Does voluntary production of body movement have long-term effects on infants' learning about others' body movement?

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Keywords: Body movements, infant, rhythmic movement, habituation, motor learning

Body movement such as gesture is a fundamental cue for establishing social communication with others from an early stage in human development. Developmental studies have revealed that infants improve their ability to recognize others' body movements by observing and interacting with adults (e.g. Yamamoto et al., 2019). Previous research has shown that infants between 5 to 10 months perform voluntary rhythmic movements when they interact with caregivers (Thelen, 1981). However, little is known about whether these voluntary rhythmic movements affect recognition of others' body movements. In the current study, we examined if infants' voluntary production of body movements had a long-term effect on the recognition of others' body movement.

Ten-month-old infants (N = 30, 16 girls and 14 boys) participated twice in the study at an interval of one week. We utilized the infant-controlled habituation procedure with four types of video stimuli depicting abstract body movements (videos A, B, C, and D; see Figure 1). On the first day, infants were initially habituated to video A as the target stimulus (Habituation 1), and then they were presented with video A again and video B as a novel stimulus (Test 1). After one week, infants were habituated to video C (Habituation 2) and were then presented with video C again, video A as the target stimulus, and video D as a novel stimulus (Test 2). We evaluated the times infants looked at the target stimulus and novel stimulus in Tests 1 and 2 in order to assess infants' discrimination of others' body movements. We recorded infants' body movements in reaction to the target stimulus during Habituation 1 using a 3D motion tracking system (Oqus 300, Qualisys) to assess entrainment between infants' body movements and target stimulus.

We found that infants showed shorter looking times in reaction to the target stimulus compared to the novel stimulus in Tests 1 and 2. These findings indicate that infants were able to discriminate the target stimulus from the novel stimulus not only in Test 1 but also in Test 2, which was conducted one week later. In addition, we found that these 10-month-old infants voluntarily moved their body to the rhythm of the target stimulus during Habituation 1 and that there was a significant positive correlation between infants' entrainment level and their capacity to discriminate others' body movements in Test 2. These results suggest that infants' voluntary movements have a long-term impact on their recognition of others' body movements.

References

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