THE DIETITIANS' MAGAZINE

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Issue 90 December 2013 / January 2014

EARLY YEARS NUTRITION

Kate Harrod-Wild p13

MALNUTRITION AFTER SPINAL CORD INJURY

Samford Wong
Lead Dietitian Spinal Cord Injuries

Spinal Cord Injury (SCI) has been known since antiquity. The first published report of SCI . . . p27

PROTEIN IN PRINT

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AUTISM & DIET

ORAL NUTRITIONAL SUPPLEMENTS

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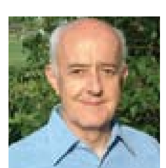
References: 1. Dupont C *et al. Br J Nutr* 2011:1–14. **2.** Canani R *et al. J Allergy Clin Immunol* 2012; 129:580–582. **3.** Lothe L, Lindberg T. *Pediatrics* 1989; 83:262–266. **4.** Koletzko S *et al. J Pediatr Gastroenterol Nutr* 2012; 55(2):221–229.

FROM THE EDITOR



Neil Donnelly
NHD editor

Neil is a Fellow of the BDA and retired Dietetic Services Manager. His main areas of interest are weight management and eating disorders

The year is 1980. I was on a three-hour train journey from Preston to London to attend an Extraordinary General Meeting of the Council of the British Dietetic Association. At the time I was an elected Ordinary Member of Council and was aware that BDA finances were somewhat perilous. So much so that Pat Humpherson, the then Chairman, had called this meeting at very short notice. She charged everyone on Council to come prepared with their suggestion as to how this position could be improved. This was an order, not a request.

Apart from member subscriptions and a vacant appointments list, the BDA had few other significant sources of income. This had to change. With this in mind my thoughts turned to support from industry. Apart from help with the Annual Study Conference there was nothing to report. Additionally, other than the *Journal of Human Nutrition and Dietetics*, there was no publication for Dietitians to share their experiences, *Dietetics Today* being a few pages of 'in house' news produced at the BDA office.

Having presented my 'thoughts from a train journey' to the meeting, I was asked to bring a formal proposal to the next Council meeting where it was subsequently approved and I was charged with producing a new magazine. *Adviser* was born. An A5 publication that successfully allowed dietitians to share information for the next 25 years. When its format subsequently changed to A4, also the current size of ***NHD***, it was 'merged' with *Dietetics Today*. At that point this Editor relinquished responsibility and was asked, very shortly after, to take on ***NHD***, free from any constraints but with a team of respected and experienced dietetic professionals. Subsequently, it has been a wonderful and extremely satisfying part of my professional life.

In the New Year ***NHD*** will be published in the aforementioned very successful and user friendly A5 format. It will continue with a new Editor, our Clinical Editor Chris Rudd. I will be offering my occasional personal observations on matters that concern, enrage or are welcomed in our profession; a column that to some extent mirrors recent editorials! The year 2014 beckons another exciting chapter for *Network Health Dietitians* which will continue to keep you well informed on a wide range of issues. I look forward to reading the first editorial and watching the publication continue to meet the ever changing needs of the dietetic profession. Thank you for reading and bon appétit.

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Dr Carrie Ruxton
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CHOCOLATE AND MOOD

Many of us enjoy the taste of chocolate, but now a review paper has looked at whether this ubiquitous snack could help to alter mood.

The new systematic review included eight studies on chocolate, cocoa flavanols and mood, with five of these showing either an improvement in mood, or reductions in negative moods. Three studies found that cocoa flavanols and methlxanthine from chocolate may help to enhance cognition (mental well-being), while two studies observed changes in brain activation patterns.

While more work is needed, these preliminary findings indicate that chocolate may help to alter mood - perhaps one of the reasons why it is so popular?

For more information see: Scholey et al (2013). Nutrition Reviews [Epub ahead of print].

LATEST ON OMEGA-3S

Three new papers have considered omega-3 fatty acids and health.

Substantial new evidence on omega-3s has been published since the 2002 Institute of Medicine report on energy and macronutrients. This led to calls for the establishment of new US Dietary Reference Intakes for docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA). Before this can be done, the existing literature should be reviewed to determine what intakes of EPA and DHA are required to lower the risk of chronic disease. More information about potential gender- or race-based differences in requirements is also needed. In the UK, a population-wide daily recommendation of 450mg EPA/DHA was proposed in 2004. Do we now need targeted recommendations for adults, children and pregnancy?

Attention Deficit Hyperactivity Disorder (ADHD) is a debilitating behavioural disorder affecting school, work and family relationships. Although the causes are multifaceted, there is increasing evidence that ADHD often coexists with low blood levels of omega-3s and that treatment with EPA and DHA may be effective in helping to manage ADHD symptoms. Oily fish is the best natural source of omega-3s, but many children do not eat enough. Thus, supplements offer an alternative source of omega-3s with evidence suggesting that the most effective formulations contain over 500mg EPA, alongside DHA and are given for at least three to four months.

Omega-3s are particularly important for elderly populations due to good evidence that they offer heart health benefits and may help to reduce the risk of dementia and cognitive decline. While older people have the highest oily fish intakes, averages omega 3 intakes remain below recommendations.

For more information see: Flock MR et al (2013). Nutrition Reviews Vol. 71, pg 692-707; Ruxton CHS et al (2013). Complete Nutrition Vol. 13, pg 85-87 and Ruxton CHS et al (2013). NHD mag Vol. 88, pg 17-19.

MEDITERRANEAN DIET BENEFITS

It is well accepted that a Mediterranean-type diet is good for health, although debate continues about what exactly this diet involves due to wide variations in food consumption across the Mediterranean region. However, further evidence for benefit has recently emerged from the US Health Professionals Follow-up Study and Nurses' Health Study.

The long-term study included 6,137 men and 11,278 women with a diagnosis of myocardial infarction, stroke, angina pectoris or coronary bypass. Their diets were assessed using food frequency questionnaires at the start of the study and every two to four years.

After seven years, data analysis showed that a two-point increase in adherence to the Mediterranean diet (adherence was measured using a point system) reduced the risk of mortality by around seven percent. This suggests that good adherence to a traditional Mediterranean-type diet may help to reduce the risk of mortality amongst high-risk individuals with cardiovascular disease.

For more information see: Lopez-Garcia E et al (2013). American Journal of Clinical Nutrition [Epub ahead of print].

PARTIAL COMPENSATION FOR SUGARY DRINKS IN OBESE WOMEN

A new study has looked at the effects of introducing sucrose covertly into the diets of obese women over 28 days.

Women aged 20 to 50 years (n=41) were randomised to consume sucrose or aspartame drinks over four weeks. Over the study period, one group drank four 250ml sucrose-containing drinks daily (1,800KJ, 430kcal), while the other drank four 250ml aspartame drinks (0 kJ/kcal). Body weight, food intake, appetite, mood and number of 'steps' per day were also measured at set times.

By the end of the study, women weighed 1.72kg less than the weight gain values predicted by the National Institute of Diabetes and Digestive and Kidney Diseases model, indicating some compensation for the additional calories from sugar. Energy intakes did not change and no effects of appetite or mood were seen.

Overall, more work and longer trials are needed, but covert calories from sucrose did not appear to significantly alter body weight or markers of appetite, or mood when ingested by obese women over four weeks. This corresponds with a previous covert study.

For more information see: Reid M et al (2013). British Journal of Nutrition [Epub ahead of print]; Naismith & Rhodes (1995). Journal of Human Nutrition and Dietetics Vol. 8, pg 167-175.

Dr Carrie Ruxton is a freelance dietitian who writes regularly for academic and media publications. A contributor to TV and radio, Carrie works on a wide range of projects relating to product development, claims, PR and research. Her specialist areas are child nutrition, obesity and functional foods.
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SATURATED FAT: GOOD, BAD OR NEUTRAL FOR CVD?

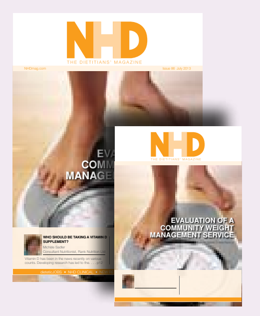
Population reductions in saturated fat have been a core aspect of public health messages since Ancel Keys' Seven Countries study in the 1970s. This study was one of the first to report a correlation between the incidence of coronary heart disease and total cholesterol concentrations, which were then correlated with the proportion of dietary energy provided by saturated fat. It should, however, be recognised that this does not necessarily show 'cause and effect' and other dietary and lifestyle factors may have influenced this.

After many years of consensus, questions have arisen about the robustness of Keys' theory and whether reductions in saturated fat really do help to lower the risk of cardiovascular disease (CVD). A Cochrane review found no associations between saturated fat reduction and risk of mortality, but did find modest and statistically significant benefits for morbidity.

There is now a divide between (a) current public health messages about saturated fat supported by older evidence and government policy and (b) proponents of low carbohydrate diets (or low GI diets) who believe that saturated fat has no impact on CVD risk. Alongside this, is newer research around the quality and balance of dietary fats and possible negative effects of high GI carbs which has emerged since the 1991 Dietary Reference Values were published.

Clearly, it is time for a thorough review of the impact of dietary fats on CVD in order to ensure that advice to patients and the general public is evidence-based and up to date. A new SACN report on carbohydrates, due in 2014, will shed much-needed light on the role of different carbohydrates in preventing chronic diseases.

For more information see: Malhotra A (2013). British Medical Journal Vol. 347, pg f6340;\Hooper L et al (2011). Cochrane Database Systematic Reviews 6(7): CD002137; SACN website www.sacn.gov.uk



NHD switches to A5 digest size and announces Editor change - many thanks Neil!

*From next year **NHD** announces that Clinical Editor Chris Rudd moves to the page 3 spot to become Editor while Neil Donnelly takes up a new position as resident sage on the inside back page column. Neil has done a superb job for 89 **NHD** issues and we offer him our heartfelt thanks for his enormous contribution to the success of **NHD**. We'd also like to welcome Chris Rudd into the hot seat! A much deserved appointment for our hard-working clinical commissioner!*

*In other news, **NHD** will be making some radical innovations for 2014 including a new A5 digest format which will enhance the reader experience in print and digitally. More news on **NHD** in 2014 will follow soon. Stand-by for the evolution of the UK's dietetic press!*

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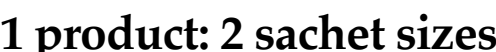

1 product: 2 sachet sizes

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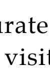

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GLUTEN-FREE CORNFLAKES FROM GLUTAFIN

Glutafin has announced the launch of new gluten free Cornflakes to offer more choice to coeliac sufferers at breakfast time, meaning the much loved toast and cereal start to the day is back on the menu. Glutafin Cornflakes are wheat and gluten free, fortified with vitamins and available in 375g packs to prescribe. For more information on Glutafin visit www.glutafin.co.uk

The average UK toddler is only getting 27% of their daily dietary requirement of this essential vitamin[1]...

PROTEIN IN PRINT

Ursula Arens
Writer; Nutrition & Dietetics

Ursula has spent most of her career in industry as a company nutritionist for a food retailer and a pharmaceutical company. She was also a nutrition scientist at the British Nutrition Foundation for seven years. Ursula guides the NHD features agenda as well as contributing features and reviews

What the handsome fitness trainer at the local gym says about protein, is one thing. What the scientific and regulatory experts from the EU say about protein, is another. There are many revisions and changes that will be translated into food labelling in the near future and, considering how these affect the descriptions of protein, this is one way to illustrate some of the new-and-improved information formats that consumers may notice when looking at the fine print on their favourite foods (or frustratingly, perhaps not).

The question, 'how much protein does a food contain?' is best answered, 'look at the label!'. UK packaged foods (nearly) all bear nutrition data and while information on protein content will not form part of the quick-glance front-of-pack hybrid strip agreed in the UK in summer 2013, it remains part of the standardised nutrition label usually found on the side or the back of packaging. However, there are changes afoot, and information on the protein content of foods has been 'demoted' to a lower place in the nutrient listings. Previous nutrition labelling regulations, still permitted until December 2014, present protein as the first nutrient listed after energy. The new Food Information to Consumers (FIC) Regulations were adopted by the European Parliament in October 2011 and the new position of protein within the format of the mandatory nutrition information panel, is at the bottom of the listing (but still ahead of what used to be 'sodium' and what will in future be declared 'salt'). Perhaps there is no meaning to the order of the nutrients listed (or more likely, perhaps there is, in which case communication about protein content has been downgraded - but better than fibre which has been completely pulled from the standard format listing and is now only a 'voluntary' option).

Nutrition label presentation formats

'New'- FIC 2011	'Old'- FLR 1996
Energy	Energy
Fat -of which saturates	PROTEIN
Carbohydrate -of which sugars	Carbohydrate -of which sugars
PROTEIN	Fat -of which saturates
Salt	Fibre
	Sodium

Nutrition information must be declared per 100g or per 100ml of food, but additional information on labelling can also be provided per portion of a food and also as a percentage of a reference intake (RI). The reference intake for the labelling of protein is 50g, so a portion of a food containing for example 10g of protein, could optionally also declare '20% RI' on the label.

Nutrient Claims are any statements on labelling about nutrients, such as protein, outside of the nutrition panel. Source-of-protein claims can be made if a food contains at least 12 percent energy value from protein; high-protein claims need a food to contain at least 20 percent. For many foods, this is an easy hurdle: baguette, bagels and bran flakes all achieve the criteria for a 'contains protein' flash on labelling and no meat/fish/chicken/dairy item does not achieve the high-protein criteria, which perhaps makes it less valuable as a distinguishing nutrient claim for these foods. The relative nutrient claim contains more/increased amount of, for example protein, requires a food to be at least a source-of-protein (i.e. 12 percent energy from protein) and must contain at least 30 percent more than a similar product not making any claim.

The next changes creeping onto food labelling in the UK, are the health claims that have been approved by the Panel on Dietetic Products, Nutrition and Allergies (NDA) of the European Food Safety Authority (EFSA). While about 80 percent of health claims submitted for consideration and assessment have been rejected, those that have been accepted are already seen on food labels in the UK, and there will be more and more of these as new packaging and marketing plans are developed. Submitted protein health claims have been both winners and losers in the assessment process.

The NDA panel rejected various versions of claims that foods/meals/diets high in protein either increase satiety, leading to a reduction in energy intake, or contribute to the maintenance of normal body weight. Any claims on labelling suggesting any possible associations between protein and any effects of satiety or on weight control, are not permitted. Strong advice to food companies is 'do not say it/suggest it/hint it' on any food label.

Three protein claims were given a positive scientific opinion and are now listed in the EU Register on nutrition and health claims (www.ec.europa.eu/nuhclaims). These are that protein a) contributes to the maintenance of muscle mass, b) contributes to the growth of muscle mass and c) contributes to the maintenance of bone. In order to make any of these protein claims, a food needs to be at least a source of protein (i.e. 12 percent energy from protein). There is some option for minor adjustments of wording used, but the essential meaning to consumers must be maintained.

Which leaves consumers with the question, 'how much protein do I need?' The getting-dusty dietary reference values (DRV) report (issued 22 years ago in 1991) advises that adults remain healthy with average intakes of 0.75g protein/kg (e.g. 60kg man or woman = 45g/d). The more up-to-date opinion of the EFSA NDA DRV panel (published February 2012) concludes that adults remain healthy with average intakes of 0.66g protein/kg, and that intakes of 0.83g protein/kg cover the 97.5 percentile requirements (e.g. 60kg man or woman = 40g or 50g/d). Typical mean intakes of protein in the UK are 65-85g, so for most people, most of the time, the protein contents of their diets, is not an issue of concern or need to change. So no need to squint at the protein figures on food labels.

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- Important for bone development, vitamin D is one of the hard-to-get nutrients our Growing Up Milk provides.
- Adding just 2 x 150ml servings each day to a healthy balanced diet provides a toddler with **73% of their daily dietary vitamin D requirement.**
- A convenient alternative to vitamin supplements.

References: 1. Bates B, *et al.* National Diet and Nutrition Survey: headline results from Years 1 and 2 (combined) of the Rolling Programme. London: HMSO, 2010. **2.** Heaney RP. long-latency deficiency disease: insights from calcium and vitamin D. Am J Clin Nutr 2003: Nov; 78(5): 912-9.

Concerned about FODMAPs™?

Try adding something structurally and functionally different

FODMAPs is an acronym that stands for Fermentable Oligo-, Di- and Mono-saccharides, and Polyols.

This term was coined by a group of Australian researchers[1], who theorise that foods that contain these forms of carbohydrate exacerbate the symptoms of functional gastrointestinal disorders, particularly Irritable Bowel Syndrome (IBS), where fermentation of these carbohydrates, by gut bacteria, may produce symptoms such as wind and bloating.

FODMAPs usually include oligosaccharides with a beta-fructosidic and alpha-galactosidic linkage.

In contrast, Bimuno-GOS is a mixture of oligosaccharides with beta-glucosidic and beta-galactosidic linkages. Moreover, it is highly selective towards bifidobacteria, which do not produce gas during their fermentation.

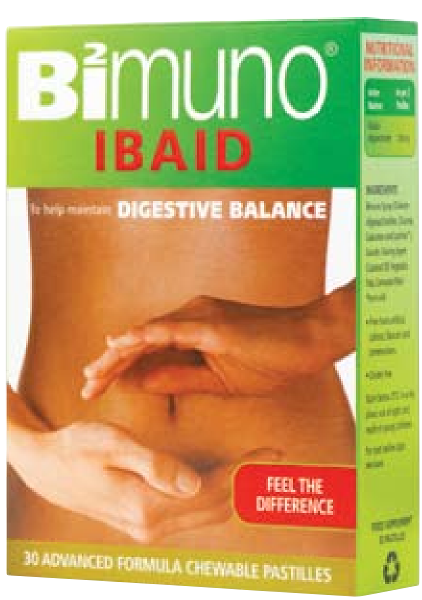
Bifidobacteria are one of the most important bacteria groups in the gut. They specifically stimulate the immune system and enhance overall gut health[2] and have been linked to increased resistance to infection[3]. Moreover, IBS sufferers generally have lower levels of bifidobacteria[4].

A low FODMAP diet has been linked to a significant decrease in bifidobacteria in IBS patients[5].

Studies have shown that Bimuno-GOS has a unique dual action in providing nutritional support specifically for bifidobacteria so that their numbers and activity is significantly increased within 7 days[6].

A placebo-controlled, randomized, double-blind, parallel study on the effect on microbiota and symptoms of IBS[7], showed significant differences between Bimuno-GOS and placebo in abdominal pain, bloating, flatulence and quality of life assessment. Moreover, Bimuno-GOS significantly increased bifidobacteria.

In conclusion, Healthcare Professionals may wish to consider adding Bimuno-GOS to their recommended low FODMAP diet.



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References: [1]Gibson PR & Shepherd SJ. J Gastroen Hepat 2010;**25**:252-258. [2]Macfarlane GT et al. Appl Micro 2008;**104**:305-344. [3]Saavedra JM et al. Lancet 1994;**344**:1046-1049. [4]Balsari A, Ceccarelli A, Dubini F, et al. Microbiologica 1982;**5**:185-194. [5]Staudacher HM et al. J Nutr 2012;**142**:1510-1518. [6]Depeint F et al. Am J Clin Nutr 2008;**87**:785-791. [7]Silk DBA et al. Aliment Pharmacol Ther 2009;**29**:508-518.

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INFLAMMATORY BOWEL DISEASE: THE LINK SURVEY AND QUALITY OF LIFE

Julie Thompson
Clinical Lead
Bariatric &
Gastroenterology
Dietitian
Calderdale &
Huddersfield NHS
Foundation Trust
The IBS Network

Inflammatory bowel disease (IBD) is a chronic relapsing condition presenting as inflammation of gut mucosa. Crohn's disease (CD) presents with transmural skip lesions at any point in the GI tract (1), whereas ulcerative colitis (UC) is a continuous inflammation of the mucosal layer of the large colon only. Symptoms can include frequent bowel movements, abdominal pain, gas and rectal bleeding leading to anaemia - symptoms which are embarrassing and can have a significant impact on the persons' quality of life.

Chronic fatigue is also a common symptom in both active disease and remission and affects day-to-day functioning for those with these conditions. A recent survey by ECCO, the Impact study (2), asked people in Europe (results reported from UK arm of the study) to respond to questions about living with IBD and this article looks at the results of the survey.

HOW DOES HAVING INFLAMMATORY BOWEL DISEASE AFFECT QUALITY OF LIFE?

Chronic disease has been studied widely, in particular the effect that living with symptoms day to day has on reducing a person's quality of life, self esteem and social functioning (3) These bowel conditions can affect people during their education and working life, a time when society expects people to be productive and contribute to society. Some find it difficult to work, as reported by the Impact study (2): the 19 to 34 age group were more likely to have their plans disrupted by having IBD; 36 percent of people report that their life is significantly affected and this is higher for those who are unemployed, perhaps as a consequence of having more severe disease with frequent relapses. Current changes to available employment and disability benefits, personal independence payments and the need to complete medical assessments may also cause additional stress, which unfortunately does not help gut symptoms. However, it is not just working life that is affected; family life, social and personal relationships are also affected (3).

FATIGUE AND ANAEMIA

The Impact study showed that during a flare, 87 percent of responders reported feeling tired, weak or worn out for five to seven days per week. This reduced to 46 percent between flares, still representing just less than half of responders. 58 percent of responders to the Link survey reported absence from work as a consequence of fatigue. The groups most affected by fatigue between flares were women, the unemployed and disabled. The effect of iron deficiency anaemia in IBD, whose symptoms can be fatigue, has been widely studied. Anaemia may be considered to be the cause of IBD related fatigue, but this is not a simple causational relationship and the solution to replace iron does have consequences, depending on the route of supplementation. Oral iron can have gastrointestinal side effects such as diarrhoea, constipation and abdominal pain and has been associated with worsening of inflammation in animal models of IBD (4).

A recent study by Powell et al (5) has shown that for those patients who have a normal haemoglobin result, but a low ferritin level, in other words NOT anaemic, but deplete in iron stores, oral supplementation with iron can reduce quality of life. However, the depletion of iron stores per se, did not affect quality of life in inactive or mild disease in the study. It must be stated that this study measured iron curves after administration of a single dose of oral iron (iron absorption), as normal measures are unreliable in those with active IBD. This can be a result of serum ferritin levels also being affected by conditions of chronic inflammatory processes (6). Chronic inflammation per say, has associations with chronic fatigue, but not being able to have a decent nights sleep, waking during the night with symptoms of pain and needing to use the toilet, also must take its toll on the level of fatigue people experience. Route of replacement of iron, if it is felt to be needed, must be discussed with the IBD team and provided in line with any local protocol.

TOILET FACILITIES

The Link study showed that during a flare 97 percent of IBD sufferers needed to open their bowels urgently; this only dropped to 70 percent between flares and this, therefore, represents the majority of responders. Episodes of diarrhoea were five to10 times per day for 38 percent during a flare, this level remained at 11 percent during remission, and this clearly has a major impact on an individual's ability to travel, work and to function day to day. Perhaps, not surprisingly, this affected the unemployed to a greater extent. One of the primary reasons for work absence is frequency of needing the toilet (38 percent) and anxiety due to the risks of incontinence (33 percent).

The British Toilet Association says that the provision of public toilets is a vital service for those people with medical conditions. They campaign for 'provision of clean, hygienic and safe publicly accessible toilets that are available where and when needed, for all types of users' (7). They request an end to public toilet closures and authorities' acceptance that access to safe discrete toilet facilities are a basic human need. The IBD quality of life study also highlights the need for accessible facilities; unavailability ▶

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The IBD standards state that all patients should be provided with contact information for the relevant patient organisation, patients who do have a greater chance of a better quality of life.

of toilet facilities can increase a person's anxiety of going out, which can make symptoms worse. Twenty-six percent of people with IBD have found that they have had to be rude to staff in public areas, who often do not appreciate the person's needs and who have refused to allow people access to staff toilet facilities. This can lead to an individual being housebound by their symptoms, reducing access to society, friends and family. Eighty-one percent of people with IBD reported that they are anxious about toilet facilities when travelling somewhere new. Perhaps, surprisingly, the Impact survey found that the level of concern about toilet access increased with increasing age, clearly these worries are a very personal and significant problem for people with IBD.

HELP

As dietitians, we may be the health practitioners who have the most time with patients if a hospital trust does not have an IBD nurse. The IBD standards inpatient audit (8) reported that 44 percent of patients had specialist nurse provision; the majority therefore do not. Therefore, patients may rely on the dietitian to provide help with living with IBD. If the patient wishes to know more, the following organisations can help a patient live with their condition and patients should be given written information to assist, or the patient should be referred to a suitable practitioner who can help, where advice needed is outside the health professionals' knowledge base.

The British Society of Gastroenterology guidelines for IBD (9) recommend referral for psychological support when needed; this can improve quality of life. The IBD standards state that all patients should be provided with contact information for the relevant patient organisation, patients who do have a greater chance of a better quality of life. This must be approached cautiously however, as one study found that for some, knowing more about their condition by providing educational information can affect short-term quality of life (10.) It might be that the appointment with the dietitian could be a better time to approach giving this information, as the patient may have had some time to come to terms with their diagnosis and may be more able to utilise provided advice.

Many people with IBD alter their diet to try and ameliorate gut symptoms; this is very likely to affect quality of life. However, except for iron intake, research information in this area is scant. Unfortunately, the Impact survey for IBD did not ask about the dietary changes patients have made in response to symptoms and how this affects their quality of life. Quality of life is an important patient centred outcome that should be measured according to the model of dietetic practice (11). Currently King's College London researchers are seeking to develop a validated food and quality of life questionnaire for patients with IBD. Any tool should help to measure if patients have had an improvement of their quality of life, after dietetic intervention. For further information about the research and planned workshops for expert practitioners, please contact Dr Lyndsay Hughes, Lecturer in Health Psychology: lyndsay.hughes@kcl.co.uk or follow @IBDFRQOL on twitter.

More information

Crohn's & Colitis UK, free downloadable information sheets on all aspects of living with IBD

Ileostomy and internal pouch association,

The Bowel & Bladder foundation

Core UK

Hospital trust continence services - leaflets can be provided for use in clinic and some services allow self referral.

Patient UK free downloadable toilet app www.patientuk.co.uk - for those without internet access, contacting the local council and travel companies is useful (ensure that the travel operator has facilities, both at the station and on the coach or train). 'Can't wait' cards are available from charity support groups and Radar key for disabled toilet facilities and guides are available from www.radar-shop.org.uk/Detail.aspx?id=44

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Can you reduce the risk of an infant developing eczema?

Tanya Wright BSc Honours MSc Allergy HCPC Registered Dietitian MBDA

Tanya Wright is a specialist dietitian who is passionate about working with healthcare professionals and patients to promote the practical aspects of food allergy management.

Breastfeeding has many benefits for both the mother and infant and should always be recommended as the first choice of feed.

Eczema is a growing modern epidemic[1,2]

The occurrence of eczema is greatest in young children,[1] but the prevalence of allergic diseases worldwide is rising dramatically in both developed and developing countries.[2] Eczema can occur from birth, on introduction to formula milk, or when weaning commences.

Its impact extends to the whole family[3]

Apart from the visible effects on the baby, eczema can also affect the whole family socially, psychologically, and financially.[3] Sleep deprivation, low self-esteem, exclusion from activities, along with inconvenient time schedules for treatments, are often the reality faced by these families.

> *"It is important to understand there are things we can do to help babies at risk of eczema and reduce the burden of this condition"*

What are the options for feeding infants?

Breastfeeding is best for babies and should always be recommended as the first choice of feed. If exclusive breastfeeding is not possible however, reducing the impact of allergy (including eczema) in bottle-fed infants has been a major focus of research.[4] The independent prospective GINI study, for example, enrolled over 2000 infants.[4] It found that certain formulas containing hydrolysed proteins reduced the risk of eczema by over 50 % in babies with a family history of the condition (those with at least one parent or sibling with allergy).[4,5]

What the guidelines recommend

Not all hydrolysed formulas have been found to reduce the risk of developing eczema. Therefore clinical guidelines, such as the European Academy for Allergy and Clinical Immunology (EAACI), suggest choosing a formula that has been clinically proven.[6]

IMPORTANT
SMA H.A. Infant Milk should NOT be used if a baby has already been diagnosed with allergy to cows' milk proteins or is suspected of already having an allergy to cows' milk protein. SMA H.A. Infant Milk should be used as the first formula feed, before babies have been exposed to intact cows' milk proteins.

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IMPORTANT NOTICE: Breastfeeding is best for babies. You should always seek the advice of a doctor, midwife, health visitor, public health nurse, dietitian or pharmacist on the need for and proper method of use of infant milks and on all matters of infant feeding. Good maternal nutrition is important for the preparation and maintenance of breastfeeding. Introducing partial bottle-feeding may have a negative effect on breastfeeding and reversing a decision not to breastfeed is difficult. Social and financial implications should be considered when selecting a method of infant feeding. Infant milk should always be prepared and used as directed. Inappropriate foods or feeding methods, or improper use of infant formula, may present a health hazard.

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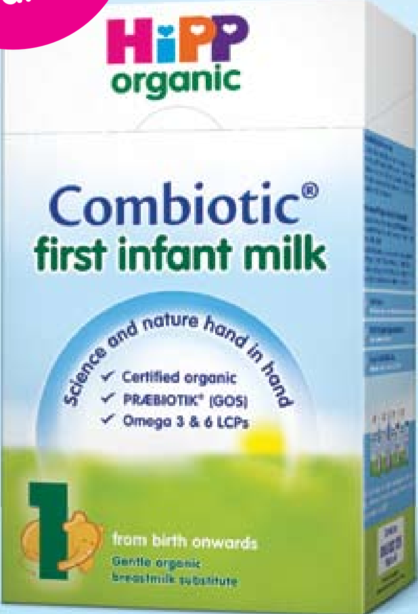

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BREASTFEEDING IS BEST FOR BABIES

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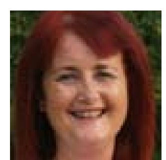

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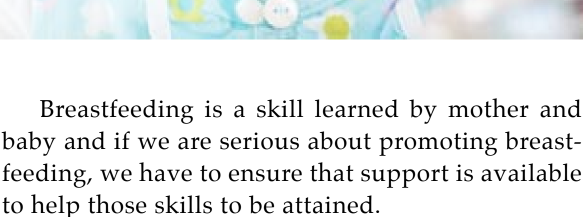
Children's nutrition has been in the news in the last few years, perhaps more than ever before. Alarmingly, for the first time, it is predicted that today's children may have shorter life expectancies than their parents (1) due to rising levels of obesity. In response to these concerns, the Government has introduced mandatory guidelines for school meals, restricted advertising of 'unhealthy' foods to children and are introducing front-of-pack labelling of foods to help consumers make good choices.



There is also some evidence that consumers are changing their eating behaviours; whole milk sales continue to decline and sales of fresh vegetables were increased in the last survey (2).

However, conversely, overall percentages of energy from fat, saturated fat and sugar remain above recommended levels and overall intakes of fruit and vegetables remain static, suggesting that families are not making major changes to their eating habits. The benefits of good nutrition as well as the possible risks of poor feeding practices are detailed below.

BREASTFEEDING

There are many very well recognised nutritional benefits to breastfeeding and health professionals should ensure that parents are aware of these including:

- gastroenteritis - several studies have shown a reduction in risk of diarrhoeal disease in breastfed infants (3,4);
- respiratory infection - rates of upper respiratory tract infection (URTI) are known to be lower in breastfed infants and this protection may be long-lasting; one study found a reduced risk of ever having had a respiratory infection in seven-year olds who had been breastfed as infants for at least 15 weeks (5);
- obesity - there is increasing evidence that breastfeeding helps to protect against obesity later in life (6,7);
- atopy - breast milk at least partially protects against atopic conditions such as eczema and asthma, particularly in infants with a positive family history (5,8,9);
- improved cognitive development - infants who have been breastfed are known to have higher IQ levels, although a recent study has disputed that this is actually an effect of breast milk (10);
- insulin dependent diabetes - several studies have shown a reduction in the incidence of childhood insulin-dependent diabetes in high risk families (11).

Breastfeeding is a skill learned by mother and baby and if we are serious about promoting breastfeeding, we have to ensure that support is available to help those skills to be attained.

WEANING

Government advice since May 2003 is that solids should not be introduced until around six months. Despite this, the optimal age of weaning onto solid foods continues to cause much controversy and debate (12). Fewtrell et al assert that, while exclusive breastfeeding for six months is 'readily defensible in resource poor countries with high morbidity and mortality from infections', in the West, any proposed beneficial effects of exclusive breastfeeding to six months would need to be weighed against potential adverse effects.

Studies carried out since 2001, point to a reduction in risk of infection for exclusive breastfeeding to six months in the West. However, they are only observational studies and may relate to introduction of formula rather than solids (13). Fewtrell et al suggest that there may be an optimum immunological 'window' to introduce solids - some studies have suggested that early and late (after six months) introduction of allergens may lead to increased risk of allergies and coeliac disease (14,15). This paper inevitably led to a furious response from those committed to six months exclusive breastfeeding; SACN (16) responded by saying that they stood by their recommendation for complementary foods to be introduced at 'about six months' and that this accounted for individual variation in timing of introduction of solids. Therefore, perhaps the emphasis should instead be on recognising that starting solids much too early (before four months) or much too late (after six months) is well recognised to cause problems.

Kate Harrod-Wild is a Paediatric Dietitian with over 20 years' experience of working with children in acute and community settings. Kate has also written and spoken extensively on child nutrition.

About one in five infants and young children will have an episode of faltering growth in the early years

Weaning too early may affect:

- immature organ systems, e.g. gut, kidneys (17);
- risk of atopy (17);
- risk of coeliac disease (17);
- risk of wheeze and respiratory illness (5);
- cardiovascular disease risk (5);
- obesity risk (5);
- nutritional adequacy of the diet (18).

Weaning too late may cause:

- nutritional deficiencies, such as iron, zinc and vitamin D (18);
- increased risk of atopy (14);
- missed 'window' for introducing new tastes and textures (19).

It is perhaps assumed that most parents know how to wean their infants. However, in a culture where food preparation plays a diminishing role, this can be a dangerous assumption. Parents from across the socioeconomic spectrum need to be educated about offering foods from all the food groups (see Table 1) and given practical ideas on food preparation to ensure that the ongoing nutritional needs of infants are met and that problems are minimised in the second year and beyond.

Good weaning practices can avoid most simple nutritional problems in the toddler years. However, many nutritional difficulties can develop and some of these are discussed below.

VITAMIN D DEFICIENCY

This was seen as a problem caused by the Industrial Revolution and the rise of slum dwelling; children did not have adequate access to sunlight and so developed rickets. Provision of cod liver oil and orange juice - and then later vitamin drops - to children under five, saw the virtual eradication of rickets after World War II in the United Kingdom. However, in recent decades, there has been a resurgence of rickets, seen particularly in infants from ethnic groups with dark skins, particularly in those from Asia, but also in those from the Middle East, Africa and the Caribbean (20). In addition, there is emerging evidence linking vitamin D deficiency to mortality and morbidity, including all cause mortality (21), bowel and other cancers (22), cardiovascular disease (23,24), multiple sclerosis (25), Type 1 and Type 2 diabetes (26,27), tuberculosis (28) and recently a relationship has been described between vitamin D deficiency and anaemia in childhood (29).

The most recent Nutrition and Diet Nutrition Survey (30) revealed low serum levels of vitamin D in the UK population, particularly in those living north of Birmingham. In view of the increasing concerns regarding the implications of poor vitamin D status, the Chief Medical Officers of the UK released a statement in 2012 (31) restating the importance of vitamin D, particularly in vulnerable groups, including children under five. Therefore, it is important that mothers are encouraged to take vitamin D supplements during pregnancy and that infants and young children from six months to five years, taking less than 500mls infant formula per day are given vitamin D supplements; for those on low incomes these are available through the Healthy Start scheme.

IRON DEFICIENCY ANAEMIA

At least one in eight toddlers is anaemic by the time they reach their second year and this rises to 40 percent in some deprived communities (32). Iron deficiency anaemia can cause:

- poor appetite
- poor growth
- developmental delay
- reduced resistance to infection

High iron foods should be given to babies and toddlers every day; meat is the best source, but iron fortified breakfast cereals and infant formulas are also important sources of iron in infant and toddler diets. Iron deficiency anaemia is particularly common in Asian communities, where weaning is often delayed, cows' milk is more often started early and there can be overdependence on baby puddings; particularly as savoury jars may not be suitable for religious reasons.

FALTERING GROWTH

About one in five infants and young children will have an episode of faltering growth in the early years (33); that is, they won't meet expected rates of growth according to growth chart norms almost always because of undernutrition. This will rarely be due to disease, but is more commonly due to poor eating and feeding behaviours - in the child and family. Advice from the Health Visitor will correct the situation in most cases, but more complex cases may need input from a dietitian or multidisciplinary feeding team. Assessment will include:

- feeding history
- medical history
- growth history
- current food intake - meals, snacks drinks etc
- pattern of food intake - grazing, just meals, meals and snacks etc
- environment of food intake, e.g. at the table, on the move, family meals etc

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Table 1

Food Group	Foods	Portions (by one year)
Meat and alternatives	Lamb, beef, pork, chicken, turkey, fish, eggs, pulses (peas, beans, lentils, dhal), nuts	1-2 servings a day (2-3 servings for vegetarians)
Cereal foods	Breakfast cereals, bread products (including tea cakes, bagels, pitta bread, bread muffins, crumpets, malt bread etc), potatoes, rice, pasta, chapatti, plantain, yam	3-4 servings a day
Milk and dairy products	Milk, yoghurt, cheese, fromage frais, custard, cheese sauce etc	3 servings a day
Fruit and vegetables	All fresh, frozen, tinned and dried fruit and vegetables	5 tastes a day

Advice will focus on improving calorie intake by improving food choices, but also assessing and changing, where necessary, the child and family's behaviours and attitudes around food provision and mealtimes. Providing food regularly, but not allowing grazing or constant sipping at drinks is important, as well as trying to move towards more relaxed, social mealtimes.

OBESITY

Over recent years there have been sharp increases in rates of childhood obesity (34). It was predicted that by 2010 over 1.5 million under 16s would be obese (35). Even during childhood, obesity is linked with problems such as Type 2 diabetes, high blood pressure, high cholesterol, orthopaedic problems and exacerbation of asthma. Additionally, overweight children tend to suffer from higher rates of low self esteem and bullying (36,37). If trends are to be reversed, families need to make good nutrition a priority for the whole family. Parents need to be encouraged to provide their children with regular meals and nutritious snacks, rich in fruit and vegetables and complex (starchy) carbohydrates; snacks such as crisps, biscuits, cakes and sweets should form a small, not regular, part of their diet. Children should also be encouraged to be physically active (i.e. play) for large parts of the day rather than being allowed to sit in front of the television and computer.

Finally, families should be encouraged to cook, eat and enjoy food together as often as they can, which in itself has been shown to have nutritional benefits (38). Food is an important part of all our lives; for the sake of the next generation it is imperative that the quality of the food we feed our children is given higher priority even in the midst of busy 21st century lives.

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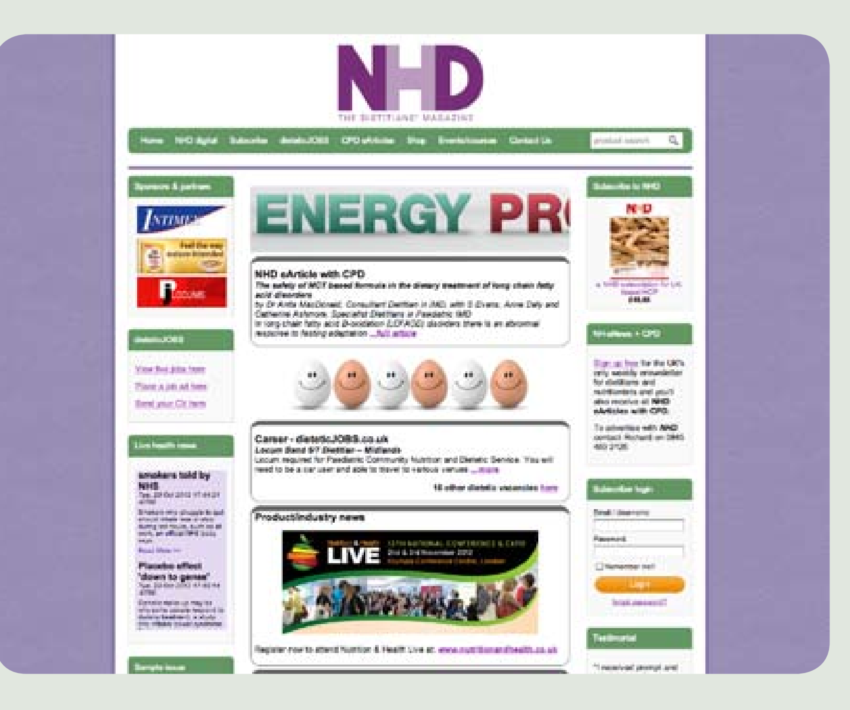
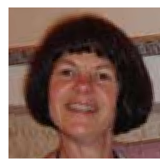


NHD CLINICAL

HOW TIME FLIES!

I just cannot believe that I am writing this introduction to the *NHD* Clinical section for the last time in 2013! This year does seem to have 'flown by' and it only seems like 'yesterday' that I was reflecting on the articles and CPD eArticles for the December/January issue a year ago!



Chris Rudd
NHD Clinical Editor

So far, ***NHD*** in 2013 has offered a selection of articles and opportunities to add evidence to your professional portfolio. I feel that issue 90 will complete that package! This month we offer a mixed menu of articles.

The aim of Alison Burton-Shepherd's article, *Managing antibiotic associated and Clostridium difficile associated diarrhoea with probiotics*, is to provide an overview of the science on probiotics and discuss their use in the management of both AAD and CDAD. There is an inextricable link between the two conditions and, more importantly, increased risks of patient suffering and potentially having undesirable outcomes. Alison concludes by stating that probiotics are relatively cheap and are deemed to be safe, thus their use in the prevention and treatment of both AAD and CDAD is certainly worth considering as an alternative therapeutic target.

There are at least 40,000 people living in the UK with spinal cord injury (SCI). There are 11 SCI centres in the UK, which provide a total of 458 beds for the rehabilitation of people with SCI. Both undernutrition and over nutrition are common within this population. Do you know of the Spinal Nutrition Screening Tool (SNST)? If I have been able to whet your reading appetite, then dip into Samford Wong's article *Malnutrition after spinal cord injury* and find out more!

The malnutrition theme continues and is linked into *ONS: Appropriate prescribing of nutrition products* by Sarah Creighton. Many of us will have experience of writing to patients' GPs to request nutrition prescriptions. Sarah asks, 'are you communicating your nutrition prescription requests to GPs effectively'? She guides us through best practice of effectively communicating with GPs and encourages us to review the quality of our letter templates.

If you are a paediatric dietitian, you may regularly come across children with autism spectrum disorders (ASDs) and feeding problems. Emma Coates shares with us *Diet and autism - a case study*. Read on to find out about 11-year-old Martin who was diagnosed with ASD at the age of six and his feeding success.

I would like to close by wishing you all a very Merry Christmas and a healthy and happy 2014. May I suggest that one of your New Year resolutions might be to write an article for ***NHD*** and share your work and expertise - all would be very gratefully received?

Chris Rudd's career in continuous dietetic service has spanned 35 years. She is now working part time with the Sheffield PCT Medicines Management Team, as a Dietetic Advisor.

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Yakult UK Limited will be organising a healthcare professionals study day on 1st October 2014 at Royal College of Physicians, London. Places are limited and on a first-come, first-served basis. To reserve a place please contact us at **science@yakult.co.uk**

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MANAGING ANTIBIOTIC ASSOCIATED AND CLOSTRIDIUM DIFFICILE ASSOCIATED DIARRHOEA WITH PROBIOTICS

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The human intestinal tract harbours a diverse and complex microbial community which plays a central role in human health (14). This gut microbiota is defined as 'an assortment of micro-organisms inhabiting the length and width of the mammalian gastrointestinal (GI) tract' (32).

There is a growing body of evidence which proposes that alterations in GI microbiota composition are associated with the pathogenesis of some GI disorders, including inflammatory bowel disease, constipation, antibiotic associated diarrhoea (AAD) and Clostridium difficile associated diarrhoea (CDAD) (7,17,26).

Moreover, the aberration of gut microbiota is also associated with an increased risk of developing other chronic long-term health problems, including Alzheimer's disease, obesity and Type 2 diabetes (24). Therefore, this clearly shows that host physiology and intestinal microbiota are intimately connected. However, Gerristen et al (12) argue that, since there are substantial inter-individual and intra-individual variations in the composition of the intestinal microbiota, it is difficult to establish the individual's inherent risk of developing specific GI and other chronic diseases.

Promising beneficial therapeutic effects have been demonstrated with targeted manipulation of gut microbiota composition through the use of probiotics (29). The aim of this article is to provide an overview of the science on probiotics and discuss their use in the management of antibiotic associated diarrhoea (AAD) and Clostridium difficile associated diarrhoea (CDAD) given that there is an inextricable link between the two conditions and, more importantly, increased risks of patient suffering and, in some circumstances, increased risk of morbidity and mortality (35,23).

Alison Burton-Shepherd is a Nurse Tutor at Florence Nightingale School of Nursing and Midwifery, Kings College University London. She is a Registered Nutritionist lecturing in nutrition and adult nursing with specialist interest in childhood obesity and clinical nutrition.

PROBIOTICS: AN OVERVIEW

Probiotics have been defined as 'live micro-organisms which, when administered in adequate amounts, confer a health benefit on the host' (10). In order to qualify as a probiotic, certain criteria need to be met. A bacterial strain must be fully identified, be safe for ingestion, adhere to the luminal mucosa, colonise the gut and possess documented health benefits, the results of which should be reported from randomised controlled clinical trials (39).

The GI tract in a newborn is considered to be sterile and bacteria from the mother colonise the gut during birth. Moreover, the microbiota composition differs between infants born by caesarean section (CS) and by vaginal delivery. In particular, children born by CS have demonstrated a delayed colonisation of the genus Bacteroides (25,18). Bacteroides are of clinical significance given that they have an excellent symbiotic relationship with the human host (41).

However, new evidence is emerging which challenges this transmission theory. Data from a recent and extensive study, found that the faecal microbiota of children was no more similar to that of their mothers or their biological fathers and was also genetically unrelated (42). This therefore suggests that the environment may have a significant impact on the development of the gut microbiota in children.

Indeed, it is well documented that the biodiversity of microbiota will also vary considerably depending upon whether the child is breast or bottle fed and the subsequent weaning process (40). It is also proposed that when the child reaches the age of four, the gut flora is fully mature and is unique to the individual (19). However, it is also argued that microbial signatures stabilise and start to resemble the 'adult state' when the infant reaches one to two years of age (32).

Although intestinal micro-organisms carry out essential functions for their hosts, it is important to be aware that they also pose a constant threat of invasion owing to their sheer numbers and the large intestinal surface area (15).

Gut dysbiosis is defined as 'a state of imbalance in the gut microbial ecosystem, including overgrowth of some organisms and loss of others' (27). This dysbiosis is thought to be attributed to many factors which are shown in Table 1 and has a significant impact on the development of disease which may be acute or chronic (5).

As previously discussed, the range of pathological conditions arising from gut dysbiosis can range from those of localised GI conditions or can be more widespread exerting their effects systemically.

Table 1: Factors which can cause gut dysbiosis (Adapted from 34)

Intrinsic factors	Extrinsic factors
Gastric acid	Diet/prebiotics and probiotics
02 consumption	Proton Pump Inhibitors, (PPI) H2 blockers
Gut motility	Antibiotics
Mucus membrane	Prokinetics
GI secretions/enzymes	Laxatives
Antimicrobial peptides	Opioids
Immunity Peyer's patches (IgA secretion as first line of immune defence)	Non-steroidal anti-inflammatory drugs (NSAID)

ANTIBIOTIC ASSOCIATED DIARRHOEA

Antibiotic-associated diarrhoea (AAD) is diarrhoea that occurs in association with antibiotic treatment and without an alternative cause (2). AAD occurs most frequently in older (≥65 years) inpatients exposed to broad-spectrum antibiotics, the risk increases progressively with longer treatment courses and it can occur up to 12 weeks after antibiotic exposure (3). Other risk factors associated with the development of AAD include; dysbiosis of gut microbiota,

a direct effect of the antibiotic, for example erythromycin which can enhance gastric emptying and, finally, overgrowth of Clostridium difficile bacteria in the gut (8).

The main treatment for managing AAD is to prescribe metronidazole, a powerful antimicrobial drug which also has the potential to cause many unpleasant GI side effects, including diarrhoea and vomiting in some individuals (8).

Probiotics constitute a new and emerging therapeutic measure for both the prevention and effective management of AAD and to date are deemed to be safe with no side effects (NICE 2008 and 1). However, the evidence regarding the use of probiotics in AAD is equivocal (44). It is thought that the equivocal nature of the literature may be due to several reasons. Firstly, it is important to note that the therapeutic effects of probiotics are strain specific and furthermore, the efficacy will also depend on many environmental factors that make the immune system receptive or not to the influences of a given probiotic strain (28). This effect is illustrated with data from the PLACIDE Trial which concluded that there is currently no evidence to support the use of a multi-strain preparation of lactobacilli and bifidobacteria as being effective in the prevention of AAD (3). Moreover, one study has also suggested that probiotic treatment is not compatible with pharmacological treatments (4). However this is an extreme view and therefore the results from this study cannot be applied to the population as a whole. There are also several flaws identified in the methodology of many of the studies which examine the effects of probiotics and AAD (20).

In summary, whilst probiotics are useful in the prevention and management of ADD to ensure effective treatment of AAD, more research is needed to determine which probiotics are associated with the greatest efficacy and for which patients receiving which specific antibiotics (44).

CLOSTRIDIUM DIFFICILE ASSOCIATED DIARRHOEA

Clostridium difficile is a gram positive spore-forming anaerobic bacterium (6). Whilst Kaneria & Paul (21) argue that rampant use of broad spectrum antibiotics has increased CDAD, Varughese et al (37) propose that this organism only accounts for a small percentage of CDAD. Most recently, the European Society for Microbiology and Infectious Disease (ESCMID) suggest that mild CDAD is more likely to be caused by antibiotic use. However, one can argue what is 'mild CDAD' and how the word 'mild' can be defined in this instance (9).

The number of individuals with Clostridium difficile infection is reported to be falling on an annual basis (16). But it is still important to be aware that in severe cases Clostridium difficile infection can lead to pseudomembranous colitis and toxic mega colon; both of which can ultimately result in death (8). Furthermore, there is also a growing body of data to suggest that some individuals may also suffer with recurrent Clostridium difficile infections (33). Relapses may be secondary to germination of residual Clostridium difficile spores which have not been eradicated from the colon, therefore remaining in situ post the initial treatment (6). There are many individuals who are deemed to be at high risk of re-infection and these are highlighted in Box 1.

Ironically, unless the infection is deemed to be 'mild', the mainstay of treatment for Clostridium difficile infection is antibiotics, including metronidazole, vancomycin and more recently fidaxomicin (9). A recent review has concluded that fidaxomicin, one of the new generations of antibiotics, is a valuable emerging option for both the treatment of first episode and recurrent episodes of C. difficile-associated diarrhoea (31). However, given that recent antimicrobial therapy is deemed to be an increased risk factor for both developing and recurrent Clostridium difficile infection, it is prudent to suggest that there needs to be an alternative therapy in the prevention and management of this condition. Due to increasing antibiotic resistance and an increase in hyper-virulent strains of C. diff infection where treatment with vancomycin and metronidazole has at times proven to be ineffective (38), this also highlights the importance of discovering new treatments in order to eradicate this bacterium.

Box 1: Clostridium difficile: who is at risk? (Adapted from 6 and 34)

Recent hospital stay
Elderly individuals in long-term residential care settings
Individuals who have recently taken antimicrobials
Immuno-compromised individuals
PPI therapy
Those with poor health secondary to chronic disease
Pregnant woman

There is increasing data to suggest that probiotics may be useful in both the prevention and management of CDAD (39). Again, when analysing the literature, it is important to be aware that the effectiveness of the probiotic will be determined by both the strain and the dosage and that data is not transferable to other probiotic studies (43). A recent Cochrane Review which pooled data from several systematic reviews and meta-analysis of 23 randomised controlled trials, including 4213 patients deemed as 'moderate quality evidence', suggests that probiotics are both safe and effective for preventing CDAD (13). However, whilst probiotics are also reported to be safe and potentially effective in the prevention of CDAD, additional studies of higher power and rigorous design are needed to clarify these findings (20).

Whilst it is fair to say that the use of probiotics in the prevention and management of C. difficile infection remains controversial, there is now evidence to suggest that faecal microbiota transplantation may be beneficial in treating this highly unpleasant disease (30). Faecal transplants are meant to restore the healthy complement of gut bacteria that would normally keep C. difficile at bay. Despite their unappealing nature, the transplants have been used to treat hundreds of patients with C. diff infection and results highlight that more than 90 percent of patients have recovered (36). This form of therapy has been found to be most effective in those individuals who suffer a relapse of C. diff infection (22). At the present time, there is no clear evidence base regarding the mode of delivery of the faecal microbiota (30), but there is new and emerging data that proposes the use of a pill which encapsulates faecal microbiota which may remove the need for transplantation via nasal tubes or enemas (27).

CONCLUSION

Whilst it can be argued that the incidence of CDAD is decreasing, the risks of recurrent infection remain high in some vulnerable individuals. Furthermore, whilst there are certain hyper virulent strains of CDAD that are not responsive to the main antibiotics used to treat this disease, it is important that healthcare professionals are aware of good safe evidenced based alternatives. Given that probiotics are relatively cheap and are deemed to be safe, then their use in the prevention and treatment of both AAD and CDAD is certainly worth considering as an alternative therapeutic target. An improved understanding of the pathophysiology in both AAD and CDAD will help to guide further studies.

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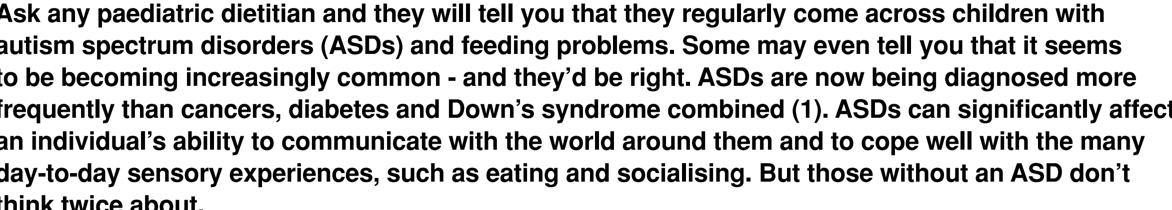
DIET AND AUTISM



Ask any paediatric dietitian and they will tell you that they regularly come across children with autism spectrum disorders (ASDs) and feeding problems. Some may even tell you that it seems to be becoming increasingly common - and they'd be right. ASDs are now being diagnosed more frequently than cancers, diabetes and Down's syndrome combined (1). ASDs can significantly affect an individual's ability to communicate with the world around them and to cope well with the many day-to-day sensory experiences, such as eating and socialising. But those without an ASD don't think twice about.

Emma Coates
Senior Paediatric Dietitian Wrexham Maelor Hospital, Betsi Cadwaladr University Health Board

Children with ASDs have more feeding problems than children without an ASD (2) and it is common to have children with an ASD referred for dietary advice or nutritional support. Some of the problems that these children experience are listed in Table 1. In this article I will share the story of one of my ASD patients, which highlights many of the feeding problems that this patient group experience.

Case study

Martin was referred to me when he was 11 years old. He was diagnosed with an ASD at the age of six. Mum explained that he had been slow to wean on to lumpier and mixed textured food and often gagged and vomited on these foods. He also had a history of reflux from birth. Mum felt that he had always been choosy about his food, clothing and the toys he would play with. She had suspected that he may have an ASD prior to his diagnosis.

BACKGROUND INFORMATION

Martin suffers from:

- selective mutism (will speak to parents and sibling at home, occasionally speaks to school support staff)
- constipation (prescribed Movicol up to two sachets per day; managed well with this amount, but it started to become a problem again over recent months)
- iron deficiency anaemia (prescribed Sytron Elixir, 5ml tds, a six-month course, which he was almost half way through)

He dislikes busy, loud places and recently started secondary school, attending a resourced school for children with learning difficulties.

Mum felt that although Martin's diet was limited in some ways, he had been eating fairly well until his referral to me by the paediatrician. Martin was referred due to concerns about his weight drifting from the 25th to just above the 2nd centile in 12 months. His height was on the 25th centile.

During his initial assessment we discussed his current oral intake and food preferences, which included foods from all food groups, but some more than others. For example, he had a limited intake of fruit and vegetables, as well as a very limited intake of protein rich foods such as red meat, fish or eggs. He would eat chicken, but only breaded chicken nuggets. He would occasionally eat sausage. He could be brand specific at times and would take only two types of yogurt. If he ate cheese, it would have to be individually wrapped

Table 1: Common feeding and health issues in children with ASDs

Feeding	Health
Food neophobia - unable to try new foods without distress or physical reactions, e.g. gagging/vomiting	Constipation
Poor recognition of thirst, hunger or satiety	Diarrhoea
Poor transition to textured foods/texture preferences, e.g. may not accept lumpier textures, mixed textures or specific textures such as foods which are too chewy or sticky	Reflux
Brand specific or restricted to particular packaging of foods	Pica
Very specific preferences for foods of a certain colour/ shape/size	Iron deficiency anaemia
Specific food presentation, e.g. particular layout on the plate, odd or even numbered amounts, specific cutlery, avoiding foods touching on the plate	Other vitamin or mineral deficiencies due to restrictive, imbalanced diets
Hyper- or hypo-sensitivity at mealtimes can cause distress, e.g. dining areas being too noisy/quiet, too many/not enough distractions, cooking smells/other people's food	
Preferences for highly flavoured or plainer foods only, e.g. may opt for very salty or spicy foods or very bland - no sauces or spreads	

Emma has been a Paediatric Dietitian for five years and works with a wide range of patient groups, including disability, dysphagia, HETF, ASD, CF, PKU and coeliac disease.

cheeses not a piece from a larger block. Breakfast cereal was acceptable if it was dry; he would gag if given cereal with milk, but would occasionally take milk as a drink preferring it flavoured with milkshake powder, his most favourite way to take milk being a latte or milky coffee. Martin would not take water, but drank 'no added sugar' blackcurrant squash. He generally seemed to prefer crunchier and drier textured foods and would gag if offered mixed textured foods such as bolognaise, stews or baked beans. Nevertheless, he ate quite well at home.

Mum had been encouraging him to touch and handle food from an early age and this was not a problem as long as he wasn't expected to eat what he was handling. He was encouraged to be involved in the preparation of food at home; his favourite job was laying the table at mealtimes. He would also go to the supermarket with Mum, although this could be quite distressing for him if it was a large store or very busy.

We discussed the changes that had occurred to Martin's diet over the last 12 months. Mum explained that since starting his new secondary school, he was missing breakfast most days. Martin's school was now over an hour away by taxi, which meant that he was awake early and ready to leave at 7.45am. He wasn't interested in eating or drinking at that time. Whilst he was at primary school, which was more local, there had been more time to eat. He would have dry cereal and a glass of milk or a milky coffee and digestive biscuits for breakfast. Mum also told me that he had almost one-to-one support at his primary school and they had assisted him at break and mealtimes, encouraging him to eat and drink. Mum told me that Martin required prompting at snack and mealtimes as he 'zones out' and doesn't concentrate on eating or drinking.

Since being at his new school his lunch box was returning home almost full, with a few bites taken out of the foods that Mum had included (crackers, two individually wrapped cheeses, crisps, two digestive biscuits, fruit and squash).

In light of these issues, I contacted Martin's school and talked to one of the support staff who worked with Martin on a daily basis. She explained that whilst they were unable to provide one-to-one support, they were able to offer extra support to some children who required additional needs at snack and mealtimes. She informed me that Martin had settled in quite well at his new school, but she had been the only member of staff he had spoken to since his arrival. We discussed how he could have the opportunity to have breakfast during the morning at school. She informed me that the school held a breakfast club which was open until 9.10am and Martin was able to attend this as he arrived at school early enough. He could be offered school breakfast options of cereal, toast, milk, juice or water. If these were not acceptable they were happy for Mum to send food in for Martin.

We also discussed some extra support at morning snack time and lunchtime. She explained that Martin could sit with some of his peers who also needed extra encouragement to eat and drink at these times. She already seemed to be aware of Martin's difficulty to cope with too much noise, which was a problem in the school's main dining area. She offered to take Martin to a quieter part of the school where he could sit and eat lunch with a few other pupils who also struggled with the school dining room environment. Mum was happy to try all of these options to see if his food intake improved.

I reviewed Martin three months later and he had made good progress. He had gained weight and was now 9th centile for weight and 25th centile for height. Mum informed me that she had been in regular contact with school regarding his eating and drinking progress. He was attending the breakfast club, but he would not take any of the foods on offer there. Instead, Mum was sending in a flask of whole milk coffee and either specific branded breakfast biscuits or digestive biscuits. He would have half of the coffee and some biscuits at 9am and the other half of the coffee and more biscuits at morning break. He was taking almost a pint of whole milk via the milky coffee. He had moved to the quieter room for lunch and was taking approximately half of his lunch box now. He had also taken an interest in a fellow pupil's cooked school dinner on several occasions. On one day of the week Martin was now taking a small portion of potatoes and chicken breast. Mum had encouraged school to offer more tastes of school dinner options in the hope that Martin would accept more foods.

Following this review, I saw Martin one last time three months later and his weight had improved further to almost the 25th centile. His constipation had improved and his Movicol had been reduced to half a sachet per day. He had completed his course of Sytron Elixir and his serum ferritin levels were now within the normal range. Mum was pleased with his ongoing progress at school and agreed to be discharged.

For more useful information on Diet and Autism: Dietary Management of Autism Spectrum Disorder: A Professional Consensus Statement (www.bda.uk.com) and useful websites include: www.dietitiansinautism.org and the National Autistic Society at www.autism.org.uk

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MALNUTRITION AFTER SPINAL CORD INJURY

Samford Wong
Lead Dietitian
Spinal Cord Injuries

Spinal Cord Injury (SCI) has been known since antiquity. The first published report of SCI was translated from James Henry Breasted in 1930. This document, known as The Edwin Smith Papyrus, contained details of an unknown Egyptian physician who accurately described the clinical features of traumatic tetraplegia (quadriplegia).

The documents describe 48 traumatic cases, six of which were involving cervical spine and two of those six were clearly injuries to the spinal cord (SC). They noted that the patient would have priapism (erection) and incontinence of urine. It also revealed an awareness of the awful prognosis of SCI with chilling advice: 'an ailment not to be treated' (1).

This Egyptian physician suggested that the two SCI cases were not to be treated at all, probably due to its poor prognosis. Obviously, this physician had sufficient knowledge of anatomy and surgical skills of his day, but he may also have been aware that his resources were limited to enable SCI patients to recover and return to their normal life.

Until modern times, there were no means of repairing the damaged SC and no cure, thus patients usually died rapidly from a combination of pressure ulcers and urinary tract infections. During the First World War, 90 percent of patients who suffered a SCI died within a year of being wounded and only about one percent survived more than 20 years. This has greatly improved since the introduction of modern SCI management by Sir Ludwig Guttmann, the founder of the first National Spinal Injuries Centre in Stoke Mandeville Hospital in Aylesbury in February 1944 (2).

As life expectancy improves, obesity becomes an unavoidable issue in SCI patients due to enforced inactivity secondary to paralysis and subsequent change in body composition. There are at least 40,000 people living in the UK with SCI (3) with an incidence of eight to 12 cases per million populations. The most common causes of SCI are falls and road traffic accidents. Other injuries, such as head and chest injury, often coexist and may complicate management and rehabilitation. The UK has 11 SCI centres, which have a total of 458 beds for the rehabilitation of people with SCI (4).

METABOLIC RESPONSE (MALNUTRITION) AFTER ACUTE SCI

Malnutrition, including both over- and under-nutrition, is a common problem in patients with recent spinal cord injury (SCI) in the UK (5-6). It is associated for adverse clinical outcomes, such as increased hospital length of stay (LOS) and mortality (7). After SCI, patients may already be suffering from malnutrition. Negative energy balance will result in depletion of glycogen stores and rapid increase in the utilisation of body fat and protein as energy. They frequently develop an accelerated catabolic rate and rapid loss of nitrogen (8-9) which results in the depletion of whole body energy stores, loss of lean muscle mass, reduced protein synthesis and ultimately, loss of gastrointestinal mucosal integrity and a compromise of the immune system (10).

During the acute phase of SCI, the inflammatory-stress response drives the catabolic process. Inflammatory cytokines and stress hormones cause a shift in substrate utilisation that favours amino acids and increases the basal metabolic rate. If this catabolic process continues untreated, protein stores become depleted if no nutrition intervention is initiated results in malnutrition (11).

A recent guideline produced by the American Dietetic Association suggests that dietetic therapy provided to patients with SCI by a registered dietitian results in improved nutritional related-patient outcomes via adequate intake and management of weight, dysphagia, bowel function, bone health, healing of pressure ulcers, serum lipids and glucose and reduces the risk of development of nutrition related complications (NRCs) such as renal calculi, osteoporosis, obesity, diabetes and cardiovascular disease (12). However, nutritional therapy is seen to be under-utilised in the UK. Several organisational factors, including sub-optimal dietetic provision (a whole-time equivalent dietitian in UK tends to cover 108.4 patients; range: 37 to 387) (4) and poor nutritional knowledge among medical and nursing staff working in the SCI centre (13) (only 38 percent of nurses knew how to calculate body mass index. Surprisingly, 49 percent of the surveyed staff thought that at least 20 percent weight loss was required to indicate malnutrition), are thought to contribute to insufficient use of nutrition screening tools and a lack of the needed nutritional support in patients with spinal cord injuries. Indeed, poor meal intake among SCI patients admitted to SIC centre (only 48 percent of in-patients surveyed ate three full meals per day) is thought to be linked to malnutrition during their hospital stay.

TACKLE PATIENT AT RISK OF MALNUTRITION - NUTRITION SCREENING

A disease-specific NST, the Spinal Nutrition Screening Tool (SNST) was developed and validated by SCI dietitians to screen patients with SCI (14) (Fig. 2). The SNST assesses eight criteria, of which the majority are recognised predictors or features of undernutrition:

1. History of recent weight change/body mass index (BMI)
2. Age
3. Level of SCI lesion
4. Presence of co-morbidities
5. Skin condition (presence of pressure ulcer)
6. Diet
7. Appetite and
8. Ability to eat

Samford Wong is Lead Dietitian for Spinal Cord Injuries and Research Associate at the Stoke Mandeville Spinal Foundation and Centre for Gastroenterology and Clinical Nutrition at University College London. Samford has recently completed a PhD in nutrition state in patients with spinal cord injuries; he has nine years experience of working in the NHS. He also acted as a referee to a number of scientific journals in his field of research.

Fig. 1: Factors that contribute SCI patients to being vulnerable to malnutrition

Let's look at our patients
Factors that contriubute to being vulnerable

- Level of their SCI
- Pain
- Nausea + Vomiti ng
- Consti pati on
- Swallowing diffi culti es
- Depression (+ / -)
- Confusion
- Medical Treatment
- Venti lator
- Co-morbiditi ese.g Pressure ulcer; Infecti on; Pre/postop
- Increased / decreased nutriti onal requirement
- Eating environment
- Limited food choice
- Lack of suitable aids
- Timing of meal

and more……

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Each component has a score of up to five and the total score reflects the severity of risk. A score of 0-10 indicates low risk of undernutrition, 11-15 indicates moderate risk, and >15 indicates a high risk of undernutrition.

Obtaining current weight can be difficult even if bed weighing scales are available. It is recommended that weight be taken on admission and repeated periodically. In some cases, estimation of weight loss has to be done visually. However, it should be borne in mind that muscle wasting may have resulted from denervation following the SCI and bed rest rather than nutritional depletion.

SNST is an acceptable and reliable NST with reasonable reproducibility and validity when compared with other validated NST and full dietetic assessment, but its predictive validity - the ability to predict clinical outcomes in SCI patients - needs further investigation (9). We used the dataset from a recent UK multicentre study (1) to investigate the nutritional risk factors associated with longer hospital length of stay (LOS) and first-year mortality after admission to a British SCI centre during July 2009 to March 2010. A total of 150 adult SCI patients were studied prospectively for one year. We observed a higher prevalence of undernutrition risk in patients with associated features, including high cervical injury, previous intensive care unit stay and use of mechanical ventilation. Undernutrition risk was associated with a significantly longer hospital stay and a greater 12-month mortality after SCI centre admission. In addition, objective variables, including low serum albumin level (<35g/L) and their first admission to a SCI centre, were identified as independent predictors of variance in hospital LOS (7).

OBESITY AFTER SCI

As rehabilitation progresses, becoming overweight is an increasing risk as appetite and food intake return to, or even exceed, pre-injury levels. There is limited data on the rate of weight gain post SCI in the UK. An unpublished retrospective audit carried amongst patients attending the outpatient clinic at the National Spinal Injuries Centre (NSIC) at Stoke Mandeville Hospital in 2007, showed that BMI increased by 2.0kg/m2 for males and 3.0kg/m2 for females after their SCI. When comparing this with the national survey data in the UK (15) patients with SCI (16) seem more likely to become overweight and obese than the able-bodied population (60 percent vs 40 percent). We reported in an earlier section that the prevalence of overnutrition using the conventional BMI threshold >25kg/m2 was 45 percent and 69.2% using an adjusted cut-off of >22kg/m2 (17). If we extrapolate from these estimated figures, it is predicted that at least 18,000 individuals with SCI may be overweight or obese in the UK.

Patients with chronic SCI are more vulnerable to overnutrition due to their inherent immobility and muscle atrophy secondary to paralysis and this leads to a change in body composition. This may arise because the combination of a lower basal metabolic rate, which has been shown to be reduced by seven to 48 percent (18) and restricted physical activity result in a positive energy balance and therefore weight gain.

The risk of mortality associated with CVD is twice as high in SCI patients compared with able-bodied individuals with CVD (19). Indeed, for long-term SCI individuals, morbidity and mortality from

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CVD have now exceeded that caused by renal and pulmonary conditions as the primary cause of death (19). In addition, overweight SCI individuals are at a higher risk of developing pressure ulcers, increasing difficulty in daily life.

It is estimated that 24,000 individuals with SCI are overweight and obese in the UK (5). We found a high prevalence of overnutrition (45 percent of adults had a BMI >25kg/m2). Predicting energy expenditure with the use of standard equations can lead to overestimation of energy requirements (20-21). Energy intakes appeared to be about 16 percent less than the needs estimated from predictive equations. Dietitian must exercise judgment and be alert to emerging research on energy requirements in SCI.

Contact details of all UK Spinal Cord Injury Centre dietitians can be found via Multidisciplinary Association for Spinal Cord Injury Profession's website www.mascip.co.uk Taking into account that obesity is highly prevalent after SCI, the provision of dietetic intervention would not be practical. Focusing on educating patients on healthy eating and reduced nutritional needs after SCI could help to prevent obesity. A simple weight management clinic led by a dietitian could be a cost-effective way to help obese SCI individuals to lose weight without compromising lean body mass. The provision of anti-obesity medication and bariatric surgery should be considered if all non-surgical interventions have been tried (22).

Fig. 2: Spinal Nutrition Screening Tool (SNST)

To be completed by nursing staff

Patient name ______________________ Hospital number______________________

Est. Pre-injury Height__________**Weight**__________**Body Mass Index** ______________ **(See ready reckoner chart)**
Date completed______________

					Score
Weight History	**0** No weight loss	**1** Some unintentional weight loss. BMI 19-21	**3** Moderate unintentional weight loss. BMI 16-18	**4** Marked unintentional weight loss. BMI <16	
Age	**1** 18-30yrs	**2** 31-60yrs	**3** over 60yrs	**4** under18yrs	
Level of SCI	**1** S1-S5	**2** L1-L5	**3** T1-T12	**5** C1-C8	
Other medical conditions	**0** None **1** Chronic condition E.g. diabetes/substance abuse	**2** Acute Trauma Fractures/Head Injury **3** Infection/Post surgery	**4** Requires ventilation	**5** On ventilatory support with tracheostomy	
Skin Condition	**0** Intact **1** Red mark or Grade 1	**2** Superficial skin damage or Grade 2	**3** Full thickness skin damage or Grade 3	**5** Deep multiple pressure ulcers or Grade 4/5	
Diet	**0** Normal diet and fluids	**1** Parenteral or enteral nutrition	**2** Modified texture diet +/-nutritional supplements	**3** Nil by Mouth	
Appetite	**0** Good, eating all meals	**1** Poor, > ½ left	**2** Not accepting food & drink or unable to eat	**3*** Vomiting and diarrhoea	
Ability to eat	**1** Able to eat independently	**2** Requires some help	**3** Needs to be fed		

TOTAL=

Score each risk factor, using highest score if more than one is relevant.	**Total these row scores to obtain Initial total Score and record risk level**	**Risk level** 0-10 = **Low** 11-15 = **Moderate** >15 = **High**

* Investigate cause and treat.

Additional Resources

Multidisciplinary Association of Spinal Cord Injury Professionals (MASCIP) - www.mascip.co.uk
British Association of Spinal Cord Injury Specialist (BASCIS) - www.bascis.org.uk
International Spinal Cord Society - www.iscos.org.uk
E-learning modules for Spinal Cord Injury (with nutrition module) - www.elearnsci.org

For article references please email: info@networkhealthgroup.co.uk

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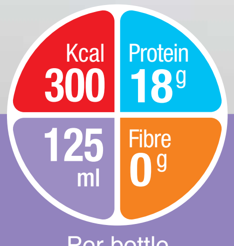

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References: 1. Nutricia, UK Community Trial, Data on file, 2011 (n=16). 2. Regulations (EC) No. 1924/2006, 2006. European Parliament & of the Council of 20 December 2006 on nutrition & health claims made on foods. Official Journal of the European Union, L404.

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ONS: APPROPRIATE PRESCRIBING OF NUTRITION PRODUCTS

Are you communicating your nutrition prescription requests to GPs effectively?

Sarah Creighton
HCPC Registered Dietitian, London Procurement Partnership Dietitian Project Manager - Adult Lead

Sarah qualified in 2006 and has worked in both the hospital and community setting. She is a member of NAGE, BDA Sub, Prescribing Dietitians Support Group and the London Branch of the BDA. Sarah's speciality is nutrition support. She has a passion for improving the prescribing of oral nutritional supplements.

Since 2008, to address concerns regarding the screening and monitoring of malnourished adult patients together with spiralling costs of oral nutritional supplements (ONS), the London Procurement Partnership (LPP), through the Pharmacy & Medicines Management Steering Group, has commissioned the Clinical Oral Nutrition Support Project. In 2010 the project was extended to also focus on the appropriate prescribing of paediatric ONS and specialist infant formula. The LPP work in collaboration with commissioning organisations and provider services to identify local strategies to improve the treatment of adult malnutrition and help organisations make appropriate prescribing of ONS and specialist formula part of routine practice.

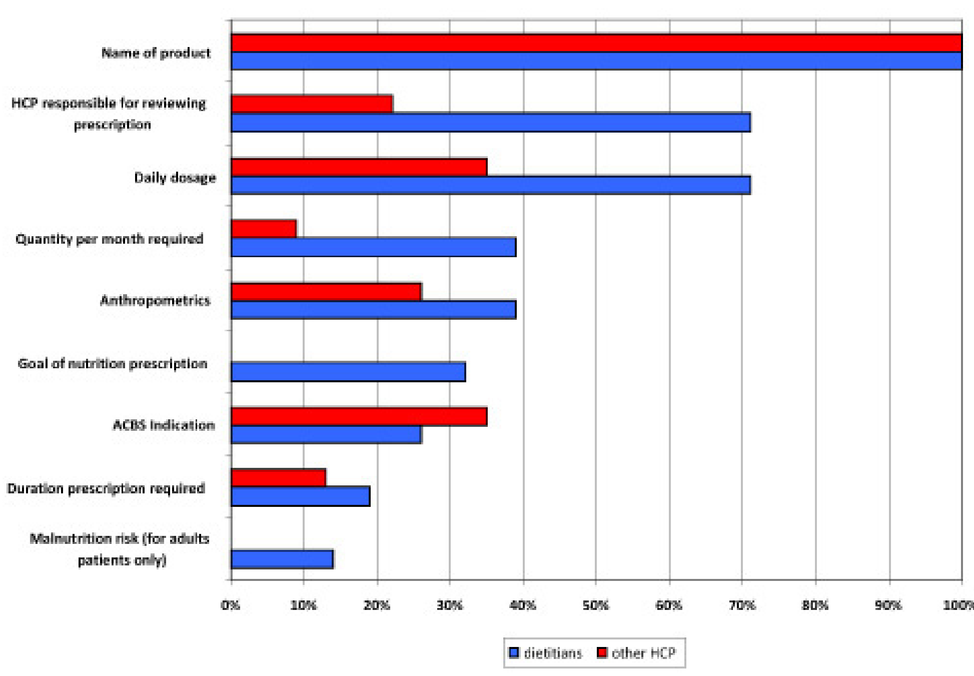
AUDIT BACKGROUND

There are anecdotal reports that prescribing of nutrition products in the acute setting drives prescribing in primary care; however, there is no London-wide evidence to support this rationale (1,2).
The LPP received feedback from PCT Medicines Management Teams that nutrition product requests received from healthcare professionals (HCPs) in acute Trusts often provide little rationale for their use and minimal information to inform the monitoring of the patients' nutritional status by GPs. There was concern that this may contribute to nutrition products being prescribed incorrectly and for unnecessarily prolonged periods, which represents poor value-for-money to the NHS. As the financial climate changes in the NHS, the challenge to deliver efficiency savings and minimise waste whilst ensuring high quality care grows (3).When they receive a nutrition prescription request from an HCP in an acute Trust, GPs should feel confident that they are being asked to prescribe the most appropriate product, because many do not feel that they have the expertise to query the request. The LPP conducted an audit to determine the content and adequacy of the information included on written requests from acute healthcare professionals to GPs for ONS, modular supplements and specialist infant formulae prescription was in line with best practice as recommended by LPP (see Table 1).

Table 1: LPP Best practice information to include in nutrition prescription requests

Information to include in nutrition prescription requests	Justification for inclusion
• Name of nutrition product • Daily dosage of nutrition product • Quantity of nutrition product to prescribe per 28 days	• To enable GP to prescribe the correct nutrition product. • Absence of this information could lead to incorrect dosages being prescribed and a risk of under or over prescribing. British National Formulary (BNF) prescription writing guidelines recommends the dose, frequency and quantity should be recorded on prescriptions (4).
• Anthropometric data	• NICE (5) recommends nutrition support should be considered for adult patients with a Body Mass Index (BMI) of less than 18.5kg/m2; unintentional weight loss greater than 10% within the last 3-6 months; and a BMI of less than 20kg/m2 and unintentional weight loss greater than 5% within the last 3-6 months. Including anthropometric information in prescription requests will assist to justify the need to prescribe ONS for an adult patient. • It is usual for a HCP that is assessing a paediatric patient to record anthropometrics. If a nutrition prescription was required this information would be used to determine daily and hence monthly prescription volumes. Sharing this information across healthcare session will enable growth monitoring.
• An Advisory Committee on Borderline Substances (ACBS) indication for the nutrition product	• If a GP prescribes a nutrition product using a FP10 prescription he or she should endorse the FP10 with 'ACBS' (4). Therefore it would be best practice for the HCP recommending the nutrition prescription to list the ACBS indication.
• An indicated goal of treatment e.g. to increase BMI to <<>> Kg/m2 in <<>> months, to alleviate symptoms of cows' milk protein allergy whilst allergy persists	• NICE (6) recommends all adults who are screened for the risk of malnutrition have their nutrition support goals documented and communicated in writing between settings. It is anticipated when a nutrition prescription is recommended the HCP has set and agreed a treatment plan in collaboration with the patient/carer. Communicating this treatment goal to the GP will assist them to monitor the requirement of the nutrition product.
• The name and contact details of the healthcare professional who has recommended initiating the prescription	• This information would enable the GP to have a point of contact should they have any queries regarding the prescription request.
• Name of healthcare professional who is responsible for reviewing the nutrition prescription including timeframe and frequency of review	• NICE (6) recommends adults receiving ONS are offered a review of the indications, route, risks, benefits and goals of nutrition support at planned intervals. Communicating to the GP who is responsible for reviewing a nutrition prescription will assist them manage the prescription effectively and provide a point of contact should they have any queries.
• Total planned or expected duration prescription required	• This information will assist a GP to understand if a one off prescription is required (acute prescription) or if an ongoing (repeat prescription is required).
• For adult patients only: a malnutrition screening result to indicate risk of malnutrition e.g. Malnutrition Universal Screening Tool (MUST) Score.	• NICE (5) recommends all adult patients who are screened for risk of malnutrition have their screening results documented and communicated within and between settings.

Figure 1: Percentage of prescriptions requested by dietitians and consultants that contained best practice information.



24 (40 percent) were for paediatric nutrition products. Figure 1 shows the percentage of requests that included each item of best practice information.

Of 10 requests (32 percent) which documented the goal of nutrition prescription, all were made by dietitians. Table 2 provides examples of the goals recorded. As undergraduates, dietitians are trained to set specific, measurable, achievable, realistic and time-specific goals, commonly referred to as SMART goals. Our findings do not demonstrate that this approach has been followed for prescription request. Communicating a treatment goal to the GP is essential if they are to monitor the patient's progress and requirement for continued prescription of the product(s) concerned.

Only one request, written by a dietitian, contained all of the best practice information all of which is essential if the GP is to understand:

- the rationale for the prescription;
- the correct amount to prescribe;
- the name of the HCP responsible for monitoring the treatment and the patient's nutritional progress;
- when it is appropriate to review the prescription;
- when it is appropriate to finally discontinue the prescription.

This understanding should ultimately contribute to significantly improved patient outcomes, patient safety and to achieving better value for money spent by the NHS on oral nutritional supplements and specialist infant formula.

DATA COLLECTION

As this was a pilot audit and we had limited resources, the aim was to recruit a minimum of one GP practice from each of the six historical geographical clusters across London. The audit included searching GP practice records to identify patients who had received a nutrition product prescription in the last six months. Prescription requests were included only if they had been submitted by an HCP in an acute Trust. The content of each request was audited to understand if the best practice information (Table 1) was included.

RESULTS

Ten GP practices were recruited and a total of 60 prescription requests received in the previous six months from 20 different acute care organisations, 22 (37 percent) requests were received from consultants and 31 (52 percent) from dietitians. For seven (11 percent) requests, the responsible HCP could not be identified because the nutrition product was listed with other information on a hospital discharge summary or an outpatient prescription form without further explanation. Thirty-six (60 percent) of prescription requests were for adult nutrition products and

RECOMMENDATIONS

Dietitians practising in acute care organisations are encouraged to review the format and content of the letter template used by their organisation to communicate nutrition prescription requests to GPs. LPP has produced a document describing principles of good practice for effective communication of requests to GPs, along with example letter templates. Dietitians practising in acute care organisations are also encouraged to audit the quality of their nutrition prescription requests. An audit tool has been developed to assist this process. All resources are available from www.lpp.nhs.uk.

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Table 2: Examples of nutrition goals included in nutrition prescription requests

Goal of nutrition prescription	Context of goal	Comments
Accelerate weight gain prescribe Fortisip Compact once per day for one month	Patient required long-term tube feeding, advised to introduce Fortisip Compact.	Anthropometrics recorded, however no weight target communicated.
Achieve and maintain a healthy BMI	Patient malnourished prescribed Fortisip Compact 2 bottles per day.	Anthropometrics recorded, however no weight target communicated.
Improve nutritional status	Patient with cancer diagnosis, prescribed Calogen.	Prescription request did not record anthropometrics recorded, no weight target communicated and no guidance given to monitor improvement in nutritional status.

WEB WATCH

Online resources and useful updates.

STROKE ASSOCIATION PARTNERS WITH WILTSHIRE FARM FOODS

The Stroke Association has partnered with Wiltshire Farm Foods to help out-patients better understand the impact of nutrition on stroke prevention and recovery. The partnership will provide dietitians with a dedicated resource for information on stroke nutrition, as well as a range of meals suitable for patients who are living at home with dysphagia. To launch the partnership, a downloadable guide that healthcare professionals can give to patients can be found here: www.stroke.org.uk/factsheet/healthy-eating-and-stroke

CHIEF SCIENTIST ANNUAL REPORT 2012-2013

The Food Standards Agency (FSA) has launched the seventh Annual Report of the Chief Scientist 2012-2013, providing an overview of how the Agency has used science and evidence during the past year. FSA press release: www.food.gov.uk/news-updates/news/2013/sep/cst_report2013; Report: www.food.gov.uk/multimedia/pdfs/publication/cstar_2013.pdf

KIDNEY CANCER ON THE RISE

Public Health England has reported that more people are being diagnosed with and dying from kidney cancer in England compared to 10 years ago. New figures have been released as a new NHS Be Clear on Cancer campaign launches. PHE: www.gov.uk/government/news/kidney-cancer-on-the-rise BBC News report: www.bbc.co.uk/news/health-24517403

PUBLIC AWARENESS ABOUT CARE DATA

NHS England and the Health and Social Care Information Centre (HSCIC) have set out the next steps to raise public awareness about the care data programme which will link information from different NHS providers to give healthcare commissioners a more complete picture of how safe local services are and how well they treat and care for patients across community, GP and hospital settings Throughout January, all 22 million households in England will receive a leaflet explaining how the new system will work and the benefits it will bring. www.england.nhs.uk/2013/10/16/care-data/

DEMENTIA SELF-ASSESSMENT FRAMEWORK

The Department for Health has published 'Dementia self-assessment framework', a tool to ensure implementation of the nursing contribution to dementia care, including the 6Cs and dementia pathway. The self-assessment framework was created by nurses and care staff to compare current dementia care with the best practice criteria. www.gov.uk/government/publications/dementia-self-assessment-framework

GUIDANCE FOR COMMISSIONERS OF EATING DISORDER SERVICES

The Joint Commissioning Panel for Mental Health has published 'Guidance for commissioners of eating disorder services'. This guide examines the commissioning of comprehensive mental health services for people with eating disorders that are therapeutic and promote independence and recovery. www.jcpmh.info/resource/guidance-commissioners-eating-disorder-services/

LIFECOURSE TRACKER

Public Health England has published 'Lifecourse tracker: wave 2 report final'. This is the second of a series of twice yearly surveys which track core health behaviours, their interactions and influences and how these vary across key life stages. This survey forms a baseline against which changes in behaviour over time and seasonal variations can be assessed. www.gov.uk/government/publications/lifecourse-tracker-wave-2-report-final

DRIVE TO CUT SATURATED FAT

The Public Health Minister has launched the 'Responsibility Deal Saturated Fat Reduction Pledge'. Almost half of the food manufacturing and retail industry has signed up to the Responsibility Deal Saturated Fat Reduction Pledge by agreeing to reduce the amount of saturated fat in food and change their products to make them healthier. Press release: www.gov.uk/government/news/thousands-of-tonnes-of-saturated-fat-to-be-taken-out-of-the-nations-diet; BBC News report: www.bbc.co.uk/news/health-24668937

SOCIAL CARE AND OBESITY

The Local Government Association and Public Health England have jointly published 'Social care and obesity: a discussion paper' which considers the impact that obesity has on social care and the challenges faced. www.local.gov.uk/publications/-/journal_content/56/10180/5610298/PUBLICATION

IRRITABLE BOWEL DISORDER STANDARDS

Revised UK irritable bowel disorder (IBD) standards have been published to improve levels and consistency of care nationwide. IBD clinicians and patient organisations have come together to revise the standards following significant improvements in quality of care for people with Crohn's disease and ulcerative colitis since the UK IBD Standards were first issued four years ago. www.ibdstandards.org.uk/whats-new.asp

SCHOOL FOOD

Public Health England has published 'Breakfast and cognition review of the literature'. The paper summarises available literature on the effect of skipping breakfast on short-term cognition and memory. www.gov.uk/government/publications/breakfast-and-cognition-review-of-the-literature

PHARMACY FOR THE FUTURE

The report of the Royal Pharmaceutical Society's independent commission into the future models of care delivered through pharmacy has been published. 'Now or Never: shaping pharmacy for the future' Royal Pharmaceutical Society: www.rpharms.com/leading-on-nhs-reforms-for-pharmacy/models-of-care.asp; NHS England: www.england.nhs.uk/2013/11/05/rps-mods-care/; Report: www.rpharms.com/promoting-pharmacy-pdfs/moc-report-full.pdf

PRICING DEAL WITH PHARMACEUTICAL FIRMS

The Government and pharmaceutical companies have agreed a new five-year drug pricing deal that will introduce a fixed limit on NHS spend on branded medicines for the first time with all additional expenditure above this level paid for by industry. NHS spending on branded medicines will remain flat for two years, followed by small increases of less than two percent in the following three years. www.gov.uk/government/publications/pharmaceutical-price-regulation-scheme-pprs-heads-of-agreement; www.gov.uk/government/consultations/revisions-to-statutory-scheme-for-pricing-branded-nhs-medicines; DH press release: www.gov.uk/government/news/government-agrees-breakthrough-drug-pricing-deal-with-pharmaceutical-firms

HEALTHY PEOPLE, HEALTHY PLACES

Public Health England has launched its 'Healthy People, Healthy Places (HPHP) programme'. The programme aims to help to improve the nation's health through better planning and design to reduce the impact of a poor physical and natural environment. www.gov.uk/government/publications/obesity-and-the-environment-briefing-increasing-physical-activity-and-active-travel; www.gov.uk/government/publications/obesity-and-the-environment-briefing-regulating-the-growth-of-fast-food-outlets; Press release: www.gov.uk/government/news/healthy-people-healthy-places-building-a-healthy-future

MINERALS MATTER: THE ROLE OF RED MEAT

Dr Carrie Ruxton
PhD, RD
Freelance Dietitian

Vitamin intakes have been improving over the past few decades, in part due to the fortification of foods such as bread, breakfast cereals, soft drinks and dairy foods. Increased access to dietary supplements has also impacted, although only around 35 percent of consumers use supplements on a regular basis, with a lower proportion seen in teenagers and young children (23 to 27 percent). In contrast, mineral intakes have changed little with potential consequences for health and wellbeing. This article will examine mineral intakes in the UK and consider the role of red meat in helping to bridge the gap between intakes and recommendations.

For article references please email: info@networkhealthgroup.co.uk

MINERAL INTAKES IN THE UK

The National Diet and Nutrition Survey (NDNS) reports dietary intakes for the UK population. The latest analysis (1) found that a significant proportion of adults and teenagers had mean intakes which fell below the Lower Reference Nutrient Intake (LRNI), i.e. the level below which there is an increased risk of deficiency. Table 1 presents these data showing that more than the expected 2.5% of younger children had intakes below the LRNI for iron and zinc, while this was the case for all minerals in adults/teenagers, and all minerals except iodine in older adults.

Table 1: Percentage of people with daily intakes of minerals below LRNI

	1.5-3 yrs	4 -10 yrs	11-18 yrs	19–64 yrs	>64 yrs
Iron	7	1	25	11	1
Calcium	1	1	12	6	0
Magnesium	1	1	39	13	13
Potassium	1	0	23	17	16
Zinc	5	6	15	6	4
Selenium	1	1	33	37	43
Iodine	1	2	14	7	1

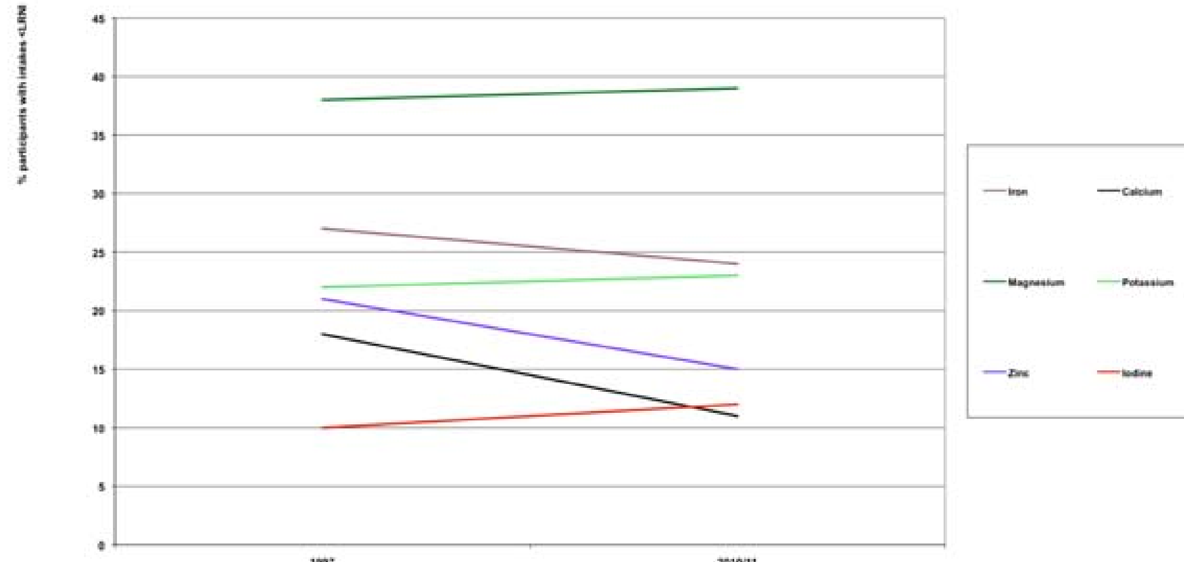
Key: LRNI, lower reference nutrient intake
Source: National Diet and Nutrition Survey, intakes from food plus supplements
Shading represents problem nutrients, i.e. those where more than the expected proportion of participants (i.e. >1.5%) has inadequate intakes

In the Low Income Diet and Nutrition Survey (LIDNS) (2), the proportion of subjects with mineral intakes <LRNI was substantially higher, e.g. around 50 percent of women aged 19 to 49 years, 39 percent of girls aged 11 to 18 years (14 percent of boys of this age). Key minerals which were lacking were iron, calcium, magnesium and iodine.

Comparisons with earlier NDNS suggest that the situation has changed little over the past decade. Figure 1 reveals that the proportion of teenagers with intakes below LRNI is similar between the 1997 NDNS and years one to two of the current NDNS (3). Fewer teenagers have intakes <LRNI for iron, zinc and calcium these days, but the overall proportion with inadequate intakes remains 10 to 25 percent. Equally of concern, more teenagers now have inadequate intakes of magnesium, iodine and potassium. The trend in adults is similar, although fewer have intakes <LRNI with the exception of selenium (37 percent <LRNI) which was analysed for the first time in 2008-9. Interestingly, data from the Total Diet Survey has shown a decline in average selenium intakes in the UK which may be due to declining soil concentrations of the mineral, or a switch from North American flour to selenium-poor European flour (4).

Dietary intakes in relation to recommendations are only one marker of adequacy. A more reliable method is to estimate nutritional status using plasma nutrient levels. Here, the NDNS has little to offer, as only iron, zinc and selenium were analysed (1). In boys and men, around 1.2% had clinically low

Fig 1: Little improvement in mineral adequacy



Key: LRNI, lower reference nutrient intake
Source: National Diet and Nutrition Survey (2011); children aged 11 to 18 years; intakes from food only

Dr Carrie Ruxton is a freelance dietitian who writes regularly for academic and media publications. A contributor to TV and radio, Carrie works on a wide range of projects relating to product development, claims, PR and research. Her specialist areas are child nutrition, obesity and functional foods.

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Table 2: Selected authorised health claims for minerals

	Health impact: 'supports normal…'	Dietary sources
Iron	Cognitive function, formation of red blood cells and haemoglobin, oxygen transport, immune function, reduction of tiredness and fatigue	Red meat, beans, pulses, green leafy vegetables, fortified cereals
Calcium	Blood clotting, muscle function, function of digestive enzymes, maintenance of bones and teeth, needed for growth and development of bone in children	Dairy foods, green leafy vegetables, sardines, nuts, tofu
Magnesium	Reduction of tiredness and fatigue, electrolyte balance, muscle function, psychological function, maintenance of bones and teeth	Nuts, seeds, dairy foods, wholegrains
Potassium	Maintenance of blood pressure, nervous system function, muscle function	Fruits (especially bananas and dried fruit), red meat, chick peas, vegetables
Zinc	Cognitive function, fertility and reproduction, testosterone levels, maintenance of bones, hair, nails, skin and vision, immune function, protects cells from oxidative stress	Seafood, red meat, offal, wholegrains, cheese
Selenium	Spermatogenesis, maintenance of hair and nails, immune function, thyroid function, protects cells from oxidative stress	Brazil nuts, red meat, turkey, seafood, garlic, seeds
Iodine	Thyroid function and synthesis of thyroid hormones, cognitive function, nervous function, maintenance of skin	Shellfish, sea fish, some vegetables

haemoglobin levels, while the figures for girls and women were nine percent and 10 percent respectively. Turning to iron stores (measured as ferritin), eight percent of boys fell below the threshold (three percent of men), while again the figures were much higher in girls and women (30 percent and 17 percent respectively). These data suggest that girls and women are at significant risk of iron deficiency and low iron stores.

Assessing the data on zinc and selenium status is more problematic given that there is no agreement on what constitutes an optimal reference range for these minerals. Using a table of reference ranges published by the American Medical Association (5), the mean plasma levels of zinc and selenium reported by the NDNS appears normal. Indeed, the Scientific Advisory Committee on Nutrition (SACN) recently considered selenium intakes in the context of disease risk and concluded that there was no evidence the present intakes represented a risk to health, although ongoing monitoring was warranted (4). This is sensible given that average results do mask the existence of sub-groups with a suboptimal status.

WHAT MINERALS DO

Minerals have a variety of roles in the body as explained by the authorised EU health claims (6) which identify health effects for which there is sufficient evidence to make a claim on dietary sources. Table 2 summarises these:

THE ROLE OF RED MEAT

Red meat is a source of iron, zinc, selenium and potassium as well as containing some iodine and magnesium. The iron and zinc in red meat is particularly bioavailable compared with other dietary sources (7). An earlier NDNS (8) estimated that red meat contributed a significant proportion of mean daily mineral intakes. In men, 15 percent of total iron, 31 percent of zinc, eight percent of magnesium, 16 percent of phosphorus and 11 percent of potassium came from red meat and related meat products. In women, the figures were 11 percent of total iron, 24 percent of zinc, six percent of magnesium, 12 percent of phosphorus and eight percent of potassium. In addition, around 70 percent of haem iron was contributed by red meat and related products.

An analysis (9) of dietary characteristics of low vitamin and mineral consumers from earlier NDNS found that the lowest intakes of iron, potassium, magnesium, zinc and iodine were associated with a lower consumption of meat and meat products. Participants with the lowest iron status also consumed lower intakes of meat.

DISCUSSION

Surveys suggest that low mineral intakes are endemic in the UK with implications for iron status and bone health. Minerals have an important role in the body, e.g. normal immune and cognitive function, oxygen transport, bone health, blood pressure maintenance, muscle function and thyroid function. Some minerals, e.g. zinc and selenium, act as antioxidants by protecting cells from oxidative damage. It is reasonable to assume that low intakes of minerals could have a detrimental impact on public health and, certainly, some studies have found associations between low mineral intakes or status and increased risk of chronic disease (10, 11) or cognitive impairment (12,13). Further research is needed to assess whether the low mineral intakes seen in the UK represent a risk to public health.

People may be missing out on minerals due to a lack of knowledge about their importance, or because they are choosing not to eat foods which deliver a high mineral content. Looking at Table 2, diets would need to contain fruits, vegetables, red meat, nuts, seeds, wholegrains, seafood and dairy products in order to deliver a range of good mineral sources. However, it is clear from surveys, such as the NDNS, that the average UK diet can be low in many of these foods. Only 30 percent of adults and around nine percent of teenagers achieve the five-a-day target for fruit/vegetables (1), intakes of wholegrains are low (14) and average weekly fish intakes are approximately 50 percent of the recommended two portions a week (15).

Daily red meat intakes, at 72g on average (1), are similar to SACN's maximum target of 70g per day, set in order to ensure adequate iron intakes while taking a precautionary approach towards prevention of colorectal cancer (7). The latest NDNS reports that boys consume 63g of red meat daily, while women consume only 55g (47g in girls) (1). This suggests that women, boys and girls could eat more red meat. Indeed, this may help to address the enhanced risk of iron deficiency and poor iron status in these groups (16). Red meat is also a bioavailable and significant source of zinc, as well as being a recognised source of selenium and potassium, all nutrients which are consumed in lower than recommended amounts, especially by teenagers.

CONCLUSION

Greater health professional and consumer awareness is needed to address the persistently low mineral intakes seen in the UK. Women and teenagers in particular would benefit from advice to choose mineral-rich foods such as lean red meat, wholegrains, green leafy vegetables, fruit, nuts, seeds and low fat dairy products.

ACKNOWLEDGEMENT

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www.nutritionsociety.org/events/nutrition-society-winter-meeting-2013

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Teaching Methods Study Day - 9th January 2014
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HOW TO EAT WELL WHEN YOU HAVE CANCER

Review by
Emma Sherrington
D Phil, RD
Registered Dietitian
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JANE FREEMAN
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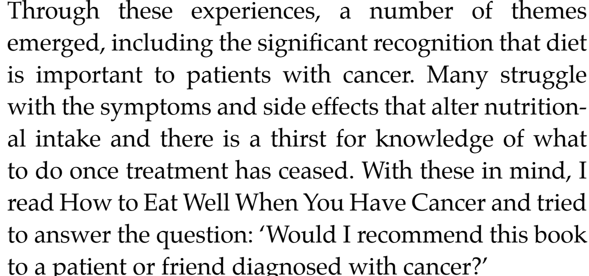
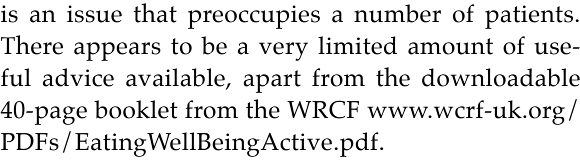
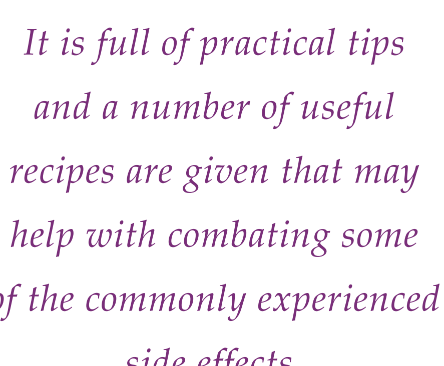




Firstly, perhaps I should explain how I come to be reviewing this book. I am a newly registered dietitian, so you may wonder what qualifies me to express an opinion. Well, for my final year research project, I asked over 300 outpatients attending cancer clinics and treatment units at a large London hospital for their experiences of the information they were provided with on diet and cancer and what they actually wanted. In addition, in the last few years I have had a number of friends take that personal journey through cancer treatment.

Through these experiences, a number of themes emerged, including the significant recognition that diet is important to patients with cancer. Many struggle with the symptoms and side effects that alter nutritional intake and there is a thirst for knowledge of what to do once treatment has ceased. With these in mind, I read How to Eat Well When You Have Cancer and tried to answer the question: 'Would I recommend this book to a patient or friend diagnosed with cancer?'

The author of the book, Jane Freeman, is a dietitian with many years of experience of advising patients with cancer both here in the UK and Australia. In addition, she is the author of the World Cancer Research Fund (WCRF) publication Eating Well and Being Active Following Cancer Treatment. Thus, this book comes from a credible and knowledgeable source.



It is full of practical tips and a number of useful recipes are given that may help with combating some of the commonly experienced side effects.

The book is 145 pages, divided into 10 chapters and includes useful appendices with lists of additional information and support. The first three chapters introduce the key concerns about the importance of diet and nutrition in the context of a cancer diagnosis, what impact cancer has on the body, what types of treatment patients may be offered and the consequences these have on nutritional intake. Chapters 4 and 5 provide advice on preparing for treatment and optimising nutrition. The following chapters focus on how to deal with a variety of common side effects: nausea, vomiting, taste changes, fatigue, diarrhoea and constipation. There follows a chapter on food safety and the penultimate chapter is a set of frequently asked questions such as, 'should I eat organic?', 'does sugar feed cancer?', 'should I stop eating meat' and with some practical down-to-earth responses.

The final chapter provides a useful summary of advice on healthy eating once treatment has stopped. I know from my own research that this is an issue that preoccupies a number of patients. There appears to be a very limited amount of useful advice available, apart from the downloadable 40-page booklet from the WRCF www.wcrf-uk.org/PDFs/EatingWellBeingActive.pdf.

For the most part, the book is written in a warm, chatty style, which aims to reassure patients that their diet is something they can take control of whilst undergoing treatment. It is full of practical tips and a number of useful recipes are given that may help with combating some of the commonly experienced side effects. However, I did think that putting these recipes in a separate section at the end of the book, to make it easier to refer back to, would have been more helpful and less disruptive to the flow of the text. The author takes time to explain many medical and scientific terms into more 'user-friendly' language. Despite this, I did feel that the book was aimed at people with a fairly good level of education and may be overly technical for some. The book does comprehensively address the issue of diet and cancer; it does not advocate any fads, radical exclusions of food groups or promote the use of expensive supplements. It is full of commonsense. My concern is that for some patients in the midst of treatment it may be overwhelming.

So, in answer to my initial question: 'Would I recommend this book to a patient or friend diagnosed with cancer?' The answer is yes. However, for some patients, shorter, less detailed and more targeted resources may be needed to help them through the dilemmas of what to eat when undergoing cancer treatment. For those patients who are keen to know more about how they can help themselves, this book will be a useful addition which dietitians can direct them towards. I would recommend that patients and their families read the book in short sections at a time and refer back to relevant chapters as needed.

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