



Tactile and kinesthetic stimulation improve weight gain and behavior in premature babies

CITATION: Kilgo, J., Holder-Brown, L., Johnson, L. J., & Cook, M. J. (1988). An examination of the effect of tactile-kinesthetic stimulation on the development of preterm infants. *Journal of the Division for Early Childhood*, 12(4), 320–327.

LEVEL OF EVIDENCE: IIA2a

RESEARCH OBJECTIVE/QUESTION

This study was designed to investigate the effects of tactile-kinesthetic stimulation on preterm infants.

DESIGN

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

Cohort design; treatment and control group were nonrandomized

SAMPLING PROCEDURE

	Random		Consecutive
X	Controlled		Convenience

SAMPLE

N=20	M age=not reported; all infants were 36 weeks gestational age or less	Male=NR	Ethnicity=NR	Female=NR
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NR=Not reported

PARTICIPANT CHARACTERISTICS

Inclusion criteria were a birthweight of 2400 grams or less, gestational age of 36 weeks or less as determined by the Dubowitz Scale, and maintenance of OG (tube) or PO (oral) feeding without intravenous fluids.

Exclusion criteria were serious medical complications such as congenital heart malformations, gastrointestinal disorders, maternal drug addiction, spina bifida, and central nervous system disturbances as evidenced by a positive CT scan.

MEDICAL DIAGNOSIS/CLINICAL DISORDER

Preterm infant

OT TREATMENT DIAGNOSIS

Preterm infant

OUTCOMES

Weight gain

Habituation; orientation; motor acts; muscle tone; range of state; regulation of state; autonomic regulation; reflexes; length of hospital stay

Measures	Reliability	Validity
Neonatal Behavioral Assessment Scale (NBAS)	NR	NR
Weight gain	NR	NR

NR=Not reported

INTERVENTION

Description

For the intervention group, a strict protocol was followed. The first and third phases of 15 minute-protocol involved tactile stimulation, with infant prone. The second phase involved kinesthetic stimulation while the infant was supine. Infants in the control group received tactile-kinesthetic input only through normal handling.

Who delivered

- An OT or OTA
- Trained volunteer

Setting

NICU

Frequency

Three 15-minute intervention sessions per day

Duration

10 days

Follow-up

Not reported

RESULTS

Weight gain and performance on the NBSA of the intervention group significantly increased compared with the weight gains and NBAS performance of the control group. No significant difference was found between the treatment and control groups on length of hospital stay.

CONCLUSIONS

The results of this study lend added support to the literature on the effects of tactile-kinesthetic stimulation of preterm infants who require treatment in the neonatal intensive care. This study suggests that preterm infants who are provided with tactile-kinesthetic stimulation similar to that normally provided by parents resulted in greater weight gain than children who did not receive intervention.

LIMITATIONS

- Subjects in the control group were in a different setting than subjects in the treatment group.
 - Subject recruitment was not clear.
 - No randomization of subjects.
 - Not clear whether medical treatment of the preterm population was reliable among the three hospitals.
 - Treatment was not replicable because the amount of touch or pressure was not quantified.
 - Small sample; no demographics were given about three samples.
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- 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).

This work is based on the evidence-based literature review completed by L. Diane Parham, PhD, OTR, FAOTA, and Nancy Bagatell, MA, OTR, with contributions from Christine R. Berg, PhD, OTR/L, and Patricia D. LaVesser, PhD, OTR/L.

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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