

The Gift Of Life

A Look at the World of Organ Transplants

- Shimon Rosenberg



There are machines that have been designed and produced to take over some of the body functions to assist people whose organs are failing. No machine, however, can compare with the sophistication inherent in the human body's organs as created by Hashem. When a person's organ stops functioning, the best option—and often the only option—is to replace the diseased organ with an equivalent organ taken from another person. Welcome to the incredible world of organ transplants.

Around 70 years ago the world of science celebrated a revolutionary achievement when it was proven that organs can be transplanted from one human being to another.

In the decades before this accomplishment, scientists had managed several times to transplant organs between animals. There were even a number of attempts at transplanting organs between humans. These, however, were not successful due to the natural response of the immune system, which is programmed to reject the introduction of a foreign organ. Many studies indicated that human organ transplanting was theoretically possible and could be used to save thousands of lives. The only problem was that no one knew how to accomplish this.

And then the breakthrough came. In December 1954 Ronald Herrick was released from his tour of duty in the army after learning that his twin brother Richard had contracted an infection that caused nephritis, inflammation of the kidneys. Without functional kidneys he was condemned to a slow death.

Ronald could not stand watching his identical twin brother waste away before his eyes. He turned to the doctors with a shocking request. Since he had two healthy kidneys, he insisted on donating one to his brother Richard.

At first, the doctors insisted that it was impossible. Every trial to that point had ended in failure. But then they rethought the issue. The situation in front of them was exceptional, since the two patients involved were identical twins, and their shared genetic makeup might better help Richard's body accept Ronald's kidney.

Before they could go ahead with the operation, several critical medical and ethical questions had to be settled. Ronald wanted to be sure that donating his extra kidney would not adversely affect his health. The doctors were bothered by their own dilemma. Was it right to perform an operation on a healthy donor? In the best case scenario there would be no medical benefit

to Ronald, and there was always the chance that it might disturb his health. In the worst case, an infection or other complication could theoretically result in Ronald's death.

After discussing the matter with medical and legal professionals, as well as religious leaders, it was decided that the good chance of saving Richard's life outweighed the lesser chance of harming Ronald.

There was still one source of opposition however: the kidney patient himself. Despite his bleak prognosis if the transplant was not performed, Richard was very unenthusiastic about his twin brother risking his life. The night before the operation, Richard sent Ronald a note from his hospital bed that read: "Get out of here and go home."

Ronald sent back a note that said, "I am here and I am going to stay."

The following day Ronald became the first living person to save another's life through his organ donation. Richard recovered from his illness and lived nine more years (he died in 1963 from other causes). Ronald led a long healthy life with his one kidney.

Ronald Herrick was particularly brave for agreeing to donate a kidney to his brother. Not only was the transplant operation still experimental, but there was little medical understanding of whether or not the second kidney was necessary for healthy living. His pioneering sacrifice paved the way for others, proving that it was possible to donate an organ and not necessarily impact negatively the quality of life of the donor.

The successful Herrick kidney transplant taught the medical world several critical lessons. In subsequent years doctors succeeded in performing several more successful kidney transplants. In the coming decades they learned how to safely transplant other organs as well.

Today, doctors routinely transplant lungs, livers and even hearts. The rate of survival had risen dramatically. New methods have been developed to make the procedure less traumatic for the donors and recipients. Most importantly, doctors are

still developing new means for overcoming organ rejection, the greatest obstacle.

Common Event

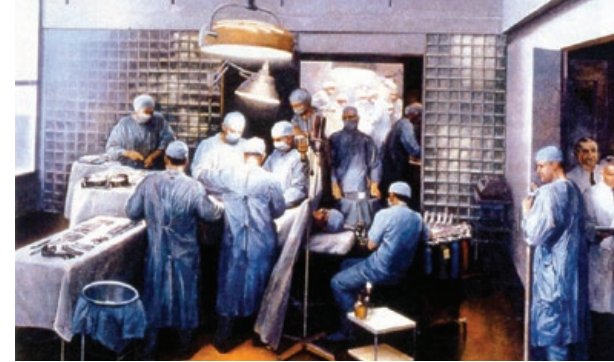
Today, organ transplants are hardly a rare occurrence, with several thousand performed around the world annually. Since Ronald Herrick volunteered to donate his kidney, an estimated 600,000 organ transplants have been performed.

There are only two organs that are usually candidates for donations by living donors: the kidney and liver. The reason is that a healthy person is born with two functional kidneys, yet he can live with only one. Likewise, people can donate parts of their liver since the liver has an incredible rejuvenating ability. It is the only organ that can grow back and replace a section that was removed. In fact, the segment can be cut in two to be transplanted in two needy recipients. Unlike other organs, the liver of a grown man can be used in a child, since it can be cut down to size.

There is another organ that can sometimes be harvested from a living donor: part of the lung. At this juncture, however, this type of transplant remains rare. (Although the body contains two lungs, they are both needed for healthy functioning. Nevertheless, a piece of one lung can sometimes be spared and used to help another.) Parts of the pancreas and veins or arteries can also be donated.

When a person is blessed by *Hashem* with proper health, his organs will function even better than is strictly necessary. For example, the heart of a 20-year-old can pump 10 times as much blood as it needs. Over the years, though, the heart loses this reserve ability and occasionally an organ will prematurely stop functioning entirely.

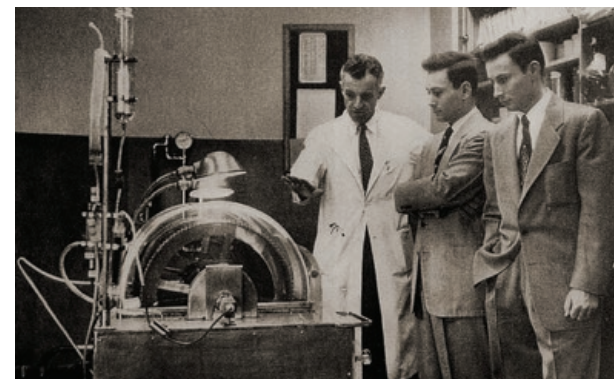
There are machines that can take over the functions of certain organs, but nothing compares to the machinery created directly by *Hashem*. When manmade machinery must replace a body organ the results are generally less than satisfactory. The procedure itself can be difficult and can negatively



The first successful organ transplant between living patients, in 1954.



Ronald was desperate to save his twin brother and he asked the doctors to take his kidney and give it to Richard.



The very first kidney transplant between living patients, performed in 1954, involved twin brothers Ronald (donor, right) and Richard (recipient, center) Herrick. Here: Dr. John Merrill, who led the transplant team, shows the brothers a primitive "artificial kidney" machine.

affect other parts of the patient's body. A great example of this is dialysis, which is intended to replace the kidney's functions in clearing the blood of waste and toxins. However, dialysis increases the chance of the patient developing heart problems, since dialysis also removes important antioxidants, a natural ingredient in the blood that fights dangerous chemicals.