


ISPID Epidemiology Working Group

Factsheet: Sleeping Sacks

Question to be addressed: Does a sleeping sack protect against SIDS?		
Date submitted: 25 th October 2016		
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<p>Background: Sudden Infant Death Syndrome (SIDS) is 'the sudden and unexpected death of an apparently healthy infant aged up to one year old, whose death remains largely unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and a review of the clinical history.</p> <p>Laying a baby on their stomach (primary prone position) is an important risk factor for SIDS. In the Netherlands in 1998, an average of 15% of SIDS infants were placed prone to sleep. This risk increased dramatically if a child turned prone during the sleep (OR=5.05; 95% CI: 2.07-12.34), or was put down prone for the very first time (OR=17.89; 95% CI: 5.98-53.48) (L'Hoir et al., 1998).</p> <p>In the Netherlands it is common practice to use a Dutch sleeping sack for babies and young toddlers, originally to prevent them from becoming cold if they kick off bed clothes and later to prevent changes in sleep position. It consists of a garment either with or without sleeves where the bottom is a closed sack. Usually there is a zipper on the front. Different designs may be used in different countries. In the Dutch ECAS study it appeared to be protective for SIDS.</p>		
		
Pubmed search terms: (SIDS or SUID or SUDI) and ((sleeping bag) or (sleeping sack))		
Pubmed search date: 25 th October 2016		
Pubmed search findings: 21 articles. No case-control studies were cited.		
<p>Current evidence: The infant sleeping sack, a typical Dutch garment, appears to reduce the likelihood of SIDS by around 20% to 30%, although a causal protective effect is yet to be established. The calculated Population Attributable Risk of SIDS if a sleeping sack was not used was 21% (L'Hoir et al, 1998). Research by the Dutch National Working Group on Cot Death (Landelijke Werkgroep Wiegendood: LWW), which compared 113 SIDS children with 2,530 children from a national survey at well-baby clinics also showed a trend towards SIDS risk-reduction for the sleeping sack with an OR of 0.7 (95% CI: 0.4-1.1) (Jonge et al, 2002).</p> <p>Babies placed in a sleeping sack to sleep changed their sleeping position less often than babies who did not use one (L'Hoir et al., 1998). A survey of infants aged 0-6 months, conducted in 2004, confirmed these findings (6.2% versus 9.2%, p=.004) (Schaik et al., 2007). On average, children who are placed to sleep in a sleeping sack before they turn in bed for the first time, turn prone at a later age, not only in bed but also in other circumstances such as in a playpen or on the floor compared to children who don't use a sleeping sack. Thus, babies who sleep in a sleeping sack turn prone significantly later (unpublished data, Houten van et al., 1999).</p>		

In addition, the period between turning in the playpen or on the floor for the first time and turning in bed is longer for the sleeping sack users. These babies therefore practice turning prone and turning their head to the side when prone in circumstances where they are usually supervised, before they do so in an unsupervised sleep situation. Therefore, this leads to less inexperienced babies turning prone in bed. Such inexperienced turning prone involves the greatest relative risk of SIDS (Mitchell et al., 1999, L'Hoir et al., 1998).

Observations suggest a sleeping sack shortens the period in which the baby is able to turn prone when in bed but is unable to return to the safer supine position. The largest difference between the group of babies who used a sleeping sack and those who did not was found for the period between first turning prone in bed (with a sleeping sack 28.03 weeks \pm 7.96 (74), without a sleeping sack 21.73 weeks \pm 4.88 (22), $p < 0.01$) and being able to turn back again. The difference was significant and has a medium effect size (Cohen's D 0.85). (Unpublished data, Houten van, et al., 1999).

Discussion:

Possible protective mechanisms of the use of a sleeping sack

1. A sleeping sack has a zipper on the front, which may help parents, even if they are uninformed about the risk of prone sleeping, to place their infant in the supine sleeping position.
2. A sleeping sack usually does not need extra bedding. Therefore, the child cannot be trapped underneath bedding, or get his/her head covered. Depending on the temperature of the room, either a thin cotton sleeping sack can be used, or a thicker, padded one.
3. A Dutch sleeping sack if no other bedding is used leaves the head uncovered at all times, thus preventing overheating.
4. A sleeping sack prevents, impedes or delays the moment at which the sleeping child turns from his back to his stomach (turning prone) until he has adequately mastered the necessary motor skills. When a child is able to turn readily when awake and active, he will be more used to laying prone at the time he turns while asleep. This reduces the occurrence of inexperienced prone sleeping (i.e., turning to the stomach during sleep while not accustomed to doing so) and may prevent lying face down.
5. Since a sleeping sack postpones the moment of turning to the prone position, the time in weeks between turning prone and turning back to his back is reduced.
6. A sleeping sack may help parents to introduce sleep routines; by using a thin cotton sleeping sack and a blanket which is tucked in well, children may improve their sleep and cry less. This had been demonstrated in an RCT which included excessive crying infants (Sleuwen, 2008).

Risk increasing factors

The use of a sleeping sack in combination with a duvet increases the risk of SIDS, especially if a padded sleeping sack is used (L'Hoir et al., 1998). The combined use of a duvet and sleeping sack for children aged 1-9 months has decreased sharply in The Netherlands from 27% in 1994, to 3% in 2005, to 1.9% in 2010 (Jonge et al., 2005, Jonge et al., 1994, Scheltens et al., 2011). Currently, less than 2% in the Netherlands use a sleeping sack in combination with the risk increasing duvet. In countries with widespread duvet use caution should be used when introducing Dutch infant sleeping sacks. A sleeping sack has to fit properly: the opening for the arms and head should not be too large to ensure that the baby cannot slip out of the sack.

Conclusions: A sleeping sack has the zipper on the front, which facilitates placing the infant supine. A sleeping sack hinders turning prone, so that on average babies turn prone later in all

situations, and specifically turn prone in bed later, reducing the risk of turning prone in bed when inexperienced. The period of time in which the child can turn prone in bed while not being able to turn back is shortened. However, combining a sleeping sack with a duvet is risk increasing. More evidence is needed to quantify the potential protective effect of using sleeping sacks in the absence of other bedding before recommending as a potential means of reducing the risk of SIDS, although they should certainly not be discouraged.

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