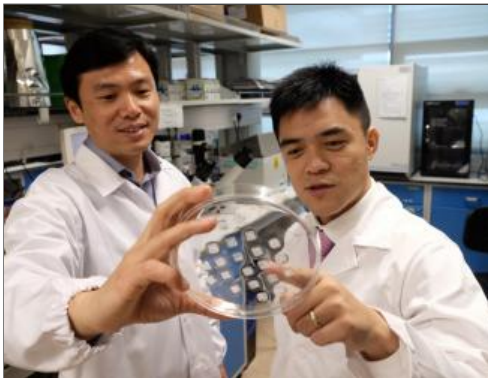


PERFSCIENCE

Weight Loss Patch Showcases Impressive Reduction in weight and body fat

Submitted by Diana Bretting on Sun, 12/31/2017 - 05:03



Researchers in Singapore have witnessed success in laboratory test with a weight loss patch that converts energy-storing white fat into energy-burning brown fat. The patch delivers medicine using microneedles smaller than a human hair. Researchers at Nanyang Technological University noticed 30 percent reduction in body fat for lab mice after the patch was used for four weeks. The study team also noticed lower level of cholesterol and fatty acids.

The patch delivered a combination of two drugs - one for overactive bladder, and the other for an under-active thyroid. The slow-release of drug reduces the amount of drug required and also reduces any side effects associated with the medication. The patch contains hundreds of microneedles for drug delivery. When the patch is pressed into the skin for about two minutes, these micro-needles become embedded in the skin and detach from the patch, which can then be removed.

NTU Professor Chen Peng and Assistant Professor Xu Chenjie worked on the project. A research paper detailing the results has been published in the journal Small Methods.

Talking about innovative patch, Professor Xu Chenjie said, "With the embedded microneedles in the skin of the mice, the surrounding fats started browning in five days, which helped to increase the energy expenditure of the mice, leading to a reduction in body fat gain."

"What we aim to develop is a painless patch that everyone could use easily, is unobtrusive and yet affordable," said Prof Chen, a biotechnology expert who researches on obesity. "Most importantly, our solution aims to use a person's own body fats to burn more energy, which is a natural process in babies."

The study team added that the patch would cost around \$3.5 including the cost of beta-3 adrenergic receptor agonist combined with Hyaluronic acid. With low cost, the technology can be used for delivery of other drugs as well.

Beta-3 adrenergic receptor agonist is a drug approved by the Federal Drug Administration of the United States and is used to treat overactive bladders, while T3 triiodothyronine is a thyroid hormone commonly used for medication for an underactive thyroid gland. Both have been shown in other research studies to be able to turn white fats brown, but their use in reducing weight gain is hampered by potentially serious side-effects and drug accumulation in non-targeted tissues if conventional drug delivery routes were used, such as through oral intake.

The research team also informed that after the paper has been published in the journal, they have received support from biotechnology companies to carry on future research. The current research was funded by the National Medical Research Council, Singapore.

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