



# The Infant – Mother Connection and Implications for their Future Health

## Part 3 – Responsive Parenting

*American College of Pediatricians - June 2018*

**ABSTRACT:** Parenting style has both short-term and long-term effects upon child development. The benefits of authoritative parenting have been documented for many years, and now research demonstrates that responsive parenting, a crucial component of authoritative parenting, may actually help alleviate the effects of toxic stress experienced *in utero* and during childhood. Other documented benefits range from improved language development in toddlers to a decreased risk of metabolic syndrome in young adults. The American College of Pediatricians encourages all health care professionals to consider this research in advising parents with the care of children.

### INTRODUCTION

Responsive parenting, as originally described, refers to a caregiver-child (most often mother-infant) relationship that is marked by prompt attention to the child's needs contingent upon the behavior and developmental state.<sup>1</sup> This responsiveness can be to various situations, such as signs of illness, a verbal or facial expression of need, or an exploratory initiative. Responsiveness is a component of a more comprehensive parenting style, Authoritative parenting, wherein parents are aware of and responsive to their child's emotional and physical needs, and yet willing to consistently apply firm loving correction when needed.<sup>2</sup> Responsive parents are "in tune" with their children. They understand individual developmental and temperamental differences, respond quickly and appropriately to their children, and provide encouragement and support during times of distress. This provides a secure base from which children can explore their environment and learn, and also mitigates the negative effects of adverse childhood experiences, including toxic stress experienced in utero.

The World Health Organization identified responsive parenting as a key feature of healthy caregiving, noting three components: 1. Observation in which the parent notices the child's attempts to gain attention via vocalizations and movement. 2. Interpretation in which the parent correctly interprets the signals of the child. 3. Action in which the parent responds consistently and promptly to meet the child's needs, while taking into account the child's development.<sup>3</sup> Responsive parenting has also been defined as "Warm acceptance of infants' needs and interests with responses that are prompt and contingent on infants' signals."<sup>4</sup>

The World Health Organization reviewed over 50 articles in the English scientific literature on responsive parenting and found overwhelming evidence that responsive parenting benefits children's language, cognitive and psychosocial development across the lifespan. More importantly, the research showed that coaching at risk families in responsive parenting positively affected children's long-term outcome. These results held true even among developing countries.<sup>3</sup> This paper reviews some of the research demonstrating the benefits of responsive parenting across a child's lifespan with specific attention to the evidence that responsive parenting can help mitigate the consequences of adverse childhood events and toxic stress.

### INFANTS

Infants who perceive their parents to be connected and responsive to them also feel more secure and are able to trust their parents, which will become the basis for learning and development.

### ***Language Development***

In one study, researchers followed 125 mothers and children from pregnancy through 17 months postnatal age. At 17 weeks gestation, amniotic fluid was evaluated for levels of cortisol as an indicator of maternal / fetal stress. Infants were then evaluated with the Bayley Scales of Infant Development at 17 months of age as well as with the Ainsworth Strange Situation assessment. Children whose mothers experienced higher stress during pregnancy were more likely to have trouble paying attention and had lower language scores. However, this association was only true for those children who had an insecure attachment to their mothers. *For children whose mothers had experienced stress during pregnancy but who demonstrated responsive parenting, there was no relationship between stress and future impaired language development.*<sup>5</sup>

A 2001 study of maternal responsiveness as measured during videotaped interactions of mother-infant free play showed that language development was enhanced by maternal responsiveness.<sup>6</sup>

Even deaf children who receive a cochlear implant have better language outcomes when their mothers are responsive or sensitive. Researchers evaluated maternal sensitivity in videotaped interactions between 188 mothers and their children who had severe hearing loss and were 5 months to 5 years of age. After receiving cochlear implants, the children whose parents displayed high responsiveness demonstrated a greater increase in language acquisition.<sup>7</sup>

Infants actually modify the phonological structure of their babbling to mirror their mother's communication style when mothers respond in a contingent manner, and respond more when language is combined with appropriate physical touch and body language.<sup>8</sup>

### ***Problem-solving and cognition***

Another study showed "increased maternal responsiveness facilitated greater growth in target infants' social, emotional, communication, and cognitive competence."<sup>4</sup> This study reveals that mothers who know their infants and respond appropriately to them are actually enhancing their infants' brain development.

### ***Emotional Regulation***

Even children's temperaments and ability to self-regulate may be impacted by responsive parenting. Mothers who experienced depression but were responsive to their infants' needs appeared to more effectively teach their infants how to regulate their emotions than did depressed mothers who were not as responsive to their infants.<sup>9</sup>

### ***Sleep***

Infants whose mothers received "Responsive Parenting" training that included developmentally appropriate information on sleep were more likely to have earlier bedtimes and be able to self-soothe to sleep at 16 and 40 weeks of age.<sup>10</sup>

### ***Role of fathers***

An important study demonstrated that fathers play a significant role in the family, especially if mothers are experiencing depression. Researchers followed 149 families (46 with chronically depressed mothers and 103 controls with non-depressed mothers) from the time of the infant's birth through 6 years of age, observing mother-child, father-child and family interactions. When fathers demonstrated increased child engagement and high sensitivity, negative effects of maternal depression on family cohesiveness were ameliorated.<sup>11</sup>

## **TODDLERS and PRESCHOOLERS**

One study looked at the effects of both father-child and mother-child interactions on subsequent language and cognitive development. One hundred eleven children were evaluated at 24 months and 36 months. Supportive parenting was significantly related to the child's subsequent development.<sup>12</sup>

Researchers in England followed over 800 first time mothers from pregnancy until their children were 3.5 years. The mothers were assessed for anxiety at 20 weeks gestation and for their stroking behaviors on their infants at 9 weeks of age. When the children were 3.5 years of age they were evaluated using the Preschool Child Behavior Checklist. Children whose mothers demonstrated more frequent infant stroking had less negative behaviors, even if their mothers had experienced anxiety during pregnancy.<sup>13</sup>

In another study, preschool children (aged 3 – 6 years) were followed for five to ten years and had MRI brain scans at early adolescence. *Poverty adversely affected brain growth, but these effects were mitigated by positive caregiving.*<sup>14</sup>

Similarly, when 163 individuals were followed from birth through age 32 years, stress in early childhood and adolescence predicted adverse health outcomes in adults. *“Higher maternal sensitivity, however, buffered these deleterious effects.”*<sup>15</sup>

## **SCHOOL AGE CHILDREN**

### ***Feeding practices***

Studies have evaluated the relationship between parenting styles and childhood obesity. A systematic research review in 2015 found, “Uninvolved, indulgent or highly protective parenting was associated with higher child BMI, whereas authoritative parenting was associated with a healthy BMI. Similarly for feeding styles, indulgent feeding was consistently associated with risk of obesity within cross-sectional studies.” In this study, authoritative parenting is defined as parents who use supportive and nurturing behaviors and are “responsive to child's needs”.<sup>16</sup>

A study of 812 Latino parents and children in kindergarten through second grade demonstrated that a positive parenting style can even help reduce the risk that children will become overweight. “Parental use of positive reinforcement and monitoring was associated with children's healthy eating and exercise.”<sup>17</sup>

Data from the Study of Early Child Care and Youth Development that included data from families living in nine states whose children were born in 1991 was analyzed. Observers had assessed maternal sensitivity at three times – when children were 15, 24, and 36 months of age. Children who had the poorest maternal-child relationships were almost 2 ½ times more likely to be obese as adolescents than those children who had the best relationships.<sup>18</sup>

### ***Children with chronic disease – Fragile X***

55 children with Fragile X Syndrome were observed in their homes and maternal responsivity was assessed with a standardized tool. Those children whose mothers demonstrated sustained maternal responsivity had better long term outcomes especially in the area of communication. “Sustained high levels of maternal responsivity minimized the amount of decline observed in the communication, socialization, and daily living domains” for those children who showed declines over time.<sup>19</sup>

## **ADOLESCENTS**

Parenting research consistently demonstrates the benefits of positive reinforcement, especially when compared with negative, critical discipline. Recently a study evaluated the effects of positive experiences on brain development in 188 adolescents followed for four years. The authors demonstrated physical structural changes

in adolescent brains they attributed to positive parenting and speculated that these changes may be protective against development of depression.<sup>20</sup>

A study of adolescents with Type 1 Diabetes showed that adolescents whose mothers used positive reinforcement were more likely to have better psychosocial adjustment (with fewer depressive symptoms) and even better control of their blood glucose levels.<sup>21</sup>

Beneficial effects of responsive and nurturing parenting extend into adulthood. Researchers evaluated 1205 middle-aged Americans who had been raised in a low socioeconomic environment and were high risk for developing metabolic syndrome. Upward social mobility did not appear to protect the adults from metabolic syndrome, but “high levels of maternal nurturance offset the metabolic consequences of childhood disadvantage.”<sup>22</sup>

## **TELOMERE LENGTH AND EFFECTS OF RESPONSIVE PARENTING**

As noted in Part II, telomeres, the protective caps at the ends of chromosomes, normally shorten with age, but also with toxic stress. Thus, shortened telomere length has been associated with a decreased life span. However, supportive, responsive parenting can moderate the biological effects of toxic stress. One longitudinal study evaluated telomere length in 89 children, 51 of whom were considered to be “high risk” because of parental involvement in the Child Welfare System. The researchers “found that high-risk children had significantly shorter telomeres than low-risk children, controlling for household income, birth weight, gender, and minority status. Further, parental responsiveness moderated the association between risk and telomere length, with more responsive parenting associated with longer telomeres only among high-risk children”<sup>23</sup>

In another study, 216 African American high school youths who were experiencing high levels of non-supportive parenting and demonstrating increased levels of anger were followed prospectively. One group of adolescents and their families received a family-based group intervention which included helping parents provide emotional support for their adolescents, while the other half did not receive this intervention. At the onset of the study and five years later, the telomere lengths were measured in all participants. Participants who had received the family intervention did not show the same degree of telomere shortening as did the control group, indicating that “developmentally appropriate interventions designed to enhance supportive parenting practices can buffer the effects of receipt of non-supportive parenting on TL (telomere length).”<sup>24</sup>

This study indicates that even later in life, in this case late adolescence, changes in parenting style can occur and may ameliorate the biological changes associated with toxic stress.

## **CONCLUSION**

All children benefit from responsive, supportive parenting, especially those children who have experienced adverse childhood events, including toxic stress in utero. As pediatricians and other health care professionals screen children and families for adverse childhood events, it will be crucial to provide families with tools that can help ameliorate some of the known sequelae of toxic stress. In addition, parents who themselves have suffered toxic stress will likely benefit from counseling so they can in turn parent their children in a responsive manner. The American College of Pediatricians encourages all health care professionals to consider this research when advising parents with the care of children, especially during infancy.

**Primary Author: Jane Anderson, MD, FCP  
May 2018**

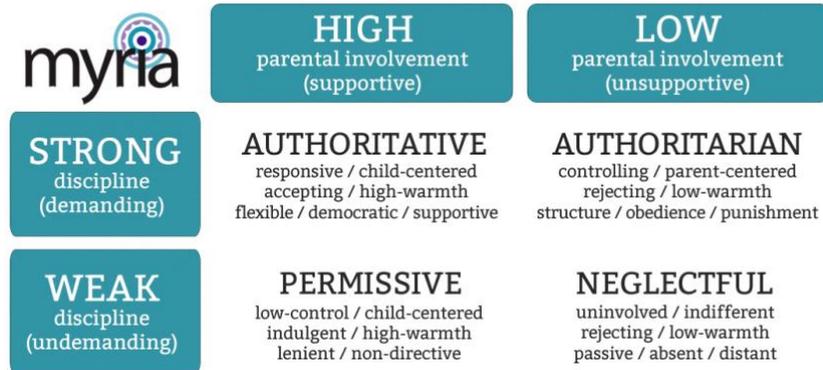
*The American College of Pediatricians is a national association of licensed physicians and healthcare professionals who specialize in the care of infants, children, and adolescents. The mission of the College is to enable all children to reach their optimal physical and emotional health and well-being.*

## REFERENCES

1. Bornstein MH, Tamis-LeMonda CS. Maternal responsiveness and infant mental abilities: Specific predictive relations. *Infant Behavior and Development*. Volume 20, Issue 3, July–September 1997, Pp 283-296.
2. Baumrind D, Larzelere R, Owens E. Effects of Preschool Parents' Power Assertive Patterns and Practices on Adolescent Development. *Parenting*. 2010. 10:3, 157-201, DOI: [10.1080/15295190903290790](https://doi.org/10.1080/15295190903290790)
3. Eshel N, Daelmans B, de Mello AC, Martines J. Responsive parenting: interventions and outcomes. *Bull World Health Organ*. 2006; 84(12):991 – 998.
4. Landry SH, Smith KE, Swank PR. Responsive parenting: establishing early foundations for social, communication, and independent problem-solving skills. *Dev Psychol*. 2006; 42(4):627-42.
5. Bergman K, Sarkar P, Glover V, O’Conner TG. Maternal prenatal cortisol and infant cognitive development; moderation by infant-mother attachment. *Biological Psychiatry*. 2010; 67(11) :1026-1032.
6. Tamis-LeMonda CS, Bornstein MH, Baumwell L. Maternal responsiveness and children’s achievement of language milestones. *Child Dev*. 2001; 72(3):748-67.
7. Quittner AL, Cruz I, Barker DH, Tobey E, Eisenberg LS, Niparko JK. Effects of maternal sensitivity and cognitive and linguistic stimulation on cochlear implant users’ language development over four years. *J of Pediatrics*. 2018; 162(2):343.
8. Goldstein MH, Schwade JA, Social feedback to infants’ babbling facilitates rapid phonological learning, *Psychol Sci* 2008; 19(5):515-523.
9. Parade SH, Armstrong LM, Dickstein S, Seifer R. Family context moderates the association of maternal postpartum depression and stability of infant temperament. *Child Dev* 2017; DOI: 10.1111/cdev.12895
10. Paul IM, Savage JS, Anzman-Frasca S, Marini ME, Mindell JA, Birch LL. INSIGHT Responsive Parenting Intervention and Infant Sleep. *Pediatrics* 2016; 136(1). pii; e20160762. Doi: 10.1542/peds.2016-0762.
11. Vakrat A, Apter-Levy Y, Feldman R. Fathering moderates the effects of maternal depression on the family process. *Developmental and Psychopathology*. 2018; 30(1):27-38.
12. Tamis-LeMonda CS, Shannon JD, Cabrera NJ, Lamb ME. Fathers and Mothers at play with their 2- and 3 – year olds: contributions to language and cognitive development. *Child Dev*. 2004; 75(6):1806-20.
13. Pickles A, Sharp H, Hellier J, Hill J. Prenatal anxiety, maternal stroking in infancy, and symptoms of emotional and behavioral disorders at 3.5 years. *Eur Child Adolesc Psychiatry*. 2017; 26(3):325-334

14. Luby J, Belden A, Botteron K, et al. The effects of poverty on childhood brain development: the mediating effect of caregiving and stressful life events. *JAMA Pediatrics*. 2013; 167(12):1135-42.
15. Farrell AK, Simpson JA, Carlson EA, Englund MM, Sung S. The impact of stress at different life stages on physical health and the buffering effects of maternal sensitivity. *Health Psychol*. 2017; 36(1):35-44.
16. Shloim N, Edelson LR, Martin N, Hetherington MM. Parenting styles, feeding styles, feeding practices, and weight status in 4 – 12 year-old children: a systematic review of the literature. *Front Psychol*. 2015; 14;6:1849.
17. Arredondo EM, Elder JP, Ayala GX, Campbell N, Baquero B, Duerksen S. Is parenting style related to children’s healthy eating and physical activity in Latino families? *Health Educ Res*. 2006; 21(6):862-871.
18. Anderson SE, Gooze RA, Lemeshow S, Whitaker RC. Quality of early maternal-child relationship and risk of adolescent obesity. *Pediatrics* 2012; 129(1):132-140.
19. Warren SF, Brady N, Fleming KK, Hahn LJ. The longitudinal effects of parenting on adaptive behavior in children with Fragile X Syndrome. *J of Autism Dev Disord*. 2017; 47(3):768-784.
20. Whittle S, Simmon JG, Dennison M, et al. Positive parenting predicts the development of adolescent brain structure: A longitudinal study. *Dev Cogn Neurosci*. 2014; 8:7-17
21. Jaser SS, Grey M. A pilot study of observed parenting and adjustment in adolescents with type 1 diabetes and their mothers. *J Pediatr Psychol*. 2010; 35(7):738-747.
22. Miller GE, Lachman ME, Chen E, Grumewald TL, Karlamangla AS, Seeman TE. Pathways to resilience: maternal nurturance as a buffer against the effects of childhood poverty on metabolic syndrome at midlife. *Psychol Sci*. 2011; 22(12):1591-1599.
23. Asok A, Bernard K, Roth TL, Rosen JB, Dozier M. Parental responsiveness moderates the association between early-life stress and reduced telomere length. *Dev Psychopathol*. 2013; 25(3):577-585.
24. Brody GH, Yu T, Beach SR, Philibert RA. Prevention effects ameliorate the prospective association between nonsupportive parenting and diminished telomere length. *Prev Sci*. 2015; 16(2): 171-180

### The 4 primary parenting styles



<https://coloringpagewiki.com/m/child-rearing-styles.asp>