

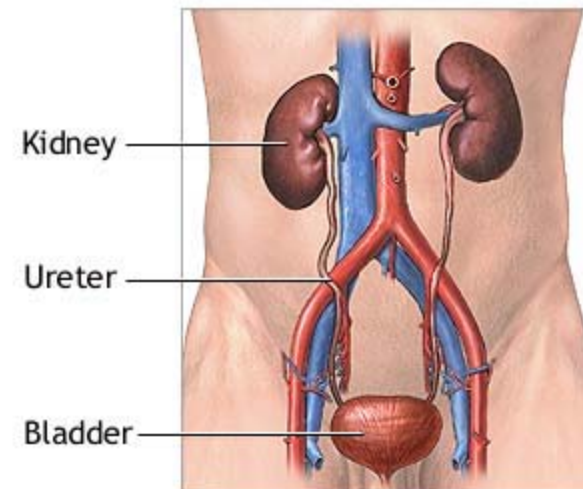
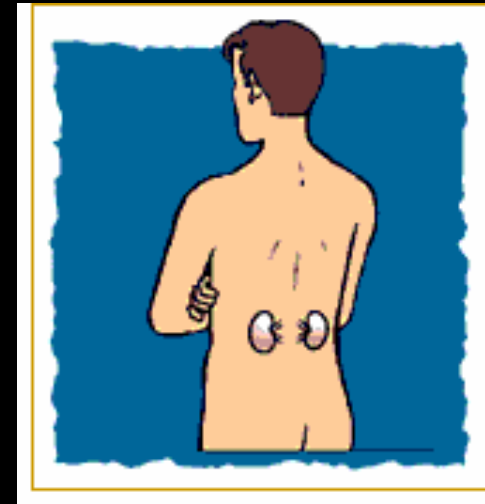
Laparoscopic Donor Nephrectomy (donating a kidney to a friend or family member who needs a kidney transplant)

A simple guide to help answer your questions



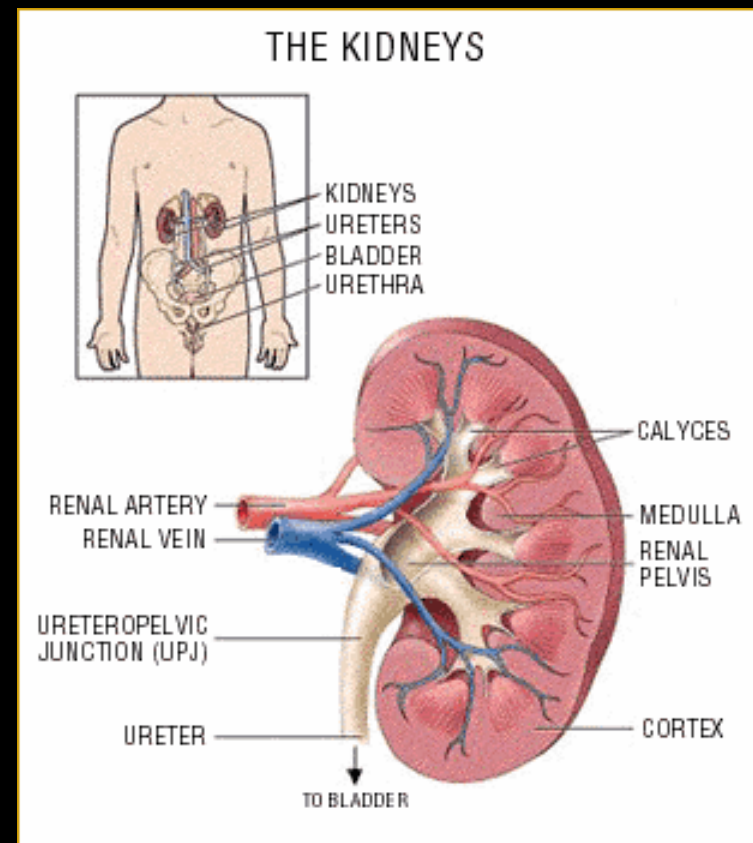
What are your kidneys?

The kidneys are two fist-sized organs, about 4 inches long. They are located in your back, above your waistline, and are protected by your ribs.



What functions do your kidneys perform?

- They balance the body's water content.
- They remove waste products from the blood. Waste products come from body cells and foods that are eaten.
- They help keep body chemicals in balance.



What happens when your kidneys do not function normally?

Many diseases can affect kidney function. When your kidneys are not functioning normally, the body's ability to remove wastes, balance the salts in your blood, and remove excess fluids from the body is affected. Most of the time your doctor can treat this with medicines and a special diet. If function of the kidneys continues to decline however, hemodialysis (a machine which filters the blood) may be necessary. Complete kidney failure occurs when less than about 10% of your kidneys functions are working.

What happens when your kidneys do not function normally?

When your kidneys fail, toxins and waste products from foods and body cells, plus extra fluids build up in the blood. If the excess wastes and fluids are not removed, you will become very ill. Some of the symptoms of kidney failure are swelling, confusion, feeling tired, and difficulty breathing.

What happens when your kidneys do not function normally?

In addition to filtering the blood, the kidneys also secrete chemicals which help produce red blood cells, make vitamin D, and assist with calcium regulation. If the kidneys are failing, anemia (low blood count) and weak and fragile bones can result.

What can cause Kidney Failure?

Many diseases can affect the kidneys, but a few are responsible for the majority of kidney failure

- High Blood pressure
- Diabetes
- Glomerulonephritis (a disease that causes scarring of the kidney)
- Lupus (a disease where the body attacks itself)

What is kidney failure and how is it treated?

Kidney failure is treated based on how well the kidneys are working. When the amount of failure is mild or moderate, then medications to assist with removal of fluids and balancing the salts in the blood are given. When the amount of failure is severe or complete, it is necessary for a special machine to filter the patients blood several times per week.

What is kidney failure and how is it treated?

This filtering process is called dialysis. There are two main techniques for dialysis

- **Hemodialysis** – the blood is directly filtered by pumping it out of the body and through a special machine
- **Peritoneal Dialysis** – a special catheter (tube) is placed into the abdomen (belly) through which fluid is instilled into the belly. The fluid absorbs the body's waste products and then is drained from the belly

Hemodialysis

Hemodialysis is performed for several hours several times per week. Patients go to dialysis centers or hospitals where special doctors called nephrologists treat them. The patient is connected to a machine which removes the blood, cleans it, and then returns it to the patients body.



Hemodialysis

Although hemodialysis is very effective, patients who require this treatment have decreased life expectancy (life span)

What is kidney failure and how is it treated?

Another treatment option is a **Kidney Transplant**. This is a procedure which takes a healthy kidney from another individual and places it in the body of a patient with complete kidney failure. The long term results of kidney transplant appear to be better than dialysis.

Kidney Transplant

There are 2 types of Kidney Transplants

- **Cadaveric** – where a kidney is taken from someone who is an organ donor after they die or are declared brain dead (such as in a car accident or traumatic injury)
- **Donor Directed** – usually either a close relative (living related donor) or friend (living unrelated donor) donates one of their kidneys to someone who needs a kidney transplant

Where does a donor kidney come from?

A kidney which is transplanted must be matched for blood type and tissue types between the donor (the person who gives the kidney) and the recipient (the person who receives it). A match is much more likely between blood relatives than between non related individuals

Kidney Transplant

Unfortunately, there are many more people who need donor kidneys than organs that become available. Over the course of the last 8 years, the number of Donor Directed kidneys has steadily increased. One of the reasons for this is that this operation can now be performed using Laparoscopic techniques (small incisions)

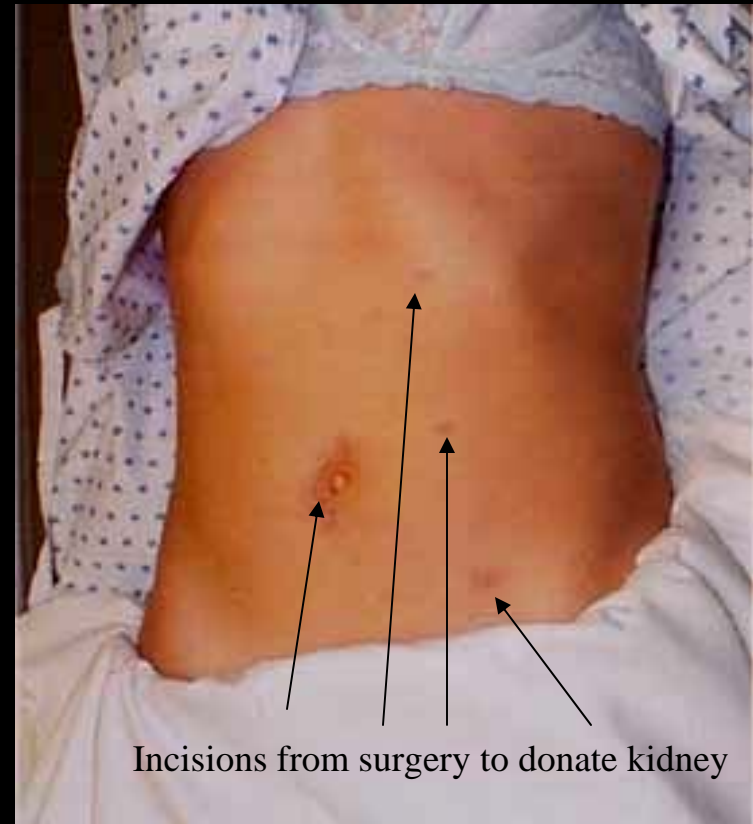
Kidney Transplant

In the past, it used to require a very large scar to remove a kidney for donation.



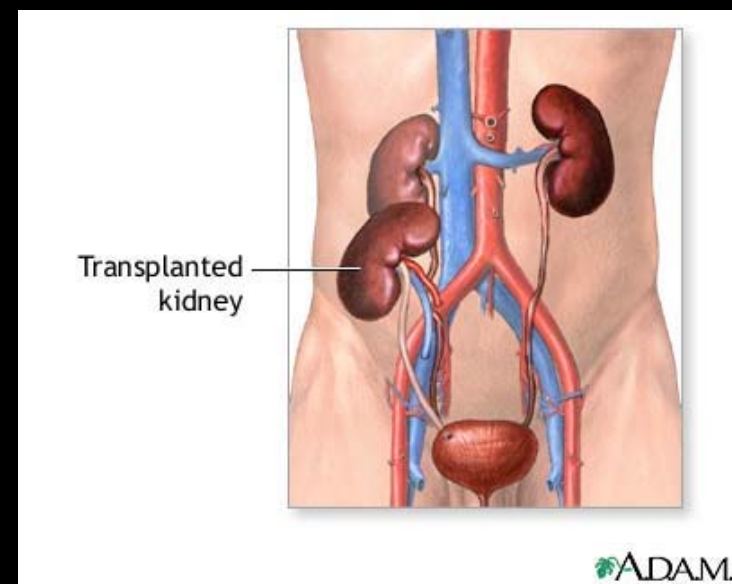
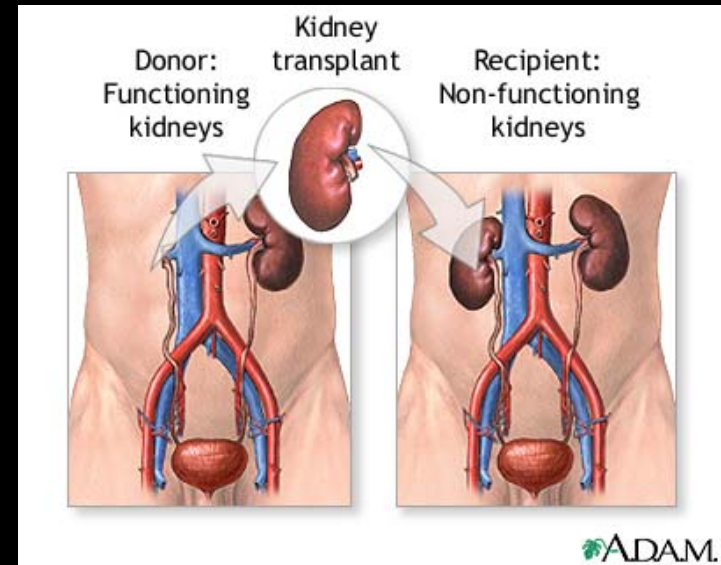
Kidney Transplant

Now, with laparoscopic surgery techniques, the donor kidney can be removed with very small incisions and little scarring



What is a kidney transplant?

- A kidney transplant is an operation performed by a transplant surgeon in which a healthy kidney from another person is placed into your body.
- Normally the non-working kidneys remain.
- A kidney transplant is the treatment option which is most like normal kidney function.

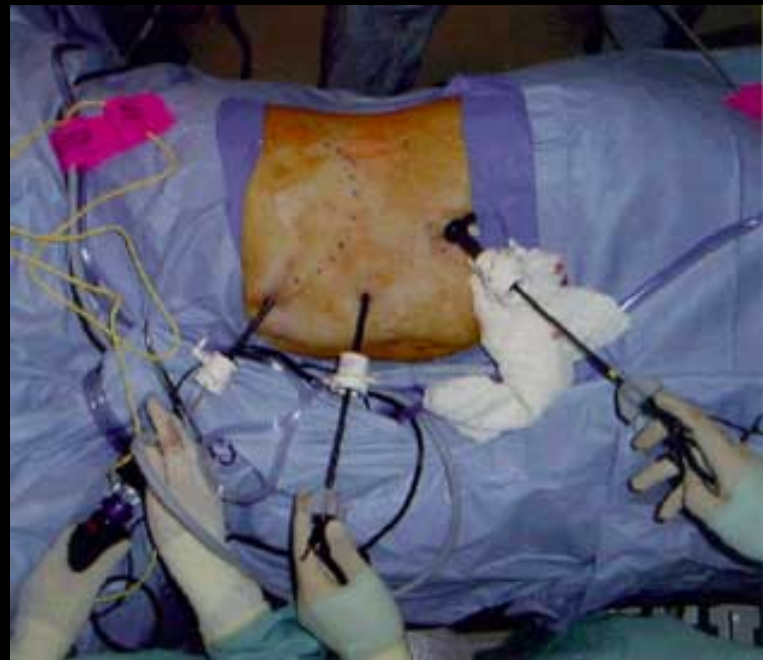


What is Laparoscopic Donor Nephrectomy?

- With the use of a video camera system via ½-inch incisions, a kidney can be surgically removed from a living donor.
- The operation can be performed completely laparoscopically or hand-assisted (use of a small incision to insert the hand into the abdominal cavity).

Laparoscopic Donor Nephrectomy (getting the kidney from the donor)

Using very small incisions, a special telescopic camera and specially designed instruments, the kidney is removed from the donor. The surgeon performs the surgery while looking at a TV monitor



What is Hand-Assisted Laparoscopic Donor Nephrectomy?

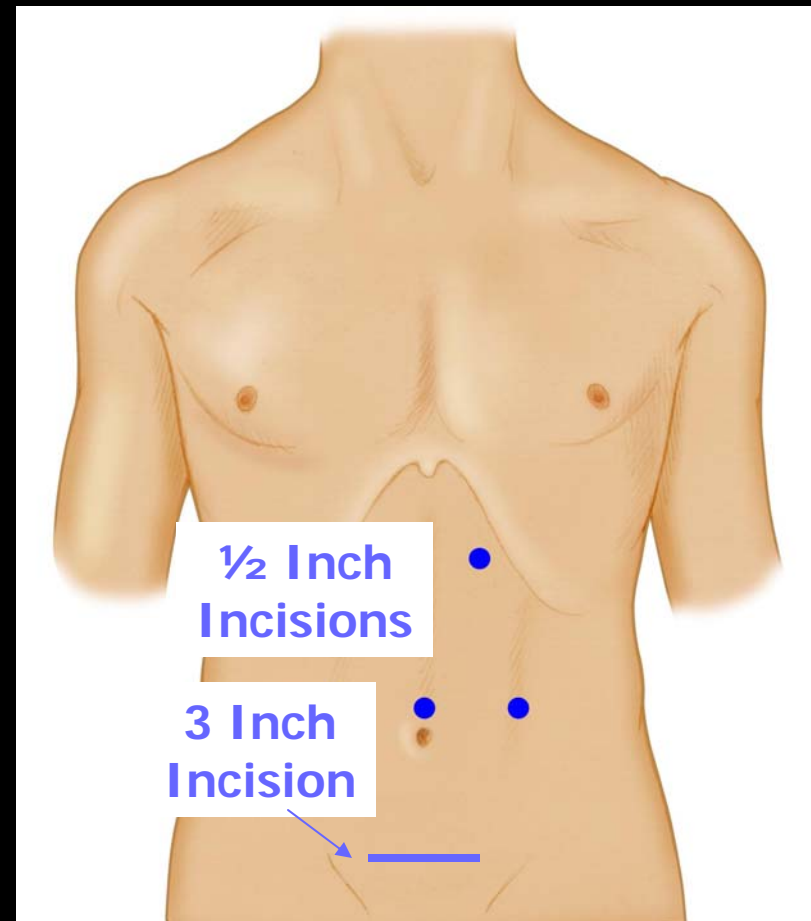
- In the hand-assisted version, an additional 3-inch incision is made across the lower abdomen, just above the pubic bone (similar to C-section incision).
- Hand-assistance allows placement of surgeon's hand within the abdomen to facilitate dissection, and allows easy removal of the intact organ from the patient.

What are the Advantages of Hand-Assisted Laparoscopic Donor Nephrectomy?

- Improved exposure and mobilization
- Ability for surgeon to “feel” the kidney and blood vessels
- Improved control of blood loss and bleeding
- Decreased operative time
- Less difficult than a totally laparoscopic procedure

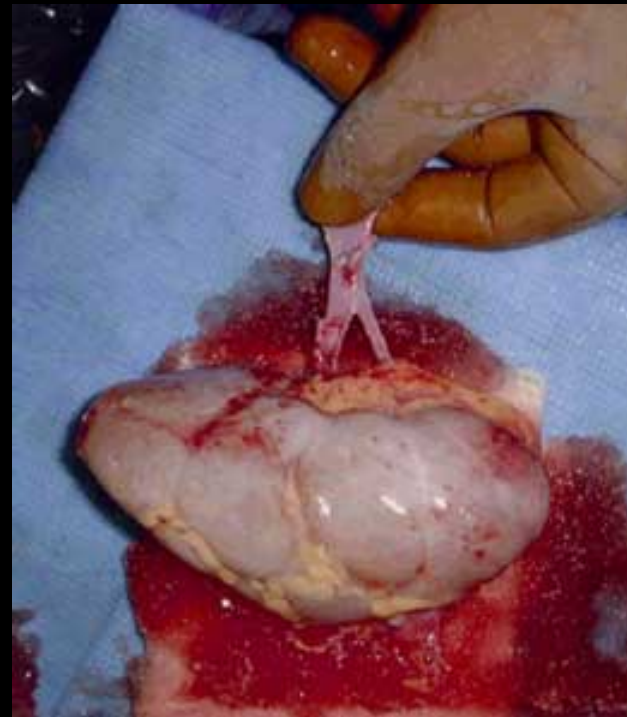
Hand-Assisted Wounds

- Smaller, ½ inch incisions for camera and instruments
- 3-inch low, horizontal incision for hand placement and kidney removal site



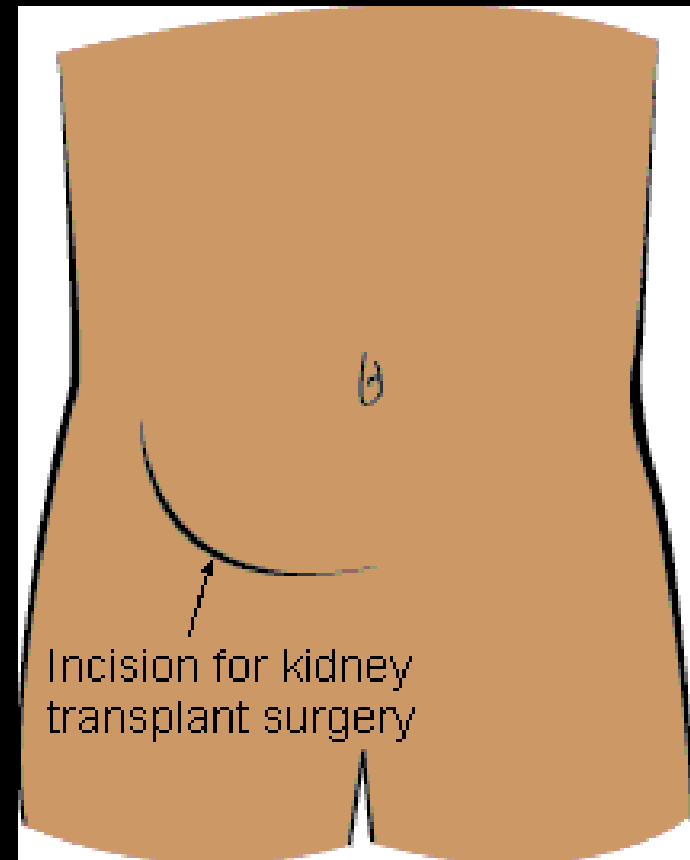
Laparoscopic Donor Nephrectomy (getting the kidney from the donor)

Once the kidney is removed, it is flushed with a preservative solution and prepared for implantation by the transplant surgeon



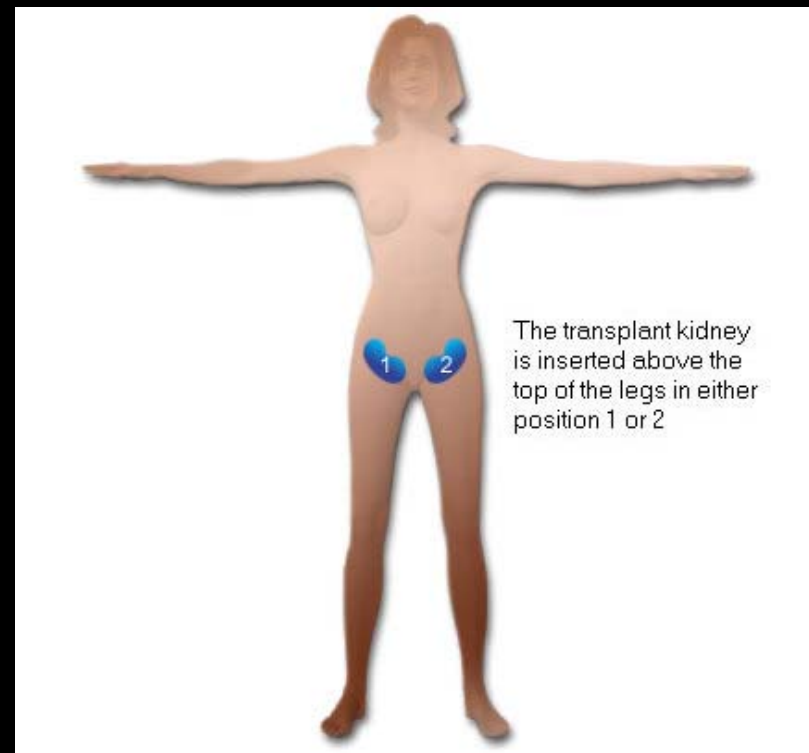
Laparoscopic Donor Nephrectomy (getting the kidney from the donor)

The kidney is then taken to another operating room where it is implanted into the recipient. The incision for placement of the new kidney is in the groin



Laparoscopic Donor Nephrectomy (getting the kidney from the donor)

The new transplanted kidney is connected to the recipients artery, vein, and urinary bladder. Most recipients kidney function returns to near normal within about a week.



Who performs kidney transplants?

If you are a candidate for a kidney transplant, you will see a transplant specialist. Transplant specialists are usually both medical doctors and surgeons who specialize in kidney transplants. The medical transplant doctor will manage your medical problems and the surgeon will perform the transplant surgery.

What does the kidney donor have to go through?

The person who wishes to donate must talk with their doctor. The suitability of the donor depends on:

- the donor wanting to donate a kidney
- the donor having normal kidneys
- the kidney match being good (based on the test results) and his or her medical evaluation.

What does the kidney donor have to go through?

Most donors will be required to have a special test to evaluate the blood supply of the kidney which is being donated. This will usually be a special MRI, but can be a CAT scan or an arteriogram



MRI angiogram of the renal blood vessels

What preparation is necessary for the procedure?

Your doctor will prescribe one of the medications pictured here. These all involve drinking a large quantity of liquid in order to flush the fecal material from the colon.



What preparation is necessary for the procedure?

In addition to taking this medication, you will be asked to drink only clear liquids (water, broth, apple juice, Jell-O, etc.) for the 24 hour period before the examination. Medications such as aspirin, Motrin, ibuprofen and other anti-inflammatory drugs will also need to be stopped 7-10 days before the operation.

What does the kidney donor have to go through?

The hospital stay for the donor is usually 5-7 days after an open operation. If the operation is done laparoscopically however, donors can usually go home within a day or two after surgery. The pain and discomfort are significantly less.

What kinds of recovery should I expect after laparoscopic donor nephrectomy?

- Able to drink liquids the day after surgery
- Use of patient-controlled intravenous pain machine
- Blood testing while in the hospital
- 2-3 day hospital stay
- 2-4 weeks off work or strenuous activity
- No heavy lifting 4-8 weeks after surgery to avoid hernias

What does the kidney donor have to go through? Is it dangerous?

Many people worry that donating a kidney will leave the donor in a dangerous situation. The living donor of the kidney is left with one healthy functioning kidney, which should be more than enough for the rest of the donor's life. His or her activities are not usually limited.

Facts about Live Donor Nephrectomy

- 35.6% of all kidney transplants were donor directed kidney transplants (12,488) in 1999
- Have better kidney function and survival compared to the cadaveric type
- Greater than 90% success rate for Living Related donor transplants 2 years after the procedure

Advantages of Laparoscopic versus Open Living Donor Nephrectomy

- Less pain
- Shorter hospital length of stay
- Faster recovery time
- Faster time to return to work
- Improved cosmetic results
- Higher rate of organ donation

What are the risks to this procedure?

Risks are small, but definitely need to be considered prior to undergoing surgery

- Wound infection
- Wound hernia (bulge)
- Wound seroma (fluid collection)
- Bleeding
- Bowel obstruction and internal adhesions
- Conversion to open procedure
- Injury to a organ in the abdomen (spleen, colon, etc)
- Very small chance of death (< 0.1%)