**Figure 3**: Mean synergy weights (W, left) and synergy activations (C, right) calculated from non-negative matrix factorization among unimpaired individuals and individuals with cerebral palsy (CP) who required (a) three synergies or (b) two synergies to describe greater than 90% of total variance in muscle activity. RF, rectus femoris; MH, medial hamstrings; LH, lateral hamstrings; AT, anterior tibialis; MG, medial gastrocnemius.

**Figure S1**: The decrease in walk-DMC with GMFCS level and FAQ across diagnosis subtypes. (a) Total variance accounted for (VAF) increased and (b) walk-DMC decreased with impairment level as measured by Gross Motor Functional Classification System (GMFCS) level across all diagnosis subtypes. Similar changes in (c) total VAF and (d) walk-DMC were observed with Gillette Functional Assessment Questionnaire (FAQ) score across all diagnosis subtypes. Bracket represents significant difference ($p$<0.05) with correction for multiple comparisons. $N$=0 represents groups that had no participants. The NA group shows walk-DMC for participants missing GMFCS or FAQ data (see Table I).

**Figure S2**: Correlation of walk-DMC with clinical examination measures. Clinical examination measures including strength (left), selective motor control (center), and spasticity (right). The first principal component of the collection of clinical examination measures was calculated from the measurements of strength and selective motor control at the hip, knee, and ankle, and spasticity from the hip adductors, hip flexors, hamstrings, plantarflexors, posterior tibialis, and rectus femoris.

**Figure S3**: The relationship between walking speed and walk-DMC for unimpaired individuals. Unimpaired individuals ($n$=36) were instructed to walk at four different walking

speeds (very slow, slow, free, and fast). Walking speed was divided by height for each individual.