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For Professionals

Clinical Summary

Impact of feeding bottle design on infant growth and behaviour

Title
Infant feeding bottle design, milk intake, growth and infant behaviour: a randomised trial

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Source
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Background

Rapid growth in infancy may have adverse consequences for later cardiovascular health and obesity. Factors influencing infant milk intake and growth may therefore have long-term as well as short-term effects. In addition to potentially important effects on growth, bottle design may also affect infant behaviour. For example, our previous study demonstrated reduced colic in infants using the Philips Avent anti-vacuum bottle (AVB) compared to a conventional bottle.

Objective

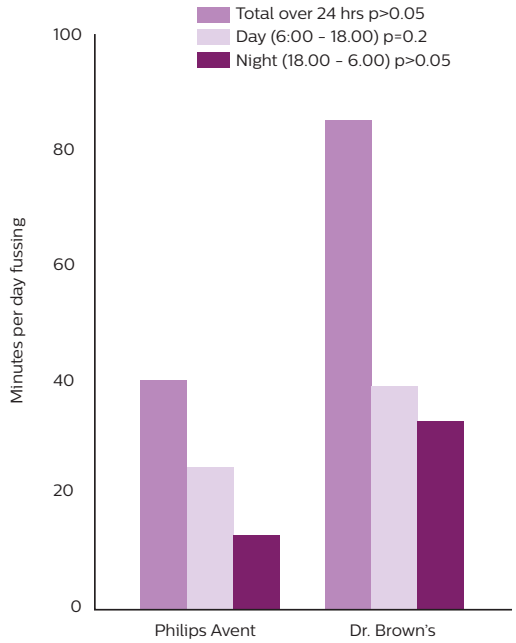
To determine whether feeding bottle design can influence infant growth or behaviour, including colic, crying and fussing. The Philips Avent bottle (AVB) has a one-way air valve whereas the Dr Brown's bottle (DB) has a complete internal venting system which we hypothesised would mean that less infant effort would be needed to obtain milk.

Method

63 healthy term bottle-fed infants were randomly assigned to use the Avent bottle (n=31) or the DB bottle (n=32) for at least the first 4 weeks of life. Data were collected during home visits at enrolment, 2,3,4 weeks and 3,6 and 12 months. The main outcome measure was infant weight gain during the study period. Secondary outcomes were (i) infant length and head circumference; (ii) infant behaviour measured at 2 weeks using validated 3-day diaries. Each diary was divided into four 6-hour periods. Within each period mothers shaded in 5-min sections coding for sleeping, feeding, awake and content, fussing (baby unsettled, irritable and/or vocalizing but not continuously crying), crying and colic.; (iii) incidence of gastroenteritis and ear infections; (iv) mother's opinion of the bottle on a range of characteristics.

Figure 1

Time spent fussing per total 24 hours, during the day (6am-6pm) and night (6pm-6am), according to randomised bottle.



Results

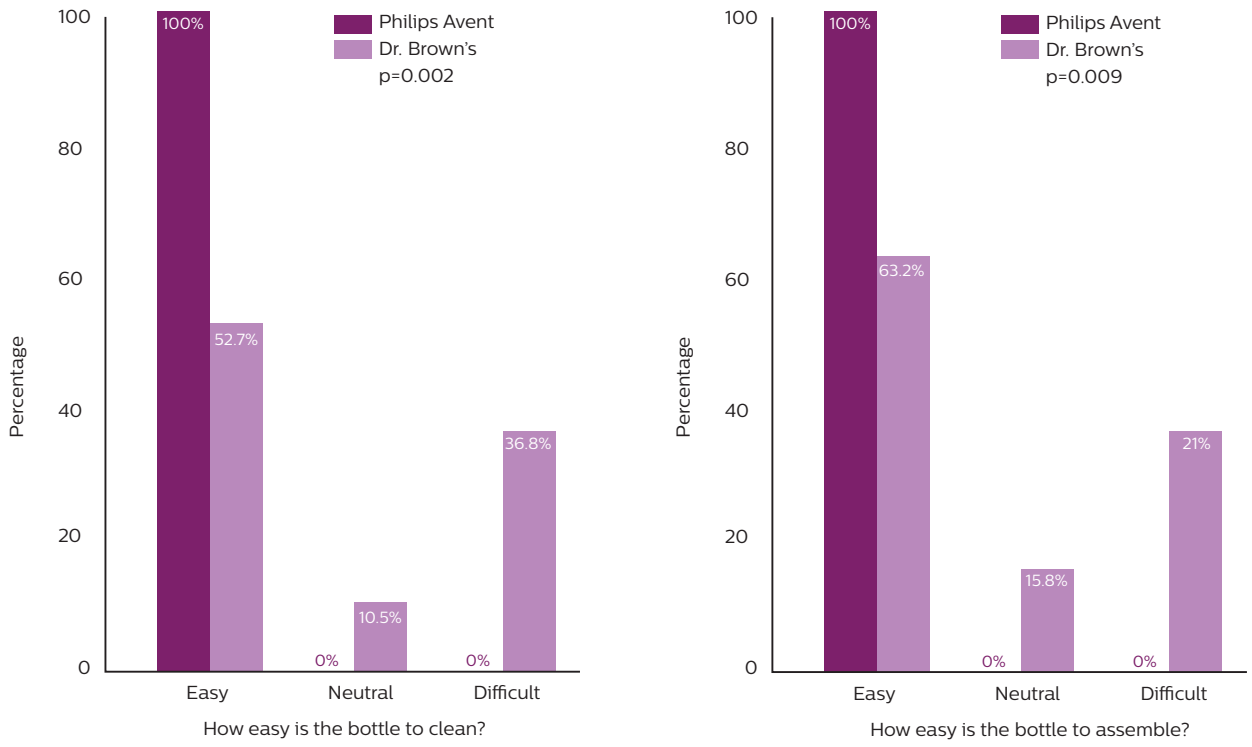
- There were no significant differences in growth between the randomised groups.
- At 2 weeks, the three infant 'distress' behaviours - fussing, crying and colic - in total accounted for approximately 95 minutes per day, with fussing the commonest single distress behaviour, accounting for approximately 65 minutes per day. Infants fed with AVB bottles spent significantly less time fussing, as compared to those using the DB bottle (median 40 versus 85 minutes per day, p=0.045; Figure 1). The difference between groups was greatest at night (6pm-6am, p=0.04).
- Mothers awarded the AVB significantly better scores for the characteristics ease of assembly (p=0.009) and ease of cleaning (p=0.002). See Figure 2. Significantly more mothers using the DB bottle reported problems with leaking (p=0.007).
- The incidence of ear infections and gastroenteritis did not differ significantly between the groups.

Conclusion

Infant feeding bottle design did not influence early milk intake or growth. However, bottle design had short-term effects on infant behaviour and maternal satisfaction which are likely to be of importance to parents and which merit further investigation.

Figure 2

Mother's opinions of bottles



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