

## Publication summary

Title	<a href="#"><i>Intermittent bolus versus continuous feeding in children receiving an enteral formula with food derived ingredients: A national multicentre retrospective study</i></a>																														
Authors	Graeme O'Connor, Zoltan Hartfiel-Capriles, Sharan Saduera																														
Publication date + magazine	January 2023, Clinical Nutrition ESPEN (2.38)																														
Type of study	Observational / retrospective multi-centered																														
Objective / hypothesis	To evaluate the tolerance of different feeding modes (intermittent bolus/continuous/combo) in children who are fed with an enteral formula with food derived ingredients.																														
Results	<p><b>Population:</b> 43 children were included aged 1 to 17 years old (median: 6 years old).</p> <ul style="list-style-type: none"><li>- 47% had a neurological or neuro-disability (20 of 43 children)</li><li>- Median time children received an enteral formula before switching was 52 week (IQR, 24 – 120)</li><li>- &gt;50% was on intermittent bolus feeding</li><li>- 81% were on a gastrostomy feeding tube (35 of 43 children)</li><li>- 11% was fed in to the jejunum (5 of 43 children), of which 2 were fed as boluses over 2h at each feeding episode</li><li>- Median feed volume in children receiving intermittent boluses: 150 mL (IQR 75-190mL)</li><li>- Vomiting was the most reported feed intolerance prior to the switch</li></ul> <p><b>Study outcomes:</b></p> <ul style="list-style-type: none"><li>- Primary outcome: feed tolerance per feeding mode (intermittent bolus, continuous, and combination)<ul style="list-style-type: none"><li>o Bolus:<ul style="list-style-type: none"><li>▪ &gt;80% improvement in vomiting and loose stools</li><li>▪ &gt;70% improvement in retching and constipation</li><li>▪ &gt;66% improvement in abdominal pain</li></ul></li><li>o Continuous:<ul style="list-style-type: none"><li>▪ 100% improvement in vomiting, retching, abdominal pain and loose stools</li><li>▪ 75% improvement in constipation</li></ul></li><li>o Combination:<ul style="list-style-type: none"><li>▪ 100% improvement in vomiting, retching and abdominal pain</li></ul></li></ul></li></ul> <p>Reported change in gastrointestinal symptoms after switching to an enteral formula with food ingredients in relation to mode of feeding.</p> <table><tr><th>Gastrointestinal Symptom</th><th>Reported % of improvement in symptoms after switch</th><th>Intermittent bolus</th><th>Continuous</th><th>Combination, intermittent</th></tr><tr><td>Vomiting</td><td>12 (91.67%)</td><td>7 (85.71%)</td><td>3 (100%)</td><td>2 (100%)</td></tr><tr><td>Retching</td><td>20 (85%)</td><td>11 (72.73%)</td><td>7 (100%)</td><td>2 (100%)</td></tr><tr><td>Abdominal Pain</td><td>6 (83.33%)</td><td>3 (66.67%)</td><td>2 (100%)</td><td>1 (100%)</td></tr><tr><td>Loose stool</td><td>11 (90.91%)</td><td>6 (83.33%)</td><td>5 (100%)</td><td>0 (0%)</td></tr><tr><td>Constipation</td><td>13 (69.23%)</td><td>8 (75%)</td><td>4 (75%)</td><td>1 (0%)</td></tr></table>	Gastrointestinal Symptom	Reported % of improvement in symptoms after switch	Intermittent bolus	Continuous	Combination, intermittent	Vomiting	12 (91.67%)	7 (85.71%)	3 (100%)	2 (100%)	Retching	20 (85%)	11 (72.73%)	7 (100%)	2 (100%)	Abdominal Pain	6 (83.33%)	3 (66.67%)	2 (100%)	1 (100%)	Loose stool	11 (90.91%)	6 (83.33%)	5 (100%)	0 (0%)	Constipation	13 (69.23%)	8 (75%)	4 (75%)	1 (0%)
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	<ul style="list-style-type: none"> <li>- Secondary outcomes: weight-for-age and height-for-age <ul style="list-style-type: none"> <li>o Children who were fed intermittent bolus reported the greatest increase in weight (p-value: 0.003), children who were fed continuously or a combination also saw clinically significant weight gain (p-value of 0.0052 and 0.068 respectively)</li> <li>o No significant differences in feed volume, total fluid or total daily calorie intake after switching or within different feeding modes</li> <li>o &gt;90% of dieticians reported that the nutritional goals were met after formula was changed. Children who were feeding continuously reported the highest achievement to meet dieticians' nutritional goals.</li> <li>o Reason for parents to switch to a real-food formula: 1) previously on blended diet / unable to start blended diet and felt this formula was an appropriate compromise, 2) due to poor feeding tolerance to previous formula.</li> </ul> </li> </ul>
<b>Conclusion</b>	<p>Children who were continuously fed reported the greatest improvements in feed tolerance symptoms. Conversely, children who were bolus fed reported the greatest weight gain.</p> <p>An enteral formula with food derived ingredients (e.g. Compleat Paediatric) is well tolerated whether delivered continuously, or as a bolus feed in achieving feed tolerance, weight gain and dietetic goals.</p>
<b>Short description of the methods used (target group, duration intervention etc.)</b>	<p><b>Study characteristics:</b></p> <ul style="list-style-type: none"> <li>- Inclusion criteria: children between 1 and 17 years who had switched to the new enteral formula (e.g. Compleat Paediatric) for at least one month and accounted for at least 80% of their total energy requirements</li> <li>- Study sites: 4 National Health Service Trusts around England</li> <li>- Duration intervention: 1 month</li> <li>- Type of intervention: switch to an enteral formula with food derived ingredients (Compleat Paediatric)</li> <li>- Data collection: by paediatric dieticians, via Microsoft Forms (anthropometric and gastrointestinal outcomes over a 1 month period)</li> </ul> <p><b>Study outcomes:</b></p> <ul style="list-style-type: none"> <li>- Primary outcome: feed tolerance per feeding mode (intermittent bolus, continuous, and combination)</li> <li>- Secondary outcomes: weight-for-age and height-for-age</li> </ul>
<b>Limitations</b>	<ol style="list-style-type: none"> <li>1. Small sample size (43 participants)</li> <li>2. Short trial period (1 month)</li> <li>3. Retrospective design (less accurate)</li> </ol>