

Battery-free microchip can measure sweat and detect illness

Researchers at Eindhoven University have developed a wearable, flexible sensor that analyzes sweat for levels of salinity and acidity.



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We've seen many great health and medical wearables in the past, including an [iodine supplementing bindi](#) and [hearing aids in a necklace form](#). Now using nature's process of osmosis for inspiration, and flexible electronics materials for execution, scientists from **Eindhoven University's** Mechanical Engineering department have produced a wearable microchip that analyzes sweat for a variety of diseases.

Built by laser micro-manufacturing, an evaporation-driven pump draws fluid from the skin and across a microchip sensor for analysis. The sweat then passes through the micro-channel and evaporates as it would normally. By measuring the levels of salinity and acidity in sweat, scientists and medics may be able to make more accurate, and earlier, diagnoses of certain illnesses, including cystic fibrosis and a number of skin diseases. As production of the sensor progresses, additional aspects of sweat will be able to be measured, widening the pool of potential earlier diagnoses.

The device was built with flexible plastic foil that uses particularly porous paper at the channel inlet to draw in the sweat. The process of evaporation then pulls the liquid across the sensor, allowing a flow of data to be collected over a period of time, without the need for batteries or electrical charge.

How could a wearable sweat sensor help professional athletes?

Website: www.tue.nl

Contact: info@tue.nl