

## Chapter 7

# The Role of Interpersonal Neurobiology, Influence of Birth Trauma, and Colic in Attachment Failure

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### ABSTRACT

*This chapter takes an in-depth look at one mother's journey to understand the origins and contributing factors leading to attachment failure. This de-identified case study explores interpersonal neurobiology related to colic, birth trauma, potential epigenetic elements, pro-attachment strategies, and effects on bonding and attachment. Current and seminal research is applied in this case study of attachment failure. A summary of limbic resonance, regulation, and revision are presented; these concepts are applied to love and attraction in adulthood, learning disability, substance use, and culture. This chapter features a longitudinal view of early influences of childcare, single parenting, and subsequent blended family structure on the adverse outcome of attachment failure. Finally, it explores the relevance to psychotherapy, and to humanistic psychology, as well. This case study is uniquely significant in that it offers a three-decade longitudinal view of contributing factors to subsequent attachment failure. Recommendations for practice and future research are provided.*

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## **PART I**

### **Overview of Limbic Resonance, Regulation, and Revision**

The classic text, *A General Theory of Love*, by Lewis et al. (2000) introduces the concepts of attachment fundamental to this case study.

#### **Limbic Resonance**

The limbic system is found within the brain of all mammalian species. Reptiles, lacking these limbic structures, do not demonstrate loving care for their issue but are instead predisposed to eat their offspring. The biological adaptation of the development of the limbic systems in mammals gives rise to the instinctual care of their young (Lewis et al., 2000).

Limbic resonance, a biological symbiotic alignment between the brains of mother and child, is observable in animal studies, and applies to humans, also. Primates reared without an attachment figure demonstrate unrelenting aggression, but those raised with their simian parent show a calming of aggression; parental socialization also enables the young monkeys to observe and participate in social interactions (Lewis et al., 2000). The sad Harlow studies (1958) demonstrated the need for mammals to be raised with a loving connection to an adult. Obtaining mere sustenance from a wire-framed “mother substitute” left the monkeys with limbic deficits, absent the limbic resonance they so craved (Lewis et al., 2000). This concept will be explored further subsequently in this chapter.

#### **Attunement**

Limbic resonance leads to bonding and maternal attunement to the child’s needs. In humans, symbiotic attachment of infant to mother and bonding of mother to baby serve as a template for the child’s socio-emotional development.

#### **Limbic Regulation**

Limbic regulation occurs when the proximity of mammalian mothers regulates biological and behavioral systems in their offspring (Lewis et al., 2000). Serving as a “hidden regulator” (Norton, 2020), the mother is a breathing prototype for the neonate, regardless of species. Biological and behavioral systems in rodent progeny become dysregulated when the mother’s physical presence is removed. “The mother’s regulatory effects ... can only be appreciated in her absence” (Norton, 2020, p. 2).

Maternal presence provides a somatosensory source of stimulation—temperature, position, vibration, movement, touch, pain, pressure (Norton, 2020)—as well as a biological template for heart rate, respiration, and emotional regulation (Lewis et al., 2000). Moreover, maternal proximity confers upon the mammalian infant the benefits of healthy sleep patterns, and is thought to reduce infant crying and colic (Norton, 2020).

Proximity is imperative for emotional homeorhesis in the infant, and rodent pups separated from their mothers exhibit reduced heart rate, temperature, and respiration, yet prolonged separation adversely affects the development of the pup’s health and stress response (Norton, 2020). In humans, those raised without the limbic resonance provided by a loving and attuned parent figure grow to adulthood lacking

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