

The Neuropsychological Effects of Sleep Training and Its Impact on Breastfeeding



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- In Westernized cultures, infants often sleep alone
- Parents often resort to behavioral extinction to teach an infant to do this

Blunden et al. 2011, *Sleep Med Reviews*, 15, 327-334

Is night waking a problem?



Middlemiss et al. 2013, *J Amer Assoc Nurse Practitioners*, 10.1002/2327-6924.12159



Night waking

Maternal stress, depression, and anxiety

Middlemiss et al. 2011, *Early Hum Devel*, doi: 10.1016/j.earlhumdev.2011.08.010

Could this be an appropriate intervention for exhausted new parents?

Study finds controlled crying safe for babies

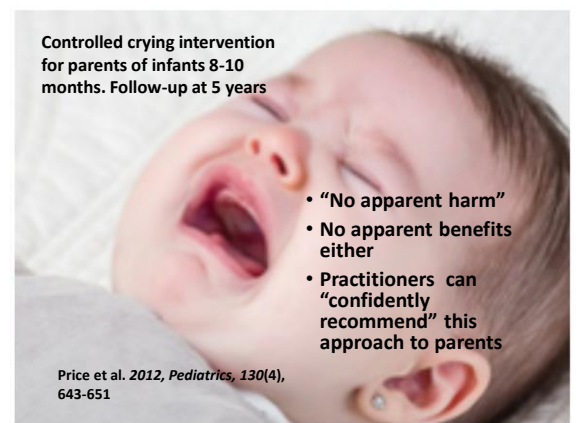
A landmark study by Melbourne researchers has found controlled crying poses no long-term risk to the health of babies and infants



Controlled crying intervention for parents of infants 8-10 months. Follow-up at 5 years

- "No apparent harm"
- No apparent benefits either
- Practitioners can "confidently recommend" this approach to parents

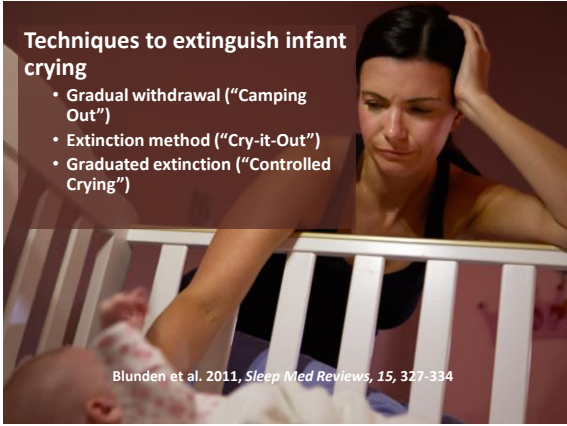
Price et al. 2012, *Pediatrics*, 130(4), 643-651



Techniques to extinguish infant crying

- Gradual withdrawal (“Camping Out”)
- Extinction method (“Cry-it-Out”)
- Graduated extinction (“Controlled Crying”)

Blunden et al. 2011, *Sleep Med Reviews*, 15, 327-334



Concerns

- Cortisol and the developing brain
- Attachment
- Breastfeeding



Overriding mother's response to baby's cues particularly detrimental



Childrearing is both biological and cultural

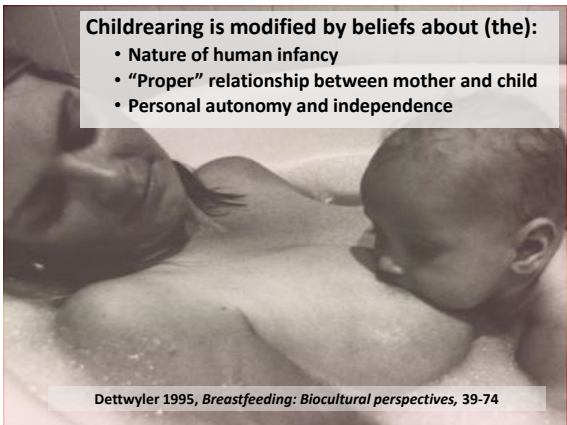
Dettwyler 1995, *Breastfeeding: Biocultural perspectives*, 39-74



Childrearing is modified by beliefs about (the):

- Nature of human infancy
- “Proper” relationship between mother and child
- Personal autonomy and independence

Dettwyler 1995, *Breastfeeding: Biocultural perspectives*, 39-74



“Science as Savior”





- Elimination of “old wives’ tales”
- Male experts and authorities



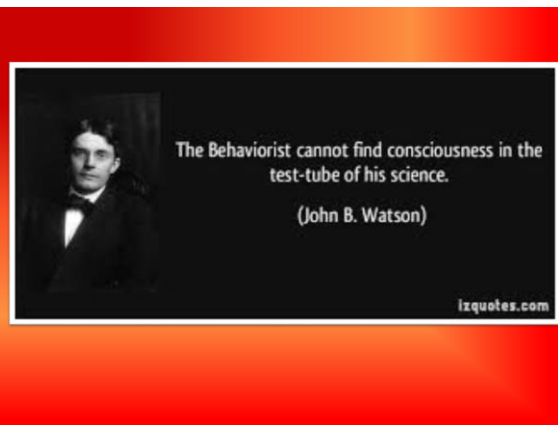
- Approaches developed to “improve on nature”**
- Elimination of “useless organs”
 - “Formula” to replace breast milk



- Medicalization of Childbirth**
- Outlaw midwifery

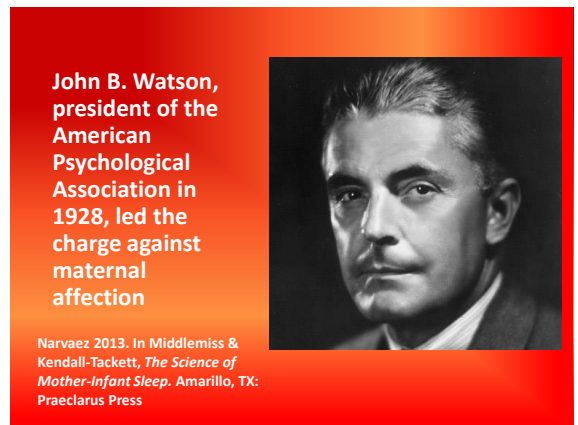


Behaviorism & Scientific Mothering



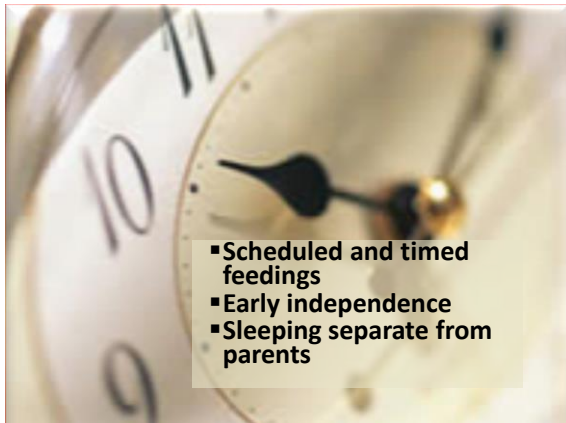
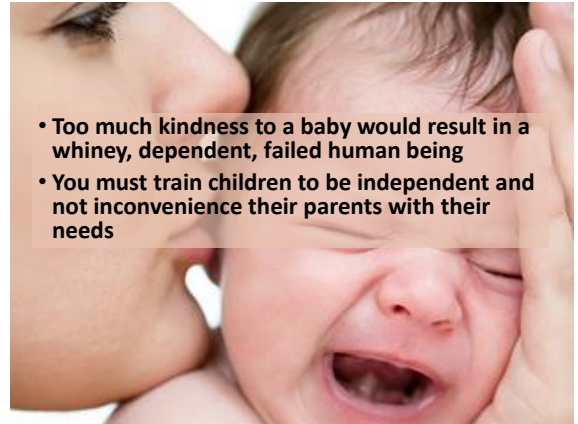
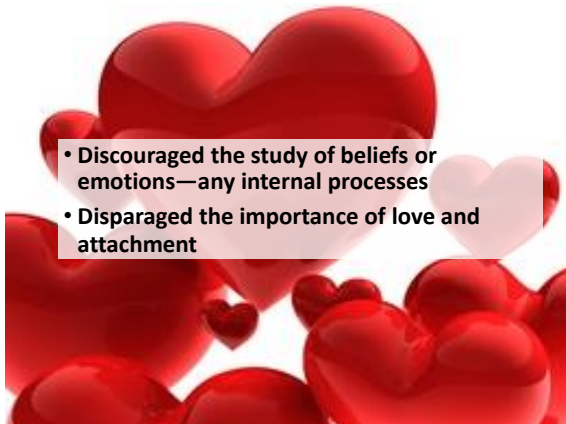
The Behaviorist cannot find consciousness in the test-tube of his science.
(John B. Watson)

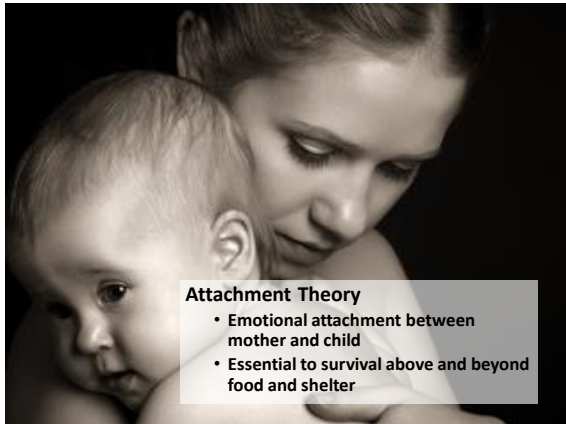
izquotes.com



John B. Watson, president of the American Psychological Association in 1928, led the charge against maternal affection

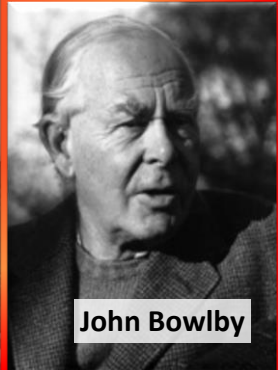
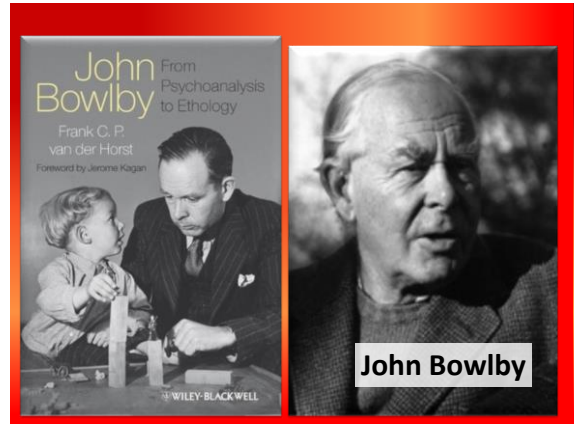
Narvaez 2013. In Middlemiss & Kendall-Tackett, *The Science of Mother-Infant Sleep*. Amarillo, TX: Praeclarus Press





Attachment Theory

- Emotional attachment between mother and child
- Essential to survival above and beyond food and shelter



John Bowlby



Harry Harlow

Contact comfort vs. food



Developed a paradigm to measure attachment

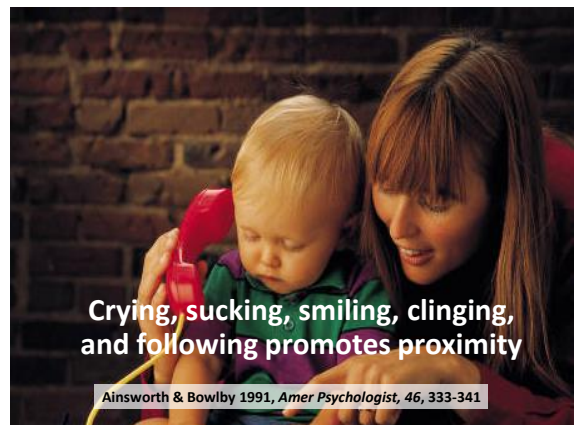


Mary Ainsworth and the Strange Situation



Proximity and maternal/caregiver responsiveness promotes attachment

Ainsworth & Bowlby 1991, *Amer Psychologist*, 46, 333-341



Crying, sucking, smiling, clinging, and following promotes proximity

Ainsworth & Bowlby 1991, *Amer Psychologist*, 46, 333-341



Still-Faced Mother Paradigm



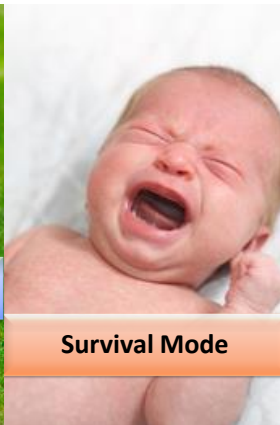


Cortisol

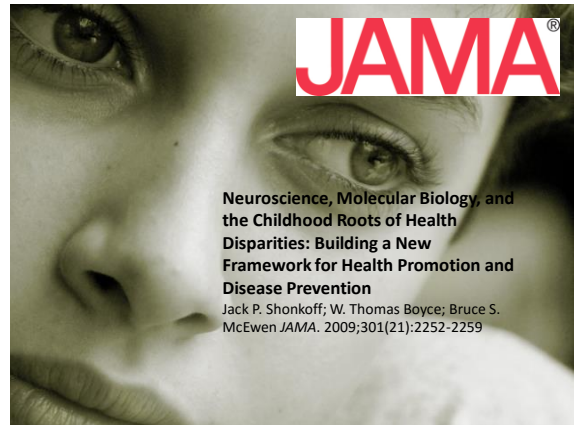
Grant et al. 2009, *Dev Psychobiol*, 51, 625-637



Learning Mode



Survival Mode



Neuroscience, Molecular Biology, and the Childhood Roots of Health Disparities: Building a New Framework for Health Promotion and Disease Prevention

Jack P. Shonkoff; W. Thomas Boyce; Bruce S. McEwen *JAMA*. 2009;301(21):2252-2259

“Adult disease prevention begins with reducing early toxic stress”



According to Behaviorism, ignoring cries will lead to less crying



- The opposite to be true
- Responding leads to less crying and more secure attachments

Ainsworth & Bowlby 1991, *Amer Psychologist*, 46, 333-341



5-day residential program in NZ for infants referred for sleep problems (25 mother-infant dyads)

Program designed to extinguish infant signaling during transition to sleep and encourage self-soothing

Middlemiss et al. 2011, *Early Hum Devel*, doi: 10.1016/j.earlhumdev.2011.08.010



- Day 1 cortisol elevated for both mother and baby
- By Day 3, babies stopped crying, but still had elevated cortisol

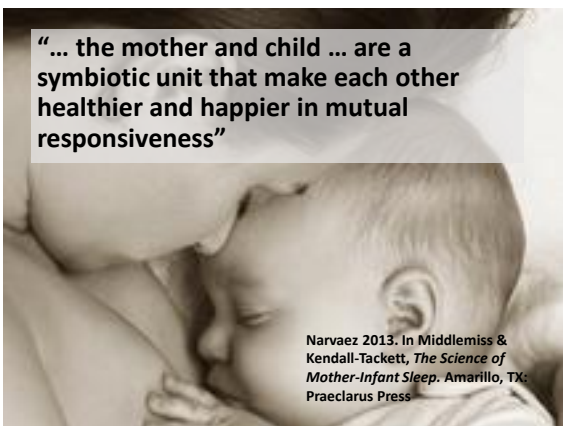
Middlemiss et al. 2011, *Early Hum Devel*, doi: 10.1016/j.earlhumdev.2011.08.010



Mothers' cortisol dropped on day 3; babies' did not

- Asynchrony with baby
- Associated with insecure attachment

Middlemiss et al. 2011, *Early Hum Devel*, doi: 10.1016/j.earlhumdev.2011.08.010



"... the mother and child ... are a symbiotic unit that make each other healthier and happier in mutual responsiveness"

Narvaez 2013. In Middlemiss & Kendall-Tackett, *The Science of Mother-Infant Sleep*. Amarillo, TX: Praeclarus Press



Buss et al. 2012, *Proc Natl Academy Sci*, 109(20), E1312-E1319

Cortisol levels rise when infants experience long and repeated incidents of being ignored when they cry



- Cortisol is toxic to neurons
- Infant brains are highly susceptible to the effects of toxic stress

Narvaez 2013. In Middlemiss & Kendall-Tackett, *The Science of Mother-Infant Sleep*. Amarillo, TX: Praeclarus Press



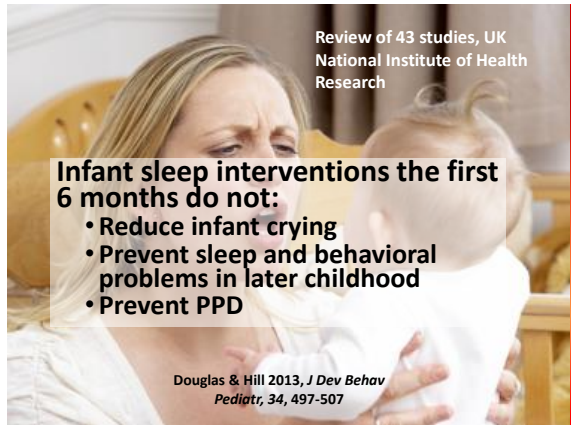
There are many long-term effects of "need-neglect" in babies

Narvaez 2013. In Middlemiss & Kendall-Tackett, *The Science of Mother-Infant Sleep*. Amarillo, TX: Praeclarus Press



- Stress reactivity can become a pattern for life
- Self-regulation is undermined

Narvaez 2013. In Middlemiss & Kendall-Tackett, *The Science of Mother-Infant Sleep*. Amarillo, TX: Praeclarus Press



Review of 43 studies, UK National Institute of Health Research

- Infant sleep interventions the first 6 months do not:**
- Reduce infant crying
 - Prevent sleep and behavioral problems in later childhood
 - Prevent PPD

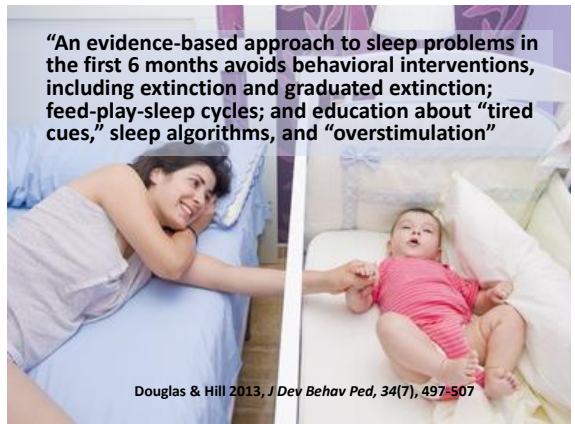
Douglas & Hill 2013, *J Dev Behav Pediatr*, 34, 497-507



Review of 43 studies, UK National Institute of Health Research

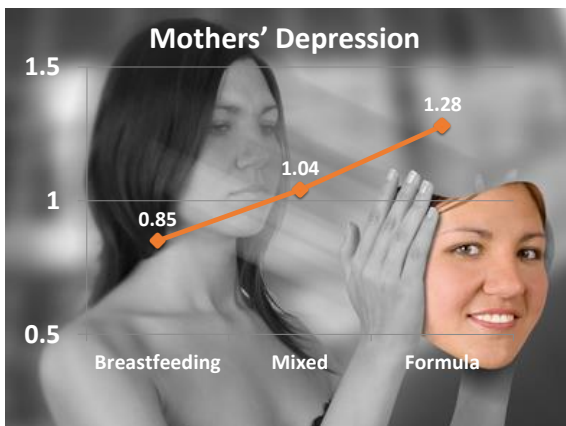
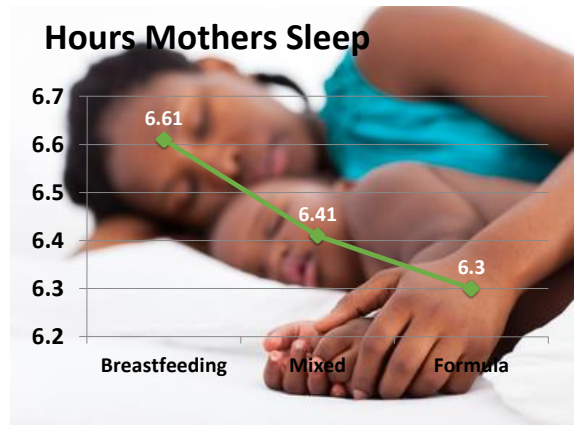
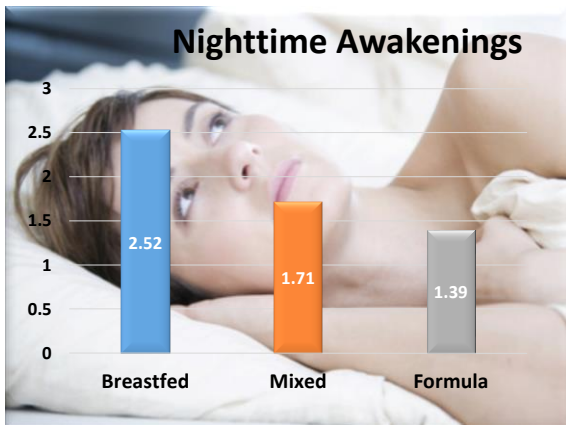
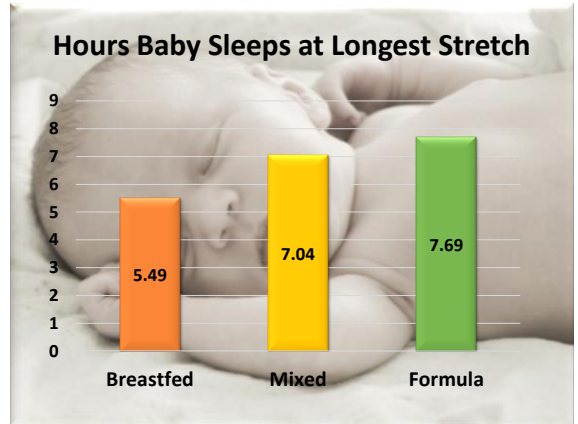
- Unintended consequences include**
- Increased problem crying
 - Premature cessation of breastfeeding
 - Worsened maternal anxiety
 - SIDS

Douglas & Hill 2013, *J Dev Behav Pediatr*, 34, 497-507



"An evidence-based approach to sleep problems in the first 6 months avoids behavioral interventions, including extinction and graduated extinction; feed-play-sleep cycles; and education about "tired cues," sleep algorithms, and "overstimulation"

Douglas & Hill 2013, *J Dev Behav Ped*, 34(7), 497-507





• Intervention

- Graduated extinction
- “Camping out”

• Control

- No specific instruction

Price et al. 2012 *Pediatrics*, 130(4), 643-651

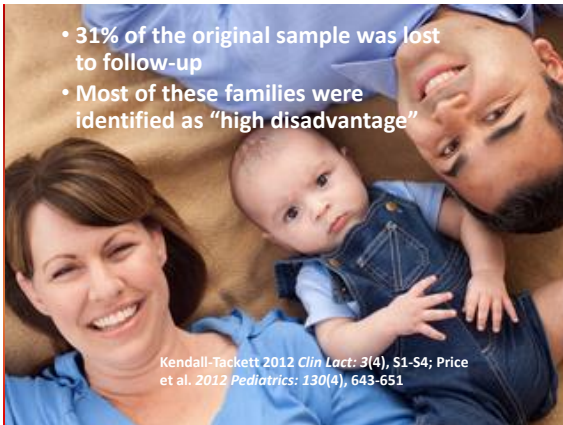


5-year follow-up with 225 families

No adverse effect

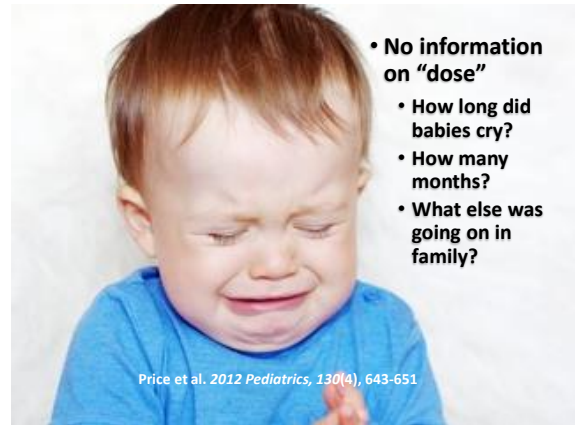
- Parent-child bond
- Mother’s depression
- Child’s level of adjustment
- Child’s cortisol level at 5 years old

Kendall-Tackett 2012 *Clin Lact*: 3(4), S1-S4; Price et al. 2012 *Pediatrics*: 130(4), 643-651



- 31% of the original sample was lost to follow-up
- Most of these families were identified as “high disadvantage”

Kendall-Tackett 2012 *Clin Lact*: 3(4), S1-S4; Price et al. 2012 *Pediatrics*: 130(4), 643-651



- No information on “dose”
 - How long did babies cry?
 - How many months?
 - What else was going on in family?

Price et al. 2012 *Pediatrics*, 130(4), 643-651



- Hawthorne Effect
 - Any intervention made things “better”
 - No adequate control group

Price et al. 2012 *Pediatrics*, 130(4), 643-651



Lack of elevated cortisol at age 5 does NOT prove “no harm”

Price et al. 2012, *Pediatrics*, 130(4), 643-651

Conclusions

- Sleep training offers no long-term benefit
- It is a hold-over from a refuted parenting style
- It will likely interfere with breastfeeding
- Current studies supporting it have a number of methodological weaknesses
- Non-response to infant cries raises cortisol levels, which is toxic to infants' developing brains
- May not be harmful if short-term and in a generally warm and responsive family
- But given its drawbacks, it is not a technique we should recommend

Resources

- Middlemiss & Kendall-Tackett (2013). *The Science of Mother-Infant Sleep*. Praeclarus Press. www.PraeclarusPress.com
- Special issue of *Clinical Lactation* on sleep training (Vol 4-2). www.ClinicalLactation.org
- www.PraeclarusPress.com
- www.UppityScienceChick.com
- www.BreastfeedingMadeSimple.com