



Managing Side Effects After an Organ Transplant

After an organ transplant, you will need to take anti-rejection medications for the lifespan of your transplanted organ. These medications prevent your body's immune system from attacking the new organ. It's important to take your medications like your doctor tells you. Each medication is important and serves a role in your overall health following your organ transplant. In addition to anti-rejection medications and the medications you will take to prevent infections, you may need to take other medications to help reduce side effects. The following are some common side-effects you may experience and how to manage them.



High Blood Pressure

High blood pressure can be one of the main side effects from anti-rejection medications. High blood pressure can be easily overlooked because you may not notice the symptoms. Normal blood pressure for most adults is 120/80. A blood pressure reading above 140/90 is high. When left untreated, high blood pressure can lead to very serious issues such as heart attack and/or stroke. This can put stress on your new organ. High blood pressure is treated with medication and lifestyle changes.

- ▶ Maintain a healthy weight and monitor your cholesterol. Talk with your doctor before you are released about starting a cardio/aerobic program that is right for you.
- ▶ Avoid fried foods and foods that contain a lot of salt.
- ▶ Don't smoke. Smoking increases your risk of developing high blood pressure.
- ▶ If you're prescribed medication for high blood pressure, be sure to take it like your doctor tells you.
- ▶ Set a routine to check your blood pressure regularly. Also write down your blood pressure readings so you can notice any issues quickly.
- ▶ Take your home blood pressure monitor with you to the doctor to make sure your home readings match the readings used by your doctor.

Headaches

Headaches can also result from anti-rejection medications. Some non-prescription medications can help relieve headaches. Be sure to check with your doctor or pharmacist before taking any over-the-counter pain relievers to see which ones are best for you.

- ▶ Drink a lot of water, unless your doctor has limited how much you can have.
- ▶ Don't drink caffeine.
- ▶ If you get a headache, keep the lights dim and avoid loud noises (like TV or Radio) as well as strong smells. Rest and try to relax until the headache goes away.
- ▶ Seek medical attention if you experience severe or persistent headaches, especially if they are accompanied by fever, vision changes, nausea, vomiting or stiffness in your neck.

Dental Health

Having healthy teeth and gums is an important part of your overall care after an organ transplant. In general, some dental health problems after your transplant may be related to medication side effects. You can also get infections in your mouth and gums because your immune system isn't as strong.

- ▶ Visit your dentist at least twice a year for checkups and dental cleanings. Talk to your dentist and transplant team prior to your visit to determine whether or not antibiotics are needed.
- ▶ Tell your dentist if you are taking cyclosporine.
- ▶ Brush your teeth at least twice a day with a soft bristle brush and floss your teeth well at least once a day.
- ▶ Avoid smoking and breathing through your mouth.

Infection

Infection is one of the most serious concerns after receiving a transplant. Right after your surgery you are at an increased risk for infection as you begin taking high doses of anti-rejection medications. If an infection does develop, early detection and care is crucial. Tell your doctor if you have any of the following signs of an infection:

- Sore throat
- Mouth sores
- Coughing
- Change in urinary habits
- Swollen lymph glands
- Fever
- Body aches/Flu-like Symptoms

Infection Continued...

- ▶ Follow your doctor's instructions about fever or any signs of infection. Keep a thermometer handy to check your temperature. Always ask your doctor or pharmacist before taking non-prescription medications for fever.
- ▶ Wash your hands well and often (wash hands at least 20 seconds minimum). Use hand sanitizer when soap and water are not available. Hand washing is one of the best ways to reduce exposure to germs. It's especially important to wash your hands well before eating.
- ▶ Avoid people who are sick. Limit contact with anyone who has a cold, the flu or any other contagious illness like the mumps, chicken pox or measles.
- ▶ Avoid close contact with anyone who has recently had a live vaccine (MMR, chicken pox, small pox, polio or other) for 2-6 weeks, depending on the vaccine.
- ▶ Avoid crowded areas.
- ▶ Talk to your doctor before traveling to see if you need to take any safety measures. Your doctor may advise that you carry a medical ID bracelet or necklace that states you've had an organ transplant.

Tremors

Tremors are a common side effect of anti-rejection medications. Tremors create uncontrollable trembling or quivering of the arms and legs. You may also feel numbness and tingling. Tacrolimus, cyclosporine and azathioprine are medications that can cause tremors. Tell your doctor if you have tremors so the cause can be determined and treated. If the suspected cause of your tremors is from your medications, your doctor may change dosage. Some tremors are so mild they do not require treatment.

- ▶ Always report tremors or changes in feeling to your transplant team.
- ▶ Try simple stretches to help relieve tremors.
- ▶ Find ways to reduce the amount of stress in your life and try to relax more often. Consider meditation or deep breathing exercises,
- ▶ Avoid drinking alcohol. It may interact with your medications and have negative effects on your body.
- ▶ Avoid foods and drinks that contain caffeine like coffee, tea, soda and chocolate.
- ▶ Drink liquids from half-filled cups and consider using a straw to avoid spills.
- ▶ Use auto-dial or voice activated calling on your phone if your hands shake when making phone calls.

- ▶ Try adding weight to your hand by wearing a heavy watch or bracelet. Holding something in your hand may help to reduce tremors and restore control to your hands.

Osteoporosis

Osteoporosis is a disease in which bones become more fragile and likely to break. While osteoporosis is typically thought of as a “women’s disease,” it can occur in both men and women following an organ transplant. As adults age, bone mass gradually decreases. In the case of osteoporosis, however, the bone mass decreases at a rate that is faster than normal.

Anti-rejection medications can increase your risk for osteoporosis, especially during the first 6 to 12 months after a transplant when medication doses are higher. Prednisone, cyclosporine and tacrolimus are most often linked to the development of osteoporosis. If your prednisone dosage is lowered to prevent osteoporosis, it’s important that this is closely monitored by your doctor to reduce the risk of organ rejection. Transplant recipients may be monitored regularly for signs of osteoporosis.

- ▶ Don’t smoke or drink alcohol. Smoking and drinking both increase your risk of developing osteoporosis.
- ▶ Eat a healthy diet rich in calcium and vitamin D. Super foods for your bones include milk, yogurt, sardines, dark leafy greens, soy foods, salmon, nuts and flaxseeds.
- ▶ Limit your salt intake. Salt can deprive the body of calcium.
- ▶ Talk to your doctor about taking a vitamin D supplement. Without vitamin D, our bodies can’t properly absorb the calcium in the foods we eat.
- ▶ Brief exposure to sunlight also provides your body with a natural source of vitamin D.
- ▶ Build regular weight bearing exercises into your daily routine. Weight bearing exercises include activities which use the weight of your body to stress the bones and muscles to build bone density. Brisk walking, dancing, golfing, tennis, yoga and tai’ chi are all good examples of weight bearing exercises.
- ▶ Let your doctor know of any bone or joint pain that doesn’t improve.



Eye Care

Proper eye care is important for organ transplant recipients. An increased risk for developing eye problems is a possible side effect of anti-rejection medications. For this reason, many transplant centers recommend an eye exam every year. Common eye problems experienced by transplant recipients include:

- Cataracts
 - Glaucoma
 - Diabetic retinopathy
 - Eye infections
- ▶ Schedule regular eye check-ups.
 - ▶ Tell your doctor immediately if you experience any of the following symptoms:
 - Vision changes such as double vision, blurring vision or fading colors
 - Eye pain
 - Flashes of light or seeing spots
 - Dry eyes with itching, redness or burning
 - Sensitivity to light

Edema

Edema is the medical term for swelling. Edema occurs when small blood vessels release fluid into nearby tissues. The extra fluid causes the tissue to swell. Medications like prednisone and tacrolimus can cause edema. Prednisone is more often linked to edema in the face and legs as a result of sodium and water retention. Cyclosporine and tacrolimus can cause edema due to reduced blood flow to the kidney. The best way to treat edema is to find and treat the underlying cause. Depending on the severity of the edema, this can be done with or without medications.

- ▶ Reduce your salt intake.
- ▶ Add more physical activity to your daily routine.
- ▶ Avoid tight fitting clothes, jewelry and shoes.
- ▶ Relieve edema by elevating your feet.
- ▶ Consult your physician regarding the use of support stockings.
- ▶ Tell your doctor if you gain more than 2-3 pounds in 24 hours or more than 5 pounds in a week.



High Cholesterol

High cholesterol often occurs with the long-term use of anti-rejection medications. It's rare for anti-rejection medications to be stopped when high cholesterol becomes a side effect after a transplant. For this reason, you need to consider different options to manage your high cholesterol. A healthy diet, regular exercise and cholesterol lowering medications are often used to manage high cholesterol.

- ▶ With your doctor's approval, exercise. Moderate levels of exercise are usually safe for anyone who gets an organ transplant and can help you stay healthy. Regular exercise can also help to lower your blood pressure, reduce your weight and help you sleep better.
- ▶ Avoid processed and fried foods. Choose lean meats and chicken instead.
- ▶ Use egg substitutes or egg whites rather than the whole egg.
- ▶ Drink low fat milk products, like skim milk, and eat low fat cheeses.
- ▶ Increase your fiber intake through whole grain products and fruits and vegetables.
- ▶ Have your cholesterol checked often.

Skin Care

Anti-rejection medications make you more sensitive to the sun, making it easier to get sunburnt. These medications also put transplant recipients at an increased risk of developing skin cancer. Make sure that you have your skin checked regularly by a doctor to detect any early warning signs. Acne can be another skin concern for transplant recipients. Anti-rejection medications can increase the oiliness of the skin which can lead to acne. Acne can be treated with acne medication prescribed by your doctor.

- ▶ Use sunscreen with an SPF of at least 30 and apply it frequently, every 1-2 Hours. Sunscreen is important even on a cloudy day.
- ▶ Wear sunglasses, wide-brimmed hats and protective clothing when out in the sun.
- ▶ Avoid tanning beds.
- ▶ Keep your skin clean.
- ▶ Wash areas of oily skin several times a day.
- ▶ Use soaps that remove oil but don't dry the skin.
- ▶ Regularly check your skin for abnormal looking lesions. If you have any abnormal looking lesions, talk to your doctor.
- ▶ Have a dermatologist check your skin each year.



FAQs

How long does it take to recover from an organ transplant?

Your recovery time will depend on the type of organ you receive, your overall health and your lab results. After surgery, you should consult your transplant team before exercising, returning to work or driving. Remember, receiving a transplant requires life-long care.

What is rejection?

Rejection happens when your body sees your new organ as foreign and attacks it. The anti-rejection medications you take after surgery help prevent this. Not taking your medications like your doctor tells you is one of the most common causes of rejection. In spite of all precautions, rejection can still happen. Most rejection episodes can be managed with medication.

What medications will I be taking?

You will need to take anti-rejection medications after your transplant. Common post-transplant medications include:

- Cyclosporine
- Tacrolimus
- Mycophenolate
- Prednisone
- Azathioprine
- Sirolimus
- Everolimus
- Envarsus

Will I need to take medications forever?

After your transplant, your dosage of medications will likely gradually decrease. However, you will need to be on anti-rejection medications for the rest of the life span of your new organ. You will also need to stay in contact with your transplant team and schedule regular appointments as they recommend.

How do I manage side effects?

Side effects can make each patient feel differently. Our transplant team works with patients to help manage any side effects that occur.

How can I avoid infection?

Organ transplant recipients are most likely to get an infection right after surgery. It's best to avoid crowded areas and people who are sick (including a minor cough or cold) shortly after surgery. You should also check with your doctor before traveling. Tell your doctor if you think you have an infection.

Are there any foods or drinks I should avoid?

In general, avoid foods that have a lot of fat, salt and sugar. After a transplant, you also have a higher chance of getting an infection from food poisoning. Raw seafood like oysters, shrimp and sushi should be avoided. All other meats should be cooked to well or well-done. Some foods may interact with your transplant medications. For example, eating grapefruits or pomegranates (including juice) can interfere with some medications. Over-the-counter vitamins and supplements can also cause problems. Check with your doctor before trying any new supplements or vitamins. We have a Registered Dietitian available to organ transplant patients to discuss nutritional care needs and concerns.

Can I afford care and treatment?

Medications can be a financial burden for many patients. Our team proactively helps patients apply for copay cards and financial support.



Amber Specialty Pharmacy is here to help.

We offer guidance and support through our dedicated team of healthcare experts. From the beginning, we help you with the enrollment process and review your insurance coverage. We explore financial assistance opportunities to help you lower your medication costs whenever possible. Our pharmacists review your prescriptions with you - including how to take your medication and manage any side effects. Pharmacists are available 24/7 to assist you when you have questions. Our Registered Nurse and Registered Dietitian offer personalized consultations to assist you with any medically-based questions and nutritional care. We stay in touch with you regularly to remind you when it is time to refill your prescriptions. We are always here to help.

Additional Resources:

American Transplant Association - americantransplant.org

Healthy Transplant - healthytransplant.com

International Transplant Nurses Society - itns.org

This information is intended for educational purposes only. The material is not a substitute for professional help or medical diagnosis. It is important that you consult a medical professional if this information leads you to believe there is a concern for you or your patient(s). The diagnosis and treatment of all physical and/or psychological disorders requires a trained professional.