

**Critical Review:  
How does sleep impact language development in children under 5 years of age?**

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This critical review examines the impact of sleep on language development in infants and young children. A literature search using computerized databases was completed and yielded nine articles meeting the inclusion criteria. Study designs include: longitudinal studies, randomized clinical trials, a mixed quasi-experimental study and a single group post-test only study. Overall, findings are highly suggestive that more mature sleep patterns and longer sleep duration are associated with better longitudinal language outcomes. The evidence regarding the short-term outcomes of sleep, such as a daytime nap, on language learning is less conclusive. Several studies are suggestive of a relationship between a period of sleep after language exposure and language generalization and/or retention. Recommendations for clinical practice and future research are provided.

**INTRODUCTION**

The National Sleep Foundation (2015) recommends a minimum of 10-14 hours of sleep for children five years of age and under. However, a review of the research indicates that actual sleep time is consistently about 40 minutes less than sleep recommendations (Matricciani et al., 2012). Classroom nap opportunities are also becoming devalued and eliminated due to increased curriculum demands (Kurdziel et al., 2013).

Sleep is known to play an important role in adult learning, cognitive function and consolidation of memories (Stickgold, 2005), while sleep deprivation has a negative impact on cognitive function (Pilcher et al., 1996). Even short naps have been shown to benefit memory encoding in adults. One study (Lahl et al. 2008) showed that adults were able to recall a list of recently learned adjectives significantly better after an ultra-short nap of only 6 minutes, compared to those who remained awake for the same amount of time.

A meta-

### **Data Collection**

Results of the literature search yielded nine articles that met the selection criteria. The articles included: three longitudinal designs, four randomized clinical trials, one nonrandomized clinical trial, and one single group study.

## **RESULTS**

### **Natural Language Studies**

#### *Longitudinal Designs*

**Dearing, McCartney, Marshall and Warner (2001)** conducted a longitudinal study to examine associations between parental reports of sleep and wakefulness at 7, 19 and 31 months of age with cognitive and language outcomes at 24 and 36 months. Sleep patterns of 62 children were measured via phone interviews with

All components of the study were described in sufficient detail. Strengths of this study include a large sample size and consideration of confounding variables. It was the





