**Supplemental Figure 1:** Net shoulder joint forces (Newtons) during reverse (rSW) and forward (fSW) propulsion. Black vertical line indicates transition between propulsive and recovery phases.

**Supplemental Figure 2:** Vector Angles for Shoulder Forces (Degrees) relative to vertical during reverse (rSW) and forward (fSW) propulsion. Black vertical line indicates transition between propulsive and recovery phases.

**Supplemental Figure 3:** Net shoulder joint moments (Newton·meters (Nm)) during reverse (rSW) and forward (fSW) propulsion. Black vertical line indicates transition between propulsive and recovery phases.