

Hydrogen (H⁺) Ions the from Sweat is the New Measurement Methods of Ion-selective Sensor with Non-invasive Body Apparatus: Ergonomic and Easily Calibrated Design and Prototyping

Nadir Kaplan¹ and Zekine Pündük^{2*}

¹Department of Physics, University of Balıkesir, Balıkesir, Turkey

²Physical Education and Sport, University of Balıkesir, Balıkesir, Turkey

*Corresponding Author: Punduk Z, Associate Professor, Balıkesir University Physical Education and Sport, Turkey, Tel: +90 266 612 1400-08; E-mail: zkn1938@gmail.com

Received date: April 28, 2017; Accepted date: May 1, 2017; Published date: May 3, 2017

Copyright: © 2017 Nadir K. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

An unavoidable consequence of aerobic metabolism is production of reactive oxygen species (ROS) in human body. ROS includes free radicals such as superoxide anion (O₂^{•-}), hydroxyl radical (•OH), as well as non-radical molecules like hydrogen peroxide (H₂O₂), singlet oxygen (¹O₂) and so on. The higher ROS level impairs oxidant and antioxidant balance in the cell and it plays an important role for ROS related diseases such as cancer. However, H⁺ concentration can be determined from blood and is analysed by blood gas measurement way. This measurement way generates painful, unethical and side effects for human. H⁺ ion concentration plays an important role for diagnosis of the many diseases and only the measurement way from blood so far. The purpose of the study to determine H⁺ ion concentration from body sweat and design to real time measurement way by the ergonomic device for human body.

In the presentation of the study we have developed the wearable electrophysical sensor. This device has

and transmitting electronic micro-computer control system and other additional system in the device with the battery is providing energy.

Conclusion

This product will be applied for continuous monitoring of wearer's health, tracking exercise activity, and assessing soldier performance. Also we are planning to apply field of the medical science, especially detecting for cardiac damage in patients and endurance athletes.

Acknowledgment

In this study, we would like to thank their the design process, Alp Kaan K LC for his contributions to the development of the visual