

Good essay on kidney prosthesis: the next great invention

[Experience](#), [Failure](#)



I believe that kidney prosthesis will be the next great technological advancement. There are several reasons why a healthy kidney(s) are necessary, and there are several people who could benefit from prosthetic kidneys. Based on the widespread incidence of kidney failure -- due primarily to diabetes and high blood pressure -- this invention could improve the lives of millions of people who live with kidney failure, and must undergo kidney dialysis.

A normal kidney filters toxins from the blood, thereby creating urine. A sign of healthy kidneys is their ability to successfully create urine. However, many people who are either obese, diabetic, (or both), or for congenital reasons do not have a pair of healthy kidneys must undergo a process called dialysis -- sometimes as often as thrice-weekly. Dialysis involves creating a fistula that connects a person's veins in their arms, thus creating a site to withdraw blood from and, after the toxic blood is filtered via machine, is pumped back into the site. The kidneys also help regulate blood pressure.

Dialysis is a very time-consuming medical procedure that is also very costly. It entails machinery, dialysis technicians, nurses, and continuous training to utilize. A prosthetic kidney that acts as a blood filter is within our technological scope, especially considering that there are already artificial hearts and limbs.

The invention of a prosthetic kidney is long overdue, as the incidence of diabetes -- which can damage the kidneys -- is on the rise. Also, obesity -- which is often linked to diabetes -- is more prevalent in the United States as well as all over the globe, due to factors such as the Western diet and the fast pace of urban life.

Furthermore, the prosthetic kidney would virtually eliminate the number of people on the "transplant list" who are waiting for a healthy kidney(s). For those people with kidney failure who do not have family members who are suitable matches, the prosthetic kidney could serve as either a bridge until a suitable organ donor comes along, or as a permanent kidney replacement -- once the technology is refined.

In addition, as many people die yearly of diseases related directly to kidney failure, a permanent prosthetic kidney would eliminate this unnecessary cause of death, thus improving the lives of millions of people, helping them achieve a better quality of life. The long-term consequences to the health care system will be astounding. Both money on expensive dialysis and the operations of dialysis clinics would be virtually nil. People who have a prosthetic kidney(s) would just need to visit their nephrologist routinely to determine if their kidney(s) is working properly, creating the right amount of urine with the proper concentrations of electrolytes, urea, and uric acid. The kidney prosthetic would also replace the kidney transplant, a surgery that is done routinely in some hospitals, but nonetheless carries its operative and post-operative risks. Doubtless, the medical frontier is quickly advancing, and people are in need of further medical advances. As renal failure is such a common cause of death, and such a common co-occurring disorder with diabetes and high blood pressure, this is clearly the next generation of implantable organs that will forever revolutionize medicine. As millions of people live with kidney failure on a daily basis, an implantable kidney prosthetic is not a luxury, or vanity invention. Such a prosthetic kidney is a definitive necessity in the 21st century. The invention will greatly

alleviate the pain, suffering, and early mortality of millions of people worldwide. Moreover, once the invention is refined and its price becomes lower, it will replace live kidney transplants, obviating the necessity of organ donors, tissue typing, and other complications that arise from transplantation of living organs. The kidney prosthetic will revolutionize medicine, as we know it.