Helping families nurture children

A paediatric tube feed with food-derived ingredients

The nutritional requirements of a tube-fed child are usually met using a ready-made commercial enteral tube feed. However, increasing numbers of families are making their own blended diet to administer via the tube as this may benefit both physical and psychosocial health. To support parents and dietitians, Nestlé Health Science has developed a paediatric tube feed to include food-derived ingredients. Isosource® Junior Mix is the first formula of its kind to be launched in the UK and across other European countries. The formula can be prescribed by healthcare professionals.

Children who are unable to safely eat and drink, or unable to fully meet their nutrition and hydration requirements through oral intake may have a feeding tube fitted. There are a variety of different feeding tubes available, but the most common tubes used for long-term feeding are secured in the stomach and pass out through the body wall, providing a route by which artificial nutrition can be administered. This is called percutaneous endoscopic gastrostomy (PEG) and the most common route of feeding is via a PEG feeding tube, also known as a paediatric enteral tube. Children who are fed via an enteral tube often have complex health conditions, for example neurological disorders.

While enteral feeding allows children to meet their nutritional requirements safely, there may be issues with tolerating the feed and many will experience mild gastrointestinal intolerance symptoms such as nausea, diarrhoea or bloating. Some patients and parents also feel that the specialist diet sets them apart from family and friends.

Nestlé Health Science has developed a paediatric enteral tube feed which contains food-derived ingredients, inspired by the increasing use of food ingredients in blended diets.

THE RISE OF BLENDED DIETS

A blended diet is defined as blended food administered via an enteral feeding tube. There has been a recent increase in the use of blended diets in the UK, with homemade feeds replacing commercially prepared enteral feeds.

Although more research is still required, existing evidence suggests that a blended diet can have physiological benefits, including improvements in vomiting, reflux and abnormal bowel habits (Hurt et al, 2015). Anecdotally, parents have also reported improvements in their child’s overall physical and developmental health, including mood, skin, hair health and weight gain.

Furthermore, a small group of patients will not tolerate any available commercial feeds. While the underlying reasons for this are unclear, blended diets may be clinically beneficial for this patient group.

Psychosocial factors must also be considered, parents and carers of tube-fed children often feel as though they are providing better nutrition when blended diets are used. This contributes to a sense of empowerment and ownership of care, and families may be more likely to accept the placement of a feeding tube if they know they are still able to prepare food for their child (Coad et al, 2017).

There are some risks associated with a blended diet if not done correctly and with support from a dietitian and other healthcare professionals. These include a risk of nutritional inadequacy if the blended diet does not contain the right nutrients in the right amounts (Sullivan et al, 2004). In contrast, reliance on a single formula (like a specific enteral tube feed) may impact upon the health of the gut microbiome – the bugs that live in the intestine – for which a varied diet (such as a blended diet) is likely preferable.

PROFESSIONAL GUIDANCE

The British Dietetic Association recently amended its guidelines to enable UK dietitians to consistently support a blended diet for tube-fed individuals, and to encourage an open, multidisciplinary approach to administering blended diets via a feeding tube (BDA Policy Statement). Prior to this, there had been a lack of clear professional guidance.

As blended diets increase in popularity and the guidelines change, Nestlé Health Science aims to support families and dietitians in their decision making. Availability of a new paediatric enteral feed using food-derived ingredients would bridge the gap between a full blended diet and the existing feeds. It could also facilitate engagement between parents and dietitians, as healthcare professionals may feel more confident in recommending a standard commercial blended diet-type product which is supported by scientific studies.

ISOSOURCE® JUNIOR MIX

The UK is lagging behind other countries in terms of feeds containing food-derived ingredients; in the US, Compleat Pediatric, a Nestlé Health Science product, has been available for several years. A study carried out in 2016 showed that a tube feeding formula with food-derived ingredients is a cost effective and nutritionally adequate option for providing nutrition to children with intestinal failure. The same study also showed that Compleat Pediatric improved bowel habits, with all children stopping fibre supplements and stool softeners by the end of the trial (Samela et al, 2016).

Nestlé Health Science has now developed the first paediatric tube feed in the UK and Europe to include food-derived ingredients. Isosource® Junior Mix is a nutritionally complete feed, meaning that it can be used to meet a child’s full nutritional requirements, for example the right amounts of protein and fibre. It contains 13.8% food-derived ingredients, including rehydrated chicken, peas and green beans. Due to this, over half the fibre and a third of the protein in the feed is from food-derived sources. It is also convenient and does not require special storage conditions other than being stored in a cool dry place.

The team behind Isosource® Junior Mix envisages that it will bring benefits to three distinct groups: those who want to start following a blended diet but don’t have the confidence to do so; partial users who are already using some homemade blended diets; and on-the-go parents who are following a homemade blended diet but whose situations can at times make it difficult to prepare food.

Planning and preparing blended diets at home requires a significant time and labour investment, as well as the financial cost associated with buying the correct

The provision of a commercial feed which bridges the gap between a standard enteral feed and a fully homemade blended diet may be a useful stepping stone.
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For patients who have already made the change to a homemade blended diet, Isosource® Junior Mix could also be used as a top-up feed alongside homemade blended diets or as an ‘on-the-go’ option when a homemade blended diet could be logistically challenging. It would also provide options for patients who are usually on a blended diet, but are unable to have this in certain situations, for example in a hospital, hospice or special schools, thus respecting the feeding choices made by families.

Isosource® Junior Mix could also be used for any tube-fed child who has problems tolerating standard enteral feeds and who requires a nutritionally complete feed. Even for those families who are not interested in exploring a blended diet, the feed may have some benefits as discovered in the initial acceptability study.

ACCEPTABILITY STUDY WELL RECEIVED

An acceptability study aimed to evaluate the gastrointestinal tolerance and compliance of Isosource® Junior Mix® in 16 children aged 1 to 14 years with a range of medical conditions requiring tube feeding. These conditions included global developmental delay, epilepsy, cerebral palsy and Down’s syndrome. After a 7-day trial of the feed, the dietician departments found that the volume of feed and the feed itself was well tolerated by the majority of participants (Thornton-Wood et al, 2019). Indeed, some showed a decrease in gastrointestinal symptoms and others showed beneficial changes in stool type, such as previously loose stools becoming firmer and less frequent. Other benefits included improvement in reflux and decreased retching. Some evidence suggests whole food blends or blended diets may promote a healthy microbiome, but further research is required to confirm these observations.

These data were presented at a recent conference focused on the nutritional aspects of children with different digestive disorders (European Society of Parenteral and Enteral Nutrition – ESPEN) in 2019, Poland, as well as at British Society Paediatric Gastroenterology Hepatology And Nutrition – BSPGHAN in 2020, Brighton, UK and were well received, suggesting there is indeed interest in a full range of enteral tube feed products containing food-derived ingredients in the future.

NEXT STEPS FOR NESTLÉ HEALTH SCIENCE

This is just the start of the journey for Nestlé Health Science.

Nestlé Health Science continues to conduct research into the benefits of food-derived ingredients in tube feeds, with the aim to continue to work with families to introduce “real food” into their children’s diets. For example, in the UK they are currently developing a series of recipes which could be used in conjunction with Isosource® Junior Mix to provide a balanced diet. For those starting out on a blended diet, products such as Isosource® Junior Mix provide a ‘best of both’ approach; it is a safe, commercially available, nutritionally balanced feed which contains food-derived ingredients. It could also be used by those already on a blended diet as a top-up feed, when convenience means blending is unfavourable or by families without the capacity to prepare blended meals.

There is a clear need for a collaborative approach, with industry and healthcare professionals working together. Ultimately, the availability of a tube feed formula using food-derived ingredients such as Isosource® Junior Mix, will support dietitians to help families.

Protein and fibre, which can both be found in pulses, are important parts of a balanced diet.