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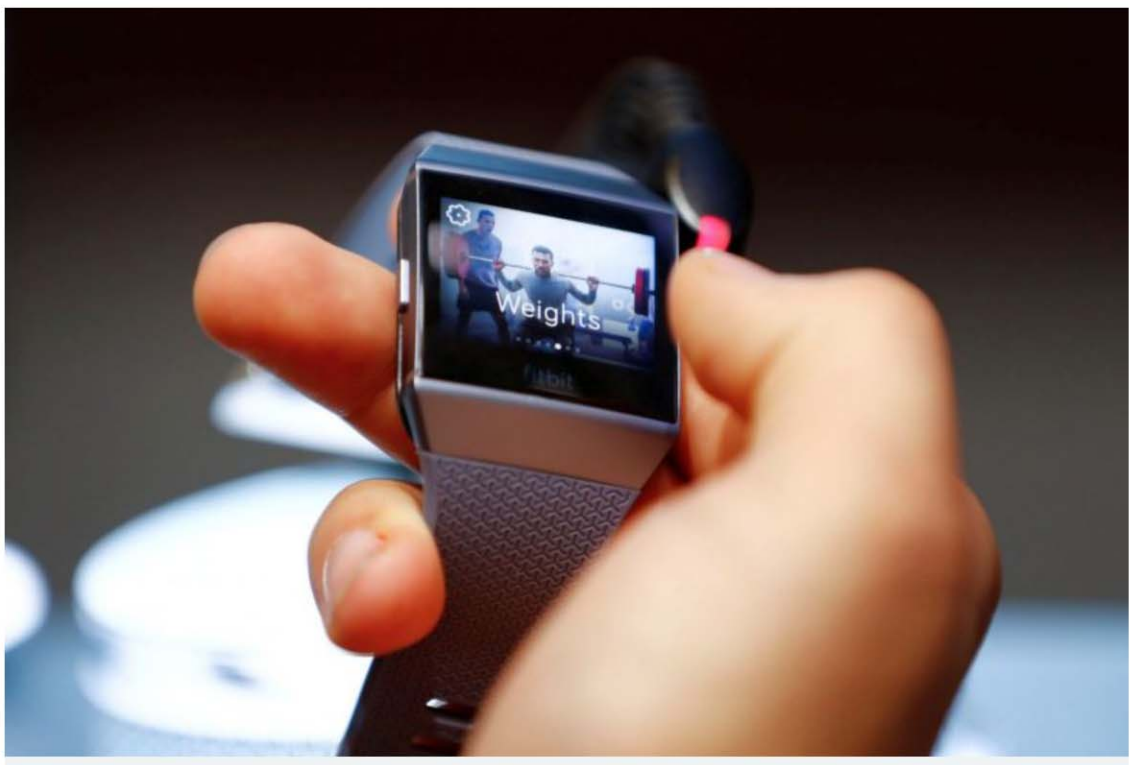
Activity trackers could help predict heart problems: Singapore researchers



Researchers put 233 volunteers through a series of clinical tests and used Fitbit activity trackers to monitor the number of steps they took, their heart rates and sleeping patterns over a week. PHOTO: REUTERS

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SINGAPORE - They are often used for timing runs around the local park or counting the number of footsteps made on the way to work.

Now a team of scientists here believes that wearable activity trackers could play a role in biomedical research - and even predict heart-related and metabolic diseases.

Researchers from the SingHealth Duke-NUS Institute of Precision Medicine (Prism) and National Heart Centre Singapore (NHCS) put 233 volunteers through a series of clinical tests and used Fitbit activity trackers to monitor the number of steps they took, their heart rates and sleeping patterns over a week.

They found several associations between data from the trackers and the likelihood of an individual developing a cardiovascular and metabolic disease (CVMD). For example, individuals with higher heart rates while sleeping were found to be more likely to develop a CVMD.

Similarly, individuals with higher levels of activity were reported to have lower levels of ceramides - fatty acid molecules linked to cardiovascular disease.

Dr Lim Weng Khong, chief information officer at PRISM and a senior research fellow from Duke-NUS, said: "In the past this was done using exercise tests so we are trying to show that you can use wearables to provide the same type of information."

Data from the trackers also aided in segregating the volunteers into different groups based on their behavioural and demographic profiles.

Those belonging to the fourth group had the highest level of activity and were found to be three times more likely to have enlarged hearts, otherwise known as "athlete's heart" - a typically benign condition commonly seen in athletes.

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However it is often confused with deadlier heart conditions which also see an enlargement in the left ventricle of the heart.

Data from activity trackers may however play a part in differentiating patients who have an enlarged heart due to exercise from those with enlarged hearts due to health problems.

Professor Patrick Tan, director at SingHealth Duke-NUS Prism and professor from the Cancer and Stem Cell Biology Programme at Duke-NUS, believes that data from activity trackers could help to further define risk markers for CVMD.

The team hopes to study the data they provide to look into the correlations between other forms of diseases such as cancer, stroke and dementia.

The research was published in the journal PLOS (Public Library of Science) Biology.