

## RESEARCH SUMMARY

### **Elevated cortisol levels in Norwegian toddlers in childcare (2017)**

Drugli, M.B., Solheim, E., Lydersen, S., Moe, V., Smith, L., Berg-Nielsen, T.S.  
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Cortisol release in infants, undergoing social stress during childcare in the mother's absence, has been known for a long time (Ahnert & Lamb, 2003). This new paper has extended the research base of these studies to 112 infants in 85 different childcare centres in Norway; 60% of the centres were public. The study forms part of a larger research project '*Little in Norway*'. Two research questions were addressed: 1, how do cortisol levels change in daycare centres compared with cortisol levels when the infants were at home? 2, Are cortisol changes associated with different types of childcare or factors like the child's temperament and family background?

Cortisol measurements were performed on saliva samples from the infants. The mean age of the infants was 23 months with a standard deviation of 3.8 months. The infants had been in childcare for 5-6 months before cortisol sampling. Saliva samples were collected from the children at 10 am and 3 pm on two consecutive days, one day at home and one day in childcare.

With infants at home, cortisol levels were reduced from 6.77 units at 10 am to 5.91 units at 3 pm, whereas for children in childcare the cortisol levels increased from 7.05 units at 10 am to 7.83 units at 3 pm. However, when the toddlers were split into two groups of 5-7 hours and 8-9 hours of childcare, only the group with longer times of childcare showed a significant increase in cortisol levels.

There were no significant changes in cortisol levels during the day with childcare associated with the following:

- the quality of care-giver-child interactions,
- the child:adult ratio
- different types of childcare
- number of children in the group
- the child's temperament
- the mother's educational level

The authors surmise that for the group of infants with the greater number of hours of childcare, separation from the parents and interactions with different caregivers is the principal cause of stress for the infants.

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