Enteral Support Network

Nestlé HealthScience Compleat®

Introduction

Nestlé Health Science's Enteral Support Network held its latest Elevate Your Clinical Practice study day in London on Tuesday 17th June, 2025. Bringing together 17 dietitians from across England, the meeting was an opportunity to share practical and scientific perspectives on the role of fibre in enteral nutrition.

The day consisted of two plenary sessions and two workshops. This article reports on the content and recommendations of the plenaries and the first workshop.

Fibre in enteral feeding: Optimising gastrointestinal tolerance and patient outcomes

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The role of fibre in enteral nutrition

Patients receiving enteral nutrition (EN) may experience dysbiosis and/or enteric infections, and/or diarrhoea and/or constipation either as a result of their underlying condition or as a side effect of EN.[1,2] This can contribute to a reduction in quality of life (QoL) for patients receiving EN.

Although often overlooked in EN planning, evidence – including from three systematic reviews – increasingly supports the inclusion of fibre in EN formulas to manage some of these symptoms and improve outcomes.[2–4] For example, it has been shown that fibre can reduce the incidence and severity of diarrhoea, constipation, regurgitation and vomiting[2–4] and help to modulate the gut microbiota and inflammation.[1,5]

The type of fibre (Table 1) included in EN can have a bearing on how patients tolerate the feed.[2–5]

Table 1: Classification of fibre[2,4,6,7]

Classification	Characteristics	Role in gut	Sources
Soluble fibre	Dissolves in water to form a gel	Aids in formation of stools, helping to prevent constipation and diarrhoea Helps reinvigorate the gut microbiome Can reduce low-density lipoprotein cholesterol (LDL-C)	Oats (β-glucan), fleshy fruits (pectin), legumes (pectin), seeds (gums)
Insoluble fibre	Adds bulk to stool	Stimulates water and mucous secretion to aid passage by irritating the large bowel mucosa	Wheat (cellulose, hemicellulose), nuts (hemicellulose), seeds (lignin), fruit and vegetable peels (cellulose)
Fermentable fibre	Can be broken down by gut bacteria	Fermentation process produces beneficial short-chain fatty acids (SCFAs)	Most (but not all) soluble fibre-containing foods

For patients who have only recently transitioned from parenteral feeding (PN), or are fibre naïve at the time of transitioning to EN, fibre may prove too irritating and exacerbate symptoms associated with inflammation and a depleted gut microbiome. The type and balance of soluble and insoluble fibre in EN subsequently needs to be tailored to meet individual patients' needs.[6]

Benefits of fibre in enteral nutrition

Using fermentable soluble fibre in EN can encourage non-pathogenic bifidobacteria or lactobacilli to flourish in the gut and reduce the concentration of pathogens such as *Clostridium difficile*.[5] The beneficial microbes produce SCFAs through fermentation, and these molecules are involved in the modulation of neurochemical pathways in the gut–brain axis and the immune response.[3] The fermentation process lowers the pH of the gut, favouring the reproduction of beneficial bacteria over that of pathogenic microbes.[1,5]

While there is an immediate benefit to the patient's sense of wellbeing in including fibre in EN, there are longer term benefits too. Feeds that do not contain fibre may deplete the integrity of the gut microbiome, allowing pathogenic microbes to multiply. This can subsequently lead to severe infections.[1,5] A severely depleted microbiome may be too damaged to benefit from faecal transplants given to boost its health.[8,9] So, adding fibre allows the patient's body to derive more benefit from a faecal transplant and, in some cases, removes the need for it.[9]

It should be noted that, in addition to the benefits for the health and quality of life of the patient, adding fibre to EN can also benefit the NHS. A meta-analysis found that fibre-supplemented EN significantly reduced the time spent in hospital (including in intensive care),[4] resulting in overall cost reductions, potentially up to 'tens of thousands of pounds per year'.

Advice on including fibre in enteral nutrition

National and international guidelines support the inclusion of fibre in EN, although there are differences in specific guidance.[10–13] The British Dietetic Association (BDA) recommends formulas containing mixed soluble and insoluble fibre.[11] The American Society of Parenteral and Enteral Nutrition (ASPEN) and the Society of Critical Care Medicine (SCCM) guideline recommends that routine use of fermentable soluble fibre be considered as a supplement to EN in stable medical and surgical intensive care unit (ICU) patients, but advise against routine use of mixed soluble and insoluble fibre due to concerns about bowel ischemia and dysmotility.[13] The European Society for Parenteral and Enteral Nutrition (ESPEN) advises patients receiving EN should aim for a fibre intake similar to that of healthy persons (15-30g fibre per day). This should be in the form of fermentable fibre for post-surgical and critically ill patients and of mixed bulking and fermentable fibre for non-ICU and chronically ill patients.[10] The more recent ESPEN guideline for home EN specifically recommends patients with diarrhoea or constipation should receive fibre-containing EN.[11] The routine use of fibre-free EN first line following total parenteral nutrition (TPN) should be challenged.

If the patient is taking antibiotics, a fibre-containing feed is recommended to help the gut microbiome thrive[5,11,13] – the wider multidisciplinary team (MDT) may need reminding of this. In patients with severe dysmotility, bowel obstruction and high-output fistulae, high-output fistulae, fibre is contraindicated until these issues are resolved.

When introducing fibre containing EN, it is important to individualise the fibre choice for long-term health. Dietitians should consider matching the fibre type to the patient's symptoms and risk factors using established evidence.Note that patients whose previous oral diet did not contain fruit, vegetables, or whole foods could be considered to be fibre naive: this underlines the importance of taking a careful diet history from the patient and/or caregivers.[14]

When starting a EN formula containing fibre, consider introducing it slowly and gradually to allow for gastrointestinal adjustments. Stool consistency and frequency, as well as the presence of flatulence or bloating should be monitored closely for signs of intolerance. Some bloating may be expected, and it is not necessarily concerning, as it can indicate fermentation and the production of beneficial SCFAs. However, painful, excessive bloating or signs of inflammation require dose adjustment – including at least temporary removal of fibre from the feed. In patients showing good tolerance of the current fibre dose, consideration can be given to increasing the quantity of fibre, including eventually adding some insoluble fibre if deemed clinically appropriate.[14]

In order to help patients make informed decisions about their own EN, they should be educated about the need for fibre and how it works, and how to recognise the symptoms of intolerance.[14]

Case studies

The following short case studies help to illustrate some of the points made above.

CASE STUDY 1 : Patient post-ICU

Patient discharged from ICU and ready to step down from TPN to EN. Feed in ICU has been fibre free and it is likely that the gut microbiome is severely depleted. To begin with, EN containing soluble fibre was slowly introduced. Once there was evidence that the patient was doing well with soluble fibre (e.g. stable electrolytes, not requiring too much top-up), mixed fibre feeds could gradually be added to EN.

CASE STUDY 2 : Long-term care home resident with constipation

Care home resident who has been receiving fibre-free bolus EN with adjunctive laxatives has chronic constipation. The need here was for well-formed stools and gut motility support, so a mixed fibre feed was introduced. It is important that if the first choice does not improve patient's symptoms, a different feed is tried. This may require submission of a case of need to medicines management or pharmacy if the enteral feed formula is off contract or not on formulary.

Take home messages

- Fibre plays a crucial role in managing gastrointestinal (GI) tolerance and enhancing comfort in EN.[2–5] Evidence supports using specific fibres to reduce symptoms and improve outcomes.[10–13]
- Fibre selection should be individualised, evidence-informed, and guided by patient response;[10–13] however, it can be administratively difficult to try different feeds for short periods while finding the combination that works best for the patient – especially in the community setting.
- Patients should be asked for their opinions.
- EN is evolving and formulas with different types of fibre are increasingly available.
- More research is needed on this topic, lots of information on the gut microbiome is already available, there is a need to know how to use it.

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Nourishing Beyond Nutrition: A holistic perspective on tube feeding

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Background

Dietitians know that tube fed patients require holistic care – i.e. care that encompasses their physical and emotional wellbeing, social and cultural needs and ethical and legal considerations. They need always to see the person behind the prescription: are they concerned about their family life, their social life, their sense of autonomy? For patients with motor neuron disease (MND), other neuromuscular conditions and some cancers, enteral feeding, once started, "may be for life and life may be short". The shock and trauma of a diagnosis of this nature, and the loss of the patient's future can make treatment-related decisions hard to take in. Some patients may not want to hear that they will eventually need to get all of their nutrition via a tube, especially if the subject is broached while they are still coming to terms with their prognosis.

There is no perfect time to talk to patients about the need for enteral nutrition, nevertheless, timing is important (the patient must be ready to have the conversation), as is providing them with some hope (appropriately and proportionately expressed).[1,2] The conversation needs to be led by someone who has built a trust-based relationship with the patient. Whoever initiates the conversation must have spent time getting to know and understand the patient and their needs, thoughts and preferences on enteral feeding, so they can approach the topic sensitively.

Meeting patient needs

Dietitians are urged to accept that, for patients with a limited lifespan, an adequate diet outweighs a perfect diet. Being able to blend their favourite foods, tea, coffee, even alcohol can help patients feel they have some control over their bodies and keeps them engaged. Nowadays, patients commonly have boluses of oral nutritional supplements, or use modular supplements (e.g., low volume protein 'shots') or feeds with 'real food ingredients' in addition to bags of enteral feed or as a sole source of nutrition. One patient has even reported blending a well-known brand of American fried chicken and bolusing it in through his percutaneous endoscopic gastrostomy (PEG) tube!

The days of the dietitian deciding how the patient will be fed have gone. The NHS long-term plan for England and the Health Care Professional Council (HCPC) guideline both include a requirement for shared decision making to improve clinical outcomes and quality of life.

This approach relies on the experience of physicians and patient's experiences in the provision of services tailored to the patient's preferences, needs and beliefs.[3,4] It involves familiarity with the patient's history and ideally includes input from the patient's family/caregivers and other members of the MDT. All evidence, opinions and decisions should be documented and referred to throughout treatment. The dietitian should be the patient's advocate: supporting identity and dignity and ensuring that the patient knows that they are not facing their challenges alone. Asking small, simple questions such as: 'How do you feel about your feeds?'; 'What's the hardest part for you now?'; or 'What's important to you?' can make a huge difference to the patient experience.

Patients with a limited lifespan will not want to spend more time in hospital than is absolutely necessary. Various publications provide advice on different aspects of EN in the community, although there are some mixed messages.[5,6] Furthermore, there are more companies offering a wider choice of feeds for EN in the community, and this can be explored with patients to ensure that they continue to engage with feeding and derive health benefit from it.

Sociolegal aspects of EN

The patient's quality of life and autonomy around their nutrition should be the starting point for all discussions and decisions about EN. The discussion should include advanced decisions to refuse treatment (ADRT) and

Lasting Power of Attorney (LPA). The outcome of these discussions should be documented: patients must be helped to understand what deciding to refuse EN means for their last days.

If the patient's capacity to make decisions about eating and drinking is questioned, HCPs must act quickly to clarify and document the patient's responses to proposed actions, keeping their best interests at the heart of discussions and ensuring that local safeguarding recommendations are met.

Take home messages

- Remember the person behind the tube – how do they feel about it, what do they want? Remember the trauma/psychology in the background.
- Patient needs support not conflict. Dietitians need counselling and communication skills for the very difficult conversations.
- Get confident and competent in assessing patients' cognition/ability to make decisions – documenting any concerns (everyone comes across legal challenges at some point).
- Get to know safeguarding teams: feel clear and confident in documenting discussions and decisions.

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Workshop: Can a food derived feed improve both the physical health and mental wellbeing of an adult patient?

Facilitated by Emma Green, Specialist Home Enteral Tube Feeding Dietitian
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Case study

This case study is based on the experience of a real patient, whose details have been anonymised.

Patient X

- 28-years-old, living in a nursing home with 24-hour care, uses a wheelchair and hoist
- Congenital cerebral palsy; traumatic subdural haematoma; quadriplegic; dysphagia (on a modified texture diet); severe learning disabilities
- Non-verbal; lacks insight into decisions but can make feelings and pain known
- Ordinarily, a happy and engaging individual fond of monkeys and Thai and Malaysian motorbike videos

Case

Patient X became unwell and was admitted to hospital with vomiting, constipation (bowels not open for 5 days), weight loss, raised C-reactive protein (CRP), and general deterioration. The diagnosis was aspiration pneumonia and sigmoid volvulus. Patient X was nil by mouth during treatment and was assessed by dietitians as at high risk of malnutrition. On recovery, the MDT determined that he should remain nil by mouth and have a PEG fitted.

Patient X was discharged back to his care home with a high osmolality, low fibre diet at 80ml/hour over 13 hours during daylight hours. He needed support to cope with not being able to eat anymore, including oral tasters and saliva management and help to maintain his swallow function.

Unfortunately, Patient X experienced frequent vomiting, periods of profuse, offensive type 7 stools (requiring carers to clean and change him and leading to declining rectal skin condition), and periods of severe constipation. He required more bed rest and experienced muscle loss, although his weight was stable. The change in his living standards led to the patient becoming agitated and subject to mood changes. He no longer engaged in his hobbies.

Patient X was readmitted for sigmoid volvulus but was found to be ineligible for surgery. Colonic irrigation was considered, but recognised to be difficult for the patient to understand and disruptive to his quality of life. It was decided to reassess his tube feed, focussing on alleviating bowel symptoms, not calorie intake. There was concern for Patient X's body mass index (BMI) - which was 14, but intolerance of the current feed meant that calories were being lost through malabsorption.

The replacement feed had lower osmolality and consisted of a higher fibre content whey/casein blend; the feed volume and dose rate were unchanged. Patient X received additional osmotic laxatives.

At his next review, Patient X had gained 2kg, but was still experiencing bowel problems, rectal skin damage and agitation and distress. At this point, he was switched to Compleat® 1.5 HP. The feed rate was increased to 110ml/hour over 9 hours, so that he spent less time attached to the pump. As a result, Patient X is now experiencing regular bowel movements, much improved stool consistency and odour, and slow but steady weight gain. His laxative dose has been reduced. Just as importantly, he is happier and is engaging in leisure activities and personal care.

References for background reading

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Q&A session

Q. What was the key shift in symptoms?

A. Increasing fibre, even though the patient was experiencing diarrhoea. The food-derived blend definitely helped this patient.

Note that staff pressures and perceived infection risks can mitigate against blended diets in care homes. Enteral feeds with food-derived ingredients can be a good stepping stone towards blended diets, they are also a good alternative for peptide-based formulas often preferred by many hospitals where patients display symptoms like Patient X. Enteral feeds with food-derived ingredients don't work for everyone, but certainly a majority of patients seem to have improved gut symptoms when they switch to an enteral feed with food-derived ingredients.

Q2. What is the significance of the type of feeding method used (pump vs bolus) and the rate of feeding on bowel movements?

A. Bolus feeding may be beneficial as it allows patients to replicate mealtime eating patterns, for example, breakfast, lunch and dinner. It also means that the patient is not attached to a pump, so may be able to continue with their hobbies and activities more easily. The speed the bolus is administered is important for gut function. Administering the bolus using gravity will take more time and may be gentler on the gut. In this case, reducing the time the patient was attached to the pump improved his mood and allowed him to engage in his hobbies.

Q3. What was the patient's diet like before becoming nil by mouth?

A. It was probably higher in sugar than would be recommended, but he generally ate well and included fibre in his diet.

Q4. Why is Compleat® 1.5 HP so well tolerated – is it because the body recognises food (as proposed by Graham O'Connor at Great Ormond Street Hospital)?

A. Possibly - food-derived formulas contain fibre, prebiotics and probiotics, which may be more easily recognised by the gut. Also, even in complex patients, having food makes the patient feel better about what they are putting into their bodies – i.e. they may have a psychological benefit (re: gut–brain axis). Reduction in agitation with Compleat® 1.5 HP (due to feeling more comfortable) may help the patient to concentrate on other things (e.g., physiotherapy, hobbies), which are also good for his mental health. Note that able-bodied patients are the same – they can become sluggish if their diet is poor, but can be invigorated by switching to a better diet with adequate hydration.

Q5. Why is it that, despite genetic, ethnic and cultural differences around the world, feeds are remarkably similar? Is this important and/or interesting for research?

A. The gut develops differently in people of different ethnicities, and the genetics of different diseases can have varying effects on the gut. Food may have beneficial bacteria that might improve recovery, so eating what you know may be good for your gut. Patient-centred care also requires HCPs to find out what is normal and preferred by patients and work with them to try and replicate it. Not to do so can have adversely affect their prognosis.

Q6. Do you have any insight into whether serotonin production in the gut actually affects patient mood?

A. The ability of the gut to produce serotonin is affected by the quality of the microbiome – note that faecal transplant donors undergo psychological profiling in favour of people with a greater sense of wellbeing (associated with greater gut biodiversity). Anxiety is known to reduce the amount of serotonin produced, which may also explain some of the rapid improvements seen in the mood of patients on Compleat® 1.5 HP. The synthetic fibre found in standard feeds possibly don't have the same effect in the gut as food-derived fibre.

The Q&A has been edited from the original discussion for length and clarity.

Learn more about the benefits of fibre-containing enteral feeds and discover how you can support your enterally fed patients

Access through the N+ Hub today:
www.nplushub.co.uk

Get more information and updates for fibre in enteral feeds

Learn more about Compleat® 1.5 HP

For the accompanying case studies

Patient X

Patient Y

Patient Z

IMPORTANT NOTICE: Compleat® HP 1.5 is a Food for Special Medical Purposes for patients with or at risk of malnutrition. Must be used under medical supervision.
Compleat® HP 1.5 contains 19% food-derived ingredients consisting of 13% rehydrated chicken meat, 2.2% peach puree, 2.1% rehydrated vegetables (2% green beans, peas 0.1%) and 1.8% orange juice from concentrate.

For more information visit
www.nestlehealthscience.co.uk/brands/compleat

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