The First Bites; Development and Variability of Eating Behavior during the Weaning Period

The First Bites

Development and Variability of Eating Behavior during the Weaning Period

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INTRODUCTION

During the **weaning period**, infants take a critical step in their eating behavior. With the introduction of the first spoon-fed purées infants begin to change from feeding solely on milk (breast milk or formula) to feeding on more solid food. This shift in eating behavior generally occurs rapidly. Within a short period of time, infants **adjust their oral-motor behavior to the new food** and learn to handle the changed feeding situation. Their oral-motor behavior develops from rhythmic sucking to a coordinated pattern of biting and chewing. This includes e.g. the ability to actively remove food from a spoon and the inhibition of the tongue protrusion response.

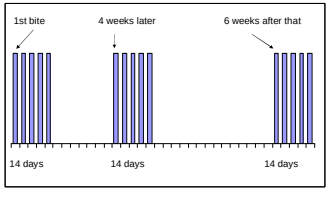
Most studies on early feeding have examined the eating behavior of either very young infants or children of one year and older (see e.g., Young & Drewett, 1998; Pearcey & De Castro, 1997). However, the **developmental transitions in oral-motor behavior and feeding efficiency during the weaning period have been neglected** to date, and repeated measurements of eating behavior in infancy are scarce.

It was the aim of this study to investigate the rapid development of oral-motor functioning and the changes in effectiveness of feeding during the weaning period. The research was carried out within a **dynamic systems theoretical framework** (Thelen & Smith, 1994; van Geert, 1994), and thus focuses on the dynamic aspects of change and patterns of inter- and intra-individual variability.

METHOD

Ten healthy infants were followed during the transitions to solid food, starting with their very first bite of solids (at the averaged age of 22.8 weeks, SD=3.6 weeks) until after the transition (12 weeks later). Throughout this period, 15 feeding interactions of the infants with their primary caregiver were video-taped.

The measurement design consisted of **3 series of 5 naturalistic video-observations**. The first 5 recordings were made in the two weeks after the introduction of solids, and the second and third series were made 4 respectively 10 weeks after the infant's first bite of solid foods.



METHOD

The first 4 minutes of each video-observation were **coded**, using a coding scheme based on categories of **oral-motor functioning** (see e.g., Skuse, Stevenson, Reilly & Mathisen,1995) and **efficiency of feeding** (see e.g., Young & Drewett, 2000). Also, the consumed **quantity of food** was weighed at each measurement occasion.

The data were analyzed using **descriptive statistics** as well as multivariate analyses (**repeated measures ANOVAs**).

RESULTS

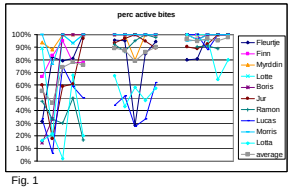


Fig. 1

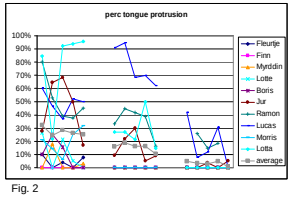


Fig. 2

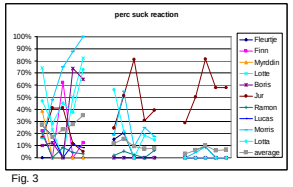


Fig. 3

Oral motor functioning:

- rapid increase in the frequency of **active closing of the lower lip** when eating from a spoon throughout the measurement period (see Fig. 1)
- significant decrease in frequency of **tongue protrusion** after accepting a bite of food throughout the measurement period (see Fig. 2)
- significant decrease in frequency of **sucking on the spoon** throughout the measurement period (see Fig. 3)
- **largest change** in the frequency of tongue protrusion and active closing of the lower lip **between the first and second series**
- significant **decrease in intra-individual variability** (SD) over the measurement period for all three behaviors

RESULTS

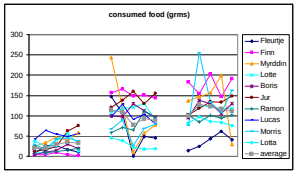


Fig. 4

Feeding effectiveness:

- rapid **increase in consumed grams**, especially between the first and the second series (see Fig. 4)
- inter and intra-individual **variability remained large** across all series

CONCLUSIONS

The results show a **rapid increase in oral motor efficiency** already during the first weeks after the introduction of solid food: Behaviors associated with the previous way of eating (e.g., sucking, tongue protrusion) decrease, while behaviors which are well-adapted to the new oral-motor challenges (e.g., active closing of the lower lip) become more frequent. Also the **feeding effectiveness increases** significantly within this short time period.

The **largest intra-individual variability in oral-motor functioning was found in the infants' earliest performances**, which is consistent with the account that developing systems are most sensitive to context variables and thus most variable (van Geert, 1994). There was, however, no decrease in the variability in the amount of consumed food, which is in accord with earlier findings that young children are very **variable in their eating behavior from day to day** (Young & Drewett, 2000).

The **weaning period involves changes in many different areas**. Both, infant and mother have to adjust their behavior to the new feeding situation and to each other, which results in the emergence of new interaction patterns. These changes will be addressed in future analyses of our data.

References & Acknowledgements

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