**Study: New Machine Keeps Livers Alive for Full Week Outside the Body**

**研究:新型机器能让肝脏在人体外存活一周**

Swiss researchers have developed a machine that, they say, can keep human livers alive outside of the body for one week.

瑞士研究人员研发出一种机器，据说这种机器可以使人体肝脏在体外存活一周。

Current technology and methods are only able to keep human livers alive for up to 24 hours.

目前的技术和方法只能使人的肝脏在体外存活24小时。

The new machine is able to keep the liver active by performing several functions normally carried out by the human body.

这种新机器能够通过执行人体执行的几项功能来维持肝脏的活性。

Researchers say they expect the technology to greatly increase the number of livers available for transplant. This could save the lives of many patients suffering from severe liver disease who need to have their liver replaced.

研究人员表示，他们预计这项技术将大大增加可供移植的肝脏数量。这可以挽救许多患有严重肝病需要更换肝脏的患者的生命。

Scientists from the University of Zurich in Switzerland developed the machine. They recently reported their results in the publication Nature Biotechnology.

瑞士苏黎世大学的科学家研发了这台机器。他们最近在《自然生物技术》杂志上发表了这一研究结果。

The researchers say the purpose of their “Liver4Life” machine is to perform what they call liver perfusion operations outside of the human body. Perfusion is the process by which blood or other fluids are pumped through organs and tissue.

研究人员表示，他们研发的机器“Liver4Life”的用途是在体外进行肝脏灌注手术。灌注是将血液或其他液体泵入器官和其他组织的过程。

The machine keeps the liver at the right temperature and moves it in a way that would be natural in the body. It uses a pump to fill the liver with blood acting like a replacement for a human heart. The machine also provides oxygen to the organ, controls red blood cell levels and removes waste.

这台机器能够使肝脏保持适当的温度，并且能模仿人体自然运作的方式来保持其活性。它利用一个泵将血液注入肝脏，而这个泵就像人类心脏的替代物。该机器还为肝脏器官提供氧气，控制红细胞水平还会清除废物。

A healthy liver is necessary to support life. The liver receives about 25 percent of blood from the heart and carries out about 5,000 different tasks in the body.

一个健康的肝脏是维持生命所必需的。肝脏从心脏接收大约25%的血液，并在体内执行大约5000个不同的任务。

Livers are among the most commonly transplanted human organs. Most transplants involve patients suffering from severe liver disease or cancer.

肝脏是最常被移植的人体器官之一。大多数移植手术都涉及患有严重肝病或癌症的患者。

The Mayo Clinic in the state of Minnesota reported that, in 2017, about 8,000 liver transplants were performed in the U.S. among adults and children. Of those, 360 involved livers from living donors. In addition, about 11,500 people were registered on a waiting list to receive a liver transplant, the organization said.

明尼苏达州的梅奥诊所报告称，2017年美国进行了约8000例肝脏移植手术，其中包含成人和儿童患者。这其中360例涉及活体捐献的肝脏。此外，该组织表示，大约有11500人登记在等待接受肝脏移植的名单上。

Keeping livers alive and functioning for longer periods could greatly improve the chances of survival for patients.

更长时间地维持肝脏的存活及其功能运转可以极大地提高患者的生存机率。

The research team began their experiments using livers from pigs. After repeated testing and engineering development, the team said it was able to get the pig livers to survive for seven days with support only provided from the Liver4Life machine.

研究小组用猪的肝脏开启了他们的实验。经过反复的测试和工程开发，该团队表示通过Liver4Life机器的支持他们能让猪的肝脏存活7天，而这种功能支持目前仅有Liver4Life机器能提供。

The scientists said they also discovered that the system can work to repair damaged livers. In one test, the team connected the machine to 10 injured human livers that had been rejected for transplantation by all European medical centers.

科学家们表示，他们还发现该系统可以修复受损的肝脏。在一项测试中，研究小组将机器与10个受损的人类肝脏连接起来，而这些肝脏曾被所有欧洲医疗中心拒绝移植。

After seven days of perfusion treatment from the machine, six of the human livers fully regained important liver functions, the researchers reported.

研究人员报告称，经过七天的机器灌注治疗，其中6个人类的肝脏完全恢复了重要的肝功能。

Pierre-Alain Clavien is chairman of the Department of Surgery and Transplantation at University Hospital Zurich. He helped lead the research.

皮埃尔·阿兰·克拉维恩是苏黎世大学医院外科和移植科主任。他领导了这项研究。

“The success of this unique perfusion system - developed over a four-year period by a group of surgeons, biologists and engineers - paves the way for many new applications in transplantation and cancer medicine, helping patients with no liver grafts available,” Clavien said in a statement.

克拉维恩在一份声明中表示:“这个独特的灌注系统是一个由外科医生、生物学家和工程师组成的小组历时四年研发的。它的成功研发为器官移植和癌症医学领域的许多新应用铺平了道路，有效帮助了那些没有肝脏可供移植的病人。”

He added that the successful treatment of poor-quality livers could lead to a wide range of new treatment possibilities. Such treatments could be used to repair preexisting liver damage, remove fat from the organ or even recreate partial livers.

他补充道，成功治疗受损严重的肝脏或能够使一系列新的治疗方式成为可能。这种治疗方式可以用来修复已经存在的肝脏损伤，移除肝脏中的脂肪，甚至重建部分肝脏。

The team is now planning its next step in the development process. It is making preparations to transplant machine-treated organs into patients.

该团队现正计划进行开发过程的下一步，即准备将机器治疗过的器官移植到病人体内。

I’m Bryan Lynn.

布莱恩·林恩报道。

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