

Scientists shed light on how liver repairs itself

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Scientists have shed light on how the liver repairs itself with research that could help develop drugs to treat liver disease.

Researchers at the Medical Research Council (MRC) Centre for Regenerative Medicine at the University of Edinburgh have discovered how to enhance the production of key cells needed to repair damaged [liver tissue](#).

The study, published in the journal *Nature Medicine*, could help heal livers affected by diseases such as cirrhosis or [chronic hepatitis](#).

Scientists were able to unpick the process of how different cells in the [liver](#) are formed.

When the liver is damaged it produces too many bile duct cells and not enough cells called hepatocytes, which the liver needs to repair damaged tissue.

They found they could increase the number of hepatocyte cells – which detoxify the liver – by encouraging these cells to be produced instead of bile duct cells.

Understanding how liver cells are formed could help to develop drugs to encourage the production of hepatocytes to repair liver tissue. This could eventually ease the pressure on waiting lists for liver transplants.

Professor Stuart Forbes, Associate Director at the MRC Centre for Regenerative Medicine at the University of Edinburgh, who is a consultant hepatologist and was the academic leader of the study, said: "Liver disease is on the increase in the UK and is one of the top five killers. Increasing numbers of patients are in need of liver transplants, but the supply of donated organs is not keeping pace with the demand. If we can find ways to encourage the liver to heal itself then we could ease the pressure on waiting lists for liver transplants."

[Liver disease](#) is the fifth biggest killer in the UK. There are almost 500 people waiting for a liver transplant, compared to just over 300 five years ago.

The production of hepatocyte cells was increased by altering the expression of certain genes in early stage liver cells.

Dr Luke Boulter, of the University of Edinburgh's MRC Centre for Regenerative Medicine and first author on the paper, said: "This research helps us know how to increase numbers of cells that are needed for healthy liver function and could pave the way for finding drugs that help liver repair. Understanding the process in which [cells](#) in the liver are formed is key in looking at ways to repair damaged liver tissue."

Dr Rob Buckle, Head of [Regenerative Medicine](#) at the MRC, said: "Liver transplants have saved countless lives over the years, but demand will inevitably outstrip supply and in the long term we need to look beyond replacing damaged tissues to exploiting the regenerative potential of the human body. The MRC continues to invest heavily across the breadth of approaches that might deliver the promise of regenerative [medicine](#), and this study opens up the possibility of applying our increasing knowledge of stem cell biology to stimulate the body's own dormant repair processes as a basis for future therapy."

Provided by University of Edinburgh

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