

NHD

NETWORK HEALTH DIGEST

Login to our Subscriber zone at
www.NHDMag.com

The Magazine for Dietitians, Nutritionists and Healthcare Professionals

NHDMag.com

February 2017: Issue 121

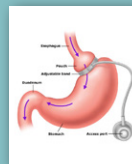


COGNITIVE BEHAVIOURAL THERAPY



GOAT MILK

PAEDIATRIC FOOD ALLERGY
INTERMITTENT FASTING DIETS
PAEDIATRIC DIABETES



Bariatric Surgery
Pages 34 to 40

RELIEVE

cows' milk allergy
symptoms¹ with
97% efficacy²

REDUCE

incidence of
atopic dermatitis
up to five years³

REASSURE

with superior
palatability^{4,5}



Aptamil Pepti for the effective management of cows' milk allergy, without compromise

- ✓ Unique blend GOS/FOS oligosaccharides to help reduce long-term allergy risk³
- ✓ Extensively hydrolysed formula with a composition nutritionally closer to breastmilk, encouraging normal growth and development⁶
- ✓ Palatable for baby^{4,5}, as convenient to prepare as standard infant formulas

For further information contact our Healthcare Professional Helpline on

0800 996 1234 or visit **www.eln.nutricia.co.uk**

References: 1. Vervimp JJ et al. Eur J Clin Nutr. 1995;49 (Suppl1):S39-S48. 2. Giampietro PG et al. Pediatr Allergy Immunol. 2001;12:83-86. 3. Arslanoglu S et al. J Biol Regul Homeost Agents. 2012;26:49-59. 4. Pedrosa M et al. J Investig Allergol Clin Immunol. 2006; 16(6):351-6. 5. Venter C. Cows milk protein allergy and other food hypersensitivities in infants. [Online] Available at: https://www.jfhc.co.uk/Cows_milk_protein_allergy_and_other_food_hypersensitivities_in_infants_20679.aspx [Accessed January 2016]. 6. Vandenplas Y et al. J Pediatr Gastroenterol Nutr. 1993;17(1):92-96.

IMPORTANT NOTICE: Aptamil Pepti 1 & 2 should only be used under medical supervision, after full consideration of the feeding options available including breastfeeding. Aptamil Pepti 1 is suitable for use as the sole source of nutrition for infants from birth to 6 months of age. Aptamil Pepti 2 is suitable for babies over 6 months as part of a mixed diet, and as a principle source of nourishment with other foods.

Date of prep: April 2016 / AS9511



Pepti 1

400g & 800g

Pepti 2

400g & 800g



Emma Coates
Editor

WELCOME

Welcome to this our first issue of 2017. Supported by our dream team of contributors, we are putting our best foot forward into this New Year, and we have woven together another superb issue; a rich tapestry of articles to drape around your nutritional brains.

Emma has been a registered dietitian for 10 years, with experience of adult and paediatric dietetics. She specialised in clinical paediatrics for six years, working in the NHS. She has recently moved into industry and currently works as Metabolic Dietitian for Dr Schar UK.

As many people set (and have probably already broken) their New Year resolutions to lose weight, get fit, drink less alcohol and so on, we take a look at the evidence available on intermittent fasting diets. Maeve Hanan takes us through the research for the 5:2, 6:1, the Eat-Stop-Eat diet and the 16:8 diet trend and asks whether they are viable weight management approaches.

Continuing with the weight management train of thought, we focus on bariatric surgery in this issue and share Mary O'Kane's obesity surgery article that looks at nutrition and the challenges of long-term follow up within the NHS.

We also welcome back Maria Dow and her contribution to this topic with a very interesting bariatric case study. Our Cover Story, too, ties in with the weight management and health living theme, as Nikki Brierley guides us through the fundamentals of cognitive behavioural therapy to aid the promotion of positive changes in eating behaviours.

Diabetes is a major health concern, with 3.6 million people in the UK having been diagnosed with the condition. Kate Roberts leads us through a journey of care from a dietetic perspective, which explains the pathway of treatment for paediatric diabetes patients.

We're very pleased to include a valuable and insightful article on paediatric food allergy from Kathryn Cockerell. She has provided us with a comprehensive guide for the non-specialist dietitian.

For several years, we saw the footage on the news and in social media on the war in Afghanistan. It has had a major impact on many lives, including Iman Mary O'Donnell, Nutritional Therapist. Mary has written our *Day in the life of...* column for this issue and it is a fascinating, yet humbling, read. She shares her experience as a Western dietitian working in a cardiac hospital in Kabul.

As always, it's a pleasure to share articles and features from our regular contributors and we're proud to continue with Dr Emma Derbyshire's *Food for thought* news roundup. Dr Carrie Ruxton, returns with a look at goat milk and its use across the lifespan. An exciting new feature comes from Ursula Arens, who has developed *Face to face*, where she interviews the movers and shakers in the UK industry of nutrition science. For her first interview, she's talking to Tam Fry, National spokesperson for the National Obesity Forum, Patron at the Child Growth Foundation and Expert advisory team member at Action On Sugar.

Don't forget our online *NHD Extra* supplement (www.NHDMag.com). You'll find Michelle Sadler's *Dried fruit and dental health* article, where she looks at the current dietary advice. Our second article in *NHD Extra* comes from Ayrshire based dietitian, Leona Courtney who shares her Masters research, where she looked at the impact of dose dietetic intervention on diabetic control in those with Type 2 diabetes on GLP-1 analogues.

Enjoy the read! *Emma*



NHD

NETWORK HEALTH DIGEST

www.NHDmag.com
your essential resource

- *NHD* CPD eArticles
- Live health news
- dieteticJOBS.co.uk
- Events and Courses
- Essential links



A wealth of
useful dietetic
resources
for all
dietitians and
nutritionists



Subscriber zone

- *NHD digital* - view the latest issue of *Network Health Digest* as well as back issues
- *NHD Extra* - our monthly supplement with additional articles for subscribers
- *NHD* at-a-glance library of published articles

Student zone

Introducing our new resources specifically designed for students of Nutrition and Dietetics



Login with your username and password to view the Subscriber zone.

If you don't have login details, you can check whether you are eligible for a FREE subscription to Network Health Digest at wwwNHDmag.com

Make the most of your *NHD* Community!

CONTENTS



10 COVER STORY

Cognitive Behavioural Therapy

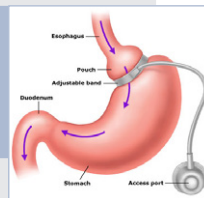
- 6 News
Latest industry and product updates

- 8 Face to face
With Tam Fry,
National Obesity Forum

- 31 Intermittent fasting diets
How effective are they?

BARIATRIC SURGERY

34 Nutritional challenges
37 Case study



14 PAEDIATRIC DIABETES

A dietetic perspective



- 41 Meet the BDA
An insight into the BDA

- 44 A day in the life of . . .
A Western dietitian in Afghanistan

- 19 Paediatric food allergy
A guide for non-specialist dietitians

27 GOAT MILK

Across the age spectrum



- 46 dieteticJOBS & events & courses
Job opportunities and dates for your diary

- 47 The final helping
The last word from Neil Donnelly

Copyright 2017. All rights reserved. NH Publishing Ltd. Errors and omissions are not the responsibility of the publishers or the editorial staff. Opinions expressed are not necessarily those of the publisher or the editorial staff. Unless specifically stated, goods and/or services are not formally endorsed by NH Publishing Ltd which does not guarantee or endorse or accept any liability for any goods, services and/or job roles featured in this publication. Contributions and letters are welcome. Please email only to info@networkhealthgroup.co.uk and include daytime contact phone number for verification purposes. Unless previously agreed all unsolicited contributions will not receive payment if published. All paid and unpaid submissions may be edited for space, taste and style reasons.

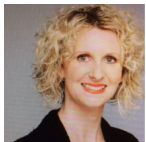
Editor Emma Coates RD
Publishing Director Julieanne Murray
Publishing Editor Lisa Jackson
Publishing Assistant Katie Dennis
Special Features Ursula Arens
News Dr Emma Derbyshire
Design Heather Dewhurst

Advertising Richard Mair Tel 01342 824073
richard@networkhealthgroup.co.uk
Phone 0845 450 2125 (local call rate) Fax 0844 774 7514
Email info@networkhealthgroup.co.uk
www.NHDMag.com www.dieteticJOBS.co.uk
Address Suite 1 Freshfield Hall, The Square, Lewes Road, Forest Row,
East Sussex RH18 5ES



@NHDMagazine

ISSN 2398-8754



Dr Emma Derbyshire
PhD RNutr
Nutritional Insight Ltd

Emma heads Nutritional Insight Ltd, an independent consultancy to industry, government and PR agencies. An avid writer for academic journals and media, her specialist areas are maternal nutrition, child nutrition and functional foods.
www.nutritional-insight.co.uk
@DrDerbyshire

FOOD FOR THOUGHT FIGHT THE FADS

Hopefully, most of you may have already heard of the Fight the Fads campaign, most likely through social media channels. The team is comprised of three nutrition myth busters, Caroline, Harriet and Elisabeth, who are training to be dietitians at King's College London. Together they have launched a government petition to legally protect the use of the title 'Nutritionist' - to help stop the surge of online 'wellness' experts and bloggers from pushing false and often dangerous dietary information.

Currently, the petition has succeeded in obtaining 5,124 signatures (January 2017), but needs 10,000 signatures for government to consider and respond to the petition. The petition runs for six months and expires on 4th May this year, so that gives another three to four months to run in order to meet the target.

The Fight the Fads team has done amazing work in getting this off the ground, so let's help give them a helping hand in getting to the 10,000 benchmark. If you know a work colleague or health professional who has not signed the petition, please point it out and ask them to take a look at it and sign it, ideally there and then. Let's give the title 'Nutritionist' the official protection that it deserves.

Visit: <https://petition.parliament.uk/petitions/171211> to sign the petition.



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.

IODINE GETS OVERLOOKED

The value of taking folic acid before and during pregnancy is fairly well known, even though this is not always put into practice. Iodine is also important in pregnancy, for infant nerve and brain development. However, new research shows that awareness about this is worryingly low.

A recent study published in the *British Journal of Nutrition* evaluated knowledge of iodine amongst women of childbearing age. Amongst the 520 completing the survey, only one-third (32%) correctly identified that iodine was needed for pregnancy. Nearly half (41%) could not link iodine deficiency to a related health problem and 46% failed to meet dietary targets for iodine (140 µg/d).

These findings indicate that iodine intakes are insufficient amongst UK and Irish women of childbearing age. Furthermore, knowledge is also poor and needs to be advanced for intakes to improve in the future.

For more information, see: O'Kane SM et al (2016). *British Journal of Nutrition* Vol 116, no 10, pg 1728-35



NHD READERSHIP SURVEY RESULTS

We had a tremendous response to our recent Readership Survey. Thank you to everyone who participated. Your feedback, suggestions and ideas have been invaluable. The results of the **NHD** Readership Survey will be in the next issue of **NHD** which will be online to view at www.NHDMag.com.

Login with your password to view. If you haven't got login details, click on 'subscribe' from our homepage to check whether you are eligible for a **FREE** subscription. You will then be able to access a host of dietetic resources as well as the current issue of **NHD** and our back issues archive.



The medicinal use of curcumin stretches back over thousands of years; once best known as a constituent of the spice turmeric. Interest is growing and research is accumulating in relation to its potential use in the treatment of chronic disease.

New work published in the *Journal of Affective Disorders* has now examined the effects of curcumin and a saffron/curcumin combination as a potential treatment for major depression. In this double-

For more information, see: Lopresti AL, Drummond PD (2017). *Journal of Effective Disorders* Vol 207, pg 188-196

blind RCT, 123 adults with depression (taking their usual medications) were allocated to take: 1) a low-dose of curcumin (250mg), 2) a high-dose of curcumin (500mg), 3) a combined low-dose of curcumin and saffron, or 4) a placebo for 12 weeks.

Although no differences were found between the contrasting doses of curcumin or the combined treatment, overall results revealed significant improvements in depressive symptoms and reduced anxiety compared to the placebo.

These latest findings suggest that curcumin could be a useful adjunctive therapy for those suffering from depression. Continued research with larger sample sizes is worthy of further exploration in this important area of work.

NEW GROWTH CHARTS FOR PRETERMS

Providing appropriate nutrition for growth and development is central to the care of preterm infants. Current recommendations from the American Academy of Paediatrics (AAP) are to provide sufficient nutrients to replicate the growth and composition of weight gain of the in utero fetus of the same post-conception age. Unfortunately, body composition reference charts to support this recommendation have been lacking, until now.

New research, published in the *American Journal of Clinical Nutrition*, has addressed this, utilising data from 223 preterm infants born before 37 weeks. Measurements of fat mass, fat free mass and percentage body fat were assessed to create body composition reference charts to assist in following AAP guidelines.

These are the first body composition reference charts designed for preterm infants. Whilst the use and application of these in clinical settings is yet to be undertaken, the development of these is a great step forward.

For more information, see: Demerath EW et al (2016). *The American Journal of Clinical Nutrition* [Epub ahead of print]



ANTIBIOTIC USE IN INFANCY

Interest in links between gut and brain function are growing. It is fairly well established that antibiotic use can impact heavily on the gut microbiome. Now, new work has looked at how antibiotic use in infancy can affect brain function down the line.

Researchers used data from the Auckland Birthweight Collaborative (ABC) Study, comprised of 871 mothers and their children and logged antibiotic use between one and three and a half years of life. Intelligence test scores and measures of behavioural difficulties were taken, evaluated at three and a half, seven and 11 years of age. Seventy percent of children took antibiotics in the first year of life. Those who had taken antibiotics had:

- significantly lower intelligent test scores at the age three and a half, seven and 11 years;
- lower reading ability scores at age seven years;
- higher behavioural difficulty scores at age three and a half and seven years;
- a greater number of ADHD symptoms at 11 years of age.

Antibiotic use after one year of age was not significantly associated with any outcomes. These are important findings emphasising the need for more research into the use of antibiotics, particularly for minor illnesses, in the very young.

For more information, see: Slykerman RF et al (2017). *Acta Paediatrica* Vol 106, Issue 1, pg 87-94



Ursula Arens
Writer; Nutrition
& Dietetics

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

FACE TO FACE

Ursula meets:



TAM FRY

National spokesperson: National Obesity Forum
Patron: Child Growth Foundation
Expert advisory team member: Action On Sugar

In a new column for NHD, Ursula meets amazing people who influence nutrition policies and practices in the UK.

Tam is always in the top three of UK media quotes on obesity. More specifically, childhood obesity and, currently, what-to-do-about-sugar. He is well past retirement, and receives no payments for his ceaseless engagement on these themes. Further, he can claim no particular qualification or academic merits to support his position as the public health oracle on these nutrition debates.

We met for overly-modest refreshment (him: water; me: earl grey tea), but I needed no convincing that Tam is a man on a mission (to decrease UK childhood obesity stats). "My study is wall lined with over 50 arch-lever files of information on the subject," he shares. He describes himself as "specialist rather than expert." But he is definitely the project manager, for the task to drive media coverage on the '11th hour' issue of obesity.

His father had a lovely career planned for his son, via the route of Cambridge, but Tam was charmed by the Italian language and culture and bargained from his father financial support for many immersive years in Europe to learn languages: Italian, French and German. A short stint in the Navy gave Tam a medal, but languages pulled him back, and his first job was writing for film stills in Rome.

Back in the UK he became a publicist for various publishing houses, but perhaps he was too good at the job, because the BBC spotted him and invited him to join them.

This was the start of many rollercoaster years directing many BBC

productions. He moved to the States and covered US presidential elections, and especially the longer-term project of the Apollo space programme. Later, he was often on loan to the European Broadcasting Union (EBU), becoming very involved in the reporting of specifically political issues, including debates over Northern Ireland and the newly established European Parliament. When the Greek government wanted to improve the quality of media coverage to increase public access to political debate, Tam became their how-the-BBC-would-do-it consultant.

By the early 1980s Tam was on the teams that introduced Question Time and the talk show Kilroy, before going on to champion the introduction of computer systems into Breakfast Time programmes. But, with faster and fresher rival TV channels emerging, the BBC was increasingly critiqued as top heavy, so, in 1988, Tam was one of many who had to leave to achieve leaner management structures.

The next day he started as manager for a small charity that supported the parents of growth impaired children (which Tam had founded to better campaign for those, like his daughter, who had benefited from expert endocrinologists at Great Ormond Street Hospital). The Child Growth Foundation did much to support growth-impaired children and their families, and raised funds for more portable measuring equipment and the training for medical staff. Identification

of growth impairment needs to be made before school age for optimum growth hormone therapy, and the Foundation developed updated anthropometric charts to allow faster and more accurate identification of problems.

Creeping obesity rates in children had been observed in various academic and Department of Health reports from about the 1980s and in 2001, the National Audit Office noted with alarm that obesity had become a public health problem. Tam became an observer and contributor to many of the debates around measuring growth and weight in children. "Because so many children became overweight, it was difficult for parents and teachers to identify normal from excess weight," and Tam was very keen for national measurement programmes to be funded.

The National Child Measurement Programme (NCMP) established in 2006, measures heights and weights of every primary school child aged 4/5 years and 10/11 years. Initially it was an opt-in system and Tam was shocked that more than 50% of parents would not agree to these assessments of their children. Later the NCMP became an opt-out system and, currently, more than 90% of primary school children are measured. The initial communication to parents was clunky and Tam faced many TV interviews with angry parents whose apparently healthy-sized children had been sent 'you're fat' letters. Currently, efforts are made to better identify at-risk children and, of course, to better offer support to parents of overweight children. "School Nurses are essential, but there are only 3,000 of them to deal with a total of over one million children in both school year groups," warns Tam.

Such was Tam's presence and participation in public discussions of UK obesity, that the National Obesity Forum contacted him to be their official spokesperson. His first interview was within the hour of giving his "yes" to the no-perks-no-pay job.

The role of national commentator needs to be person-driven (rather than group or committee-led) and Tam is that driven person. 24/7 is too

much of a cliché to describe the constancy of Tam's willingness to comment and give opinion; he keeps a close list of expert-friends who he can call on for nutrition-science guidance. So, what would he say to dietitians? He makes the point that being "a small profession and not being a 'Royal College' may make participation in some policy debates more difficult." Nevertheless, he continues, "dietitians are the leading experts on obesity treatments and so should be more involved in media debates and campaigning groups."

Tam is more into prevention than cure of population obesity. "Nudging has failed. Nutrition labelling and information does not seem to be doing much. The problem is wall-to-wall cheap fatty and sugary foods," says Tam. Some opportunities to more robustly limit cheap junk foods have been presented (especially by the excellent 2015 McKinsey report on obesity), and Tam feels most angry with the Government. "Food companies do what they have to do, to make a profit; governments should do what is best for the public health of the population and their efforts are weak." The opportunity for a robust government childhood obesity strategy based on the 44 recommendations of the McKinsey report was, 'interrupted' by the Brexit crisis for David Cameron and the subsequent document issue by Theresa May was a weak and diluted policy.

The future issues involve the debates and implementation of fiscal policies to steer food choices. However, Tam is sceptical unless tax on free sugars in all foods (not just drinks) is lifted to about 50%. "A national czar-style project manager for childhood obesity is needed!" concludes Tam. Any such czar will not be Tam, but could be a twin, in terms of dedication and drive. Many less-obese children of the future will have benefited from Tam Fry's devotion to their better slimmer lives.

As I leave Tam, he speaks about achieving things rather than being liked. But I feel he has a very sweet side to him (but not from eating sugar, of course!).

If you would like to suggest a F2F date (someone who is a 'shaker and mover' in UK nutrition) for Ursula, please contact: info@networkhealthgroup.co.uk



Nikki Brierley
Specialist
Dietitian and CBT
Therapist

Nikki has been a HCPC Registered Dietitian for eight years and more recently gained BABCP accreditation as a CBT Therapist. She currently works in a dual role within the Adult Community Eating Disorder Service at Cheshire and Wirral Partnership NHS Foundation Trust.

COGNITIVE BEHAVIOURAL THERAPY: PROMOTING A POSITIVE CHANGE IN EATING BEHAVIOURS

It is well recognised that providing dietary advice often does not result in the desired change in eating behaviours. This can be frustrating for both the individual aiming to improve their diet and for health professionals trying to support the process.

Cognitive Behavioural Therapy (CBT) offers an evidenced based approach that can aid in establishing and maintaining positive behavioural change and, therefore, has the potential to enhance dietary outcomes.

The British Association for Behavioural and Cognitive Psychotherapists (BABCP) describes CBT as a talking therapy that can help treat a wide range of emotional and physical health concerns. The Royal College of Psychiatrists (RCPsych) provides a similar explanation and also states that CBT can aid in identifying the link between cognitions and behaviours.

The fundamental characteristics of CBT are that it is collaborative, structured, time limited, empirical and takes a problem oriented approach. CBT also frequently employs techniques of guided discovery, behavioural methods, summaries and feedback. It is primarily concerned with

the here and now and is usually focused on the process that is maintaining the problem (however, past events may be investigated as appropriate). CBT draws on a number of theories and has two main influences, namely Behavioural Therapy (BT) and Cognitive Therapy (CT). BT was developed by Wolpe and others during the 1950s and 1960s. This form of therapy was initially well received and successful, but, during the 1970s, the 'cognitive revolution' viewed this approach as limited due to the purely behavioural method. As such, CT, as developed by Beck in the 1960s, came to influence BT and subsequently CBT emerged.¹

THE COGNITIVE MODEL

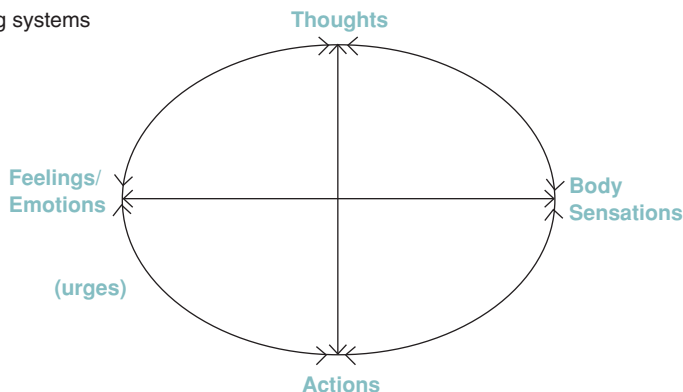
The cognitive principle is explained by people reacting differently to similar events. This establishes that it is not just an event that determines people's reaction, but also their interpretation of the

Table 1: Cognitive models

The Common Sense Model				
Event	→			Emotional/behaviour
Offer restricted item	→			Neutral/item not eaten
The Cognitive Model				
Event	→	Cognition	→	Emotion/behaviour
1. Offer restricted item	→	I know I should not eat that I am able to resist	→	Confident /Item not eaten
2. Offer restricted item	→	I know I should not eat that I am not able to resist	→	Anxious/Item eaten

(Adapted from Westbrook, Kirk and Kennerley, 2007)¹

Figure 1: Interacting systems



situation (i.e. different cognitions). An example of this relating to food intake is the different outcomes when individuals are following a restricted diet plan. Some people when offered a restricted food would decline, whilst others would consume the item. This can be explained by differing cognitions and is demonstrated in Table 1.

The Behavioural Model

Behaviours are considered crucial in changing psychological states and are understood to have a strong impact on cognitions. It is evidenced that simply changing a behaviour can result in a change in cognition.¹ Referring again to Table 1, it is possible to see that if individual number 2 changed their behaviour, this could result in a change in cognition. If they did not consume the food item, their supporting cognition would be challenged and may result in a change (i.e. instead of thinking that they are unable to resist, they are now thinking that they are able to resist). This may then also result in a change to future behaviours.

Combining Cognitive and Behavioural Models

The core belief of the cognitive element is that an individual's emotional reactions are influenced by cognitions (thoughts, beliefs and interpretations). The behavioural element places emphasis on the role of an individual's actions (i.e. what we do) in maintaining or changing emotional states. CBT is, therefore, based on the understanding that an individual's thoughts can affect their feelings and behaviours, and indeed their behaviours can affect thoughts and feelings. Figure 1 demonstrates how these theories interact and is commonly used as part of a CBT.

Additional influencing theories

CBT is also influenced by social and developmental psychology. The social learning theory (Bandura, 1977), highlights that learning can be observational, thus suggesting the significance of modelled behaviour as part of behaviour change. The impact of internal mental states (i.e. intrinsic reinforcement) is also recognised and, therefore, linked to cognitive theory. Also, it is noted that learning behaviours, may not result in a change in behaviour and that results are dependent on the level of attention, retention, reproduction and motivation. As such social theories can form a connection between Cognitive and Behavioural theories. The social development theory (Vygotsky, 1978) describes socialization and the influence of social interaction on the development of cognitions.

PROMOTING A POSITIVE CHANGE IN EATING BEHAVIOURS

The role of CBT

These theories help to explain the complexities of changing behaviours and why simply providing dietary advice, even when accompanied by an explanation of the benefit/value/importance, does not always result in the desired change. A proposed explanation for this is that '*knowing what to do and knowing how to get yourself to do it are entirely different skills*'.²

CBT may help to address the *how* and ensure the information is provided in a manner that supports change. This can effectively reduce resistance, explore ambivalence, increase motivation, assist in decision making and facilitate agreed goals.

Table 2: Example thought/feeling record

Activity/behaviour	Thought	Feeling
8.00pm: Evening meal out with friends. Ate healthy meal, followed by a big pudding and 2-3 glasses of wine	"I know I shouldn't have/I didn't intend to." "Everyone else was having one." "I have totally ruined it." "I am such a failure." "I am never going to lose weight!" "I should not have gone out with them!"	"Anxious trying to decide if I should order a pudding." "Enjoyed eating it but quickly followed by feeling very disappointed with myself."
11.30pm: Ate big bar of chocolate once home (before going to bed)	"May as well as already eaten bad food." "Have completely ruined it anyway." "Have to accept always going to be fat."	"Terrible.....unhappy and annoyed."
7.00am: Skipped breakfast	"Don't want to eat, as ate too much yesterday."	"Anxious and worried."
10.00am: Ate chocolate bar and x2 biscuits	"Not able to resist." "Really need to start healthily eating again, so will start tomorrow."	"Hungry." "Panicked, disappointed, out of control."

CBT TECHNIQUES

As previously discussed, CBT is based on the understanding that an individual's thoughts, feelings and behaviours interact and, as such, there are a variety of skills and techniques that are used within CBT which have the potential to promote a positive change in eating behaviours. Identifying, understanding and then challenging the thoughts that are supporting current eating behaviours, preventing change and/or resulting in eating distress, may play an essential part in establishing and maintaining new eating behaviours. These types of thoughts are commonly referred to as Negative Automatic Thought (NATs) and a simple way to increase awareness of NATs is to encourage a behaviour and thought/feeling record. Table 2 provides an example of a diet related thought/feeling record.

Over time, patterns of negative thoughts can develop, which can be referred to as 'unhelpful thinking styles', or dysfunctional thinking. Table 3 lists some of the common types of dysfunctional thinking that can be barriers to dietary changes.

Referring to Table 2, it is easy to see some unhelpful thinking is evident in the example thought/feeling record provided.

- Catastrophizing - "I have totally ruined it"
- Black and white thinking - "Already eaten bad food"
- Should and must - "I know I shouldn't..."
- Jumping to conclusions - "Never going to lose weight" and "always going to be fat"
- Overgeneralising - "Everyone else was having one"

Once the NATs and unhelpful thinking patterns have been identified, it can be beneficial to challenge these. A simple method of achieving this is to consider the evidence for and against the thought and then establish an alternative (more balanced/less negative thought). This in turn can make changing an eating behaviour more manageable and prevent the cognition acting as a barrier. Referring to Tables 2 and 3, an example could be that once the thought "I am never going to lose weight" (unhelpful thinking style of jumping to conclusions) has been identified and challenged, an alternative more balanced thought might be developed of "it may take longer than I hoped to lose weight whilst eating a healthy balanced diet that includes some high fat and sugar foods". This in turn has the potential to impact on eating behaviours and reduce the risk of over eating.

CBT TREATMENT

Treatment is based around a collaboratively developed formulation that identifies what led to and what is maintaining the problem/difficulty. This facilitates the use of a variety of appropriate skills and techniques to be used to break the cycle, and introduce new and more helpful cognitions and behaviours and alternative positive coping mechanisms. The use of a person-centred approach and good interpersonal skills are essential throughout. Other techniques that might be used include: increasing awareness of problem (through guided

Table 3: Unhelpful thinking styles

Unhelpful thinking style	Description
Mental filter	Focusing on only one part of the situation and ignoring everything else (focusing on just the negative element and ignoring the positive elements).
Jumping to conclusions	Assuming we know what will happen in the future or what someone else is thinking.
Catastrophizing	Blowing things out of proportion and thinking things are worse than they are.
Black and white thinking	Viewing things in extremes (i.e. things are either good or bad, no inbetweens).
Should and must	Unreasonable demands/pressures and setting unrealistic expectations
Overgeneralising	Taking one example and imposing it on all current/future situations (i.e. "I never...", "Everyone...", or "You always...").
Labelling	Global statements based on specific situation (i.e. "I am useless", based on not being able to do a specific task).
Magnifications and minimisation	Concentrating on the positive qualities of others whilst minimising/ignoring own positive characteristics.

self-discovery and self-monitoring), identifying and challenging negative automatic thoughts and unhelpful thinking patterns (as outlined above), development of problem solving skills, stimulus control, contingency management, planning social support, mood management (i.e. mindfulness and distress tolerance), identifying and overcoming barriers, maintaining change and relapse prevention.

CBT is recognised as the leading evidence based treatment for eating disorders³ and a specific enhanced, transdiagnostic and personalised CBT has been developed (CBT-E, Fairburn CG 2008). Additional CBT interventions have also been proposed to promote positive changes to eating behaviours, including third wave CBT interventions (i.e. compassion focused, mindfulness and acceptance and commitment therapy). To date, there are mixed findings and additional research, development and evidence is needed to fully assess efficacy.

CBT can be delivered on an individual basis or in a group setting. Self-help based CBT is also available in book form and computer based learning, although evidence suggests these work best with support from a therapist. The BABCP provides additional information and also a register of officially accredited CBT therapists. Further

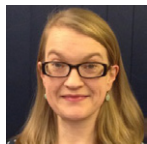
details are available at www.babcp.co.uk and the register is accessible via www.cbtregisteruk.com.

SUMMARY

Changing dietary behaviours can be a difficult and frustrating process, simply providing advice on what and why to make changes does not always result in the desired outcome. A plausible explanation for this is that knowing *what* to do (dietary advice) is very different to knowing *how* to do it (implementing a change in behaviour). CBT has the potential to address the *how* and thus support the process of changing eating behaviours. As an evidence based talking therapy, that combines cognitive and behavioural models, CBT looks at how thoughts, feelings and behaviours interact. A variety of commonly used CBT skills and techniques may aid in changing eating behaviour. CBT-E is the leading evidence based psychological therapy for the treatment of eating disorders and additional theories (including third wave CBT) have also been proposed to promote positive changes in eating behaviour (i.e. mindfulness, compassion focussed and acceptance and commitment therapy). Additional research is needed to fully assess the efficacy of these treatments. Further information is available via the BABCP (www.babcp.co.uk).

References

- 1 Westbrook, Kennerley and Kirk (2007). An Introduction to CBT, Skills and Applications
- 2 Judith Beck (2015). Psychotherapy Networker. Why CBT could be your best weight loss strategy
- 3 NICE guidelines (2004). Eating Disorders: Core interventions in the treatment and management of Anorexia Nervosa, Bulimia Nervosa and related eating disorders



Kate Roberts
Specialist
Paediatric
Diabetes Dietitian,

Kate is currently a Specialist Paediatric Diabetes Dietitian for County Durham and Darlington NHS and also works as a Freelance Dietitian. She has a wide range of clinical experience of working with adults and children.

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

PAEDIATRIC DIABETES: THE JOURNEY OF CARE FROM A DIETETIC PERSPECTIVE

There are nearly 3.6 million people in the UK who have been diagnosed with diabetes.¹ In 2013/14 there were approximately 31,500 children (under 19 years) with diabetes in the UK.

That was broken down into: 95.1% Type 1 diabetes; 1.9% Type 2 diabetes and 2.73% maturity-onset diabetes in the young (MODY), Cystic Fibrosis related or an undefined diagnosis.² The following article outlines the journey that patients should go through and what is considered best practice.

Unfortunately, although the UK has the fourth highest number of under 19-year-olds with diabetes in Europe, it is one of the worst performing in terms of blood glucose control.³ Therefore, the guidelines for managing children and young people were revised and in 2011 the Best Practice Tariff (BPT) was introduced.⁴

DIAGNOSIS

Typical characteristics of Diabetes include: hyperglycaemia, polyuria, polydipsia, weight loss and excessive tiredness. Type 1 diabetes should always be assumed in children and young people unless there is a strong indication of Type 2 diabetes, monogenic or mitochondrial diabetes.⁵

Type 2 diabetes should be considered if the child is obese at presentation, has a strong family history of Type 2 diabetes, is of black or Asian origin or has minimal or no insulin requirements. It is still rare, but as obesity is increasing in children, incidences will unfortunately continue to rise.⁵

Other types of diabetes are rare and include monogenic, mitochondrial or insulin resistance syndromes. These should be suspected if diabetes occurs in the first year of life, or when ketones are not present during hyperglycaemia. There are also other features including deafness, eye problems or other systemic syndromes.⁵

Diabetes should be confirmed using the criteria shown in table 1.

All children and young people with a suspected diagnosis of diabetes should be referred immediately to a specialist multidisciplinary team to confirm the diagnosis and commence treatment.⁵

A specialist paediatric diabetes multidisciplinary team (MDT) must

Table 1: 2006 WHO recommendations for the diagnostic criteria for diabetes and intermediate hyperglycaemia⁶

Diabetes	
Fasting plasma glucose	≥7.0mmol/l (126mg/dl) 2-h plasma glucose* or ≥11.1mmol/l (200mg/dl)
Impaired glucose tolerance (IGT)	
Fasting plasma glucose	<7.0mmol/l (126mg/dl) 2-h plasma glucose* and ≥7.8 and <11.1mmol/l (140mg/dl and 200mg/dl)
Impaired fasting glucose (IFG)	
Fasting plasma glucose 2-h plasma glucose** and (if measured)	6.1 to 6.9mmol/l (110mg/dl to 125mg/dl) <7.8mmol/l (140mg/dl)

* Venous plasma glucose 2-h after ingestion of 75g oral glucose load

** If 2-h plasma glucose is not measured, status is uncertain as diabetes or IGT cannot be excluded

Table 2: Blood glucose targets⁵

Time of day	Plasma glucose level
Waking (fasting)	4-7mmol/litre
Before meals	4-7mmol/litre
After meals	5-9mmol/litre
When driving	At least 5mmol/litre

include the following healthcare professionals: a consultant diabetologist, paediatric diabetes specialist nurse, specialist dietitian and a mental health professional with an understanding of diabetes, such as a clinical psychologist.

TREATMENT

Goals of treatment:

- To prevent short-term problems such as hypoglycaemia, hyperglycaemia and ketoacidosis.
- To prevent complications in later life including neuropathy, nephropathy, retinopathy and cardiovascular disease.

The diabetes team encourage children and young people to aim for normoglycaemia which is a glycated haemoglobin (HbA1c) of 48mmol/mol (6.5%) or lower.⁵

These targets are ambitious and require aggressive treatment. The DCCT trial in 1993⁸ found that intensive treatment improves

outcomes for patients with Type 1 diabetes and slows the progression of retinopathy, neuropathy and nephropathy. Following the end of the DCCT trial, an observational study⁹ tracked 1441 participants for an average of 27 years. This study found that intensive treatment immediately after diagnosis and 6.5 years afterwards is associated with lower all-cause mortality. Basically, the participants had reduced complications and a longer life.⁹

In order to try to reach these targets as soon as possible, children and young people go onto a multi-daily insulin (MDI) regime straight away. They usually have boluses of Novorapid with meals and snacks and Glargine or Levemir as the long-lasting basal insulin. If MDI is not appropriate, children can go straight onto an insulin pump (NICE, 2016). Patients are provided with a smart meter which is programmed to calculate the required amount of insulin needed at mealtimes from the blood glucose levels and the amount of grams of carbohydrate. Plus,

Figure 1: HbA1c as an indicator of diabetes control⁷

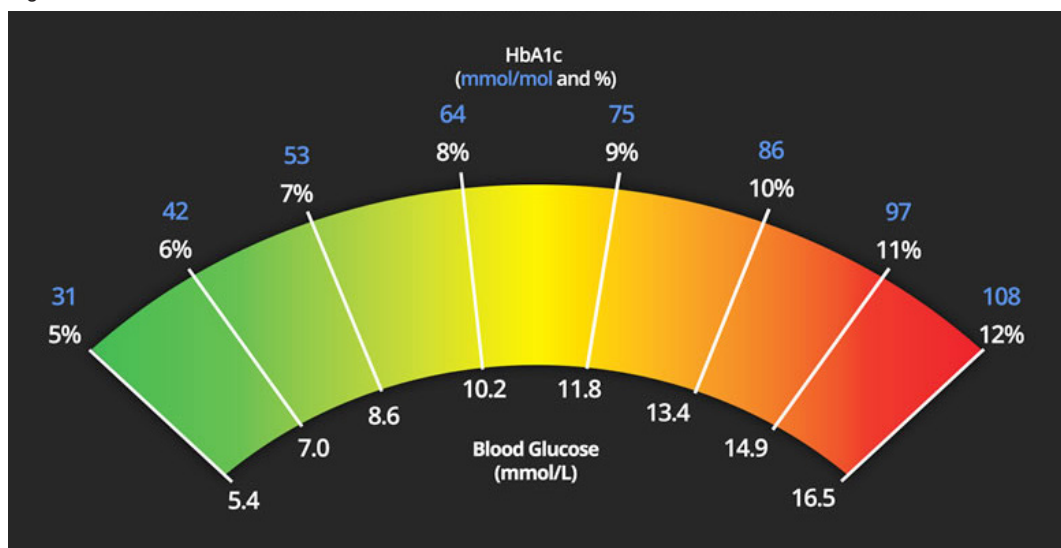


Table 3: Examples of insulin pumps plus features

Accu-Chek Insight (Roche)		• Combined blood test meter, bolus calculator and insulin pump • The handset and pump communicate using Bluetooth to administer insulin • Software available to review progress at home
Animas Pump		• Wired pump • Animas has the lowest increment for insulin • Waterproof • CGM is now possible with a transmitter
Omnipod		• Wireless pump • Pod sits on the skin and stores and administers insulin • Separate handset • No need to disconnect for showers or swimming
Medtronic 'MiniMed system'		• Many advanced features • Continuous glucose monitoring plus automatic cut off when hypoglycaemia sensed • Software available to review at home

they are provided with a ketone meter which is needed, in cases of hyperglycaemia to check for ketones. They are given an insulin:carbohydrate ratio and calculation for correction doses in case of the smart meter failing. It is also useful to be able to estimate amounts of insulin to avoid mistakes. The diabetes team will cover sick day rules and hypoglycaemia treatment. Patients will commence a structured education programme on diagnosis and will be followed up on discharge.¹⁰

New guidelines state that all patients should be offered support from a psychologist or other mental health professional.⁵ All children and young people and their carers have access to 24-hour help and support from their diabetes team and will be given telephone numbers before they leave hospital.

INITIAL DIETETIC INPUT

Whilst the child or young person is still in hospital, it is important for them to meet a specialist dietitian and begin a programme of

education. This often has to be aimed at parents or carers if the child is too young to be able to comprehend the information. However, it is good to involve the child as much as possible even at a very young age.

When children are a bit older, they should have age-banded education sessions. It is important to remember how much support they will need from their carers, especially when it comes to motivation.

At the first contact, it is important to establish current nutritional status and anthropometrics. As it is common for weight loss to occur before diagnosis, weight, height and BMI need to be monitored to ensure appropriate catch-up growth is demonstrated. A diet history of their normal diet is important in order to review nutritional intake, as well as food preferences which can help with further education. Other things to remember are micronutrients, such as vitamin D, calcium and iron as you would with any other child.

Level 3 carbohydrate counting education should be offered straight away. Level 3 is defined as being able to calculate amounts of carbohydrate in foods by using different techniques and to then match insulin amounts to carbohydrates by using an insulin:carbohydrate ratio.¹¹ Ratios and basal amounts will change rapidly after diagnosis and, therefore, it is important for families to keep in regular contact with their Paediatric Diabetes Specialist Nurse.

INSULIN PUMPS

One of the biggest differences between adult and paediatric diabetes is the greater use of insulin pumps. Insulin pump therapy or 'continuous subcutaneous insulin infusion' (CSII), is considered in children below the age of 12 years if MDI insulin regimes are not practical or appropriate, and in children over 12 if they are having 'disabling hypoglycaemia' when reaching the desired HbA1c level, or they cannot reach the desired HbA1c level despite their best efforts.¹² There are four main models which are outlined below. They generally work in a similar way to each other, despite different nomenclature, and give a small amount of Novorapid continuously as a basal insulin. A benefit over MDI regimes is that the basal rate can be altered at different times of the day to improve glycaemic control. Boluses can be given to cover meals and snacks and can be given in full, or extended over a time frame and split to suit different meals. There are pros and cons to insulin pumps and they do not suit everybody.

FOLLOW-UP

The best practice tariff (BPT)¹⁰ is an annual payment to cover care as an outpatient and starts from the child's discharge from hospital following diagnosis. The aim is to 'enable access to consistent high quality management of diabetes'. All patients should be offered the following:

- a structured education programme;
- a minimum of four MDT clinic appointments per year with four HbA1c measurements;
- a minimum of eight additional contacts from the team;
- at least one additional appointment with a specialist paediatric diabetes dietitian;
- annual retinopathy screening;

- to be annually assessed as to whether psychological support is required;
- a good transition to adult care.

There are further criteria that the team should adhere to, such as taking part in the National Paediatric Diabetes Audit and having a high HbA1c policy.

Dietetic follow-up

Specialist dietitians are usually part of the quarterly MDT clinic appointment and, therefore, are on hand for any questions or education when required. It is also important, as outlined by the BPT guidelines, to offer an additional dietetic review at least once a year. A dietetic educational programme to follow can act as a prompt at these reviews.

Dietitians are key to ensuring holistic care and a focus on food. Carbohydrate counting education is very important to build upon, as well as glycaemic index, healthy eating and any other nutritional issues such as coeliac disease. The child's growth should also be monitored at each MDT clinic review. Any concerns can, therefore, be addressed in a timely fashion. Dietitians also liaise with other agencies such as nurseries and schools to provide education and advice on carbohydrate counting.

CONCLUSION

The evidence base shows that targets for children and young people need to be ambitious and diabetes therapy has to be intensive to meet normoglycaemia.⁹ However, children and young people have a supportive specialist team and regular contact. Specialist dietitians play an integral part of the Specialist Paediatric Diabetes MDT as experts in nutrition, food composition and growth. As well as the clinical input, children and young people also have psychological support to reduce the burden of having a long-term condition, help with motivation and to focus on their mental health.

Further information for children and young people on the diabetes care they should expect, can be obtained from Diabetes UK: Type 1 Essentials for children and young people: www.diabetes.org.uk/Documents/campaigning/type-1-essentials/type-1-essentials-0313.pdf

THIS IS HUGE

After months of coping with the sleepless worry and heartbreaking cries of his cow's milk allergy, suddenly, a little moment like this doesn't seem so little after all.



- Proven efficacy – hypoallergenic and has been shown to relieve symptoms^{1,2}
- Proven to be well tolerated – 96% of infants tolerated Similac Alimentum³
- Palm oil and palm olein oil free – supports calcium absorption and bone mineralisation⁴

SIMILAC ALIMENTUM. FOR BIG LITTLE MOMENTS.

REFERENCES: 1. Sampson HA et al. *J Pediatr* 1991;118(4): 520-525. 2. Data on file. Abbott Laboratories Ltd., 2013 (Similac Alimentum case studies). 3. Borschel MW and Baggs GE. *T O Nutr J* 2015;9:1-4. 4. Koo WWK et al. *J Am Coll Nutr* 2006;25(2):117-122.

IMPORTANT NOTICE: Breastfeeding is best for babies, and is recommended for as long as possible during infancy. Similac Alimentum is a Food for Special Medical Purposes and should be used under the supervision of a healthcare professional.

Date of preparation: July 2015
RXAN1150143

Appetite for life

Abbott



Kathryn Cockerell
Paediatric Dietitian
Children's
Therapies, Dorset
County Hospital

Kathryn is Paediatric Dietitian with a special interest in food allergy, gastrointestinal conditions, and obesity. She previously worked as a research dietitian for the LEAP (Learning Early About Peanut) Study.



Kathryn's article for **NHD** has been peer reviewed by Dr Rosan Meyer, Paediatric Research Dietitian, Honorary Senior Lecturer, Imperial College, London and Chair of the BDA Food Allergy and Intolerance Specialist Group.

For full article
references
please email
info@
networkhealth
group.co.uk

PAEDIATRIC FOOD ALLERGY: A GUIDE FOR THE NON-SPECIALIST DIETITIAN

Published prevalence data indicates that food allergy is increasing worldwide and resulting in significant morbidity, impact on quality of life and costly medical intervention.¹

In clinical practice across the UK, food allergy often presents in a community or primary care setting where levels of knowledge vary greatly amongst health professionals.²⁻⁴ This article aims to provide a guide for the non-specialist dietitian in the effective assessment, diagnosis and management of the food allergic child, but could also be used by other primary care health professionals.

Adverse reactions to food can involve several different physiological

mechanisms. A food allergy is an adverse reaction to food that is caused by an inappropriate immune response involving: (A) a type of antibody called Immunoglobulin E (IgE-mediated), (B) non-IgE mediated involving other immune cells e.g. t-cells (cell-mediated), or (C) a mixture of both. There are numerous presentations of food allergy with distinct and overlapping clinical features (a summary is provided in Table 1).

Table 1: Summary of clinical features of IgE and non-IgE mediated reactions⁵

Immuno-pathology	Disorder	Clinical features	Typical age group
IgE	Pollen Food Syndrome	Pruritus, mild oedema confined to oral cavity	Onset after pollen allergy established
	Acute Urticaria/angioedema	Triggered by ingestion or direct contact	Child
	Rhinoconjunctivitis/asthma	Accompanies food-induced allergic reaction but rarely an isolated symptom	Child
	Gastrointestinal symptoms	Acute nausea, vomiting, abdominal pain, diarrhoea triggered by food ingestion	Any age
	Anaphylaxis	Rapid, progressive multi-system reaction	Any age
	Food dependent, exercise-induced anaphylaxis	Anaphylaxis only if food ingestion is followed temporally with exercise	Late childhood
Mixed IgE/Cell	Atopic eczema	Associated with food in 30-40 of children with moderate to severe eczema	Infant, child
	Eosinophilic gastrointestinal disorders	Symptoms vary depending on the site of the intestinal tract involved and degree of eosinophilic inflammation	Any age
Cell	Dietary protein-induced proctitis/proctocolitis	Mucus-laden, bloody stools in an infant	Infant
	Food protein-induced enterocolitis syndrome (FPIES)	Chronic exposure: emesis, diarrhoea, poor growth, lethargy Re-exposure after restriction: emesis, diarrhoea, hypotension a couple of hours after ingestion	Infant

Table 2: Allergy relevant NICE guidance (www.nice.org.uk)

Clinical knowledge summaries	Cow's Milk Protein Allergy in Children (June 2015)
Guidelines	Atopic Eczema in under 12s: diagnosis and management (CG57)
	Gastro-oesophageal reflux disease in children and young people: diagnosis and management (NG1)
	Food Allergy in Under 19s: Assessment and Diagnosis (CG116) Previously called: Food allergy in children and young people: Diagnosis and assessment of food allergy in children and young people in primary care and community settings

Non-allergic adverse reactions to food can be caused by an intolerance, for example, a deficiency in the lactase enzyme in lactose intolerance,⁶ or by a pharmacological response to a chemical component in the food, for example, salicylate or sulphites.⁷ Symptoms often overlap between conditions which can make differential diagnosis challenging; however an allergy focused history will help in distinguishing between the two.^{8,9}

RECOGNISING FOOD ALLERGY

A 2006 Department of Health (DoH) report, *A review of services for allergy*,⁴ identified a significant variation in the provision of allergy services across the National Health Service (NHS) and gaps in the knowledge and skills of staff dealing with allergy, particularly in diagnosis.² The National Institute for Health and Care Excellence (NICE) has published guidance to support clinicians in the appropriate management of allergic disease (Table 2). NICE Clinical Guideline 116, *Food allergy in under 19s*,⁸ was developed in response to the recognition of the variation in practice for allergy care. Aimed at primary care professionals, the guideline sets out both a care pathway and a quality standard (QS118) for the diagnosis, assessment and management of food allergies. NICE recommends the consideration of food allergy in children with symptoms of the skin and gastrointestinal systems (including moderate to severe eczema, reflux or other gastrointestinal symptoms, including chronic constipation) that fail to adequately respond to standard treatment. An allergy focused clinical history and physical examination is the fundamental clinical tool upon which any further investigations will build. Further, they recommend that an allergy-

focused clinical history should be taken by a health professional with competence in allergic disease.⁸

Despite this, anecdotally, parents continue to report several encounters with health professionals before an allergy diagnosis is made and a mean delay of over two months between first GP appointment and diagnosis.²

DIAGNOSING FOOD ALLERGY

Oral food challenges are used to monitor allergic status, confirm a diagnosis, or test for tolerance. The gold standard test for food allergy is the double-blind, placebo-controlled food challenge (DBPCFC), but this is resource intensive and tends to be used mainly in the research setting.¹⁰ Open food challenges are more commonly used in the healthcare setting and can be performed by properly trained professionals with access to emergency medication and resuscitation equipment in the event of a reaction. Procedures for managing an oral food challenge have been written by EAACI and the PRACTALL consensus.^{11,12}

In clinical practice, the allergy focused clinical history together with several important supportive diagnostic tools are the mainstays of diagnosis. These include, specific IgE (sIgE) tests which are blood tests looking for antibodies to food proteins (sometimes referred to as RAST tests), skin prick tests (SPT), which look for skin mast cell activation by exposure to food proteins and the elimination and reintroduction diet, which looks for a reproducible link between food and symptoms.

THE ALLERGY-FOCUSED CLINICAL HISTORY

The most important tool in the diagnostic tool box is the allergy-focused clinical history. The right

Table 3: Components of an allergy-focused clinical history (adapted from CG116)

Personal history of atopic disease, e.g. asthma, eczema, or allergic rhinitis
Family history in parents or siblings
Details of any foods avoided and why
Presenting symptoms that may be associated with food allergy
Age when the symptoms first started
Speed of onset of symptoms
Duration of symptoms
Severity or reaction
Frequency of occurrence
Setting of the reaction
Reproducibility of symptoms on repeat exposure
Which foods and how much
Cultural and religious factors of food choices
Who raised concern regarding food allergy
What is the suspected allergen
Feeding history
Previous treatments and response
Previous eliminations and reintroductions
Growth assessment and physical signs of malnutrition
Signs of allergy-related comorbidities

questions asked by a knowledgeable professional can be diagnostic.⁹ There are resources to support health professionals in taking an allergy-focused clinical history; for example, NICE lists recommended components (Table 3).⁸ The European Academy of Allergy and Clinical Immunology (EAACI) has developed a comprehensive tool for taking an allergy-focused diet history.⁹

SKIN PRICK TESTING, SPECIFIC IgE AND FOOD ELIMINATION

Allergy tests should not be used to diagnose food allergy independent of a relevant clinical history. SPT and sIgE are the only validated tests for food allergy. They are useful in diagnosing an IgE-mediated or mixed allergy with some IgE involvement, but they can be difficult to interpret without specialist knowledge and are not useful for non-IgE-mediated food allergy. These tests look for sensitization to a food, e.g. the presence of IgE antibodies, and not clinical reactivity. Sensitization can be present in clinically tolerant individuals and the clinically intolerant may have unconvincing or negative test results.

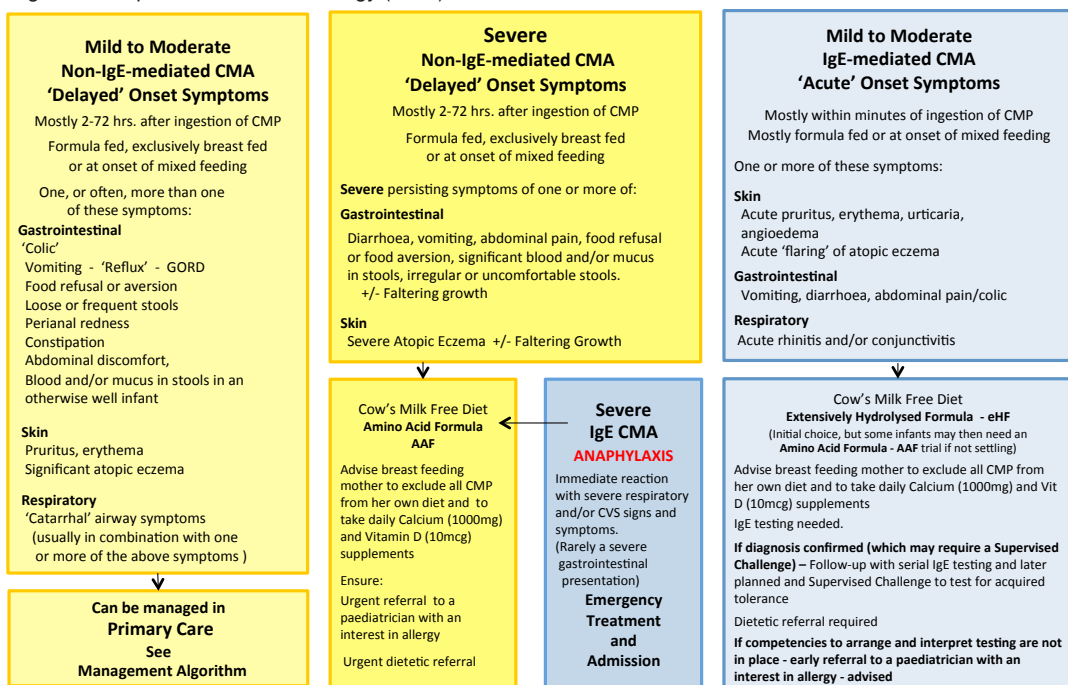
The allergy-focused clinical history provides the context for interpreting the results of skin prick tests (SPT) and blood tests (sIgE) and provides clues as to the type of allergy, the severity and the foods involved.¹³ Often, diagnosis of food allergy is made on the basis of a food elimination diet, whereby the suspected food allergens are removed from the diet on the basis of history, with or without supporting SPT or sIgE tests. If symptoms resolve after exclusion of the food for two to four weeks, diagnosis is confirmed by return of symptoms on reintroduction of the food.¹⁴

OTHER TESTS

There are commercially available tests that purport to diagnose food allergy or intolerance. Some such tests measure antibodies of particular types in the blood and though they may provide an accurate measurement of such, the results are either not clinically relevant to food allergy, or are difficult to interpret without specialist knowledge. Tests that measure IgG/IgG4, an antibody thought to be involved in the induction of tolerance to food, are commercially available and marketed to diagnose food allergy; but, NICE, EAACI and the British Society for Allergy and Clinical Immunology (BSACI) recommend against the use of such tests because these antibodies are not useful in the diagnosis of food allergy or intolerance.^{15,16} Concerns have been raised by professional bodies about the marketing of these tests; however, regulation of these products is poor, so healthcare professionals need to be aware of their poor reliability. Atopy patch testing is a method used often in the assessment of contact allergy and is used by some practitioners to identify delayed food allergies. Sensitivity and specificity of patch testing is low, and therefore this is also not recommended for testing for food allergy.¹⁷

Other tests, including hair analysis, Vega testing and applied kinesiology are not valid, producing results that are no better than chance at diagnosing food allergy or intolerance.^{18,19} Often, these tests identify long lists of food to be avoided and can result in the inappropriate exclusion of food from the diet. Not only do such tests provide false and misleading information to the patient, but they add to the misinformation and

Figure 1: Suspected Cows' Milk Allergy (CMA) in the 1st Year of Life



Source: Milk Allergy in Primary Care (MAP) Guideline (2013)

scepticism that true allergy sufferers encounter in the wider public domain. Patients can often be resistant to accepting that these alternative tests are worthless, particularly when these tests can be quite costly. The BDA Food Fact Sheet *Allergy and Intolerance Testing* (www.bda.uk.com/foodfacts/AllergyTesting.pdf) is a patient-friendly resource, useful educating on the problems with allergy and intolerance testing.

MANAGING FOOD ALLERGIES

First presentations

Very often, the first presentation of food allergy occurs in the young infant when formula is introduced, or through milk proteins in mother's milk. Midwives and health visitors are best placed to support parents of children with suspected cows' milk protein allergy, as they are in regular contact with these children at the time of presentation. The 2013, Milk Allergy in Primary Care (MAP) Guideline was produced to provide guidance on the diagnosis and management of cows' milk protein allergy in primary care. It provides information about assessing the symptoms of cows' milk protein

allergy, the appropriate use of hypoallergenic formulas, how and when to attempt to reintroduce cows' milk and when to refer-on for more specialist advice, including to a dietitian. A new version of these guidelines are due to be released within the first quarter of 2017, but the current version is available online at www.cowsmilkallergyguidelines.co.uk.

For a patient-friendly resource on choosing an appropriate infant milk, check out the BDA resource 'Suitable milks for children with cows' milk allergy' at www.bda.uk.com/foodfacts/CowsMilkAllergyChildren.pdf.

Breastfeeding

Food proteins from the mother's diet transfer in breast milk.^{20,21} Whilst sensitization to a food protein requires a prior exposure to the food, sensitization can occur in utero, through breast milk and through non-gut exposure (e.g. skin, airways) after birth. Breastfeeding should be promoted as far as possible in an allergic infant, where the first step would be elimination of the suspected allergen from the mother's diet for up to four weeks. If symptoms resolve,

the food must be reintroduced to verify the diagnosis. Cows' milk protein is the primary allergen, but any major food allergen can be a problem. A systematic approach to the elimination and to the reintroduction is key to getting the diagnosis right and preventing the unnecessary exclusion of foods. It is important that breastfeeding mothers with food allergic children are supported with the process and to achieve nutritional adequacy.

The presence of eczema is a significant risk factor for egg and milk allergy, so breastfeeding mothers may find that their child's eczema improves if they exclude these foods from the diet.²² The exclusion of dairy products from a mother's diet risks deficiencies of calcium and other nutrients which need replacing through fortified foods or supplements. Exclusion of egg in the diet is unlikely to lead to nutritional deficiencies unless there are multiple food exclusions, or vegetarian diets, in which case dietetic input should be offered.

It is not uncommon for the first presentation of food allergy to be when Mum decides to move on

from breastfeeding and introduces an alternative milk, either exclusively or as a top up. The MAP guideline provides advice on the type of milk to consider. Soybean allergy is seen in IgE-mediated and more commonly in non-IgE mediated milk allergy. Views on the prevalence of co-existing milk and soybean allergy differs by country, but is sufficiently common to be an important consideration when choosing alternative infant milks.²³ The use of soya formula is not recommended as first line in children diagnosed with cows' milk protein allergy, or as a sole source of nutrition under six months. Soya alternatives can be useful weaning foods and there is no clinical reason to delay their introduction in the absence of symptoms. Hypoallergenic formulas can be used for allergic children up to two years old, particularly if there are concerns about growth or diet quality. For babies over a year old and growing well with a varied diet, calcium and vitamin fortified milk alternatives can be offered. Rice milk is still not recommended for children under four and a half years old due to the arsenic content.²⁴⁻²⁶

koko[®]
Dairy Free

Just like Yogurt...but Dairy Free

Our new dairy free yogurt alternatives taste surprisingly like dairy yogurts but are dairy, soya, gluten and nut free. They are also fortified with calcium and vitamins D2 and B12. They help adults, children and babies who have issues with allergens or have to follow a protein restricted regime to eat a more normal, balanced diet. And of course they are great for everyone else too!

Made from freshly pressed coconut cream for a silky smooth creamy texture and fermented with live dairy free yogurt cultures, these delectable pots have the true taste of yogurt.

Available in plain and 4 delicious fruit varieties, they are available from Asda, Morrisons, Ocado and independent health food shops.

Koko Dairy Free – no sacrifice alternatives to dairy.

www.kokodairyfree.com

NEW

koko[®]
Dairy Free
Original Plain
PLAIN DELICIOUS
ADDED CALCIUM + Vit D & B12

Vegan

Vegetarian Society APPROVED

GLUTEN FREE

CLUK-M-123

Cows' milk protein allergy and lactose intolerance

There remains confusion regarding the difference between cows' milk protein and lactose intolerance. Lactose intolerance in infants is uncommon and when it does occur, it usually follows an insult to the gastrointestinal tract such as that which occurs in gastroenteritis. This is usually a temporary intolerance to the milk sugar lactose. It occurs due to an insufficiency of lactase enzyme on the intestinal brush border, leading to malabsorption of lactose, resulting in intestinal bacterial fermentation causing diarrhoea, nausea, wind and abdominal pain. It does not induce eczema, hives or respiratory symptoms, but the gastrointestinal symptoms can be difficult to distinguish from cows' milk protein allergy. The use of a lactose-free formula is not recommended in most cases, as the presence of lactose will help to re-establish lactase levels at the brush border. In older children previously tolerating milk, who develop a dose-dependent difficulty with milk or milk products, lactose intolerance is worth considering.⁶

Weaning

Parents often ask for advice regarding which foods are appropriate to introduce into the weaning diet and when. Research into the development of allergic conditions has been shedding new light on some of these questions. The LEAP and EAT studies were two Randomised Controlled Trials investigating the early introduction (from four months of age) of peanut (LEAP) and multiple high allergenic foods (EAT) on prevention of food allergy in young children. One of the important takeaway messages from both of these studies is that the early introduction of peanuts and egg was associated with a reduction in early atopic presentation and sensitization.

Currently the UK still follows the World Health Organisation (WHO) guidelines of exclusive breastfeeding until six months with starting complementary feeding at this age. The early introduction of foods (before six months of age) is at odds to this recommendation and new weaning advice for the UK and from EFSA is expected in 2017. Recently, the US announced a change to weaning recommendations regarding the timing of peanut introduction, citing evidence from the LEAP study.²⁷ Health professionals should advise parents that there is no evidence for

the delayed introduction of any food as a strategy for the prevention of food allergy beyond the six months recommended by the WHO.^{28,29}

In children and young people, the most common allergenic foods are cows' milk, hen's egg, peanuts, wheat, soy, shellfish, fish, sesame, kiwi fruit and tree nuts,³⁰ though an allergy can occur to any food. 2014 European Union food labelling regulations mandate the labelling of 14 allergens: cows' milk, egg, gluten-containing cereals including wheat, soy, molluscs, crustaceans, fish, peanut, tree nuts, soy, celery, mustard, lupin and sulphites.³¹

GROWING UP AND OUT OF FOOD ALLERGY

It can be difficult to know when a child is no longer allergic to a food. Often it is the history that provides some clues, an accidental exposure with no reaction for example. Deciding when it is appropriate to reintroduce a food and under what conditions will vary depending on the type of allergy as well as the history and severity of reactions. For IgE-mediated allergies, evidence of an improvement in sensitization is often sought prior to attempted reintroduction. For these children, an oral food challenge is often required to safely determine tolerance to a food when blood or skin tests suggest that the allergy may have resolved. For some non-IgE-mediated reactions, a stepwise, gradual reintroduction can be done at home using a controlled, incremental dose of protein and a systematic process. The Milk Ladder is a useful tool for supporting the gradual reintroduction of milk into the diet of non-IgE-mediated cows' milk protein allergy.^{32,33}

There is evidence that exposure to small amounts of food protein can potentially help with resolving food allergy.^{32,33} Although there are research studies looking at food protein desensitisation in IgE-mediated food allergy; this is not something that should be done outside the research setting as the risk of anaphylaxis remains high.

REFERRING ON

NICE CG116 and the MAP guideline provide clear guidance on when it is appropriate to refer a child on for further input. Ideally primary care health professionals involved in the treatment of children should be aware of the services available in their areas and how to refer. Whilst

Table 4: Dietetic resources for allergy

Resource	Application
BDA Food Fact Sheets: Milk Allergy Food Allergy and Intolerance Food Allergy and Intolerance Testing Pollen Food Syndrome Suitable milks for children with cow's milk protein allergy	Concise and readable patient education materials, Free to download by the public www.bda.uk.com/foodfacts
Allergy Diet Sheets (dietitians only):	Free downloadable resources for the dietary management of food allergies www.bda.uk.com/regionsgroups/groups/foodallergy/diet_sheets
Allergy Diet Sheets (NDR-UK)	www.ndr-uk.org/
Further training	BDA Cows' Milk Protein Allergy Competency-based course, Allergy Academy and Academy Paediatric Gastroenterology Study Days (advertised through BDA Specialist Groups for more information go to www.bda.uk.com/regionsgroups/groups/home)

an allergy to a single food with symptoms involving a single system, e.g. skin or gut, does not require specialist input, more dangerous reactions, multiple food allergies, multi-system symptoms, or where symptoms persist despite routine care, it is important that the child be referred for specialist assessment.³⁴

DIETETIC INPUT INTO FOOD ALLERGY:

- 1 Assessment of growth
- 2 Nutritional adequacy of the diet; nutrients at risk due to exclusion
- 3 Understanding food allergy mechanisms and associated risks
- 4 Support for food exclusion for diagnostic and management purposes
- 5 Support for home challenge and home reintroduction
- 6 Help with locating alternatives to excluded foods
- 7 Advice on fortified foods or nutritional supplements where necessary
- 8 Meal and recipe ideas suitable for the allergic child and the rest of the family
- 9 Help with locating stockists of suitable food
- 10 Help with useful websites and apps to help with recipes, shopping
- 11 Myth busting inappropriate advice and alternative testing and treatments
- 12 Support for managing fussy eating
- 13 Identification of clinical or social issues around food that would benefit from further input
- 14 Advice on appropriate strategies for managing the food allergy, reinforce medical advice on managing rescue medications, managing risk, reading food labels, going out to eat and going on holiday

REFERRING TO A DIETITIAN

NICE recommends that children with IgE-mediated allergy to more than one food, or with suspected non-IgE-mediated food allergy be referred to a dietitian with relevant competencies in allergy. There are specific areas of input set out by NICE which are particularly well suited to the dietetic profession and should be considered core competence in community-based paediatric dietetic services. Supporting a child and family through the process of identifying food allergies is important; however, it is what we can offer after the diagnosis that differentiates dietetic input from that of the other health professionals involved in managing the allergic child.

The availability of the MAP guidelines provides an excellent resource for the competent management of cows' milk protein in primary care. The NICE guidelines provide a good clinical framework for the assessment of allergic status in children and young people, helping to identify those who can be safely managed in primary care and those who require more specialist input and or dietetic support. Dietitians have an important role to play in the management of food allergy. Our skill mix positions us to be able to take on more responsibility together with the multi-disciplinary team and other health professionals, to provide better food allergy care for children and young people.

For more information and patient-friendly resources see Table 4.

BREASTFEEDING IS BEST FOR BABIES



Why consider a goat whole milk formula?

Cow's milk is commonly used to manufacture infant formula, generally because it is the most widely available source



NANNYcare is made from whole goat milk - now fully approved for use in infant formula



Approved since March 2014

Goat milk based formulas have been approved for use with infants since March 2014. The approval was based on a long-term growth study in infants with the NANNYcare formulation - Zhou et al (2014)¹.

Easy to digest

The Goat milk itself has certain features which are more similar to human breast milk, such as forming a softer casein curd (than cow's milk)^{2,3} which assists digestion. Because of these differences, casein-dominant (20:80) or goat 'whole' milk formula is equivalent to whey adjusted cow's milk formula and is suitable for use from birth¹.

A goat milk formula may simply suit some babies better

0800 328 5826 | enquiry@nannycare.co.uk | nannycare.co.uk

IMPORTANT NOTICE: Breastfeeding is best for babies. Breast milk provides babies with the best source of nourishment. Infant formula milk and follow on milks are intended to be used when babies cannot be breast-fed. The decision to discontinue breast feeding may be difficult to reverse and the introduction of partial bottle-feeding may reduce breast milk supply. The financial benefits of breast feeding should be considered before bottle feeding is initiated. Failure to follow preparation instructions carefully may be harmful to a babies health. Infant formula and follow up milks should be used only on the advice of a healthcare professional. **Goat milk formula is not suitable for a cow milk protein allergy except under the supervision of a suitably qualified health care professional.**

REFERENCES: 1. ZHOU et al (2014) Nutritional adequacy of goat milk infant formulas for term infants: a double blind randomised controlled trial. British Journal of Nutrition 111: No. 9 1641-1651. 2. STORRY, J.E., GRANDISON, A.S., MILLARD, D., OWENA, A.J. and FORD, G.D. (1983) "Chemical composition and coagulating properties of renneted milks from different breeds and species of ruminant". Journal of Dairy Research 50(2): 215-229. 3. PARK Y.W., et al 2007. "Physio-chemical characteristics of goat and sheep milk". Small Ruminant Research 68(1-2): 88-113.



Carrie Ruxton
PhD, Freelance
Dietitian, Cupar,
Scotland

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

For full article
references
please email
info@
networkhealth
group.co.uk

GOAT MILK ACROSS THE AGE SPECTRUM

Humans have used animal milks to supplement their diets for thousands of years. Goat milk was one of the earliest sources of dairy foods, but has now been overtaken by cows' milk in developed countries due to the relatively lower costs of production and higher milk yields.

While goat milk remains a niche product, its reach extends to drinking milk, cheese, kefir and infant formulae, making it an interesting and worthwhile topic for healthcare professionals.

Goat milk (GMk), or caprine milk as it is also called, has many similarities to cows' milk (CM), but there are also important differences which may impact on digestibility and health. Table 1 presents the nutritional content per 100g for average GMk and CM. Due to the high fluid content of milks, only a few nutrients reach the level at which 'source of' claims can be made. These are calcium, riboflavin and vitamin B12 in CM. No data were available in McCance and Widdowson for the selenium content of GMk, but one report suggests that glutathione peroxidase levels in GMk are higher than in CM.¹ Potassium, iron and vitamin A levels in GMk are also slightly higher.

The main differences relate to the protein types, fat composition and structure, which are believed to affect digestibility. The fat globules in GMk are significantly smaller in size compared with those in CM,² which would, theoretically, enable faster breakdown by pancreatic lipase. Differences also exist in the fatty acid content, with GMk containing a higher proportion of short- and medium-chain fatty acids, notably caproic, caprylic, capric, lauric, linoleic and α -linolenic acids. The first three fatty acids are responsible for the characteristic odour of GMk. The protein content of GMk is slightly lower than in CM with more alpha-S2 casein and less alpha-S1 casein,³ while the structure of the amino acids in GMk caseins and lactalbumin has been noted as different from CM proteins. Finally, a lack of agglutinating protein in GMk prevents cream formation.⁴

Table 1: Nutritional composition of full fat caprine and bovine milks

Per 100g	Caprine	Bovine	Per 100g	Caprine	Bovine
Energy (kcal)	62	63	Iron (mg)	0.12	0.02
Protein (g)	3.1	3.4	Zinc (mg)	0.5	0.5
Fat (g)	3.7	3.6	Vitamin A (mcg)	44	38
Saturated fat (g)	2.37	2.29	Vitamin D (mcg)	0.1	Tr
Carbohydrate (g)	4.4	4.6	Thiamin (mg)	0.03	0.03
Sugars (g)	4.4	4.6	Riboflavin (mg)	0.04	0.23
Potassium (mg)	170	157	Niacin (mg)	0.8	0.8
Calcium (mg)	100	120	Vitamin B6 (mg)	0.06	0.06
Magnesium (mg)	13	11	Folate (mcg)	1.0	8.0
Phosphorus (mg)	90	96	Vitamin B12 (mg)	0.1	0.9

Source: McCance & Widdowson's Composition of Foods integrated database (2015). Highlighted nutrients meet criteria for 'source of' claims.

Experience
goat
milk!

Happy tummy, happy baby

The natural benefits of goat milk




ocado.com
The online supermarket


let's feel good

Kabrita: Milk formulas based on easy to digest goat milk

A growing number of parents consciously choose a follow-on or toddler milk based on goat milk. But what are the advantages of goat milk and why should parents choose Kabrita?

Why goat milk?

Goat milk is naturally easy to digest, contains high levels of important nutrients and has a delicious, mild taste. The unique protein composition in goat milk helps to form a soft curd in the stomach that can easily be broken down by the body. These characteristics make goat milk easy to tolerate and therefore an excellent base for milk formulas.

Why Kabrita?

During the first years babies and toddlers will develop rapidly. To support this rapid development Kabrita follow-on and toddler milks have been reinforced with carefully selected ingredients such as goat whey protein, DHA Omega 3 fatty acids, GOS prebiotic fibre and a special fat blend rich in beta-palmitate. This results in age specific nutrition for happy babies and toddlers.

... it is now well established that goat milk is a suitable base for artificial infant feeding and may offer superior protein and fat profiles compared with cows' milk.



These structural characteristics are believed to improve digestibility but, as yet, the evidence for this is based on animal⁵ and *in vitro* models. In one *in vitro* study,⁶ a two-stage digestion of GMk using human gastric and duodenal juice resulted in the digestion of 77% of the GMk protein within 30 minutes compared with only 17% of the CM protein. Now, further research is required to challenge the 2004 position of the European Food Safety Authority that CM and GMk have similar digestibility.⁷

Other differences between the two types of milk include the higher levels of bioactive compounds in GMk relative to CM, such as nucleotides (the building blocks of RNA and DNA),⁸ polyamines, free amino acids and taurine,⁹ and the fact that GMk is produced by apocrine glands in a similar way to human milk production.

INFANTS AND CHILDREN

Until March 2014, it was not legal to market infant formulae based on GMk protein, but this position was overturned by the European Food Safety Authority in response to new evidence.⁸ Studies were presented in which populations of infants, whose mothers chose not to breastfeed, received CM or GMk preparations. As GMk formula can be manufactured in a specific way to prevent odour, the parents were unaware which type of formula their infants were receiving.

In a double-blind trial of 72 newborn infants in New Zealand,¹⁰ half were randomised to a whole milk-based GMk formula while the other received a standard whey-adjusted CM formula. Growth was not statistically different between the groups after 168 days, but the frequency of bowel movements was slightly higher in those infants fed GMk compared with CM (2.4 vs 1.7; $P < 0.01$).

A similar methodology was used in an Australian double-blind trial,³ where 200 newborn infants were randomised to whole milk-based GMk formula or standard whey-adjusted CM formula. There was also a control group of 100 breastfed infants. After 12 months, no statistically significant differences were seen in weight, length, head circumference, development, or biochemical markers between the two formula-fed groups. There were also no differences in the incidence of serious adverse events, dermatitis or food allergy. Interestingly, blood amino acid levels were similar in breastfed and whole GMk-formula-fed infants, but higher in CM-formula-fed infants, suggesting an excess supply of amino acids in CM. Indeed, data on the nutritional composition of whole GMk show a lower protein content and similarity of nucleotide profiles¹¹ and taurine between GMk and breast milk, indicating that GMk is closer in composition to breast milk than CM. Nucleotides and taurine are often added to CM formulae for this reason.

A further study was a prospective cohort concerning 976 infants in South Korea receiving breast milk, whole GMk formula, standard whey adjusted CM formula, or a combination of formula and breast milk during the first four months of age.¹² Follow ups were conducted at four, eight and 12 months of age to collect data on growth and bowel movements (as reported by the mother). Growth outcomes were similar between infants fed breast milk or either formula. However, there were statistically significant differences in bowel movements, as infants fed CM formula tended to pass fewer and less soft faeces compared with infants given breast milk or GMk formula, suggesting differences between the animal milks.

GMk is not generally recommended for infants and children with confirmed CM allergy, but is frequently used as an alternative for food intolerance or eczema, as there is anecdotal evidence that GMk is better tolerated than CM.¹³ This could be due to the significantly lower levels of alpha-S1 casein,¹⁴ a protein known to trigger intolerance and allergy.¹⁵ GMk also has a slightly lower lactose content than CM, which may improve its acceptability by those with lactose intolerance.¹⁶

While specific allergy to GMk, without the presence of confirmed CM allergy, is a rare disorder,¹⁷ some who are allergic to CM may also experience a reaction to GMk due to cross-reactivity. This is why GMk should not be recommended routinely for infants and children with IgE-mediated CM allergy.¹⁸ However, those with milder intolerances for CM may wish to try GMk under supervision, starting with small amounts. Fermented GMk products, such as kefir or cheese, may also be tolerated. It is worth noting that infants and children typically grow out of milk allergy by five years of age.¹⁸

ADULTS

The lower lactose content of GMk is relevant to adults, since the prevalence of lactose intolerance can be as high as 90% in some populations, particularly those of East Asian descent.¹⁹

The composition of GMk may deliver other digestive benefits according to a new study in rats where epithelial (intestinal) cells were exposed to damage by *E. coli*, a common food-borne pathogen, before being cultured in GMk or a control medium.²⁰

The results suggested that *E. coli* adhesion to cells was significantly lower in the presence of GMk while the viability of the gut cells was greater. The authors concluded that GMk seemed to repair intestinal barrier function induced by *E. coli* damage. Indeed, other studies have reported antibacterial peptides in GMk.^{21,22} It would be interesting to confirm this finding in humans since around 40,000 cases of *E. coli* infection are reported annually in England and Wales.²³

Other bioactive compounds in GMk include oligosaccharides (non-digestible carbohydrates) which have a similar structure to those found in human milk and may promote healthier gut microbiota.²⁴

ELDERLY

A few studies have examined the potential impact of GMk on heart health and immune function which may be relevant to elderly people. An *in vitro* study cultured human peripheral blood mononuclear cells with GMk, or a control, finding that GMk had a greater capacity to produce nitric oxide (a potent vasodilator) and maintain immune homeostasis.²⁵ In a small intervention, 14 healthy elderly people were given GMk or donkey milk for one month during which time their cytokine profiles were tracked.²⁶ Both milks exhibited immunomodulatory characteristics with GMk reducing the exaggerated acute phase response. A recent review²⁷ highlighted the potential benefits of donkey and GMk for immune function and heart health, particularly fermented milk products.

CONCLUSION

GMk remains a non-mainstream product, but is worthy of further study to determine if its unique composition translates into specific health benefits. At the least, it is now well established that GMk is a suitable base for artificial infant feeding and may offer superior protein and fat profiles compared with CM. Anecdotal evidence of improved tolerability and digestion should now be backed up with clinical research, while new information on immunomodulatory and anti-atherogenic effects should also be examined further. The wider availability of GMk products, including those with improved flavour and odour, will be of interest to both HCPs and patients.



Maeve Hanan
Registered
Dietitian
City Hospitals
Sunderland, NHS

INTERMITTENT FASTING DIETS

'Intermittent fasting' involves alternating cycles of eating and fasting without specifying which types of foods can be eaten on non-fasting days. On a fasting day, a person's intake is often limited to non-calorific fluids such as water, tea, coffee and diet drinks, or it may allow a very restricted amount of daily calories.

Maeve works as a Paediatric Dietitian in City Hospitals Sunderland. She also runs a blog called Dietetically Speaking.com which promotes evidence-based nutrition and dispels misleading nutrition claims and fad diets.

For full article
references
please email
info@
networkhealth
group.co.uk

These diets have a strong media presence and have been linked with many celebrities such as Beyoncé, Chris Martin, Ben Affleck and Jennifer Lopez.

There are different types of fasting diets such as:

- the 5:2 diet - limits calorie intake on two days per week to 500kcal per day for women and 600kcal per day for men, and advises the usual recommended daily calorie intake on the five non-fasting days (i.e. roughly 2000kcal for women and 2400kcal for men);
- the 6:1 diet - usual dietary intake for six days per week and a 24-hour fast on one day per week;
- the Eat-Stop-Eat diet - a variation of the 6:1 diet which can include two 24-hour fasts per week;
- the 16:8 diet - fasting for 16 hours per day by consuming all meals within an eight-hour window.

COMMON ARGUMENTS FOR FASTING DIETS

- Our ancestors would have had periods of fasting depending on food availability.
- Some people prefer an 'all or nothing' approach when trying to restrict calories for weight loss compared to a 'moderation' approach.
- Promoters of intermittent fasting report a host of long-term health benefits, such as increased longevity, improved metabolic health, improved weight loss and a reduction in diseases, e.g. heart disease and Type 2 diabetes.

COMMON ARGUMENTS AGAINST FASTING DIETS

- May lead to tiredness, headaches, lack of concentration and poor mood.
- May be dangerous if unsupervised by a medical professional depending on the person's age, medical history and lifestyle.
- Not a very balanced approach, potential to interfere with metabolic rate.
- An overall lack of evidence and no significant differences in outcomes found between more moderate daily restriction and this extreme fasting approach.

But what does the evidence say?

INTERMITTENT FASTING AND WEIGHT MANAGEMENT

Data from randomised control trials up to one year in length have found that there is no difference in weight management outcomes from either eating regularly or intermittent fasting.¹ For example, a recent systematic review reported that although intermittent fasting resulted in significant weight loss (0.2-0.8kg per week), there was no difference in the results when this method was compared to continuous energy restriction when the weekly calorie restriction was similar between groups. Therefore, this study concluded that intermittent fasting 'may be an effective alternative strategy for health practitioners to promote weight loss for selected overweight and obese

An important issue when weighing up the pros and cons of intermittent fasting is whether our meal patterns affect our health . . .



people'.² This is supported by a systematic review by Clifton et al. (2016)³ which found that intermittent fasting and continuous energy restriction produce similar results in terms of weight loss and improvements in cholesterol, blood glucose and insulin levels.

In terms of specific outcomes, Hankey et al (2015)⁴ identified a mean weight loss of 2.6%-8.9% (after one to six months respectively), as well as improvements in blood pressure and insulin levels as a result of intermittent fasting interventions. Interestingly, this systematic review also found that these trials had an average 20% drop-out level; which is relatively low compared to other weight loss interventions which can range from 10%-80%.^{4,5}

However, all of the above studies highlighted that further research is needed and that the longer-term effects of this method remain unclear.²⁻⁴ There is also some evidence which has reported that rather than true weight loss including a loss of fat, fasting can result in a higher loss of intracellular fluid.⁶

INTERMITTENT FASTING AND AGING

A recent systematic review of human studies found that intermittent fasting may improve inflammatory cytokines profile, such as adiponectin:leptin ratio and changes in insulin-like growth factors, which may have a positive effect on aging.⁷ Mattson et al (2016)⁸ also reported that intermittent fasting is involved in the 'activation of adaptive cellular stress response signalling pathways that enhance mitochondrial health, DNA repair and autophagy'. However, overall large scale research in this area appears limited.⁹

THE EFFECT OF MEAL PATTERNS

An important issue when weighing up the pros and cons of intermittent fasting is whether our meal patterns affect our health; does it make a difference if we eat regularly throughout the day or not?

There is a lack of evidence related to meal frequency and subsequent appetite regulation and calorie intake; however, based on small short-term randomised control trials, no significant difference in appetite regulation has been identified when those who eat frequently were compared to those with a more irregular meal pattern.¹⁰

There is some limited evidence from randomised control trials that having fewer meals in the day may increase the metabolic cost of digesting food, as the thermic effect of food (i.e. the energy the body uses above the resting metabolic rate to digest and store food) may be lower when meals are eaten more regularly over the course of a day rather than in one go; although there is not enough evidence to make any practical recommendations based on this.¹¹ Yet, it is interesting to note that there is also a fair level of evidence that skipping breakfast is associated with having a higher BMI and being overweight or obese; although no direct cause and effect relationship can be assumed from this.¹² Skipping breakfast for two weeks has also been found to raise LDL cholesterol and produce insulin resistance in a small study by Farshchi et al (2013).¹³

The body of evidence in relation to cholesterol level and meal pattern has found that eating more regularly can modestly decrease total and LDL cholesterol levels among adults with normal cholesterol levels to begin with; however, the

evidence in those with high cholesterol is more limited and doesn't display this relationship. A limited level of evidence based on data in non-diabetic subjects has also found that a more regular meal pattern improves blood glucose and insulin stability.¹⁴

POTENTIAL RISKS OF FASTING

Although some earlier studies conducted in rodents found that fasting can increase the amount of liver enzymes which metabolise toxins, subsequent investigation found that this was due to liver shrinkage rather than an improvement in enzyme levels and concerns with fasting were identified, such as an increased susceptibility to toxin damage from reduced antioxidant levels present in the liver.¹⁴⁻¹⁶ A review of the evidence related to fasting from PEN (2013)¹⁷ concluded that 'close examination of the evidence regarding the health effects of fasting does not support the denial of eating as a health-promoting activity. In fact, fasting may actually be deleterious to health by increasing insulin resistance, while decreasing important liver detoxifying enzyme functions, muscle mass and body nutrients, and one's ability to work and exercise'. This report also highlights further issues related to fasting, such as a reduction in immune function and an increase in non-dehydration-related headaches.

Similarly, a systematic review by Horne et al (2015)⁹ of the potential health benefits, or health risks, of intermittent fasting found that although a few randomised controlled trials and observational studies have identified benefits from fasting, 'substantial further research in humans is needed before the use of fasting as a health intervention can be recommended'.

CONCLUSION

In terms of weight loss and cardiovascular health, current research indicates that intermittent fasting and continuous calorie restriction seem to produce similar outcomes, so there may be an argument for considering intermittent fasting as a weight loss method, as there is no one universal solution when it comes to weight management. However, if this was to be considered as an option, it would be important to highlight the potential risks related to fasting and low calorie intakes, as well as the overall limited evidence base and uncertainty about the longer-term outcomes of intermittent fasting.

It is interesting to see a potential benefit of intermittent fasting in relation to healthy aging; however more research is also needed in this area.

Similarly, there is a scarcity of evidence when it comes to the effect of meal patterns on health; but it is interesting that although eating breakfast is associated with a healthier weight and a regular meal pattern may encourage better cholesterol and glycaemic levels, at present there does not seem to be enough evidence to suggest that a regular meal pattern improves appetite regulation, or the metabolic cost of digesting food.

Overall, there is quite a lot of contrasting findings in relation to intermittent fasting, but the one common message is that more evidence is needed to examine the effects of this method; in particular longer-term human studies. However, current research indicates that intermittent fasting can be an effective method to promote weight loss, so this may be worth considering for some individuals, while weighing up the pros and cons of intermittent fasting as discussed in this article.



New to Ketogenic therapy? Or needing a refresher course and an opportunity to network with other Ketogenic teams?

**MATTHEW'S FRIENDS WILL BE HOSTING THEIR ANNUAL KETOCOLLEGE PROGRAMME
27TH – 29TH JUNE 2017 FELBRIDGE HOTEL, EAST GRINSTEAD, WEST SUSSEX, UK**

For further details please visit www.mfclinics.com or to register your interest please email: ketocollege@mfclinics.com



Mary O'Kane
Consultant
Dietitian (Adult
Obesity), Leeds
Teaching
Hospitals NHS
Trust

Mary specialises in adult obesity supporting patients through their weight loss journey. She had an instrumental role in the development of national guidance on follow-up after bariatric surgery.

For full article
references
please email
info@
networkhealth
group.co.uk

BARIATRIC SURGERY, NUTRITION AND THE CHALLENGES OF LONG-TERM FOLLOW-UP WITHIN THE NHS

The prevalence of obesity has continued to increase and reached 26% in 2014;¹ 2% of men and 4% of women had a BMI of 40kg/m² or higher and 5% of the population had a BMI between 35 and 39.9kg/m². Although dietary and lifestyle changes are important in tackling weight issues, bariatric (weight loss) surgery is an important treatment option for those with severe and complex obesity.²

Bariatric surgery results not only in weight loss, but in improvement in functional impairment and obesity-related diseases. One year following surgery, two thirds of patients with pre-operative functional impairment could climb three flights of stairs without resting and almost two thirds with sleep apnoea could stop treatment.³ Two years after surgery, two thirds of patients with Type 2 diabetes, who had been able to stop hypoglycaemic medication after surgery, had not yet needed to restart. In recognition of improvement in diabetic control in people with recent-onset Type 2 diabetes, NICE made new recommendations (Table 1).²

The three main laparoscopic procedures in the UK are adjustable

gastric band (LAGB), Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG).³ As it is unknown as to which of these is the most effective for weight loss, health improvements and quality of life, National Institute for Health Research (NIHR) By-Band-Sleeve Study, a multicentre trial, is comparing these three operations and measuring a wide range of outcomes including diabetes, weight change, nutrition and quality of life.⁴ The results are expected in 2025. The Duodenal Switch (DS) and the newer surgical procedure, mini gastric bypass (MGB) are performed less frequently.

In clinical practice, many dietitians will meet patients who have had bariatric surgery, so it is important

Table 1: NICE CG189 Obesity: Criteria for Bariatric Surgery²

Bariatric surgery is a treatment option for people with obesity if all of the following criteria are fulfilled:
• BMI of 40kg/m² or more, or between 35kg/m² and 40kg/m² and other significant disease that could be improved with weight loss. • All appropriate non-surgical measures have been tried but the person has not achieved or maintained adequate, clinically beneficial weight loss. • The person has been receiving or will receive intensive management in a Tier 3 service. • The person is generally fit for anaesthesia and surgery. • The person commits to the need for long-term follow-up.
Additional criteria for people with recent-onset Type 2 diabetes
• Offer an expedited assessment for bariatric surgery to people with a BMI of 35 or over who have recent-onset Type 2 diabetes as long as they are also receiving or will receive assessment in a Tier 3 service (or equivalent). • Consider an assessment for bariatric surgery for people with a BMI of 30-34.9 who have recent-onset Type 2 diabetes as long as they are also receiving or will receive assessment in a Tier 3 service (or equivalent). • Consider an assessment for bariatric surgery for people of Asian family origin who have recent-onset Type 2 diabetes at a lower BMI than other populations as long as they are also receiving or will receive assessment in a Tier 3 service (or equivalent).



Table 2: Recommendations for follow-up of bariatric surgery patients⁸

Patients should have lifelong nutritional monitoring to ensure optimum nutrition is maintained.
• Patients and healthcare professionals should be educated about dumping syndrome and post-prandial hypoglycaemia (PPH). PPH should be further investigated if patient fails to respond to dietary manipulation. • Women should be advised on the potential for increased fertility and have access to preconception counselling and advice on nutritional supplements. Pregnant women require more frequent follow-up with nutritional monitoring being increased to every trimester. • Patients should have an annual review as part of a shared care model.

Table 3: Common features of shared care models⁸

• Patient commits to long term follow-up. • Two-year follow-up by bariatric surgery centre. • GP keeps register of bariatric surgery patients. • Patients receive lifelong annual review (including specialist dietetic review). • Ability for GP to refer back to specialist centre. • Follow-up data submitted to national database.
--

Patients should have an annual review as part of a shared care model

to understand how surgery impacts on long-term nutrition and future care. Nutritional and dietary intake is affected and some procedures (RYGB, SG, DS, MGB) result in malabsorption of micronutrients.⁵ The DS and potentially MGB result in fat and protein malabsorption.⁶ If patients are unable to adhere to dietary guidelines, follow-up and aftercare, or receive the appropriate support, they are potentially at risk of developing nutritional deficiencies, or even protein malnutrition. The assessment and preparation for bariatric surgery is provided in the NHS by the Tier 3 Weight Assessment and Management clinics which have a bariatric physician and specialist dietitian as essential multidisciplinary team members.⁷

POST-OPERATIVE CARE

NHS bariatric surgery centres should offer a minimum of two-year follow-up.⁸⁻⁹ The specialist dietitian plays a key role in this, having the most frequent contact with patients and supporting them in making the dietary and lifestyle changes. After two years, centres are required to discharge patients back to primary care. Unfortunately, the majority of GPs and healthcare professionals,

including dietitians, working in primary care receive little training in this area. This leaves patients vulnerable, at risk and without ongoing support.

The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) recommended that there should be a clear and continuous long-term follow-up plan involving all appropriate healthcare professionals.¹⁰ To improve postoperative care, both the British Obesity and Metabolic Surgery Society (BOMSS) and Royal College of General Practitioners (RCGP) produced guidelines on long-term nutritional monitoring and follow-up in primary care.¹¹⁻¹³ NICE CG189 Obesity added an additional recommendation: ‘After discharge from bariatric surgery service follow-up, ensure that all people are offered at least annual monitoring of nutritional status and appropriate supplementation according to need following bariatric surgery, as part of a shared care model of chronic disease management.’¹² Shared care arrangements for the aftercare of patients undergoing bariatric surgery did not exist and it was not clear how this recommendation would be implemented, despite the BOMSS and RCGP guidelines.

The NHS England Obesity Clinical Reference Group commissioned a dietetic led subgroup to develop follow-up guidelines for the long-term management of patients undergoing bariatric surgery. These were the first guidelines to outline the operational requirements and

Table 4: Models of shared care⁸

Model 1
Patient's care shared between the specialist centre and the GP. GP undertakes annual blood tests and weight checks and submits to specialist centre. Specialist centre undertakes comprehensive assessment including band reviews.
Model 2
GP undertakes annual blood tests and weight checks. Annual nutritional review provided by the Tier 3 dietitian (and referral back to specialist centre if necessary).
Model 3
Patient is followed up by specialist team (usually a local Tier 3 service).
Model 4
Joint follow up is provided in the community by the specialist team and GP.

Table 5: NICE QS127 Obesity: clinical assessment and management⁹

Quality statement 6
People who have had bariatric surgery have a postoperative follow-up care package within the bariatric surgery service for a minimum of two years.
Quality statement 7
People discharged from bariatric surgery service follow-up are offered monitoring of nutritional status at least once a year as part of a shared-care model of management.

pathways for the long-term care of patients who undergo bariatric surgery. They cover the whole of the postoperative aftercare and include 42 evidence-based recommendations.⁸ During the immediate postoperative aftercare, recommendations are made around dietetic input, review of antihypertensive and diabetes-related medications and discharge plan to the GP. Further recommendations are made about both bariatric surgery centre and long-term follow-up. A small selection of the recommendations is shown in Table 2.⁸ Across the UK, easy access to specialist advice and support is variable. Consequently, four different models of shared care are proposed, with the recommendation that clinical commissioning groups commission one of the shared care models. Each of the models contains common features (Table 3); however, they differ in their delivery (Table 4). Full details of the shared care models, including indications for when to refer back to the bariatric surgery centre, are contained in the guidelines and appendices.⁸

NICE QS127 Obesity: clinical assessment and management highlighted high-priority areas for quality improvement in obesity management with QS6 and 7 focusing on follow-up after bariatric

surgery (Table 5).⁹ Further work is needed to ensure that clinical commissioning groups adopt a model of shared care to improve follow-up and aftercare to patients undergoing bariatric surgery. This will require investment as healthcare professionals, including GPs, dietitians, primary care staff, midwives, obstetricians and emergency department staff, need access to training in the management of these patients.

BOMSS are hosting IFSO 2017, London, and have organised a pre-congress study day aimed at dietitians, GPs and other healthcare professionals. Topics will include management of PPH, nutritional deficiencies and shared care models. Further information may be found at www.ifso2017.com, or contact Mary O'Kane.

CONCLUSION

Bariatric surgery aids weight loss and improvement in obesity-related diseases. It is important that patients have access to long-term follow-up to maintain the best outcomes, including good nutritional status. Dietitians, who are experienced in weight management and bariatric surgery, should take a lead role in the annual follow-up as part of a shared care model.



Maria Dow MSc RD
Obesity Specialist
Dietitian, The
Private Surgeon,
Aberdeen

Maria is a registered dietitian with 25 years' experience, 12 of which have been spent specifically in weight management in the primary care and academic sectors. She is currently working as a Freelance Dietitian in the Aberdeenshire area.

For full article
references
please email
info@
networkhealth
group.co.uk

BARIATRIC CASE STUDY

Bariatric surgery is more effective for achieving significant weight loss than non-surgical weight management in patients with BMI >30kg/m². Weight loss is also more likely to be maintained in the long term.¹ The following is a case study of a 47-year-old man who has been through both non-surgical and surgical weight management interventions.

1 ASSESSMENT

Mr X is an obese gentleman who lives with his partner in a rural town in Scotland. He is a lorry driver with limited physical activity. Mr X presented for bariatric surgery privately in August 2015 after several failed attempts to control his weight. At his heaviest, this gentleman weighed over 200kg and BMI >65kg/m².

Mr X felt his health was suffering as a result of his weight. He was getting increased knee pain and cellulitis in his legs. His sleep was disrupted and he was getting up to six times during the night to go to the toilet. Mr X had signs of sleep apnoea, but had never been diagnosed. He was diagnosed with hypertension for which he was prescribed Losartan and his blood pressure is regularly monitored at his GP practice.

Due to this gentleman's high BMI and increased risk of Type 2 diabetes, his blood glucose was also regularly checked. He has no history of diabetes, coronary heart disease, gallbladder disease or gastro-oesophageal reflux disease. Mr X does suffer from Atrial Fibrillation for which he takes Rivaroxaban.

Mr X described himself as having a low self-esteem which he felt was related to his weight. He referred to himself as huge and admitted that he did not feel happy psychologically. He was holding down a full-time job. His weight inhibited his ability to get in and out of his lorry. He spoke about the effort of living and working as a man three times the weight of a 'normal' person who had three times the work to do anything and was three times as tired.

Mr X spoke about the judgements that he had experienced in relation to his weight. He felt his weight and appearance affected his job choices, activities and opportunities at interviews. He has a close network of family and friends who are very supportive of him regardless of weight. He was aware of their concern about his long-term health and welfare as a result of his increasing weight.

2 IDENTIFICATION OF NUTRITION AND DIETETIC DIAGNOSIS

Mr X's GP felt that he needed to lose significant amounts of weight and recognised the need for a more intensive weight management approach and referred him for bariatric surgery on the NHS. National referral criteria states that patients with BMI $\geq 50\text{kg/m}^2$ may be offered bariatric surgery as a first-line option for weight management.²

The number of NHS commissioned bariatric surgery procedures in England has increased over the past 10 years from approximately 470 in 2003/4 to 6,500 procedures in 2010.³ These statistics reflect activity across the UK and represent only 1% of the number of UK patients who would benefit from bariatric surgery.³

When first referred for bariatric surgery, Mr X had a BMI of approximately 65kg/m² and was deemed a high risk candidate and referred to his local NHS weight management group to lose 20% (40kg) body weight through lifestyle measures. Mr X had been successful in losing over 35kg through counting calories in the past, but was unable to sustain this weight loss. Despite his best efforts in the past, on this occasion through his NHS weight management service, he was unable to lose the required 20%.

Achievement of a 40kg weight loss while on a lifestyle-based weight management programme has a low success rate. Published mean weight loss figures at 12 months after completing a commercial weight management programme are 4.4kg and 3.1kg for Weight Watchers and Slimming World respectively.⁴ This can be compared to local NHS weight management support, General Practice and Pharmacy weight management programmes that achieved 12-month weight losses of 3.7kg, 1.3kg and 1.2kg.⁵ In the Counterweight weight management programme, which aimed for 5-10kg weight losses, only 2.1% of patients achieved a 15kg loss at 12 months.⁶ To achieve a 20kg weight loss would require more intensive dietary programmes such as Counterweight plus which uses a low calorie total diet replacement programme coupled with structured food reintroduction and weight loss maintenance. The mean weight loss at 12 months was 12.4kg.⁶ For those who used Xenical at some point, the mean was 15.5kg.⁶ Mr X also tried Xenical in the past to optimise weight loss, but had diarrhoeal side effects and he was unable to persevere. This is common for patients who are not supported in the appropriate use of Xenical alongside a structured weight management programme.

Table 1: Bariatric Surgery Criteria²

- BMI $\geq 40\text{kg/m}^2$
- BMI $\geq 35\text{ kg/m}^2$ with other significant obesity related diseases e.g. Type 2 diabetes, high blood pressure
- Person has been receiving or will receive intensive management in a Tier 3 service
- Person fit for anaesthesia and surgery
- Person commits to need for long-term follow-up
- First line option for patients with BMI $\geq 50\text{kg/m}^2$ ^d

3 PLAN NUTRITION AND DIETETIC INTERVENTION

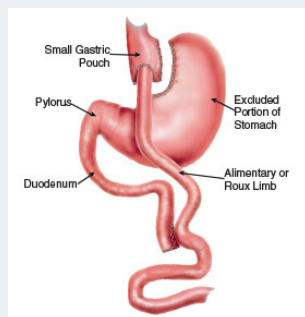


Figure 1: Roux-en-Y gastric bypass

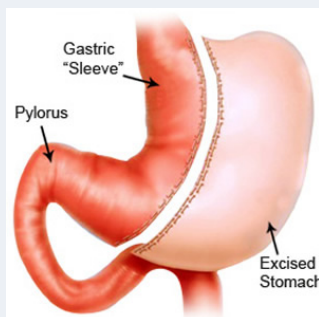


Figure 2: Sleeve gastrectomy

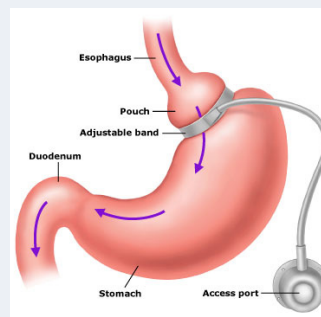


Figure 3: Gastric band

Mr X searched private bariatric surgery options. A patient who presents for bariatric surgery will work with a variety of disciplines. The team comprises of a surgeon, anaesthetist, psychologist, physiotherapist, or exercise therapist, dietician and nurse. This is often organised and managed by a co-ordinator who is the patient's key point of contact throughout the duration of their treatment. Dietitians have a role to prepare patients for the recommended nutrition, eating behaviours and anticipated changes after bariatric surgery. They also have a key role throughout the process to maintain the patient's internal motivation to maintain these healthier lifestyles.

At the time of Mr X's initial consultation with the bariatric team, he had managed to lose a little weight and was 197.1kg, BMI 61.5kg/m². At his dietetic assessment, Mr X was screened using motivational interviewing techniques to gauge how important losing weight was to him at that time and how confident he was to make the necessary dietary and lifestyle changes.

Mr X expressed his frustration with his weight and how it affected him physically and mentally. He was aware that bariatric surgery would help him to lose about a third of the weight that he was wanting to lose and the rest was reliant on him as a person maintaining lifestyle changes. Mr X viewed the bariatric surgery as an option to get his weight back down to a manageable level which would increase his confidence to manage it better on his own. This was an opportunity to allow him to get on with life. For this gentleman, it was clear that the advantages of bariatric surgery clearly outweighed the disadvantages. He referred back to the support he had from friends and family to help him maintain dietary and lifestyle changes.

Mr X had researched the different bariatric surgical options thoroughly. Most procedures are able to be performed laparoscopically. Mr X had compared the personal pros and cons of each procedure before his consultation. A gastric bypass is thought to be the preferred surgical procedure worldwide (Figure 1).⁷ Optimal weight loss is around a year of about 38%.⁸ A small pouch is created from the original stomach which remains attached to the oesophagus. The other end is connected to a section of the small intestine. This results in a bypass of the remaining stomach and initial loop of the small intestine. It is a malabsorptive procedure in that the anatomical change has an effect on intestinal absorption. Patients with high BMIs such as Mr X, may have the most to gain from this type of procedure; however, they are at an increased risk of postoperative complications. Mr X himself felt that this option was too extreme.

The sleeve gastrectomy (Figure 2) is a shorter procedure compared to the gastric bypass and less complicated to perform.⁹ The optimal weight loss is around a year and about 26%.⁸ The stomach is divided vertically which reduces it in size by approximately 75%, leaving a narrow gastric tube or sleeve. This allows only small amounts of food to pass through and creates a feeling of satiety earlier. Absorption remains unaltered. Both the gastric bypass and the gastric sleeve have the added benefit of aiding a reduction in hunger, due to the removal of the portion of stomach responsible for ghrelin production. Mr X preferred the option of the sleeve gastrectomy compared to the gastric band due to the better weight loss outcomes as compared to the gastric band.

The adjustable gastric band (Figure 3) is placed around the top of the stomach creating a small pouch. This has the effect of reducing the amount of food that can be eaten at any one time. It also reduces the feeling of hunger by pressing on the surface of the stomach. The diameter of the band and hence restriction can be altered by injecting or removing saline through a connecting portal that is under the skin. The optimal weight loss is less than a year and about 21%.⁸ Weight regain is not uncommon in these patients. Mr X viewed the gastric band as something that could potentially be reversed and he felt unable to trust himself not to take that option in years to come.

4 IMPLEMENT NUTRITION AND DIETETIC INTERVENTION

Mr X was deemed to be an acceptable candidate for bariatric surgery on the proviso that he lost weight in the subsequent three-month period and stop smoking. He was successful in both. His pre-assessment weight prior to surgery, which was used as his initial weight, was 188.4kg, BMI 58.6kg/m². This represented an 8.7kg loss (4.4%) over the last three months. At this point, Mr X had a full blood count. His Us and Es, haematology and biochemistry blood results were all within healthy ranges. Mr X went on to have his laparoscopic sleeve gastrectomy in August 2015.

Pre-Operative Diet

Prior to surgery it was recommended that Mr X follow a low calorie low carbohydrate dietary plan for seven to 10 days. This is sometimes referred to as the liver shrinkage diet. Many persons with obesity have an enlarged liver. In order for the surgeon to gain access to the stomach laparoscopically, it is important that the liver is reduced in size. The pre-operative diet is high in protein, low in carbohydrate and fat. Following this type of plan ensures that the body uses up glycogen stores from both the muscles and liver for energy. The liver is a large store of glycogen and hence a dramatic reduction in size when these stores are depleted.

5 MONITOR AND REVIEW

Following bariatric surgery there are four stages to the sleeve gastrectomy diet.

1 Fluid 0-14 days - Mr X found immediately post operatively the hardest. The only pain he found difficult to bear was that of the gas, which was used to inflate his abdomen during the laparoscopic procedure. He found moving around the best way to manage this pain. Mr X was advised to have only thin fluids that would go up a straw. These included water, teas (especially peppermint) and semi-skimmed milk. Milk could be fortified using dried skimmed milk powder to boost the protein. It is emphasised that fluids are taken only slowly, with minimal gulping of air and initially approximately 100mls per hour. For many patients this helps them to understand new signals such as hunger, or often now termed as simply the body's need to eat. Patients are also advised to respect that full sensation and stop immediately, otherwise this can result in regurgitation of stomach contents. As the days progressed, Mr X was able to move onto smoothies made with fortified milk. Mr X was on this stage for about 10 days.

- 2 Pureed** - Mr X was advised to progress to foods that were a smooth custard like consistency. These could include instant oats, pureed soups, milk puddings and thicker smoothies. It was at this point that Mr X returned to clinic and was reviewed by the surgeon and the dietitian. His weight was 174.6kg BMI 54.5kg/m². This was a loss of 14.4 kg (7.6%) from his pre-operative weight, which was an excellent early outcome post operatively. For the first time in many years his cellulitis had cleared up and it had been noted by his partner that he was snoring less. He also was happy that he was only getting up once overnight. He already felt less breathless and was wearing what he termed as "normal trousers". Mr X was hoping to return to work in the next few weeks. At this point, Mr X was advised to start multivitamin and mineral supplements to reduce his risk of nutritional deficiencies. It was recommended that his GP prescribe Forceval, Calcichew D3 Forte and 210mg Ferrous Fumarate daily. It was also recommended that Mr X have a haematological follow-up with his GP which would involve; the full blood count, iron, calcium, magnesium phosphate, vitamin D and B12 taken at six months post operatively and annually thereafter.
- 3 Soft** - After about four weeks, Mr X was able to manage soft meals and snacks such as soaked cereals, soft scrambled eggs, minced beef with mashed potatoes and soft veg. He was managing three very small meals approximately two to three dessert spoonfuls and two to three small snacks such as small pots fromage frais. He soon recognised that he needed to eat slowly, chew foods well and stop immediately on feeling full. This gentleman still needed to separate out foods and fluids by 30 minutes, which he found a new concept and hard to get his head around.
- 4 Solid textures** - About three to four months after the laparoscopic sleeve gastrectomy, Mr X, like many patients, was able to tolerate most textures of foods. It is emphasised that the first foods eaten are higher in protein to ensure that these are priority before the feeling of fullness. There are foods that can pose a problem for many patients, such as doughy foods, e.g. bread, or stringy foods such as beef. It is important to ascertain an accurate food diary and advise on alternatives to foods that patients are no longer able to eat, to ensure optimal nutrition.

At this point Mr X was eating three small meals and two light snacks daily. He was encouraged to eat food slowly and chew well. His small meals took between 20 and 30 minutes to consume. He still needed to separate foods and fluids. Mr X, like many patients, struggled to keep himself hydrated, but worked out that he must continually sip away at water throughout the day rather than have a specific dose of water at any one time.

Mr X was reviewed by the dietitian every two months for the first year. His weight, BMI and weight changes were monitored. A diet history was also taken to ascertain dietary quality. Mr X took effort to ensure that whatever he ate was nutrient dense. He ensured that each meal had a protein source. His intake of fatty and sugary 'empty calories' was minimal. He felt confident with his dietary choices.

6 EVALUATION

At Mr X's annual review, his weight was 131.6kg and BMI 41kg/m². This represented a weight loss of 56.8kg and 30%. His neck size had reduced from 22.5 to 16 inches. He sleeps better and is only up once in the night. As a result, he feels more awake during the day. He remains on his Rivaroxaban for his Atrial Fibrillation. His breathlessness on excursion has settled markedly. This gentleman's hypertension has improved but he remains on his medications. Mr X has had the confidence to change jobs in the past year. His new job is more active and he feels that he never would have been able to do it when he was his previous weight. His new job involves a lot more stairs which he is able to manage.

Table 2: Strategies for weight loss maintenance

- Regular monitoring of weight and food intake
- Being active. Aim for at least 60 minutes walking or equivalent daily
- Eat regular meals, including a breakfast
- Consider use of calorie controlled meal replacements or shakes if weight increases >4kg

Mr X is aware of the role of physical activity in maintaining his weight loss and has increased this. He is swimming and has started to play golf after many years. We discussed goals to increase the frequency of his swimming sessions. At his annual review we focused on strategies to maintain his weight loss, such as increased physical activity, regular meals, monitoring of his weight and dietary intake.

MEET THE BDA

The British Dietetic Association (BDA) is the only professional body and trade union for the dietetic profession in the UK. We represent almost 9,000 members spanning the whole of the dietetic workforce, including clinical practitioners, researchers, educators, dietitians from industry, freelancers, support workers and dietetic students.

WHAT WE DO

Our key functions are to represent, promote and protect the professional, educational, public and workplace interests of our members. We are governed by dietitians for dietitians and so have our finger on the pulse of what is happening in the national and international diet, nutrition and health arena.

We are an award-winning Association within our sector, finishing top and winning the MemCom Member Engagement Award in 2015 when compared to 27 other professional associations and, more recently, winning best Social Media Campaign at the Associations Congress 2016 for the wide social reach, member involvement and national and international awareness raising and impact achieved as part of Dietitians' Week 2016.

As we continue to build our strong influence and collective voice within our key stakeholder groups, including the wider sector, politically, in the media and to the general public, here's a snapshot of just some of the work and activities we've undertaken on our members' behalf over the past few years:

Representing

- Achieving breakthrough supplementary prescribing rights, with the first non-medical prescribing course in the UK approved by the HCPC



Winning the 'Best Social Media Campaign' award

to enrol dietitians. Several courses are now underway and the first dietitians are being trained.

- Influencing key stakeholders including politicians so that we can promote the impact and worth of dietitians and the dietetic profession, protect dietetic services and influence national food and nutrition policy across all four home countries of the UK.
- Training our proactive group of almost 100 dietitians as our media spokes-people, to be our expert dietetic voice in the media across the UK.



- Building the internationally appraised evidence-base for dietetics through the dynamic online Practice-based Evidence in Nutrition (PEN) resource, and developing UK resources to enable our members to apply research to practice.
- Representing the profession across 17 expert areas through the work of our leading BDA Specialist Groups.



Protecting

- Successfully representing our members by balloting as a Trade Union for fairer pay within the NHS across England and Wales.
- Training over 200 Trade Union Representatives to support our members effectively across a wide range of areas within their workplaces.
- Providing our members with an excellent range of Continuing Professional Development (CPD) opportunities from our BDA Live and BDA Vision national events, our local BDA Branch events to our wide range of new and established CED courses, plus our new Online Learning Zone www.bdacpd.co.uk.

Promoting

- Achieving over £20million worth of national and international media coverage promoting the dietetic profession each year.

- Delivering a third highly successful Dietitians Week 2016, promoting the profession and receiving international media coverage, political awareness raising and achieving a staggering social reach.
- Accrediting 60 BDA Work Ready member dietitians across all 4 home countries to raise awareness of the professions' role in improving workplace health.
- Developing a wide range of influencing resources for our members to download and proactively use to promote themselves and the wider profession locally.
- Providing the public, the wider sector and our members with more of our highly popular BDA Food Fact Sheets, now with over 65 free, evidence-based, peer-reviewed resources accessed over 20,000 times each month on our website.

ARE YOU A BDA MEMBER?

With approximately 80% of all HCPC registered dietitians within BDA membership, there has never been a better time to consider joining your professional body and trade union.

Together, we're stronger, as the more members we have, the stronger our collective voice is in representing, protecting and promoting our dietetic profession.

If you are keen to share your enthusiasm, knowledge and experience and help to promote dietitians and the dietetic profession, then joining the BDA is a great place to start. Our membership is open to registered dietitians, dietetic support workers, dietetic students and those with an occupational interest in diet or food, so we invite you to take a look at the benefits of becoming a BDA member at www.bda.uk.com/membership and consider joining us at:

www.bda.uk.com/join

Join us



NETWORK HEALTH DIGEST

Coming in the next issue
March 2017 – DIGITAL-ONLY
View it online at www.NHDmag.com

- Nutrition and Hydration week
- Growth faltering – a case study
- Coeliac disease and the gluten-free diet
- Diet trends – coconut oil
- Nutrition in elderly care homes

*Check whether you are eligible for a FREE subscription to
Network Health Digest at www.NHDmag.com . . .*

Don't miss a single issue!





Iman Mary O'Donnell
BSc MPhil
(Nutrition) CELTA
Nutritional
Therapist,
Dungannon
Nutritional Therapy

Mary has had a career of more than 30 years in Nutrition and Dietetics in the UK and internationally. Her work has taken her to the Middle East, Ireland, Pakistan and Egypt.

A WESTERN DIETITIAN IN AFGHANISTAN

A look at Dietetics in a new cardiac hospital in Kabul.

It was November 2014 when I received the offer to work in Dietetics in Kabul, Afghanistan. Dr Mirwais Amiri, Consultant Cardiologist, was in the process of opening Escorts Amiri Diagnostic Heart Centre. I was appointed as Chief of Clinical Nutrition.

One of the most memorable remarks from my interview was the clinical issue in Afghanistan concerning infants with cardiac abnormalities. He explained how these children frequently remained undiagnosed, as their mothers often thought that their baby had some flu-like illness.

My job offer and accommodation had been organised prior to my flight to Kabul. On starting the role, I found that the daily commute to work was a lengthy one. I had my own personal driver and my safety and security were always high on his agenda.

I would usually have a difficult night. Chinook helicopters coming and going. Dogs starting to bark as soon as I went to bed. They were guarding wasteland in front of the apartment which belonged to warlords. One night, there was more than the usual frequent helicopter activity. Then the distant rumble of a bomb explosion. I thought one of the low flying helicopters was going to crash into my bedroom. Terrifying! The next day I learned that some teenage girls playing netball had been killed.

Frequent power cuts were the norm. I became very adept at preserving the power I had in my mobile phone or laptop. I was lucky if the water was on to have a hot shower before going to the hospital. I will never forget trying to keep warm in a dark cold bedroom under blankets after work and waiting for more

than several hours until the water and electricity supply was resumed. Those hot showers never felt so good. And yet the beautiful blue skies of Kabul, the mountains to be seen from my apartment in the morning were stunning. I was not supposed to stand and look out of the window, but I could not resist it.

The advice was correct, however, as armed militias on the wasteland were observing. Slowly, I became accustomed to the widespread presence of armed security on the streets of Kabul, including those men outside my office and Clinic, there whenever I signed in for the working day.

Listening to the BBC World Service on a headset well disguised under my head cover was hugely comforting. At times, at roundabouts where there were extra ANA (Afghan National Army), I would cover my face for a few minutes until we passed by. The ANA are frequently attacked and killed. My driver was an expert in avoiding their convoys on the road.

But, for the most part, I just got on with being a dietitian in a location which desperately needed my services.

OUTPATIENTS' CLINIC

I had a busy weekly general outpatient clinic. One notable patient was a young woman, aged 29, with a diagnosis of Nephrotic Syndrome, resulting from FSGS (Focal Segmental Glomerular Sclerosis). She weighed only 40kgs when I first saw her in my clinic. Her height was 1.47cms with a resulting BMI of 18. I was informed by the medical team that she was in End Stage Renal Disease and hoping to have a kidney transplant in Pakistan. Her latest blood results were generally unremarkable, although she had low

Decades of war in Afghanistan have resulted in shortages of trained professional staff, particularly in Nursing.



haemoglobin. Blood lipids had not been measured. Her potassium was 4.9mmol/l. She told me that she had been seen by a doctor in India. It was this advice that resulted in the following diet history...

A typical day's intake for Miss S

- At 5.30am when she woke up she drank 200mls of water, 200mls of milk with one teaspoon of honey.
- At Lunchtime, around 12 O'clock she again had 200mls of water, 200mls of milk and two biscuits.
- In the evenings she ate a small plate of white rice and some boiled potato.

She reported that her diet contained no fruit or vegetables, apart from eating one apple per day. She also reported not eating any meat, fish, cheese or eggs. The protein requirement was 1-1.3g HBV protein/kg body weight. A recommendation of 6g salt (2mg sodium) is advised. Her fat intake was extremely low and she was already restricting sodium. I worked on advice to maintain adequate overall nutrition and a conservative dietary protein intake of 35g and one serving of Suplena per day to provide 10.6g. However, these supplements are very difficult to source and supply in Afghanistan.

Finally, a colleague in senior management managed to get supplies of the supplement from Pakistan. Her follow-up appointments in my Clinic showed a great deal of improvement. Her weight started to increase and her overall dietary intake had significantly improved. However, in addition to these outcomes was the real change in her mental wellbeing. Dietary consultations had given her a better quality of life with her deteriorating condition.

INPUT TO TRAINING OF NURSING STAFF

Decades of war in Afghanistan have resulted in shortages of trained professional staff, particularly in Nursing. Most of the Senior Nursing Staff, in my experience, had been recruited from Pakistan and were settling into their new roles. A key in service training I gave was MUST Nutritional Training for the nursing staff held over a number of sessions. The Hospital Director and Senior Management also attended. This was a unique opportunity for staff to have access to this highly specialised training.

This is but a brief snapshot of my experience working in a in a new cardiac hospital in Kabul. It was an honour and a privilege to have served there.

FULL TIME DIETITIAN - MITIE - SOUTH LONDON

Mitie's Clean Environments division is currently looking to add a Dietitian to join the Healthcare team based in Epsom and St Helier (South London), with some travel to other contracts. Reporting to the Contract Manager, the Dietitian will be responsible for providing comprehensive dietetic support and service development to catering contracts, for both patient catering and retail catering. This role has the potential to develop as additional business is added to the Healthcare portfolio and flexibility on location and travel is preferable. Main duties include: to act as a specialist source of dietetic expertise on patient nutrition; to calculate nutritional values for proposed patient menus and ensure that the introduction of new items meet with the approval of the Trust dietetic team; to ensure menu changes meet the specification of the Trust and MITIE's Catering team; to support the Catering team to positively promote nutrition and hydration through marketing initiatives. You must have clinical experience of working with a broad range of complex patients across a variety of settings who require nutrition support and being involved in their total management. To apply for the position of Dietitian, please send your CV to mfm.resourcing@mitie.com

REGISTERED DIETITIAN - KNIGHTSBRIDGE, LONDON

Louise Parker is seeking outgoing and entrepreneurial dietitians to join their vibrant team. Due to continued growth, they have vacancies at their Walton Street clinic and at their all-new clinic located instore in Harrods. You will join a team of five registered dietitians who support clients across the globe. Their method is fad-free and focuses on in-depth coaching with clients, helping them to making lasting changes to their lifestyles and allowing them to enjoy their results long-term. You will be a Registered Dietitian with a passion for health and weight loss and will enjoy supporting clients as they transform

*To place a job ad here and on
www.dieteticJOBS.co.uk*

please call 0845 450 2125 (local rate)

their lifestyles. You will be service focused and determined to provide world-class nutrition and lifestyle advice. You will support clients in face-to-face consultations, by email, Skype and telephone, making outstanding communication and motivational skills essential to the role. Please send your CV and covering letter to recruit@louiseparker.uk.com. Closing Date: 28th February 2017

BRAND MANAGER - VITAFLO - LIVERPOOL

VitaFlo International Ltd is currently looking to recruit a full-time, permanent Brand Manager to work at its head offices just outside Liverpool City Centre. The role involves developing, implementing and evaluating product specific marketing plans within agreed budgets to achieve both long- and short-term agreed business goals. Responsibilities also include: developing robust tactical plans in conjunction with relevant internal stakeholders and ensure their effective implementation; develop, source and ensure fulfilment of appropriate branding/supporting materials within agreed timelines and budgetary parameters; provide regular communication, education and training to the sales force on marketing strategy, brand plan and product knowledge. Salary is negotiable dependent on experience. To apply, please email a copy of your CV and covering letter to chris.richards@vitaflo.co.uk. Closing date: Friday 24th February 2017. www.nestlehealthscience.co.uk/vitaflo/careers

DATES FOR YOUR DIARY

World Nutrition and Health Congress

20th-21st February - Berlin

www.health.nutritionalconference.com

Eating Disorders Awareness Week

27th February to 5th March

www.b-eat.co.uk

The UK food supply chain: sector developments

8th March - Central London

www.westminsterforumprojects.co.uk/forums/event.php?eid=1419&t=20297

UNIVERSITY OF NOTTINGHAM - SCHOOL OF BIOSCIENCES

*Modules for Dietitians and other
 Healthcare Professionals*

- Paediatric Nutrition (D24PAN)
9th/10th March and 4th/5th May 2017
- Nutrition Support (D24BD2)
19/20th April and 26/27th April

For further details please contact Lisa Fox via email on lisa.fox@nottingham.ac.uk or check out the University website at www.nottingham.ac.uk/biosciences and click on 'Study with us' and then 'short courses' which will take you to 'for practising dietitians'.



Neil Donnelly

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

THE FINAL HELPING



A very healthy and happy New Year to you all.

I know it's somewhat late, but this is the first 'Helping' of 2017 and already events are moving at a pace. Our lives seem to be dominated by warnings that the NHS is in crisis and patients are waiting to be seen in A&E on trolleys in corridors.

Professionally of course, you can't help but notice that every 'celebrity' and 'medic' with the most mediocre connection with sustained weight loss is peddling the best way to lose pounds (£s) in an incredibly short space of time...usually by February. Like lemmings the gullible public seem to take this annual route rather than seek professional, unbiased, non-profit making information elsewhere.

Has the Government got it totally wrong and made it far too easy for individuals to benefit from doing nothing, putting the blame elsewhere, claiming obesity benefits and in so doing, potentially contributing to bankruptcy of the NHS? This does not help everyone else who contributes to funding the NHS, especially those on trolleys in A&E. Perhaps we should consider using the word DIET to our advantage and I put forward the following: introduce a Dietary Intake Energy Tax (DIET). Details are sketchy at present, but it would involve an initial assessment of your tax code and your annual tax-free personal allowance. This would stay the same or increase and you would pay less tax. So, if you are considered to be a 'healthy weight' then, as you are less likely to be a drain on the limited NHS resources going forward, your reward would be a tax reduction. If it is found that you could benefit by losing weight, you could return some months later to be reassessed. The maxim being: 'Weigh less. Pay less (tax). Earn more.'

This is a financial incentive for those who are maintaining a body weight within an accepted range and, thus, they would be less likely to require NHS care. It would also provide a financial incentive for those who wish to lose weight. Should this be possible? Why not? A recent government commissioned review (December 2016) states: 'We are not looking to withdraw benefits from people because they are obese. Withdrawing benefits from obese people is not under consideration.'

In most cases, I would argue, the individual who maintains a healthy weight understands that the health benefits to themselves far outweigh any additional tax benefits. However, their contribution to lessening the strain on the NHS is underestimated and should be addressed. Failing that, we could just stop giving government-funded weight-management advice to individuals for a period of three years and see whether that makes any significant difference to obesity rates. After all, what is there to lose?

And now for something lighter:

'Let's all go on a diet'

*It's that time of year again when diets
are aplenty*

*Everyone's an expert now at making
you feel empty*

*If you really want to win the war against
your weight*

*Think about your benefits, not what's on
your plate*

*Think about your reasons, whatever they may be
Write them down and keep them, don't fail
by February!*

NHD EXTRA

Login to our Subscriber zone at
www.NHDMag.com

Additional articles for subscribers only

NHDMag.com

February 2017: Issue 121



DRIED FRUIT AND DENTAL HEALTH

by Michele J Sadler



RESEARCH STUDY

Type 2 diabetes: does dietetic
intervention improve diabetic
control? by Leona Courtney

Web Watch



Michèle J Sadler
Rank Nutrition Ltd

Michèle is Director of Rank Nutrition Ltd, which provides nutrition consultancy services to the food industry. Michèle has a BSc in Nutrition (University of London), a PhD in Biochemistry and Nutritional Toxicology (University of Surrey) and is a Registered Nutritionist.

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

DRIED FRUIT AND DENTAL HEALTH

Dietitians will be well aware that traditional dried fruits, such as apricots, prunes and raisins, are high in fibre and low in fat. Depending on the type, dried fruit can also make a valuable contribution to intake of micronutrients, including some that may be vulnerable in people's diets such as iron, vitamin K, potassium and magnesium. Regular consumption of dried fruit can thus make a useful contribution to achieving dietary guidelines.

DIETARY ADVICE ON DRIED FRUIT

The new Eatwell Guide booklet advises that a serving of 30g dried fruit counts as one of 'five-a-day'; it also advises that consumption should be restricted to mealtimes.¹ Similarly, NHS Choices proposes that dried fruit is best enjoyed as part of a meal, not as a between-meal snack, to reduce the risk of tooth decay.²

This raises the question how strong is the evidence that dried fruit may be harmful to teeth and whether such restrictive advice about the timing of consumption is warranted by the evidence? In view of this, the Californian Prune Board commissioned a comprehensive review of the research base that prompted this dental health advice,³ as it seemed to be historic.

POTENTIAL MECHANISM FOR EFFECT ON TEETH

The two main concerns about dried fruit and dental health relate to the sugar content and that dried fruit may be 'sticky' and adhere to the teeth. Any detrimental effects on teeth would be initiated by the sugars present in dried fruit dissolving into saliva and diffusing into dental plaque, where it is available for fermentation by the acid-producing bacteria (*mutans streptococci*) that reside in plaque. If plaque pH falls below pH 5.5, tooth enamel is subject to demineralisation and if this persists over time, it can lead to a carious lesion, a late stage of dental caries.

A number of factors may influence this solubilisation process, including the texture of dried fruit, the location of the sugars in the dried fruit matrix, the length of time that dried fruit stays in the mouth, the frequency and force of chewing and characteristics of the dental plaque such as its thickness.

TYPE OF SUGARS IN DRIED FRUIT

The type of sugars in dried fruit has been somewhat controversial. In 1989, the UK adopted a classification of sugars based on their location within foods. Intrinsic sugars are located within the cellular structure, while NMES are those sugars not located within cells, but excluding those present in milk. Fruit and vegetables contain intrinsic sugars and fresh fruit, as consumed in the normal diet, is not considered to contribute to dental caries.

Since an animal study and an *in vitro* study had previously suggested a cariogenic potential of dried fruit, it was postulated that it is unclear if the sugars in dried fruit should be classed as intrinsic, as the cellular integrity of dried fruit may be disturbed during the drying process.⁴ As there is no method to distinguish between intrinsic sugars and NMES, the sugars in dried fruit were arbitrarily classified as 50% NMES and 50% intrinsic (noted in Moynihan, 2003⁵), though this was not universally accepted.⁶ Hence the sugars in dried fruit were partly caught within the type to be restricted.



Dried fruit is generally thought to be 'sticky' in the mouth. However, the comprehensive review³ found only poor evidence to support this . . .

In 2015, SACN⁷ recommended adopting the WHO classification of intrinsic and 'free sugars'. 'Free sugars' are all monosaccharides and disaccharides added to foods and beverages by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups, unsweetened fruit juices, and fruit juice concentrates.⁸ Interestingly, dried fruit is no longer within the definition of sugars that need to be restricted.

'STICKINESS' OF DRIED FRUIT

Dried fruit is generally thought to be 'sticky' in the mouth. However, the comprehensive review³ found only poor evidence to support this, as it has been measured in few studies, with few subjects, using non-validated methods.

Kashket et al⁹ compared subjective consumer perceptions of the stickiness of 21 different foods with an objective measure of oral clearance. The objective measure was undertaken in only five subjects, aged 18-22 years. Retention of raisins was similar to that of fresh apple and banana and lower than that of dried figs. In contrast, the subjective measure was undertaken in 315 adults with a wider age range. Subjects had to rank 21 different foods in order of perceived stickiness. The results showed a poor correlation between perceived stickiness and the actual clearance rate ($r=0.46$) and between perceived stickiness and salivary carbohydrate ($r=0.54$), suggesting that consumers' perception of the actual stickiness of different foods is poor.

A 1975 study¹⁰ measured the retention of 48 different foods in three young adults per food. Raisins were ranked 29th out of the 48 foods and dates were ranked 15th.

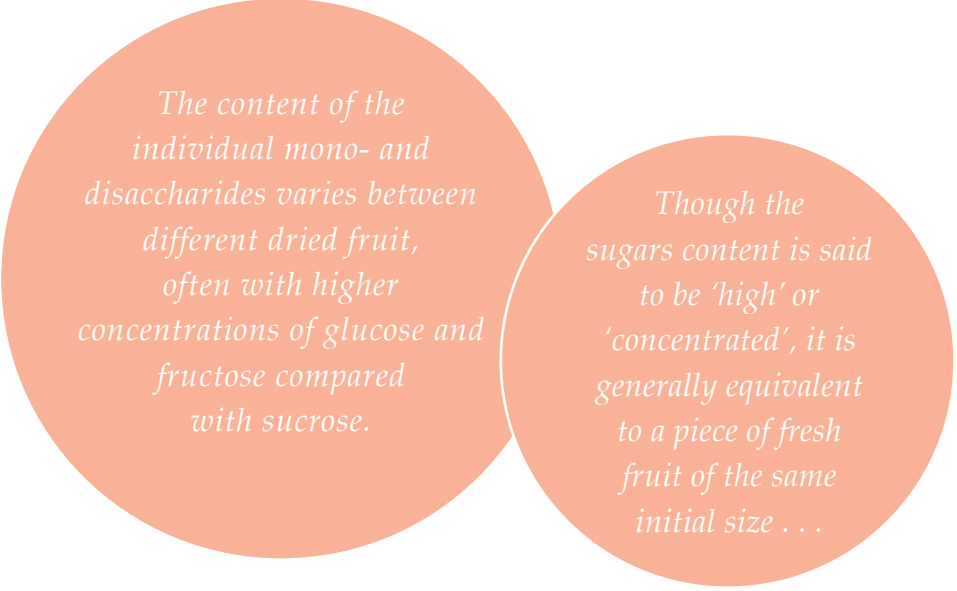
This suggests that more robust research is needed before firm conclusions can be drawn about the stickiness of dried fruit and its retention time in the mouth and, thus, its potential for adverse effects on the teeth.

EVIDENCE FOR AN EFFECT OF DRIED FRUIT ON DENTAL ENDPOINTS

No intervention studies have tested the effects of dried fruit on dental caries outcomes and, realistically, this outcome can only be determined from epidemiological studies. The Sadler review³ found only one cohort study that considered the association of dried fruit consumption with dental caries in children, but the consumption of dried fruit was too low for any meaningful analysis. Evidence from more cohort studies is, therefore, required.

Data from animal studies is also inconclusive, as it is difficult to extrapolate the results to humans. Animal models have different tooth morphology and salivary flow rates, and the high frequency of consumption of test foods in the studies is an unrealistic comparison with human diets.

A number of human studies have measured the effect of dried fruit on proxy markers for caries endpoints. Six studies measured the



The content of the individual mono- and disaccharides varies between different dried fruit, often with higher concentrations of glucose and fructose compared with sucrose.

Though the sugars content is said to be 'high' or 'concentrated', it is generally equivalent to a piece of fresh fruit of the same initial size . . .

effect of various test foods, including dried fruit (mostly raisins) on plaque pH, using a variety of techniques. A food is considered to be harmful to teeth if plaque pH falls below 5.5 within 30 minutes after consumption (area under the Stephan curve). However, the effect of dried fruit is not clear from these studies. Three of the studies, in which the subjects wore a sensor to measure interproximal plaque pH, gave inconsistent results - two studies with only five subjects each found that after eating raisins, plaque pH fell below 5.5,^{11,12} while the third study in 20 children found that plaque pH remained above pH 5.5 for each of the test foods, which included raisins alone, and raisins with bran flakes.¹³

A study with five subjects measured pH in plaque samples after eating 54 test foods that included raisins and dates.¹⁰ The test foods were grouped according to the measured acidogenic potential (1 being low, 6 being high). Raisins and dates were assigned to group 4 along with cereal, wholemeal bread, apple juice and orange juice, and these were found to be less acidogenic than apple pie (group 5) and hard candies (group 6). A further study measured glucose and lactic acid concentrations in oral fluid samples following consumption of six test foods, including raisins, but did not measure pH changes.¹⁴ The sixth study, from 1951, was designed to develop techniques and did not provide any reliable information.

The *in situ* enamel slab is a further technique in which subjects are fitted with slabs of human or synthetic enamel on a removable appliance. This enables the overall impact of a food on markers of dental caries to be tested, taking into account protective as well as detrimental factors. A study was identified that investigated the effects of whole raisins compared with apples, oranges, grapes, carrots and tomatoes, presented in both juice and whole formats.¹⁵ The test foods were consumed seven times a day for 10 days, which is unlikely to represent typical consumption patterns of such foods. All of the test foods showed statistically significant net demineralisation compared with the sorbitol control, and were not significantly different from the positive control (sucrose).

POTENTIAL BENEFITS OF DRIED FRUIT IN RELATION TO DENTAL HEALTH

In contrast to the potential adverse effects on teeth, a number of potential benefits should also be considered:

Benefits of chewing

Dried fruit has a firm texture and requires chewing, which stimulates the flow of saliva. The organoleptic properties of dried fruit also help to stimulate saliva production. Saliva is supersaturated with calcium and phosphate and has a neutral pH, which helps to protect the teeth from demineralisation. By making these

Table 1: Sugar content of dried apricots, prunes and raisins

	Dried apricots, raw (100g)	Stoned prunes, raw (100g)	Seedless raisins, raw (100g)
Energy kcal	241	240	299
CHO g	62.64	63.9	79.2
Sugar g	53.44	38.1	59.2
Sucrose g	7.9	0.2	0.5
Fructose g	12.5	12.5	29.7
Glucose g	33.1	25.5	27.8
Galactose g	0.0	0.0	0.0
Maltose g	0.0	0.1	0.0
Starch g	0.35	5.1	2.7
Sorbitol g	N/A	15.1	N/A
Dietary fibre g	7.3	7.1	3.7

Data from: USDA. 2014. National Nutrient Database for Standard Reference Release 27.
Available at: <http://ndb.nal.usda.gov/ndb/>

minerals available at the tooth surface, saliva also helps in the process of remineralisation. It is the balance of demineralisation and remineralisation that determines the overall clinical effect of the diet on teeth over time.¹⁶

Sugar content of dried fruit

Though the sugars content is said to be 'high' or 'concentrated', it is generally equivalent to a piece of fresh fruit of the same initial size, i.e. one raisin, or one prune, has the same sugars content as one grape, or one plum of equivalent size and variety. This is because the drying process results in loss of water and traditional dried fruits do not contain added sugars.

The content of the individual mono- and disaccharides varies between different dried fruit, often with higher concentrations of glucose and fructose compared with sucrose (Table 1). Though acidogenic bacteria in plaque has a slight preference for sucrose, it will metabolise any sugar. Sorbitol, however, is a sugar alcohol that is not metabolised by the acidogenic bacteria and is thus non-cariogenic.¹⁷ Prunes are a particular dried fruit that contain a high proportion of sorbitol (Table 1).

Anti-microbial effects of polyphenols

Additionally, dried fruit contains polyphenols and an *in vitro* study with purified organic compounds from raisins has found that these may have anti-microbial effects.¹⁸ Whether these effects are exerted in the mouth has not yet been tested.

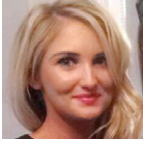
CONCLUSION

The evidence that dried fruit is harmful to dental health is presently limited and unconvincing. The lack of high quality studies suggests that it is premature to formulate evidence-based advice on the unsuitability and timing of consumption of dried fruit as a snack, particularly as traditional dried fruit is low in fat and can make a valuable contribution to dietary fibre and micronutrient intake.

More research is needed concerning the effects of dried fruit on dental health, exploring both the proposed adverse effects and the potential beneficial effects on teeth, before firm conclusions can be drawn.

Acknowledgement

The author is grateful for a small grant from the Californian Prune Board to help fund this article.



Leona Courtney
Band 5 Rotational
Dietitian, NHS
Ayrshire & Arran
University Hospital
Ayr, Scotland

Leona has been working for the NHS for a year and a half and has developed an interest in the area of diabetes. She was provided with the opportunity to undertake a MSc in Dietetics whilst employed by the NHS and decided that it would be a good way to improve her diabetes knowledge.

For full article
references
please email
info@
networkhealth
group.co.uk

RESEARCH STUDY

Does dietetic intervention improve diabetic control in those with Type 2 diabetes on Glucagon-Like Peptide-1 (GLP-1) Analogues?

Abstract

BACKGROUND

As registered dietitians, we are aware that we can aid individuals in achieving weight loss and improved glycaemic control. Therefore, I decided to undertake a project to determine if individuals who were receiving GLP-1 therapy and who were provided with dietetic guidance experienced a greater weight loss and HbA1c reduction compared to those on GLP-1 analogues who did not receive dietetic input. The study also investigated if these individuals were more likely to meet the continuation criteria in the NICE guidelines to remain on the medication six months post commencement.

A retrospective clinical audit was undertaken on those who were diagnosed with T2DM and who were receiving GLP-1 therapy. All data was collected via the use of the software database system SCI-Diabetes. The SCI-Diabetes system contained information on patients with both Type 1 and Type 2 diabetes. However, only those with Type 2 diabetes were included in the study.

Diabetes mellitus is defined as a metabolic disorder characterised by elevated blood glucose levels, with disturbances of carbohydrate, protein and fat metabolism, due to insufficient insulin production, insulin action or both.¹ The chronic hyperglycaemia of diabetes is associated with long-term complications including; neuropathy with risk of ulcers and amputations, retinopathy with potential loss of vision, and nephropathy leading to renal failure. Individuals who present

with diabetes are also at heightened risk of peripheral, cerebrovascular and cardiovascular disease (CVD). Heart disease and stroke are two to four times higher in individuals with diabetes compared to their non-diabetic counterparts,² with hypertension and hypercholesterolemia commonly evident.³

Type 2 diabetes mellitus (T2DM) is the most common form of diabetes and accounts for 90-95% of those with diabetes. T2DM is an often preventable, but progressive metabolic disorder which involves a complex relationship between both genetic and environmental factors. Individuals diagnosed with T2DM present with impaired insulin sensitivity and usually have relative (rather than absolute) insulin deficiency, either of which may be the predominant feature.⁴

T2DM is inextricably linked with obesity¹. Obesity is the most potent risk factor for Type 2 diabetes, with research showing that it accounts for 80-85% of the overall risk of disease development.⁵ It is suggested that abdominal obesity leads to the release of pro-inflammatory cytokines, which in turn decreases the body's sensitivity to insulin, causing insulin resistance.⁶ Furthermore, adipose cells possess the ability to secrete hormones that contribute to insulin insensitivity.⁷ Consequently, it is now well documented that there is an inverse relationship between body mass index (BMI) and insulin sensitivity, where an increase in BMI reflects a corresponding reduction in insulin sensitivity.⁸ This information is worrying, given the spiralling levels of overweight and

obesity currently evident in the UK population.⁹ As already stated, historically, T2DM mainly presented in adults; however, this is no longer the case.^{1,10} The increased prevalence of Type 2 diabetes in young individuals coincides with the increased occurrence of obesity in the same population group, which has more than tripled in the past 25 years.¹¹

Some individuals with T2DM can manage their condition via diet and lifestyle interventions. However, in most cases, due to the progressive nature of the condition, the prescribing of medication to manage T2DM is common practice².

If lifestyle interventions and medication fail to achieve good glucose control in T2DM, insulin therapy is generally the next option.¹² The benefits that insulin provides in terms of assisting the achievement of good glycaemic control are well known.¹² However, it should be noted that not only does the commencement of insulin administration promote an average weight gain of 5kg-7kg, which is usually greatest at the beginning of insulin use,^{7,13} but it also increases an individual's risk of hypoglycaemia. This is of a huge concern, as not only is hypoglycaemia dangerous, but it may impact upon compliance, limiting the attainment of lower glycaemic targets.^{1,14} Given that weight loss is a fundamental aspect for the successful management of T2DM, the introduction of insulin can, therefore, be counter-intuitive.

Interestingly, from 1991-2010 there was a seven-fold increase in the number of individuals with T2DM who were commenced on insulin.¹⁵ This heightened use may be as a result of the increased frequency of diabetes mellitus along with the failure to adequately control diabetes via dietary and lifestyle interventions/weight loss and the use of OHAs.

GLP-1 analogues are a novel injectable therapy, recommended as third line therapy, which have shown superiority in improving good glycaemic control and weight loss³. NICE advise a restriction on the wide spread use of GLP-1 analogues where individuals must achieve a 3% weight loss and an 11mmol/mol reduction in HBA1c within six months of treatment commencement to remain on the therapy⁴. It is currently unknown if dietetic input

helps those on GLP-1 therapy to improve their glycaemic control and subsequently aid them in meeting the proposed continuation criteria.

METHODS

Diabetes diagnosis date

The date of diagnosis was recorded for each patient and the number of years that the individual had been living with the condition was calculated. Patients were then categorised into one of the following two categories:

- 1 diagnosed with diabetes >10 years previously or
- 2 diagnosed with diabetes ≤10 years previously.

No significance was found between duration and outcomes ($p < 0.005$).

Diabetes treatment type

All individuals in the sample were currently being prescribed GLP-1 therapy in addition to various other diabetes medications. Insulin therapy was also indicated in some of the sample.

Dietetic input

Identification of individuals who had received dietetic input (intervention group) and those who had not received dietetic input (control group) with regards to the commencement of GLP-1 therapy was made via screening of patient notes as uploaded on SCI-Diabetes. The inclusion criteria for receiving dietetic input was that individuals were only considered to have received dietetic input if this was within four weeks pre- or post-commencing GLP-1 therapy. Individuals who received dietetic input outside of this timeframe were categorised as having received 'no input' and placed in the control group. A four-week time period was chosen, as much research has shown that the first month of treatment or diagnosis is a crucial time period for aiding individuals in the achievement of weight loss and improving biochemistry results.¹⁶ Furthermore, it has been shown that early intervention is highly correlated with long-term weight loss and overall success.¹⁷

Advice was offered on a one-to-one basis, or in small group sessions and was always provided via face-to-face. New dietetic appointments lasted 45 minutes with review appointments

lasting 15 minutes. The frequency of contact with the dietitian varied within the sample.

During each dietetic consultation, a patient assessment was undertaken where information was obtained on the patient's weight, diet and lifestyle and the patient's readiness to change was assessed using the Ayrshire and Arran tool 'Are you ready to make lifestyle changes' (Appendix 3). Individual, tailored advice was given on possible diet and lifestyle changes that could be implemented. For those who had not already received a NHS booklet called *Healthy Living with Diabetes* they were provided with a copy to take home for additional reading. This booklet contained information on the Eatwell Plate, strategies on how to reduce sugar intake, what accounts as an average portion size and suitable snack options. It also reiterated the importance of diet and lifestyle interventions to permit the successful management of their condition.

Weight and HbA1c data was collected at two time points: pre GLP-1 commencement and six months post commencement. All data was collected and coded and statistical analysis was performed using the Statistical Package for Social Sciences

RESULTS

Overall, the total sample significantly reduced their weight and HbA1c level. However, those in the intervention group achieved significantly greater reductions for both weight and HbA1c compared to the control group ($P \leq 0.005$).

Over the six-month period, those who received dietetic input lost on average 6.2kg and 15.4mmol/mol reduction in HbA1c compared to a 3.9kg loss and a 8mmol/mol reduction in HbA1c in the non-dietetic group. With regards meeting the GLP-1 continuation criteria (3% weight loss and an 11mmol/mol reduction in HbA1c within six months of treatment commencement), significantly more individuals in the intervention group met the criteria compared to the control group ($n=34$ vs. $n=16$) ($P \leq 0.005$). No significant difference was noted with regards gender or diabetes duration ($P \geq 0.005$).

CONCLUSION

The findings demonstrate that intervention with a dietitian significantly reduces weight and HbA1c in those on GLP-1 therapy. Dietetic input also aids individuals in meeting the continuation criteria imposed by NICE to remain on the therapy. This study supports the statement that dietetic intervention should be viewed as an integral component of successful management of Type 2 diabetes, specifically for all individuals who are being commenced on GLP-1 therapy, perhaps something which NICE should consider when constructing future guidelines for the management of Type 2 diabetes.

Therefore, the results of this study, I believe, are of great importance and should encourage dietetic input in patients commencing GLP-1 analogue therapy.

dieteticJOBS.co.uk

The UK's largest dietetic jobsite since 2009

- Quarter page to full page
- Premier & Universal placement listings
- NHD website, NH-eNews and NHD Magazine placements

To place an ad or discuss your requirements please call 0845 450 2125 (local rate)



WEB WATCH



Useful information, research and updates.
Visit www.NHDMag.com for full listings.

NICE GUIDELINES

QUALITY STANDARD [QS140] - TRANSITION FROM CHILDREN'S TO ADULTS' SERVICES

Published December 2016

This quality standard covers all young people (aged up to 25) using children's health and social care services who are due to make the transition to adults' services. It includes young people:

- with mental health problems;
- with disabilities;
- with long-term, life-limiting or complex needs;
- in secure settings;
- under the care of local authorities

The quality standard covers the period before, during and after a young person moves from children's to adults' services. It covers all settings in which transitions from children's to adults' health or social care services take place and describes high-quality care in priority areas for improvement. It does not cover areas of national policy, such as funding for health or social care.

Full details can be found at www.nice.org.uk/guidance/qs140.

IN DEVELOPMENT - CEREBRAL PALSY IN UNDER 25S: ASSESSMENT AND MANAGEMENT [GID-CGWAVE0687]

The expected publication date was January 2017, but no update has been given on the NICE website as yet [20th Jan 2017]

This guideline covers the diagnosis, assessment and management of cerebral palsy in children and young people from birth up to their 25th birthday. Recognised subgroups within the cerebral palsy population, depending on levels of functional and cognitive impairment (for example, Gross Motor Function Classification System levels I to V), have been considered where appropriate.

Draft versions of the document are available at www.nice.org.uk/guidance/indevelopment/gid-cgwave0687/documents.

Eating, drinking and swallowing difficulties are covered by the guidelines along with optimising nutritional status for this patient group.

ESPKU

NEW GUIDELINES FROM THE EUROPEAN SOCIETY FOR PHENYLKETONURIA AND ALLIED DISORDERS TREATED AS PHENYLKETONURIA

Over the last couple of years, leading metabolic healthcare professionals from across Europe have been working together on a set of clear guidelines for the management of PKU. In January 2017 the key statements of the new European Guidelines were published in *The Lancet Diabetes & Endocrinology*. The ESPKU is working on the further publication of the complete list of statements in a different medical journal. Also, a layman's version (and translations) of the guidelines are being devised to ensure that all nationalities and patients can understand themselves. Find out more at www.espku.org/2017/01/10/european-guidelines-phenylketonuria-published/ and [www.thelancet.com/journals/landia/article/PIIS2213-8587\(16\)30320-5/abstract](http://www.thelancet.com/journals/landia/article/PIIS2213-8587(16)30320-5/abstract).

SACN INDEPENDENT REPORT

STATEMENT ON MILITARY DIETARY REFERENCE VALUES FOR ENERGY

Military roles and/or activities can be physically demanding and people within these roles can experience different energy expenditures when compared with the estimated average requirements for UK population subgroups. In 2014, the Institute of Naval Medicine, on behalf of the Ministry of Defence, requested SACN to advise on military-specific dietary reference values (DRVs) for energy. Following careful consideration of the doubly-labelled water data available and other military-relevant research, recommendations from SACN include:

- four different DRVs for energy for military service personnel, corresponding to different levels of physical activity intensity - the first level corresponds to the requirements of the general population; DRVs for levels 2, 3 and 4 reflect higher levels of physical activity;
- different range for each macronutrient (carbohydrate, protein and total fat), expressed as a percentage of total energy intake (excluding energy from alcohol), for each physical activity level.

SACN considers that there is insufficient evidence to suggest that different DRVs for energy are required for military personnel based on environmental temperature, age or body size. Similarly, there is insufficient evidence that military populations require a different micronutrient intake from the general population.

The full statement can be found and downloaded from www.gov.uk/government/publications/sacn-statement-on-military-dietary-reference-values-for-energy.

BMJ

SHOULD GLUTEN FREE FOODS BE AVAILABLE ON PRESCRIPTION?

In January 2017, the BMJ held a debate on whether gluten-free foods should be available on prescription. With many CCGs across the country removing gluten-free foods from the prescribing list, despite there being supporting evidence that these foods can aid compliance in patients who require a gluten-free diet, this is a contentious issue.

The BMJ has been running an online poll to gain further opinion and insight. You can hear and read more about this at www.bmj.com/content/356/bmj.i6810.

BMJ PODCASTS ON SOUNDCLOUD

Soundcloud is the world's largest music and audio platform, where you can find all kinds of music and demos, but most importantly, BMJ podcasts. They are free to access; you just need to set up an account. You can find podcasts on gluten-free food, nutrition in IBD and nutrition in the management of intestinal failure, plus more at <https://soundcloud.com/bmjpodcasts>.

EVIDENTLY COCHRANE

This website is a useful resource for anyone looking for evidence and wants to or needs to understand how to critically assess its worth. It's a site for weekly blogs on a diverse range of topics and aims to make Cochrane evidence accessible for all.

Bimonthly digests are also available by simply signing up for their newsletter, which is sent via email. Find more info at www.evidentlycochrane.net/.

PUBLIC HEALTH ENGLAND

PHE LAUNCHES THEIR NEW 'BE FOOD SMART' APP

In January, PHE launched a new app for parents to use, helping them to be more aware of sugar, saturated fat and salt in everyday foods and drinks. Part of the 'Change for Life' campaign, this app is free and available to download from the iTunes store or Google Play. A full press release can be found at www.gov.uk/government/news/new-change4life-campaign-encourages-parents-to-be-food-smart.

Our nutritious ranges
keep getting better.
**So your patients can
do the same.**



Cauliflower Cheese and Broccoli Bake from the Energy Dense range

Suggesting the right diet is a big part of your job. **Delivering it is ours.**

Wiltshire Farm Foods variety of ranges help to meet patients' nutritional needs and encourage continued good health – from our nutritionally balanced **main range** to our vitamin D fortified **Healthy Balance** options. While our **Softer Foods** and **Free From** ranges are all about enjoying nutritious mealtimes with confidence. Whatever the range, all our food is made using tasty ingredients, then delivered direct to your patients' freezers. You look after the treatment. Let us look after the mealtimes.

- ✓ Nutritionally balanced main range
- ✓ Nutritious & Delicious (under 400 calories)
- ✓ Texture modified
- ✓ Energy Dense (over 500 calories)
- ✓ Healthy Balance (Vitamin D fortified)
- ✓ Free From
- ✓ Mini & Hearty



To find out more about our ready meal ranges or to arrange a FREE tasting call
0800 066 3169
wiltshirefarmfoods.com



Wiltshire Farm Foods