

## Comparative Nutrient Analysis of Regular, Organic, and Homemade Infant and Toddler Foods

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### Abstract

The purpose of this research was to compare energy and selected nutrients from labels of regular pre-packaged and organic pre-packaged foods, and calculated from information in the USDA Nutrient Database for Standard Reference for homemade foods for infants and toddlers. Two-hundred and thirty-two infant products and 71 toddler products were evaluated. Regular pre-packaged infant foods had more kilocalories, carbohydrates, sugar, sodium, calcium, iron, and vitamin C. Organic pre-packaged toddler foods had more kilocalories, fiber, sugar, and vitamin C. Educating parents/caregivers in effective label reading and nutritional assessment methods can help with making better food choices for infant and toddlers.

**Keywords:** Complementary feeding; Infants; Toddlers; Homemade baby food; Nutrient evaluation

### Introduction

Nutrition needs change drastically during the first two years of life. In infants (0-12 months of age), nutrients are initially supplied exclusively by breastfeeding and/or formula feeding. Pureed foods are typically added to the infant diet at six months of age. As infants develop into toddlers (13-24 months), nutrient needs increase and additional foods are added to the child's diet. The transition to the family foods diet, called weaning or complementary feeding, typically spans 6-24 months of age [1].

A multitude of options and information is available on complementary feeding. The American Academy of Pediatrics Committee on Nutrition recommends complementary feeding begin at six months of age [2]. A recent survey, however, found parents begin such feeding as early as four months of age [3]. Shepherd [4] recommends parents look for cues of readiness from the infant to start complementary feeding, such as interest shown in what the caregiver is eating, the infant can sit up with some support, interest in chewing, and the infant is showing signs of hunger after a feeding even when the volume has been increased. Weaning an infant to a diet based on solid foods should occur in stages to encourage proper nutrition, growth, and development. Stage 1 foods include smooth purees, such as fruit, vegetables, and baby rice cereals. Stage 2 foods include mashed or pureed foods including protein-rich and starchy foods, fruits, and vegetables. Stage 3 foods should include those that encourage chewing, soft foods, and foods with a variety of textures [4].

Nutrition needs vary widely for infants and toddlers during growth and development; therefore, daily value percentages for fat, cholesterol, sodium, potassium, carbohydrates, and fiber are not set for children under the age of four [5]. Food labels can be a valuable source of nutrition information and 43% of parents in a recent survey reported reading nutrition labels on baby/toddler foods [6]. Such labels can also be a source of confusion. In a study of food labels on complementary foods in South Africa, 35% of the labels did not indicate an introduction age, 12% indicated an excessively large serving size and 23% included images that suggested the product was appropriate for children younger than 6 months of age only 36% of the labels evaluated were

considered easy to read. Serving sizes on food labels for children under two are based on average consumption values but what constitutes an appropriate portion for a given child can be unclear [7]. Such varied information can make the transition from breast/formula feeding to the family foods diet overwhelming for parents.

Organic products are a rapidly growing segment in the food industry. The Organic Trade Association (OTA) reported sales of organic foods in the United States increased to \$35.1 billion in 2013 [8]. Results from a survey conducted by OTA found children's health was a driving force in respondents choosing organic products, with 90% of parents indicating they chose organic foods for their children at least "sometimes." Organic baby/toddler foods were "always" chosen by more than one-third of parents utilizing such products and 74% of child care centers reported offering organic choices for children. Shoukas [6] reported organic baby food sales increased 63% from 2011 to 2013 and new foods/drinks using the claim organic increased 59%. Although consumers often equate "organic" with "healthy," there is little information comparing the nutritional properties of conventional and organic baby foods.

Currently, there is substantial research available on breastfeeding and formula feeding, individual nutrient components in infant and toddler foods, and consumption patterns of infants and toddlers. However, there is a gap in available research providing comparisons of complementary foods for infants and toddlers regarding major nutrition components for regular, organic, and homemade foods. This information would help inform and educate parents when

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selecting the best feeding option for their family. The purpose of this research was to compare the kilocalories, total grams of fat, grams of trans fat, milligrams of sodium, milligrams of potassium, total grams of carbohydrates, grams of fiber, grams of sugar, grams of protein, percent vitamin A, percent vitamin C, percent calcium, and percent iron for regular pre-packaged, organic pre-packaged, and homemade foods for 1) infants and 2) toddlers.

## Materials and Methods

### Foods analyzed

Foods analyzed came from one regular pre-packaged complementary food company, Gerber™, one organic pre-packaged complementary food company, Sprouts™, and recipes submitted by individuals for homemade complementary foods for infants and toddlers. The commercial brands were limited to Gerber™ and Sprouts™ due to their ready availability in major grocery stores and retail markets nationwide. Homemade foods were defined as foods prepared solely within the home. In order to document these foods, a survey was conducted among parents and caregivers using social media to obtain their homemade recipes.

### Design

This was a quantitative research design of infant and toddler foods. The independent variables were regular pre-packaged (Gerber™), organic pre-packaged (Sprouts™), and homemade infant and toddler foods. The dependent variables were kilocalories, total grams of fat, grams of trans fat, milligrams of sodium, milligrams of potassium, total grams of carbohydrates, grams of fiber, grams of sugar, grams of protein, percent vitamin A, percent vitamin C, percent calcium, and percent iron. Infant foods were compared as regular, organic, and homemade foods among the dependent variables. Toddler foods were compared in the same manner; however, infant and toddler foods were not compared to each other. All data collection instruments and procedures were reviewed and approved by the East Carolina University Institutional Review Board (IRB) as Not Human Subject Research (NHSR).

### Participants

The participants were recruited through a survey that was distributed four times on the social media website Facebook. The survey was posted on a childcare page and targeted parents and childcare workers who fed infants and toddlers homemade foods. No compensation was received for participating in the survey. Participants were anonymous and voluntary.

Participants consented to taking the survey when they entered the link and were informed the survey would take approximately 15 min. Participants then answered questions pertaining to the age of the child the food was to be prepared for (4-12 months or 13-24 months), the meal category of the recipe (breakfast, lunch, dinner, or snack), and the recipe. The questions about the child's age, meal category, and recipe were asked two more times in order to give participants the opportunity to provide more than one recipe.

### Procedures

Data for this research project were collected from Gerber™ and Sprouts™ infant and toddler food products. Gerber™ infant and toddler foods nutrition information was gathered for both their regular and organic products. The food products were categorized as cereal, baby food, snacks, yogurt snacks, meal options, and sides on the

Gerber™ website. The food products were further categorized into Supported Sitter, Sitter, Crawler, and Toddler groups. Infant foods were from the categories of Supported Sitter, Sitter, and Crawler and toddler foods were from the category of Toddler. Sprouts™ organic infant foods were taken from products categorized as for Babies while toddler foods were taken from products categorized as for Toddlers on the manufacturer's website.

Information for foods from both Gerber™ and Sprouts™ were recorded onto labeled spreadsheets for infants and toddlers by listing the name of the food, serving amount in grams, kilocalories, grams of total fat, grams of trans fat, milligrams of sodium, milligrams of potassium, grams of total carbohydrates, grams of fiber, grams of sugar, and grams of protein. Vitamin A, vitamin C, calcium, and iron were recorded as percentages of recommended total daily values.

Homemade infant and toddler food recipes were downloaded and printed from the survey website. In order to convert vitamin A, vitamin C, calcium, and iron contents for homemade foods into percentages, the total for each component in a recipe was divided by the appropriate daily value and multiplied by 100. The name of the recipe and corresponding nutrition information were then recorded on the respective spreadsheets for infant and toddler foods.

### Statistical analysis

Each nutrient was divided by the grams of food present in one serving to allow statistical analysis of the dependent variables based on nutrient amount per 1 gram of food for both infant and toddler foods. Analysis of variance (ANOVA) testing using JMP Pro 11 (SAS, 2014) was performed to determine if differences existed between Gerber™, Sprouts™, and homemade foods for kilocalories, total fat, trans fat, sodium, potassium, carbohydrates, fiber, sugar, protein, vitamin A, vitamin C, calcium, and iron. If differences were detected, least significant differences were used to make pair-wise comparisons of means adjusted for the number of categories being compared in the ANOVA. No comparisons were made between infant and toddler foods. Statistical significance for all tests was assessed using a type I error significance level of  $\leq 0.05$ .

## Results

The primary objective of this study was to compare the nutritional components for regular pre-packaged, organic pre-packaged, and homemade foods for 1) infants and 2) toddlers. A total of 232 infant products (Gerber™=114, Gerber™ organic=59, Sprouts™=38, homemade=21) and 71 toddler products (Gerber™=26, Gerber™ organic=4, Sprouts™=19, homemade=22) were evaluated.

### Kilocalories (kcal)

In infant products, Gerber™ foods were higher ( $p=0.002$ ) in kilocalories (1.42 kcal/g) compared to Sprouts™ (0.67 kcal/g) and homemade (0.84 kcal/g) foods (Table 1). Although most Gerber™ products contained 1 to 1.5 kcal/g, a subset of products, including Single Grain Cereals, Multigrain Cereals, Arrowroot Cookies, Puffs, Yogurt Melts, Lil Crunchies, and Wagon Wheels, contained 3.5-5.0 kcal/L g of food and contributed to the higher overall average kcal/g of food for Gerber™.

Sprouts™ toddler products were higher ( $p=0.04$ ) in kilocalories (2.23 kcal/g) compared to Gerber (0.84 kcal/g), Gerber™ organic (0.79 kcal/g) and homemade (1.32 kcal/g) foods (Table 2). Products such as Crispy Chews, Cereal Snacks, and Fruity Yogurt Bites, which

Nutritional Component	Gerber (n=114)	Gerber Organic (n=59)	Sprouts (n=38)	Homemade (n=21)
Kilocalories	1.42a	1.07a,c	0.67b,c	0.84c
Total fat (g/1 g)	0.03a	0.01b	0.01b	0.03a
Total carbohydrates (g/1 g)	0.26a	0.21a	0.13b	0.10b
Fiber (g/1 g)	0.01a	0.01a	0.02b	0.02b
Sugar (g/1 g)	0.11a	0.11a	0.06b	0.04b
Total protein (g/1 g)	0.02a	0.02a	0.02a	0.06b

a-c Numbers in the same row followed by the same letter are not significantly different (p>0.05)

**Table 1:** Kilocalories, fat, carbohydrates, fiber, sugar and protein contents of infant foods.

Nutritional Component	Gerber (n=26)	Gerber Organic (n=4)	Sprouts (n=19)	Homemade (n=22)
Kilocalories	0.84a	0.79a	2.23b	1.32c
Total fat (g/1g)	0.02a	0.02a	0.00b	0.05c
Total carbohydrates (g/1g)	0.13a	0.13a	0.53b	0.18c
Fiber (g/1 g)	0.01a	0.01a	0.05b	0.02c
Sugar (g/1 g)	0.04a	0.03a	0.33b	0.07c
Total protein (g/1 g)	0.02a	0.03a	0.03a	0.05a

a-c Numbers in the same row followed by the same letter are not significantly different (p>0.05)

**Table 2:** Kilocalories, fat, carbohydrates, fiber, sugar and protein contents of toddler foods.

ranged from 3.3-4.2 kcals/L g of food, contributed to the higher average kilocalories for Sprouts™ toddler foods.

#### Total fat and trans fat

Although statistical analysis indicated differences in fat content in infant foods (Table 1), average fat contents were very low for all products, ranging from 0.01 to 0.03 g/g. Trans fat was reported on only a small number of labels and was therefore not evaluated statistically.

Although statistical analysis indicated homemade foods were higher (p<0.001) in total fat (0.05 g/g) compared to the Gerber™ (0.02 g/g) and Sprouts™ (0.00 g/g) products, average fat content was very low in all toddler products evaluated (Table 2). As with infant products, trans fat was reported on only a small number of labels and was therefore not evaluated statistically.

#### Total carbohydrates

Gerber™ (0.26 g/g) and Gerber™ organic (0.21 g/g) infant products were higher (p=0.005) in carbohydrates compared to Sprouts™ (0.13 g/g) and homemade (0.10 g/g) infant foods. Products containing higher levels of cereal ingredients, including Single Grain Cereal Rice, Single Grain Cereal Brown Rice, Single Grain Cereal Oatmeal, Puffs, Arrowroot Cookies, Lil Crunchies, and Wagon Wheels, contributed to the higher carbohydrate contents of the Gerber™ infant products.

Sprouts™ products (0.53 g/g) had the highest (p=0.001) carbohydrate content on average in the toddler foods group (Table 2). Products containing high levels of both cereal and fruit ingredients, including Apple, Blackberry and Spinach with Buckwheat, Strawberry, Pear and Butternut Squash with Amaranth, Orange Fruit and Carrot Crispy Chews, and Red Berry and Beet Crispy Chews, were primary contributors to the higher carbohydrates in Sprouts™ toddler products.

#### Fiber

Although statistical differences were detected between Gerber™ (0.01 g/g), Gerber™ organic (0.01 g/g), Sprouts™ (0.02 g/g) and

homemade (0.02 g/g) infant foods (Table 1), all products were very low in fiber content.

Sprouts™ toddler products (0.05 g/g) were higher (p=0.03) in fiber content on average compared to Gerber™ (0.01 g/g), Gerber™ organic (0.01 g/g) and homemade (0.02 g/g) foods (Table 2). However, all toddler products were low in fiber content.

#### Sugar

Gerber™ (0.10 g/g) and Gerber™ organic (0.10 g/g) infant products were higher (p=0.02) in sugar content compared to Sprouts™ (0.06 g/g) and homemade (0.04 g/g) infant foods (Table 1). Sugar content was primarily associated with fruit ingredients. Ingredient lists indicated added sugars were not a component of the foods evaluated.

Sprouts™ toddler foods contained the highest (p<0.001) sugar content (0.33 g/g) (Table 2). Fruits, fruit concentrates and fruit juices were the primary contributors to sugar contents in all products. As with infant foods, ingredient lists indicated added sugars were not a component of the toddler foods evaluated.

#### Protein

Homemade infant foods contained higher (p=0.02) protein (0.06 g/g) compared to the commercial infant foods (Table 1). This was primarily related to the single meat puree recipes included in the homemade infant foods. Meat ingredients were associated with higher protein levels in the commercial foods, but most commercial products evaluated were combinations of meat and vegetable ingredients, which resulted in lower total protein per gram in those products.

Protein content in toddler foods was not different (p=0.18) between the four products (Table 2). Higher protein levels in the toddler foods were associated with products containing meat and dairy ingredients such as cheese and yogurt.

#### Sodium

Sodium levels were higher (p=0.01) in Gerber™ (0.59 mg/g) and homemade (0.56 mg/g) infant foods than in Sprouts™ products (0.11 mg/g) (Table 3). Products with meats, vegetables and cheese were the primary contributors to the sodium content in Gerber™ foods. Added salt was the primary contributor to the sodium content in homemade foods (Table 3).

Sprouts™ toddler foods had the lowest (p=0.005) sodium content on average (Table 4). The higher levels of sodium in both Gerber™ (1.96 mg/g) and homemade (2.02 mg/g) foods were associated with added salt.

#### Potassium

Potassium content was not reported on labels for Sprouts™ infant

Nutritional Component	Gerber (n=114)	Gerber Organic (n=59)	Sprouts (n=38)	Homemade (n=21)
Sodium (mg/1 g)	0.59a	0.38a,b,c	0.11b	0.56a,c
Potassium (mg/1 g)	1.96a	1.85a	*	2.09a
Calcium (mg/1 g)	0.11a	0.09a,b	0.03b	0.02b
Iron (mg/1 g)	0.34a	0.18a,b	0.04b	0.04b
Vitamin A (%/1 g)	0.74a,b	0.56a,b	1.06a	0.38b
Vitamin C (%/1 g)	0.27a	0.37a	0.09b	0.08b

\*not reported on labels  
a-c Numbers in the same row followed by the same letter are not significantly different (p>0.05)

**Table 3:** Sodium, potassium, calcium, iron, vitamin A and vitamin C contents of infant foods.

Nutritional Component	Gerber (n=114)	Gerber Organic (n=59)	Sprouts (n=38)	Homemade (n=21)
Sodium (mg/1 g)	1.96a,c	2.18a	0.76b	2.02c
Potassium (mg/1 g)	1.29a,b	0.93a	*	2.01b
Calcium (mg/1 g)	0.03a	0.02a	0.04a,b	0.07b
Iron (mg/1 g)	0.06a	0.03a	0.07a	0.04a
Vitamin A (%/1 g)	0.12a	0.03b	0.19a	0.12a
Vitamin C (%/1 g)	0.00a	0.00a	0.32b	0.13c
*not reported on labels				
a-c Numbers in the same row followed by the same letter are not significantly different (p>0.05)				

**Table 4:** Sodium, potassium, calcium, iron, vitamin A and vitamin C contents of toddler foods.

foods (Table 3). No differences ( $p=0.37$ ) were detected in potassium content between the Gerber™ (1.96 mg/g), Gerber™ organic (1.85 mg/g) and homemade (2.09 mg/g) infant foods.

Potassium content was also not reported on labels for Sprouts™ toddler foods (Table 4). Homemade toddler foods (2.01 mg/g) had greater ( $p=0.005$ ) levels of potassium compared to Gerber™ organic products (0.93 mg/g) but were not different ( $p=0.06$ ) from Gerber™ products (1.29 mg/g).

### Calcium

Infant products contained low levels of calcium (Table 3). Gerber™ foods (0.11%/g), however, contained higher ( $p=0.02$ ) levels of calcium compared to Sprouts™ (0.03%/g) and homemade (0.02%/g) foods. Since breastfeeding and/or bottle feeding would supply the majority of calcium in an infant's diet, the low levels noted for the foods evaluated may not be a concern.

Homemade toddler foods contained greater ( $p=0.02$ ) amounts of calcium compared to the commercial toddler foods (Table 4). This was primarily associated with products containing dairy ingredients. Calcium content in the toddler foods evaluated, however, was very low overall.

### Iron

Gerber™ infant foods (0.34%/g) were higher ( $p=0.01$ ) in iron content compared to Sprouts™ (0.04%/g) and homemade (0.04%/g) foods. The higher iron level in Gerber™ products was associated with fortified cereal based products such as single grain cereals and oatmeal mixed with fruits.

No differences ( $p=0.14$ ) in iron content were detected between toddler products. Average iron levels ranged from 0.03 mg to 0.07 % iron/g and were low for all products evaluated.

### Vitamin A

Sprouts™ infant foods contained a greater ( $p=0.02$ ) % vitamin A (1.06%/g) compared to homemade (0.38%/g) but was not different ( $p=0.09$ ) from Gerber™ (0.74%/g) or Gerber™ organic (0.56%/g) (Table 3). Products containing carrots and sweet potatoes were some of the primary contributors to the % vitamin A.

Gerber™ organic toddler foods contained the lowest ( $p=0.02$ ) %vitamin A (0.03%/g) (Table 4). This was primarily due to the absence of carrots and sweet potatoes in the Gerber™ organic toddler products evaluated.

### Vitamin C

Percent vitamin C was higher ( $p=0.01$ ) in Gerber™ (0.27%/g) and Gerber™ organic (0.37%/g) products compared to Sprouts™ (0.09%/g) and homemade (0.08%/g) (Table 3). The higher level of vitamin C in Gerber™ products was associated with the use of ascorbic acid as an ingredient.

Sprouts™ toddler foods contained the highest ( $p=0.04$ ) percent vitamin C (0.32%/g) (Table 4). This was primarily due to the wide variety of fruits and vegetables in the Sprouts™ foods evaluated.

### Discussion

Several of the nutrients evaluated in this study varied widely between regular pre-packaged, organic pre-packaged and homemade infant foods. Mean kcals/L g food for regular pre-packaged infant foods were approximately twice as high as those for organic pre-packaged and homemade foods. Carbohydrate content was also more widely dispersed in regular pre-packaged infant products compared to organic pre-packaged and homemade foods. In both cases, the higher kilocalorie and carbohydrate contents were due to a specific subset of products that included cereals and snack products such as cookies composed primarily of carbohydrates.

Many of the nutrients evaluated in this study varied widely between regular pre-packaged, organic pre-packaged and homemade toddler foods. Mean kcals/L g food for organic pre-packaged toddler products were about twice as high as those for either regular pre-packaged or homemade products. Fat content was more widely dispersed for homemade toddler products compared to regular and organic pre-packaged foods. Fiber content in organic pre-packaged toddler foods was more dispersed than in regular pre-packaged and homemade products. As with infant products, these variations were often due to specific subsets of products within the category being compared and indicate a potential need for education for parents/caregivers in effective label reading [9].

Mean sodium content of homemade infant foods was about five times higher than sodium content for organic pre-packaged products while homemade toddler foods were about twice as high in sodium content as that for either pre-packaged regular or organic foods. Although homemade infant foods were typically made specifically for the child, recipes for the homemade toddler foods were often those being prepared for the whole family. The higher sodium levels in the homemade infant and toddler foods were due to both salt added to the products and higher sodium ingredients being used in the preparation of the foods. Kerr et al. [10] also found infants and toddlers who were fed homemade foods consumed more salt than those fed commercially prepared foods due to mothers adding seasonings to the food and using canned products not designed for infants. Current recommendations for AI of sodium is 370 mg for infants 7-12 months old and 1000 mg for toddlers 12-24 months old [11]. Data from the 2008 FITS survey indicated 45% of toddlers consumed more than the UL recommendation for sodium [12]. Brion et al. [13] reported sodium intake in infancy may be associated with blood pressure later in life. Sodium intake exceeded recommended levels for the majority of infants in that study at 8 months and the authors suggested a need for development of strategies for reducing sodium levels in the diets of infants.

A very low level of calcium was present in the majority of products evaluated. Zand et al. [14] reported calcium levels in eight chicken-based and fisheries-based complementary foods in the United

Kingdom were inadequate to meet the Recommended Nutrient Intake in that country. Although a majority of the calcium intake for infants and toddlers will probably be supplied by breast milk and/or formula, parents/caregivers should still be aware of the calcium intake of their child(ren), particularly in older toddlers. Briefel et al. [15] reported calcium intakes of toddlers 15-24 months was significantly lower when high energy foods were being consumed and was associated with lower milk intakes. As breast milk/formula consumption decreases as the child ages, other calcium sources such as yogurt and cheese should be added to the diet.

The very low content of vitamin C in the products evaluated is also a concern. Vitamin C is needed for bone health, protein metabolism, and antioxidant defenses [16]. The AI for vitamin C intake in infants 0-12 months of age is 40-50 mg/d while the RDA for toddlers 1-3 years of age is 15 mg/d [17]. Fruits and vegetables are the primary source of vitamin C but numerous studies have found that consumption of such foods is often limited in infants and toddlers. Hurley and Black [3] showed that fruit and vegetable consumption decreased at 9-12 months of age as children transitioned from commercial foods to the family foods diet. Fox et al. [18] reported 27% of 9-11 month-olds and 18-23% of children 12 months or older consumed no servings of vegetables in a day while 25% of 7-18 month-olds and 33% of 19-24 month-olds consumed no servings of fruits. Ponza et al. [19] found 35% of infants (7-11 months of age) and 41% of toddlers (12-24 months of age) participating in WIC consumed no fruits on a given day. Those authors also noted that large numbers of both WIC and non-WIC participating infants and toddlers consumed no fruits or vegetables of any kind on a given day. Several studies have found that while toddlers were consuming vegetables, most of that intake was attributed to potatoes. Very low consumption of dark green and deep yellow vegetables has also been noted in most of these studies.

Iron content was also very low in the infant and toddler foods evaluated in this study. Iron has a variety of functions in the body, including roles in immune system functioning, cognitive development, oxygen and energy metabolism, blood formation, and bone health [16]. Iron deficiency during infancy has been associated with poorer cognitive, motor, social, emotional, and neurophysiological outcomes in adolescents. Briefel reported significantly lower iron intakes in 9-11 month-olds compared to other age groups [20]. This was attributed to lower intakes of iron-fortified cereals and formula. Although most infants consumed adequate levels of iron in the 2008 FITS study, 12% of infants 6-11 months of age were reported to have inadequate intakes of the mineral. Meat provides some of the most bioavailable iron in the diet; the Centers for Disease Control [21] and others [18] have recommended meats in appropriate forms be introduced at about 6 months of age to insure adequate iron intake. Fox et al. [18], however, reported data from the 2008 FITS survey indicated commercial baby food dinners containing meats were most commonly consumed by infants with few infants under 6 months of age consuming plain meats of any kind. Chicken and turkey, which tend to be lower in iron content compared to red meats such as beef, were the most commonly consumed meats.

## Conclusion

The variations in nutrient contents between regular, organic, and homemade foods found in this study indicate a potential need for educational strategies aimed at helping parents/caregivers become effective label readers so information between brands and products can be compared accurately. Nutrition needs of children under the age of

four vary widely due to growth and development and therefore daily value percentages for many nutrients are not set. Educational strategies should focus on creating nutrition standards which help parents/caregivers determine appropriate nutrition content for the age of their child. Basic information on calculating nutrient contents, including methods for accessing and using nutrition information such as the USDA nutrient database, should be included in these educational strategies to help parents/caregivers make informed choices when preparing homemade infant and toddler foods.

Educational strategies should further aim to include the functions of the nutrients in the child's body and the importance of variety in the child's diet to promote healthy growth and development. Complementary feeding should include a range of fruits, vegetables, meats and whole grains. The low levels of vitamin C, calcium and iron noted in the majority of products evaluated and the high levels of sodium found in the homemade foods support the need for development of educational strategies that will help parents/caregivers become more effective label readers. Food sources for various nutrients, the use of enriched and fortified products to maintain iron levels, tips for increasing dietary variety, and methods for reducing sodium content are some of the topics that should be included in these education efforts to help parents/caregivers become more nutrition literate.

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