Human-exosuit interfaces absorb and return energy, reshaping exosuit to human power flow

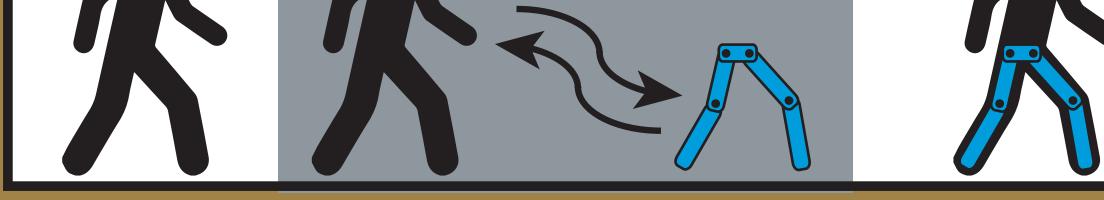
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Interface dynamics relatively unexplored Explored **Relatively Unexplored** Explored Human + Exo Human - Exo Human Interaction

Interfaces absorb and return energy, reducing and delaying ankle augmentation

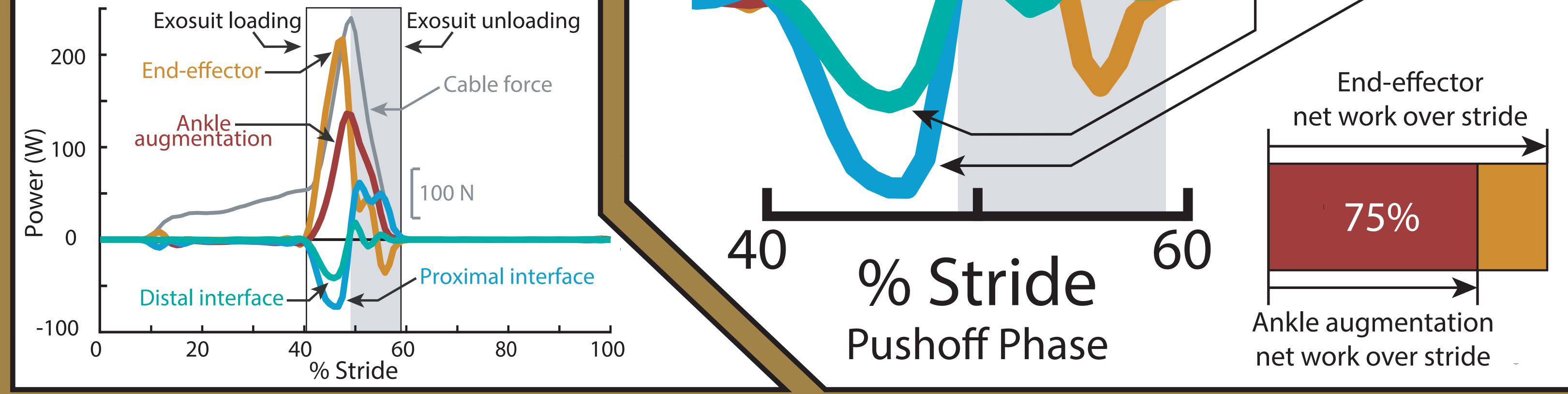
Exosuit Loading Exosuit Unloading (exosuit force increases) (exosuit force decreases) Ankle augmentation (power that assists ankle plantarflexion)

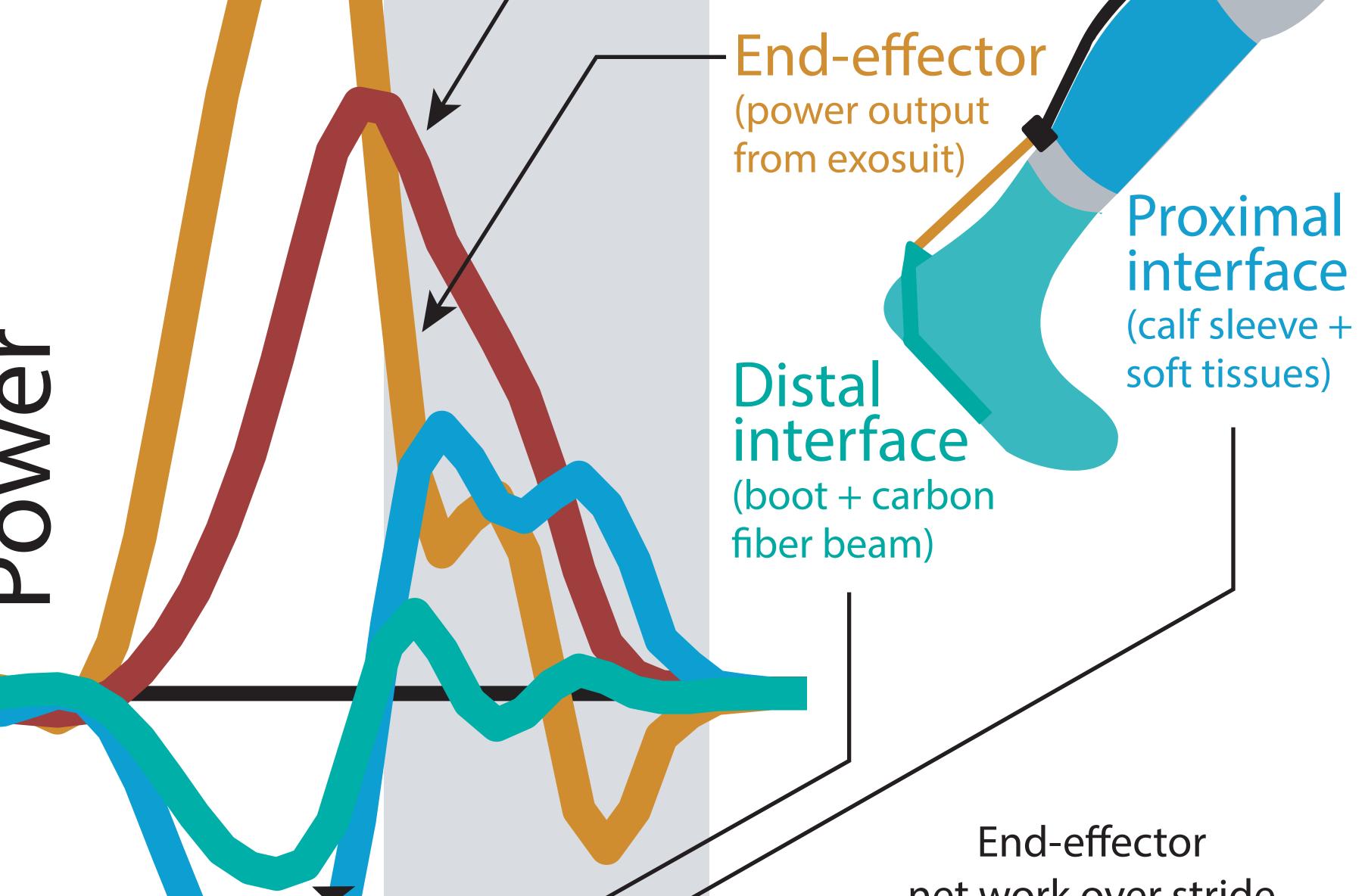


Experiment: Exosuit assisted walking

Mobile 0 -N = 1, walking 1.5 m/s Publication actuator citation below - Soft exosuit augmented Motion ankle plantarflexion capture Bowden cable (outer)-- Computed power using Load cell Calf Bowden cable (inner) a modified inverse sleeve Carbon fiber dynamics approach Force Treadmill beam

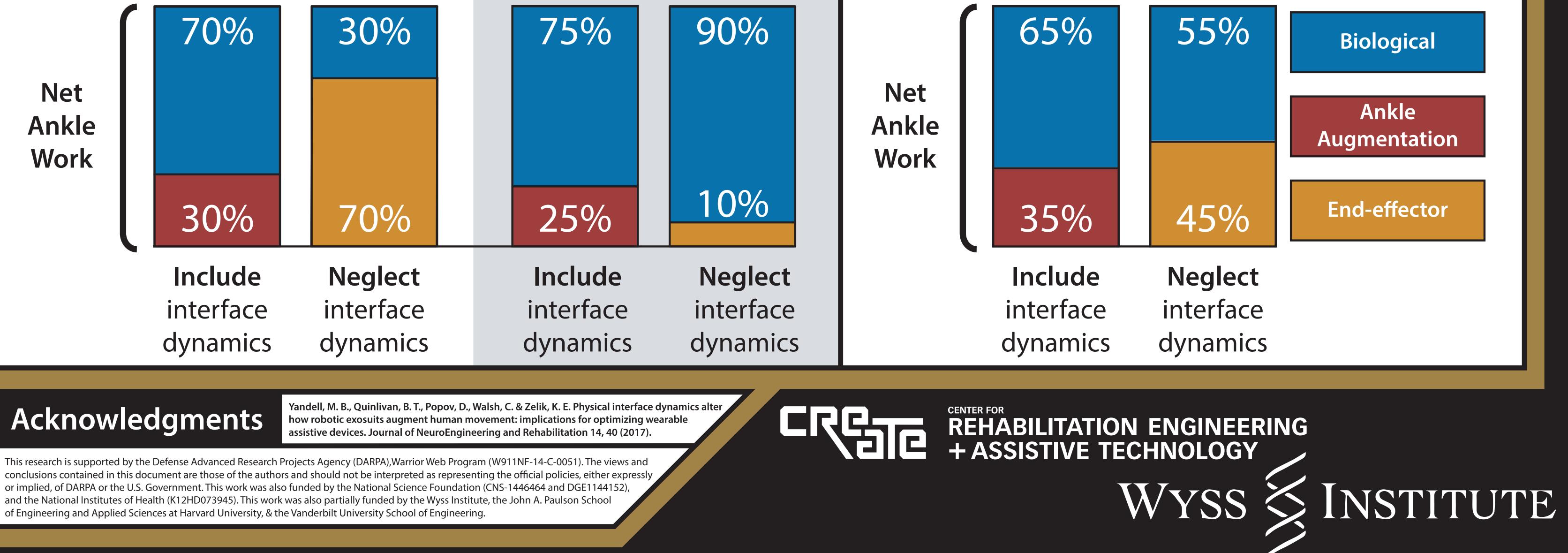
Full stride power and cable force





Neglecting interface dynamics degrades estimates and interpretations of human vs. exo

Overestimates loading phase ankle augmentation



Underestimates unloading phase ankle augmentation



Overestimates full stride ankle augmentation

