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### A baby-led approach to solids with healthcare parental support does not increase the risk of choking

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**English key words:** baby feeding, choking, pediatrics, baby-led weaning, baby-led introduction to solids, clinical trial.

**Spanish key words:** alimentación del lactante, atragantamiento, pediatría, alimentación guiada por el bebé, ensayo clínico.

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# A baby-led approach to solids with healthcare parental support does not increase the risk of choking

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## Abstract

**Authors' conclusions:** infants following a modified version of baby-led weaning (the baby-led introduction to solids [BLISS]) did not choke more often than infants following traditional feeding practices. However, high proportions of infants in both groups were offered foods posing a choking risk.

**Reviewers' commentary:** although in the study there are a number of pre-randomization losses that may compromise external validity, the analysis of the results seems to support this technique of feeding the infant. Studies with a greater number of participants, diverse socioeconomic extracts and better advice on foods likely to cause choking should be analyzed.

**Key words:** baby feeding, choking, pediatrics, baby-led weaning, baby-led introduction to solids, clinical trial.

## La alimentación complementaria a demanda con soporte parental educativo no incrementa el riesgo de sofocación

### Resumen

**Conclusiones de los autores del estudio:** la técnica de alimentación denominada alimentación complementaria guiada por el bebé o *baby-led weaning* (BLW) con asesoramiento a los padres parece ser segura y no incrementa el riesgo de atragantamiento y sofocación. Sin embargo, es preocupante el número de niños que reciben alimentos susceptibles de provocar estos eventos.

**Comentario de los revisores:** aunque en el estudio se produce un número de pérdidas prealeatorización que puede comprometer la validez externa, el análisis de los resultados parece apoyar esta técnica de alimentar al lactante. Habría que analizar estudios con mayor número de participantes, de estratos socioeconómicos diversos y con mejor asesoramiento sobre alimentos susceptibles de provocar atragantamientos.

**Palabras clave:** alimentación del lactante, atragantamiento, Pediatría, alimentación guiada por el bebé, ensayo clínico.

## STRUCTURED ABSTRACT

**Objective:** to determine whether a baby-led approach to complementary feeding (baby-led introduction of solids [BLISS]) that includes support and education of parents is associated with a higher risk of choking and gagging than traditional spoon-feeding.

**Design:** randomised clinical trial with blinded evaluation.

**Setting:** Dunedin Hospital, New Zealand.

**Study sample:** pregnant women booked with the maternity unit before 34 weeks' gestation, aged 16 or more years, that spoke English or the indigenous language of New Zealand and planned to live locally for the next two years. Exclusion criteria were preterm birth before 37 weeks' gestation or identification of a congenital anomaly or disability likely to affect feeding or growth.

Of the 1900 pregnant women assessed for eligibility, 206 ultimately agreed to participate, and they were randomly assigned to the intervention group (IG) or the control group

(CG) with random length blocks after stratification for parity and educational attainment.

The intervention consisted on baby-led introduction of solids (BLISS) with additional education of parents on how to minimise the risk of gagging without airway obstruction and choking (105 infants). The CG (101 infants) introduced solids by traditional spoon-feeding methods.

**Risk factor assessment:** the primary outcome variable was the number of episodes of choking or gagging at ages 6, 7, 8, 9 and 12 months.

All families received education on complementary feeding. The IG received eight additional contacts for education and support regarding the BLISS approach and the foods most likely to cause choking, as well as written information on how to recognise and manage choking and gagging.

Parents were encouraged to delay the introduction of complementary foods until age 6 months (when infants have developed the ability to sit upright and feed themselves solids safely) and allow the baby to self-feed in every meal.

**Outcome measurement:** outcomes were measured by a questionnaire administered at ages 6, 7, 8, 9 and 12 months and a daily calendar for two weeks at ages 6 and 8 months (to minimise recall bias). Parents completed weighted diet records on three randomly assigned non-consecutive days for three weeks at ages 7 and 12 months, documenting the weight, size and texture of foods.

The data were analysed according to modified intention to treat. The authors used Poisson regression with robust standard errors to compare the number of children who had episodes of gagging without airway obstruction or choking and the number of children offered foods that posed a choking risk in either group, and performed negative binomial regression to compare the number of episodes per infant in each group. The authors calculated the relative risks (RRs) with their corresponding 95% confidence intervals (95 CI).

**Main results:** the introduction of solids was delayed to age 6 months in 65% of infants in the IG compared to 18% in the CG ( $P < .01$ ).

Complete data were obtained for 170 infants. Thirty-five percent (59 infants) had at least one episode of gagging between ages 6 and 8 months. There were no differences between groups.

A total of 8114 gagging episodes were reported between birth and 8 months and at age 11 months. At 6 months the infants in the IG had gagging episodes more frequently in comparison to infants in the CG (RR, 1.56; 95 CI, 1.13 to 2.17), but fewer than infants in the CG at 8 months (RR, 0.60; 95, 0.42 to 0.87).

Foods that posed a risk of choking were given to 52% percent of infants at age 7 months and 94% at age 12 months, with no differences between the two groups.

**Conclusion:** BLISS with advice to parents toward minimising choking risk did not appear to increase the frequency of choking episodes compared to the conventional feeding method (spoon-feeding). However, the large number of children that received foods that posed a risk of choking was alarming.

**Conflicts of interest:** the authors did not declare any.

**Funding source:** none noted.

## COMMENTARY

**Justification:** baby-led weaning<sup>1</sup> is an emerging trend in baby-led introduction of solids that consists in allowing the child to pick up and put foods in his or her mouth when ready for it. Although there are studies demonstrating its safety and benefits,<sup>2-4</sup> the risk of gagging and choking continues to be a concern, which justified conducting this study.

**Scientific validity/rigour:** the population under study, intervention (BLISS) and outcome of interest (gagging and choking episodes) were clearly defined. The randomisation seems appropriate, although the authors did not specify whether researchers were blinded to the sequencing. Observer bias was minimised (blinded evaluation of outcomes), as was recall bias (data collection by means of questionnaires and calendars). Retention was high, with few losses to followup. However, there were a high number of losses before randomisation, which could compromise the external validity of the trial. The analysis was conducted by intention to treat. It was only adjusted by stratification by parity and educational attainment at the stage of randomisation, without taking into account other confounding variables.

**Clinical relevance:** the frequency of choking events was similar in both groups, and there was a very small difference in the incidence of gagging, which was more frequent in the CG at age 6 months (RR, 1.56, 95 CI, 1.13 to 2.17), with the opposite trend at 8 months (RR, 0.60, 95 CI, 0.42 to 0.87).

The literature includes few studies on this feeding method, although it seems to be a safe approach when combined with measures to minimise the risk of choking.<sup>5</sup>

An alarming finding of the study was the high frequency with which foods that pose a high risk of choking were offered in both the intervention and control groups.

**Applicability to clinical practise:** the evidence suggests that baby-led weaning under supervision could be a safe approach, although it would be beneficial to have evidence from studies with a larger sample size, participants from more

diverse socioeconomic backgrounds, and in which parents receive more thorough advice regarding the foods most likely to cause choking.

**Conflicts of interest:** the authors of the commentary have no conflicts of interest to declare.

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