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Sensory integrative therapy improves reading skills in children at risk for reading failure

CITATION: Grimwood, L. M. & Rutherford, E. M. (1980). Sensory integrative therapy as an intervention procedure with Grade One “at risk” readers—a three year study. *The Exceptional Child*, 27(1), 52–61.

LEVEL OF EVIDENCE: IB1a

RESEARCH OBJECTIVE/QUESTION

1. Identify whether or not sensory integrative therapy was a beneficial intervention program for children identified as at risk for later reading failure.
2. Identify whether the program results supported sensory integrative therapy as an effective intervention procedure for an Australian population.

DESIGN

X	RCT		Single Case		Case Control
	Cohort		Before-After		Cross Sectional

SAMPLING PROCEDURE

	Random		Consecutive
X	Controlled		Convenience

21 children from a group of 124 children were identified as at risk for reading failure on the Satz battery of predictive tests. The 21 children were then randomly assigned to an experimental and control group.

SAMPLE

N=21	M age=5 years 7 months	Male=16	Ethnicity= Australian	Female=5
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PARTICIPANT CHARACTERISTICS

Children at risk for reading failure

MEDICAL DIAGNOSIS/CLINICAL DISORDER

Not reported

OT TREATMENT DIAGNOSIS

Sensory integrative dysfunction

OUTCOMES**Reading-related skills**

All tests are standardized, with the exception of clinical observations.

Measures	Reliability	Validity
In 1976—Iota Word Test (Part II-Satz battery)	No data reported	No data reported
In 1977—St. Lucia Graded Word Reading Test	NR	NR
In 1978—Neale Analysis of Reading Ability (Accuracy and Comprehension) & St. Lucia Graded Word Reading Test.	NR	NR
The Southern California Sensory Integration Tests (SCSIT)	NR	NR
The Southern California Postrotary Nystagmus Test	NR	NR
Clinical observations of postural-ocular control	NR	NR

NR=Not reported

INTERVENTION**Description**

Individualized treatment plans were developed for each participant according to the results of the Sensory Integration pretests. Activities that provided controlled sensory input and neuromuscular therapeutic techniques, and that encouraged bilateral motor coordination may have been included in a particular child's intervention. (treatment at impairment/performance component level).

Who delivered

Three occupational therapists

Setting

Participants were removed from the classroom on a rotational basis so that no child was regularly absent from any one lesson.

Frequency

Two ½-periods per week

Duration

24 weeks, April to November 1976

Follow-up

NR

RESULTS

Statistical Tests Used: two tailed t-test

- Children in the experimental group achieved significantly higher scores on measures of reading ability, at the 0.05 level, than the control group over the 3-year period.
- The small sample size precluded analysis of SCSIT results. Factor analysis could not be applied due to the small numbers within the SCSIT subgroups.

CONCLUSIONS

- Gains in the reading ability of the experimental group over the control group could be seen to be related to improved sensory integrative ability of the children who had therapy.
- The intervention program appeared to be a beneficial measure for children identified as being “at risk” for reading failure according to the Satz criteria.
- Results tend to support the notion that sensory integrative therapy appears to have been helpful for the Australian sample used.
- These gains were maintained over a 2-year nonintervention period.

LIMITATIONS**Biases**

	Attention		Masking/blinding	X	Drop outs
	Contamination		Co-intervention		

- The study began in 1976.
- The SCSIT battery was used as an outcome measure.
- The small sample size precluded measuring changes in SI function.
- Individualized treatment; not replicable.
- Not clear how the 21 subjects were randomly allocated.
- The control group received no treatment; possibility of the Hawthorne effect.

- Terminology used in this document is based on two systems of classification current at the time the evidence-based literature reviews were completed: *Uniform Terminology for Occupational Therapy Practice—Third Edition* (AOTA, 1994) and *International Classification of Functioning, Disability and Health (ICIDH-2)* (World Health Organization [WHO], 1999). More recently, the *Uniform Terminology* document was replaced by *Occupational Therapy Practice Framework: Domain and Process* (AOTA, 2002), and modifications to *ICIDH-2* were finalized in the *International Classification of Functioning, Disability and Health* (WHO, 2001).

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For more information about the Evidence-Based Literature Review Project, contact the Practice Department at the American Occupational Therapy Association, 301-652-6611, x 2040.

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