Introduction

Joint action involves the coordination of behaviour between two or more individuals to effect a change in the environment (Sebanz et al., 2006). For example, rowers aim to synchronize their limbs to maximize rowing performance. At the individual level, spatial and temporal coordination between the limbs has been observed not only in bimanual symmetrical pointing movements but also asymmetrical ones (Kelso, Southard, & Goodman, 1979). This suggests that timing of the limbs is not independent but rather interdependent. We examined whether two people making either symmetrical or asymmetrical unimanual pointing movements alongside each other resembled performance of the entire task alone. If this were observed, then this would suggest that unintentional interpersonal coordination has transpired.

Methods

- N = 32 (mean age = 20.0 ± 3.0 years, 6 male)
- Five blocks of trials (16 practice, 48 test) were completed
- Three testing conditions: Unimanual Solo (Left, Right), Bimanual Joint, and Bimanual Solo (Left, Right)
- Four movement conditions: Long-Long, Short-Short, Long-Short, and Short-Long

Discussion

As expected, the results from the Bimanual Solo condition revealed the typical pattern of temporal coupling at movement termination (i.e., total response time [TRT]). This is in contrast to the results of the Bimanual Solo and Bimanual Joint conditions, in which the distance of the movement influenced TRT. These findings could be interpreted to mean that paired participants did not temporally couple their pointing movements. On closer inspection, we found that the TRT correlation between the left and right arms was significantly higher in the Bimanual Joint condition (r=0.24) than in the Unimanual Solo condition (r=0.03). However, this value was nowhere near the TRT correlation in the Bimanual Solo condition (r=0.81). These results indicate that some degree of interpersonal coordination occurs when two people perform pointing movements alongside each other.

References
