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강연제목: Extracorporeal pelvic floor muscle strength measurement device based on surface perivaginal pressure

Abstract:

Building on the foundation of non-invasive assessment techniques, this study aimed to utilize machine learning algorithms to predict PFM (pelvic floor muscles) excursion measured by sonography based on extracorporeal surface perineal pressure changes during PFM contraction while sitting. By analyzing data collected from a novel method employing a 10 × 10 pressure array sensor, we propose a groundbreaking approach to accurately quantify PFM strength. This research endeavors to bridge the gap between the clinical need for noninvasive PFM strength assessment methods and the technological capabilities of machine learning. By accurately quantifying PFM strength in a manner that is both patient-friendly and scientifically robust, we aim to significantly improve the diagnosis, treatment, and management of pelvic floor dysfunction, ultimately enhancing women's health and well-being.

Brief Biosketch

Dr. Hwang's research interests span a wide array of topics within the realm of physical therapy and rehabilitation sciences, including the mechanisms of mechanical musculoskeletal pain and movement impairments for degenerative diseases, geriatric rehabilitation related to pelvic floor muscle dysfunction, and the development of corrective exercises for the management of work-related musculoskeletal disorders. A significant portion of his work is dedicated to enhancing women's health through corrective exercise and the development of rehabilitation devices, with a particular focus on utilizing artificial intelligence for movement analysis during work or sports activities.

Over the years, Dr. Hwang has directed and contributed to numerous research projects funded by prestigious organizations such as AMOREPACIFIC and the National Research Foundation of Korea. His work has led to the development of innovative solutions such as an algorithm for predicting musculoskeletal disorders based on health big data and individualized electrical stimulation devices for musculoskeletal treatment.