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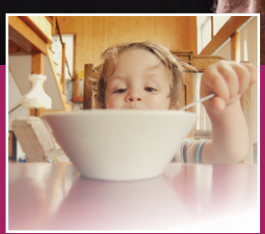
WORLD DIABETES DAY
14th November 2018

WEIGHT MANAGEMENT AND SPORTS NUTRITION



TODDLERS & NUTRITION
TEENAGERS & HEALTHY EATING
ELDERLY MALNUTRITION
BOLUS FEEDING EXAMINED

Diabetes and carbohydrates
Pages 41-45

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1. Data on file. Abbott Laboratories Ltd, 2018 (TwoCal electrolyte comparison).
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Appetite for life | Abbott

Emma Coates
Editor

Emma has been a registered dietitian for 12 years, with experience of adult and paediatric dietetics.

WELCOME

The time we spend at work is often a huge part of our day; many of us are lucky enough to enjoy our work to the point where it provides fulfilment and satisfaction for many years until retirement. However, although work time is great, what really matters is family time. Families come in all shapes and sizes; and for many of us, they are the support and comfort throughout the good and challenging times in life.

If you have important news or research updates to share with ***NHD****, or would like to send a letter to the Editor, please email us at info@networkhealthgroup.co.uk We would love to hear from you.*

The 14th November sees World Diabetes Day taking place. An annual global campaign to raise awareness of diabetes and the impact it has on us all. This year's theme is 'Family and diabetes', focusing on the impact that diabetes has on the family and support network of those affected by the condition. For more information, visit, www.worlddiabetesday.org.

In keeping with World Diabetes Day 2018, we welcome back Alice Fletcher with an article discussing current contentious issues regarding carbohydrate recommendations and diabetes, diabetes prevention and obesity, whilst looking at how dietitians and registered nutritionists can find, or maintain, a valued effective position.

We move through the lifespan in this issue from toddlers to the elderly with our Cover Story on sports nutrition in between. Maeve Hanan, shares her insights into the current recommendations and main nutritional considerations for toddlers, whilst the Infant and Toddler Forum brings us an overview of current thinking around healthy meal planning for this young age group. Michelle Hanchard, working with North Yorkshire County Council, provides *A Day in the Life of…* where she talks us through her work as a children's lifestyle weight management service manager. The teenage years focus in a separate feature from Maeve, discussing key nutritional factors and advice in order to develop healthy eating habits for the future.

Weight management returns, this time in sport as Leona Courtney reports in our Cover Story on how emphasis is placed on diet and calorie restriction to facilitate weight loss. And then we move into elderly care, with a case study, in association with the BDA's OPSG, which tackles the wider aspects of malnutrition.

We have a wealth of other articles to feed your nutritional cortexes this month too, including an overview of current guidelines and deficiencies in vitamins and minerals from Scotland based nutritionist, Emma Berry; Alice Fletcher shares an overview which focuses on the principles of bolus feeding; Priya Tew tackles the topic of CPD, something we all have to manage in our work, and Ursula's *F2F* introduces us to the work of Sara Petersson.

Read on and enjoy! *Emma*

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FOODS

Emma Coates
Editor

Emma has been a registered dietitian for 12 years, with experience of adult and paediatric dietetics.

FOLIC ACID TO BE ADDED TO UK FLOUR

Britain is thought to have the highest rate of Neural Tube Defects (NTDs) in Europe, the second most common severe disabling human congenital defects,[1] with anencephaly and spina bifida accounting for up to 95% of all NTDs with equal prevalence.

Current recommendations for folic acid supplementation advocate 400ug per day when trying to conceive and up to the 12th week of the pregnancy. For those with a family history of NTDs, an increased dose of 5mg per day is recommended. However, in reality, many women do not achieve adequate supplementation, particularly those from low socio-economic groups.

The government is to introduce a new policy to ensure that all UK flour is fortified with folic acid. The decision was made in October to introduce the change following long-term campaigning by healthcare professionals, researchers and political champions for the cause. In the US, since folic fortification of flour was introduced in 1998, there has been an estimated 23% reduction NTDs. The hope is that the UK will see the same results with this new policy in place.

Reference
1 Alfarra HY et al (2011). Neural tube defects between folate metabolism and genetics. Indian J Hum Genet. Sep17(3): 126-31

NHD *columnist Ursula Arens will be speaking on 'fortifying the facts' around folic acid at the Food Matters Live show (ExCel in London) on 21st November. The definitive trial showing that folic acid reduced the risk of a neural tube affected pregnancy by 70%, was published in 1991. Ursula will describe the strong reasons supporting the UK government's proposed policy, and asks, "Why are we waiting?"*

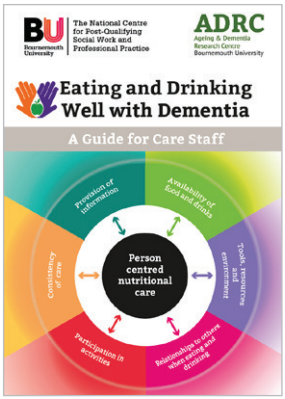
GPS VITAL ROLE TO SUPPORT PARENTS WITH FEEDING CONCERNS

A recent survey of 1000 parents[1] with children under the age of three from the Infant & Toddler Forum (ITF) highlights the vital role GPs can play in supporting parents throughout the first year of parenthood. Additional data from 120 healthcare professionals,[2] including GPs, health visitors and pharmacists, confirmed the extent of parental worries.

Results show that 65% of GPs confirmed parents are often anxious about moving their infant onto the next stage of feeding. Common feeding problems are also a concern and 93% of parents ask for solutions to colic, reflux and constipation. Many GPs do not feel valued in this area of concern, with 73% of participants in the survey believing that parents place more value on online communities and website advice than from healthcare professionals. However, only one in seven (15%) GPs felt well informed on the matter of infant nutrition; acknowledging that they would like to be more prepared. The majority of GPs (70%) want up-to-date summaries of the latest guidelines about infant nutrition and common feeding problems.

The ITF have developed *Ten Steps for Feeding Babies (0-12 months)*, which offers practical tips, simple and sound advice for parents and a helpful tool for healthcare professionals both to support their own nutrition knowledge and to facilitate positive conversations with new parents. Find more information at www.infantandtoddlerforum.org/babies-the-first-year/ten-steps-for-feeding-babies.

References:
1 1000 parents with children aged 0-4 years (OnePoll), conducted April 2018. Data on file
2 120 healthcare professionals (40 pharmacists, health visitors and GPs, Health Focus Research), conducted February 2018



IMPROVING THE DELIVERY OF NUTRITIONAL CARE FOR PEOPLE WITH DEMENTIA

Ensuring that people living with dementia receive appropriate nutrition (and hydration) is complex and can present challenges for staff in care homes.

Following a two-year research project on nutritional care for people living with dementia (funded by the Burdett Trust for Nursing) at Bournemouth University, a film and workbook was developed called *Eating and Drinking Well: Supporting People Living with Dementia*. The workbook aims to develop knowledge and skills around food and hydration for care staff to provide the best quality care.[1] However, direct feedback from staff indicated the need for an easy-to-use practical guide.

In response to this, Professor Jane Murphy and Gill Hooper from Bournemouth University undertook a study to measure the impact of improving the delivery of nutritional care for people with dementia living in care homes. This was underpinned by the evidence-based framework for person-centred nutritional care generated by the original research.[2] The overall aim was to produce a new guide for care staff *Eating and Drinking Well with Dementia - A Guide for Care Staff* and to understand how this approach could be implemented within the care home environment.

The new guide has now been produced and a number of suggestions and interventions tested in two care homes in the North West of England, to directly impact and benefit people living with dementia. These have included the use of sounds and aromas to prompt reminiscence and stimulate appetite, food-based activities and creating a relaxed environment for an enjoyable mealtime experience.

Work within the care homes is continuing, particularly around menu development, monitoring and staff training, to further implement the interventions from the guide and ensure that food and mealtimes are at the heart of providing person-centred care.

For further information about the guide, or to receive hard copies, please contact Caroline Jones, Ageing and Dementia Research Centre; adrc@bournemouth.ac.uk.

References

1 https://research.bournemouth.ac.uk/project/understanding-nutrition-and-dementia/
2 Murphy JL, Holmes J, Brooks C. Nutrition and dementia care: Developing an evidence-based model for nutritional care in nursing homes. BMC Geriatrics 2017, 17:55. doi: 10.1186/s12877-017-0443-2

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Ursula Arens
Writer; Nutrition & Dietetics

Ursula has a degree in dietetics, and currently works as a freelance nutrition writer. She has been a columnist on nutrition for more than 30 years.

FACE TO FACE

Ursula meets amazing people who influence nutrition policies and practices in the UK.

Ursula meets:

SARA PETERSSON

Accredited Nutritionist
Food Trends Analyst at Euromonitor International

Sara wanted to meet up early, before work. Why did this lead me to thinking about birds and worms? We enjoyed an achingly hip breakfast in trendy Clerkenwell: rye toast with avocado and chili-oil (me) and berry porridge (Sara). I was keen to meet Sara because she seems to be a link to futuristic nutrition; someone with a crystal ball; someone to pull my gaze away from nutrition-past.

Her Polish-Swedish heritage was enriched further with several years of childhood spent in Miami, Florida. She completed her International Baccalaureate (IB) at a bilingual school in Poland, with core subjects of biology, chemistry and psychology, but decided to do her tertiary education in the UK.

Sara really enjoyed three years doing her BSc in Biomedical Sciences at King's College London. "I became really interested in research looking at the ageing process," said the very young-looking Sara. On graduation, she wanted to continue studying, but what? Sara admitted to being very food-focused: always a topic of interest and pleasure. So when a friend said she was studying nutrition, Sara had a 'me too' moment.

Again, she chose King's College London, and again she really enjoyed her course. The one-year MSc in nutrition was intense. "I had two short placements. One with Waitrose. One with Marks & Spencer," she said. "Both were fantastic and opened my eyes to the transfer of science knowledge to 'real food' decisions." She discussed her MSc project on possible benefits associated with the Mediterranean Diet on a reduced risk of dementia and cognitive function decline. (I do a note-to-self to have oily fish and moderate red wine for dinner.)

On graduation, Sara applied for two jobs and got both of them. But both were on the more fringe-end of nutrition, and her college lecturer advised against accepting a job that gave gut-warning signals. So, it was third time lucky when she found a job with a tiny new start-up: a food information company and food app developer called Spoon Guru. This company has developed fast, and is now an associate supporter of the BDA. They slice and splice and weave together information on all the ingredients in many thousands of food products, so that a barcode zap on a smart phone allows consumers fast easy choices on suitability for many types of diets or allergen avoidance. Sara was there to check data quality, with the mandate of 100% accuracy all of the time. She was also a contributor to company newsletters and blogs on food choice issues and any direct consumer queries to the company. Sara said, "The biggest debate at the time was overuse on food labelling of the term 'may contain' to

I ask her whether I will be eating insects in a few years. She shrugs her shoulders and says, "Who knows."

Photo: Charles J Sharp, 2003

describe particular ingredients, especially nuts. This may have been lawyer-prescribed, but was really frustrating for consumers."

There was a vacancy for a Nutrition Analyst at the market research company Euromonitor International. She had previously applied for the job, and now a vacancy had arisen. "I really enjoyed working at Spoon Guru, but sadly decided to leave. Euromonitor was much larger and more corporate, which on paper seemed like the opposite of what I wanted. But I knew the job offered more room for me to grow and learn from others who were more experienced within the field of food and nutrition. I felt that I had to take that step,"

Since March 2016, she has been a part of many country and product sector teams at Euromonitor, trying to capture bubbles of information on food consumption, and the many factors that affect and influence trends. Of course, healthy foods and better-for-you foods prompt a lot of media discussion, but are these really the biggest food choice trends? We discuss the two routes to energy reduction: energy dilution or reduction in portion sizes. "It is so confusing for consumers," says Sara. "One brand of crisps suggests different servings sizes on the labelling of different pack sizes." The UK government is becoming more interventionist (compared with the US government), and it will be interesting to see which policy approaches deliver better public health improvements.

Sara and colleagues have been researching the market for sustainable protein alternative foods in the UK. The 38-page report is now available for £875: analysis is deep, data is solid and conclusions are clear, so well worth it if you are about to invest £s into the fickle food market. As part of the project, Sara developed an environmental impact score system and, predictably, beef performs least well on the scale. The report reviews contradictory consumer trends to both less animal source foods and greater interest in protein containing foods.

The terms vegan and vegetarian are not always used consistently on labelling, and there is increased challenge to plant-source foods using traditional meat and dairy terms, such a 'milk' or 'steak'. While consumers may be confused over details, the theme of less-meat is a strong tide in UK food choices and there is a scramble to fill the plate vacancy.

Understanding consumers means being a step behind choices already made, with a view to helping investment decisions that most accurately predict and identify strings and levers that modify future opinions and choices. Sara shares the room with lots of analysts who constantly monitor information and helps put the nutrition science into any discussions and interpretations of data.

Sara needs to rush off to start her day on the screens. So many jobs now require constant data collection and analysis and it is amazing to meet someone who does this with a nutrition agenda and who has such privileged access to those who predict food futures. I ask her whether I will be eating insects in a few years. She shrugs her shoulders and says, "Who knows." But it is a stupid question: she is there to predict the future food choices of millions, not just Ursula.

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1. Department of Health (1991) Dietary Reference Values for Food Energy and Nutrients for the United Kingdom. Report of the Panel on Dietary Reference Values of the Committee on Medical Aspects of Food Policy. HMSO, London.

VITAMINS AND MINERALS: A CONCERN FOR PUBLIC HEALTH

Emma Berry
Associate Nutritionist (Registered)

Emma is working in Research and Development and is enjoying writing freelance nutrition articles.

There is a wide range of vitamins and minerals crucial for normal body functions that are taken in through a person's diet, via a variety of foods.[1] This article will take a look at guidelines and deficiencies and asks whether the importance of these vital nutrients needs to be highlighted.

Vitamins can be split into two different groups depending on how they are absorbed, classified as either fat or water soluble.

- **Fat soluble vitamins** - These are absorbed in the intestine - with the presence of fat - and include vitamins A, D, E and K.[2] Fat soluble vitamins are most commonly found in fatty foods, such as eggs or oily fish. Vitamin D is unique as it can be synthesised from sunlight.
- **Water-soluble vitamins** - These are also absorbed through the intestines, but do not require the presence of fat. These include vitamin C, the B vitamins and folic acid and are most commonly found in carbohydrates (CHOs) and dairy foods.

In addition to vitamins, a wide range of minerals are required for normal body function.[2] The essential ones are considered to be calcium, iron and potassium, but there are many others important for normal functions too, including - but not limited to - phosphorus, magnesium and sodium.[2] Trace elements, such as iodine, selenium and copper, can also affect body health.[2] Given the large number of different vitamins, minerals and trace elements, it could be considered quite challenging to include them all into an individual's diet. However, the amount we need of each can vary quite substantially and, often, one food source can provide a variety of nutrients. But, that doesn't necessarily mean the UK population is getting enough.

Unlike other dietary guidelines with maximum guideline amounts, there are four different values given for nutrients from the Committee on Medical Aspects of Food and Nutrition Policy (COMA). These are:[3]

- **Reference Nutrient Intakes (RNIs)** - the amount of a nutrient required so that the needs of 97.5% of the population are met, which is the most commonly used value;
- **Estimated average requirements** - the amount needed to satisfy the requirements of 50% of the population;
- **Lower Reference Nutrient Intakes (LRNI)** - the amount needed to satisfy the needs of 2.5% of the population;
- **Safe intakes** - this is only likely to be used when there is no ability to set the other values and is the believed amount for most people to have a sufficient intake without resulting in problems from overconsumption.

Although it is generally well known that minerals and nutrients are important for health, it is unlikely that the general public would have any idea of the RNIs compared to the knowledge around some macronutrients such as fat or CHO. Vitamin and mineral absorption for an individual can be subject to bio-availability, so it cannot be so easily determined how much an individual requires.[3]

IRON AND IODINE DEFICIENCY

Some vitamin and mineral deficiencies are very common, both in the UK and

REFERENCES

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worldwide. One example of this would be iron deficiency. Iron can be found in the diet in two forms: haem and non-haem. Haem dietary sources are mainly found in red meat, whereas the non-haem sources are found in foods such as vegetables, nuts and eggs.[4] This deficiency is most commonly seen in children and females in the UK.[4] However, the SACN report on iron from 2011 suggested that a high proportion of the UK population was consuming less than the LRNI of iron, without being iron deficient - so the reference values may be too high.[4]

The most common form of treatment for anaemia is to take iron supplement tablets.[5] It is also recommended by the NHS to drink orange juice with the tablets, as vitamin C works to promote iron absorption in the body.[5]

The UK Iodine Group was formed in 2012, with the aim to remove iodine deficiency in the UK population.[6] Although some areas of the UK were known to be iodine deficient many years ago, more recent studies have found a slight iodine deficiency in various population groups, such as pregnant women.[6] This deficiency is not well monitored within the UK, but can have serious consequences as iodine is important for brain development and a deficiency in pregnancy can result in the development of cretinism.[6]

Other countries overcome the issue of deficiency through fortification of foods, such as salt.[6] In the UK, salt is not required to be fortified and the most common source of iodine is milk and dairy products.[6] However, the amount of iodine present in organic milk is 40% lower than non-organic milk, so a rise in organic produce could impact on this nutrient and increase deficiency in the UK further.[7] Recently, an organic milk producer announced that they had been working to improve the iodine concentration found within organic milk and that a 200ml serving of their milk would provide 95% of an adult's daily requirement.[8]

VITAMIN B12

Although iron and iodine deficiencies are still seen throughout the UK and other countries, there are some deficiencies which are less common, such as vitamin C and scurvy, due to an increased variety in our diets.[9] However, some dietary choices can also put individuals at an increased risk of deficiency. One such example is vitamin B12 deficiency in vegans. The RNI for adults is 1.5 micrograms of vitamin B12 a day, with the most common food sources being meat, fish, eggs and dairy products. Although some fortified breakfast cereals contain vitamin B12, it is not commonly found in fruits and vegetables, making it difficult for individuals who follow a vegan lifestyle to have enough of this vitamin daily.[10] That may result in some vegans choosing to take a multivitamin supplement, but this can be an expensive addition to a daily routine. For example, a vegan supplement could cost 10p per tablet (prices correct as of September 2018).[11]

OBESITY AND DEFICIENCY

There have been multiple studies which have found nutritional deficiencies (including iron, vitamin D and magnesium) in adults who are obese.[13,14] However, a study carried out by Damms-Machado et al (2012),[15] showed that even in a low calorie diet designed to contain the RNIs of micronutrients, the serum concentrations continue to be low. The authors suggested that this might

be due to the changing demands of individuals during weight loss. Although serum concentrations might not always be the most reliable measure of micronutrient status, it is an important point to consider that if obese individuals are already micronutrient deficient, then going onto a low calorie diet may result in further deficiencies.[15] Therefore, they may need to be carefully monitored to ensure that they are not putting themselves in danger of nutritional issues.

Although many studies use serum concentrations as a measure of micronutrient status,[15] others may calculate nutrients through dietary intakes. These dietary intakes may be through a variety of means, such as food diaries, 24-hour recalls or food surveys. Each have their own pros and cons, but making comparisons between these studies can be difficult. The serum concentrations may not take into consideration vitamin stores, whilst the dietary intakes may not take into consideration bioavailability. However, despite these issues, you can see that some findings appear consistently regardless of the method used.

Whilst there are various methods that can be used to determine nutritional status in studies, having some agreement in the methods used might allow us to more accurately identify some deficiencies, such as iron deficiency anaemia. It is important to diagnose any nutritional deficiencies, so that treatment can be determined and be resolved in order to ensure that the body can work to its full capacity. It is also important to define the appropriate range so that individuals are not at risk of overconsuming, as this can also have effects on the body. For example, too much vitamin C can result in stomach problems such as diarrhoea.[16]

CONCLUSION

Despite the wide variety of micronutrients found within the diet, they all play an important role in human health and body function. Too much or too little of these nutrients can have an impact on body function. Although there are guidelines on how much individuals should take in their diet, these may be inaccurate and not applicable to all groups such as obese individuals.

The way that nutrient intake and status is measured for different studies can make it difficult to compare results. Some groups may be more at risk of nutritional deficiencies than others and given that public health campaigns are currently focusing more on obesity and sugar intake, such as the Change4Life campaign,[12] is it fair to question whether the public are actually aware of the importance of minerals and vitamins in the diet. In my view, public health campaigns should perhaps consider promoting the importance of vitamins and minerals rather than focusing on reducing weight.

WEIGHT MANAGEMENT AND SPORTS NUTRITION

Leona Courtney
Diabetes Specialist Dietitian, NHS - Greater Glasgow and Clyde

Leona has been working for the NHS for three years. She is currently working as a diabetes specialist dietitian for Greater Glasgow and Clyde which she thoroughly enjoys. She has a keen interest in running and enjoys cooking.

Weight management is an important consideration for many athletes. As athletes already expend much energy on a daily basis, emphasis in some sports can be placed on diet and calorie restriction to facilitate weight loss.

Athletes who compete in aesthetically judged sports, such as gymnastics, those who compete in weight class sports, such as karate and boxing, as well as those who compete in weight sensitive sports such as horse racing, commonly practice weight loss techniques.[1,2] Unfortunately, due to the great emphasis which is placed on low body weight (LBW) in the world of sport, unsafe practice to permit rapid weight loss (RWL) in a short time period is commonly seen.[3] It is, therefore, vital that strategies are implemented to ensure athletes understand the importance of following a diet plan developed by a registered dietitian and tailored to the sport type, training intensity and competition needs, to permit gradual safe weight loss.

REFERENCES

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OVERWEIGHT AND OBESITY

Despite global recognition of the issue of obesity, it continues to be a worldwide epidemic with prevalence rates nearly tripling since 1995.[4] In 2016, 39% of adults worldwide were overweight and 13% were obese.[4] Therefore, it is not surprising that many athletes struggle to lose weight or maintain their new lower weight, resulting in a never-ending battle against the scales.

WEIGHT CONTROL IN ATHLETES

In general, athletes want to lose weight for two reasons: 1) they are currently overweight and want to improve overall health/achieve a healthy weight and 2) they are not overweight, but would prefer a lower body weight to aid performance outcome, to meet expectations, or to "look better".

A study carried out in German high school athletes compared those who participated in sports which did not focus on LBW with those whose sports emphasised LBW. Findings showed significantly higher rates of body dissatisfaction in those who competed in the latter sports. These individuals also had a lower desired mean body weight.[5]

Similarly, a study which was carried out on female athletes participating in a wide range of sports, confirmed that more than 50% of these athletes were not content with their body weight and many of them reported a weight fluctuation of >10% in a 12-month period, therefore confirming their ongoing struggle with weight maintenance. The study also found that methods used to facilitate weight loss included exercising for two hours each day, along with a low calorie diet, or skipping meals. These unrealistic behaviours are perhaps also a reason why the athletes struggle to maintain the weight they have lost.[6]

Another study carried out in elite judo athletes reported that 86% of athletes reduced their body weight prior to competition day.[7] Also, 70% of the individuals who lost 2.8kg or more admitted that they achieved this weight loss via hazardous methods, such as excessive daily exercise and restricted fluid and food intake, behaviour which cannot be maintained long term and which can negatively affect health. These results are backed up by another study carried out in judo athletes in Jerusalem which found that 80% of athletes engaged in RWL techniques

It is vital that strategies are implemented to ensure athletes understand the importance of following a diet plan developed by a registered dietitian . . .

prior to competition.[8] What was frightening was that some of the athletes in this study admitted that they began to practice RWL behaviour when they were as young as 12 years old.

Likewise, a study carried out on 580 judo, taekwondo, karate and jujitsu athletes in Brazil concluded that 60% of athletes used energy expenditure techniques to facilitate RWL.[9] Also, as many as 50% of individuals in this study reported following a low calorie diet, restricting carbohydrate (CHO) intake and using plastic clothing to facilitate RWL. The reported prevalence of individuals engaging in this behaviour was similar to results reported by Kiningham and Gorenflo[10] (60-70%) and by Kordi[11] in Iranian wrestlers (62%).

These results were in line with those found in a group of Norwegian adolescents, both athlete and non-athletes. The study confirmed that some of them engaged in dangerous behaviours to lose weight, such as consuming diet pills, vomiting, using diuretics and laxatives. These results do confirm that using unsafe techniques to achieve RWL is not only present in athletes, but in non-athletes too. This study also concluded that 11% of elite athletes, who you would expect to be under the eye of a highly trained coach and team, were also dieting and using extreme and dangerous behaviours to do so. Therefore, this unsafe behaviour seems to exist across a wide group of individuals.[12]

So, you may be wondering why athletes engage in this behaviour. Much research has shown that athletes undertake RWL due to pressure from their peers and coaches.[13] A study carried out on female gymnasts and swimmers confirmed that body dissatisfaction was correlated with pressure from coaches.[13] These shocking results were also found in the Berkovich research, where 66% of athletes admitted they engaged in this behaviour due to pressure from their coaches, the very people you would think should have the skills and knowledge to encourage safe practice.[8] The study carried out by Brito also showed that only 26% of athletes felt that their weight was influenced by a dietitian or nutritionist.[9]

These figures are very concerning given that the Centres for Disease Control and Prevention have reported deaths in young wrestlers who engaged in unsafe practice to allow RWL prior to competition. However, it cannot be denied that the enormous pressure which is placed on athletes to meet a specific weight by competition day needs to be targeted and attitudes of coaches need to be changed.

AT WHAT AGE DO ATHLETES ENGAGE IN THIS BEHAVIOUR?

The Kordi study confirmed that RWL behaviour began at the mean age of 15.5± 2.4 years.[11] Also, to note is that 18% of wrestlers in this study began to reduce their weight before the age of 14 years. These results are in line with the Brito study where athletes admitted to engaging in RWL behaviour as young as 13 years of age.[9] These findings are very concerning given that these are the pubertal years, a crucial time period for growth and development.

FEMALE TRIAD & DISORDERED EATING

The female triad is defined as 'the combination of disordered eating and irregular menstrual cycles eventually leading to a decrease in endogenous oestrogen and other hormones, resulting in low bone mineral density'.[14] The aetiology basis of the triad is when energy intake is less than the energy expenditure required to facilitate normal

growth and development. This lack of energy intake negatively impacts on many bodily functions, including cardiovascular, endocrine, immune and reproductive systems, bone health and metabolism, in addition to reduced muscle protein synthesis.[15] These functions are impaired because, when energy intake is insufficient to meet energy expenditure, the body tries to reduce energy expenditure via hormonal distributions.[16] Therefore, individuals who experience the female triad are putting their overall health at risk.

A meta-analysis showed that the three components of the female triad were only experienced by 0-15%.[17] However, the occurrence of each individual component of the triad is much higher, with 24% experiencing abnormal menstrual cycle and 18% reporting disordered eating.[18] The occurrence of the female triad is two to three times higher in sports which promote LBW versus sports that do not have this emphasis.[19] Although this phenomenon only occurs in females, low energy availability is reported in male athletes who participate in sports which encourage LBW for success.[8] Disordered eating, although less prevalent in males than females, still occurs in as much as 50% of cyclists[20] and 18% of athletes in weight class sports.[21] Therefore, male athletes should not be overlooked.

NEGATIVES OF RAPID WEIGHT LOSS

When athletes combine a diet restricted in calories along with an intense training regimen, it can bring about many metabolic changes.[16] It cannot be denied that these two elements, along with the expected RWL, can have a negative impact on the athlete's physical, physiological and psychological wellbeing. Despite this, we know that many athletes continue to engage in this behaviour.[9-11]

Other risks of rapid weight loss and weight cycling include reduced immune activity,[22] lowered bone density[23] and obesity in later life.[24] Also, lowering energy intake generally means restricting CHO intake, the main nutrient required for energy. Reducing CHO in the diet will hinder performance due to decreased glycogen stores and muscle ability.[25] Furthermore, it increases emotional anxieties and negatively impacts on psychological health due to the feelings of hunger, tiredness and stress.[25]

The use of diuretics and laxatives can disturb electrolyte balance and increases fracture risk.[26] Furthermore, with diuretics on the World Anti-Doping Agency (WADA) doping list, athletes are risking putting their careers in jeopardy by consuming these drugs.

The use of plastic clothing negatively impacts on body temperature regulation by increasing internal temperature, which can result in weakness, headaches, muscle contractions and disorientation[27] - not how a competing athlete would like to feel.

The Kordi study investigated the side effects experienced by athletes when they engaged in RWL, with 51% reporting that they experienced, on average, two side effects including fatigue, dizziness, nausea, diarrhoea, vomiting and palpitations. However, even this did not stop their behaviours and efforts to lose the 'necessary weight'. The Academy of Nutrition and Dietetics recommends weight loss of <2% a week.[28] The weight loss noted in the Kordi study was 5 ± 2.6% (Range: 1-15%) and rapid weight loss techniques were undertaken 3.5 ± 2.0 days before the matches (Range: 1-7).[11]

METHODS TO LOSE WEIGHT SAFELY

We can see why it is appealing for athletes to engage in such behaviours to achieve RWL if they are of the belief that it will grant them success. However, for the above reasons, this approach is discouraged and, instead, athletes are recommended to reduce high calorie nutrients such as fat and empty kilocalorie foods and drinks such as sugary juice and alcohol. A diet which restricts these foods, but still provides the correct macro and micro nutrients in the correct quantities, is necessary. However, again, dietetic input is required to ensure essential fatty acids are not being omitted.

Emphasis should be placed on a diet which is based on wholegrain CHOs and plentiful in fruit and vegetables, whilst containing lean protein and low fat dairy. This type of diet promotes satiety and should allow athletes to meet their energy, protein and nutrient demands while still consuming less calories than the average 'UK diet'.

Getting the correct nutrition is hugely important for athletes as it can mean the difference between success and failure. If wanting to lose weight, a diet plan which reduces daily calorie intake by ~500-600kcal would allow weight loss to be achieved at a rate of 0.5-1kg/week, which is safe, realistic and maintainable.[29,30]

A study by Rolls[31] concluded that reducing the energy density or portion size assisted in lowering overall energy intake and was, therefore, a useful strategy for athletes to implement in achieving weight loss. Another study reported that reducing intake of energy dense foods allowed maintainable weight loss.[32,33] Other research has shown that reducing energy intake but increasing protein can help preserve muscle mass, especially for those participating in resistance training.[34]

For athletes wanting to maintain or gain weight, additional calories, CHO and protein will be required to support the training programme while maintaining or improving muscle mass.

INTERVENTIONS TO PREVENT UNSAFE WEIGHT LOSS

Since the deaths of three young wrestlers in 1997 which were caused by complications as a result of RWL, the National Collegiate Athletic Association (NCAA) introduced new rules to prevent this from reoccurring. These changes included adding 7lb to each weight category, moving weigh-ins from the day before competition to two hours before competition day and determining a minimal competitive weight based on the weight recorded pre-season, along with regulated weekly weight loss of no more than 1.5% and a limit of 5% body fat.

A study was conducted in 2006 to determine if these rule changes had any impact on weight loss and the results found were positive. In 1991-1992, RWL of 3.7 ± 1.3kg occurred between the day before competition and competition start.[35] This was reduced to 2.7 ±1.4kg when the weigh-in time was reduced to two hours before competition.[36] Similarly, the average wrestler had 9.5 ±1.8% body fat at the end of the season with less than 5% of wrestlers having <7% body fat and no one had <5% body fat. These results were consistent with a study conducted by Rasone and Hughes[37] and show that the rule changes incorporated by the NCAA have resulted in positive outcomes and can reduce the negative impact associated with RWL. Therefore, the implementation of such rules should be considered across the board in all sports worldwide to promote safe weight management.

Other interventions could be implemented to further reduce the prevalence of RWL and the female triad, including the following:

- **Early detection** is necessary to reduce the incidence of athletes practising unsafe behaviours to achieve weight loss. Although multiple screening tools have been produced, they are not validated and there is speculation about which tools is best to use.[38,39] Furthermore, a lot of these tools exclude male athletes and do not consider ethnicity.
- **Education** should be provided to all athletes and their coaches on the importance of healthy eating and adequate nutrient intake. All coaches should be required to attend yearly training on nutrition and hydration. Coaches and judges should be re-educated on the need to place less emphasis on LBW and reiterate the importance of adequate nutrition to aid performance and achieve success. This should reduce the pressure which is put on athletes.
- **RDs** - Emphasis should be placed on the important role that a registered dietitian plays to ensure that athletes meet their requirements to aid performance and achieve weight targets.
- **Policies and guidelines**, similar to those imposed by the NCAA, should be implemented to ensure athletes practice safe weight loss which does not hinder performance or health and which can be maintained.
- **Penalties and bans** should be incorporated for both the athlete and the coach. Athletes should be required to participate in a return-to-sport programme before they are allowed to compete.

CONCLUSION

To conclude, unsafe RWL still largely exists in the world of sport for many reasons, with coaches being the most important influence on weight management. Several rules have been implemented by the NCAA to reduce hazardous RWL following the deaths of three wrestlers in 1997. These rule changes have resulted in positive outcomes. However, these rules are not implemented across the board for elite athletes or in other countries. Regulated strict rules and guidelines need to be enforced worldwide. Early screening, more education and strict bans should also be considered.

TODDLER NUTRITION

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Maeve works as a Freelance Dietitian and also runs the blog Dietetically Speaking.com, which promotes evidence-based nutrition and fights nutritional nonsense.

Toddlerhood is a time of rapid growth and development. Malnutrition during these early years (one to three years of age) can lead to stunted growth and problems with behavioural development and learning.[1] This article will discuss the main nutritional considerations for toddlers.

Following the exposure to new tastes and feeding experiences which occur during infancy, toddlers are continuing on their journey of food discovery. Development of biting and chewing skills also continues at this age. For example, between 18 to 24 months, toddlers will begin to chew with their lips closed.[2]

NUTRIENT INTAKE

Some of the results of the most recent National Diet and Nutrition Survey (NDNS) from 2014 to 2016 are outlined in Table 1 on p20, along with an explanation of what role nutrients play in a toddler's diet.[3-8] Sugar intake for those aged from 18 months to three years old was found to be more than double the recommended limit, with only 13% of toddlers achieving an intake which was below or equal to 5% of total energy. The main source of free sugar intake in this age group was found to be 'cereal and cereal products', with the second highest source being fruit juice and soft drinks, followed by 'sugar, preserves and confectionery'. One of the risks associated with excess sugar intake in children is dental caries, and 28% of five year olds in England are already found to have tooth decay.[7,13]

The NDNS found that fibre intake was 5g below the daily recommended amount for toddlers, with 'cereals and cereal products' being the main source of fibre, followed by 'vegetables and potatoes' and then fruit. Before the age of two, the high fibre content of wholegrains can make a toddler feel full before they have consumed enough calories and nutrients. After the age of two, wholegrain foods can be gradually introduced into a toddler's diet.[14] Although protein is an important nutrient for toddlers to consume, the overall protein intake from the NDNS appears to be very high in this group. This is worrying as this can effect bone health, kidney health and increase the risk of obesity in later life.

Other notable results of the NDNS was that iron intake was slightly low and vitamin D intake was very low, even when intake from supplements was included. However, toddlers in the UK tend to have a good intake of iodine. Nevertheless, those who avoid cow's milk are at a higher risk of deficiency, as this is the main source of iodine in the UK.[15]

The amount of salt in a toddler's diet should also be limited, especially as the average intake in the age group in the UK was found to be 2.3g of salt per day, which is above the recommended limit of 2g per day.[16]

INTAKE FROM FOOD GROUPS

The recommended portion sizes and distribution of food groups is outlined in Figure 1[17] on p22. When the data for daily energy intake from various food groups from the most recent NDNS

REFERENCES

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Date of preparation: September 2018 UK/NUT/18/0060i

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Table 1: Recommended intakes for toddlers

Nutrient	Nutritional impact for toddlers	Recommended daily intake	Mean daily intake (% of total energy)
Total fat	Provides energy, helps the body to absorb vitamin A, D, E and K, and is important for development of the brain and nervous system.	There is no defined RNI for fat for children under five.	41.3g (34.4%)
Saturated fat	Not essential for health, but provides energy and has a role in cell functioning. It is recommended that toddlers avoid excess saturated fat intake to improve heart health in later life.	There is no defined RNI for saturated fat for children under five.	17.5g (14.5%)
Trans fat	Provides energy, but a high intake in later life is associated with poor heart health. It is recommended that toddlers avoid trans fat as much as possible to improve heart health.	There is no defined RNI for trans fat for children under five.	0.6g (0.5%)
Protein	Important for growth, development and recovery.	14.5g per day	41.5g (15.5%)
Total carbohydrate	Needed to supply energy and support growth.	50% of daily energy (from two years old)	144g (50.2%)
Free sugars	Provides energy, but a high intake can increase the risk of dental caries and excess weight gain.	≤5% of daily energy (from two years old)	32.6g (11.3%)
Fibre (AOAC method)	Can help to keep bowels healthy, but too much can cause early satiety in toddlers.	15g (from two years old)	10.3g
Vitamin A	Important for growth, immune health, skin health and improves night vision.	400mcg	413mcg
Vitamin D (including supplements)	Needed to absorb calcium and avoid rickets, and is important for the immune system.	10mcg	2.9mcg
Riboflavin	Needed for growth and development, cell function, and energy production.	0.6mg	1.28mg
Folate (including supplements)	Needed for cell and nerve function and to avoid megaloblastic anaemia (where large blood cells can't carry oxygen around the body well).	70mcg	142mcg
Iron	Needed to avoid anaemia, which has been associated with reduced cognitive, motor, social and emotional skills in young children.	6.9mg	5.9mg
Calcium	Needed for bone health, to avoid rickets and to build up calcium reserves for later life.	350mg	718mg
Magnesium	Important for muscle and nerve function, and creating bone, protein and DNA.	85mg	148mg
Potassium	Needed for normal cell function, fluid balance, growth and muscle function.	800mg	1664mg
Iodine	Important for growth, thyroid health and for normal development of the nervous system during childhood.	70mcg	125mcg
Selenium	Important for thyroid health, DNA production, boosts immunity and acts as an antioxidant.	15mcg	23mcg
Zinc	Needed for growth and immune health.	5mg	4.9mg

*Table devised using references 3-12

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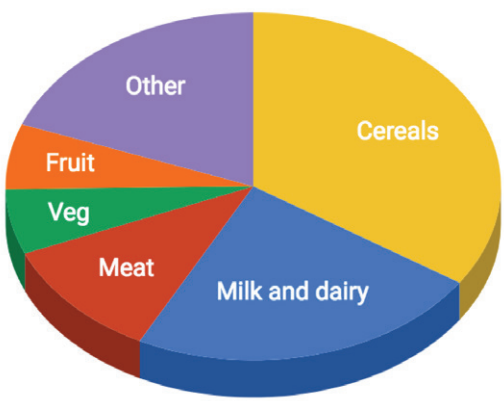
Figure 1: 5532-a-day[17]

Figure 2: % energy from different food groups in 1.5- to 3-year olds (NDNS 2014-2016)



Percentage daily energy intake from various food groups:

- Cereals and cereal products - 34%
- Milk and milk products - 23%
- Meat and meat products - 11%
- Vegetables and potato - 6%
- Fruit - 6%

Remaining daily energy intake (labelled as 'other' in the pie chart) included:

- Fish - 2%, eggs - 2%, nuts - 1%
- Fat spreads - 3%
- Sugar preserves and confectionery - 4%
- Juice and soft drinks - 3%
- Savoury snacks - 3%

are compared with this, it seems that intake of starchy foods, dairy foods and protein are close to the recommended amount. However, toddlers seem to have a low intake of fruit and vegetables and, although these are not necessary in most toddlers' diets, they also appear to be having a regular intake of: sugary drinks, sugary snacks, and savoury snacks.

BREASTFEEDING ADVICE

The WHO advises that babies should be breastfed exclusively for the first six months of life, and 'thereafter, infants should receive complementary foods with continued breast-feeding up to two years of age or beyond'.[18] However, this is rare in the UK.[19] This advice to continue breastfeeding beyond 12 months is based on the fact that breast milk continues to provide energy, hydration and key nutrients; and in developing countries, continued breastfeeding is linked with improved growth and a lower risk of infant mortality.[20]

There is little research examining the effect of breastfeeding past infancy in developed countries, but a relatively small study from America in 2016 found that mothers' breast milk in the second year of lactating had a significant increase in total protein, prebiotics (oligosaccharides) and proteins which boost

In the UK, all children from the age of one to five are advised to have a daily age-appropriate supplement which contains vitamin A, vitamin C and 10 micrograms of vitamin D.

immunity, as compared with mothers in the first year of lactating.[21] This study also found that zinc and calcium levels reduced in breastmilk in the second year of lactating and no changes were found in lactose, fat, iron or potassium levels.

An older study also found that 448ml of breastmilk in the second year of lactation provides the following:[22]

- 29% of energy requirements
- 43% of protein requirements
- 36% of calcium requirements
- 75% of vitamin A requirements
- 60% of vitamin C requirements
- 76% of folate requirements
- 94% of vitamin B12 requirements

A systematic review by Victora et al (2016)[23] identified an increase in tooth decay in children who were breastfed for more than 12 months. However, this study also highlighted that 'this should not lead to discontinuation of breastfeeding, but rather to improved oral hygiene'.

NUTRITIONAL SUPPLEMENTS

In the UK, all children from the age of one to five are advised to have a daily age-appropriate supplement which contains vitamin A, vitamin C and 10 micrograms of vitamin D.[24-25] These can be bought in a pharmacy or supermarket, or they can be obtained on the 'Healthy Start Scheme' for those who are eligible.

ADVICE ABOUT DRINKS

Water is the best drink for toddlers. Baby bottles should be stopped by the age of one, as they can become a comfort and can cause tooth decay.[26] Instead, drinks should be given from a beaker with a free-flow lid and when a toddler is ready, they should be encouraged to drink from an open cup.[26]

Milk can be given to toddlers as it is an important source of calcium. However, toddlers should ideally have no more than two or three glasses of milk per day, depending on how many other dairy foods they eat.[14] This is because drinking too much milk is associated with increasing the risk of anaemia and providing excess protein.[27] Full fat milk should be given until a toddler is two years old, but, from the age of two, the fat content of most toddlers' diets can be reduced; as long as they are growing well and have a balanced and varied diet.[2] Semi-skimmed milk can be given from two years old, but skimmed milk should not be offered until they are five years old.[2] Rice milk should not be given to children under five years, as it can contain traces of arsenic.[26]

Fruit juice is a good source of vitamin C, but to reduce the risk of tooth decay, it needs to be diluted with one part juice to 10 parts of water for toddlers.[26] Squash, 'juice drinks', fizzy drinks, flavoured milk, diet or reduced sugar drinks, or 'baby drinks' should not be offered to toddlers. Tea and coffee are also not recommended for this age group, as these drinks can reduce the amount of iron which is absorbed from meals.[26]

FUSSY EATING

Infants usually start to become hesitant about trying new foods at around 18 months; this is called 'food neophobia'.[2] This is a stage where fussy eating behaviour can start to emerge and become reinforced. To avoid fussy eating becoming a long-term problem, it is best to establish eating routines. Parents/carers can be advised to eat together as a family to model good eating habits, provide healthy meals of appropriate portion sizes, encourage self-feeding and messy play, give praise when a new food is tried and try to remain calm when food is refused.[28]

It is also important that everybody involved in taking care of the toddler (including both parents, other family members and nursery staff) are consistent in handling food refusal in an appropriate way.

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INFANT & TODDLER FORUM
Practical advice for healthy eating habits from pregnancy to preschool

HEALTHY MEAL PLANNING FOR TODDLERS

This article was written by the members of the ITF, which promotes best practice in healthy habits from pregnancy to preschool through reliable, clear, evidence-based advice and simple, practical resources aimed at practitioners and healthcare professionals.

During the toddler years, it is important to promote the development of healthy eating habits, which, combined with daily physical activity, is the cornerstone for reducing the risk of childhood obesity.[1]

Although most parents have good intentions with regards to providing healthy food for their children, barriers to achieving this goal include lack of parental food-related information and education, fussy eating, or parents using food to promote good behaviours. Low parental confidence around setting food-related routines, as well as a less than adequate ability to model healthy eating habits also contribute.[2]

A healthy diet for toddlers is one which is nutritionally balanced and includes a combination of different foods, offered in age-appropriate portion sizes, along with a daily vitamin D supplement. Research undertaken by the Infant & Toddler Forum (ITF) shows that parents are unintentionally giving too much food at mealtimes, with 79% giving more than the recommended portion size range for toddlers and 10% providing almost adult size portions when serving popular family meals.[3] Larger portion sizes have been associated with excessive weight gain,[4] leading to one in five children being overweight in reception (primary school).[5] Parents report not feeling confident about age appropriate portions sizes and many worry that their child will become overweight in the future.[3]

RESPONSIVE EATING

Parents should be encouraged to practise responsive feeding, eg, where toddlers are supported to self-regulate their intake at mealtimes.[6] Children are at an increased risk of being overweight when they are pressured to eat, or where food is used as a reward or for comfort.[1] Parents should be reassured that toddlers often have inconsistent eating patterns, often eating more or less than what is perceived to be enough from meal to meal and day to day and that this behaviour is normal.[7]

EATING TOGETHER AS A FAMILY

Family meals are also associated with achieving a more balanced diet, enjoyment of food, less fussiness or emotional eating. Mealtimes for families are seen by many parents as a time for socialising, as well as being practical. However, for some parents, family meals are challenging due to work constraints and concerns over food mess.[8]

Healthcare professionals (HCPs) play an important role with respect to providing parents with reassurance that toddlers are meeting their nutritional intake, in addition to advising on simple strategies to encourage a varied diet.[9]

KEY LEARNING POINTS FOR HCPS WITH REGARDS TO MEALS AND SNACKS

Menu planning and meals

- Menu planning can help to establish a pattern of nutritionally balanced family meals and snacks.
- Meals should be colourful and include foods from each of the five food groups each day, for example, starchy foods as the basis of each meal, with vegetables and a high protein, high iron food such as, meat, fish, chicken, eggs, nuts or pulses/beans, followed by dessert such as fruit and yoghurt.

REFERENCES

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- Preschool children can be offered up to a maximum of three drinks of 100 to 120ml of whole milk per day, but less if they are eating yoghurt and cheese in addition to water; a drink should be offered with each meal and snack.
- Time-saving tips for preparing home-cooked food include batch cooking and adding chopped leftover meat or fish, or a tin of pre-cooked pulses, to stir-fried vegetables to serve with pasta or rice.
- Most traditional British meals and those of other cultures, have a combination of food from different food groups and can be considered when planning toddler menus.
- A quickly prepared cold meal, with the same combination of food groups as a hot one, has the same nutritional qualities.

Portion sizes

- Toddlers are not usually able to eat enough food for their energy needs in just three meals a day; two or three planned nutritious snacks throughout the day will help to prevent grazing.
- Toddlers should be offered appropriate portion sizes of nutritious meals and snacks, which should reflect the individual child's age and development.

Family mealtimes

- A family meal is a social opportunity, allowing parents and carers to model the positive food preferences, habits and eating behaviours they would like toddlers to copy, such as:
  - limiting high-energy, low-nutritional food and drinks;
  - eating nutritious foods at the table along with their older family members, particularly fruit and vegetables;
  - eating appropriate portion sizes;
  - having screen-free meal times;
  - exploring new food, especially vegetables and fruit in season, as this can be fun for the family, as well as reducing food costs.
- A second course, ideally fruit, should be offered at the lunchtime and evening meal, as this makes them more interesting and increases the range of nutrients offered.

Responsive eating

- Parents should be encouraged to allow toddlers to decide how much they should eat by respecting children's fullness and not asking them to eat more, for example, "three more mouthfuls".
- The risk of obesity is reduced when children are able to self-regulate their intake through responsive feeding.

Fussy eaters

- Toddlers who are fussy or faddy eaters may not eat all of the foods on planned menus and should be offered something that their parents know they will eat, as well as food being eaten by others.
- Parents should try fun, food-related activities outside of mealtimes; these have been associated with increased acceptance of unfamiliar foods. For example, reading story books or looking at food pictures which include vegetable characters have been shown to increase acceptance of vegetables at mealtimes through familiarisation.[10]

Physical activity

- Children should be encouraged to be active every day, with at least 30 minutes of walking, running and jumping each day.

Vitamin D

- Children should be given a supplement of 10mg of vitamin D until the age of at least five years, but it can be continued throughout childhood, particularly considering skin colour and lifestyles that cut down on skin exposure to sunlight.[11]

INFANT & TODDLER FORUM

Practical advice for healthy eating habits from pregnancy to preschool

To find out more about supporting families with practical advice visit:

www.infantandtoddlerforum.org
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UK Registered Dietitian
Freelance

Maeve works as a Freelance Dietitian and also runs the blog Dietetically Speaking.com, which promotes evidence-based nutrition and fights nutritional nonsense.

NUTRITIONAL ADVICE FOR TEENAGERS

The teenage years are usually defined as starting at the age of 13 and ending at the age of 18. As children are beginning to transition towards adulthood, significant hormonal and developmental changes occur. This article will cover the main nutritional factors to consider for teenagers.

As the body is rapidly maturing during the teenage years, requirements for energy and protein increase accordingly.[1] Boys have slightly higher protein requirements than girls, as they tend to be larger with a higher amount of lean body mass.[2] The recommended intakes and average intakes of key nutrients for teenagers in the UK are outlined in Table 1.

Carbohydrates (CHOs) are the main source of energy for teenagers, and the majority of teenagers in the UK meet the recommended total CHO intake.[4,5] However, in the most recent National Diet and Nutrition Survey (NDNS), fibre intake was found to be low and sugar intake was almost triple the recommended amount in those between the age of 11 and 18.[3] A high intake of sugar in teenagers is associated with a higher calorie intake and an increased risk of tooth decay.[5] A survey from 2013 in the UK found that 46% of 15 year olds were found to have tooth decay.[6] A high intake of sugary drinks is also linked with weight gain in teenagers and a higher risk of Type 2 diabetes.[5]

Total fat and trans fat intake were both found to be within recommended levels for teenagers in the most recent NDNS, but saturated fat intake was found to be above the recommended limit.[3] This is concerning, as a high intake of saturated fat is associated with an increased risk of heart disease in later life.[7]

Meeting vitamin D requirements is important for bone and muscle health, so that calcium can be properly absorbed to reduce the risk of osteomalacia in later life.[8] The average intake of vitamin D for teenagers is well below the recommended amount, even when supplements are taken into account.[3] As dietary sources of vitamin D are limited, it is important for teenagers to consider taking a daily supplement containing 10mcg of vitamin D, especially when there is less exposure to sunlight from October to March.[9]

The rapid growth and increase in bone mass that occurs during the teenage years means that calcium intake increases.[1] It is important to meet these requirements to promote good bone health in later life, but recent UK data has found that teenagers were consuming less than the recommended calcium intake.[3] Therefore, sources of calcium should be encouraged for teenagers, such as: milk, cheese, yoghurt, calcium-fortified plant-based milks, tofu, green leafy vegetables, tinned salmon, tinned sardines and calcium fortified bread or juice.

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Table 1: Results of NDNS survey of teenagers aged 11-18 years*

Nutrient	Recommended daily intake	Mean daily intake
Protein	Boys: 42.1-55.2g Girls: 41.2-45.4g	Boys: 72.5g (15.8% of food energy) Girls: 57.9g (15.3% of food energy)
Total fat	≤35% of food energy	33.9% of food energy
Saturated fat	≤11% of food energy	12.4% of food energy
Trans fat	≤2% of food energy	0.5% of food energy
Total carbohydrate	50% of total energy	50.2% of total energy
Free sugars	≤5% of daily energy	14.1% of total energy
Fibre (AOAC method)	11-16 years: 25g Over 16 years: 30g	Boys: 16.5g Girls: 14.1g
Vitamin D (including supplements)	10mcg	Boys: 2.5mcg Girls: 4.6mcg
Calcium	Boys: 1000mg Girls: 800mg	Boys: 854mg Girls: 664mg
Iron	Boys: 11.3mg Girls: 14.8mg	Boys: 10.1mg Girls: 8.3mg
Iodine	11-14 years: 130mcg 15-18 years: 140mcg	Boys: 137mcg Girls: 101mcg
Folate (including supplements)	200mcg	Boys: 212mcg Girls: 178mcg

*Table devised using references 3, 4, 5 and 8

Iron requirements increase for teenagers in order to support growth and muscle development.[2] When menstruation begins, girls have a higher iron requirement than boys due to menstrual losses.[1] NDNS data shows that teenagers are not reaching these requirements, with intakes being particularly low in teenage girls.[3] This increases the risk of iron deficiency anaemia which can have serious medical consequences. To avoid this, a good intake of iron should be encouraged from foods such as red meat, offal, green leafy vegetables, dried fruit, beans, fortified breakfast cereals, wholegrains and nuts.[2] Including sources of vitamins C in their diet, such as a glass of orange juice, along with iron-rich foods, can help to boost the absorption of iron, whereas the tannins present in tea and coffee can reduce iron absorption if consumed along with a meal.

Iodine is important for thyroid health, which effects metabolism and growth.[9] Teenage boys in the UK have an intake of iodine which is close to the recommended amount, whereas intake for teenage girls is lower than this.[3] Urinary iodine levels also show that teenage girls of childbearing age aren't meeting the cut-offs for sufficient iodine levels for pregnancy.[3] This is worrying as iodine has an important role in the development of a baby's brain during pregnancy.[10] This pattern of low iodine intake may be related to a reduced intake of dairy products, as this is our main source of iodine in the UK.[9] Other sources of iodine include fish, shellfish, iodised salt and eggs.

Folate is important for forming red blood cells and DNA.[11] Most teenage boys in the UK meet the folate requirements; however, teenage girls were recently found to have a slightly lower intake.[3] To reduce the risk of neural tube defects, any woman who is considering becoming pregnant needs to have a dietary intake of 200μg of folate, as well as taking a supplement which contains 400μg of folic acid (the synthetic form of folate).[11]

Requirements for a number of other vitamins and minerals increase for girls and boys during their teenage years, such as: thiamine, niacin, riboflavin, vitamins B6, vitamin B12, vitamin C, magnesium, potassium, copper, selenium and iodine.[1] However, zinc requirements increase for boys, but decrease for girls during teenage years, and similarly vitamin A requirements

Although getting the nutritional balance right is important, this is also a vital phase for fostering a long-term healthy relationship with food.

increase in teenage boys, but not teenage girls.[1] Furthermore, intake of salt and salty foods should be limited, as on average, UK teenagers exceed the recommended limit of 6g of salt per day (average intake for teenage girls: 6.2g per day, average intake for teenage boys: 7.1g per day).[12]

DRINKS

Encouraging six to eight glasses of fluid per day can help teenagers to stay hydrated. Water is usually the best choice, but milk is another great way to hydrate while also boosting calcium intake. Fruit juice and shop-bought smoothies can be a good source of vitamin C, but it is advised to have no more than 150ml of these per day, as this provides excess sugar otherwise.

The teenage years are a time when people may experiment with alcohol. It is important that teenagers are aware of the health risks associated with underage drinking, such as a higher risk of: liver damage, injuries, alcohol poisoning, sleep problems, headaches, mental health problems, memory problems, reduced attention span and learning problems.[13] Underage drinking can also put teenagers in vulnerable situations, as 12% of teenagers who have had an alcoholic drink have experienced physical, medical or criminal harm related to this.[14]

VEGETARIAN AND VEGAN DIETS

Teenagers may experiment with plant-based diets for a variety of reasons. It is important that those who follow these types of diets do so in a balanced way, by ensuring that they consume a variety of protein sources as well as a good intake of: iron, calcium, iodine, vitamin B12, omega-3 and selenium. It is also important to be aware that a dietary change such as this can sometimes be a sign of disordered eating.[15]

MAINTAINING A HEALTHY RELATIONSHIP WITH FOOD

As teenagers begin to take more control of their lives, this can be a great time to encourage cooking skills and more independence with food choice.

However, this should be approached carefully to avoid promoting an obsessive relationship with food and healthy eating, as a large number of eating disorders emerge during the teenage years.[1] There is a higher prevalence of this in teenage girls, but 11% of those with an eating disorder are male.[2] This can be related to numerous factors, such as genetics, or body image issues which can often be influenced by messages in the media and social media.[16-17] In a bid to change their body or achieve a perceived vision of 'health', teenagers may also try fad diets at this time, which run the risk of nutritional deficiencies and excess.

Meal patterns may also start to falter at this age, as some teenagers prefer to lie in rather than have breakfast and may want to spend time with their friends after school rather than with sitting at the family dinner table. Trying to maintain a good meal pattern can help to ensure nutritional requirements are met and encourages good eating habits for later life.

CONCLUSION

There are numerous factors which can affect nutrition during the teenage years, including: physical and hormonal changes, increased independence and phases of experimentation with food and drink. Although getting the nutritional balance right is important, this is also a vital phase for fostering a long-term healthy relationship with food.

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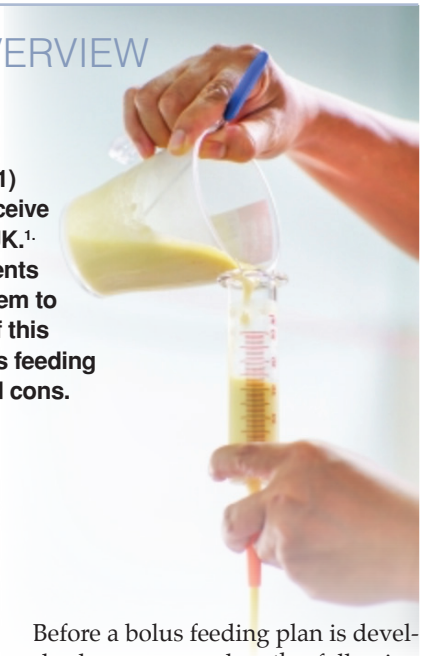
BOLUS FEEDING: AN OVERVIEW



The British Artificial Nutrition Survey (2011) suggests that over 26,600 adult patients receive home enteral tube feeding (HETF) in the UK.[1] A recent survey of 1833 enterally fed patients in a community setting found a third of them to be fed partly or fully via bolus.[2] The aim of this article is to give an overview of what bolus feeding is, when it may be used, plus the pros and cons.

There are two main types of enteral tube feeding: continuous and bolus. Intermittent feeding falls somewhere in between, where nutrition is given over more than two hours. Bolus feeding is more commonly used for gastrostomy feeding, but can be administered via nasogastric feeding tube (these are more commonly seen in the hospital setting). Nasogastric bolus feeding is much more time consuming due to the smaller width of the feeding tube.

A patient-centred approach should be the priority in all cases, as an advantage for one person may be seen as a disadvantage for another. Pros and cons should always be discussed with patients/carers prior to any decision making and plans can always be amended if they are not improving a patient's quality of life.

Often a person will commence enteral feeding as a sole source of nutrition when in the hospital setting, perhaps after a stroke or brain injury. At other times, enteral feeding tubes (most often gastrostomy) may be placed prophylactically in preparation for a time where oral intake may become difficult (for example in motor neurone or Parkinson's disease). To date, the evidence to support either bolus feeding or continuous feeding over another to reduce risk of gastro-oesophageal reflux, aspiration and more seriously aspiration pneumonia, remains inconclusive.[3,4]

Before a bolus feeding plan is developed, always remember the following four patient-centred considerations:

1. Would bolus feeding be safely tolerated? (Consider anatomy and past medical history.)
2. What are the patient's social circumstances/where will they be when they return to the community? Are they likely to change imminently?
3. Does the patient/carer have the required strength and dexterity for bolus feeding? It is good practice to train and shadow them before they go home/plan is finalised.
4. What do the patient and/or carer wish for (after discussing pros and cons of bolus feeding)?

ADVANTAGES OF BOLUS FEEDING

Freedom and practicality

Bolus feeding reduces time attached to equipment overall and does not require a pump. Although feeding pumps can be carried in backpacks or placed on the back of wheelchairs, this can often be cumbersome, noisy, prone to malfunction and take a long time. Bolus feeding is inherently simpler to understand and administer compared with pump feeding.

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YOUR ESSENTIAL RESOURCE

Bolus feeding if often seen as less restrictive and socially isolating than continuous feeding due to more flexibility and less equipment.

Social

Bolus feeding if often seen as less restrictive and socially isolating than continuous feeding due to more flexibility and less equipment. Bolus feeds can easily be administered by a patient or carer when out and about and feeds can be timed to mimic usual mealtimes.

Rehabilitation

Bolus feeding is often more practical for patients having rehabilitation, for example, with intensive physiotherapy; but this does vary on a case by case basis. Bolus feeding can easily be adapted as a 'top up' of nutrition or fluids depending on a person's oral intake in a set day, for example following a stroke, when oral intake is slowly being reintroduced.

Gastric colonisation

A break between feeds allows restoration of gastric pH. It has been proposed that this will therefore reduce gastric colonisation and possibly therefore reduce the incidence of pneumonia comparative to continuous enteral feeding. This has not been consistently demonstrated in research studies using human subjects, although there can be many confounding variables making this a difficult objective to study.[6]

DISADVANTAGES OF BOLUS FEEDING

Social

Bolus feeding can be time-consuming; up to six bolus feeds of nutrition per day may be used in practice. If each 200ml bolus takes 20 minutes, this would take two hours in total per day. Not only does it require time to administer feeds, but also to wash and air-dry equipment each time after use. This can increase fatigue in some patient groups.

Nutrition

As a sole source of nutrition, bolus feeds can be short in electrolytes, discussed below. Fluids can easily be forgotten, particularly if the patient is reliant solely on others to administer water flushes. This is something that is unfortunately seen in practice, particularly in nursing homes, and can make assessment more challenging.

Safety

Large volume of bolus feeds over a short space of time (ie, 300ml in 20 minutes, nutrition and water) may not be tolerated well by some patients, resulting in diarrhoea or vomiting. This can not only present an aspiration risk but cause discomfort and distress. Bolus feeding is not always well tolerated in post pyloric feeding and should be used with caution and support from the multidisciplinary team (MDT).

Practicality

Bolus feeding can be messy, particularly for patients with a tremor, for example in Parkinson's disease.

Environmental considerations

If using five sip feeds per day to bolus long term, this can result in a lot of waste packaging which impacts upon the environment. It is also a lot for patients to store at home between deliveries.

NUTRITIONAL CONSIDERATIONS

Hydration

Flushes of water pre- and post-feed and medications must be taken into consideration within a nutritional plan.

Macronutrients

The wide range of nutritional feeds now available allows for macronutrient requirements to be met for almost everyone, in varying volumes.

Electrolytes

- Commonly used oral nutritional supplements (both 125ml and 200ml preparations) are often low in essential

Table 1: Disease specific considerations

Patient group	Advantages	Disadvantages
Head and neck cancers. This patient group are more commonly younger and have been found to be more likely to be more physically active.[1]	• For those receiving regular cancer treatments, bolus feeding offers more flexibility to fit around appointments. It also means there is less equipment to take to appointments, and staff may be able to assist more easily if required. • For those who are active with employment or looking after children, bolus feeding offers more flexibility to fit around daily commitments. Some people report that bolus feeding makes them feel "less unwell" mentally, as it does not involve a pump, which can be off-putting and remind them of their time in hospital. • Bolus feeds may be used as a flexible nutritional 'top up' during treatments if appetite is very poor and food cannot be managed orally.	• This patient group often only need short-term nasogastric nutrition support, via which bolus feeding is more difficult due to the smaller width of tube. • Cancer treatments can be extremely tiring, this can impact on someone's ability to administer frequent enteral nutrition in the form of boluses. • Many cancer treatments have the side effect of nausea and vomiting. This may limit the tolerance to bolus feeding.
Learning disabilities	• Enables flexibility to ensure a patient is in the most suitable position for nutrition to be administered (particularly if they struggle to maintain an upright position for any length of time). • Suitable alternative for patients who cannot tolerate continuous pump feeding. • Allows greater scope for being active if able, which should be encouraged. • Each bolus is another chance for positive interaction with family or carers. • Boluses can be given at the dinner table at mealtimes with family members present, promoting social interaction. • Bolus feeds may be given to bridge the gap from oral intake on days that this is poor, or for fluids only.	• Patients with severe scoliosis may have altered anatomy and for that reason be unable to tolerate large volumes of fluid at one time (pump feeding at a slow rate may be more suitable). • Patients may dislike frequent interventions; bolus feeding may prove to be more distressing.
Stroke or brain injury	• This patient group can often become agitated and move around in their beds. Bolus feeding allows carers or family members to manage this risk, administering nutrition at the most appropriate times. • People who have had a stroke or brain injury are likely to require intense episodes of physical rehabilitation when in hospital or in specialist rehabilitation centres. Bolus feeding can fit around these episodes.	• For patients requiring care calls in the community, bolus feeding may not be facilitated due to the frequency and duration of visits.
Neuro-degenerative diseases (for example motor neurone disease)	• Timely placement of a gastrostomy tube (if desired) is vital with this patient group. Once placed, boluses of nutrition and/or fluids can bridge the gap between oral intake if swallowing becomes difficult, and titrated accordingly.	• This patient group can experience increased satiety - large volumes of liquid over a short period of time (ie, 300ml over 30 minutes) may make them feel sickly).

electrolytes sodium, potassium, chloride and magnesium, even when taking 1500ml per day in total.

- Many ready-to-hang 1500ml tube feeds are also lower than the reference nutrient intakes (RNI) advised by the Parenteral and Enteral Nutrition Group (PENG), but comparatively much higher than sip feeds.
- This is less of an issue if someone is eating and uses bolus feeds as a top up, but could lead to deficiencies if used as a sole source of nutrition long term.
- Be aware that medications do need to be considered in terms of source of sodium and potassium; guidance around this is detailed in the PENG handbook.
- Ready-to-hang bottles of feed can be administered by bolus and put back into the fridge (24-hour period of storage maximum). This does, however, make it

Table 2: Administration methods

Administration method	Advantages	Disadvantages
Bolus by gravity	• This prevents excessive force being placed upon the feeding tube, as no plunger is involved.	• This method is slow, particularly for more viscous compact-style nutritional feeds. A 200ml supplement takes around 25 minutes to administer using this method. Simply holding the syringe for this length of time can be tiring for some patient groups, and result in them missing boluses. • When it comes to medication - sedimentation can sink to the bottom and form a plug, which can increase the risk of blockages.
Bolus by plunger	• Provides patient/carers with more control in regard to rate of administration than gravity feeds.	• Requires a degree of dexterity and strength to push the plunger down to administer the nutrition. For this reason, it may not be suitable for someone who is frail or has severe arthritis. • This method can be both fiddly and messy, with the syringe needing to be connected and removed around six times for a standard 200ml bottle of nutrition and 2 x 60ml water flushes. • A 200ml supplement can take as little as 15 minutes to administer using this method.
Bolus by pump	• Useful when a larger volume is required. • Useful for patients who are fatigued or cannot hold the syringe for the duration of administration for another reason.	• This will require a flexitainer or bottle hanger if using sip feeds.

difficult if the person is mobile and leaving the house for extended periods of time.

- Currently missing from the market for those who have lower energy requirements, is a 1-1.5kcal per ml feed high in electrolytes in a lower volume, in smaller volume bottles.

Bowel movements

There is not sufficient good quality evidence to suggest one method of enteral feed administration reduces or increases bowel movements over another, as there are so many other factors involved in bowel health and regularity. An individualised approach is needed and a patient's 'norm' regarding bowel movements prior to illness should be considered.

Muscle growth and minimising muscle losses

There is some evidence that administering whey protein via a bolus enhances myofibrillar protein synthesis and anabolic intramuscular signalling responses after resistance exercise, compared to identical amount of protein fed in small pulses that mimic a more slowly digested protein.[5] Although this is interesting, more research needs to be performed before a direct conclusion can be applied to the type of bolus feeding seen in clinical settings.

CONCLUSION

There remains room for improvement in terms of patient-centred care around bolus feeding, to improve people's quality of life and nutritional intake, alongside reducing some of the disadvantages listed above. As dietitians, we should always consult with the patient, carers (district nurses where appropriate) and wider MDT when formulating a bolus feeding plan. For some patients, having both continuous and bolus feeding options available to them should be a consideration.

A more in-depth downloadable guide to bolus feeding can be found at www.bolusfeeding.co.uk. *Bolus Feeding in Adults: A Practical Guide* was produced by specialist dietitians, nutrition nurses and pharmacists, using a grant from Nutricia. It has been endorsed by the BDA. I have used information from this excellent document within my article.

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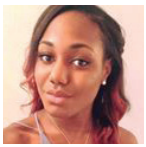

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TACKLING THE WIDER ASPECTS OF MALNUTRITION IN THE ELDERLY: A CASE STUDY

In Association with the BDA's Older People Specialist Group

Malnutrition is multifactorial and often means that dietetic interventions require multidisciplinary input. The Lambeth and Southwark Action on Malnutrition Project (LAMP) dietitians manage a caseload of housebound adults who are at risk of, or have malnutrition. This case study highlights the challenges that community dietitians may face when seeing elderly patients.

Our case study, whilst fictional, is based on a typical patient who would be seen by LAMP dietitians. As well as the challenges faced, this article aims to report on how as a team we overcome those challenges and highlight the need for more malnutrition preventative measures in the community using a multidisciplinary approach.

Mrs Thomas has been referred by the SLT for poor oral intake and significant weight loss. Food texture recommendations are fork-mashable texture E (equivalent to a level 6 on the new IDDSI scale) and normal fluids. During our preparation process, the patient's care agency is contacted through social services. We make arrangements so that the dietitian and carer are at the patient's home at the same time.

1 ASSESSMENT

Recent ischaemic stroke with oropharyngeal dysphagia.
Comorbidities include frailty and recurrent chest infections.
No pressure sores or recent falls.
Bed/chair bound (is hoist transferred). Two carers visit twice a day. They help with personal care and food shopping. Daughter lives far away and cannot visit regularly.

Anthropometrics:
Estimated weight: 40-45kg
Estimated height: 1.65m
Previous weight: 52kg (10 weeks ago)
Estimated weight loss: ~12kg (23%) in 10 weeks
Measured MUAC: 19cm, suggesting that BMI is below 20kg/m^1
Estimated BMI: 14-17kg/m^2

Bowels: Prescribed Senna BD, bowels opening regularly

Biochemistry: No access to patient's recent blood results

Table 1: Initial assessment diet history: pre-intervention

Breakfast	Porridge made with semi-skimmed milk, water with medication and a cup of tea
Mid-morning	Left a plate of digestive biscuits and a large glass of water. Only eats 1 x biscuit
Lunch	Nil
Mid-afternoon	Nil
Evening meal	Soft ready meal, ie, shepherd's pie or fish pie and a large glass of semi-skimmed milk
Before bed	Nil
Other fluids	Water 2 x 250ml glasses

Barriers to optimal nutritional intake:
- Swallowing issues
- Reliance on others for food and drink
- Poor appetite
- Social isolation - Mrs Thomas expressed feelings of loneliness and would appreciate company.
- Eats slowly - carers do not have enough allocated time to carry out their tasks and feed her.

Subjective assessment: Mrs Thomas reported feeling low in energy and often gets tired while eating. Her mood was low and she expressed that she misses eating her meals in company. She also expressed a dislike towards the texture modified meals she is offered. When asked, she did not complain of any recent choking, or difficulty with swallowing during or after eating a meal.

2 IDENTIFICATION OF NUTRITION AND DIETETIC DIAGNOSIS

Acute disease-related malnutrition related to side effects of recent stroke evidenced by significant weight loss and inadequate dietary intake.

Plan: To promote weight gain by optimising nutritional intake of calories and protein. Ensure that she is provided the appropriate texture of food.

3 PLAN AND IMPLEMENT NUTRITION AND DIETETIC INTERVENTION

1 Carers are to make fortified milk using full-fat milk and skimmed powder. To be used in porridge and drinks.
2 Swap from digestive biscuits to all-butter short bread biscuits.
3 Offer a milky pudding after meals, ie, rice pudding, yoghurt, trifle, custard. Aim for two puddings a day.
4 Add one tablespoon of melted butter to mashed potatoes on ready meals.
5 Samples of oral nutritional supplements to be trialled. Powdered supplements trialled in porridge and compact bottled supplements to be offered once a day.
6 Food and fluid charts to be completed by carers at the end of each visit.

Referral to other services:
1 Speech and Language review - could the patient be upgraded to a more normal food texture? This may improve her oral intake.
2 Social Services review of care package - her care package needs reassessing so that her nutritional needs can be met. Either additional time to allow carers time to prepare lunch during morning visit of an additional visit.
3 Befriending service referral - company in between home visits may improve mood and, therefore, nutritional intake.

4 MONITOR AND REVIEW

Follow-up plans: Dietetic assistant phone call in two weeks to determine how Mrs Thomas tolerated the supplement trials. Dietitian follow-up appointment in six to eight weeks.

Eight weeks later: Carers went from twice a day to three times a day. They help with all preparations and assisting with activities of daily living.

Anthropometrics:
Estimated weight: 40-45kg Mean= 42.5kg
Estimated height: 1.65m
Previous weight: estimated 40-45kg 8 weeks ago; 52kg (10 weeks ago)
Estimated weight loss: ~12kg (23%) in 10 weeks
Measured MUAC: 19.5cm, (+0.5cm) suggesting that BMI is below 20kg/m^1
Estimated BMI: 14-17kg/m^2

Bowels: No changes from initial assessment

Biochemistry: No access to patient's recent blood results

Table 2: Follow-up assessment diet history: post-intervention

Breakfast	Porridge made with full-fat milk, tea made with full-fat milk
Mid-morning	2 x all butter short bread biscuits
Lunch	Half a tin of tomato soup with a rice pudding pot
Mid-afternoon	Compact oral nutritional supplement
Evening meal	Fortified ready meal, ie, shepherd's pie: one tablespoon of butter added to mashed potatoes. Rice pudding pot and a large glass of fortified milk
Before bed	Nil
Other fluids	Water 2 x 250ml glasses

Subjective assessment: Mrs Thomas has a befriender who visits once a day before lunch. This has had a huge impact on her mood and appetite. She still dislikes the texture modified meals she is offered, however, she is awaiting a swallow assessment. Mrs Thomas has trialled the ONS and did not tolerate the powdered supplement in her porridge. She has agreed to take the bottled supplement twice a day.

Nutritional diagnosis and aim: As per initial assessment

Plan: Continue as per plans set in initial assessment.
Prescribe compact bottled ONS twice a day.

5 EVALUATION

Table 3: Nutritional evaluation

	Energy	Protein	Fluids
Nutritional requirements	(Henry 2005) SF[3] 5% AF/ PAL[4]: 20% BMR: (42.5 x10) + 577 = 1002 + 500 for weight gain[4] Total: 1752.5Kcal/day	(1.5-2g/Kg/day): 42.5-85	(30mL/kg/day)[5] 1275
Nutritional intake (excluding ONS)	770	39	1500
Daily deficits	982.5	10.5	meeting
Nutritional Intake Post Intervention	1355kcal/day	47g/day	1500ml/day
Nutrition provided by ONS	600kcal/day	32g/day	250ml/day
TOTAL intake from food fortification and ONS	1955kcal/day	79g/day	1750ml/day

Through the use of food fortification and nutritional supplement drinks, we have been able to meet energy requirements and reduce the protein deficit of this patient. Increasing energy and protein intake without the use of ONS is achievable, but it often requires more motivation from the individual to change their diet and may require further support from the patient's family, friends or carers.

Within the community we aim to follow a food-first approach for weight gain as a well-tolerated and cost effective treatment for malnutrition. We also aim to promote a food-first approach while weaning a patient off nutritional supplements. Reducing the dose of supplements for a patient who has become dependent on them can raise new concerns.

As community dietitians working with housebound patients, significantly more estimations are made during our assessment in comparison to in an acute setting. We often do not have all the information available, for example biochemistry, medication, weight history and a complete diet history.

Accessing a patient's home can be challenging, as our referred patients are usually bed/chair bound, frail, or have difficulty opening their door. We liaise with social services, re-ablement teams, district nurses and care agencies in order to schedule joint visits or, with the patient's consent, to obtain key access codes.

Working within this field of dietetics especially highlights the importance of identifying malnutrition before it escalates. We work with nursing teams, care homes, national charities such as Age UK and local services to promote effective use of the MUST screening tool as 93% of malnourished adults are in the community.[2] All HCPs can be trained to perform MUST screening and, so, continued MUST training and working alongside other HCPs can help achieve this.

Martha Hughes, Scientific and Regulatory Executive, BSNA

Martha is an Associate Nutritionist with a degree in Nutrition from the University of Surrey. She has research and regulatory experience in specialist nutrition.

UPDATE ON IDDSI FROM THE BSNA

The International Dysphagia Diet Standardisation Initiative (IDDSI) came about to develop international standardised terminology for texture modified foods and thickened liquids for people with dysphagia.

Every day we take swallowing for granted, but for those with dysphagia it can be stressful, unpleasant and unsafe. Dysphagia is the medical term used to describe difficulty with swallowing.[1] Though it can differ in severity, dysphagia is estimated to affect approximately 8% of the world's population.[2] Whatever the severity, without the correct management it can lead to difficulty in consuming enough food and/or drink, resulting in malnutrition or dehydration and/or to aspiration, where the food or fluid goes into the airways, which can result in choking or pneumonia.

In 2015, an IDDSI Expert Group was set up by NHS England. This multidisciplinary group consisted of healthcare professionals, trade associations, manufacturers, a mechanical engineer, and was originally chaired and supported by NHS Improvement, and latterly co-chaired by representatives of the Royal College of Speech and Language Therapists (RCSLT) and the British Dietetic Association (BDA). The BDA and RCSLT see the adoption of the IDDSI Framework bringing great benefit to patients and carers alike, including improving patient safety and providing greater opportunities to collect and evaluate treatment outcomes. Along with adding clinical and physiological evidence to the existing descriptors,[3,4] the IDDSI Framework combines levels for food and fluids, so the safety of patients has been considered for both eating and drinking. The Framework consists of a continuum of eight levels (Figure 1) and includes descriptors and testing methods. For full information, visit iddsi.org.[5]

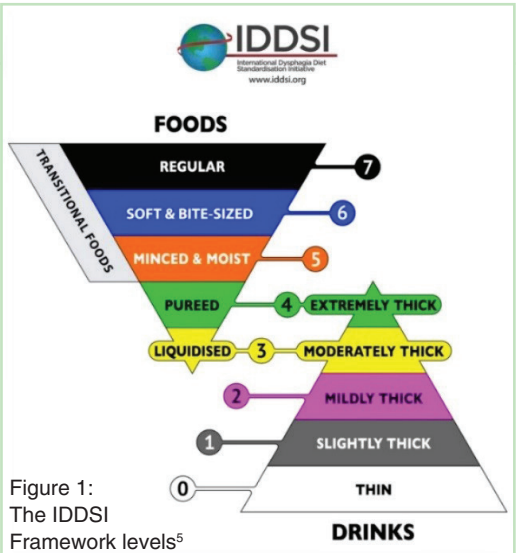

Figure 1: The IDDSI Framework levels[5]

The UK is currently in a 12-month transition phase to IDDSI, with IDDSI expected to be fully implemented by April 2019. Manufacturers of dysphagia products (such as texture modified meals or thickeners) will be updating their labels to be in line with the IDDSI descriptors. These products will transition at different times during the phased implementation period. As trials have shown that dual labelling often causes confusion, there will be no dual labelling for thickeners.

It can take six to 12 months to implement IDDSI in a care setting. Implementation will require system change, so it is advisable to set up a multidisciplinary implementation team, including a dietitian, SLT, caterers and nurses to help plan and execute this initiative. It is also advised to make contact with suppliers to establish their timeframe for transition.

TOOLS AVAILABLE

The IDDSI Expert Group has developed an 'Implementation Pack' which contains checklists, posters, leaflets and training slides for healthcare professionals. These resources can be accessed via the RCSLT and BDA websites. Manufacturers of thickeners will also be producing appropriate support for the changes that are required for their products.

REFERENCES

Please visit the Subscriber zone at NHDmag.com.

More on IDDSI at: www.iddsi.org

DIABETES AND CARBOHYDRATES: AN OVERVIEW OF CURRENT DISCUSSIONS

Alice Fletcher RD Community Dietitian, Countess of Chester NHS Foundation Trust

Alice has been a Registered Dietitian for three and a half years, working within NHS community-based teams. She is passionate about evidence-based nutrition and dispelling diet myths. Alice blogs about food and nutrition in her spare time at nutritionin wonderland.com.

This article aims to discuss current contentious issues regarding carbohydrate (CHO) recommendations and diabetes, diabetes prevention and obesity, looking at how as dietitians and registered nutritionists we can find, or maintain, a valued effective position.

The British medical journal launched *BMJ Nutrition, Prevention & Health* this summer, to the delight of many. The recent recognition of diet's role in disease, particularly diabetes, should be catapulting registered dietitians and nutritionists into the spotlight as the healthcare professionals to help manage our increasingly chronically ill population. This (for the most part) does not appear to be happening.

Bashing of government healthy eating guidelines continues and, at times, it feels as though more airtime is being given to extreme ideas around what should be recommended at a public health level in terms of nutrition for longevity. Anecdotally, the incidence of doctors and nurses giving dietary advice to manage borderline and Type 2 diabetes in my workplace appears to be increasing, but referrals to dietitians do not.

This summer, a BBC TV programme, *The Truth about Sugar*, faced a lot of criticism from nutrition professionals in regards to a segment where foods were compared to sugar cubes in terms of how they impact blood glucose levels. My nurse colleague at work after having watched it, said to me, "I never knew there was so much sugar in rice - I thought it was good for me." I found it difficult not to then explain that although it breaks down and ends up as glucose in the blood stream, this does not happen in exactly the same way as sugar cubes would, and you can have a little rice as part of a meal with some lean protein, and plenty of veggies within a healthy balanced diet, etc. Is it this explanation that makes people's eyes begin to glaze over and they lose interest?

Should we simplify what we know to promote the consumption of less total CHO overall to improve public health outcomes? Should we be comparing CHO in bread to that within table sugar? But calling out bread, rice, pasta and potatoes as villainous poison feels both uncomfortable and wrong. Probably, because it is.

In practice, I have on more than one occasion seen people with Type 2 diabetes for dietary advice who reported following a very low CHO diet. I had been expecting a ketogenic-style diet and was surprised when, from diet recall, they had been eating between 120-160g total CHOs per day. There are many people keeping their diabetes in remission by cutting out (or significantly reducing) their sugary CHOs, choosing low glycaemic index starchy CHOs and being mindful of the portion sizes. A large factor in this also includes reaching and maintaining a healthy weight if able. Many people with well-controlled non medicated Type 2 diabetes are still eating high fibre breakfast cereals, something feted as the devil's food by low carb advocates and, horror of all horrors, sensible portions of granary bread and potatoes! We are increasingly being pressured to think of bread, rice pasta and potatoes as equal to cubes of sugar, but do we need to be so extreme? The evidence suggests not.

CARBOHYDRATES IN PUBLIC HEALTH

Research published in *Lancet Public Health* in August[1] actually shows that the healthiest diet was one that was not

REFERENCES

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too high in carbs or meat, but which included wholegrain CHOs, fruit and vegetables and healthy vegetable fats. The research included 15,428 middle-aged adults (aged 45-64 years) in the USA and looked at how their diet impacted on their chances of dying over the next 25 years. Those eating a high (70% of calories from CHO) and low CHO diet (40% of calories from CHO) had a slightly shorter life expectancy than those with a moderate CHO intake (50% calories from CHO).

As we know, just looking at CHO intake does not tell the full story, as there are different types of low CHO diets. The researchers looked at people who had a low carb diet who had lots of animal protein and fats including red meat, chicken with less than the recommended amount of fruits, vegetables and wholegrains. They also separated people who replaced CHOs with vegetable proteins and fats, for example nuts, seeds, vegetables, some fruit and wholegrain breads.

Predictably, the high meat, low fruit and veg low carb diet resulted in poorer health outcomes. This group increased their chances of risk of dying in the 25-year follow up by 20% compared with the moderate CHO diet eaters. However, the low CHO diet with nuts, plenty of vegetables and some wholegrains was the healthiest. These people were 15% less likely to die sooner.[1]

Registered dietitians Maeve Hanan and Lucy Jones, both spoke brilliantly about this in the media, on the radio and television. This study[1] adds more weight to the theory that moderation appears to be best when it comes to CHOs in public health, however, it's just not a very trendy conclusion.

"THE NUTRITIONAL GUIDELINES FOR PUBLIC HEALTH ARE WRONG"

Popular chat on social media and in NHS staff rooms centres on public nutritional guidelines being out of balance - recommending too much starchy CHOs and not enough fat as a proportion of the Eatwell Guide. This is quoted as being the driving force in the obesity epidemic; the mantra of "calories don't matter" bizarrely seems to be gaining force amongst some healthcare professionals. It's not the excess energy making you gain fat, it's the CHOs driving up your insulin and putting you into fat storage mode. But is it?

Current National Diet and Nutrition Survey (NDNS) data shows that average population CHO consumption is 45-50% depending on the age group in question, and the average dietary fat intake is at 32-35%.[2]

CHO and fat intake in the UK is, therefore, in line with dietary recommendations, yet obesity continues to escalate. Anybody can see that this would suggest the leading driver is not one single macronutrient, but an increase in energy overall (calories)! To point the finger at CHO is unjustified. The modern social landscape has changed remarkably from 30 to 50 years ago and food availability exceeds demand. It is the overconsumption of energy from a mixture of macronutrients that is likely driving obesity, It must be remembered that self-reported food intake is often under-reported and the NDNS data is a tool to assess intake at a population level.

"CARBOHYDRATES ARE MORE FATTENING THAN FAT"

Members of the Public Health Collaboration (PHC)[12] visited the hospital where I work to present to our diabetes team. PHC advocate Hannah Donaldson (GP), was adamant that, "you can eat twice the amount of calories on a low carb high fat diet than a high carb low fat diet and lose weight". When I refuted this and asked for references to back up this very controversial claim, the study consisted of a total of 34 overweight and obese individuals with Type 2 diabetes who self-reported their food intake. The group was instructed to eat a low carb (in this case less than 160g/day) high fat diet. Those on a non-calorie-restricted diet lost more weight than the medium carb low fat calorie-restricted group, but their reported calorie intake differed by only 300kcal per day on average compared with the control group - *not* double.[3]

The idea that we could just cut out all CHOs and then eat steak and double cream to our hearts content without gaining a pound is simply not substantiated by science! Along with this study came personal anecdotal evidence, a link to a website where Sam Feltham (PHC member) 'self-experiments' with his macronutrient composition and shows the resulting photographs of his body,[4] and a link to a (albeit interesting) YouTube video about nutrition and hibernating animals.[5]

We simply cannot apply this sort of information to formulate guidelines at a public health level; this encounter shocked me!

CALORIES MATTER

A large body of evidence exists in support of a larger effect of energy density on total energy intake than macronutrient variations. Independent of macronutrient composition, chronic surplus energy intake will inevitably increase body weight as fat.[6,7] In 2015, researchers set out to test the growing theory of low carb diets causing the body to burn more fat than low fat diets. They selectively restricted dietary CHO versus fat for six days following a five-day baseline diet in 19 adults with obesity, confined to a metabolic ward where they exercised daily. Subjects received both isocaloric diets in random order during each of two inpatient stays. Body fat loss was calculated as the difference between daily fat intake and net fat oxidation, measured while residing in a metabolic chamber. They found that calorie for calorie, dietary fat restriction actually resulted in more body fat loss than CHO restriction in people with obesity.[8]

We also know from tightly controlled over-feeding studies using humans that weight gain is identical regardless of whether people are overfed by either CHO or fat, where calories are matched.[7] A whole diet approach is needed, not a blind focus on one macronutrient.[9]

THE PUBLIC HEALTH COLLABORATION

We all remember the widely publicised 'Eat fat, cut the carbs and avoid snacking to reverse obesity and Type 2 diabetes' report released in May 2016.[11] This was an opinion paper by the National Obesity Forum and the PHC, who describe themselves as 'a registered charity (No. 1171887) dedicated to informing and implementing healthy decisions for better public health'.[12] The PHC advocate low CHO high fat (LCHF) diets for not only treatment of disease, but for public health in general and are strong critics of the Eatwell Guide. Sam Feltham from the PHC has publicly suggested that the developers of the Eatwell Guide may be corrupt as they have links with the food industry. Considering the PHC's crusade on health nutrition, their 11 member strong advisory board consists of only one registered nutrition professional (registered dietitian Dr Trudi Deakin, creator of the X-pert programme, which as of 2015 has a LCHF arm to it). The other 10 advisors are a mixture of well-regarded GPs, psychiatrists, psychologists and specialist doctors (including author of the Pioppi diet, Dr Aseem Malhotra, Dr David Unwin 'The Low Carb GP' and GP Joanne McCormack who runs a nutrition blog called Fat is my friend').

Within the PHC literature, a diet of no more than 130g total CHO is recommended across the board (not as a percentage of energy intake), with a further reduction to 50g if no weight loss is seen after one month. In my professional opinion, this seems sensible in the first instance, for weight management or Type 2 diabetes. Plenty of vegetables are recommended in line with current UK guidelines. Liberal use of butter and coconut oil to satiety is also suggested, going against current guidance.

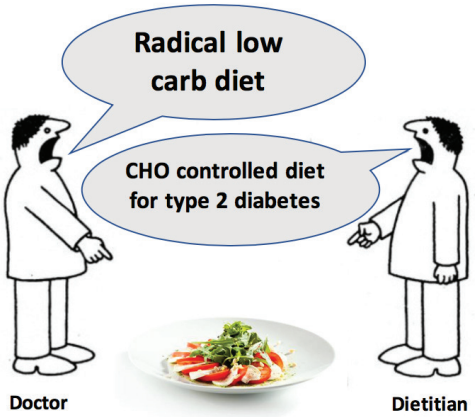
The PHC continually state that low fat diets are not effective for weight loss, however in practice, nutrition professionals are focusing on the bigger picture, but, within that, not having *excessive* fat (no more than 35% total energy) and choosing more plant-based unsaturated fats than saturated. I understand that there was a time around 30 years ago when dietitians did indeed recommend very low fat diets for weight loss and general health, but this simply is not the case anymore, so should not be used as a comparison. There seems to be an underlying thought that dietitians chase people with baguettes and orange juice, which is also not the case.

The lack of dietitians represented within the PHC overall is concerning, but understandable. We know things are not as black and white as "carbs are bad, saturated fat is good".

DR DAVID UNWIN (SOUTHPORT UK) - 'THE LOW CARB GP'

PHC board member Dr Unwin of Norwood GP surgery, Southport (NW England), dispenses dietary advice for Type 2 diabetes keeping it very simple (and more in line with current guidelines than the PHC's literature) - and it has worked for a lot of people.[13] I arranged to meet Dr Unwin at his GP surgery last month to discuss his work, beliefs and to find out more about his approach. He appeared to care deeply about his patients and truly wants the best for them. He is having

Dietitians could be presenting to GPs regarding the scope of our work in terms of prevention and treatment of the most prevalent diseases in the UK, including diabetes, cancer, obesity and cardiovascular disease.



measurable success with his more black and white approach to starchy CHOs, advising to cut out bread, rice, pasta, potatoes and replace them with green vegetables. This extends to those with polycystic ovary syndrome, obesity and borderline diabetes also. He spoke about giving people hope, rather than telling people that diabetes is a lifelong condition that cannot be reversed.

From speaking with one of Dr Unwin's patients who kindly agreed to talk me through their experience of the low carb diet, they were still eating foods, such as porridge at breakfast, and small amounts of brown pasta and potatoes. They aimed for half a plate of veg/salad at main meals, something dietitians recommend in practice. They had done fantastically well, reducing their diabetes medications and HbA1c significantly and feeling great, but they did remain overweight (weight unchanged). This again shows that reducing starchy CHOs is an important part of Type 2 diabetes management in many cases, but does not 'switch on a fat burning switch'. Calories do matter.

I did leave Dr Unwin's surgery a little deflated. The diet his patient was following is not dissimilar to what we would be suggesting as dietitians at the Countess of Chester, but it is certainly packaged and promoted differently.

PREVENTION OF TYPE 2 DIABETES VS TREATMENT SHOULD NOT BE CONFUSED

Diabetes UK does recognise that a low CHO diet can be safe and effective in the management of diabetes.[14] Weight is a huge issue, with 90% of people with Type 2 diabetes being overweight or obese. Activity also plays a role. Treatment and prevention of long-term chronic conditions are often becoming confused. We know that a Mediterranean diet rich in wholegrains, CHOs, lean protein, veg, fruit and healthy fats, alongside maintaining a healthy weight and being physically active, are the main indicators of diabetes prevention. Moderate CHO restriction in this case had the lowest grade evidence for prevention.[15]

THE ROLE OF THE NUTRITION PROFESSIONAL

We know that long-term low CHO diets do not yield better results for weight loss than low fat diets,[16] and that a personalised approach is key - something we are expertly trained to deliver. Indeed, some people find that cutting down significantly on sugary CHOs and reducing starchy CHO intake helps towards weight loss goals - this is a no brainer. In my opinion, doctors should certainly be equipped to give sensible dietary advice for good health, but also know their scope and refer onto a nutrition professional for further assessment and advice if they do not have the appropriate training. As healthcare professionals, we need to always put personal opinion and our own diet experiences to one side when advising others. This is something I have found to be often lacking within some professions in the NHS during my time as an employee.

Dietitians could be presenting to GPs regarding the scope of our work in terms of prevention and treatment of the most prevalent diseases in the UK, including diabetes, cancer, obesity and cardiovascular disease. Ultimately, a dietitian's time to dispense nutritional advice costs less than a GP and could save the NHS a lot of money on medications (for example, if a dietitian was dispensing the dietary advice at Dr Unwin's Norwood Surgery instead of the doctor). I feel that we need to shout louder about this.

Priya Tew
Freelance Dietitian and Specialist in Eating Disorders

Priya runs Dietitian UK, a freelance dietetic service that specialises in social media and media work, consultancy for food companies, eating disorder support, IBS and Chronic Fatigue. She works with NHS services, The Priory Hospital group and private clinics as well as providing Skype support to clients nationwide.

CPD: CLIMBING THE MOUNTAIN

Continuing professional development (CPD) is something we all need to stay abreast of, but it is also something that can feel a little overwhelming. I don't think it has to be as complicated as we sometimes make it out to be . . .

As dietitians, we are always interested in the latest research, looking things up and talking to others about nutritional issues. All of these are CPD. So, I think, actually, most of us will find that we do our CPD all the time, but just don't always formalise it. I know I can be guilty of that.

It is important to maintain our CPD portfolio, whether this is in paper format, a spreadsheet, or a more formalised system. Record all your CPD sessions, mentoring sessions, research, creations and projects. Whilst it can feel overwhelming to know that you may be selected for audit, you actually don't need to have vast amounts recorded. Just a few items a month is enough. It is the act of recognising and recording it as CPD that can get missed. Some software you can use for recording includes: www.cpd-online.com/content/dietitian-cpd-professional-development and the BDA Continuing Professional Development Toolkit: www.bda.uk.com/training/cpd/home.

In my NHS work, I had to fight for funding to go on courses. Then going freelance, I initially thought that this would be even harder. Now that I am my own boss, however, I get to choose what my CPD budget is and what to spend it on. There are also so many free options out there now. Here are some CPD ideas that I've pulled together for inspiration. What I would encourage you to do is to share any good CPD resources you find. Tweet them, share them in a group - because we all need to stay abreast of new research and be on top of our CPD, so why not do it as a community?

TRADITIONAL WAYS TO KEEP UP WITH CPD

- Attending study days, professional lectures and seminars.
- Reflective practice about a project or clinical work.
- Formal courses and further education.
- Subscribing to dietetics journals and free magazines such as ***NHD***.
- Updating product information, diet sheets and any handouts you use regularly.
- Accessing medical and nutritional reps to get updates on the latest products.
- Reviewing medical and professional journals regularly.
- Becoming part of a council or specialist interest group.
- Downloading and filling in CPD eArticles provided by ***NHD***.
- Talks you have given to others.
- Presenting at conferences/study days.
- Finding a mentor and holding regular clinical supervision sessions.
- Accessing free study days - try the nutrition reps.

Table 1: Online resources for CPD

Webinars	Podcasts	Twitter chats
Nutrition Foundation: www.nutrition.org.uk/nutritionscience/webinars.html	Nutrition Matters	#RDUK www.rdukchat.com
Dietitians Connection: www.dietitianconnection.com/product-category/webinars/free-webinars/	Don't salt my game	#foodchat Fortnightly Tuesdays 6pm
Freelance Dietitians Group	Food Psych	#dietitiansweek
Todays Dietitian: www.ce.todaysdietitian.com/Webinars	The Food Medic	#allergyhour Thurs 8.30-9.30pm
Nutricia: www.nutricialearningcenter.com/en/specialized-adult-nutrition/webinars	You can eat with us	
Aspen: www.nutritioncare.org/webinars/	The nutrition diva	

SOCIAL MEDIA/ONLINE CPD

- Reading nutrition blogs, online books, listening to podcasts.
- Being part of twitter chats, or LinkedIn and Facebook groups. (You can use the storify link on twitter to save the whole chat for reference.) Networking with other dietitians and seeking their advice as a chat over social media or a thread on Facebook can count.
- Reading and updating yourself on current practice guidelines via NICE, PEN, BDA and professional body websites. Using websites such as PEN to learn and update. I use PEN a lot for media quotes and for a quick search when I'm seeing a client.
- Participating in journal clubs, such as the Nutrition and Dietetics journal club on Facebook: www.facebook.com/groups/1947271008868892/
- Accessing webinars. There are so many free ones now and these are often in the evenings. Some of the BDA specialist groups host some, such as the Freelance Dietitians Group.
- Online training courses - there are lots of these now and many are free. BMJ learning, Open Learn (Open University Free learning), Udemy.com.
- Following other evidence-based practitioners in your field on social media and learning from them.
- Writing and blogging - articles for websites and online magazines; updating your own blog and sharing your knowledge.
- Creating Youtube videos to upload to your own channel.

CPD can feel like a mountain, but in all honesty. it is something we all do, everyday, even if we don't realise it. When you climb a mountain you take it one step at a time and maintain your focus. When that mountain is CPD, maybe it is about having set times to reflect, to record and to realise that CPD is just part of the work we do as nutrition professionals.

Michelle Hanchard
RD MPH
North Yorkshire County Council

Michelle's career started in microbiology before moving into public health and finally dietetics. Her experience and interests include eating disorders and childhood obesity. She is currently manager of 'Healthy Choices' - North Yorkshire County Council's tier 2 lifestyle weight management service for children and young people.

For more information on Michelle's e-learning package on raising the issue of weight, please email: trainingand learning@northyorks.gov.uk

If you would like to network regarding child weight management, please email: michelle.hanchard @northyorks.gov.uk

A CHILDREN'S LIFESTYLE WEIGHT MANAGEMENT SERVICE MANAGER

Healthy Choices is North Yorkshire County Council (NYCC)'s family-focused lifestyle weight management service for children and young people aged four to 19 years, who are above the 91st BMI centile. The service offers a free 12-week programme, which covers a range of lifestyle topics, tailored to the needs and circumstances of each family, and using recognised behaviour-change strategies. At the end of the core programme, we offer a package of follow-up support for up to 12 months.

Until recently, the programme has generally been delivered in family homes; however, we're currently trialling alternative service models, including community 'clinics' and group programmes.

For younger children, weight maintenance (rather than weight loss) may be an appropriate aim, to allow them to grow into their weight. BMI z-scores are used to assess change in weight status pre- and post-intervention; other pre-/post- outcome measures include dietary and sedentary behaviour, physical activity and self-esteem. Emphasis is placed on enhancing motivation and empowering the family to make positive, sustainable lifestyle changes, through a person-centred approach in which family members feel heard, accepted and valued, regardless of weight status.

My role as 'Healthy Choices' Manager is incredibly varied. It involves leading on the development and operational management of the service, managing the team of healthy lifestyle advisors and support workers and providing them with professional advice, casework supervision and performance management. No two days are the same and as North Yorkshire is largely rural and the biggest county in England, I spend quite a lot of time on the road!

7.30am: Fuelled by a bowl of porridge and strong coffee and pumped up by a brisk walk or bike ride, I respond to emails and check for new referrals. I scan the team calendar to check what's scheduled for the following week - from initial assessments, core programme delivery and follow-up appointments, to stakeholder engagement, resource development, case supervision and training.

8.00am: I tackle the dreaded task of budget forecasting. Thankfully this comes round just once a month and I've found a helpful accounting technician in the finance department who I call when the figures aren't adding up!

9.00am: On a typical day, I have one or two meetings to attend, such as case supervision, performance management and service development meetings with our commissioners in public health. I also meet regularly with stakeholders (such as the Healthy Child Team and Prevention 'Early Help' Service), who are our main sources of referrals.

10.00am: Over the past few months, I've also been fortunate enough to have had regular contact with a research team at Teesside University, led by Louisa Ells, Professor in Public Health and Obesity, which was commissioned by NYCC to carry out an independent evaluation of the Healthy Choices service. Having recently received the final evaluation report, which is overwhelmingly positive, we are currently considering how we can

We use a range of foods, weighing scales, plates, bowls and cups, along with illustrated information sheets and games to get the messages across.

develop the service further on the back of the recommendations, as well as discussing future research opportunities. Today, I respond to an email from a very talented graphic designer who has put together an infographic summarising the research findings - fantastic work!

11.00am: Another interesting project I've been busy with over the past few weeks has involved creating an online learning module on 'Raising the Issue of Weight' for frontline workers in health, care and education settings. Having written the course content, I'm now liaising with a colleague in Training & Learning who is turning my dull PowerPoint slides into a colourful, interactive package. She calls me to discuss some technical issues and assures me we're on track to go live next month – exciting!

11.15am: I drive to Malton in rural Ryedale. Friday is my favourite day and not just because it's almost the weekend! On Friday afternoons, I work alongside one of our two support workers to deliver Healthy Choices sessions at a children's centre. Our support workers are recent and highly valued additions to the team; these roles have been created to enhance the support and signposting we can offer families who are experiencing difficulties, such as parenting struggles and financial worries.

12.15pm: Working lunch (today my salad includes home-grown runner beans - very pleased with myself, although I'm on a steep learning curve with grow-your-own!) I quickly read through the previous week's case notes and today's session plan.

13.00pm: Afternoon 'clinic' begins. Each family has a one-hour appointment, which starts with a brief review of how the week has gone and whether they have met their previous week's goals and challenges. Then there's the optional weekly weigh-in, followed by an interactive session on the topic of the week, which we tailor to the age and development stage of the child/young person. The aim is to involve all family members and to make sessions as enjoyable and engaging as possible. It's portion sizes (or 'me size meals') today. We use a range of foods, weighing scales, plates, bowls and cups, along with illustrated information sheets and games to get the messages across. Typically, parents are surprised to learn that the portions they're serving their children are significantly larger than recommended portions. Next week's goals and challenges are set collaboratively.

Delivering a 'clinic' once a week is a great opportunity for me to maintain my dietetic knowledge and skills. It also helps me as a manager to experience firsthand some of the challenges my team is encountering on a daily basis. These include frequent DNAs/cancellations, child behavioural issues and the complexities of family life which may present as barriers to motivation and change. Despite the challenges, I love working with families and even the smallest glimmer of engagement and progress can be hugely rewarding.

17.00pm: At the end of the afternoon, I write up my case notes, deal with any important messages, then hit the road for the slow but scenic drive home, hoping I don't get stuck behind too many tractors and caravans. Let the weekend begin!

STUDY DAYS AT THE ROYAL MARSDEN

Advances in Head and Neck Oncology
Monday 21st January 2019 - Cost: £120 per Delegate Event ID: 707
This study day is aimed at nurses and other healthcare professionals involved in the care of individuals with head and neck cancer.

The Royal Marsden Nutrition and Cancer: What the health professional wants to know about nutrition?
Tuesday 5th February 2019 - Cost: £120 per Delegate Event ID: 656
This study day is aimed at dietitians, nurses, doctors and other healthcare professionals working with cancer patients. The day will deliver sessions exploring what new evidence has emerged for a variety of cancer diagnosis and how this can be put into practice.

Adult Tracheostomy Care - All you need to know
Monday 18th March 2019 - Cost: £120 per Delegate Event ID: 696
The aim of the study day is to facilitate and enhance nurses and allied health professionals' knowledge and skills to care for adult patients with a tracheostomy.

Visit www.royalmarsden.nhs.uk/studydays for full details.

Upcoming events and courses. You can find more by visiting NHD.mag.com

Probiotics in Practice: Workshops for Dietitians and Nutritionists
13th November 2018 - 9am-2:30pm
BDA, Birmingham
www.hcp.yakult.co.uk/events/workshops

World Diabetes Day
14th November 2018
www.worlddiabetesday.org

Next steps for genomic medicine in the NHS - regulation, challenges for adoption and priorities for research
20th November 2018
www.westminsterforumprojects.co.uk/conference/personalised-medicine-and-genomics-18

BAPEN 2018 Annual Conference
20th-21st November 2018
Pre-conference teaching day 19th November
Harrogate Convention Centre
www.bapen.org.uk/resources-and-education/meetings/annual-conference

Food Matters Live
20th-22nd November 2018
ExCel, London
www.foodmatterslive.com

Nutricia Paediatric Expert Meeting
27th-28th November 2018
www.neocate.co.uk/Events/

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To apply, please email your C.V, cover letter and current salary details/expectations to francesca.gordon@vitaflo.co.uk along with any questions you may have. For an informal discussion about the role, please contact Carleen McCarney (Medical Affairs-Marketing Manager) on 07741 264229. **Closing date: Friday 16th November 2018.**

EXPERIENCES TO MAKE YOU A BETTER PROFESSIONAL

Louise is an experienced NHS dietitian who has been specialising in the fascinating area of Inherited Metabolic Disorders in adults for the last 10 years. In her spare time she enjoys running her blog *Dietitian's Life* with her colleague and good friend Sarah Howe, playing the cello and keeping up with her two little girls!

www.dietitianslife.com

The idea for this post came to me while I was lying in bed with tonsillitis. I'd had a sore throat before, but this was different. Sharp painful swords were stabbing at my throat; my tonsils and glands were blown up, filling my mouth; the sheer agony when swallowing my food and drink.

I can't take this much longer, I thought (luckily I was only unable to sleep properly for three nights). Then my thoughts turned to when I was an oncology dietitian advising patients what to eat when they were having treatment for throat cancer. They were probably feeling like this all the time.

I think sometimes as healthcare professionals, it is helpful to empathise with our patients and understand what they actually go through. I never understood why people didn't want to eat in hospital until I was an inpatient myself after giving birth to my first daughter. It was only for 24 hours post birth, but it felt like a long time not eating. I remember the dinner trolley coming round and choosing macaroni cheese and roast potatoes, but only managing to nibble at it, as I felt so bad. I was straight on the phone to my husband to bring a sandwich in. The nicest thing I ate was a satsuma and grapes that my mum bought in, they were so juicy and refreshing in the hot ward.

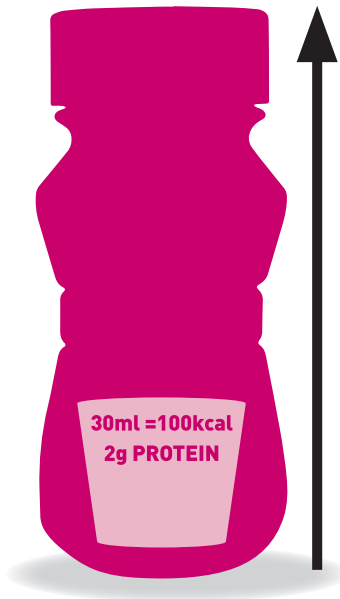
A few years back Sarah and I took on the challenge of following a low phenylalanine (Phe) diet for PKU for a week. We took on this challenge because adults with PKU form a large part of our caseload. It included taking the bitter protein substitute drinks three times a day and sticking to only seven exchanges of Phe (~7g of natural protein) per day. All high protein foods were out of bounds and we had to weigh out and count all other foods containing protein, making sure we had no more than 7g per day.

That was a hard week, but well worth it. It gave us a greater understanding of our patients' experience. We could try meal ideas, see what worked and what didn't. We understood what it was like to be trying to cook for your family when you have to make something different for yourself. The restriction was hard, we couldn't have normal bread, pasta, or biscuits and no cow's milk in our tea.

The PKU diet experience made us realise why our patients' Phe concentrations often increase when they are older, as it would be easy to let higher protein foods, such as normal bread instead of low protein bread, slip into your diet for ease in a busy working life.

Other dietitians have taken on the challenges that their patients face, including having nasogastric tubes inserted, or restricting their diet for a week to just ONS drinks. Theory and practice build up our work experience, but pushing ourselves that little bit further to experience just how our patients feel, can give us that extra edge and respect from our patients. This can only improve the quality of our work.

I don't want you to injure yourselves in order to experience hospital food, but take the most of all opportunities that come your way, whether it be volunteering to taste the hospital food, trying all the nutritional supplements your patients take, or experiencing the diets that you advise them to follow. Go on, challenge yourself.



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