



INFANT SLEEP POSITIONING

Infants in child care should be placed on their backs to sleep, in furniture manufactured for sale in the United States as infant sleep equipment.¹ Studies show that infants sleeping in a semi-seated position, such as in a car seat, swing, bouncy seat, etc., can have their blood oxygen level drop to such a low level that brain cell damage occurs.^{2,3,4,5,6} Positional asphyxia is a type of suffocation that occurs when the body is put in a position that restricts airflow. In infants, positional asphyxia can occur when they are placed in a semi-seated position. Positional asphyxia can occur due to the prominence of the occiput (back of the head), as well as the overall lack of neck muscle strength, which forces the head to slouch forward pushing the infant's chin down against his/her chest.⁶ This body position causes the windpipe to narrow or close.

The invention of the infant car seat carrier changed the care methods for infants in the United States. Parents and caregivers have adapted this vehicle passenger restraint device into positioning devices for feeding, sleeping, play and as an infant holding device. In addition, manufacturers have created and adapted other equipment such as restaurant high chairs, shopping carts, stroller bases or "travel systems" to accommodate and further propagate the use of infant car seats for purposes other than protecting the infant during a motor vehicle crash. However, the fact remains that infant car seats are passenger restraint devices designed and intended to absorb and distribute crash impact forces over the infant's body while keeping the infant secure in the vehicle during a motor vehicle crash. Passenger restraint devices are essential protection for infants traveling in motor vehicles. Reviews of infant deaths in passenger restraint devices, however, show that the majority of infant deaths in car seats are not occurring when the infant is being transported in a vehicle, but rather when the infant is being cared for indoors.^{7,8}

In addition, the federal Consumer Product Safety Commission (CPSC) has issued safety alerts regarding the strangulation hazard for infants and young children in strollers, bouncy seats, and similar equipment when the infant gets caught in the straps or slips into positions that trap him/her against hard parts of these devices.^{9,10,11} The CPSC has reports of infant deaths when seating devices have overturned. Infants wiggle, even during sleep, and when left unattended, can overturn a seating device. When the seat turns over, the infant can become pinned under the seat and suffocate. A common misperception among health professionals as well as many caregivers is that sitting up will help reduce an infant's reflux (spitting up). According to Dr. Susan Aronson with the Pennsylvania Chapter of the American Academy of Pediatrics, there is a lack of evidence to support this widely held belief, and a recent study actually showed that sitting in an infant seat is worse for reflux than lying flat.¹²

The bottom line is that car seats, swings, infant seats and similar devices should not be used as sleep equipment. Parents and child care providers should transfer infants who fall asleep in one of these devices to a crib, except when the infant is being transported in a vehicle. In addition, the use of swings and other types of upright seating devices for sleep is strongly discouraged.⁶ Infants can suffer serious harm from sleeping in equipment not designed for sleeping. Infants who are awake should be placed in a safe play area on the floor. Infants need this tummy time to develop their muscles. Direct supervision is always required no matter what equipment is used.

Infant Sleep Considerations for Child Care Businesses

What do beanbag chairs, high chairs, bouncy seats, strollers, infant swings, car seats, and infant carriers have in common? Each of these items was found to be implicated in the death of a child under one year of age.

A male, 2 months, was found unresponsive in an over-sized **beanbag chair**. He had been fed a bottle, and propped up in a corner of the chair with an afghan and a blanket tucked around him. The cause of death was positional asphyxia.¹³

A male, 9 months, was left unattended in a **stroller** for a short time. The victim was found with his head wedged between the front end of the seat and the armrest. The cause of death was mechanical asphyxia.

A female, 9 months, was left alone in a **high chair** for a few minutes by a caregiver. The caregiver returned to find the victim hanging by her neck from the strap of the high chair. The cause of death was asphyxia.

A 9 month-old male was placed to sleep in a double **stroller** by his grandmother. The victim was found dead with his head wedged between the seat and the knee bar with a blanket over his head. The cause of death was positional asphyxiation.

A female, 3 months, was dropped off at her babysitter's home. The infant was fed and then placed in an **infant car seat** to nap. The babysitter later found the infant covered by a blanket next to her head. The baby was not breathing, and the babysitter tried to resuscitate her until police arrived and took over. The cause of death was asphyxia-suffocation.

A male, 11 months, was left unattended in his **high chair**. The seat safety straps had been cut from the chair. The victim slipped out of the chair between the seat and the side arm. The victim's head became wedged between the seat and the bottom of the food tray. The cause of death was asphyxiation.

A female, 24 weeks, was strapped in an **infant swing** to fall asleep. The child slid down in the seat and was found with the strap around her neck. The cause of death was asphyxia due to ligature hanging.

A male, 3 months, was placed in a **bouncy seat**. Some time later, the child was found unresponsive with his face down and his head hanging over the top of the bouncy seat. The cause of death was positional asphyxia.

A female, 8 months, was secured in an **infant swing** by a shoulder harness and crotch strap and then left unattended for 20 minutes. The victim was taken to the hospital, but died soon after arrival. The cause of death was asphyxia/strangulation.

A male, 5 months, was dropped off at child care in an **infant carrier**. The carrier was placed in a playpen. The child care provider later found the carrier tipped over and the child's face against the playpen floor. The cause of death was positional asphyxia.

A 5 day-old male was placed in an **infant swing** by his mother, but was not buckled into the swing. The mother fell asleep. When she awoke, she found the victim's neck entrapped in the swing's leg opening. The cause of death was asphyxia-suffocation.

A female, 7 months, was placed on her side in a **stroller** to sleep by her mother. About an hour later, the mother found the child, unresponsive and facedown, in the stroller seat. Her head was stuck between the stroller and its front tray. The mother's friends attempted resuscitation until emergency personnel arrived and took the child to the hospital. The child died four days later. The cause of death was mechanical asphyxia.

A female, 9 months, was left unattended in an **infant car seat** at a daycare facility. She was found entangled in the car seat harness. The cause of death was asphyxiation.

¹ Caring for Our Children National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care. Second Edition (2002). Standard 5.074.

² American Academy of Pediatrics, Committee on Injury and Poison Prevention and Committee on Fetus and Newborn. Safe Transportation of Premature and Low Birth Weight Infants. *Pediatrics* 1996; 97:758-760

³ Ojadi VC, Petrova A, Mehta R, Hegyi T. Risk of Cardio-respiratory Abnormalities in preterm Infants placed in car seats: a cross-sectional study. *BMC Pediatrics* 2005;5:28

⁴ Merchant JR, Worwa C, Porter S, Coleman JM, deRegnier RA. Respiratory instability of term and near-term healthy newborn infants in car safety seats. *Pediatrics* 2001;108:647-652

⁵ Bass JL, Bull M. Oxygen Desaturation in Term Infants in Car Safety Seats. *Pediatrics* 2002;110:401-402

⁶ Kinane et al. (2005). Comparison of Respiratory Physiologic Features When Infants are Placed in Car Safety Seats or Car Beds. *Pediatrics* 2005;118:522-527.

⁷ Cote A, Bairam A, Deschenes M, Hatzakis G. Sudden Infant Deaths in Sitting Devices. *Arch. Dis Child.* 2007;10:1136

⁸ Tonkin SL, Vogel SA, Bennet L, Gunn AJ. Apparently life threatening events in infant car safety seats. *BMJ* 2006;333:1205-1206.

⁹ Consumer Product Safety Alert: Infants Can Die When Their Heads Become Trapped in Strollers. CPSC Document 5096.

¹⁰ Consumer Product Safety Alert: Baby Products Safety Alert. CPSC Document 250

¹¹ Consumer Product Safety Alert: Safety Tips for Infant Carrier Seats. CPSC Document 5048

¹² Aronson SA. Car Seats and Swings Are Not Safe for Sleeping. *Health Link Online*: Apr-May 2007;18:2.

¹³ Consumer Product Safety Reviews, U.S. Consumer Product Safety Commission. 1997-2008.