with whole milk, cream, or cheese.
BREADS,CEREALS GRAINS	Whole grain, raisin, rye, white, French Italian, pumpernickel bread. English muffins, bagels (if made without eggs), rolls (hamburger/hot dog buns). Melba toast; bread sticks; graham crackers; Zwieback; low-fat, low-salt crackers. Homemade biscuits. Muffins, cornbread. Waffles/ pancakes made with approved liquid, vegetable oil, milk/egg products. Hot/cold cereals, except those that contain coconut/coconut oil. Pasta made with eggs. Angel food cake.	Commercially made biscuits, muffins, corn bread, pancakes, waffles, coffee cakes, pies, doughnuts, sweet rolls, and croissants. Commercial mixes containing dried eggs and whole milk. Cereals containing coconut. Cheese crackers, butter type crackers. Egg noodles. Macaroni and cheese package mixes. (Any commercially prepared item that contains more than 500mg of sodium per serving.)

FATS/OILS No more than 5 servings/day 1 serving = 1 tsp. oil 1 tsp margarine 1 tsp mayonnaise	Liquid vegetable oils: safflower, sunflower, corn, soybean, cottonseed, sesame, canola (Puritan), peanut, olive. Soft margarine, mayonnaise, salad dressings made from one of these oils.	Butter, lard, bacon drippings, ham hock, salt, pork, fat back, meat fat, or gravies. Solid shortening. Salad dressings made from blue cheese or sour cream. Coconut oil, palm oil, palm kernel.
SNACKS	Unbuttered popcorn (air-popped or popped in unsaturated oils), pretzels, rice cakes, breadsticks, low-fat yogurt, vegetable sticks, fresh fruit.	Snacks containing cheese, buttered popcorn, microwave popcorn containing palm/coconut oil, potato chips, deep-fried snack foods, granola/granola bars, yogurt-covered snacks.
DESSERTS AND SWEETS	Ice milk, frozen low-fat yogurt, sherbet, angel food cake, fruit juice bars, desserts, and cookies made with "allowed" ingredients. Sugar, honey, jams, jelly, preserves, syrups, carob, and cocoa powder. Sugar substitutes and products made with sugar replacements. Puddings made from skim milk.	Cream pies and any dessert containing butter, chocolate or coconut, ice cream, whipped toppings (Cool/Dream Whip), whipped cream, chocolate candy.
MISCELLANEOUS	Vinegar, spices, herbs, Tabasco sauce, catsup, mustard, soy sauce, Worcestershire sauce, lemon juice, pepper, barbecue sauce, vanilla/ other flavorings, essences	

Limit Alcohol Intake

Alcohol intake should be limited to a rare cocktail or glass of wine on special occasions. The medication you are taking will not react well with a large amount of alcohol over time.

Eating Out

Most people make better food choices when eating at home. We recognize that many individuals have a lifestyle that makes it impossible to eat many home-prepared meals. Some non-home prepared meals are purchased at take-out sections of supermarkets or restaurants. Other options include food delivery, and, of course, there is eating out. There are better and worse choices that can be made if it is not possible to eat food prepared in the home. Also, the following Web sites provide important dietary information for nutrient and calorie management as well as making good eating choices.

www.ars.usda.gov/nutrientdata

www.healthydiningfinder.com/site/

www.eatright.org

www.nutrition.gov
www.restaurant.org
www.mypyramid.gov
www.americanheart.org

Successful Restaurant Eating

Most people have a lifestyle that includes some eating away from home. Many people find it easy to cut back on the fat in their diet while eating at home, but difficult when dining away from home. Here are some strategies for controlling fat in your diet while dining out.

- Decrease frequency of dining out
- Avoid fried foods
- Be assertive. When in doubt, ask how the food is prepared. You're the customer and should have the final say in what you eat. Many restaurants often appreciate your interest and are willing to make small changes in preparation methods.
- Have sauces and salad dressings served on the side. This way you can control the portion size of these high-fat ingredients.
- Remember, there is nothing wrong with removing the skin from poultry or cutting the fat off a steak or chop. If you ask for this to be done prior to cooking, you'll save even more fat and calories.
- Choose foods that are poached, steamed, broiled, or roasted. Avoid dishes with the words: creamed, pan-fried, sautéed, buttery, cheesy, or crispy in their description.
- Ask what's in the salad. Many restaurants add cheese, bacon or butter-fried croutons. Avoid them. In addition, ask for the dressing to be served on the side. If you like creamy dressings, mix them with a little vinegar to make a strong taste go a long way without adding the fat. Many restaurants now have low-fat or nonfat salad dressings.
- When in doubt, eat half as much and leave half of the fat and calories behind
- When dining with friends, enlist their support. Remove high-fat freebies, such as chips, from the table, and focus on the company and conversation. Ask for fresh vegetables with salsa for a low-fat hors d'oeuvre.
- In fast food restaurants, don't rely on the fish and chicken as being low-fat choices, if they are deep-fried in saturated vegetables fat. Choose a broiled hamburger without cheese, roast beef sandwich without mayonnaise, salad with low-fat salad dressing, or a grilled chicken sandwich.
- Submarine shops and delicatessens can be a good location for low-fat choices. In most cases, your sandwich is made to order. Choose turkey or lean beef with lettuce and tomato, instead of salami or pastrami. Come prepared with your own supply of low-fat condiments. Low-fat salad dressing fits nicely in a drug store traveling shampoo container.

Helpful Hints

- Always take your medications with you if you're away from home at medication time or take a trip. You may want to take a copy of your written prescriptions with you.

Kidney Transplant Program

- Always take your medications with you in your carry-on baggage if you travel by air in case your luggage is misplaced or lost
- Always carry information that identifies you as a transplant patient
- If you are away for an extended time, identify a transplant center near you for assistance in case of an emergency
- If you travel outside the country, you may need special arrangements for medications and immunizations. Contact your transplant coordinator for assistance.

CONCLUSION

Communication

The members of the Kidney Transplant Team want to help you achieve the best outcome possible as a result of your kidney transplant. You are an integral part of achieving a successful outcome. Please ensure that you provide timely updated information about changes in address, telephone numbers, medical providers, pharmacies, health insurance and lab providers. Request that your local medical provider send summaries of your visits to the Kidney Transplant Program when there are significant changes in your medical history, and let us know where to send summaries of your follow up clinic visits with us. Do not hesitate to ask team members questions you may have.

All post-kidney transplant communication should come through the Kidney Transplant Office. The transplant office employs secretaries who can answer many basic questions about upcoming appointment dates.

Office hours are Monday through Friday, 8:00 am to 4:30 pm.

If your call is not answered, please leave a message with your name and call back number, since all available staff may be speaking with other individuals needing assistance.

Calls are generally returned within one business day unless you state that your question is urgent, and requires a response that day.

After hours, a recorded message will remind you how to page a coordinator for urgent questions that did not arise until after the office closed for the day. You may also leave a voice message at any time of the day or night if your question is not urgent.

IMPORTANT CONTACT INFORMATION

Assistance needed

Life-threatening emergencies

Where to Call

911

Urgent

Weekdays after 4:30 pm, weekends and holidays

919.684.8111

Ask the operator to have the on call kidney transplant coordinator paged (pager 5153)

Non-Urgent

Weekdays 8:30 am - 4:30 pm

919.613.7777, Option 2 or 800-249-5864, Option 2

Non-Urgent

Weekdays after 4:30 pm, weekends and holidays

919.613.7777, Option 2 or 800-249-5864, Option 2, and leave a message

Prescription refills

Allow 1 week for local pharmacy.

Fax refill requests to 919.668.3407 as early as possible so you don't run out of medicine

Transplant Social Worker

Jessica Farrell

919.681.5891

Jennifer Harrill

919.684.5284

Medical record requests

Contact Duke University Hospital Health Information Management

919.684.6831

Please note there is a copying fee for the records.

www.dukehealth.org/patients_and_visitors/medical_records

Duke MyChart for lab results and appointment review

www.dukemychart.org/home/

KIDNEY TRANSPLANT OFFICE ADDRESS AND PHONE NUMBERS

Duke University Hospital

Kidney Transplant Program
Box 102347
Durham, NC 27710

Toll free 800.249.5864, Option 2

Local 919.613.7777, Option 2

Fax 919.668.3407

For Fed-Ex or UPS delivery address, please contact our office.

Staff Members of the Kidney Transplant Program at Duke

Administrative Staff

Rebeccah Jamieson-Drake	Program Specialist
Sharron Kelly	Medical Secretary
Jose Ramos	Program Specialist
LaQuinta Thornton	Medical Secretary

Transplant Coordinators

Carolyn Boone, RN, MSN	Pre-Transplant Coordinator
Rosalyn Carter, RN, MSN, CCTC	Pre-Transplant Coordinator
Leslie Hicks, RN, MSN	Living Donor Coordinator
Mary Vanessa Neal, RN, BSN	Pre-Transplant Coordinator
Sherri Swan-Nesbit, RN	Pre-Transplant Coordinator
Joanne Prinzhorn, RN, MSN	Post-Transplant Coordinator
Judy Smith, RN, BSN	Post-Transplant Coordinator
Marion Stewart, RN, BSN, CCTC	Inpatient Abdominal Coordinator
Jennifer Owen, RN, MSN	Inpatient Abdominal Coordinator

RESOURCES

We want to help you and your family deal with concerns that may arise after your transplant. Your social worker, transplant coordinator, and physician can give you resources for your particular needs. The following list of resources may be useful:

Information and Resources

Duke University Health System
www.dukehealth.com

Carolina Donor Services
1.800.622.9010
www.carolinadonorservices.org

National Kidney Foundation
1.800.622.9010
www.kidney.org

Insulin Free World
www.insulin-free.org

National Foundation for Transplant
1.800.489.3863
www.nft.org
NC statewide information and assistance related to Social Security, Disability, or SSI Medicare County Department of Social Services (DSS): Medicaid persons with low income and few assets may apply in the county in which they reside for assistance with medical expenses. DSS also manages food stamps, AID to Families with Dependent Children, Fuel Assistance, and other emergency funds.

Veteran's Administration Benefits Office
1.800.827.1000

NC Division of Veteran's Affairs
919.733.3851

United Network for Organ Sharing
1.888.894.6361
www.unos.org

Kidney Disease American Kidney Fund
1.800.729.6682
www.kidneyfund.org

American Diabetes Association
1.800.DIABETES
www.diabetes.org

Transplant Information
www.transplanthealth.com
www.transweb.org

Social Security Administration
Assists with applications for retirement, survivorship, disability, and supplemental security income/Medicare benefits.
1.800.772.1213

Social Security Disability Hotline
1.800.638.6810

Veteran's Affairs Medical Center (Durham)
919.286.0411

NC Division of Vocational Rehabilitation
A state-sponsored program that provides services to help disabled persons obtain jobs. Services include evaluation, special training, job counseling, and funding for services to help you.
919.733.3364

NOTES AND QUESTIONS