Nutritional quality of processed baby foods in the UK and ingredients used in them: A matter of concern?

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My baby food story
Outline

• Age of introduction of solid foods & labelling directives
• Nutritional quality, ingredients in baby foods
  - Sugar
• Texture and pouches
• Baby snacks
• Claims on packaging
The first year – a period of rapid change

Requirements increase

• Energy
• Protein
• Iron

Recommendations

Solids at 6 months
Vegetables, Cereals, Fruit
Iron-rich foods
Variety tastes and textures

Encourage homemade
Avoid added sugar or salt
Vitamin drops
Family foods 12 months +
What are babies eating?
(ate day before, %)

Scottish Infant Feeding Survey (2017)
32% consumed commercial baby food every day

Infant Feeding Survey, 2011
Commercial Baby Food

• All industrially processed, pre-packaged, complementary foods

• Ultra-processed?

Homemade baby food

• Self-prepared, semi-solid, puréed or mashed foods made from scratch

Foterek et al, 2016

First Steps Nutrition Trust, 2017
Age of solid food introduction

WHO
“Children should be breastfed, exclusively, for the first 6 months.”

Commercial complementary foods should not be advertised for infants under 6 months of age.
(WHO guidance on ending the inappropriate promotion of foods for infants and young children through resolution WHA69.9)
Commercial baby foods in the UK market
(proportion of products marketed 4 or 6 months in 2012)

Garcia et al, 2013 (n=479)
EU legislation: Where are we at?

- Directive 2006/125/EC. sets general compositional and labelling rules for processed cereal-based foods and baby foods
- The EC requires a Delegated act to replace Directive
- The EC asked EFSA’s opinion –
  At what age is it safe for infants to start eating solid foods?
- EFSA’s scientific report Sept 2019
  Delegate act – _not_ there yet!
Age of solid food introduction?

**EFSA (2019)**

- No precise age
- Infants **may** start on foods if developmentally ready.
- “But, being developmentally ready before 6 months of age, does not imply a need to start solids.”
- “No evidence for harmful or beneficial effects of solid introduction before 6 months of age.”

**SACN (2018)**

- Start solids at around 6 months when infants are developmentally ready.
- Introduction of solid foods before 6 months associated with greater risk of infections.

**Labelling commercial baby food**

- 4+ months
- undermines breastfeeding recommendations
Commercial baby foods in the UK market
(proportion of products marketed 4 or 6 months)

% Commercial products

<table>
<thead>
<tr>
<th></th>
<th>4 months</th>
<th>6 -7 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0%</td>
<td>20%</td>
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2011  
(n=479)

2018  
(n=1120)

A baby step!

PHE - June 2019
Garcia et al, 2013
## Nutritional content of commercial baby foods 2013 (n=410)

<table>
<thead>
<tr>
<th>Food</th>
<th>n</th>
<th>Energy (Kcal)</th>
<th>Protein (g)</th>
<th>Iron (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mature breast milk</td>
<td>68</td>
<td>68</td>
<td>1.6</td>
<td>0.07</td>
</tr>
<tr>
<td>Ready made purées</td>
<td>365</td>
<td>67</td>
<td>2.3</td>
<td>0.67</td>
</tr>
<tr>
<td>Dry finger foods/snacks</td>
<td>45</td>
<td>404</td>
<td>7.4</td>
<td>0.67</td>
</tr>
</tbody>
</table>

Mean values

# Nutritional content in baby foods 2019 vs 2012

<table>
<thead>
<tr>
<th>Products</th>
<th>Energy (Kcal)</th>
<th>Sugar (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012</td>
<td>2019</td>
</tr>
<tr>
<td>Main meal - meat</td>
<td>66</td>
<td>71</td>
</tr>
<tr>
<td>Savoury finger foods</td>
<td>418</td>
<td>441</td>
</tr>
<tr>
<td>F/V finger food</td>
<td>365</td>
<td>344</td>
</tr>
</tbody>
</table>

PHE, 2019
Infants are exceeding energy requirements

75% above the UK Estimated Average Requirement (2011)

Diet and Nutrition Survey of Infants and Young Children, 2011
The baby food market is too sweet!

- In 2013 and 2016, 48% & 54% of commercial baby foods suggested a sweet taste
- Sweet preferences
- Dental health
- Higher energy intake?

Baby foods found too sweet to encourage variety of tastes in children

University of Glasgow study of 329 baby foods shows fruit and sweet vegetables used far more readily than bitter ones such as spinach
Types of F&V in commercial baby foods

In 2018, 67% of fruit and vegetable pouches had apples or pears

First Steps Nutrition Trust, 2018
Fruit juice in commercial baby foods

- 2016: 15g/100g fruit juice was added to 18% (n=59) products

Garcia AL et al Matern Child Nutr, 2016
Free Sugars

Added to food
Naturally present

11.5g sugar
0g free sugar

High Fibre
Low Free Sugar

Sugars leave cells

Apple Puree

9.6g sugar
9.5g free sugar

Low Fibre
High Free Sugar

Processing
Sugar content of commercial baby foods in 2019

PHE, 2019

12.2g sugar
11.9 free sugar

First Steps Nutrition Trust 2018
Sugar in similar non-processed and commercial baby snacks

- Dried strawberry snack: 6.1% sugar
- Pea Puffs: 1.1% sugar
- Dried strawberry snack: 55% sugar
- Pea Puffs: 3.3% sugar
Are UK babies consuming too much sugar?

Recommendations

• None for infants
• >2 years - 5% of total dietary energy intake

Intake (Non-milk extrinsic sugars = free sugars)

• 4-6 months - 4.3%
• 7-9 months - 6.2%
• 1.5-3 years - 11.3%

Diet Nutrition Survey Infant & Young Children, 2011
Commercial baby food intake in German infants age 6-10 months prospectively associated with higher sugar intake in pre-school and primary school (n=288)

<table>
<thead>
<tr>
<th>Commercial baby food intake</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (&lt;43%)</td>
<td>1</td>
</tr>
<tr>
<td>Medium (43-71%)</td>
<td>3.7</td>
</tr>
<tr>
<td>High (&gt;71%)</td>
<td>4.6</td>
</tr>
</tbody>
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Foterek et al, BJN 2016

Confounding? We need more robust evidence.
Developmental readiness - Texture

- **Birth**: Suckling
- **3-6 months**: Moves tongue
- **3-5 months**: Opens mouth for food
- **6 months**: Use mouth and lips for eating
- **6-10 months**: Can eat small lumps
- **10-14 months**: Can eat firmer foods
- **12-24 months**: Chewing begins

Jan et al, Mol Nutr Food Res, 2018
• 35% (n=390/766) of CBF in UK are sold in pouches
• Possible interference with development of feeding and sensory skills
Commercial baby food
- Smooth
- Smooth with lumps

Homemade baby food
- Puréed
- Mashed foods

COST
40g = 37p

Commercial
Broccoli, pears and peas
Organic
Pears (79%), peas (14%), broccoli (7%), dash lemon juice

COST
40g = 15p

Home-made
Broccoli, pears and peas
Organic
Broccoli (50%), pears (30%), peas (20%)

First Steps Nutrition Trust 2017
8 months old infants who ate for 4 weeks larger and harder pieces were more capable to chew than those exposed to fewer, smaller, and softer pieces (n=28)

* p<0.05

da Costa et al, 2017
The new and trendy kid on the baby food aisle
Baby snacks are big business!

Spend in baby snacks increased
2014 £61M
2018 £101M

Volume sales grew by 10.8% in 2017-2018
(Kantar Panel)

Garcia et al, 2013
PHE, 2019
To snack or not to snack?

Current guidelines from NHS/PHE

- Infants < 12 months **do not** need snacks
- Infants > 12 months: 2 healthy snacks, such as fruit, vegetable sticks, bread or plain yoghurt, between meals may be required

PHE, 2019
Snack or ‘treat’ consumption in UK (blue) and Scotland (orange)

Proportion of infants

8-12 months

Snacks

Treats

4-6 months

7-11 months

12-18 months

Chocolate, ice cream, crisps

Scottish Government, 2017

Department of Health, 2011
Unregulated claims – ‘healthy halo’ use or abuse?

- Misleading names – savoury – vegetable names but large proportion of fruit
  
  Broccoli, pear and peas: Pears (79%), Peas (14%), Broccoli (7%),

- Misleading claims in foods marketed to young children: 1-of-5 a day

  PHE, 2019; Garcia et al, Archives Dis Child, 2019
Progress in last 10 years?

• Baby steps – labelling on age of introduction moving forward
• Big steps – official recognition of problem: inconsistency between recommendations and industry
  ‘Foods and drinks aimed at infants and young children: evidence and opportunities for action’
  → Nutritional quality improvement – e.g. sugar
  → Honest labelling
  → Marketing and promotion restriction
  → Increasing consumer awareness
  → Re-introduce nutritional surveillance in England
Conclusions

- Fewer baby foods marketed from 4 months but **ALL** should be marketed from 6
- Energy content of snacks is high
- Predominance of sweet taste & sugar content far from 5% goal
- Pouches, a concern for texture/feeding skills and sugar
- Baby snack expansion
- Confused and misleading claims
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