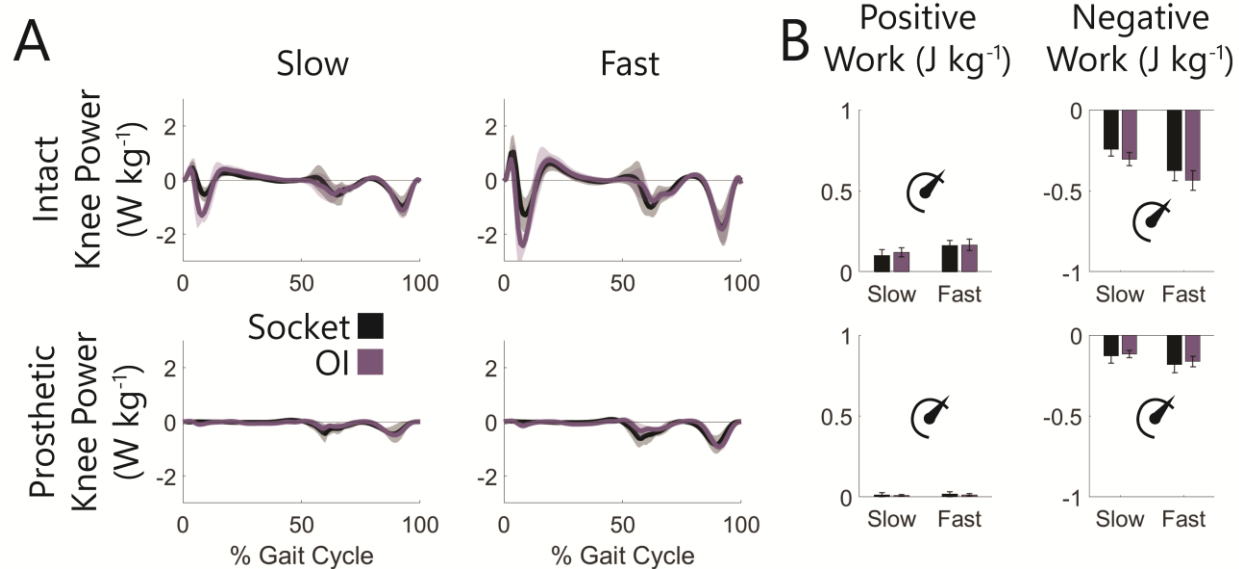
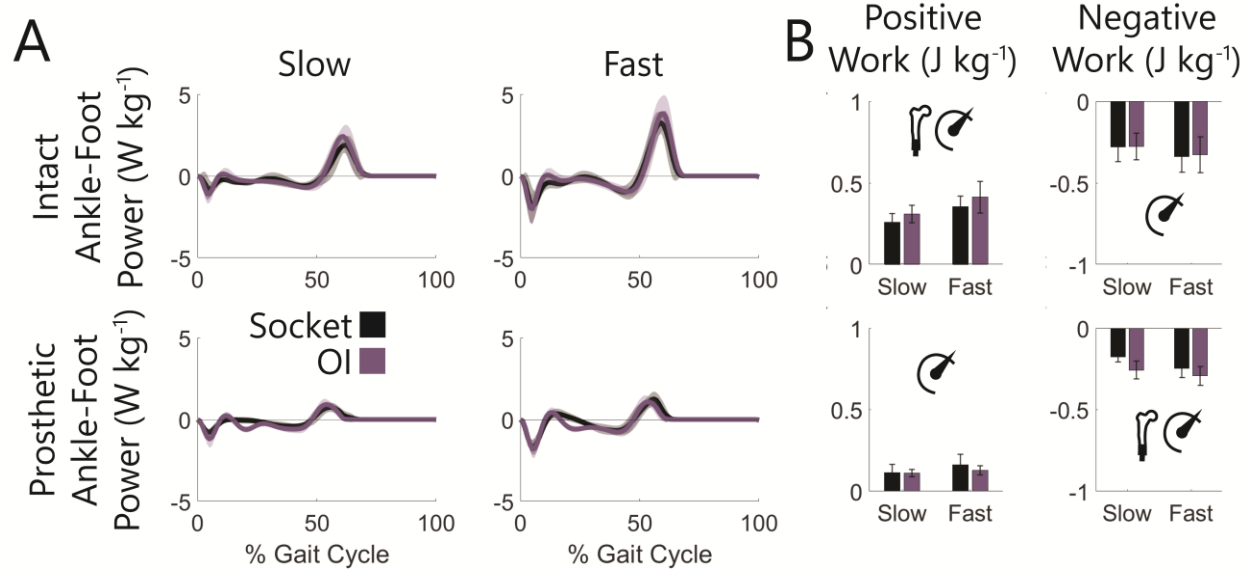


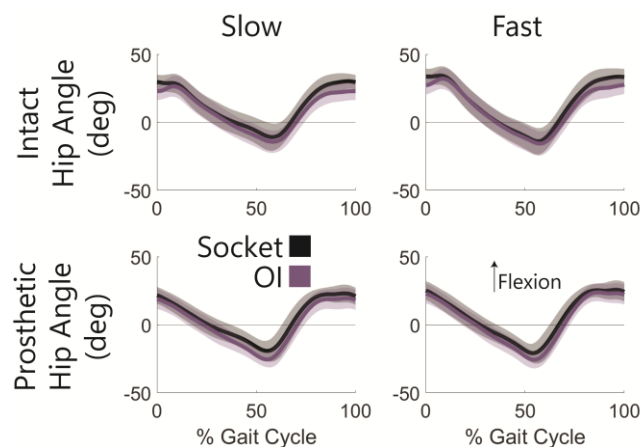
S1 - Cross-participant ensemble averaged A) anteroposterior ground reaction forces with (B) associated peak anterior and posterior forces across slow (0.6-1.1 m s⁻¹) and fast (1.1-1.6 m s⁻¹) walking speeds for socket and OI interfaces. Shaded regions and error bars represent ± 1 s.d. Values were normalized to each participant's body mass. Significant effects ($P < 0.050$) of interface, speed, and interface-speed interaction were determined using two-way repeated measures ANOVAs and are graphically represented as an osseointegrated femur, speedometer, and their interaction. Statistical results of pairwise comparisons are reported in text.



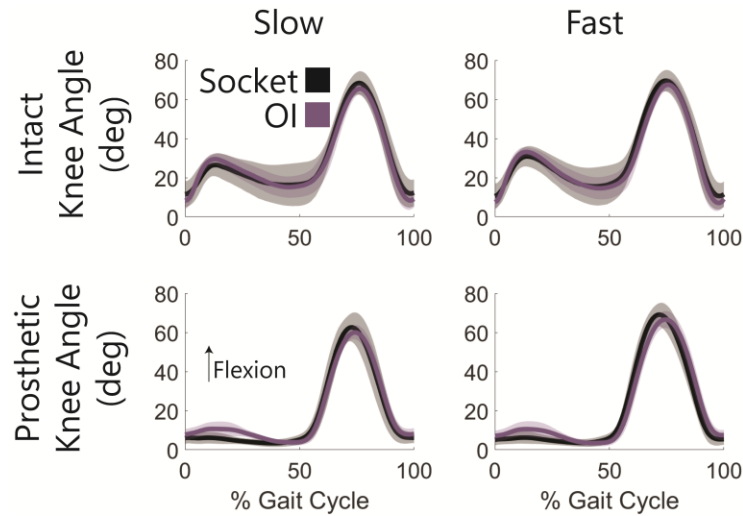
S2 – Across-participant ensemble averaged A) knee powers with (B) associated positive and negative mean work values across slow ($0.6\text{--}1.1\text{ m s}^{-1}$) and fast ($1.1\text{--}1.6\text{ m s}^{-1}$) walking speeds for socket and OI interfaces. Shaded regions and error bars represent ± 1 s.d. Values were normalized to each participant's body mass. Significant effects ($P < 0.050$) of interface, speed, and interface-speed interaction were determined using two-way repeated measures ANOVAs and are graphically represented as an osseointegrated femur, speedometer, and their interaction. Statistical results of pairwise comparisons are reported in text.



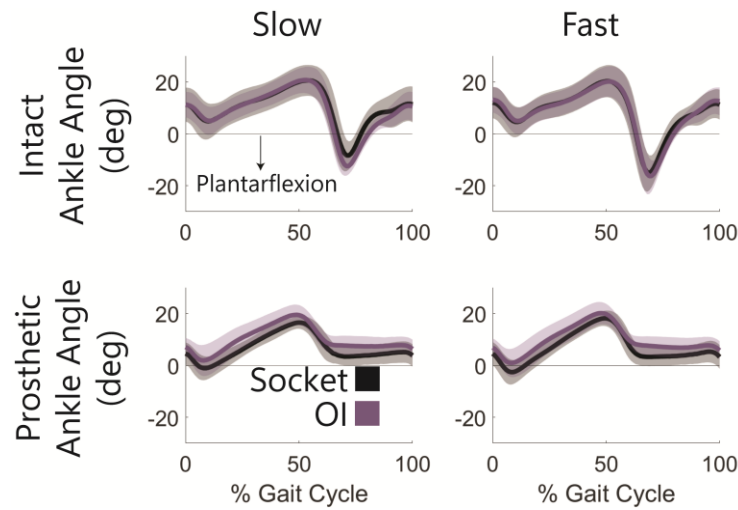
S3 – Across-participant ensemble averaged A) ankle-foot powers with (B) associated positive and negative mean work values across slow ($0.6\text{--}1.1 \text{ m s}^{-1}$) and fast ($1.1\text{--}1.6 \text{ m s}^{-1}$) walking speeds for socket and OI interfaces. Shaded regions and error bars represent ± 1 s.d. Values were normalized to each participant's body mass. Significant effects ($P < 0.050$) of interface, speed, and interface-speed interaction were determined using two-way repeated measures ANOVAs and are graphically represented as an osseointegrated femur, speedometer, and their interaction.



S4 – Across-participant ensemble averaged sagittal hip angles across slow ($0.6\text{--}1.1 \text{ m s}^{-1}$) and fast ($1.1\text{--}1.6 \text{ m s}^{-1}$) walking speeds for socket and OI interfaces. Shaded regions represent ± 1 s.d.



S5 – Across-participant ensemble averaged sagittal knee angles across slow ($0.6\text{--}1.1\text{ m s}^{-1}$) and fast ($1.1\text{--}1.6\text{ m s}^{-1}$) walking speeds for socket and OI interfaces. Shaded regions represent ± 1 s.d.



S6 - Across-participant ensemble averaged sagittal ankle angles across slow ($0.6\text{--}1.1\text{ m s}^{-1}$) and fast ($1.1\text{--}1.6\text{ m s}^{-1}$) walking speeds for socket and OI interfaces. Shaded regions represent ± 1 s.d.