

## Advances in Transplant Technology

Most of us are familiar with waiting in line and the frustration that comes with it, but imagine waiting in a line that has a life or death consequence. That is what happens in the daily lives of the people awaiting organ transplants. According to the most recent data by the US Department of Health and Human Services, an average of 79 people a day receive an organ transplant. Unfortunately, however, an average of 22 people a day die waiting for an organ. There are simply too few donors.

To combat this issue, researchers are investigating alternate technological advancements. Modern technology has allowed us to explore the effects of performing organ transplants simultaneously with bone marrow transplants, which eliminates the need for immunosuppressant drugs and decreases organ rejection. Although it's not well understood, scientists believe this new process causes the recipients' T cells to recognize the donor tissue as normal, native tissue and not react to it as a foreign tissue from another person.

Another current technological advancement involves creating an organ from a person's own stem cells. Researchers are literally growing new body parts in a petri dish or inside the affected person's body from the harvested stem cells. This technology allows researchers to grow an organ that is less likely to be rejected, thereby increasing the chances for a successful transplant.

While both of these new technological developments are promising, they present questions and hurdles. Is the immune system compromised when we destroy a person's own bone marrow and replace it with the donor's bone marrow, which ultimately increases the risk of infection? How long will a newly created organ last when grown from stem cells? While questions and challenges remain, transplant technology provides hope for the many people waiting in the life-or-death line.