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Imaging and simulation of Achilles tendon dynamics: implications for walking performance in the elderly

Young Scientist Post-doctoral Award

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1. Abstract

The Achilles tendon (AT) is a complex structure, consisting of distinct fascicle bundles arising from each triceps surae muscle that may act as mechanically independent structures. Advances in tissue imaging are rapidly accelerating our understanding of the complexities of functional Achilles tendon behavior, with potentially important implications for musculoskeletal injury and performance. In this overview of our recent contributions to these efforts, we present the results of complementary experimental and computational approaches to investigate AT behavior during walking and its potential relevance to reduced triceps surae mechanical performance due to aging. Our experimental evidence reveals that older tendons exhibit smaller