

Liver Transplantation



Canadian Liver Foundation
Fondation canadienne du foie

*Bringing liver research to life
Donner vie à la recherche sur le foie*

What is a liver transplant?

A liver transplant is a life-preserving operation that replaces a diseased and poorly functioning liver with either a whole or portion of a healthy donated liver. Liver transplantation has become a well-recognized treatment option for people with liver failure. Donor livers come from individuals who have been declared brain dead, and with the consent of their next of kin, or from a living donor such as a relative or friend.

Liver transplant centres match donors with recipients based on compatible liver size and blood type.

What are the most common reasons for liver transplantation?

In adults, the most common reasons for liver transplantation include chronic viral hepatitis C and B, autoimmune hepatitis, primary biliary cholangitis (PBC), primary sclerosing cholangitis (PSC), alcoholic liver disease, fatty liver disease, and liver cancer.

In children, biliary atresia remains the most common reason for liver transplantation.

At what stage of liver disease is transplantation considered?

Medical treatment may be effective in stopping the progression of liver disease in which case transplantation may not be necessary or it may be delayed. If a patient develops advanced disease, with impaired liver function, which cannot be reversed, liver transplantation should be considered.

Liver transplantation is not suitable for everyone, so all potential transplant patients must be carefully assessed. The assessment starts when the specialist or family doctor makes a referral to the transplant team. Patients receive a comprehensive medical evaluation which includes tests and interviews by various team members to determine whether transplantation is the best treatment option. The patient and/or family are extensively involved in the transplant assessment and decision-making process.

Are people with liver cancer considered for transplantation?

Most cancers of the liver begin elsewhere in the body and spread, or “metastasize”, to the liver. These cancers cannot be cured with a transplant. Other tumours such as hepatocellular carcinoma, which are confined to the liver, may be treated with radio frequency ablation, chemo-embolization, and surgery to remove the tumour.

The choice of treatment depends on the size, number and location of the tumours. Not all liver cancers can be treated by liver transplantation. Only small, early tumours have an acceptable chance at success after liver transplantation.

Are people with alcohol-related liver disease considered for transplantation?

Most people who develop cirrhosis (scarring) of the liver due to alcohol misuse do not require a liver transplant. Abstinence from alcohol can lead to improvement in liver function by giving the liver an opportunity to regenerate. When prolonged abstinence and medical treatment fail to restore the liver health, transplantation may be considered.

What risks are involved?

A liver transplant is a major surgery with an operation lasting between six and eight hours. As with any major medical procedure, liver transplantation has risks. These risks along with the benefits are carefully considered before a patient is placed on a waiting list for a new organ. A successful outcome depends upon many factors. Patients who are older, are very ill or have cardiac or respiratory illness when they undergo a transplant, may have a higher risk of not surviving the surgery.

How long is the waiting period?

The waiting time for a new liver may be uncertain and stressful. The sickest patients receive priority for a transplant. Prioritizing is based on severity of liver disease measured by the Model for End-stage Liver Disease (MELD) scoring. In children, a modified scoring system, called the Pediatric End-stage Liver Disease (PELD) score, is used to prioritize paediatric patients in need of a liver transplant.

If patients and families are having difficulty in coping during this time, it is recommended that they seek the assistance of a qualified health professional.

What is the success rate?

The success rate of liver transplantation has continued to improve over time, with immunosuppression, postoperative care and management of infections. In Canada, the average success rate for both adults and children is over 80%.



What happens after the operation?

After surgery, patients are taken to the Intensive Care Unit (ICU) where they are placed on a machine, which supports their breathing and is known as a mechanical ventilator. They are carefully monitored for signs of infection. Frequent tests are conducted to assess the functioning of their new liver. Most patients spend one to three days in the ICU and are transferred to a step-down transplant unit. At this point, they are able to breathe on their own but will continue to have intravenous lines delivering medication.

Following continued improvement and physiotherapy, patients usually leave the hospital after 10 to 14 days. They will be required to remain close to the transplant centre for several weeks and will attend an outpatient clinic for continued monitoring of their new liver.

Most patients return to a good quality of life within three to six months after surgery.

Why are anti-rejection medications necessary?

All liver transplant patients must take anti-rejection medications for life. These medications suppress the immune system, which enables your body to accept the new liver without attacking it. These medications must be monitored to ensure the right amount of medications is present in the patient's blood. However, it also means that all liver transplant patients will be at a higher risk for developing an infection. Infection prevention is very important after receiving a transplant.

What are the side effects of the anti-rejection medications?

The side effects associated with anti-rejection medications are many and are specific to the medication regimen a patient receives. Many patients experience some form of side effect during their course of treatment; however, many of the side effects are temporary or manageable. The risk of side effects also depends on the amount of anti-rejection medications one requires to protect the transplanted organ.

The transplant team will often use the least amount of anti-rejection medications needed in hopes to avoid or minimize the risk of unwanted side effects. Furthermore, the transplant team monitors patients closely so that side effects can be identified and dealt with quickly.

Can the original disease return and damage the transplanted liver?

A liver transplant is a life-saving operation, but it is not a cure for liver disease. Often, the original disease can return and cause similar liver damage in the transplanted liver. For example, a liver transplant for hepatitis C does not eradicate the illness. In many cases, the virus will re-infect the liver within one year. Antiviral therapy is now given to liver transplant recipients who have hepatitis C.

Patients with hepatitis B usually have their virus well controlled by antiviral drugs prior to transplantation. Autoimmune diseases (PBC, PSC and autoimmune hepatitis) are known to re-occur but hopefully because of the immunosuppressants will progress much more slowly. Recurrence of fatty liver disease and obesity after transplantation is a problem because it leads to metabolic syndrome with higher risk for stroke and heart attacks.

In few cases where liver transplant is unsuccessful, a second liver transplant may be needed which carries greater risk than the first transplant.

Living Liver Donation

The long waiting time for a liver transplant and the progression of the liver disease that occurs in this time has motivated many families to consider living donation. It should be noted, however, that not all candidates are suitable for this option. Liver transplant centres match donors with recipients based on compatible liver size and blood type.

Living donor transplants in children involve transplanting a small portion of the left lobe of the adult donor's liver to an infant. Adult to adult living donor transplant is achieved by using the entire right lobe of the donor's liver. Not all potential living donors are suitable for donation and extra precautions are taken by the transplant team to ensure that the decision to donate is without coercion and is unconditional.

The living donation operation is a major surgery and requires five to 10 days of hospitalization and two to three months of recovery. The donor surgery has a very low risk of death. Within a few months, the donor's liver regenerates to within 90 per cent its original size.



Is quality of life different after a liver transplant?

Most liver transplant recipients are able to return to a normal and healthy lifestyle. Most report that they feel re-energized, have an improved quality of life and enjoy everyday activities once more. Liver transplant recipients are able to participate in normal exercise after their recuperation and women are able to conceive and have normal post-transplant pregnancies and deliveries.

SUPPORT SERVICES

*The Canadian Liver Foundation provides support and information to individuals and families coping with liver disease through our national help line, website **liver.ca**, community outreach and educational programs.*

*If you are looking for a place to turn for answers after diagnosis, to help you understand your disease or to learn more about your liver, please contact us by phone: **1 (800) 563-5483** or email: **clf@liver.ca**.*

CANADIAN LIVER FOUNDATION

1 in 4 Canadians may be affected by liver disease, including everyone from newborn babies to older adults.

Founded in 1969 the Canadian Liver Foundation (CLF) is the only national charity in Canada focused on liver health, and the main source of non-profit funding for liver health research.

Today, we are *bringing liver research to life* by raising funds to promote liver health, improve public awareness, fund research and provide support to individuals affected by liver disease.

To support liver research visit **liver.ca/donate**

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