

flow and oxygenation because of placental and fetal vasoconstriction. Researchers have concluded that variables such as the mother's lack of prenatal care; poor nutrition; and use of tobacco, alcohol, and other drugs during pregnancy compound the effects of cocaine exposure in the infant ([Bandstra, Morrow, Mansoor, et al, 2010](#)).

Infants may appear normal or may show neurologic problems at birth that may continue during the neonatal period. In much of the research literature, these findings were transient, and there has been variable evidence demonstrating permanent sequelae. Either of two types of behavior may emerge as a result of cocaine's effects on fetal development: neurobehavioral depression or excitability. The behaviors of a depressed infant include lethargy, hypotonia, a weak cry, and difficulty in arousing. The behaviors of an excitable neonate may include a high-pitched cry, hypertonicity, jitteriness, irritability, and an inability to be consoled ([Bandstra, Morrow, Mansoor, et al, 2010](#)).

Sequelae of prenatal cocaine exposure include preterm birth, a smaller head circumference, decreased birth length, and decreased weight. The areas of the brain that appear to be particularly vulnerable to the effects of prenatal cocaine exposure include those that regulate attention and executive functioning. Early studies of cocaine exposure identified an increased incidence of gastroschisis, genitourinary anomalies, and periventricular and intraventricular hemorrhage; however, meta-analyses have not confirmed these complications ([Bandstra, Morrow, Mansoor, et al, 2010](#)). Heavy cocaine exposure has been shown to result in elevated heart rate after birth ([Meyer and Zhang, 2009](#)).

Some studies found that long-term sequelae for newborns exposed to cocaine include lower language, motor, and cognitive scores and an increased risk for learning disabilities; however, one study revealed no significant differences in the total or verbal IQ scores but did note an increased risk of specific cognitive impairments ([Bandstra and Accornero, 2011](#)). In a study that controlled for other prenatal drug exposures, a dose-related effect of cocaine was found on expressive, receptive, and total language scores at 3, 5, and 12 years old ([Bandstra, Morrow, Accornero, et al, 2011](#)). Other investigators have found that the subtle effects of cocaine on school performance are moderated by the child's