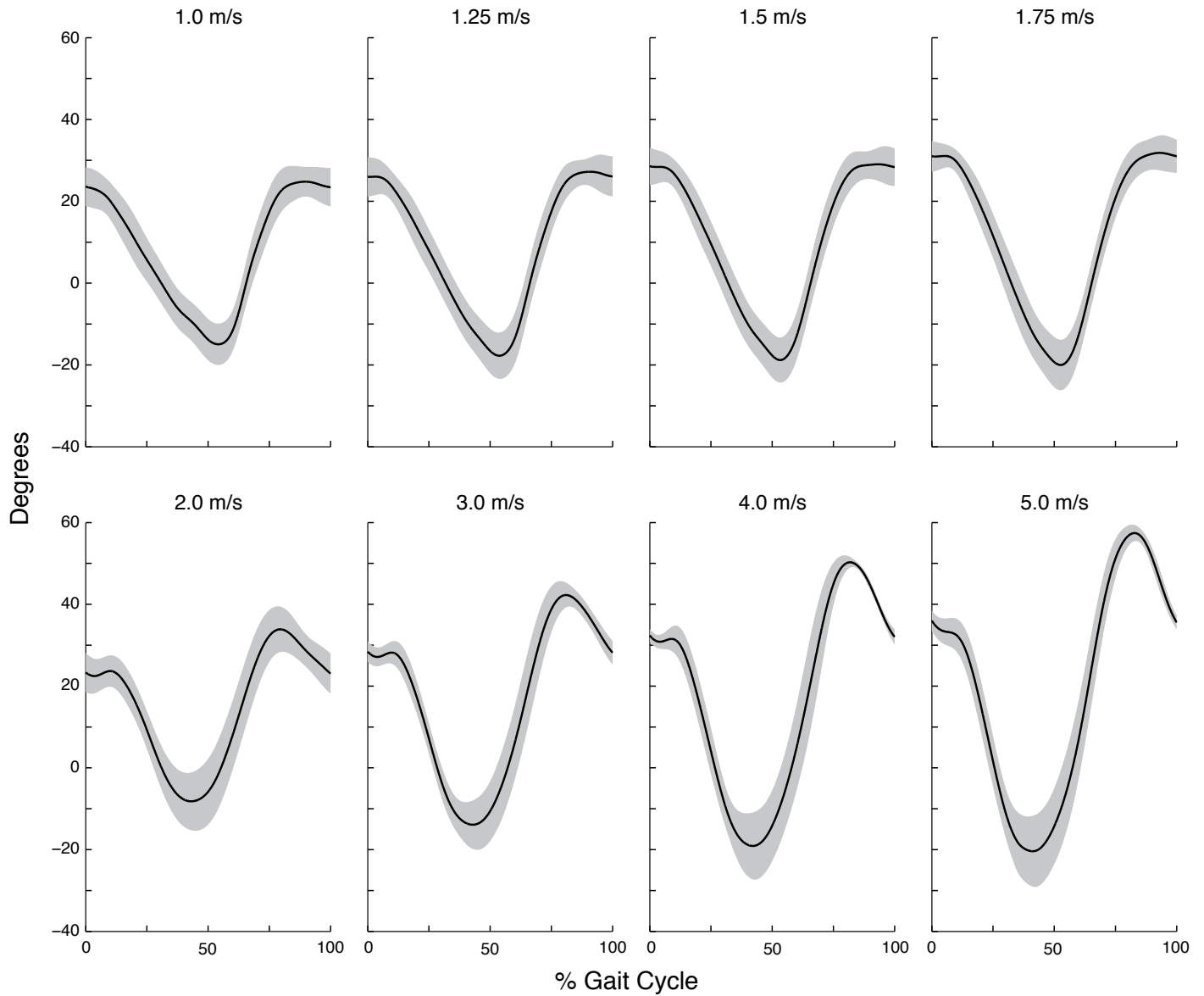# Hip Flexion Angle
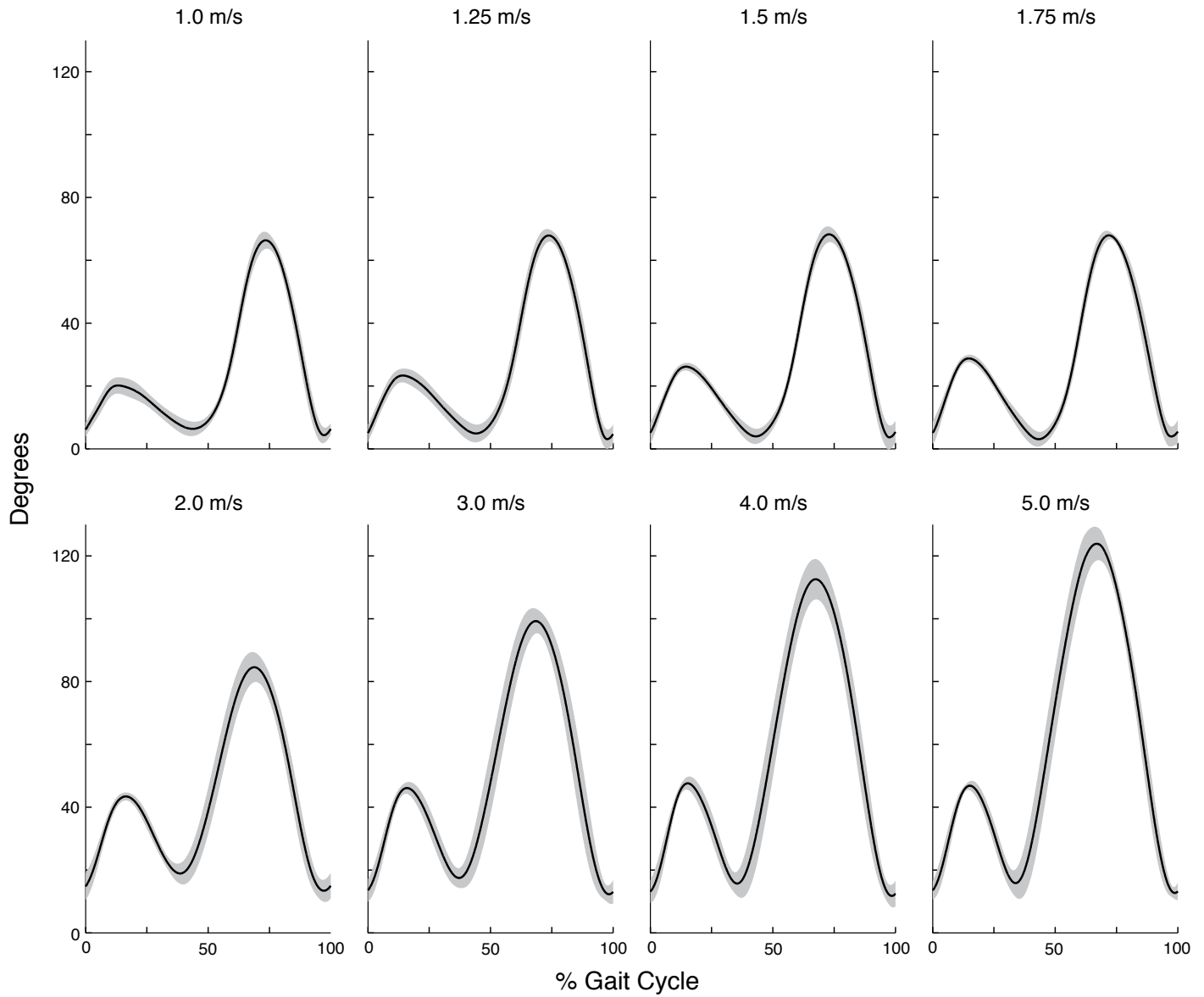## 5 Subject Mean ±1 SD

Fig. S1. Experimentally measured hip flexion angle, for subjects walking (1.0–1.75 m s^{-1}) and running (2.0–5.0 m s^{-1}) (*N*=5). Hip angle (flexion positive/extension negative) was calculated from marker data using an inverse kinematics algorithm and a musculoskeletal model scaled to each subject. Data represent the group mean (black line) ±1 s.d. (shaded region).
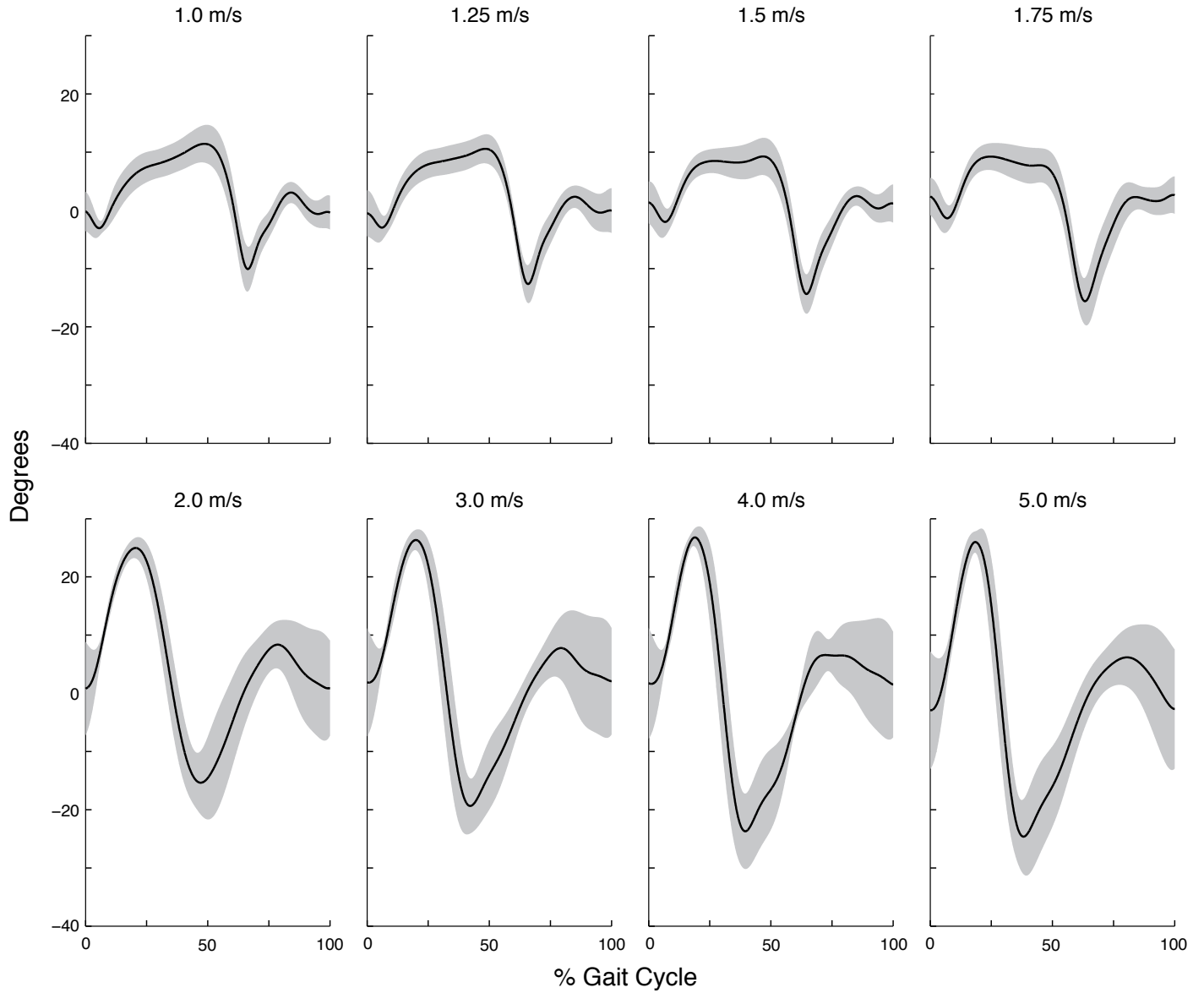
Knee Flexion Angle
5 Subject Mean ±1 SD

Fig. S2. Experimentally measured knee flexion angle, for subjects walking (1.0–1.75 m s^{-1}) and running (2.0–5.0 m s^{-1}) (N=5). Knee angle (flexion positive) was calculated from marker data using an inverse kinematics algorithm and a musculoskeletal model scaled to each subject. Data represent the group mean (black line) ±1 s.d. (shaded region).

Ankle Dorsiflexion Angle
5 Subject Mean ±1 SD

Fig. S3. Experimentally measured ankle dorsiflexion angle, for subjects walking (1.0–1.75 m s⁻¹) and running (2.0–5.0 m s⁻¹) (N=5). Ankle angle (dorsiflexion positive/plantarflexion negative) was calculated from marker data using an inverse kinematics algorithm and a musculoskeletal model scaled to each subject. Data represent the group mean (black line) ±1 s.d. (shaded region).
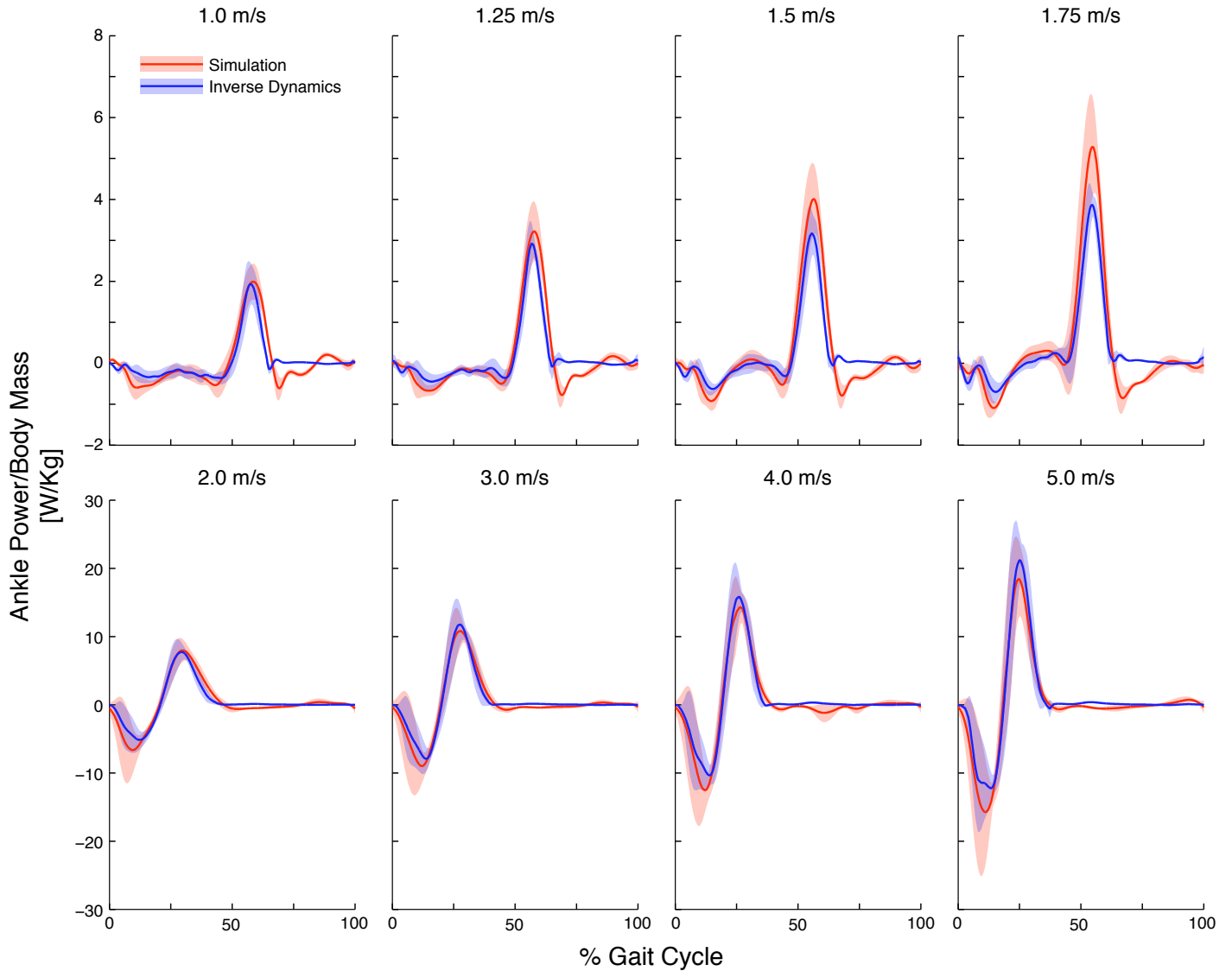
Ankle Moment Comparison
## 5 Subject Mean ±1 SD
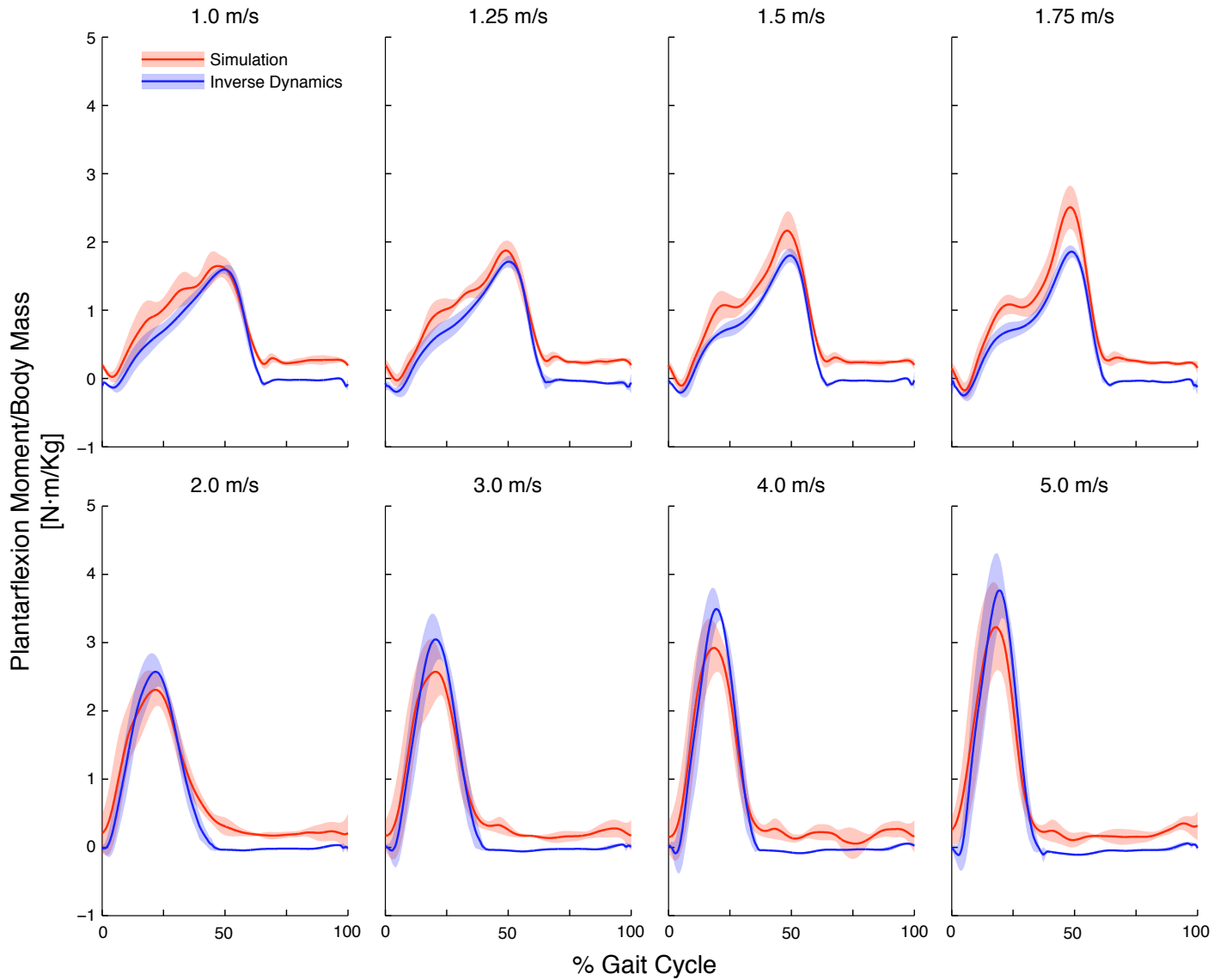
Fig. S4. Comparison of simulated and inverse dynamics ankle joint moment divided by body mass in walking and running. Ankle joint moment generated by tibialis anterior, soleus, and gastrocnemius medialis and lateralis during each simulation was summed (red) and compared with the moments calculated with inverse dynamics (blue). Data represent the group mean (lines) ±1 s.d. (shaded regions).

Fig. S5. Comparison of simulated and inverse dynamics ankle joint power divided by body mass in walking and running. Ankle joint power generated by tibialis anterior, soleus, and gastrocnemius medialis and lateralis during each simulation was summed (red) and compared with the ankle power calculated with inverse dynamics (blue). Data represent the group mean (lines) ±1 s.d. (shaded regions).
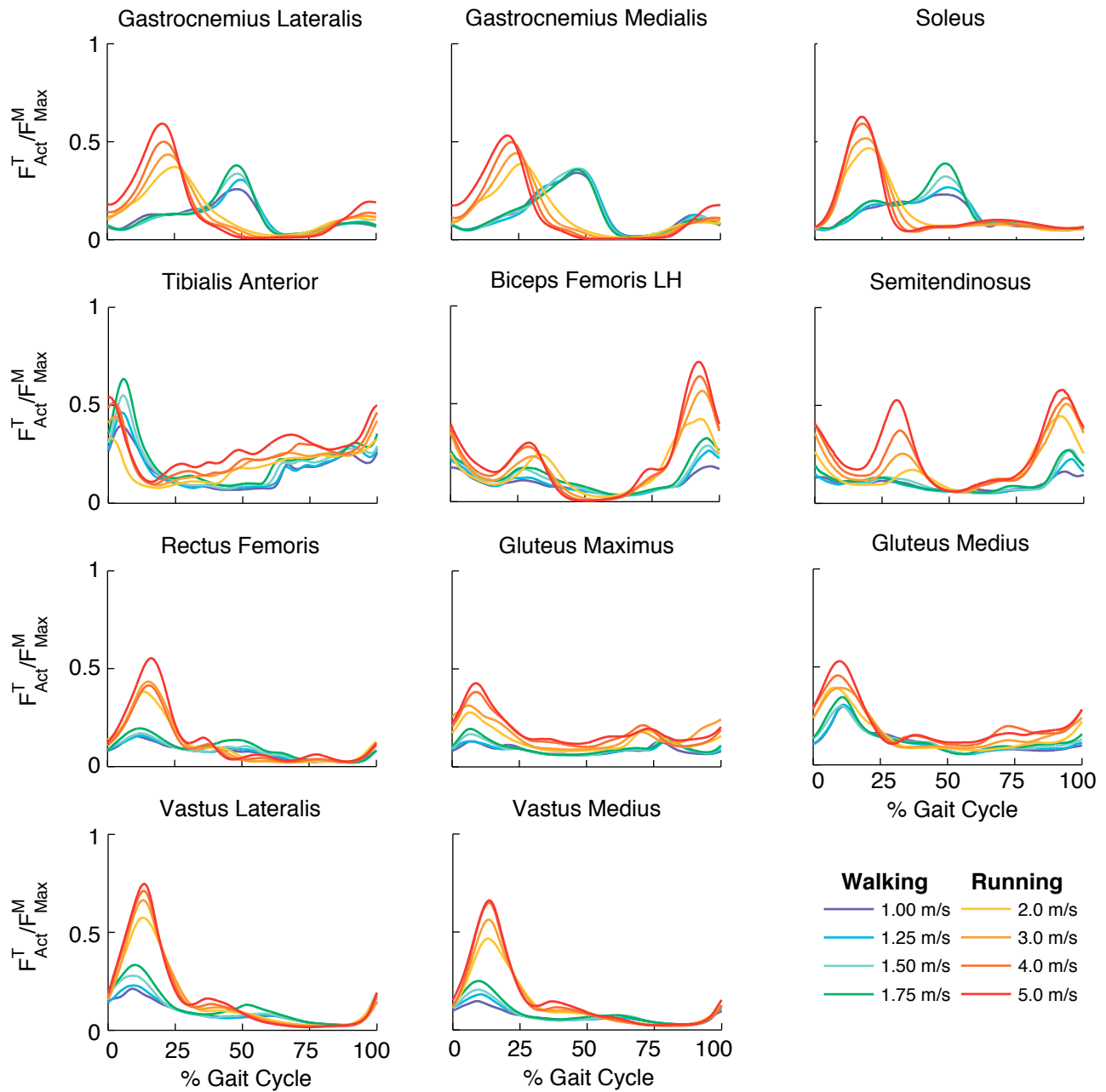
Fig. S6. Average simulated normalized active force for 11 muscles for subjects walking at four speeds and running at four speeds (N=5). Active force generated along the tendon (F^T_{Act}) is normalized to the maximum isometric force of each muscle (F^M_{Max}).