Innovation Partner for Impact

TECH OFFER

Sweat-Based Continuous Lactate Detection Wearable Solution

KEY INFORMATION

TECHNOLOGY CATEGORY:
Chemicals - Analysis
Healthcare - Diagnostics
Infocomm - Healthcare ICT
Personal Care - Wellness & Spa

TECHNOLOGY READINESS LEVEL (TRL): TRL5
COUNTRY: SOUTH KOREA
ID NUMBER: TO175165

OVERVIEW

Lactate monitoring has become an essential tool for optimizing athletic performance by providing real-time insights into the body's metabolic response during exercise. However, traditional lactate testing methods are invasive and often require laboratory equipment, limiting their practicality for continuous monitoring in everyday training scenarios. This new sweat-based wearable technology offers a non-invasive, real-time solution for continuous lactate detection, solving this challenge for athletes and coaches.

By enabling real-time tracking of lactate levels through sweat, this technology helps fine-tune training intensity, prevent overtraining, and improve overall performance. Athletes and coaches can use this data to adjust training regimens, optimize recovery strategies, and refine race-day tactics, pushing performance limits while minimizing risks.

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The technology owner is seeking collaboration and licensing opportunities with:

- Health and wellness product manufacturers,
- Sports-related industry partners, including sports training facilities and equipment manufacturers.

This wearable solution addresses the critical needs of the sports and wellness industries, offering an innovative tool for enhancing athletic performance and supporting more precise, data-driven training programs.

TECHNOLOGY FEATURES & SPECIFICATIONS

The sweat-based lactate measurement wearable device brings innovative, non-invasive technology to both the sports and wellness markets, addressing the growing demand for data-driven, personalized fitness tools. By integrating seamlessly into everyday activities and workouts, this technology offers a practical solution for tracking athletic performance.

- **Non-invasive sweat-based patch** – Designed for ease of use, the patch can be applied to the skin without causing discomfort.
- **Hygienic design** – The part that collects sweat is disposable, ensuring cleanliness, while the main sensing unit is reusable.
- **Low sweat volume requirement** – Unlike traditional testing methods that require significant physical exertion, this patch functions effectively with minimal sweat, allowing it to be used during daily activities (low physical exertion).
- **Real-time monitoring** – The device provides immediate feedback on lactate levels, enabling athletes to adjust their performance strategies on the go.
- **Personalized data** – By collecting and analyzing sweat lactate levels, users can receive tailored insights for optimizing training intensity, recovery, and overall performance.

POTENTIAL APPLICATIONS

The sweat-based lactate detection wearable device offers a versatile solution for both sports and healthcare markets by providing personalized, real-time data. Key applications include:

- **Athletic Performance** – Professional athletes can track lactate levels during training and competitions, enabling precise adjustments to optimize performance and recovery.
- **General Fitness** – Health-conscious consumers can use the device to monitor metabolic responses during workouts, improving fitness routines and overall wellness.
- **Sports Equipment Integration** – Sports equipment companies can integrate this wearable into their products, combining IoT technology with gear to offer personalized exercise plans and enhance consumer insights.
- **Medical Application - AMI Diagnosis (Potential)** – In healthcare, the device could support early detection of acute myocardial infarction (AMI) in emergency settings, offering a non-invasive and rapid diagnostic tool.
- **Bio-Marker Detection (Potential)** – With 8 detection channels, the device has potential for broader biomarker monitoring, expanding its use in both sports and wellness.

This technology supports the growing trend of integrating IoT capabilities into sports products and further potential into health and wellness. By leveraging this solution, sports equipment companies/ wellness solution providers can enhance their product lines with wearable devices that provide valuable consumer insights. This enables these companies to analyze exercise patterns and offer personalized exercise/ wellness plans, contributing to the broader digital transformation of the sports and wellness industry.

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UNIQUE VALUE PROPOSITION

- **Non-invasive, real-time lactate monitoring** for personalized performance insights. No blood sample required.
- **Continuous data** helps athletes optimize training and recovery.
- **Easy-to-use, minimal sweat requirement**, suitable for both athletes and general consumers.
- **Integrates with sports equipment**, enhancing IoT-enabled, data-driven fitness products.
- **Potential medical application** for early detection of acute myocardial infarction (AMI).
- **Broader biomarker detection capability**, expanding future use cases in sports and wellness. This increases the potential of the wearable patch to provide other forms of personalized health data.

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