



How do Kidney Donors Fare Long-Term?

New Research Analyzes Health of Living Donors

by Steven Katznelson, M.D., medical director, Kidney Transplant Program, California Pacific Medical Center and Laura Miyashita

Living donor transplantation is the best option for individuals with end-stage renal disease (ESRD) interested in kidney transplantation, according to transplant data. Donors have benefited from advances such as laparoscopic kidney removal, which has made surgery and recovery even easier. But how do donors fare long-term after kidney donation?

In the past year, both *New England Journal of Medicine* and *Journal of the American Medical Association* have published long-term studies analyzing outcomes of kidney donors. One followed 80,000 live kidney donors dating back to 1994, while the other studied 3,968 individuals who donated a kidney between 1963 and 2007. Results showed:

- Donor survival was similar to that of the general control population (people who had not had a kidney removed) matched for age, sex, and race or ethnic group.
- The rate of ESRD was significantly lower in the group of patients who donated a kidney than the rate in the general population (180 versus 268 per million per year). The study received criticism, however, because the patient population was mostly Caucasian so results may not adequately represent other racial groups.

After donating one kidney (removing 50 percent of the functioning kidney mass), the remaining normal kidney compensates and the overall kidney function (measured in GFR, or glomerular filtration rate) increases to approximately 70 percent of baseline at about two weeks and approximately 75 to 85 percent of baseline at long-term follow-up.

Most long-term studies show that although a donor's kidney function is 75 to 85 percent of baseline in the years following donation, these individuals have no increased risk of developing hypertension. Some studies have, however, suggested that donors may be at increased risk of developing protein in their urine, though others have disputed this.

Life Expectancy After Donation Unchanged

"It is clear that healthy living donors do not have a change in their life expectancy after kidney donation according to research," says Steven Katznelson, M.D., medical director of California Pacific's Kidney Transplant Program. He adds, "Studies also show that there may be a measurable increase in quality of life for the donors as they experience the many benefits that their kidney has bestowed on the life and well-being of their recipient."

Regular appointments with a primary care provider are recommended for living kidney donors. "We advise our donors to undergo routine check-ups that include a blood pressure check and urinalysis," says Katznelson.

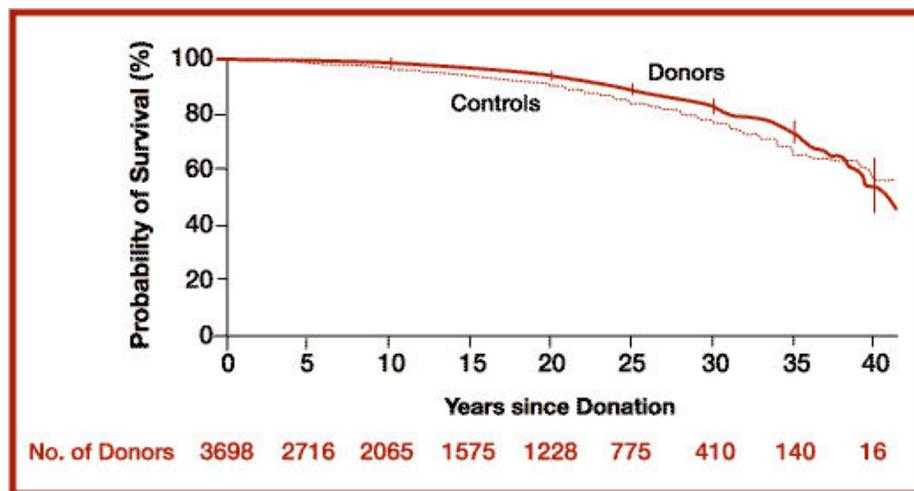
Hereditary Chance of ESRD

Despite the good long-term outcomes in living kidney donors there have been occasional reports of individuals who developed ESRD after donation. "It is felt by many that these cases are probably due to hereditary factors and the fact that in any large population, there is a definable subset of people who will develop ESRD whether or not they have donated a kidney," says Katznelson. He adds, "If kidney donors do develop ESRD, however, national policy dictates that they go to the top of the kidney transplant waiting list."

"The most important initial way to promote excellent health after kidney donation is to be very thorough in screening donors before they donate," says Katznelson. "Transplant programs should only clear donors who prove to be in excellent condition, as this is the best way to promote excellent donor health down the road."



Survival of Kidney Donors and Control from the General Population



Line Graph of Donor and Control Living Kidney Donor Survivals:

Results of 3,968 individuals who donated a kidney between 1963 and 2007 showed donor survival followed from 0 to 49 years since donation to be similar to that of the general control population (people who had not had a kidney removed) matched for age, sex, and race or ethnic group.

Number of donors at:

0 year=3698; 5 years=2716; 10 years=2065; 15 years=1575; 20 years=1228; 25 years=775; 30 years=410; 35 years=140; 40 years=16

5-year intervals on X-axis indicate 95% confidence intervals for the probability of survival among kidney donors.

Source: Ibrahim HN, Foley R, Tan L, Rogers T, Bailey RF, Guo H, Gross CR, Matas AJ. Long-term consequences of kidney donation. *N Engl J Med.* 2009; Jan 29; 360(5) 459-69.

article published in April 2010 [Kidney Review](#) newsletter