Nestlé Health Science CPD Programme

A trial of a new paediatric tube feeding formula, Isosource Junior Mix, containing ingredients derived from food.

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Synopsis.

A child with an unsafe swallow, requiring full gastrostomy feeds, was receiving a high energy, whole protein tube feeding formula to support her nutrition.

Stools produced were reported to be regular but always very loose (Bristol Stool Scale type 6)

A change to a fibre containing version of the same formula, did not produce any change in the stool consistency after 1 month.

During a 7-day trial of Isosource Junior Mix, a tube feeding formula containing ingredients derived from food, stools thickened on day 2 (Bristol stool scale 4) which successfully resulted in the child being fully potty trained.

Introduction.

Child A presented at birth with hypotonia, bulbar dysfunction, and severe gastro - oesophageal reflux.

Nasogastric feeding was initiated and continued from birth until 11 months of age, followed by a gastrostomy and fundoplication, after which, catch up growth and good feed tolerance was achieved.

At 3 years of age, oral Intake continued to be contraindicated as swallowing remained unsafe.

All nutritional requirements were met by a 1.5 kcals/ ml whole protein tube feeding formula.

Child A has a normal cognitive ability and her motor development, although initially delayed, started to catch up, and she became fully mobile by her 3rd birthday.

Nutritional Goals.

Meet all nutritional requirements for growth and development, provide adequate fluid and encourage a better stool consistency.

Nutritional Assessment (age 3 years)

Weight	13.95kg (25th centile)
Height	91cm (2nd-9th centile)
EAR age	1080 kcals/day
Protein requirement (based on GOSH guidance)[1]	1.1g/kg/day
Fluid requirement (based on GOSH guidance)[1]	~1200mls / day
Fibre (US guidelines[2] / SACN)[3]	8-13g/day / 15g/day

At assessment child A was having 165 mls x 4 (660mls) of a high energy tube feeding formula providing 990 kcals, 27.2g protein and 0 g Fibre per day

Fluid intake through feed and water flushes = 1100 mls.

Child A was starting to show interest in using her potty to pass urine and was managing to do this successfully; however, using the potty to pass her stools was proving frustrating and unsuccessful. She was generally passing 1 stool per day, but it was loose (Bristol Stool Scale type 6), affecting her bowel control and the need for her to remain in nappies.

This was distressing for the child and her family.

Reports in the literature suggest that most children in western countries achieve bladder and bowel control between the ages of 24-48 months. The achievement of bladder control does not always coordinate with bowel control.[4]

As Child A was having a tube feeding formula without fibre, it was agreed that the feed would be changed to see if a fibre containing version would make a difference to her stool consistency and therefore help the progression of fully using the potty.

Recommendation.

To increase fibre content of present feed.

A change to 165 x 4 (660 mls) of the prescribed 1.5kcal/ml fibre containing version of formula giving 6.6 g of fibre.

This recommendation was made to see if it improved Child A's stool consistency.

Outcome achieved with a fibre containing feed

After a month on the fibre containing feed there was no difference seen in the consistency of child A's stools and the stool continued as a type 6 on the Bristol stool chart. There was no progression with using the potty to pass a stool.

Trial of Isosource Junior Mix.

Child A's family was then approached by their dietitian to see if they would consent for their child to take part in a trial of a tube feeding formula containing ingredients derived from real food, (Isosource Junior Mix.)

Consent was obtained from the family and the child.

After a baseline assessment was carried out, the trial feed was matched to meet the same volume and energy level as the present feed.

The total fibre content of the trial feeding regimen, containing some fruit and vegetable fibre, as well as ingredients derived from real food provided 7 g of fibre.

Child A successfully completed the total daily prescribed volume of feed for the 7 day trial.

Outcome achieved with the tube feeding formula, Isosource Junior Mix

There were no reported issues with tolerance, as shown by the tolerance diary kept for the duration of the 7-day trial.
On Day 2 of the 7-day trial, Child A's stools started to thicken and were more formed (from stool consistency type 6 to type 4 on the Bristol Stool chart).
Stools continued at a scale of 4 on the Bristol Stool chart for the remainder of the trial.
The stools were reported as being easier to pass.
Child A was able to successfully produce a stool on her potty.
The expected standard of being fully potty trained between the ages of 24-48 months was achieved.[4]

Following the end of the trial period of Isosource Junior Mix, child A continued to produce firmer stools even on the return to her previous formula, enabling full use of the potty to continue.

Conclusion.

This case study showed that the stool consistency of a gastrostomy fed child, improved with the introduction of a standard tube feed formula containing ingredients derived from food (Isosource Junior Mix).

- The stool became thicker, more formed and easier to pass.
- Improved bowel control was established enabling successful progression of potty training for passing a stool, meeting the usual age range standard for potty training.
- This change has produced a positive effect on quality of life for the child and family concerned.

References.

1. Great Ormond Street Hospital for Children, NHS Foundation Trust - Nutritional Requirements for Children in Health and Disease-6th Edition
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3. Government Dietary Recommendations
   Government recommendations for energy and nutrients for males and females aged 1 – 18 years and 19+ years. Published August 2016 PHE publications gateway number: 2016202 - dietary fibre figures taken from the Scientific Advisory Committee on Nutrition (2015) Carbohydrates and Health. The Stationery Office. London. https://www.gov.uk/government/publications/sacn- carbohydrates-and-health-report.
4. Paediatric Child Health vol 5, no 6, Sept 2000; Toilet learning: Anticipatory guidance with a child-oriented approach.

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