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News & Comments

Graphene e-tattoo is the Future of Blood Pressure Monitoring

Kosai Srewi

A new graphene-based electronic tattoo using nanotechnology has been created to measure blood pressure continuously and it may revolutionize the whole process as we know it, based on its advantages over the conventional sphygmomanometer.

Participants in the experiment wore stick-on graphene sensors attached to their forearms. Graphene is a marvel of a structure with a single layer of carbon atoms and has many astonishing properties, but make it simple, its high electricity conducting properties made it a key choice for the experiment. The graphene stick with the help of bioimpedance made this study a success.

The new models can calculate the indirect correlation between bioimpedance and blood pressure, and the researchers developed a computer algorithm that converts those changes to traditional systolic and diastolic measurements. Participants' arterial blood pressure was accurately measured for 300 min - a period tenfold longer than previously reported in studies using e-tattoos. Participants' blood pressure was continuously measured and recorded non-invasively and with an accuracy equivalent to Grade A classification.

This is not the first time, e-tattoos are applied for clinical uses. In the past, they are used to calculate the vital signs and muscle responses of people with degenerative diseases.

With a lightweight, non-invasive e-tattoo, you can view blood pressure for a much longer period. As a result, physicians have a better picture of how the heart reacts to real-life stressors by allowing patients to perform their everyday activities. In nonclinical (ambulatory) settings, it is essential to continuously monitor arterial blood pressure (BP) to understand a variety of health conditions, including cardiovascular disease.

According to the authors, ambulatory blood pressure monitoring can also advance disease correlation with individual behaviour, daily habits, and lifestyles, potentially allowing analysis of root causes, prognoses, and disease prevention.

KEYWORDS

Graphene applications, Medicine, Biosensor, Biotechnology, Blood Pressure, Nanotechnology, Popular, e-tattoos, non-invasive e-tattoo, graphene sensors, graphene