

MEDICAL BREAKTHROUGHS **RESEARCH SUMMARY**

TITLE: LAPAROSCOPIC LIVING LIVER DONORS
REPORT: MB# 4749

BACKGROUND: The liver is an organ in the human body that plays a major part in keeping you alive. It's the largest internal organ and gland in the human body and it's also a part of the digestive system. The liver has over 500 roles in the human body, including processing nutrients, medications and hormones, producing bile, which helps the body absorb fats, cholesterol and fat-soluble vitamins, making proteins that help the blood clot, removing bacteria and toxins from the blood, preventing infection and regulating immune responses. The liver is the only organ that can regenerate. The liver is a complex organ and it can experience a range of problems. A healthy liver functions very efficiently; however, for a diseased or malfunctioning liver, the consequences can be dangerous or even fatal. Examples of types of liver disease include: fascioliasis, cirrhosis, hepatitis, alcoholic liver disease, primary sclerosing cholangitis (PSC), fatty liver disease, Gilbert's syndrome and liver cancer.

(Sources: <https://www.mayoclinic.org/tests-procedures/liver-transplant/about/pac-20384842>, <https://www.medicalnewstoday.com/articles/305075>)

LIVER TRANSPLANT/RESECTION: A liver transplant is a surgical procedure that removes a liver that no longer functions and replaces it with a healthy liver from a deceased donor or a portion of a healthy liver from a living donor. It's usually a treatment option for people who have significant complications due to end-stage chronic liver disease. A liver transplant may also be a treatment option in the sudden failure of a previously healthy liver. In 2019, there were 8,896 liver transplants done in the U.S. The number of people waiting for a liver transplant greatly exceeds the number of available deceased-donor livers. Living-donor liver transplant is an alternative to waiting for a deceased-donor liver to become available. The transplant is possible because the human liver regenerates and returns to its normal size shortly after surgical removal of part of the organ. A liver resection is the surgical removal of all or a portion of the liver. In the U.S. liver resection is carried out most frequently in patients with colorectal liver cancers with liver metastasis. It can also be done for liver tumors or liver cancer.

(Sources: <https://www.medicalnewstoday.com/articles/305075>, <https://unos.org/data/transplant-trends/>)

NEW TECHNOLOGY: Laparoscopic liver resection (LLR) has been the most impressive development in the field of liver surgery in two decades. Laparoscopic liver resection is minimally invasive, which means that you're not opening the whole abdomen, but rather putting little holes in the abdomen and operating with what looks like long forceps. Because you use three or four half- inch size incisions, the whole operation is minimally invasive so the patients usually recover a lot faster and they experience a lot less pain. Recent data suggests that you have less bleeding and the overall complication rate is lower when you do it laparoscopically than you when you do open surgery. There have been less than one thousand liver resections done world-wide so far, but Dr. Kwon expects that to continue to increase. The Cleveland Clinic is just one of two centers in the United States to perform this type of resection. He also says, "When looking at it as a whole picture, it is still in developmental stage with less than 100 cases done in the United States. However, over 90% of donors at Cleveland Clinic are currently receiving the laparoscopic approach since the system is completely set up and ready to go."

(Sources: Choon Hyuck David Kwon, MD, PhD, Director of Laparoscopic Liver Surgery, Cleveland Clinic <https://my.clevelandclinic.org/podcasts/butts-and-guts/all-about-laparoscopic-liver-resection>)

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If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at mthomas@ivanhoe.com