



# Influence of Language Nutrition on Children's Language and Cognitive Outcomes: An Integrated Review



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## BACKGROUND

### Language Nutrition and Brain Development

- Early childhood is a critical period for brain development.
- Brain development is shaped by environmental experiences.
- The single strongest predictor of a child's vocabulary at age 3 is the quantity and quality of words spoken to the child.
- Vocabulary at age three is a robust predictor of third grade literacy.
- A strategy to promote language learning may be increasing a child's access to language nutrition.

**BY AGE 3**  
**85%**  
OF NEURAL CONNECTIONS  
ARE ALREADY FORMED

## METHODS

### Search Strategy

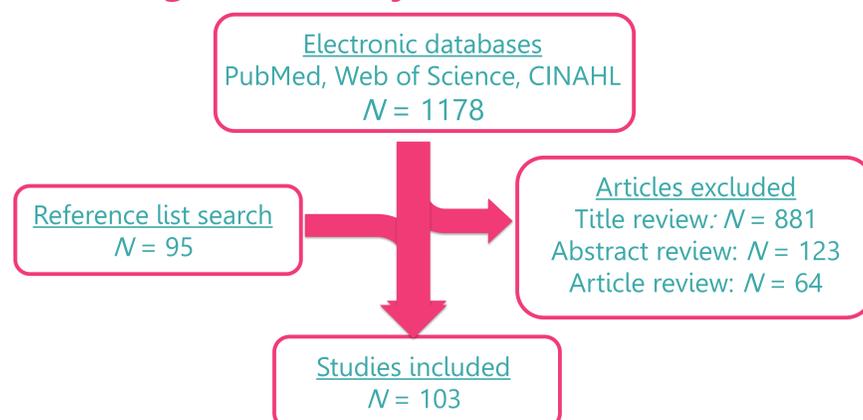
#### Search Terms

- Infant OR child OR toddler
- Parent OR caregiver
- Infant-directed speech OR talk OR read OR engage OR interact
- Vocabulary OR language acquisition OR cognition OR language development OR literacy

#### Inclusion Criteria

- Examine talking, interacting, or reading by caregiver
- Child 0-36 months old at first assessment
- Evaluate language or cognitive outcomes
- Published in a peer-reviewed journal from 1990-2014

### Figure 1. Study Selection Process



## PURPOSE

To investigate the influence of language nutrition in the first three years of life on language and cognitive outcomes in children



**Language Nutrition:**  
delivery of language to babies to nourish brain development

## RESULTS

### Study samples

- Samples represented children of diverse socioeconomic backgrounds with different risk profiles for delayed development
- <10% considered influence of fathers

### Study Descriptions

- 72% prospective cohort; 11% experimental
- 88% examined language skills; 31% examined cognitive development
- 71% assessed input through observation

### Talking

- Quantity and quality of parent talk contribute to language and mediate adverse effects of preterm birth, low parent education and poverty on child outcomes.

### Interacting

- Language delivered in the context of responsive adult-child interactions scaffolds a child's learning and supports use of their existing linguistic knowledge.

### Reading

- Shared reading increases language and literacy skills by introducing new vocabulary and encouraging conversational turn taking.

## DISCUSSION



### Ingredients of Language Nutrition

- **Quantity of words** enhances phonological awareness and speech processing.
- **Lexical diversity** exposes children to a variety of words in different contexts or with different descriptions.
- **Linguistic complexity** exposes children to more semantics and grammatical combinations from which they can learn the structure of language.
- **Syntactical diversity** helps children predict the meaning of new words.
- **Intonation and prosody** facilitate word segmentation by providing clues about utterance boundaries.
- **Gestures** help children attend to the environment.
- **Engaging social interactions** provide children opportunities to establish references for words, and receive feedback.

## IMPLICATIONS

- Families can influence children's learning simply by making their child their conversational partner, early, and often and need to be a key target for education and skill building.
- We have much to discover about how to translate these discoveries to positively influence children's developmental and educational trajectories.

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