

Infant Massage Research

Maternal Tactile Stimulation and the Neurodevelopment of Low Birth Weight Infants

http://www.leaonline.com/doi/abs/10.1207/s15327078in0501_4?cookieSet=1

Frank Lake's Maternal-Fetal Distress Syndrome: An Analysis

<http://primal-page.com/mf3-4.htm>

The Effects of a Secure Attachment Relationship on Right Brain Development, Affect Regulation, and Infant Mental Health

<http://www.trauma-pages.com/schore-2001a.htm>

Cocaine Exposed Newborns: The massaged newborns had fewer postnatal complications and showed increased weight gain, and better performance on the Brazelton Neonatal Behavior Assessment Scale (particularly on the motor scale), and less stress behaviors following 10 days of massage. Scafidi, F., Field, T., Wheeden, A., Schanberg, S., Kuhn, C., Symanski, R., Zimmerman, E., & Bandstra, E. S. (1996). Cocaine exposed preterm neonates show behavioral and hormonal differences. Pediatrics, 97, 851-855.

HIV Exposed Newborns: Increased weight gain and improved performance on the Brazelton Newborn Scale (motor and state scales) were experienced by the massaged newborns. Scafidi, F. & Field, T. (1997). Massage therapy improves behavior in neonates born to HIV positive mothers. Journal of Pediatric Psychology, 21, 889-897.

Infants of Depressed Mothers: The infants who received massage therapy versus those who were rocked experienced 1) greater daily weight gain; 2) more organized sleep/wake behaviors; 3) less fussiness; 4) improved sociability and soothability, 5) improved interaction behaviors; and 6) lower cortisol and norepinephrine and increased serotonin (suggesting less depression). Field, T., Grizzle, N., Scafidi, F., Abrams, S., & Richardson, S. (1996). Massage therapy for infants of depressed mothers. Infant Behavior and Development, 19, 109-114.

Learning by Infants: Touch stimulation enhanced habituation or simple learning by infants. Cigales, M., Field, T., Lundy, B., Cuadra, A. & Hart, S. (1997). Massage enhances recovery from habituation in normal infants. Infant Behavior & Development, 20, 29-34.

Learning in Preschoolers: Preschoolers who received a 15-minute massage showed better performance on the block design and greater accuracy on the animal pegs subsets of the WPPSI. Hart, S., Field, T., Hernandez-Reif, M., & Lundy, B. (1998). Preschoolers' cognitive performance improves following massage. Early Child Development & Care, 143, 59-64.

Newborns: Women who had extended and early contact with their newborns looked at, talked to, and touched their infants more, watched less television, and talked less on the telephone than mothers with minimal contact with their infants. These findings suggest that increased postpartum contact with infants leads not only to more interaction, but also to more touching as well as touching in more intimate places (face and head), thus highlighting the value of rooming-in arrangements for mothers and infants.

Prodromidis, M., Field, T., Arendt, R., Singer, L., Yando, R. & Bendell, D. (1995). Mothers touching newborns: A comparison of rooming-in versus minimal contact. Birth, 22, 196-200.

Oil Versus No Oil Massage: Infants showed fewer stress behaviors (e.g. grimacing and clenched fists) and lower cortisol levels (stress hormones) following massage with oil versus massage without oil. Field, T., T., Schanberg, S., Davalos, M. & Malphurs, J. (1996). Massage with oil has more positive effects on newborn infants. Pre and Perinatal Psychology Journal, 11, 73-78.

Pregnancy: This study showed decreased anxiety and stress hormones (norepinephrine) during pregnancy and fewer obstetric and postnatal complications including lower prematurity rates following pregnancy massage. Field, T., Hernandez-Reif, M., Hart, S., Theakston, H., Schanberg, S., Kuhn, C., & Burman, I. (1999). Pregnant women benefit from massage therapy. Journal of Psychosomatic Obstetrics and Gynecology, 19, 31-38.

Preterm Infants Develop Better: Preterm infants who received massage therapy as newborns showed greater weight gain and more optimal cognitive and motor development eight months later. Field, T., Scafidi, & Schanberg, S. (1987). Massage of preterm newborns to improve growth and development. Pediatric Nursing, 13, 385-387.

Preterm Infants Who Benefit the Most From Massage: Preterm infants received three daily 15-minute massages for 10 days. The massage therapy infants gained significantly more weight per day than did the control infants. For the massage therapy group, the pattern of greater caloric intake and more days in Intermediate care before the study period along with more obstetric complications differentiated the high from the low weight gainers, suggesting that the infants who had experienced more complications before the study benefited more from the massage therapy. Scafidi, F., Field, T., & Schanberg, S. (1993). Factors that predict which preterm infants benefit most from massage therapy. Developmental and Behavioral Pediatrics, 14, 176-180.

Preterm Neonates' Responses to massage and Heelsticks: Routine heelstick procedures and tactile-kinesthetic massage were performed on stabilized preterm neonates to examine the differential effects on Transcutaneous Oxygen Tension (TcPO₂). TcPO₂ levels during the heelstick were significantly lower than

during the massage stimulation. The findings indicate that social forms of touch such as massage do not appear to have a medically compromising effect on TcPO₂. Morrow, C., Field, T., Scafidi, F.A., Roberts, J., Eisen, L., Larson, S.K., Hogan, A.E., & Bandstra, E.S. (1991). Differential effects of massage and heelstick procedures on Transcutaneous Oxygen Tension in preterm neonates. Infant Behavior and Development, 14, 397-414.

Preterm Newborns Have a Better Clinical Course: Preterm Infants received tactile/kinesthetic stimulation over a 10-day period. The infants averaged 21% greater weight gain per day and spent more time awake and active during sleep/wake behavior observations. Scafidi, F., Field, T., Schanberg, S., Bauer, C, Tucci, K., Roberts, J., Morrow, C., & Kuhn, C.M. (1990). Massage stimulates growth in Preterm infants: A replication. Infant Behavior and Development, 13,167-188

Preterm Newborns Gain More Weight: Preterm infants gained 47% more weight, became more socially responsive, and were discharged 6 days earlier at a hospital cost savings of \$10,000 per infant (or 4.7 billion dollars if the 470,000 preemies born each year were massaged). The underlying biological mechanism for weight gain in the massaged preterm newborns may be an increase in vagal tone and, in turn, an increase in insulin (food absorption hormone). Field, T., Schanberg, S. M., Scafidi, F., Bauer, C. R., Vega-Lahr, N., Garcia, R., Nystrom, J., & Kuhn, C. M. (1986). Tactile/kinesthetic stimulation effects on preterm neonates. Pediatrics, 77, 654-658.

Preterm Newborns Sleep Better: Preterm infants who were massaged before sleep fell asleep more quickly and slept more soundly with better sleep patterns. They showed improved weight gain as compared to infants who were not touched before sleep. Scafidi, F., Field, T., Schanberg, S., Bauer, C., Vega-Lahr, N., & Garcia, R. (1986). Effects of tactile/kinesthetic stimulation on the clinical course and sleep/wake behavior of preterm neonates. Infant Behavior and Development, 9, 91-105.

Psychiatric Patients (Child and Adolescent) : Following five 30-minute massages these children/ adolescents had better sleep patterns, lower depression, anxiety and stress hormone levels (cortisol and norepinephrine) and better clinical progress. Field, T., Morrow, C., Valdeon, C., Larson, S., Kuhn, C., & Schanberg, S., (1992). Massage therapy reduces anxiety in child and adolescent psychiatric patients. Journal of the American Academy of Child and Adolescent Psychiatry, 31, 125-130.

Sleep by Preschoolers: Preschool children who received massage fell asleep sooner, exhibited more restful nap time periods, had decreased activity levels and better behavior ratings. Field, T., Kilmer, T., Hernandez-Reif, M., & Burman, I. (1996). Preschool Children's Sleep and Wake Behavior: Effects of massage therapy. Early Child Development & Care, 120, 39-44.

Published Reviews

Review: Interventions for Premature Infants: Early touch interventions and their effects on high-risk infants are reviewed. Field, T. (1986). Interventions for premature infants. Journal of Pediatrics, 109, 183-191.

Review: Alleviating Stress in Intensive-Care Neonates: Intensive care nursery environments and their effects as well as positive tactile stimulation effects are reviewed. Field, T. (1987). Alleviating stress in NICU neonates. Journal of the American Osteopathic Association, 87, 646-650.

Review: Early Stimulation: Firm tactile stimulation of the rat pup and the preterm newborn is critical for growth and development. Schanberg, S. & Field, T. (1987). Sensory deprivation stress and supplemental stimulation in the rat pup and preterm human neonate. Child Development, 58, 1431-1447.

Review: Stimulation in Preterm Infants: Preterm infants who received tactile stimulation showed greater weight gain. A potential underlying mechanism for the massage/weight gain relationship is an increase in vagal tone, which in turn increases food absorption. Field, T. (1988). Stimulation of preterm infants. Pediatrics in Review, 10, 149-154.

Review: Alleviating Stress in Newborns: Stressful effects of intensive care nursery environments are reviewed including the effects of high-intensity noise, bright lights, cold, invasive and painful procedures. Touch interventions were associated with A) fewer startle responses, B) decreased need for ventilation, and C) fewer clenched fists. The stimulated infants averaged greater weight gain, were awake and active for a greater period of time and scored better on the Brazelton Scale. Field, T. (1990). Alleviating stress in newborn infants in the intensive care unit. Perinatology, 17, 1-9.

Review: Massage Therapy for Infants and Children: The effects of massage therapy on infants and children with various medical conditions are reviewed. The conditions range from infants who are premature, cocaine-exposed, HIV-exposed and infants of depressed mothers. The childhood conditions include asthma, burns, cancer, dermatitis, diabetes, eating disorders (bulimia), juvenile rheumatoid arthritis, posttraumatic stress disorder, and psychiatric disorders. Field, T. (1995). Massage therapy for infants and children. Developmental and Behavioral Pediatrics, 16, 105-111.

Review: Massage Therapy Effects: Infant, child and adult massage therapy studies ranging across many conditions including attention disorders, depression, addictions, pain syndrome, immune and autoimmune disorders are reviewed along with potential underlying mechanisms. Field, T., (1998). Massage therapy effects. American Psychologist, 53, 1270-1281.

Review: Massage Therapy Effects on Infants and Children: Infant and child massage therapy studies ranging across several conditions are reviewed along with recommendations to pediatricians and parents. Field, T. (1999). Massage therapy: More than a laying on of hands: Contemporary Pediatrics, 16, 77-94.

Studies In Review

Behavior Problem Children: Preschool children with behavior problems who receive massage are expected to have more on-task behavior, less solitary play, and less aggression. Escalona, A., Field, T., Cullen, C., Hartshorn, K., & Cruz, C. (In Review). Behavior problem preschool children benefit from massage therapy. Early Child Development and Care.

Cerebral Palsy: Massage therapy helped infants with CP reduce spasticity, gain more muscle flexibility, and increase posture, motor function and social interaction. Hernandez-Reif, M., Field, T., & Bornstein, J. (In Review). Cerebral Palsy infants benefit from massage therapy.

Down Syndrome: Infants with Down syndrome improved in muscle tone and in performance on motor tasks. Hernandez-Reif, M., Ironson, G., Field, T., Largie, S., Deigo, M., Mora, D., & Bornstein, J. (In Review). Children with Down Syndrome improved in motor function and muscle tone following massage therapy.

Father-Infant Massage: Fathers gave their infants daily massages 15 minutes prior to bedtime for one month. The fathers in the massage group showed more optimal interaction behavior with their infants. Cullen, C., Field, T., Escalona, A., & Hartshorn, K. (In Review). Father-infants interactions are enhanced by massage therapy. Early Child Development and Care

Preterm Infant Massage in Five Days: Preterm infants gained more weight following as few as 5 days of massage therapy. Dieter, J., Field, T., Hernandez-Reif, M. & Emory, E. (In Review). Preterm infants gain more weight following 5 days of massage therapy.

Ongoing Studies

Colic in Infants: Infants receiving massage by their parents are expected to have more positive feeding interactions with their caregivers, be less irritable, have fewer stress behaviors and more organized sleep/wake behaviors. Hernandez-Reif, M., & Field, T. (In Preparation). Colic is reduced by massage therapy.

Preterm Physiology: Preterm newborns are receiving daily massage to study possible mechanisms underlying massage benefits including vagal activity, oxytocin and IGF1 levels. Field, T., Dieter, J.N.I., Hernandez-Reif, M., Redzepi, M. & Emory, E.K. (In Preparation). Vagal activity, oxytocin and IGF1 in preterm neonates following massage therapy.