Preventive Intervention Aids Auditory Perception in Pre-Readers at Risk for Dyslexia

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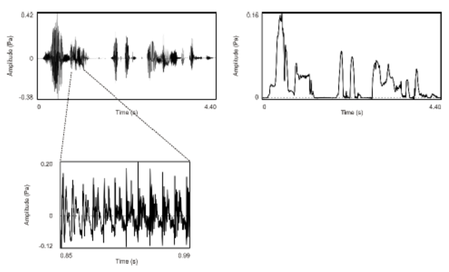
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Background

Developmental Dyslexia:

- Core deficit: **auditory temporal processing** (Boets et al., 2011; Farmer, & Klein, 1995)

Speech Envelope:



- Reduced sensitivity to temporal cues in speech envelope in children & adults with dyslexia

➡ Interferes with speech perception and ultimately reading and writing

Dyslexia Paradox:

- Dyslexia is only diagnosed after most effective intervention period (Ozernov-Palchik, & Gaab, 2006)

➡ Need for **preventive intervention**

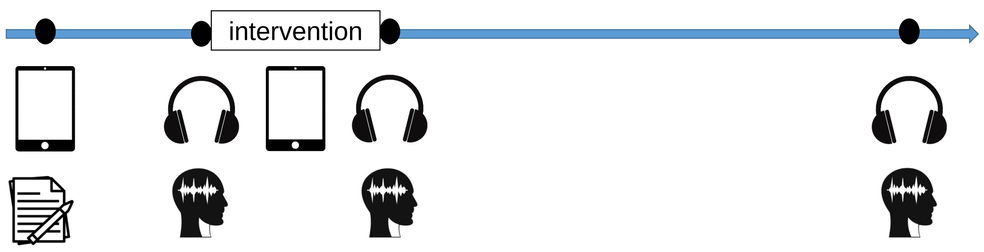
Objectives

Preventive intervention for kindergarteners at cognitive risk for dyslexia

➡ **Do auditory deficits benefit from a preventive intervention?**

Design

3rd year kindergarten — 1st grade primary school

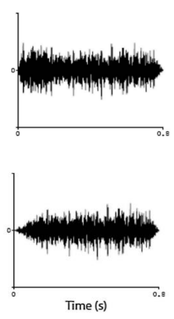


Rise Time Discrimination (RTD)

Intervention

Reference stimulus

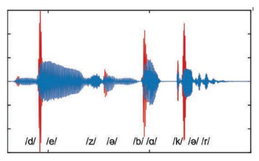
Target stimulus



1. GraphoGame (GG) (Richardson, & Lyytinen, 2014)



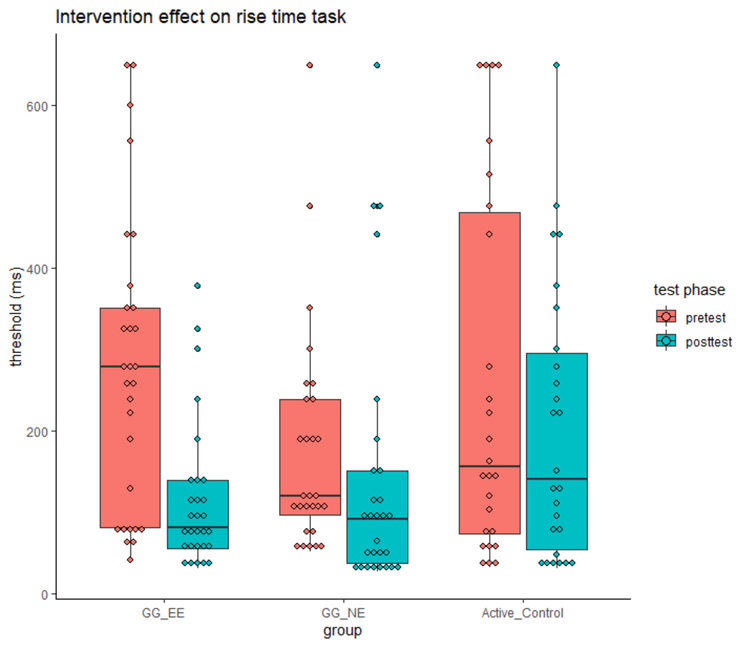
2. Onset Enhanced Speech Envelope (EE) training (Geurts, & Wouters, 1999)



Intervention study design

GG + EE (n=29)	GG + non EE (NE) (n=28)	Active control (n=26)
GG 15 min	GG 15 min	Control game 15 min
Active EE listening 10 min	Active NE listening 10 min	Active NE listening 10 min

Results



GROUP	TEST PHASE	MEDIAN (ms)	IQR (ms)
GG_EE	**pretest**	278.0	272.0
	posttest	81.0	84.0
GG_NE	**pretest**	119.0	136.0
	posttest	95.0	112.0
Active control	**pretest**	175.0	395.0
	posttest	139.5	240.5

Take home

Beneficial effect of preventive intervention, more specifically of EE training

Confirmation needed with non-parametric statistics

Inclusion of intervention data: play time, …

Long-term effects: still visible after 1 year?

Combination with neural data

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