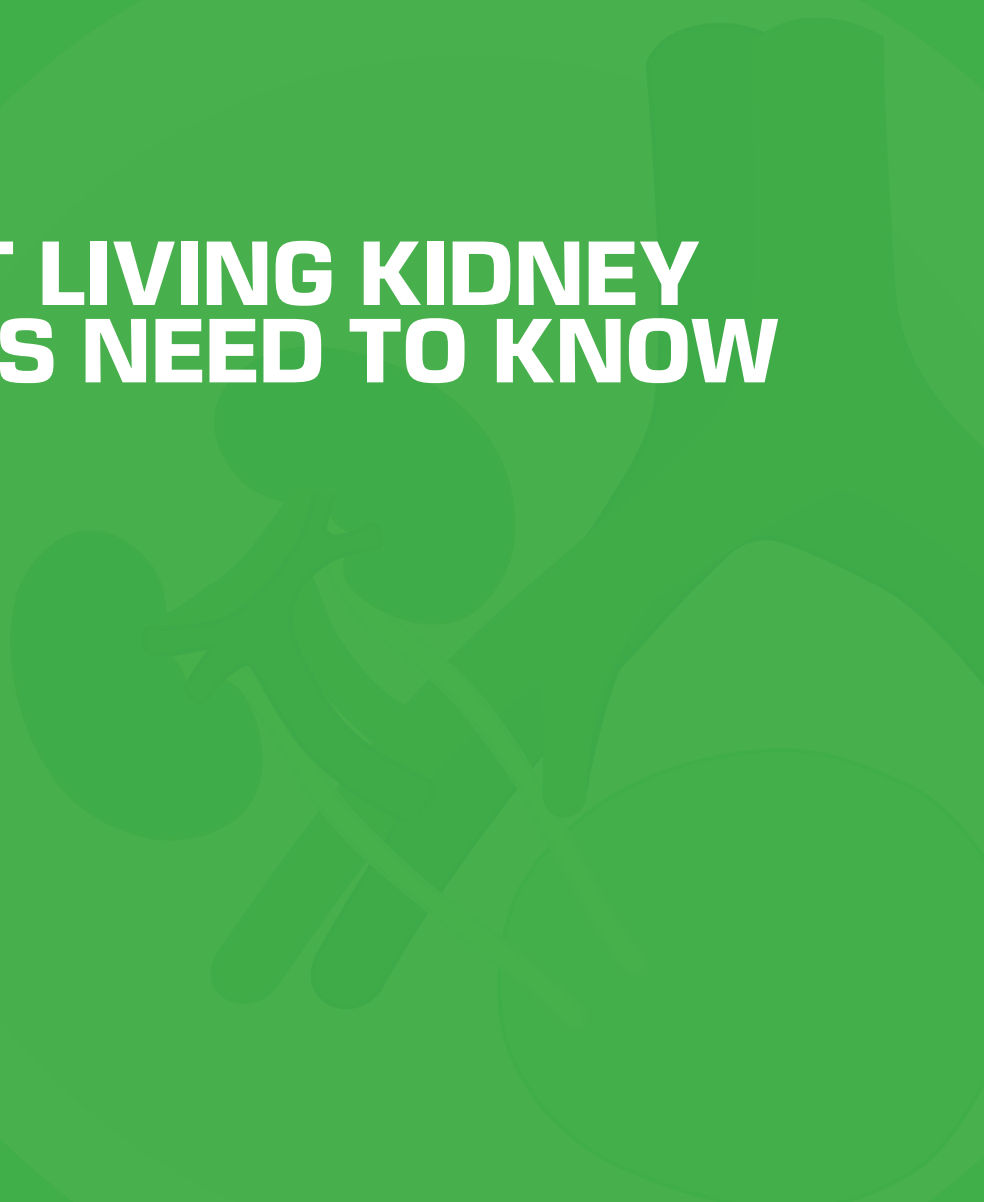


WHAT LIVING KIDNEY DONORS NEED TO KNOW



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WHY BECOME A KIDNEY DONOR?

Donating a kidney is a unique way for a healthy person to make a profound contribution to another human being. For patients on dialysis, who are eligible for a kidney transplant, receiving a kidney from a living donor is the best option. It offers a better quality of life and a longer life expectancy with less complications.

WHAT DETERMINES THE BENEFITS FOR THE RECIPIENT?

The benefits depend upon the health status, age, and kidney function level of the donor-recipient pair. Many programs do accept older donors with controlled blood pressure on one medication. Studies have shown these patients do well with careful medical follow-up and by maintaining a healthy lifestyle.

Other factors are also important, including prior transplants, antibody levels, and the timing of the transplant in relation to when the recipient started dialysis. If a patient has received dialysis for a long time,

then there are fewer benefits.

For example, a 30-year-old recipient with kidney failure that was caused by IgA nephritis, but who didn't have any other major health problems and had never been on dialysis would benefit more from a live donor when compared to a 73-year-old diabetic recipient with heart disease. The following table compares the graft survival rate between deceased and living donors.

KIDNEY GRAFT SURVIVAL RATES

TIME AFTER DONATION	FROM DECEASED DONORS	FROM LIVING DONORS
One year	92 out of 100 kidneys are still working after 1 year of transplant	96 out of 100 kidneys are still working after 1 year of transplant
Five year	70 out of 100 kidneys are still working after 5 years of transplant	82 out of 100 kidneys are still working after 5 years of transplant
Ten year	43 out of 100 kidneys are still working after 10 years of transplant	58 out of 100 kidneys are still working after 10 years of transplant

ARE THERE OTHER BENEFITS ASSOCIATED WITH RECEIVING A TRANSPLANT FROM A LIVING DONOR?

Here are a few benefits:

- Kidney transplants cost less than dialysis in the long run.
- The waiting time for a transplant may be much shorter with live kidney donors. In most states, patients have to wait for several years before they get an offer. If these patients have to receive dialysis for long periods of time, they are more likely to have hardening of the arteries, which can lead to heart attacks, strokes, peripheral vascular disease, and increased frailty.
- The transplant can be scheduled at a time that is convenient for both the

donor and the recipient. This means that the operation can take place when the recipient's health is ideal.

- Hospital stays are usually shorter.

The new allocation system has changed the way kidneys are distributed to young and highly sensitized recipients (those with a lot of antibodies), and this should be considered when a live donor is planning to donate a kidney to a young person.

WHAT ARE THE POTENTIAL BENEFITS FOR LIVING DONORS?

While there are no medical benefits, most donors feel good about providing an organ that will improve the quality and length of someone's life. If the donor is related to the recipient, then here are some additional benefits:

- Less time assisting with dialysis care
- Reduced caregiver burden (when donor is recipient's caregiver)
- Less financial burden (if recipient is supported by donor)
- Emotional satisfaction that comes from seeing someone regain his or her health

IS THERE AN AGE LIMIT FOR BECOMING A KIDNEY DONOR?

Most transplant programs in the United States accept candidates that are at least 20 years old and are capable of making

their own medical decisions. Age is also important because kidneys from older living donors may not work as well those from people between 20 and 40.

WHAT ARE THE RISKS OF KIDNEY DONATION?

There are several risks, including death, but when compared with other surgeries, the risk of dying due to a kidney donation operation is relatively low. The following table compares the risk of dying due to kidney donor surgery with other procedures. Other complications that may occur are listed below.

TIME AFTER DONATION	RISK OF DYING AMONG IN AMONG 10000 PROCEDURES
Kidney donation	3 out of 10000 donor surgeries
Laparoscopic gall bladder removal	18 out of 10000 surgeries
Cesarean section	3 to 10 out of 10000 surgeries
Normal vaginal delivery	1 out of 10000 procedures.

MEDICAL COMPLICATIONS:

Most living donors permanently lose 25-35 percent of their kidney function after the procedure. Reduced kidney function can lead to chronic kidney disease (CKD) and end-stage kidney disease (ESKD). Currently, there is no way to predict whether or not a young living donor will develop these diseases. However, if a living donor develops a disease or condition (such as obesity, high blood pressure, diabetes,

lupus, etc.) that damages the remaining kidney, then developing CKD and ESKD will occur faster.

Other long-term complications, such as developing high blood pressure, depend upon the donor's health and ability to maintain a healthy lifestyle.

A) RISK DURING PREGNANCY: The majority of kidney donors in the United States are female. In 2013, 16 percent

of living kidney donors were women between 18 and 35 years old. Donors who become pregnant have twice the risk of developing high blood pressure while pregnant (preeclampsia) and delivering babies that are premature or have a low birth weight. If you are planning to get pregnant in the future, you must discuss this with your transplant team and your ob/gyn.

B) END-STAGE KIDNEY DISEASE: In the general population, approximately 1 in 40 men and 1 in 60 women will develop end-stage kidney disease. Past studies showed that the risk of kidney failure in donors was equal or less than the risk for unmatched non-donors (people with non-similar characteristics). However, recent studies have shown that the risk is actually higher for living kidney donors. One in 100 kidney donors will develop kidney failure compared with one in 700 in the healthiest non-donor population.

Donors should ask the transplant team about the most recent research in this field. Donors should know that additional factors such as long-term diabetes risk, family kidney disease history, obesity, and ethnicity/race play a role in the risk for kidney failure after donation. Finally, it is easier to predict risks in older donors than in young donors.

C) HIGH BLOOD PRESSURE: As we age, the risk of higher blood pressure increases. When someone donates a kidney, the

other kidney does double duty. Gaining weight can increase the risk of developing high blood pressure, so avoiding it will help reduce the risk of developing chronic kidney disease. Donors should avoid smoking and eating too much salt and also exercise regularly and eat more fruits and vegetables.

SURGICAL COMPLICATIONS:

After surgery, bloating, nausea, and constipation are relatively common, and bowel obstructions are also possible. Like any surgical procedure, the following can also occur:

- Pain
- Fatigue
- Scarring
- Hernia
- Wound infection
- Blood clots
- Pneumonia
- Nerve damage that can cause chronic and disabling pain

PSYCHOLOGICAL EFFECTS AFTER DONATION:

Most people say that their lives are better after donating a kidney and very few regret their decision. But some people develop anxiety or depression, especially when they've had surgical complications. Studies show that donors may also develop long-term worries about their current and future health and complain about pain or fatigue.

Doctors don't know if there's a relationship between the donation process

and these negative effects, but future studies will tell us more. In the meantime, prevention is always the best medicine. Meeting with the transplant team or a social worker to discuss transplant concerns can reduce these unwanted side effects.

HOW DOES THE DONOR SCREENING PROCESS WORK?

Transplant centers evaluate donors carefully to ensure their safety. The transplant team agrees that:

“the person who gives consent to be a live organ donor should be competent, willing to donate, free of coercion, medically and psychosocially suitable, fully informed of the risks and benefits as a donor and fully informed of the risks, benefits, and alternative treatments available to the recipient” (from the Consensus statement on the live donor organ JAMA 284:2919-2926,2000).

The following sequence of events is commonly used to screen living donors:

- A. REFERRAL:** Individuals who want to be considered as donors must contact a transplant center by phone, electronically, or in person. This reduces the possibility that they are being forced to make a decision. Potential donors fill out a questionnaire to see if they have conditions that rule them out, such as diabetes, morbid obesity, or active cancer, etc.
- B. EVALUATION:** Transplant centers commonly evaluate potential donors

to make sure they are good candidates and to rule out unrecognized conditions that will potentially cause problems in the future. United Network Organ Sharing (UNOS) requires that all donors receive some testing as described below.

- C. INFORMED CONSENT:** Potential candidates will be taught about all aspects of donation, including risks of all kinds (surgical, psychosocial, financial, and the possibility of developing end-stage kidney disease). Donors must confirm their willingness to donate, confirm that they are not being forced to make a decision, and confirm that they haven't been offered money or other compensation for their organ. They also receive two other important pieces of information. First, they are told that they can change their mind at any time. And, if they donate and later develop kidney failure, they will be awarded extra points to give them priority under the National United States Deceased Allocation System.
- D. BLOOD AND TISSUE COMPATIBILITY:** Donors and recipients have both their blood type AND tissue type checked to make sure they are compatible. Tissue compatibility is done by checking HLA proteins, or markers, found in most cells in your body. Your immune system uses these markers to know which cells belong in your body and which do not.

Blood type and HLA tissue matching are not the same, and being blood type compatible does not mean that you'll be HLA type compatible. The following chart will help you see who you can donate to:

IF YOU HAVE BLOOD TYPE	YOU CAN DONATE A KIDNEY TO
O	A, B, AB, O
A	A, AB
B	B, AB
AB	AB

HLA tissue matching:

Transplant centers check the following six HLA proteins: A, B, DR, CW, DP, and DQ. Generally, HLA matching looks at primary antigens/proteins (A, B, DR). A perfect match is sometimes referred to as “six out of six.” A zero match is “zero out of six.”

After checking HLA proteins for both people, the lab runs a test to see if the recipient has any antibodies (proteins in the serum) that will attack the donor’s cells. The antibody will only attack the donor’s cells if it is specific for the donor’s particular HLA. Not everyone has antibodies against HLA.

The crossmatch test mixes recipient serum with the donor’s white blood cells and may or may not cause a reaction. If white blood cell are injured, then there are antibodies, and it is called a positive crossmatch

(which makes the risk of rejection too high, and the transplant doesn’t usually take place). There is more information on this subject in Hot Topics 75, 76, and 77.

Recent procedures like desensitization and kidney paired donation have helped combat blood and tissue type incompatibility. You will learn more about kidney paired donation in the pages that follow. Also, Hot Topics 75-77 explain more about transplants for highly sensitized patients.

E. LABORATORY AND RADIOLOGIC TESTS: These tests are done to ensure donor and recipient safety and vary depending on the donor’s age and personal medical history. A radiologic exam includes a basic chest X-ray and an angiogram CT of the abdomen (with contrast) or MR angiogram to check the kidneys and

their blood supply. If the tests show that the donor only has one kidney (by birth) or has tumors or multiple blood vessels feeding the kidney, then the individual will be ruled out as a donor. The surgical team and the radiologist review the images and decide if the donor's anatomy is appropriate and which kidney should be used for donation. The basic labs recommended by UNOS are also described below.

F. MEDICAL AND SURGICAL EVALUATION:

To see if you're a suitable donor, doctors will evaluate your risks based on a thorough physical exam as well as your personal, family, and social history. They will discuss their findings with you and explain the medical and surgical risks associated with the procedure.

G. PSYCHOSOCIAL EVALUATION: This is usually performed by a clinical social worker, psychologist, or psychiatrist. Their goal is to determine the donor's mental health, substance abuse history, and ability to cope with stress. It also evaluates the potential impact of the donation on donor's and recipients' families, including financial matters, employment, and plans for donation and recovery.

H. INDEPENDENT LIVING DONOR ADVOCATE (ILDA): The ILDA is the primary contact for the donor and his or her advocate regarding rights and best interests. This person (or

group of people) is not aware of the potential recipient's status. He or she makes sure the potential donor receives all the necessary information to make an informed decision about donation.

I. MULTIDISCIPLINARY COMMITTEE:

At this stage, a coordinator presents all the donor's information to the transplant team. It includes a summary of everything listed above, including the donor's intention and medical, surgical, psychosocial, and ILDA evaluations along with labs and test results. The committee asks questions aimed at determining the impact of the donation on the donor's health. The committee includes medical and surgical physicians, a living donor advocate, social workers, transplant nurses, a transplant pharmacist, dietitians, and financial coordinators.

Both the donor and the recipient are notified of the outcome. When donors are not accepted, they are told why and also informed that other centers with different donor acceptance criteria may accept them.

WHY ARE SOME DONORS CONSIDERED UNSUITABLE?

Right now, donor criteria varies among transplant centers. Some programs accept potential donors with controlled high blood pressure, small kidney stones, and those who smoke or use marijuana. This lack of uniformity is caused by a lack of research into the large donor population.

The UNOS (United Network of Organ Sharing) suggests the following criteria that will exclude live kidney donors:

- Kidney recovery hospitals may exclude donors at their own discretion if they feel they are unsuitable for organ donation.
- Individuals who are younger than 18-years-old and those who cannot make an informed decision are excluded.
- People with the following conditions are also ruled out:
 - Uncontrolled blood pressure
 - History of high blood pressure with evidence of end-stage organ damage (for example, a previous stroke or blindness due to high blood pressure)
 - HIV
 - Diabetes
 - Active cancer (or cancer that has not been completely treated)
- Strong suspicion that the donor is being forced against his or her will
- Strong suspicion of an illegal financial exchange between donor and recipient (bribery)
- Evidence of a serious infection (until resolved)
- Diagnosable psychiatric conditions requiring treatment before donation, including any evidence of suicidality.

WHAT MEDICAL TESTS MUST BE DONE AFTER KIDNEY DONATION?

Test are done to make sure donors are

healthy and to evaluate their future risk for potential diseases that would impact their kidney function.

General tests:

- Blood count
- Electrolytes
- Liver tests
- Cholesterol
- HBA1c or Glucose Tolerance tests
- EKG
- Echocardiogram, if needed
- Test to rule out pregnancy
- Test to evaluate blood clotting and bleeding risk

Kidney specific tests:

- Urinalysis or urine microscopy
- Urine culture, if patients have symptoms and/or urinalysis indicates possible infection
- Urine protein
- Measure of GFR (filtration rate) calculated from a 24-hour urine sample collection. It is repeated 2–3 times according to the transplant center's policy.
- Patients with a history of kidney stones should have a 24-hour urine stone profile evaluation (a test that helps determine risk for future kidney stones).
- APOL1 for African American donors (a genetic test to evaluate the risk of future kidney disease). Many donors from Puerto Rico or the Caribbean have an African ancestry, which means their risk may be higher due

to genetics.

- Genetic testing when recipient has PKD and the donor is a blood relative. Many centers run this test to eliminate the possibility that younger donors will develop PKD when they are older. Genetic testing is the gold standard to rule out this risk.

Tests to rule out infections, such as:

- HIV
- Hepatitis B, C
- CMV (Cytomegalovirus)
- EBV (Epstein Barr virus)
- Syphilis
- TB (tuberculosis)
- Malaria, Chagas, Strongyloides, and West Nile, in donors from some specific regions

Cancer screening:

- Prostate – PSA and rectal exam
- Breast – Mammogram
- Cervical – Pap smear
- Skin Cancer
- Lung Cancer – Chest X-ray

Kidney Anatomy:

- CT angiogram of the abdomen
- MR angiogram of the abdomen

WHAT DOES THE DONATION SURGERY INVOLVE?

During the surgery, the donor is asleep and breathes through a tube connected to a machine. The anesthesiologist gives medication to the donor through an IV

line to keep him or her deeply sedated and breathing properly.

After the donor has been anesthetized, he or she is positioned on his or her side for the surgery (Image 1). During the procedure, the surgeon removes one kidney from the donor.

In the beginning, these operations required the surgeon to make a large incision on the patient's left or right side. Today, the operation is much simpler, and special equipment (called a laparoscope) is inserted into small holes instead. The surgeon creates three or four small openings (less than 1 cm) and performs the operation by looking through the camera's lens (Image 1, 2).



Image 1. The surgeon has created four holes for the laparoscopic instruments and a horizontal 6 cm incision in the lower abdomen of the donor to retrieve the kidney when it is ready to be removed.

Using a camera to guide the laparoscope, the surgeon separates the kidney from the surrounding tissue and makes a 5–6 cm incision in the lower part of the donor's abdomen and retrieves the kidney (Image 1).



Image 2. The donor surgical team is working on the donor, looking through a camera inside the donor's abdomen.

After the kidney is removed from the donor's abdomen, it is placed in preservation solution where it will be cleaned. Any fatty tissue will be removed by the recipient's surgeon, and then it will be implanted (Image 3).

After the kidney has been removed from the donor's abdomen, the small holes will be closed with skin glue and the larger incision will be sealed with an absorbable stitch, which leaves a small scar.

Once the operation is complete, the donor will be awakened and transferred to the recovery area. The anesthesiology team and nurses will keep a close eye on the donor until he or she is fully awake, and then they will transfer him or her to a hospital room.

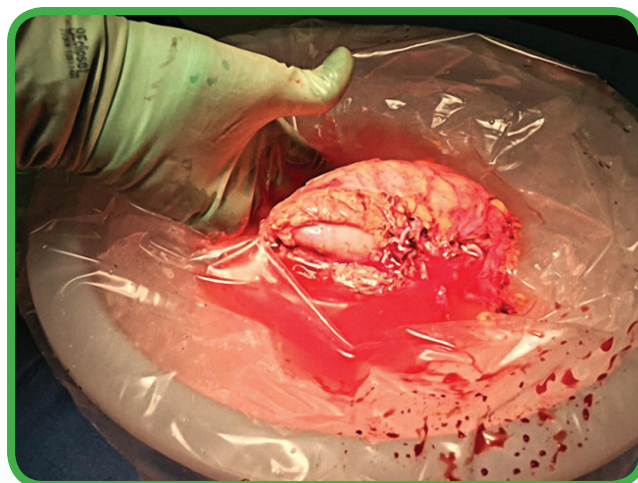


Image 3. The kidney has been removed from the donor and placed in preservation solution. It will be cleaned by the recipient surgeon, fatty tissue will be removed, and it will be implanted in the recipient.

Since the incisions are small, most donors only have slight pain and are able to get out of bed the next morning, walk without help, and eat a regular meal. Most donors get to go home within two days of the surgery.

Constipation is a common nuisance in the first days after surgery. Within about two weeks, most patients will feel well enough to drive, do desk work, and light work around the house. Donors are restricted from strenuous activity or lifting for 6-8 weeks depending on the discretion of the surgical team. Most donors are feeling 100% back to normal about 3-4 weeks following surgery.

WHAT EXPENSES AND REIMBURSEMENTS ARE AVAILABLE FOR KIDNEY DONORS?

Most donation-related medical expenses are covered by the recipient's health insurance. Costs range from \$0 to \$20,000,

but \$5,000 is the average. There are many expenses, however, that donors must pay themselves. Personal expenses such as travel, housing, child care costs, and loss of wages may not be reimbursed, but there are several organizations in the U.S. that can help (see website list below). Transplant social workers or living donor coordinators can help in this area.

Studies show that most donors lose approximately one month's wages after kidney donation. Donors will also be responsible for lifelong medical follow-up. Transplant centers must follow kidney function related labs on donors for up to two years after donation. After that, donors are responsible for scheduling follow-ups with their primary care physician.

There have been rare occasions when a living donation procedure left a donor unable to obtain future employment (for example, if the donor has chronic pain due to nerve damage). Another concern is not being able to maintain or afford health, disability, or life insurance. Future health problems after donation may not be covered by the recipient's insurance policy, but the following organizations may be able to assist with some expenses. Be sure to check your insurance policy or ask a transplant financial coordinator about concerns related to your specific circumstances.

American Kidney Fund
<http://www.kidneyfund.org>

American Transplant Foundation

<http://www.americantransplantfoundation.org>

HelpHOPELive
<https://m.helphopelive.org/supportfortransplant>

Kidney Transplant/Dialysis Association
<http://www.ktda.org>

National Foundation for Transplants
<http://www.transplants.org>

National Living Donor Assistance Center
<http://www.livingdonorassistance.org>

REMEMBER: IT IS AGAINST THE LAW TO PAY A LIVING DONOR FOR AN ORGAN.

HOW DOES RACE/ETHNICITY IMPACT LONG-TERM COMPLICATION RISKS IN KIDNEY DONORS?

Hispanics and African Americans are more likely to develop diabetes and end-stage kidney disease. This risk is also seen in kidney donors that belong to these groups. Recently, genetic markers, such as the APOL1 gene, have been used to assess the risk of kidney failure among Black donors. If you are a Hispanic, Black or Native American kidney donor, make sure you discuss your risks with your transplant team.

ARE THERE DIFFERENT TYPES OF LIVING KIDNEY DONATIONS?

Yes. They are based on the biological relationship between the recipient and the donor and whether the donor is specifying

(or directing) who will receive the donated organ. The different types of donation are listed below:

- *Living related donation:* The living donor directs the donation to a specific recipient who is a blood relative (such as a child or sibling). These are the most common type of donations.
- *Living unrelated donation:* The living donor directs the donation to a specific recipient who is not a blood relative (such as a spouse, a friend, etc.). These donations represent about 25 percent of donation procedures.
- *Living non-directed donation or those from altruistic (selfless) donors:* The living donor does not direct the donation. Instead, the recipient is selected from a list of compatible people on a kidney waiting list. These donors are also called anonymous donors because the donor and recipient do not necessarily ever meet. Very few donations of this kind occur.

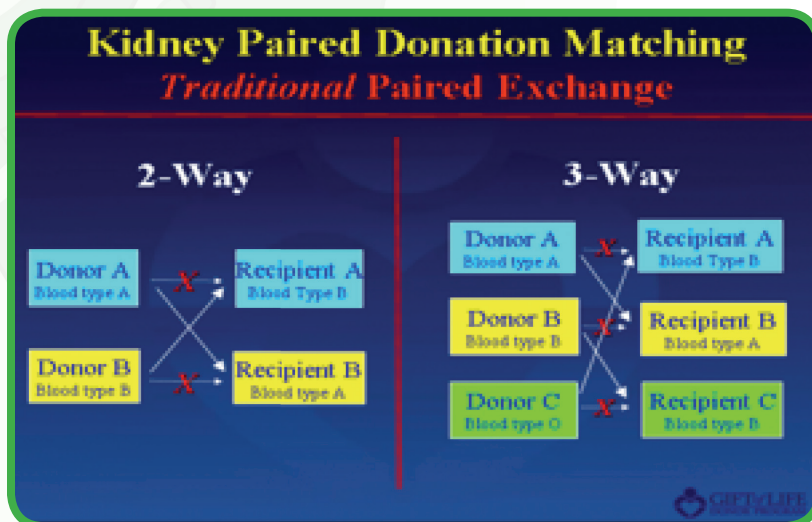
WHAT IS A KIDNEY EXCHANGE PROGRAM OR KIDNEY PAIRED DONATION?

When a donor–recipient pair is incompatible because of blood type or a positive crossmatch, patients can participate in a kidney exchange

program. In the simplest terms, two donors agree to give kidneys to two other recipients that might not have had compatible matches (see graphic below). These exchanges can grow more complex and be done in multiple states and at different times. Frequently, altruistic donors start large exchanges that can benefit several people.

By donating to a kidney paired donation program, non-directed donors may be given the opportunity to help two, three, or even more recipients. Transplants occur as a result of their extraordinary gift. Many times, these non-directed donors can initiate kidney donor chains, which have the potential to facilitate more than one transplant. Some of these chains have been reported by the media

(<http://www.nytimes.com/2012/02/19/health/lives-forever-linked-through-kidney-transplant-chain-124.html>, <http://www.nytimes.com/2015/05/03/magazine/the-great-american-kidney-swap.html>)



(Taken from gift of life, UNOS website)

These exchanges have been offered to compatible pairs who have a chance to get a better tissue match from a different donor. Remember, tissue matching helps the transplanted kidney function much longer.

Many transplant centers in the United States offer exchange programs; some of them are run locally at the transplant center, but others join regional and national kidney exchange organizations. Here is the most current list of organizations that offer kidney exchanges in the United States:

Alliance Paired Donation
<http://www.paireddonation.org>

Living Donation California
<http://livingdonationcalifornia.org/living-donors-are-needed>

National Kidney Registry
<http://www.kidneyregistry.org/>

United Network for Organ Sharing
<http://www.unos.org/donation/index.php?topic=kpd>

If you have an incompatible donor or poor tissue type match (6 out of 6, zero matching), discuss the possibility of joining a kidney exchange program with your transplant team. (Note: Your transplant center may or may not be associated with these centers.)

WHAT HAPPEN IF A DONOR DEVELOPS END-STAGE KIDNEY DISEASE YEARS LATER?

The national organ procurement organization has a longstanding policy that prior donors who need a kidney transplant are given priority on the waiting list. Typically, prior kidney donors with kidney failure tend to get a kidney faster, have less risk of dying after their transplant, and receive higher quality organs compared with non-donor recipients.

WHAT LONG-TERM FOLLOW-UP IS REQUIRED FOR DONORS?

UNOS requires transplant centers to submit information about donor status, kidney complications, development of hypertension or diabetes, and laboratory protein follow-up data at six months, one year, and two years after donation. Sometimes this follow-up is difficult, especially when donors don't take an active role in the process.

Donors need to be involved in their follow-up care. They should contact the transplant staff and coordinators if their health changes and see their primary care physician on a regular basis. It is also very important to maintain a healthy lifestyle and complete yearly labs on time (including serum creatinine or cystatin, urine analysis, and urine protein).

SHOULD DONORS AVOID CERTAIN MEDICATIONS?

Yes, especially ibuprofen, Motrin, Aleve, Advil, etc. Donors with high blood pressure should avoid certain over-the-counter nasal decongestants because they raise blood pressure. Using any of these medications too much can potentially cause problems.

Donors also need to remind their doctors not to prescribe medication that is “kidney toxic” and to be extra cautious when dosing. The following medications are known to be kidney toxic: In general when people are

older than 60 years, have diabetes, have been exposed to multiple medications that are known to be toxic for the kidneys, have heart failure or generalized infection, the risk of kidney toxicity of below medications greatly increases

Finally, a substance like cocaine, for example, is very harmful. It damages kidney tissue by increasing blood pressure. Alcohol abuse can also increase blood pressure and permanently damage organs.

LIST OF COMMON KNOWN KIDNEY TOXIC MEDICATIONS

DRUG NAME OR CLASS	REASON TO BE USED
Non Steroidal Anti-inflammatory drugs, including Other counter. (Ibuprofen, motrin, aleve, advil, naproxen, Piroxicam, meloxicam, diclofenac, etc)	Used for pain, fever
Lithium	Used for bipolar disease
Acyclovir (when used in higher doses)	For Herpes infection
Aminoglycosides (type of antibiotic, specific names includes tobramycin, amikacin, gentamicin)	For various infections
Many other antibiotics (such as Bactrim, penicillin, etc) can potentially cause kidney problems	For various infections
Amphotericin B	Used for serious fungi infections

DRUG NAME OR CLASS	REASON TO BE USED
Some HIV meds	
Some type of blood pressure meds - Medications for High Blood Pressure that belong to family of ACEI, ARB or aldosterone antagonists agents (examples include Lisinopril, losartan, spironolactone, etc)	
Contrast dye	Used for CT scans
Some diuretic (water pills) medications	Used for high blood pressure , or water retention problems
Herbs (Chinese herbs with aristocholic acid)	For various reasons
Street drugs: Cocaine, heroin, methadone, ketamine (Ketalar), methamphetamine, etc.	
Anti-gastric reflux medications such as Prilosec, omeprazole, pantoprazole, etc.	Acid reflux , gastritis, ulcers or gastrointestinal bleeding
Some Gout meds such Allopurinol in certain patients	
Some medications for osteoporosis in certain patients (such a Pamidronate, Zolendronate)	
Some anti-seizure medications such as Dilantin	
Some medications used to treat various types of Cancer – like Cisplatin, Methotrexate, Gemcitabine, Mitomycin C, etc.	

WHERE CAN I GET MORE INFORMATION?

American Association of Kidney Patients
<http://www.aakp.org>

Coalition on Donation
<http://www.organtransplants.org/donor/coalition>

Living Donors Online
<http://www.livingdonorsonline.org>

National Kidney Foundation
<http://www.kidney.org>

Renal Support Network
<http://www.rsnhope.org>

Renewal
<http://www.life-renewal.org/home>

Transplant living
<http://www.transplantliving.org>

Transplant Recipients International
Organization
<http://www.trioweb.org/>

U.S. Department of Health and Human
Services
<http://www.organdonor.gov>