

Neurocognitive and Balance Measures in Chronic Ankle Instability: A Novel Approach Using Time between time to boundary and EEG

NATA FOUNDATION MASTERS RESEARCH GRANT: 2024-2025



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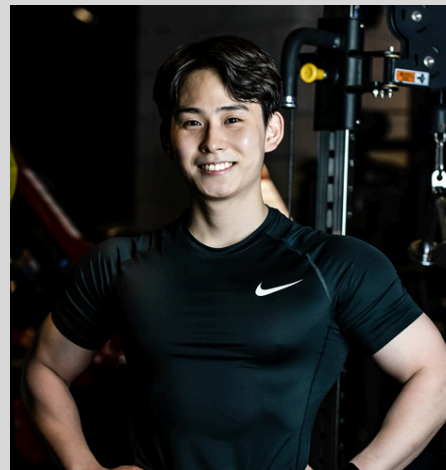
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PROJECT SUMMARY

Lateral ankle sprain (LAS) is a common injury in athletes, often leading to chronic ankle instability (CAI), characterized by recurrent sprains, balance deficits, and sensory-perceptual impairments. CAI patients tend to rely more on their visual system due to decreased somatosensory sensitivity. This study integrates neurophysiological (EEG) and biomechanical (balance) assessments to examine how individuals with CAI process sensory inputs during balance, particularly under dual-task conditions that mimic sports environments. Time to Boundary (TTB) and the novel Time to Time to Boundary (TTTB) measures will assess postural stability, while EEG will reveal neural mechanisms. The study aims to identify differences in these parameters between CAI patients and healthy controls, contributing to a better understanding of neurocognitive deficits in CAI and potentially informing more targeted rehabilitation strategies.

IMPACT ON THE ATHLETIC TRAINING PROFESSION

This research will enhance our understanding of how the brain coordinates balance under challenging conditions. The findings will inform the development of more targeted and innovative rehabilitation strategies that address both cognitive and physical aspects of balance control.



PRINCIPAL INVESTIGATOR:

JIHO KANG

UNIVERSITY OF NEBRASKA OMAHA

Jiho Kang is a master's student in Athletic Training at the University of Nebraska Omaha (UNO). Originally from South Korea, he previously earned a master's degree in Sport Medicine & Athletic Training in his home country. Jiho is actively engaged in research projects supported by UNO, NATA Foundation, and MAATA, and has received several scholarships from organizations such as NSATA, MAATA, and NATA Foundation. His goal as an athletic trainer is to bridge the gap between research and clinical practice, with a focus on advancing sports injury prevention and rehabilitation.