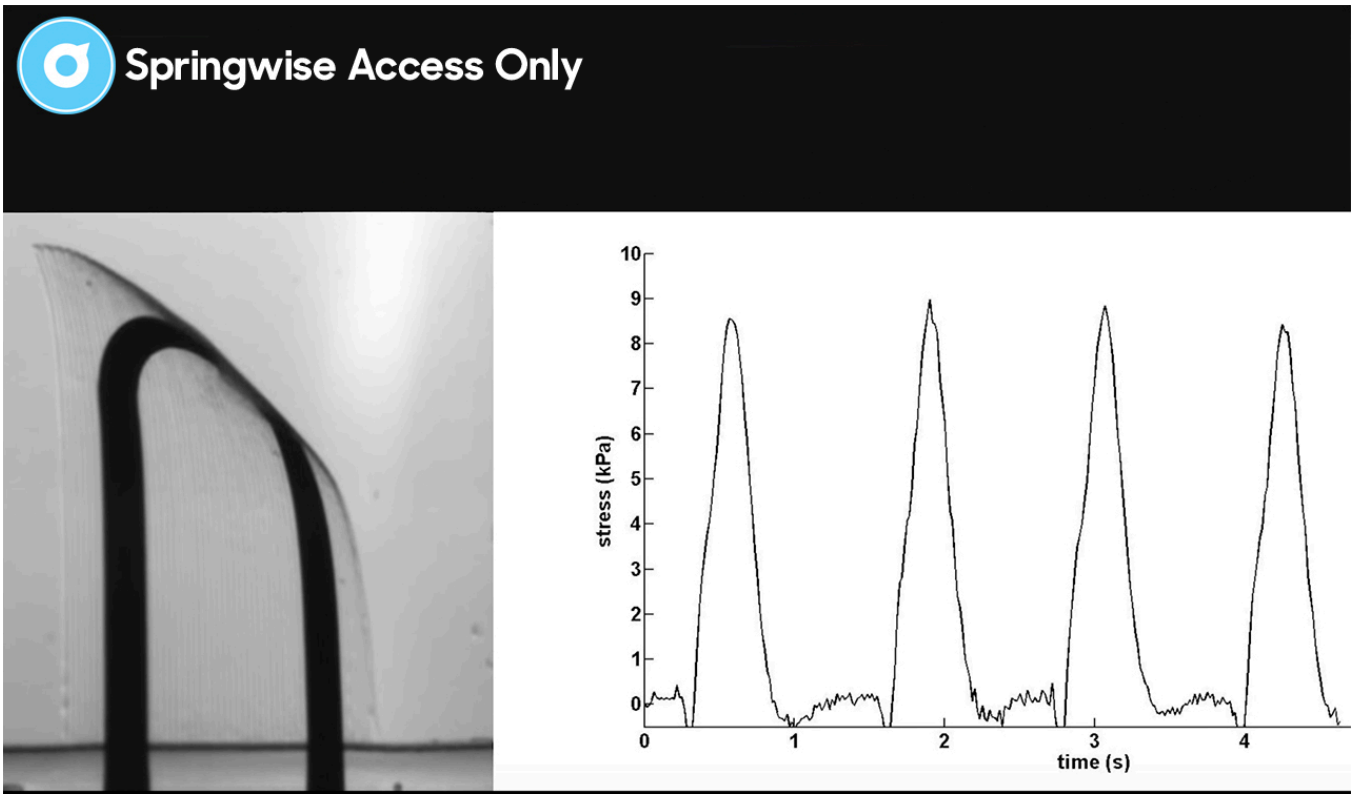
3D-printed micro-organs could replace animal lab tests



As 3D printing materials improve, microphysiological systems (MPS) are becoming increasingly useful for scientists. A team from Harvard's John A. Paulson School of Engineering and Applied Sciences (SEAS) recently 3D printed a new material with integrated micro sensors. Dubbed an organ-on-a-chip, the microscopic cardiac tissue mimics the activity of the human heart.

The new printing process uses six inks, each containing a sensor. Each microchip holds multiple micro-organs, allowing scientists to more efficiently study a wide variety of changes in tissue and cellular activity. As the time required to print each organ and collect study data decreases, scientists will be able to more swiftly model disease progression and the effects of drug use. And once there is widespread use of MPS in medical research, animal testing could be phased out.

As well as discovering the causes of ill health, miniaturization supports good health through a number of wearables. Diabetics can monitor their blood sugar level non-invasively, and a battery-free microchip measures the salinity of sweat to help predict potential illness. With many aspects of health able to be monitored by individuals, how could researchers amalgamate some of that data for large-scale study?

Website: www.seas.harvard.edu
Contact: www.twitter.com/hseas