

MEDICAL BREAKTHROUGHS **RESEARCH SUMMARY**

TOPIC: WEARABLE SENSORS MEAN NO MORE FINGER PRICKS?
REPORT: MB #4885

WEARABLE DEVICES BACKGROUND: Wearable technologies enable the continuous monitoring of human physical activities and behaviors, as well as physiological and biochemical parameters during daily life. The most measured data include heart rate, blood pressure, and body temperature, as well as blood oxygen saturation, posture, and physical activities using electrocardiogram, ballistocardiogram, and other devices. Wearable devices can be attached to shoes, eyeglasses, earrings, clothing, gloves, and watches and also are evolving to be skin-attachable. Sensors can also be put on items, such as chairs, car seats and mattresses. A smartphone is typically used to collect information and transmit it to a remote server for storage and analysis. There are two major types of wearable devices that are used for studying gait patterns. Some devices have been developed for healthcare professionals to monitor walking patterns, including the accelerometer, multi-angle video recorders, and gyroscopes. Other devices have been developed for health consumers, including on-wrist activity trackers and mobile phone apps. Wearable devices and data analysis algorithms are often used together to perform gait assessment tasks in different scenarios.

(Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5334130/>)

TRANSFORMATION OF WEARABLE DEVICES: Today, the industry of medical care and control has undergone significant changes to serve a wide range of facilities and services. These changes include more emphasis on prevention, recognition of primary risks, proper education of users and new ways of health care. These changes have evolved following the emergence of factors such as increases in the population of the elderly, various chronic diseases, and the field of their treatment. Major advances in science and technology such as basic developments emerging in the fields of micro/nanotechnology, wireless communication, information technology, and biomedical sciences have been made during the past 10-15 years, and a transformation has occurred in this area. The models designed and built of a wide range of biosensors as well as recently wearable biosensors are a clear indication of this.

(Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4766830/>)

FUTURE OF WEARABLE DEVICES: The wearable technology market is expected to rise from \$20 billion in 2015 to close to \$70 billion in 2025, led by the health care sector. Growth and development in the sector are being driven by Apple, Accenture, Adidas, Fujitsu, Nike, Philips, Reebok and Samsung. Advanced informatics is expected to make a huge impact, as new healthcare and informatics devices could be a billion-dollar opportunity. A new wearable device for infants created by a Cambridge-California social enterprise could be the key to preventing fatal or crippling ailments such as diarrhea, malnutrition, malaria, human immunodeficiency virus infection and acquired immune deficiency syndrome (HIV/AIDS), and others. The use of wearables in health care is still in a stage of infancy. The benefits of wearables in health care are well-documented but include remote monitoring to allow patients to go home earlier to improve their comfort and reduce the burden on manual hospital checks sciences.

(Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4766830/>)

FOR MORE INFORMATION ON THIS REPORT, PLEASE CONTACT:

MEGAN LAKATOS

MKL5024@PSU.EDU

(814) 865-5544

If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at mthomas@ivanhoe.com