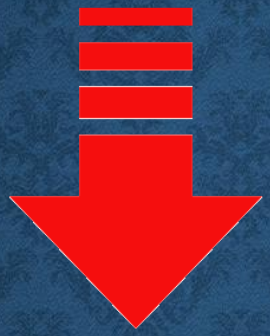
RISK FACTORS FOR SIDS.

BY

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DEFINITION



SIDS is defined as the sudden death of an infant younger than one year of age, which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history.

RISK FACTORS :-

Numerous risk factors for SIDS have been identified in observational and case control studies. Those that are consistently identified as independent risk factors include :

- **Maternal factors:**
  - Young maternal age.
  - Maternal smoking during pregnancy.
  - Late or no prenatal care.
- **Infant and environmental factors:**
  - Preterm birth and/or low birth weight.
  - Prone sleeping position.
  - Sleeping on a soft surface and/or with bedding accessories such as loose blankets and pillows.
  - Bed-sharing (eg, sleeping in parents' bed).
  - Overheating.



Maternal smoking



- It is an important modifiable risk factor for SIDS, and SIDS rates increase with the amount smoked.
- The strongest effect is from smoking during pregnancy, but exposure of an infant to secondhand smoke is an additional independent risk factor.
- Smoking prevention/intervention programs have the potential to substantially lower SIDS rates.

Several studies have shown abnormal cardiovascular responses to stimuli (eg, head-up tilt, hypoxemia, or CO2 exposure) and impaired arousal to stimuli in infants born to mothers who smoked during pregnancy, suggesting a possible mechanism for this association.




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Maternal drug abuse

Maternal drug abuse and all its associated phenomena are also associated with an excessive number of SIDS deaths.

In one report, a fivefold increase in SIDS risk was reported for infants of substance-abusing mothers.

It is not known if this association is related primarily to the biologic effect of drugs in utero, an increased risk of prematurity and low birth weight, and/or other postnatal conditions (socioeconomic, environmental, or parenting behavior).

alcohol use

Maternal alcohol use is an important risk factor for SIDS in some populations. In a population-based case-control study among Northern Plains American Indians, SIDS was significantly associated with periconceptional maternal alcohol use (adjusted odds ratio 6.2, 95% CI 1.6-23.3) and first trimester binge drinking (adjusted OR 8.2, 95% CI 1.9-35.3).



Pregnancy complications associated with an increased risk of SIDS include placenta previa, abruptio placenta, premature rupture of membranes, and elevated maternal alpha-fetoprotein. The increased risk associated with these complications appears to be independent of their relationship with preterm birth.

Infant risk factors



Prematurity

- Preterm infants are at a higher risk for SIDS than term infants
- Among low and very low birth weight infants, the SIDS rate has consistently been three- to fourfold higher than in term infants.
- The gestational age of peak vulnerability for SIDS appears to occur four to six weeks earlier among preterm than term infants.
- It is unclear whether the population of low birth weight infants is experiencing a decline in the rate of SIDS similar to that in the general population.

Low birth weight



Infants born small for gestational age (SGA) have an increased risk for SIDS.

Low birth weight has a weak but significant association with SIDS risk even after adjustment for gestational age and several other factors known to be associated with low birth weight, including maternal tobacco use and hypertension.

Sibling of SIDS victim

Siblings of SIDS victims have a five- to sixfold increase in risk for SIDS.

However, assuming a SIDS rate of 0.56 per 1000 live births (0.06 percent), the risk in subsequent siblings for most families remains less than 1 percent.

The small but increased risk of SIDS in siblings of SIDS victims is probably due to a combination of biologic and/orepidemiologic factors.

However, it has not been possible to identify the relative importance of these factors because many of the risk factors for SIDS are the same as those for other causes of infant mortality.

Twins

In cohort studies, linking data from birth and death records, the crude risk of SIDS among twins is approximately twice that of singletons .

The increased risk is in part attributable to the higher proportion of twins that are preterm and/or of low birth weight .



However, in subset analyses of some studies, the risk of SIDS among twins born at ≥37 weeks gestation or with birth weight ≥3000 g remained increased compared with singletons as described below:

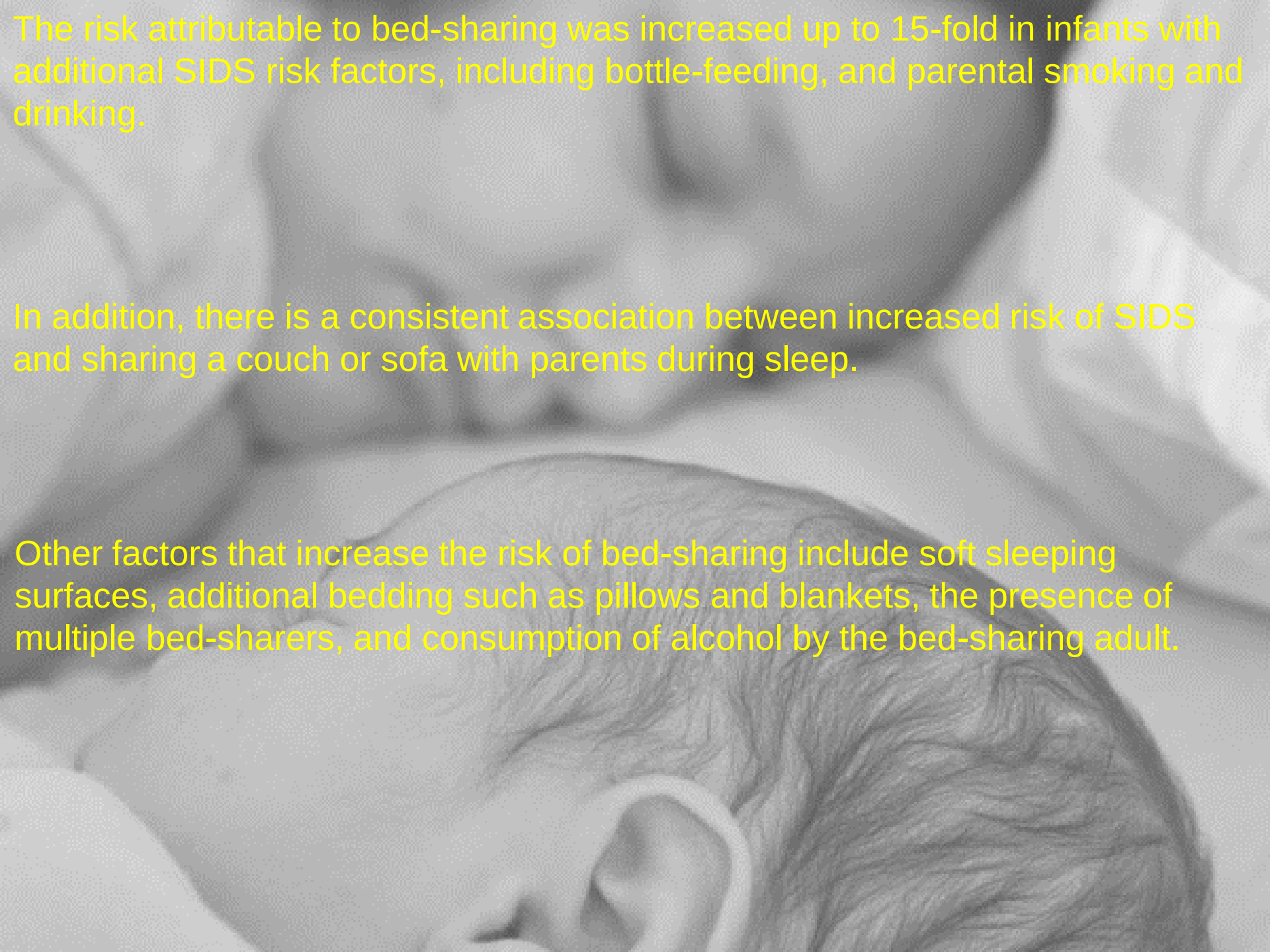
- 37 to 38 weeks: Relative risk (RR) 1.31
- 39 to 40 weeks: RR 1.47
- ≥41 weeks: RR 2.09
- Birth weight ≥3000 g: RR 2.98

Bed-sharing

A variety of studies report an association between SIDS risk and infants sharing a bed with their parents .

In a meta-analysis, the combined odds ratio (OR) for bed-sharing versus non bed-sharing infants was 2.89 (95% CI 1.99-4.18).

The risk of bed sharing was greatest for infants younger than three months of age (OR, 10.37; 95% CI 4.44-24.21) or for infants of mothers who smoke (OR, 6.27; 95% CI 3.94-9.99).



The risk attributable to bed-sharing was increased up to 15-fold in infants with additional SIDS risk factors, including bottle-feeding, and parental smoking and drinking.

In addition, there is a consistent association between increased risk of SIDS and sharing a couch or sofa with parents during sleep.

Other factors that increase the risk of bed-sharing include soft sleeping surfaces, additional bedding such as pillows and blankets, the presence of multiple bed-sharers, and consumption of alcohol by the bed-sharing adult.

Guidelines in the United States and Australia suggest that twins and higher-order multiples also not sleep in the same crib, although this is a common practice.

It is recommended that infants sleep in the parents' room, close to the parents' bed, but on a separate surface designed for infants, ideally for the first year of life, but at least for the first 6 months.

There is evidence that sleeping in the parents' room but on a separate surface decreases the risk of SIDS by as much as 50%.[6,8,41,42] In addition, this arrangement is most likely to prevent suffocation, strangulation, and entrapment that may occur when the infant is sleeping in the adult bed.



History of apnea



Apnea or otherwise impaired respiratory function likely falls within the final common pathway of many of the proposed mechanisms for SIDS.

However, a history of apnea, apparent life-threatening event (ALTE), or other abnormalities in breathing patterns are not clinically useful predictors of SIDS risk, and monitoring for apnea using standard cardiorespiratory monitors does not appear to reduce SIDS risk .

This was illustrated by the following studies:

●In case-control studies, a history of apnea or cyanosis is not specifically increased in SIDS victims . Approximately 5 percent of parents of SIDS victims recall cyanotic episodes during the months before death, but this not substantially different from parent recall of cyanotic episodes in control infants and may be influenced by recall bias.

●Prospective studies have failed to identify respiratory abnormalities that correlate with known SIDS risk factors: in a large series of infants followed longitudinally with cardiorespiratory monitors, neither "conventional" (apnea 20 to 30 seconds) nor "extreme" events (apnea >30 seconds) correlated with the primary epidemiologic risk factors for SIDS, including the time at which the apnea occurre and the infant's age .



Babies are more likely to die of SIDS if they are placed to sleep on top of soft bedding or if they are covered with soft bedding

Sleep position

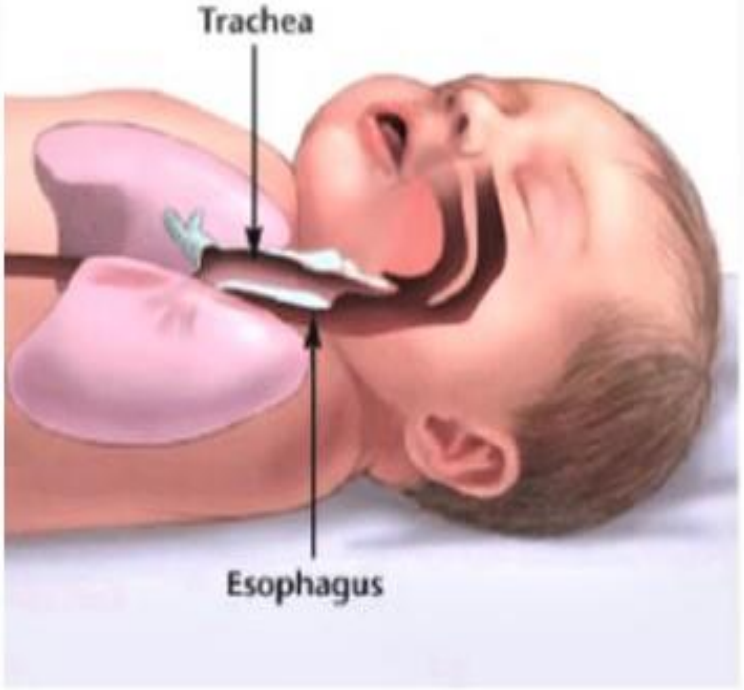
The prone sleeping position is the strongest modifiable risk factor for SIDS.

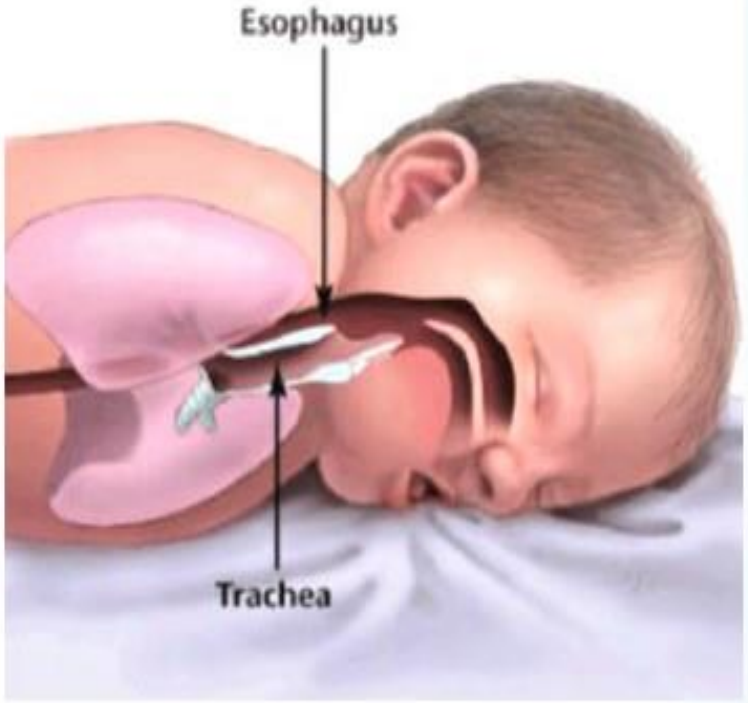
In case-control studies, odds ratios for the risk of prone sleeping or non-supine sleeping range between 2.3 and 13.1.

Additional support for this association comes from the decreased rate of SIDS in various countries following recommendations to place infants on their back or side to sleep.

Avoidance of side positioning is also important, perhaps because the probability of rolling from the side to the prone position is greater than that of rolling from the supine to the prone position.







Being on the back is actually <u>less</u> risky for aspiration: secretions pool in the back of the throat, near the esophagus.

As the proportion of infants placed to sleep in the prone position has decreased, the relative contribution of side-sleeping to SIDS risk has increased , as suggested by the following studies:

●In a population-based case-control study, the risk of SIDS was increased for infants placed on the side and found in the prone position (adjusted odds ratio 8.7) . In the same study, the risk of SIDS was also increased among infants who were usually placed supine but were placed on their sides or prone for the last sleep (OR 6.9 and 8.2, respectively).

●A population-based study noted decreases in SIDS mortality associated with non-prone sleep positioning and documented further decreases associated with specifically supine positioning of infants for sleep .

Soft sleeping surface

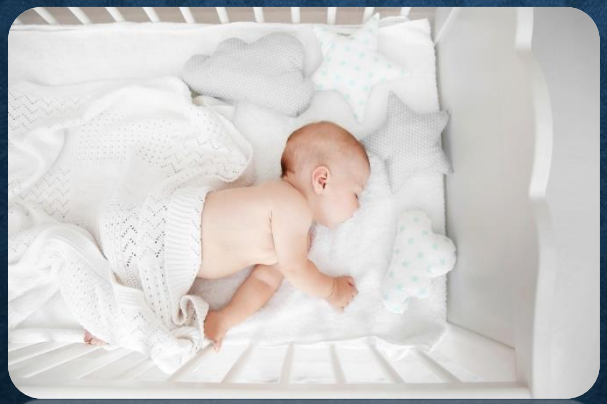
- ✓ Use of a soft sleeping surface is a consistent risk factor for SIDS in several case-control studies, especially in association with prone positioning.
- ✓ In one study, soft bedding increased the risk of SIDS fivefold, and the combination of prone positioning and soft bedding increased the risk 21-fold (95% CI 7.8-56.2).
- ✓ Other forms of soft bedding (eg, sofa or recliner chair, polystyrene beads, air mattresses, or natural fiber mattresses) also have been associated with an increased risk of SIDS.
- ✓ Sheepskin bedding has been associated with an increased risk for SIDS when infants are placed in the prone position.


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Loose bedding accessories

Loose bedding accessories such as blankets, quilts, pillows, stuffed toys, and sheepskins also increase the risk of SIDS by as much as fivefold, independent of sleeping position.

The association appears to be mediated by the soft objects covering the head or otherwise obstructing airflow .

These are particularly important risk factors in older infants because they can roll onto the soft objects .



Crib bumper pads

In particular, crib bumper pads have been associated with infant deaths by "suffocation," including at least 48 infant deaths in the United States over a seven-year period from 2006 to 2012 .

This rate appears to be increasing, despite recommendations against the use of bumper pads by the AAP, Canadian Pediatric Society, and others.





Swaddling

Swaddling appears to increase the risk for SIDS, especially for older infants and those who are not placed in a supine position for sleep.

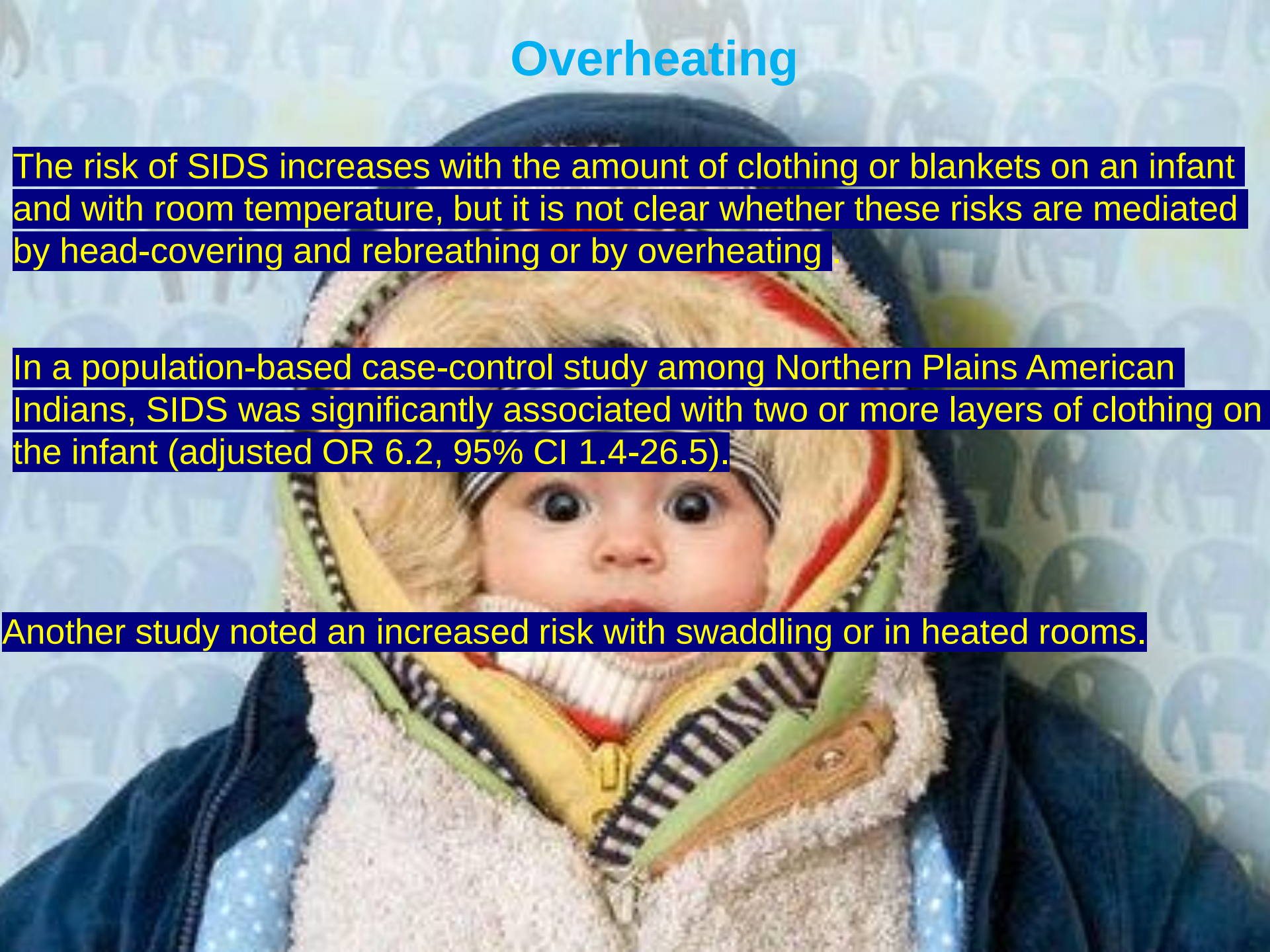
In a meta-analysis, based on limited data, the risk of placing an infant on their side or prone for sleep doubled when the infants were swaddled, and the added risk from swaddling increased with age



This may be because older infants may attempt to turn over, and swaddling prevents an infant from moving out of an unsafe sleeping position.



Overheating



The risk of SIDS increases with the amount of clothing or blankets on an infant and with room temperature, but it is not clear whether these risks are mediated by head-covering and rebreathing or by overheating .

In a population-based case-control study among Northern Plains American Indians, SIDS was significantly associated with two or more layers of clothing on the infant (adjusted OR 6.2, 95% CI 1.4-26.5).

Another study noted an increased risk with swaddling or in heated rooms.

Car seats and other sitting devices

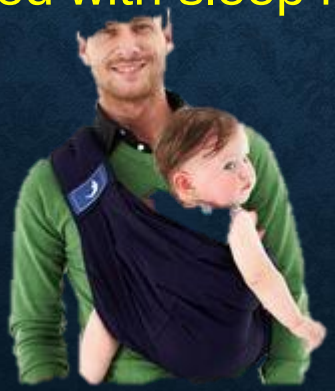
Use of a car seat or other sitting device (stroller, swing, or infant carrier) for sleep has been associated with some sleep-related infant deaths .

This is because the sitting position tends to potentiate gastroesophageal reflux and may reduce oxygenation in young infants.

In addition, some cases have been reported in which an infant suffered suffocation after a car seat accidentally overturned when placed on a soft bed or couch .

Use of a car seat for car travel has safety benefits that clearly outweigh the small risk of SIDS associated with sleep in these devices.








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YOU
SO
much