

BETTER BOTTLE FEEDING

by
Dr. Mandy Haberman

Are you at your wits end because your baby has colic? You're not alone. According to a report by [The Guardian](#), about one-fifth of all babies get the full colic syndrome, of whom only a small minority (5-10%) have any identifiable physical cause. It's a serious problem because half of those mothers with severely colicky babies are liable to become mentally ill, falling to one-quarter if the baby is only moderately colicky (compared with 3% of mothers with none).

What causes colic?

Colic is used to describe severe tummy ache occurring after feeding at any time of day. It is common in babies up to the age of three months but may continue for longer. Colic is characterised by loud, excessive and inconsolable crying accompanied by tummy pain, distress and irritability. It is seen as an umbrella that covers digestive problems that may be associated with allergies to food, wind or reflux, neurological problems, hypersensitivity or highly reactive temperament, cranial pressure at birth, an immature gut or unfavourable environmental conditions.

However, by far the most common cause is the **way** a baby feeds.

Both breastfed and bottle-fed babies may experience colic, but it tends to be less common in breastfed babies because they ingest less gas, feed more slowly and are less anxious. It is worth noting that if expressed breast-milk is given by bottle, babies get as colicky as formula-fed babies. It is the means of delivery, rather than the type of milk, that is responsible.

There are four common causes of colic that relate to feeding:

1. Air swallowing, resulting in excess or trapped gas in the gut
2. Feeding position
3. Feeding too fast (guzzling) and overfeeding
4. Stress/anxiety

1. Air swallowing

Gas can be ingested by a baby from three sources:

a. From surrounding air (i.e. outside of the bottle)

Before the mid 1980s, when vented 'anti-colic' bottles started to become popular, bottles consisted of a bottle and simple teat/nipple with a hole in the end. As the baby sucked milk out of the bottle, negative pressure would build up inside the bottle. Eventually, this would cause the teat to collapse. The baby would need to release the teat to allow air to rush back into the bottle. In doing so, air would enter the baby's mouth and be swallowed down with the next suck.

Air can also enter the baby's mouth via the nasal passages and then be swallowed with the milk. This rarely occurs whilst breastfeeding, as the mother's nipple elongates and extends to the back of the baby's mouth, shutting off the air entry. However, most bottle teats are shorter and do not fulfil this function. A baby will inevitably swallow air when stressed screaming a lot, either before or during a feed.



b. From inside the bottle

If the bottle is not held sufficiently angled to ensure that the mouthpiece is completely filled with milk, air will be withdrawn and ingested along with the milk, as the baby feeds.

c. From inside the milk

When expressed breast milk, or formula is poured into a bottle, it aerates, like when wine is poured into a glass. Then the action of gently agitating the milk, to ensure a constant temperature or evenly fixed formula, will aerate it still more. As the milk settles, big bubbles visibly escape to the surface. Because tiny micro-bubbles lack sufficient buoyancy to rise to the surface, they are trapped by the heavy fat molecules in the milk. Therefore, the milk still containing a lot of gas, will be ingested by the baby.

2. Feeding position

Health professionals recommend that, for best digestion, babies should be fed in an upright position. However, to hold a bottle at a sufficient angle to keep the teat filled with milk, when the recommended upright position is adopted, quickly becomes uncomfortable for the carer and can lead to shoulder and neck pain. If the bottle is held more comfortably in a horizontal position, the teat will not remain air-free throughout the feed and the infant will inevitably draw air, along with the milk, into their stomach. Consequently, the common position adopted for bottle feeding, is to lay the baby prone. Not only does this increase the risk of indigestion and colic, it also increases the risks of fluid entering the inner ear.

3. Guzzling and overfeeding

As adults, we know from experience that rushing our food and over-eating can lead to discomfort, indigestion and excess gas i.e. colic.

We are advised to eat slowly, to avoid over-eating and weight gain. This is because it takes the brain and stomach about 20 minutes to register satiety. If you eat too quickly, you will consume more than you need before you realise that you are full. Receptors inform the brain that your body is receiving nutrients by sending hormone signals. If you eat too fast, these hormones may not have enough time to properly communicate.

Guzzling is particularly bad for babies. Medical research has shown that there is a window of opportunity in the first few months of life, when the baby programmes its self-regulation of appetite. Over-feeding during this critical period compromises the baby's natural instinct to recognise when enough has been consumed and leads to a life-time of over-eating and fighting the flab. There is a proven link between over-feeding in infancy and increased risk of obesity, heart disease and diabetes in later life. "At least 20% of adult obesity is caused by over-feeding in infancy," says Professor Atul Singhal from the MRC Childhood Nutrition Research Centre at the Institute of Child Health in London. Public Health England is now looking to tackle over-eating from birth to make sure children get the best start in life. This comes as UK Government advisers publish new guidance on feeding babies - the first in more than 20 years.

Breastfed babies do not guzzle or overfeed. They feed more slowly because they must actively work in order to extract milk and they control both the pace and flow of milk. As a result, a healthy breastfed baby will become tired and satiated at the same time. Feeding naturally stops when the baby is full.

However, guzzling is not the only cause of overfeeding in bottle-fed babies. A care-giver can also contribute. It is natural instinct for a mother to ensure that her baby receives adequate food. Whilst this necessary to ensure survival in extreme conditions, in our modern world, where food is relatively plentiful, this animal instinct is redundant and, in the context of bottle-feeding, potentially damaging.

Bottle-feeding parents, in their anxiety to make sure that their baby is receiving enough food, frequently over-ride their baby's cues to stop. The focus is on trying to finish the milk in the bottle and giving fixed volumes of milk regardless of cues. This can be because the formula mixing instructions indicate how much formula to offer babies (in relation to the age/weight of the baby) and also the mistaken belief that the more milk the baby consumes, the more content it will be and the longer it will sleep at night.

4. Stress/anxiety

When breastfeeding, a baby's natural suckle cycle consists of a complex sequence of actions, involving lips, tongue and jaws. The baby controls the flow and pace of milk delivery and, at the end of each individual suckle, has the ability to swallow, pause, relax and breathe.

Bottle-feeding is a very different activity and babies are unable to control the delivery of milk. This is particularly true for vented "anti-colic" bottle systems.

Three factors exacerbate the problem:

- i. The teat has permanently open hole in the mouthpiece and can't be shut off.
- ii. The bottle is held at a downward angle in order to keep the teat filled.
- iii. The vent - if air can enter the system, milk will flow out.

The combination of these factors results in free-flow in response to gravity and a siphoning effect as the baby feeds. Uncontrolled, milk will start to pool at the back of the baby's throat and can cause choking. There is also a risk that milk can enter the lungs. The baby must guzzle in an effort to keep up with the flow or be swamped. Excess milk can often be seen escaping from the mouth and running down the chin. In effect, it is equivalent to force-feeding and is stressful for the infant. It is understandable that feeding in this way can result in tummy ache and colic.

So, is there a solution to colic?

In cultures where babies are breastfed and carried in a papoose or otherwise strapped to the mother in an upright position, colic is less common. This is because the baby's upright position and the mother's movement help any ingested gas to escape naturally. Also, the mother's heartbeat, smell, warmth and skin contact are all reassuring for the baby, so less stress.

In cultures where the baby is laid down to sleep, separate from the mother, e.g. in a pram or crib, babies are more likely to experience colic. Laying a baby on its tummy, so that the baby's own weight applies gentle pressure to the abdomen, helps gas to pass naturally. Whilst the practise of laying a baby on its tummy used to be popular, it is now thought to increase the risk of SIDS (Sudden Infant Death Syndrome – or 'cot death') and is actively discouraged.

'Winding' i.e. patting or rubbing the baby's back in an upward direction, helps release gas. Resting the baby on your own body/lap/shoulder so that gentle pressure is applied to the baby's tummy is an effective position for winding. Feeding slowly in an upright position and keeping the baby upright for about 30 minutes after feeding, will help gas to escape and also help avoid reflux. Finding the most comfortable and effective winding position for your baby is simply a case of trial and error. There are numerous online guides that recommend winding positions, e.g. <http://www.birthzang.co.uk/2015/05/how-to-wind-a-baby/>

The nursery industry has, over the years, devised a number of products intended to help alleviate and prevent colic:

Gripe water, anti-colic drops and other remedies

Gripe Water has been around since the mid 1800s. Originally, it contained a tiny dose of alcohol which helped relax the baby. Alcohol is now known to be toxic for babies, so modern-day gripe water is alcohol free. The formula is now a mildly aniseed flavour elixir made usually made from dill, liquorice, fennel and ginger. It can help to relieve gas-related colic and stomach discomfort. Some experts believe gripe water might be effective at soothing fussy babies simply because it tastes sweet.

There are various brands of 'anti-colic drops', milk additives and special recipe formulas that are designed to help expel ingested gas from the baby's digestive system. How well this works, is often subjective. Once started, parents may be reluctant to cease use of non-prescription 'medications' for fear that their baby's digestion might worsen.

In recent years, the numbers of babies exhibiting, or thought to be exhibiting, the symptoms of reflux have increased dramatically and the Journal of Paediatrics reports that there has been a "16-fold increase in the number of prescriptions for acid-suppressing drugs in a five-year period."

All these remedies are aimed at dealing with gas **after** it has been ingested or created within the gut in response to stress etc. Obviously, it would be preferable to address the root causes of colic and avoid it occurring in the first place.

'Anti-Colic' bottles

Over the years there have been various designs of feeding bottles aimed at reducing colic. From the banana bottle, invented in 1894, through to today's vented bottles, they have all focused on just one aspect - air swallowing.

Marketed as 'anti-colic', vented bottles became increasingly popular from the mid 1980's. Some have vents/valves in the teat, others in the bottle and some with additional components venting into the bottle. Some have more than one vent to allow faster and even easier milk flow! However, in essence there is little to choose between them. They are all teat + bottle + means of equalising the pressure.

The downside of vented 'anti-colic' bottles is that whilst the provision of an air-vent helps to reduce air-swallowing, it has several significant disadvantages, including an increase in the other root causes of colic!

Adding a vent allows the milk to flow too freely. Consequently, less oral activity is required (compared to breastfeeding) and the baby cannot control the flow in order to pause, relax and breathe. This unnatural, rapid way of feeding makes combining breast and bottle difficult. Many breast-fed babies panic and reject the bottle outright. If they accept and adapt to the bottle, they can quickly become lazy and then reject the breast.

However, perhaps the most alarming consequence of vented anti-colic bottles is guzzling, resulting in overfeeding and increased risk of obesity and long-term health problems.

Paced feeding is a bottle-feeding technique developed by lactation consultants aimed at slowing down bottle feeds, in order to help prevent guzzling and overfeeding. It involves intervention by the mother/care-giver, to break the baby's lip seal on the teat, by gently lowering the bottle. This action interrupts the feed and makes the baby pause. It is effective in slowing down the flow of milk, but it relies on the mother's skill and commitment. Also, tipping the bottle downwards causes air to enter the teat, increasing the risk that the baby will ingest air.

Many guides on how to practise this technique can be found online e.g.
<https://m.youtube.com/watch?v=UH4T700SzGs>

Haberman Suckle Feeder is better than a bottle because...

In designing the Haberman Suckle Feeder, our starting point was not ‘how do we make a new anti-colic bottle?’ Instead, the question we asked was ‘how do we make a bottle that works like breastfeeding?’.

In breastfeeding the baby controls the flow, feeds more slowly in an unstressed, contented way and stops when full. Direct from the breast, the baby ingests negligible gas. For all these reasons, breastfed babies naturally experience less colic.

After five years of research and development, we have the solution: a patented technology that addresses all root causes of colic related to feeding bringing with it a raft of benefits.

The [Haberman Suckle Feeder’s](#) long malleable teat has a valve instead of a hole. A filter component, situated between bottle and teat removes micro bubbles, keeps the teat filled at any angle and enables the system to work using breastfeeding action, putting the baby back in control and helping to prevent guzzling and overfeeding.



In subjective tests, over 70 % of breastfeeding mothers reported that, in their opinion, when using the Haberman Suckle Feeder, their baby had ‘no more colic than when breastfeeding’ and 12% reported less colic than when breastfeeding.

This new award-winning anti-colic bottle-feeding technology represents a giant leap forward, helps protect against long-term health risks, and by emulating breastfeeding, it facilitates:

1. Air-free feeding air-free, as per the breast
2. Upright feeding position, comfortable for both mum and baby
3. A natural, active breastfeeding action
4. Baby-led paced feeding without external intervention
5. Prevention of guzzling to help avoid overfeeding
6. Contented, relaxed feeding. Baby can pause, relax and breathe, stress free.



FURTHER INFORMATION:

<http://habermanbaby.com>

<http://habermanbaby.com/contact-us>

ABOUT THE AUTHOR

For over 30 years Dr. [Mandy Haberman](#) has been shaping the future of infant feeding with her inventions, and working with parents, paediatricians and healthcare professionals, to support child welfare and a person-centred approach to feeding care. Haberman’s latest baby-led paced feeding bottle is designed to combat obesity and colic and complement breastfeeding; another first. Her successful inventions include a special needs feeder for infants with feeding difficulties which is used in hospitals around the world, and the first and the world’s first sippy cup, the iconic Anywayup cup. Over 42 million products featuring Haberman technology are sold around the world every year.



[Dr. Mandy Haberman](#) is the Director and Founder of [Haberman](#) Products Limited. She is non-executive Director of the UK Intellectual Property Office Steering Board, founder member and Freeman of the Guild of Entrepreneurs and holds the position of Vice-Chair of the Intellectual Property Awareness Network. Mandy has been recognised by Her Majesty Queen Elizabeth II as a Pioneer to the Life of the Nation and was named British Female Inventor of the Year in 2000.

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