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영문 강연제목: Investigating alterations in muscle biomechanics caused by venous congestion

Abstract
Detecting diseases related to venous congestion (VC), such as deep vein thrombosis (DVT), early on is crucial to prevent severe and irreversible health issues. Currently, diagnosing DVT relies on identifying advanced symptoms like swelling, pain, and tightness in the affected limbs. This limitation may be because we do not have enough information about the biomechanical changes that occur with VC. Hence, the objective of this study was to examine the immediate muscle biomechanical alterations in muscle electrical activity and muscle stiffness when VC is induced. We selected eight pigs and analyzed how muscle stiffness changes based on acceleration and muscle activity measured through integral electromyography (IEMG) during three stages of VC. As a result, we observed a significant increase in both muscle stiffness and IEMG changes from the baseline to the VC stages ($p < 0.05$). Our findings and approach have the potential to facilitate the early detection of conditions associated with VC. This could serve as a foundation for further advancements in the development of early diagnostic tools for identifying VC-related diseases.

Brief Biosketch
이송주 박사는 현재 한국과학기술연구원 바이오닉스연구센터 책임연구원과 UST 키스트 스쿨 부교수이며, IEEE Transactions on Neural Systems and Rehabilition Engineering (TNSRE) 저널의 associate editor 이다. 노스웨스턴 대학과 구 Rehabilitation Institute of Chicago(현재 Shirley Ryan AbilityLab)에서 박사 및 박사 후 연구를 수행하였다. 신경역학, 재활공학, Brain-Computer Interface (BCI)관련 연구를 하며, 신체 능력, 감각 및 운동 기능을 평가하고 증진시키는 연구를 수행하고 있다. Dr. Song Joo Lee currently serves as a principal research scientist at the Bionics Research Center at the Korea Institute of Science and Technology, while also holding the position of an associate professor at the KIST school at the UST. She also serves as an associate editor for the TNSRE. Dr. Lee pursued her doctoral and postdoctoral research at Northwestern University and the Rehabilitation Institute of Chicago. She conducts research related to neuromechanics, rehabilitation engineering, and Brain-Computer Interface (BCI). Her primary research objective is to assess and enhance physical abilities, sensory perception, and motor functions.