

Sleeping position - the research

In 1944, a study was published which noted 68% of sudden infant death syndrome (SIDS) infants were placed prone (on their front)¹. A further paper in 1954 noted the “apparent tendency for these babies to be found lying down”². In 1965, a UK study found “infants dying are less likely to have been placed supine” (on their back)³. As other causes of infant deaths began to fall in the second half of the 20th century, rates of SIDS remained relatively static. Between 1970 and 1991, observation studies from the UK^{4,5}, Ireland⁶, Australia^{7,8}, New Zealand⁹, Belgium¹⁰, France^{10,11}, The Netherlands¹², Hong Kong¹³ and Germany were published or presented at conferences, showing that an infant sleeping prone had an increased risk of SIDS compared with sleeping supine. Meta-analysis of these studies in 1991 showed a greater than twofold increase in risk of SIDS for infants placed prone¹⁴, and there was the founding congress for the European Society for the Study and Prevention of Infant Deaths (ESPID) in 1991, to tackle the problem.



As a result of these smaller studies, large case-controlled studies were organised and funded in the late 1980s and throughout the 1990s. These took place in numerous countries, including the UK, New Zealand¹⁵ and Australia¹⁶. In these studies, the caregivers of every SIDS case in the target area were contacted within days of the death. Information on the infant, the circumstances of their last sleep, their usual routine, as well as the wider family was gathered. Multiple case-matched controls were also interviewed for every SIDS infant, for comparison. In England, results from the Avon study were published in 1990⁵, and subsequent work, the Confidential Enquiry into Stillbirth and Death in Infancy (CESDI) Study and the South West Infant Sleep Scene (SWISS), were undertaken and published throughout the 1990s and 2000s. An analysis of comparable studies in 20 regions across Europe, including CESDI, found a 13-fold increase in SIDS for infants placed prone at their last sleep compared with supine¹⁷.

Following the publication of individual studies there had been local publicity about the risk of prone sleeping, thought to lead to changes in parental choices about sleeping positions⁷. As strong evidence emerged nationally and internationally, the “Back to Sleep” campaign was launched. This correlated with a rapid decline in the incidence of SIDS, by 50-70% in many countries¹⁸. Specifically in the UK, deaths from SIDS were 2 per 1000 live births in 1989 and fell to 0.68 per 1,000 after the publication of the Avon study and 0.5 per 1,000 in the decade after the “Back to Sleep” campaign¹⁹. These studies demonstrate the increased risk of SIDS with prone sleeping, and that this is a modifiable risk factor.

Since the advent of international Back to Sleep campaigns, rates of SIDS across the world have remained lower than the 1987 rate²⁰. A recent study compared the data from the CESDI and SWISS studies with cases of SIDS in 2020 from the National Child Mortality Database. This showed significantly more infants are now placed on their back to sleep, but that a similar proportion of SIDS infants (around 15%) were

placed prone to sleep²¹. This demonstrates the ongoing need for Back to Sleep advice to each new generation of parents and caregivers.

Sudden unexpected postnatal collapse (SUPC) is a subcategory of sudden infant death, making up less than 2% of all SIDS cases²². It occurs in the first 7 days of a previously well infant born at or near term. Most reports in the literature are case studies occurring in hospital, during breastfeeding or early skin-to-skin care, with concerns raised that it was associated with an infant's position. However, in a recent retrospective study of infants who have died in the USA, older maternal age and lower birth order were found to be significantly linked to SUPC, as well as an association with swaddling and the infant's caregiver falling asleep whilst feeding²².

Side sleeping was initially listed as an alternative for prone sleeping by bodies such as the American Association of Pediatrics (AAP). However, subsequent research clarified that it is also an unsafe position for infants to be placed in to sleep. Meta-analysis showed a 36% increase in risk, small but significant across studies¹⁸. This advice from AAP was retracted in 1996 due to the emerging evidence, and only supine sleeping has been recommended since.

There is sometimes concern that an infant lying on their back may vomit and choke on their vomit, especially in babies who spit up more, or have reflux. However, a study of 111 babies showed that those lying supine continued to spit up but did not have episodes of significant respiratory distress requiring neonatal admission²³.

There has also been concern that lying an infant supine can cause flatness to the back of the infant's head, positional plagiocephaly. The rates of positional plagiocephaly have increased since the "Back to Sleep" campaign²⁴, though infants lying on their front or side can also develop it. Supine sleeping increased the risk of plagiocephaly by two-fold, but it is typically benign; one study found nearly half of all two-month-olds had some measurable plagiocephaly²⁵; another found up to one-fifth of four-month-olds have a degree of plagiocephaly, decreasing to 3% of two-year-olds²⁶. There is no significant evidence that positional plagiocephaly is associated with motor development delays, and it is thought that these delays are an extra risk factor for persistent plagiocephaly, rather than an effect of plagiocephaly²⁷.

There is limited comparative evidence on the motor development in infants who sleep supine rather than prone. One UK study of over 14,000 infants showed a small reduction in development scores at 6 months of age, which was transient and no longer apparent at 18 months old²⁸. There have also been no changes in the attainment of developmental milestones in the paediatric population since the 1970s, despite changes in sleep position²⁹.

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Frequently asked questions

What does the research show?

The safest way for a baby to sleep is on their back (supine). We know this because decades of research from around the world have clearly shown that babies who sleep on their backs are much less likely to die from SIDS. Studies in many countries, including the UK, Australia, New Zealand and more, found that babies who slept on their tummies (front) were over twice as likely to die from SIDS as those who slept on their backs. Even side sleeping, which was once thought to be a good alternative, was later shown to carry an increased risk, so is no longer recommended.

From this research, the “Back to Sleep” campaign was launched in the 1990s, recommending that parents always put their babies on their backs to sleep. After this, SIDS deaths dropped by more than half in many countries. In the UK, SIDS deaths fell from 2 in every 1,000 babies to just 0.3 in every 1,000 and has remained low. Research has also explored the effects of a baby sleeping on their back. Flat spots on the back of the head (positional plagiocephaly) are more common with back sleeping. This does not harm babies and goes away as they grow. There is no evidence that sleeping on their back slows a baby’s long-term development of motor skills.

How should I place my baby to sleep?

The safest way to place your baby to sleep is on their back, on a flat, firm and waterproof mattress. Keep their cot clear of items such as toys that could cover their face, to keep their airways clear, and for the first six months, they should sleep in the same room as you.

Why should my baby sleep on their back?

This is the safest baby sleep position. Research has shown that babies who are usually slept on their backs but sometimes slept on their fronts or sides have a higher risk of SIDS. This means it’s best to make this a routine and place your baby on their back for every sleep, day or night.

Can my baby sleep on their side or stomach?

Sleeping a baby on their side or stomach increases the risk of SIDS, so sleeping them on their backs is the safest option unless your healthcare professional has told you otherwise. Once your baby can move themselves from their back to their front and back again by themselves, they will be able to find their own sleeping position. Continue to place your baby on their back for every sleep as research has shown that babies who are slept on their front have a greater risk of SIDS, whilst sleeping on their backs is the safest position.

My baby was born prematurely and slept on their front in hospital; is it ok for them to sleep on their front at home as well?

Some babies who are born very prematurely and spend time in a neonatal unit are slept on their fronts for medical reasons. Remember that babies in neonatal units are under constant supervision, and by the time your baby comes home, they should be sleeping on their back. Babies may find it hard to adjust from a sleeping position they have been used to, so persevere and do speak to your paediatrician if you’re worried. Only continue front-sleeping if your paediatrician advises you to for medical reasons.

Is a baby sleeping on their back more likely to choke on their sick?

Some parents worry that by sleeping their baby on their back they could choke on their own vomit. No research has found this to be the case, and we now know that babies are far safer sleeping on their backs.

My mum says that I was slept on my front and that was the advice then. Why has it changed?

Many parents will have been slept on their tummies when they were babies, as that was the advice before 1991. But research into SIDS has since shown that the risk of SIDS is much higher when a baby is placed on their front to sleep. We know that in the early 1990s, there were thousands of babies worldwide dying suddenly and unexpectedly every year. The reason the number of deaths is much lower now is because of the new advice being followed by parents, which includes lying babies on their backs to sleep.

My baby loves sleeping on their front. How do we move them onto their back without waking them up?

We sometimes get calls from parents who say their baby prefers sleeping on their front. If a baby is given a choice, they might prefer this position, but unfortunately, it's not a safe one and increases the risk of SIDS. This is why we encourage all parents to follow back-sleeping from day one. Getting your baby to stick to sleeping on their back once they have tried sleeping on their front might be difficult. But it's easier if you always put them down to sleep whilst they're awake, rather than allowing them to fall asleep in your arms, then placing them down. Keep going, they will eventually get used to it.

What is the best position for a baby with reflux?

Back-sleeping is the safest sleeping position for all babies to reduce the risk of SIDS, unless your healthcare professional has told you something different. If your baby has reflux, or any other on-going health condition, speak to your doctor about the best care for them. Don't sleep your baby on their front unless you have been advised to do so by a medical professional. Don't incline, tilt or prop the mattress, cot or your baby. Doing so will not help with reflux.

Will a sleep positioner help keep my baby on their back and lower the risk of SIDS?

There is no need to use any type of equipment or rolled up blankets to keep your baby in one position, unless you have been advised to by a health professional for a specific medical condition. It's much safer for your baby to be in their cot with just their sheets or blankets, and no extras which they could pull over their face or that could cause an accident. As babies grow stronger, they learn to move and roll and this is fine.

What is the key takeaway for families?

Always place your baby on their back to sleep, for naps and overnight. This position is safest, with decades of research showing it saves lives.