

E-BOOK

WHAT DOES SCIENTIFIC RESEARCH SAY ABOUT SLEEP TRAINING?

Whether you are a parent or a Sleep Consultant, this e-book should interest you.

In the maternity field, there is a great deal of conflict of opinion regarding solutions to parents' sleep deprivation during their child's early years.

At CAPPE – Canadian Parental Professional Education, our primary value is respect for parents' choices. Our model of offering support is non-judgmental and informational based on science. We believe that people have the right to raise their children without being judged, and we as a school have the right and duty to provide you with the best information so that you and the family you work with can make the best choices. This quality information to which we refer assumes, in the case of sleep, for example, that it should be based on science and not on opinion. In all our courses, we teach that we should base ourselves on science as a starting point for choices around parenting.

In the text of this e-book, we will talk about the child's crying as well as the results of sleep education/training processes and evaluate what the prominent specialists say.

First, let us consider that not all children need help sleeping better. Some children improve their sleep patterns and acquire a way of sleeping that satisfies their needs and families. Others grow up with interrupted sleep, where they wake up almost every night and are tired. This contributes to family restlessness, which leads to everyone's exhaustion.

Let us address these families as they may be wondering:

- 1) “What else can I do that I am not doing?”
- 2) “Do I need to let my child cry to sleep better?”
- 3) “Will I traumatize my child if I do sleep education/training so he can learn to sleep?”

This e-book is not intended to answer all these questions but rather to facilitate reflection based on selected scientific articles, which can serve as a basis for further reading.

We hope you enjoy this information!

FAVORABLE STUDIES FOR THE PROCESSES OF SLEEP EDUCATION/TRAINING

A study published in *Pediatrics*, in which 225 families participated, evaluated children who had sleep training at seven months and then assessed again five years later. The conclusion showed that parents could safely use sleep training methods to reduce sleep problems faced by children (Price et al., 2012).

Another study (Jodi A. Mindell, PhD^{1,4}; Brett Kuhn, PhD²; Daniel S. Lewin, PhD³; Lisa J. Meltzer, PhD⁴; Avi Sadeh, DSc⁵) reviews the evidence on the effectiveness of behavioral treatments for sleeping and waking up at night in children. It is based on a review of 52 studies assembled by an American Academy of Sleep Medicine task force to develop practice parameters in behavioral treatments to manage bedtime and nighttime waking problems in young children. The results indicate that behavioral therapies produce reliable and lasting changes.

A study done in Australia showed that behavioral interventions by primary health care workers reduced infant sleep problems, improved maternal mental health, and reduced the amount of paid professional help sought for infant sleep problems two and four months after the intervention. Benefits occurred across a broad sociodemographic range and at a lower cost to the health system. In conclusion, this brief intervention was effective, feasible, and acceptable to parents and primary health care professionals. The effects were consistent across measures and over time and came at a lower cost to the healthcare system. The challenge now is to translate this intervention to the general population in a sustainable and viable way.

Source: Hiscock H, Bayer J, Gold L, Hampton A, Ukoumunne OC, Wake M. Improving infant sleep and maternal mental health: a cluster randomized trial. *Arch Dis Child*. 2007 Nov;92(11):952-8. doi: 10.1136/adc.2006.099812. Epub 2006 Dec 7. PMID: 17158146; PMCID: PMC2083609.

See others: Symon et al. (2005) found that sleep improved after sleep education. Adachi et al. (2009) found a statistically significant difference in the percentage of awake babies between sleep training and control groups. Hall et al. (2015) found that the most prolonged sleep period increased by 16.3 minutes between sleep training and control groups at follow-up, but the number of wakes did not change.

Another interesting study compared the frequency, timing, duration, difficulty, and real-world usefulness of three childhood Behavioral Sleep Intervention (BSI) approaches: Unmodified Extinction, Modified Extinction, and Parental Presence, and examined the efficacy and safety of these approaches by comparing infant sleep, parental sleep, daytime sleepiness, depression, and parent-infant bonding between parents who implemented and did not implement these interventions.

Participants were 2090 parents (75% mothers, 79% white/Caucasian) of US infants (49% girls) aged 3 to 18 months ($M = 9.1$, $SD = 4.1$). Parents completed online questionnaires about their infant's sleep, their sleep, daytime sleepiness, depression levels, and parent-infant bonding. Infant sleep was assessed using objective, although exploratory, self-video sonography data obtained in the 14 days prior to the conclusion of the research.

At the conclusion of the study, they saw that 64% of parents reported implementing BSIs. The mean age at the intervention was 5.3 months ($SD = 2.6$). Unmodified and modified extinction were rated significantly more challenging to implement than parental presence but also more useful, shorter, and faster to show improvement. Infant nocturnal sleep was longer and more consolidated in the Unmodified and Modified Extinction groups compared to the Parental Presence and non-BSI groups. No differences were found between the BSI groups in parental sleep, sleepiness, depression, or parent-infant bonding. Kahn M, Barnett N, Gradisar M. Implementation of Behavioral Interventions for Infant Sleep Problems in Real-World Settings. *J Pediatr.* 2022 Nov 12: S0022-3476(22)01000-9. doi: 10.1016/j.jpeds.2022.10.038. Epub ahead of print. PMID: 36375604.

In the above studies, we see variations in results and methods. However, most experts today agree that sleep education processes are stressful for most parents but result in more independence and less fatigue for families in the short term, including babies.

HOWEVER, NOT EVERYONE THINKS LIKE THAT...

The opinions of experts/organizations that do not support sleep training and the studies they rely on to make their views known are varied.

The Australian Association of Infant Mental Health wrote a position paper arguing that it is normal for babies to wake up at night. Those methods involving crying, such as “cry-it-out” or controlled crying, should be avoided. Not caring for the baby at night can negatively affect the child's emotional and psychological health. They are based on attachment, saying that caregivers will always be those the child needs to trust, that their needs will be met, and that one of them is night parenting. This position paper was released in 2002 and revised in 2013.

Sarah Ockwell-Smith cited a study that proves that nurturing and responding to the infant is critical to brain development, citing the study as contrary to sleep training. The study cited the importance of parental response to the child's needs. However, it did not suggest that sleep training should be avoided because, during the process, parents are unresponsive to their children.

Darcia Narvaez, Ph.D., in *Psychology Today*, wrote, “babies grow because they are held and that their bodies are “out of order” when separated from their mother.” She also cites studies (Bremner et al., 1998) that say that neglected babies end up with long-term damage and that secure attachment means responding to the baby when he asks, and that means

comforting the baby at night whenever he cries. According to her, another study shows that prolonged suffering in early life can result in malfunctioning of the vagus nerve, which is related to various disorders such as irritable bowel syndrome (Stam et al., 1997).

Doctor William Sears, a famous American pediatrician and father of 8 children, all raised in a shared bed, warns parents against professionals who call themselves Sleep Consultants, stating that even those who do not suggest the method of controlled crying use methods that force babies to sleep at night when they are not ready yet. He is passionate about bed-sharing, overnight parenting, and responding at night to a baby's needs and wants.

Some sleep experts and researchers accuse Dr. Sears of citing scientific articles that prove sleep training is harmful and damages the bond with parents, when in fact, the cited studies refer to children who were neglected and not raised in a family or studies done with animals or even studies that show that the amount of cortisol in the blood after a stressful situation can be very harmful to the child. The researchers verify that the amount is small and it dissipates soon, therefore not doing the harm to which it refers.

"Science Says: Excessive Crying Can Be Harmful," in which he cites 19 studies going back 34 years. During nervousness, he explains, "adrenaline and the hormone cortisol flood the body, preventing brain cells from making healthy connections with each other, leading to developmental and cognitive problems." Of the four studies he cites to support this, however, two were in baby rats, and one was in non-human primates. What was done with human babies was a German study from 2004, which analyzed 70 babies during the first months of daycare. Unsurprisingly, in babies experiencing an entirely new situation, when the researchers took saliva swabs, they found that these babies' cortisol levels had jumped from 75% to 100%. However, these levels dropped within 30 minutes for nearly half of these children, and for the rest, the levels dropped and soon became standard. While the researchers recognize that excessively high doses of cortisol can damage brain tissue, this was not the case in these cases. "There is no evidence," they wrote, "that small increases within the ranges observed here have adverse consequences, and we cannot conclude that the stress associated with the transition to childcare has positive or negative consequences."

The truth is that opponents of methods like controlled crying, which many call sleep training, do not refer to studies done with children undergoing sleep training. When discussing neglected children who suffer emotional damage and citing a study like this, we are not discussing the same crying in sleep training.

Psychologist Alicia Lieberman of the University of California, San Francisco, whose 1995 study is cited by Dr. Sears, said in an email to TIME magazine, "The argument he makes is not relevant because my work involves infants and children whose parents are in the pathological range of neglect and abuse... not children who live in a home being treated well."

Psychologist Joan Kaufman of Yale University, whose 2001 paper was also cited by Sears, agrees. "Our article," she wrote via email, "is not about routine, brief stressful experiences, but

about abuse and neglect. It is a misquotation of our work to support a non-scientifically justified idea.”

STRESS IN SLEEP EDUCATION/TRAINING PROCESSES

When proposing to teach a child to be more independent in sleep, it is generally necessary for him to be put to bed while still awake. At this moment, parents become concerned about crying and the stress it generates.

- See what the Pediatrics Journal says about the three types of stress:

In the Pediatrics Journal, an interesting study came out to better understand the three types of stress. According to them, the National Scientific Council on the developing child proposed a concept of three types of stress in young children, designating positive, tolerable, and toxic stress.

1) In the case of a situation in which an adult is present to relieve the stressor, helping the baby to deal with the situation, and offering protection, the child will go through the difficulty but will soon return to the initial calm situation resulting in positive stress. Examples of situations like this would be starting at daycare or getting a vaccine. In this case, when they feel protected, the responses to stress are beneficial and can promote the child's growth. These are situations where the child learns to practice healthy responses to adverse situations

2) The tolerable stress could be a situation of death in the family, an illness, a divorce of the parents, or an act of terrorism. When this situation arises, but the child has the support of an adult, the risk that the situation produces excessive activation of stress response systems, which can lead to physiological damage and long-term consequences, is significantly reduced. The role of the adult is fundamental for the stress response to be reduced and to promote a return to the initial state.

3) The third form, toxic stress, can result from intense, frequent, or prolonged activation of the body's stress response systems without adult protection. This type of intense, unrelieved stress can result in anatomical or physiological changes that can cause learning and behavioral impairments in the child's future. This toxic stress in a developing brain can lead to less visible changes but are still permanent, creating a weakened foundation for future learning and behavior.

Which types of stress would a sleep education process fit, in which the child cries for a few nights, being cherished and supported by the parents? We do not have a definitive answer, but it's possible to assume that it would go into positive or, at best, tolerable stress.

CRYING AS A WAY TO EXPRESS EMOTION

Nothing is more difficult for parents than seeing their baby demonstrate that they are uncomfortable or have a need through crying. Biologically, we were made to protect our children, and parents' first instinct is to take the child in their arms to meet the need they may have. However, why do babies cry even when all needs are met?

In the first three months of life, we hear that western babies cry for two hours a day, and this crying can get worse around six weeks of life, being more intense and constant at the beginning of the night. After three months, the scientists found the same amount of crying in rural villages in India and Africa as in London children, even considering that mothers in these regions responded differently to babies' cries.

The most traditional explanations for infant crying in this phase of the first three months are physiological. Colic is seen because of the immaturity of babies' digestive systems, but if we look for evidence, scientists have not found gastrointestinal problems in babies who cry exhaustively. Also, babies with such intense colic and cry usually gain weight and grow.

Other reasons for the baby's excessive crying in the first three months would be allergies to things the mother eats (and which are passed to them through breast milk), and yes, there are indeed cases that make perfect sense. Taking care of the baby's sleep but forgetting that parents also have their pains and needs will be an incomplete job. The family needs to be welcomed and receive the support it needs to balance its emotions. This will revert to the good of the baby because the parents are happier and calmer, and the baby will be calmer and consequently sleep better.

When the baby starts to crawl, she goes further, saying that when she cries, the mother should, if all needs are met, try to soothe her by saying, "I hear you," "I'm close, sonny." However, according to her, she shouldn't always try to eliminate the crying because that would make the baby repress the feelings. Moreover, that's not always good. She also says there are two functions of crying in infancy: communicating needs and releasing stress. When they cry to release stress, a period of relaxation usually follows, and because of this, babies sleep longer after a more intense afternoon.

Researchers claim that a baby's life is not stress-free. Babies are extremely vulnerable and sensitive due to their dependency and inability to meet their needs. They get stressed easily, even with all the support from their parents. Studies show that the hormone cortisol is high during childbirth and postpartum and declines until the baby is six months old. It is not without reason that the first months are so intense, and everything starts to improve after six months.

Dr. Aletha Solter is not adept at sleep training processes, and it is not crying during sleep training that she supports. However, she thinks that parents should embrace the baby's cry in their arms and, at certain times, when they are sure that the baby has no needs such as

hunger, pain, sleep, cold, or heat, parents recognize the cry of stress and allow the babies to release this tension. This will provide a very beneficial moment of relaxation for the baby.

THE BABY'S EMOTIONAL WELL-BEING – TAKING INTO ACCOUNT THE EMOTIONAL NEEDS IN THE SLEEP IMPROVEMENT PROCESS

Before proposing any behavioral approach, a Sleep Consultant must pay attention to the family's emotional well-being. Parents who decide to do sleep education processes also need to reflect on whether the moment they are living is appropriate for behavioral changes in the way they sleep. Suppose there are changes in routine, scheduled trips, illnesses, or problems between the couple. In that case, it is not the best time to encourage more autonomous sleep in the child using sleep education/training processes.

Let's give an example of how concern for the baby's emotional well-being is essential and, often, meeting this need can improve the baby's sleep, showing a real case study for you to evaluate:

CASE STUDY

A 6-month-old baby who always slept well started waking up several times at night. Good health, developing well, taking good naps, doesn't sleep late, knows how to sleep alone without needing to be rocked, and the sleep environment is very good. At first glance, the parents thought that a developmental leap was interfering with sleep. However, five weeks have passed, and the baby keeps waking up at dawn several times, demanding the presence of the mother to cuddle him in her arms.

In the case above, the baby's sleep hygiene seems perfect at first glance. What could be wrong?

A thorough investigation of the family's situation is necessary to find out the origin of the child's sleep problem. The leading sleep specialists agree that if we are going to make any process of changing behavior concerning sleep, the child must be healthy— both the body and the mind. Therefore, if a child has an unmet emotional need, sleep behavior changes, especially if they involve sleep training, are not recommended.

“In the case of the baby above, the mother had been back to work for a few weeks, and the baby was not only missing the mother who stayed with him for the first few months of his life but was trying to adjust to a new person in his life— the babysitter. Because he couldn't have the mother's company during the day, the baby woke up at night to be with her.”

In this case, the mother negotiated with her supervisors and started coming home at lunchtime and leaving an hour earlier to spend more time with the baby. Nothing was done, and with just a few more weeks, the baby got used to the nanny, and the mother continued to come home for lunch even after she couldn't leave work early. She better understands the child's awakenings with this attitude, time, and the mother's patience. In addition to lowering her expectations about perfect sleep as before, the baby gradually improved.

If the baby was waking up more at night to make up for the time he wasn't with his mother during the day, he was doing it because he wasn't meeting his emotional needs. As soon as the mother was able to spend more time with him, the two reached a balance, which the baby managed to get used to over time.

THE PARENTS CRY

Adults can understand when they don't get enough sleep because their babies need them. However, severe, and long-term sleep deprivation is like a disease with serious physical and mental health consequences. Over time, parents also resent and even despair. In the United States, a report by the AAA Foundation for Traffic Safety found that a person who had slept less than five hours the night before had precisely the same risk as a drunk driving person. Another report by the National Highway Traffic Safety Administration reported that in 2017, sleep deprivation was responsible for 91,000 car accidents, in which 50,000 were injured, and 795 people died in these accidents.

The US National Sleep Foundation says that sleep deprivation seriously affects a driver's attention, judgment, decision-making, coordination, alertness, and reaction time when driving a vehicle.

According to Doctor William C. Dement, a physician and sleep expert, parents of newborns typically lose about two hours of sleep a night until the baby is five months old. Parents usually lose an hour of sleep every night until the child is two years old.

Generally, those most affected by sleep deprivation are mothers. Unlike men, a night's sleep for women is affected by having kids at home, according to a preliminary study released at the 69th Annual Meeting of the American Academy of Neurology in Boston, April 22-28, 2017.

That study was a telephone survey of 5,805 people. The researchers assessed race, education, marital status, how many children lived in the house, income, body mass index, exercise, employment, and snoring as factors linked to sleep deprivation. Among 2,908 women aged 45 and younger, the researchers concluded that the only factor associated with getting enough sleep was having children at home, with each child increasing the odds of poor sleep by nearly 50%.

Sleep deprivation can last a few weeks or months for some parents, but it can take years for some families. Some families live with it thinking that it is part of life, but those with a baby have more difficulties and seek help, and in this situation, sometimes, they turn to Sleep Consultants.

It's common for first-time parents to feel guilty about seeking help with their baby's sleep. When we start talking, many parents end up breaking down in tears and revealing how difficult it has been to live with a lack of sleep for so long. The suffering of parents needs to be accepted as well. The family needs to be helped and not just the baby. All crying needs to be welcomed, including that of parents.

Parents' emotional well-being needs to be taken into consideration during a sleep education process.

Taking care of the baby's sleep but forgetting that parents experience sleep deprivation would be an incomplete job. The family needs to be welcomed and receive the support it needs to balance its emotions. This will revert to the good of the baby because the parents are happier and calmer, resulting in the baby being calmer and consequently sleeping better.

We hope the information you received in this e-book can help you reflect on infant sleep, whether you are a maternity professional or a parent. We intended to pave the way for you to make good choices based on science, thus being able to make good decisions for your profession or your family.

Thanks!