

Chapter 15

Biosensors and Wearables: Monitoring Health in Real-Time

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Abstract

Biosensors provide an efficient and cost-effective alternative for researchers and medical practitioners to carry out examination, safeguard public safety, and present tailored health care options. They play an increasingly essential role in biological research, infectious disease screening, chronic illness treatment, health management, and well-being monitoring. Improved biosensor technology facilitates for early illness identification and observation of the body's reaction to medication, making it a vital component of contemporary medical equipment. Wearable biosensors provide real-time physiological information through the dynamic measurements of biochemical markers in biofluids including sweat, tears, saliva, and interstitial fluid. Additional biomarkers will demand more on-body bioaffinity testing and sensing techniques. Large-scale verification experiments have to be performed for clinical acceptability. Accurate, dependable biosensor technology could potentially have significant effects on everyday life. Wearable health sensors determine the wearer's health and environment in real time by transmitting data to a control unit via biological responses. This article explores the creation, technology, business, ethics, and future of wearable biosensors in healthcare, with an emphasis on their application in a multitude of scenarios along with potential implementations. The study investigates the utilization of biosensors in medicine, particularly in cardiovascular disorders, emphasizing their potential for breakthrough medicines, real-time insights, tailored solutions, and informed advice, paving the way for a bright future in healthcare.

Keywords: Bio-Recognition, Sensors, Smart Wearable Sensors, Point-Of-Care Testing (POCT), Point-Of-Care (POC), Biofluids, Biosensors

1. Introduction

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