

## **Effects of sleep on early cognitive development in young children with Down syndrome**

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In typically developing (TD) children poor sleep contributes to cognitive difficulties. Children with Down syndrome (DS) have severe sleep problems, particularly with breathing, as well as cognitive and behavioural difficulties. It is currently unknown how sleep problems affect early cognitive development in individuals with DS.

This study explores, for the first time, the relationship between objective measures of sleep and well-validated indices of early cognitive development in 2- to 4 year-olds with DS and age-matched TD children. Sleep was monitored using home respiratory polysomnography and children completed the Mullen Scales of Early Learning to assess motor skills, visual reception and language development.

We found increased obstructive apnoeas and hypopnoeas during sleep in children with DS. Cognitive development was delayed relative to the TD group, with expressive language being a particular area of weakness for children with DS. We report preliminary data on the relationship between sleep and cognitive development and expect that sleep problems contribute to delays in early cognitive abilities.

These findings will support the notion that sleep problems should be examined and treated from an early age in children with DS, which may be crucial for achieving the greatest cognitive outcomes. Since DS is the most common sporadic developmental disorder, this will have wide-reaching clinical implications and set the stage for follow-up intervention studies.