

Abstract

THESIS: A Novel Approach of Performing Gait Analysis Using Radar Technology

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PURPOSE: Radar use for gait analysis could lead to greater access for those in need, but more validation is needed before the radar can be used in a clinical setting. The purpose of this study was to develop a prototype radar system and algorithm that is comparable to the infrared motion capture camera system.

METHODS: Twelve healthy young adults performed treadmill walking trials at three different paces; slow, normal, and fast pace. Spatiotemporal parameters were collected simultaneously by the motion capture system and a radar specially designed for the study.

RESULTS: Findings revealed the fast pace walking trials presented the most highly correlated data between the two systems, with six out of the eight variables having excellent ICC values (> 0.90).

CONCLUSION: Participants' limbs are moving at higher velocities during the fast walking trails. These higher velocities resulted in higher frequencies in the radars spectrogram, allowing for easier data extraction.