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영문 강연제목: Real-Time Bio-Integrated Pressure Monitoring for Diagnosis and Prevention

Abstract(영문):

Continuous pressure monitoring is vital for preventing pressure injuries and detecting circulatory issues early. However, traditional pressure sensors often lack the flexibility, biocompatibility, and durability required for reliable use on the human body. This study introduces a soft, bio-integrated pressure monitoring system designed for real-time, continuous diagnosis and prevention. The device features a soft elastomer-based piezoresistive sensor that easily conforms to the skin, ensuring good contact and high-quality signals during daily activities. Its integrated wireless module enables continuous data collection and transmission, allowing remote analysis of pressure changes over time and across locations. The system shows excellent mechanical durability, minimal motion artifacts, and stable performance during extended wear. Additionally, experiments and FEA simulations confirm that the device maintains skin integrity and user comfort during long-term use. These findings highlight the potential of bio-integrated pressure monitoring systems as tools for diagnosis and prevention in clinical and home-care settings, especially for early detection of pressure ulcers and localized circulatory issues. The proposed platform paves the way for next-generation soft bioelectronics capable of continuously tracking physiological parameters and supporting personalized healthcare.

Brief Biosketch (간단한 이력, 연구/대외활동 소개,국문/영문)

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