

Clinical trial summary

Infant feeding bottle design and behaviour: results from a randomised trial



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Source:

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Introduction

Philips Avent has been conducting clinical studies on colic and infant feeding for over 20 years, developing its first anticolic bottle design in 1985. In this study, the Philips Avent one-way air valve bottle, which allows air to flow into the bottle to replace milk as the infant sucks, was compared in a randomised trial with the Dr Brown's internal venting system bottle, which allows air to flow continuously into the bottle when it is inverted.

Key study findings

- In infants of 2 weeks of age, the Philips Avent one-way air valve bottle was associated with significantly less infant fussing, a symptom associated with colic by many mothers,¹ compared with the Dr Brown's internal venting system bottle
 - Significantly less fussing was reported for infants, in both the day and night, with the Philips Avent one-way air valve bottle, but the difference was greater at night

Background

Colic is defined as a persistent, unexplained crying in a healthy baby between 2 weeks and 5 months of age,² although many symptoms are associated with colic by mothers and healthcare professionals.³ In a survey of 400 mothers (UK/USA), who were bottle feeding their babies, colic was typically described as intense inconsolable crying (72–75%) or fussing (49–76%), often accompanied by a pained facial expression and tense body.¹ These mothers associated gas with colic and ~40% attributed colic to the baby swallowing air during a feed.

Objective

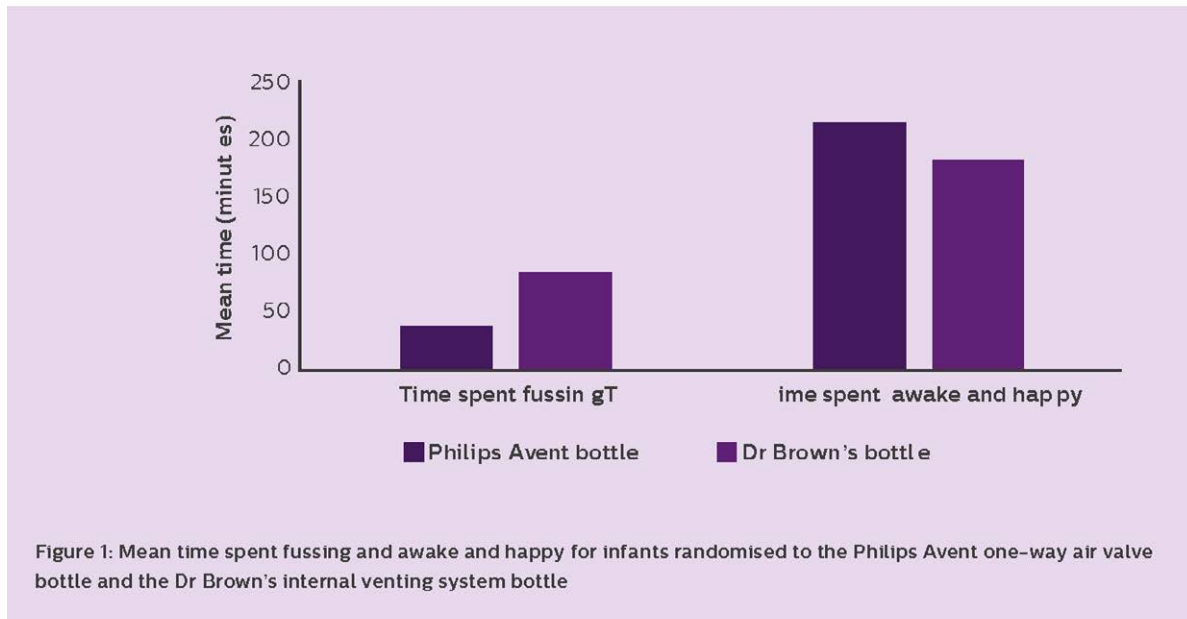
To explore in a randomised controlled trial whether the design of an anti-vacuum infant feeding bottle influences infant behaviour.

Methods

Sixty three healthy, exclusively formula-fed term infants were randomised to either use the Philips Avent one-way air valve bottle (n=31) or the Dr Brown's internal venting system bottle (n=32). Infant behaviour was measured at 2 weeks, validated by a 3-day diary.

Results

- At 4 weeks, data were available for 29 infants randomised to the Philips Avent one-way air valve bottle and 25 infants randomised to the Dr Brown's internal venting system bottle
- No mothers reported their infants as experiencing colic during this study and the Philips Avent one-way air valve bottle was associated with a mean of 0 minutes crying compared with an average of 1 minute for the Dr Brown's internal venting system bottle
- Infants randomised to use the Philips Avent one-way air valve bottle reported significantly less fussing than those randomised to the Dr Brown's internal venting system bottle (mean 40 versus 85 minutes/day, $p < 0.05$) (Figure 1)
- When analysed separately for the periods 'day' (6 am to 6 pm) and 'night' (6 pm to 6 am), reduced fussing was reported in Philips Avent one-way air valve bottle infants during both periods, although the difference was greater at night (day: 25 vs 39 minutes, $p = 0.2$; night: 13 vs 33 minutes, $p < 0.05$)



Conclusions

Bottle design may have short-term effects on infant behaviour which merit further investigation. These results support previously reported studies showing the beneficial effect on infant behaviour associated with the Philips Avent one-way air valve bottle vs the Dr Brown's internal venting system bottle⁴. It also supports studies showing that a vented bottle design was associated with significantly more time awake and content and a trend toward less recorded colic compared with a conventional bottle design.³

References:

1. Philips Avent data on file: Colic Exploration UK/USA Results: February 2016
2. <http://medical-dictionary.thefreedictionary.com/colic>
3. Lucas A, James-Roberts I: Crying, fussing and colic behaviour in breast and bottle-fed infants. *Early Hum Dev* 1998, 53(1):9-18.
4. Fewtrell M, Kennedy K, Lucas A. Impact of feeding bottle design on infant growth and behaviour. *Arch Dis Child* 2008;93:pw51