



AOTA Evidence Briefs

Developmental Delay in Young Children

**A product of the American Occupational Therapy Association's Evidence-Based Literature Review Project*

DD #6

Massage therapy may improve behavior in newborns exposed to HIV

Scafidi, F., & Field, T. (1996). Massage therapy improves behavior in neonates born to HIV-positive mothers. *Journal of Pediatric Psychology, 21*, 889–897.

Level: IB1a

Randomized controlled trial, less than 20 participants per condition, high internal validity, high external validity

Why research this topic?

Tactile (see *Glossary*) and **kinesthetic** (see *Glossary*) stimulation generally have facilitated growth and development in newborns. However, there has been little research on the effects of such stimulation on newborns whose mothers are HIV positive and are identified as “HIV exposed.” Yet AIDS and HIV infection are major infectious causes of developmental delays.

What did the researchers do?

Scafidi and Field (1996), both of the University of Miami (FL), designed a study to determine the effects of tactile and kinesthetic stimulation on weight gain, cognitive and developmental performance, and stress behaviors in infants born to HIV-positive mothers. They conducted the study with 28 newborns (gender not reported) consecutively identified as HIV-exposed. The newborns averaged 39 weeks in **gestational age** (see *Glossary*) and were admitted to the study within 2 days of birth. None had chromosomal aberrations, congenital heart malformations, gastrointestinal disturbances, “perinatal” complications (complications at the time of birth), central nervous system dysfunctions, or infections such as meningitis. All were medically stable, did not need assistance in breathing, and were not receiving intravenous medications or feedings. The ethnic distribution of the mothers was 67% Black and 33% Hispanic.

The researchers assigned the newborns to a treatment or a **control group** (see *Glossary*). Both groups received standard medical and nursing care, high levels of stimulation by sound and light, and handling and feeding every 3 hours. In addition, the treatment group received massage therapy for 15 minutes an hour during 3 consecutive hours each day over a 10-day period (weekdays only). Each session consisted of three 5-minute phases: (a) tactile stimulation, (b) kinesthetic stimulation, (c) tactile stimulation again. In the tactile phases, the newborn lay on his or her stomach and was stroked in each region of the body in a specific order. In the kinesthetic phase, the newborn lay on his or her back and had his or her arms and legs gently bent and straightened.

The researchers were interested in the following outcome areas: **habituation** (see *Glossary*), **orientation** (see *Glossary*), **motor behavior**, **range of state** (see *Glossary*), **regulation of state** (see *Glossary*), **autonomic stability**, and **abnormal reflexes** (all as measured by the Brazelton Neonatal Behavior Assessment Scale); **excitability** and **depression** (as measured by an unpublished scoring system); stress behaviors in response to the Brazelton scale items (as measured by a system described in the literature); and weight gain (as calculated from daily weighings). The assessments were made before and after the 10-day stimulation period.

What did the researchers find?

The treatment group scored **significantly** (see *Glossary*) better than the control group on habituation, motor behavior, range of state, autonomic stability, excitability, and stress behaviors. Further, its members averaged a significantly greater weight gain.

The control group, by contrast, stayed the same or declined on many measures. These trends were very different from those noted by the researchers in earlier studies of massage therapy with premature infants, in which the control group improved in performance.

What do the findings mean?

- The findings suggest that massage therapy improves the performance of newborns exposed to HIV. Further, the failure of the control group to improve suggests that “exposure to HIV may contribute to developing delays and failure-to-thrive as early as the newborn period in the absence of compensatory treatment provided by extra stimulation” (p. 895).
- The findings should boost confidence in funding intervention programs that use massage therapy with full-term newborns exposed to HIV. The findings also suggest a productive direction for research: investigating the mechanisms that might be responsible for the beneficial effects of massage therapy, and assessment of how long the effects last.

What are the study's limitations?

- Recruitment sequence with the mothers is unclear.
- Unclear when assessment of behavioral state occurred (“midway between feedings in a sleep state”).
- Amount of treatment touch pressure unclear; not replicable.
- Latency effects of treatment not measured (central nervous system [CNS] compromise).
- Year(s) of cohort is not specified; important to compare HIV medical protocols.
- One hospital.
- Sample is low socioeconomic status and predominantly Black.

Glossary

control group—a group that received special attention similar to that which the treatment group received, but did not receive the treatment.

gestational age—age from conception, rather than from birth.

habituation—response decrement to repeated auditory, visual, and tactile stimulation.

kinesthetic—relating to the sense perception of movement of muscles and tendons.

orientation—response to animate and inanimate stimuli, and overall alertness.

range of state—the rapidity, peak, and liability of state changes.

regulation of state—efforts to modulate his or her own state control.

significance (or significant)—a statistical term; this refers to the probability that the results obtained in the study are not due to chance, but to some other factor (such as the treatment of interest). A significant result is one that is likely to be generalizable to populations outside the study.

Significance should not be confused with clinical effect. A study can be statistically significant without having a very large clinical effect on the sample. For example, a study that examines the effect of a treatment on a client's ability to walk may report that the participants in the treatment group were able to walk significantly longer distances than the control. However, if you read the study you may find that the treatment group was able to walk, on average, 6 feet, whereas the control group was able to walk, on average, 5 feet. Although the outcome may be statistically significant, a clinician may not feel that a 1-foot increase will make his or her client functional.

tactile—relating to touch or to the sense of touch.

■ 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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