**Sit and face the world: Infants' vocal production and visual attention to toys, faces and the articulating mouth across the transition to independent sitting**

As infants grow up, they acquire many important motor skills such as crawling, standing, walking and many others. These motor milestones are not only crucial indicators of developmental progress, but they also provide new opportunities for infants to interact with other people and the world around them. Previous studies proposed a developmental cascade approach to study **how changes in motor skills may affect socio-communicative development through changes in infants' day-to-day experiences**. In this project, we will focus on the transition period toward the acquisition of a new important motor skill - independent sitting. We will aim to capture how sitting acquisition modifies infants' attention toward toys, faces and the articulating mouth. Furthermore, we will study whether the acquisition of sitting affects infants' vocal production.

Sitting allows the head to be held upright with much less effort and it usually appears in development when infants are between 5 and 8 months of age. While sitting, infants are more likely to have toys in their view and the viewed toys are in a more central position, which facilitates learning object-name relations. Similarly, sitting infants are more likely to see a caregiver's face. Furthermore, the pattern of scanning articulating faces and infants' attention to different facial features (eyes, mouth) undergoes significant changes at a similar age as sitting acquisition progresses. Infants' attention to the mouth increases between 4 and 8 months of age as the articulating mouth provides important speech information. However, it is unknown how infants' visual attention toward toys, faces and facial features changes during the transition toward independent sitting.

Sitting also may have anatomical consequences for language learning. Breathing in an upright position is easier than in a prone or supine position, which may allow for producing longer vocalizations in a single breath. Furthermore, the development of sitting skills early in infancy (from 3 to 5 months of age) was predictive of subsequent language scores at 10 and 14 months of age, even while controlling for general motor skills. However, it is unknown how exactly the development of sitting changes early vocal production.

In this project, we will investigate **how the transition to independent sitting affects key areas of socio-communicative development in infancy**: vocal production, visual attention to toys, faces and the articulating mouth. We will aim to study the developmental trajectories to see whether the timing of changes during the sitting acquisition in these areas is the same or whether they undergo reorganization at different stages of sitting acquisition.

We will invite parent-infant dyads to the lab when infants would be at different stages of independent sitting acquisition (when they are non-sitters, twice when they are near-sitters and finally when they are expert-sitters). To precisely measure how infants' looking behavior changes across the process of sitting acquisition, we will record their visual attention during parent-infant play using eye-tracking glasses worn by the caregivers. Additionally, we will use screen-based eye-tracking to investigate how infants' visual attention to the mouth area changes thanks to sitting acquisition. Finally, we will investigate how the transition to independent sitting affects infants' vocal production.

The project is important because it addresses the relation between sitting acquisition and multiple social cognition skills related to language and communicative development in infancy (vocal production, visual attention to toys, faces and the articulating mouth). Our study will allow for comparing whether sitting acquisition affects vocal production and visual attention in parallel or whether they have separate developmental trajectories. Moreover, since motor development is atypical in many neurodevelopmental disorders, our project can inform further research in clinical settings aiming for early diagnosis and intervention.