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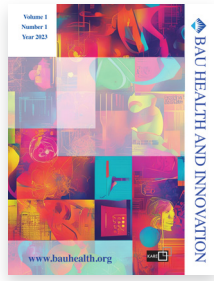

Review

A New Look to Complementary Feeding: Baby-led Weaning Approach

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Abstract

This review compares the relative effects of Baby-Led Weaning (BLW) and traditional complementary feeding on infant nutrition and development. The available evidence indicates that infants in who fed by BLW have higher intakes of saturated and total fats, although energy intake does not differ significantly between the two feeding groups. The risk of choking is not unique to either feeding practice and simply reinforces the need for parents to supervise mealtime. There is a greater risk of iron deficiency with BLW because of the generally lower iron content of typical BLW foods, but some studies report no differences in iron intake between infant feeding groups. With regard to obesity, BLW does not lead to greater increases in weight, but findings are inconsistent across studies. Furthermore, BLW is related to healthier eating behavior, such as a slower pace of eating and reduced picky eating, which may help promote positive long-term dietary habits. From a sociocultural perspective, BLW is adopted by those with higher parental education and longer breastfeeding duration. This review emphasizes that further investigation should be done to explain the long-term health outcomes of BLW and also explain how sociocultural factors shape feeding practices.

Keywords: Baby-led weaning, complementary feeding, picky eating.

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Complementary feeding practices are required when breastmilk alone is no longer meeting the baby's needs. In this period, foods other than breast milk and formula are introduced according to the baby's development.[1] The World Health Organization (WHO) suggests that this period should start when babies are 6 months old and continue until the end of the 23rd month.[2] In the past 10–15 years, in addition to traditional complementary feeding methods, the "Baby-Led Weaning" (BLW) approach has become popular. The BLW approach was first introduced by Gill Rapley as an alternative to traditional complementary feeding methods.[3–5] In traditional complementary feeding, pureed foods are introduced with a spoon. Hwever in the BLW approach, parent-led stages are skipped and unmixed, whole foods are consumed according to the baby's own choice. Besides, babies actively participate in family meals and can choose when to start the meal and what they will eat.[6] Because of the possible disadvantages, such as the risk of choking and iron deficiency; BLW should be utilized for infants who are 6 months old, born at term, have no health issues or neurodevelopmental abnormalities, and can sit on their own. They should be able to grab items on the table and maintain a vertical position.[7–9] As a result of these discussions, a modified version of BLW defined as the Baby-Led Introduction to SolidS (BLISS) approach was developed. In the BLISS approach, basic BLW training is given to the person who takes care of the baby. Furthermore, offering foods that eliminate the risk of choking and, achieve adequate

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iron needs in the baby's meals is prioritized.[10] In this review, the BLW approach used in complementary feeding practices was evaluated in the light of current literature.

BLW Feeding Practices

Energy and Macronutrient Intake

Malnutrition has a crucial role in complementary feeding practices since it might increase mortality and morbidity and cause a delay in the development of the baby's motor skills.[11] A study conducted by Pearce et al.[12] investigated the differences between Traditional Complementary Feeding and BLW on adequate nutritional intake. 6–12-months-old babies were divided into groups according to their ages, then they were divided into their type of complementary feeding. According to the 24-h feeding record taken from the mothers of the babies; It has been observed that the diets of babies fed with the BLW approach contain higher percentages of saturated fat and total fat. However, no different findings were noted between the groups in terms of energy intake. Another study conducted by Rowan and Brown evaluated the 3-day weighed diet diaries completed by 71 babies' parents. They aimed to measure energy and macronutrient intake in infants aged 6–12 months. According to the authors; In 26–39 weeks infants; regardless of the feeding method, a few infants met the recommended energy intake. They state that infants weaned with strict BLW ate under the WHO's complementary feeding guidelines. Besides, the majority of the traditional weaning infants were eating more than the recommended amounts. On the other hand, this difference was smaller in infants aged 40–52 weeks. In terms of macronutrient distribution, traditionally weaned infants aged 26–39 weeks consumed more carbohydrates, protein, and fiber than BLW infants. However, in infants aged 40–52 weeks, the authors stated no differences between the two weaning groups. Since it's discussed by health professionals, it's important to highlight that both groups met the recommended protein intake.[13]

Risk of Choking

Choking incidents that may occur in complementary feeding practices are a concern for parents and health professionals.[14,15] Several studies about BLW have already highlighted the risk of choking events.[16,17] Moreover, in a randomized clinical trial, De Paiva et al.[18] compared different complementary feeding practices toward choking and gagging events. Their results demonstrate that, overall 26.2% of the 6–12-month-old children report choking and there weren't any significant differences observed between traditional, mixed, and BLISS methods. The authors of the study indicate that the reason of the choking was mostly semi-solid foods. Another study by Utami et al. [19] investigated the experiences of mothers while using the BLW approach. They also noted that regardless of the complementary feeding method, certain foods might expose choking and gagging incidents. For this reason, supervision by parents or caregivers is essential due to the elimination of potential risks. Parents must be informed about the foods that cause choking and how to handle this kind of situation.

Iron Deficiency

Even though the amount of iron is crucial for infants to ensure healthy growth and development; iron deficiency is very common in worldwide, especially in disadvantaged subpopulations.[20] Since caregivers usually prefer steamed vegetables and fruits in the BLW approach, iron deficiency is one of the main concerns of this approach.[16] Hanindita et al.[21] emphasized this issue in their study and found that breastfed infants are at high risk of iron deficiency anemia. In addition, with similar results, Pearce's study supports Hanindita's findings.[12] The BLW approach appeared to contain less iron when compared with traditional complementary feeding. However, Rowan et al.[13] haven't seen any major differences in terms of iron between the two approaches. Furthermore, another randomized trial conducted by Arslan et al.[22] found that anemia and iron deficiency were not present in infants fed with BLW. The results are attributed to; the routine iron supplementation provided by T.R. The Ministry of Health during infant follow-up and mothers were informed about iron intake with the training given by the authors of the study. The variability in the results may attributed on the mothers' awareness and knowledge levels on the subject, socioeconomic status, and health policies that may vary nationally.[23]

Obesity

Complementary feeding practices have an important impact on reducing the risk of obesity and maintaining the ideal weight for the baby's growth and development.[24] The BLW approach is thought to have a positive effect on the development of feelings of hunger and fullness, as the baby has an active role in choosing the food to be consumed and creates a positive eating environment within the family.[25] A randomized controlled study conducted by Arslan et al.[22] examined mothers of 62 children who had not yet transitioned to complementary feeding. After the randomization, the intervention groups were classified as the BLW group and the traditional spoon-feeding (TSF) group. According to the results, there were no significant differences seen in both groups in terms of weight for height, height for age, and weight in infants at the ages of 6 and 12 months. Moreover, the increment of weight and height were similar between groups over time. The authors

stated that the BLW approach did not lead to the risk of obesity. However, a systematic review by Martinon-Torres demonstrated that; using the BLW approach is associated with lower weight gain in some studies meanwhile others were inconclusive. Because of the indecisive results and risk of biases; the authors highlighted the necessity of more clinical trials and prospective studies.[26] Besides, another systematic review by Bergamini marked that neither BLW nor the BLISS approach has a preventive effect on obesity.[27]

Impact on Eating Habits

Eating habits learned at a young age can affect a person's eating behavior for a lifetime. Thus, the family's encouragement of healthy eating habits to their children has great importance.[28,29] The BLW approach is thought to have an impact on the eating behavior of babies since they can spend more time with their families and consume the same foods during meals.[30] In a cross-sectional study conducted by Campeu,[31] mealtime behaviors, food acceptance, and motor skills were compared among 10–14-month-old infants. To define eating behavior practices 3 online questionnaires were completed by the infant's parents. As a result of the study, authors demonstrate that BLW was related to healthy eating habits, slower eating pace, and fine motor skills in infants. No differences were observed in food acceptance between traditional weaning and BLW. In addition, the authors also highlighted the parental pressure regarding food choices.

Being a "picky eater" is one of the issues that can be seen in the age of complementary feeding. Sometimes, the introduction of new foods may seem unfamiliar to a child and results in refusal. At this point, parents' encouragement and temperate approach toward the child are more effective in developing a healthy eating habit. A qualitative descriptive study conducted by Utami et al.[19] investigated the experiences of Indonesian mothers using BLW as a complementary feeding approach. 13 mothers who used BLW for a minimum of 6 months were examined through semi-structured interviews. The participants stated that, because of using BLW as a method of complementary feeding, the infants were not picky eaters. They try and accept a variety of foods with different textures including vegetables. They included that, they easily adapt themselves to eating when they're outside of the home.

Parental Characteristics and Sociocultural Influences

Cross-sectional studies from the UK suggest that 30–60% of parents strictly adhere to BLW practices. In contrast, data from New Zealand shows much lower rates, with only 8–18% of parents fully adopting BLW and approximately 70% relying on TSF methods. These differences may be attributed to sociocultural and population variations between the two countries, as well as the absence of a standardized definition for BLW, which complicates comparisons. Notably, the BLW practices promoted in the BLISS trial were tailored to be both developmentally appropriate for infants and socioculturally suited to the study population in New Zealand.[13,30,32] It is important to note that parents who adopt BLW practices tend to differ from those who follow traditional complementary feeding methods, which may limit the generalizability of impacts and outcomes to other demographic groups. Specifically, BLW parents often have higher levels of education, breastfeed for longer durations, and exhibit distinct personality traits. In addition, these parents tend to introduce complementary foods later than those practicing spoon-feeding, aligning more closely with the World Health Organization's (WHO) recommendation to begin solids around six months of age.[10,30,33–35]

Conclusion

In recent years, complementary feeding practices that are left to the baby's choice have begun to gain popularity, especially in countries with high socioeconomic levels. Nevertheless, the fact that the BLW approach does not have a specific definition accepted by the literature may confuse in terms of its introduction. In addition, there are no standard guidelines published by major health authorities regarding the BLW approach. For this reason, the foods that parents offer to their babies may vary. The main reasons for this variability are the education level of the parents and the sources from which they obtained the information.

Most of the studies on the BLW approach in the literature include surveys or cross-sectional studies obtained from observational studies. Since such studies are based on information given by families, they may pose a risk of bias and indicate the need for more large-scale randomized controlled studies. As stated in the position report published by the European Society of Pediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) in 2017; More randomized-controlled studies are needed to make a definitive conclusion about the BLW approach.[36] Despite a significant number of studies conducted with the BLW approach, more studies with high levels of evidence are needed. Besides, it is thought that the BLISS approach, which is a modified version of the BLW approach, can yield positive results due to the introduction of iron-rich foods and the preference of foods that reduce the risk of choking. However, both approaches require parental supervision. With the guidelines of international authorities and large-scale randomized controlled studies, health professionals and parents will be able to access reliable sources about the BLW approach.

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