



Public Health Collaboration

Healthy Eating Guidelines & Weight Loss Advice For The United Kingdom

Informing & Implementing Healthy Decisions

Contents

<i>Welcome.....</i>	<i>Page 3</i>
<i>Advisory Board Members.....</i>	<i>Page 4</i>
<i>Introduction.....</i>	<i>Page 7</i>
<i>Healthy Eating Guidelines.....</i>	<i>Page 8</i>
<i>The Real Food Lifestyle.....</i>	<i>Page 16</i>
<i>Weight Loss Advice.....</i>	<i>Page 24</i>
<i>The Real Food Lifestyle For Weight Loss.....</i>	<i>Page 27</i>
<i>Closing Remarks.....</i>	<i>Page 31</i>
<i>Patrons.....</i>	<i>Page 32</i>
<i>References.....</i>	<i>Page 36</i>

Welcome

The Public Health Collaboration (PHC) is a non-profit organisation that is dedicated to informing and implementing healthy decisions, and it is with pride that I'm able to introduce you to this report on healthy eating guidelines and weight loss advice for the United Kingdom.

This report clearly and concisely provides an insight into the decades of work and experience that our founding members and advisory board have accumulated from working with thousands of patients to improve their health. It is with deep gratitude that I thank all of them from the bottom of my heart for all their hard work and willingness to go above and beyond to bring this report to life.

A special thanks also goes to our patrons and members without whose support this report and the PHC itself would not be possible. If you wish to find out more about the PHC please visit our website at www.PHCuk.org where you can also consider a donation to our cause.

This report allows us to inform healthy decisions but our mission also includes implementing healthy decisions. Many of our founding members are advising the recommendations contained in this report to their patients through what we call real food clinics. If you are a health professional wanting to use our recommendations then I encourage you to get in touch with us via our website so that we can aid you in implementing healthy decisions for your patients.

Finally, the aim of this report is not simply to raise our concerns with current government recommendations for healthy eating and weight loss but also to provide practical scientific solutions that help us all obtain and maintain healthy lifestyles and dramatically improve public health.

With the best of wishes,

Samuel Feltham

Director of the Public Health Collaboration



Advisory Board Members

Dr. Trudi Deakin – Dietitian

Trudi is Chief Executive of the registered charity X-PERT Health, which specialises in the research, development, implementation and audit of structured education for the public and healthcare professionals. Trudi's first degree in 1993 was Nutrition and Dietetics, followed by a teaching qualification in 1998 and a doctorate in diabetes in 2004.



Dr. Aseem Malhotra – Cardiologist

When he is not working as a doctor in the National Health Service, Aseem Malhotra reigns supreme in his fight to raise awareness about the health benefits of a sugar-free diet, maintaining that sugar deserves its reputation as "Public Health Enemy Number 1". His no-holds-barred approach to challenging common health beliefs is proving highly effective in getting medical professionals and social authorities from around the world to sit up and take notice.



Dr. Tamsin Lewis – Psychiatrist

Dr. Tamsin Lewis is one of the top ranked Ironman 70.3 athletes in the world and races as a professional triathlete. Tamsin studied Medicine & Surgery at Kings College London and also has a Bachelor of Science degree in NeuroScience and Anatomy. Post graduation she worked as hospital doctor in Medicine and Anaesthetics for two years before pursuing a post-graduate Royal College of Psychiatrists qualification.



Dr. Rangan Chatterjee – General Practitioner

Dr. Chatterjee works as an NHS GP in Oldham where he looks after deprived and socially isolated patients. He has a specific interest in trying to treat people without necessarily resorting to drugs and tries to get the message out that significant, non-medicinal lifestyle changes can dramatically improve your health. Recently he has featured in the BBC One programme "Doctor in the House" where he helped families improve their health through real food and smart exercise.



Dr. Jen Unwin – Clinical Psychologist

Dr. Jen Unwin has worked in the NHS for nearly 30 years and over this time has been interested in how it is that people can cope and even thrive with long-term health challenges. She believes that patients who are able to maintain their hopefulness and emotional well-being in the face of illness have better quality of life, experience fewer symptoms, take less medication, consult less and even live longer. Dr. Unwin is the chair of the UK Association for Solution Focused Practice.



Dr. Ayan Panja – General Practitioner



A career GP, Dr. Panja has been a doctor for 17 years having qualified from the Imperial College School of Medicine. He is a partner in a busy city centre NHS surgery and is interested in the prevention of illness and disease. He also presents Health Check, a round up of global health stories on BBC News and BBC World News and is a clinical assurance adviser for NHS Choices. His passion is to improve people's understanding of health face to face or via media.

Dr. Katharine Morrison – General Practitioner

Dr. Morrison is a senior practising GP and a senior partner in a medical practice in Ayrshire. Her son was diagnosed with type 1 diabetes 10 years ago, and since then she has worked extensively with people living with both type 1 and type 2 diabetes for 12 years. She is also the co-author of two important papers explaining the improvements in metabolic results, weight and glycaemic control for low carbohydrate diets in metabolic syndrome and diabetes.



Dr. David Unwin – General Practitioner



A GP based in Southport, Dr. Unwin is the RCGP National Champion for Collaborative Care and Support Planning in Obesity & Diabetes, as well as a Clinical Expert in diabetes. In 2016 he won the NHS Innovator of the Year Award. He has published his work in Practical Diabetes, Diabetes in Practice and in the BMJ.

Dr. Joanne McCormack – General Practitioner

Dr. McCormack has been a GP for 24 years and was a GP partner in Warrington up until April 2015. She was also a GP Trainer, and now works as a sessional GP in two training practices as well as the Named GP for Safeguarding Children for an area of 300,000 people. Over the past 30 years that she has been a doctor she has seen the incidence of diabetes go up five fold in her town, something that has been echoed nationally.



Dr. Kailash Chand OBE – General Practitioner

Dr. Chand OBE is the first Asian deputy chair of the BMA and is also, Chair of Health watch Tameside and formerly PCT Chair of Tameside and Glossop, after working as a GP since 1983. He has been a BMA activist and NHS, and public health campaigner for the last two decades and has served on various BMA committees including: General Medical Council working group (2006 to present), General Practitioners Committee (1999 to 2009), Vice chair: Equal Opportunities Committee (2007 to 2009).



Dr. Ian Lake – General Practitioner

A GP in Cheltenham, Dr. Lake has had a long term interest in preventive medicine. After seeing the lack of dietary advice in the NHS he set up a weight management research project in primary care. It produced results comparable with all of the best current commercial providers, and won the GP Awards Clinical Team of the Year, Nutrition award in 2012. Dr. Lake was also involved in getting cycling on prescription commissioned in his local area.



Introduction

The first set of official healthy eating dietary guidelines for the United Kingdom of Great Britain and Northern Ireland (UK) were published by the Food Standards Agency (FSA) in 1994, called The Balance of Good Health ^[1]. In 2007 these guidelines were revised and re-launched by Public Health England (PHE) as the eatwell plate ^[2]. Finally, in March 2016 the latest set of dietary guidelines were published by PHE called The Eatwell Guide ^[3].

The UK has one of the highest prevalence's of obesity in Europe at 25% and the number of people living with type 2 diabetes has more than doubled since 1996 ^[4] ^[5]. Both cost the NHS £16 billion a year, and the UK economy at large £47 billion a year ^[6]. These worrying statistics suggest that there is something wrong with the lifestyles of the UK population.

However, according to the latest National Diet and Nutrition Survey published in 2014 by PHE and the FSA adults in the UK have been generally following healthy eating guidelines. In fact on average adults in the UK have been eating 383 calories below the recommended daily amount as well as eating just below the recommended 35% for total fat consumption ^[7]. This seemingly paradoxical situation of following healthy eating guidelines yet having dire health statistics brings into question the very guidelines that the UK population is being asked to follow.

Weight loss advice in the UK from the National Health Service (NHS) is currently based on guidelines from the National Institute for Health and Care Excellence (NICE) ^[8]. These state that *"Diets that have a 600 kcal/day deficit (that is, they contain 600 kcal less than the person needs to stay the same weight) or that reduce calories by lowering the fat content (low-fat diets), in combination with expert support and intensive follow-up, are recommended for sustainable weight loss."* These guidelines were set in 2006 and have not been fully updated since then, despite increasing evidence from multiple analyses of randomised controlled trials, the most reliable form of nutrition science, that other dietary interventions are more effective for both weight loss and overall health.

In this report, the Public Health Collaboration will set out its concerns with current healthy eating guidelines and weight loss advice for the UK and provide new solutions based on the most up to date scientific evidence.

Healthy Eating Guidelines

Healthy eating guidelines for the UK are currently encapsulated by The Eatwell Guide, which is summarised as follows:

1. Eat at least 5 portions of a variety of fruit and vegetables every day
2. Base meals on potatoes, bread, rice, pasta or other starchy carbohydrates; choosing wholegrain versions where possible
3. Have some dairy or dairy alternatives (such as soya drinks); choosing lower fat and lower sugar options
4. Eat some beans, pulses, fish, eggs, meat and other proteins (including 2 portions of fish every week, one of which should be oily)
5. Choose unsaturated oils and spreads and eat in small amounts
6. Drink 6-8 cups/glasses of fluid a day
7. If consuming foods and drinks high in fat, salt or sugar have these less often and in small amounts.

Alongside these seven points in The Eatwell Guide booklet readers are advised that fruit juice or smoothies should be limited to no more than 150ml per day. Yet in another section readers are told that these drinks count as one portion of fruit, even though they are known to be a major contributor to obesity and type 2 diabetes ^[9]. When these healthy eating guidelines are followed it is likely that every meal will contain foods with a high glycaemic index as well as having an overall high glycaemic load. Again, both of which are known to be major contributors to the development of obesity and type 2 diabetes ^[10]. There is also an increasing amount of evidence that the highly processed oils and spreads recommended by The Eatwell Guide might not be safer alternatives to natural fats such as butter or ghee, and may have the potential to cause serious harm to the public's health ^{[11] [12]}.

The latest National Diet and Nutrition Survey published in 2014 suggests that the UK population are generally following current healthy eating guidelines ^[7]. On average, total energy consumption is 383 calories below the recommended daily amount, total fat consumption is just below the recommended 35%, fruit and vegetable portions are at 4 a day instead of the recommended 5 and lastly adults in the UK eat 71g of red meat a day, which is only 1g over the recommended 70g a day. The two areas of food consumption that this survey suggests that the UK population eats in excess of recommended amounts are free sugars and saturated fat. However, these slight excesses of approximately 1.5% each are based on current recommendations that do not entirely reflect the most up to date scientific evidence.

Arguably, the advice to follow current healthy eating guidelines has resulted in 25% of adults being obese, the prevalence of type 2 diabetes doubling in 20 years, 35% living with pre-diabetes and 20% living with the early-stages of non-alcoholic fatty liver disease ^[13] ^[14].

The UK population's current state of ill-health is also having a significant impact on the economy through rising costs to the NHS. It is projected that the cost of obesity to the NHS will double to £12 billion a year by 2030 with type 2 diabetes already costing the NHS £10 billion a year ^[6]. This is in addition to the hidden economic costs resulting from ill-health and the inability to work as a result of these conditions, which currently costs the UK economy £47 billion a year. At a time when saving money in the NHS is paramount to its survival, it is critical that we consider all possible solutions to save both healthcare costs and the nation's health, especially when current approaches appear to be failing at both aims.

With all of this in mind the Public Health Collaboration has three main areas of concern in regard to The Eatwell Guide:

- 1. The avoidance of foods because of saturated fat content.**
- 2. The dietary reference value of no more than 35% total fat.**
- 3. The quality and quantity of carbohydrates.**

- Concern 1 -

The avoidance of foods because of saturated fat content

The NHS Choices website recommends that people should *"Go for lower-fat milk and dairy foods."* ^[15] This is based on the fact that full fat dairy foods contain higher amounts of saturated fat and under the *Healthy dairy choices for adults* section it says *"A diet high in saturated fat can also lead to raised levels of cholesterol in the blood, and this can put you at increased risk of a heart attack or stroke."* The NHS Choices website also states under the *Meat in your diet* section that *"Some meats are high in fat, especially saturated fat. Eating a lot of saturated fat can raise cholesterol levels in the blood, and having high cholesterol raises your risk of heart disease."* ^[16] Both recommendations were last updated in 2015 with review dates in 2017.

However, well before then many analyses had been published finding that saturated fat is not an issue of concern. In March 2010 an analysis published in *The American Journal of Clinical Nutrition* by the Harvard School of Public Health followed 347,747 people over 5-23 years and concluded that *"Intake of saturated fat was not associated with an increased risk of coronary heart disease, stroke, or cardiovascular disease."* ^[17]

Following that in July 2012 a review published in the *European Journal of Nutrition* concluded that *"observational evidence does not support the hypothesis that dairy fat or high-fat dairy foods contribute to obesity or cardiometabolic risk, and suggests that high-fat dairy consumption within typical dietary patterns is inversely associated with obesity risk."* ^[18]

Finally, in March 2014 the University of Cambridge published an analysis in the *Annals of Internal Medicine* looking at a total of 643,226 people concluding that *"Current evidence does not clearly support cardiovascular guidelines that encourage high consumption of polyunsaturated fatty acids and low consumption of total saturated fats."* ^[19]

In fact a month after the advice from NHS Choices on meat was last reviewed in August 2015 an analysis of up to 339,090 people was published in the *BMJ* concluding that *"Saturated fats are not associated with all cause mortality, cardiovascular disease, coronary heart disease, ischemic stroke, or type 2 diabetes"* ^[20].

Over a decade previously an analysis published in the *BMJ* by the Harvard School of Public Health in July 2003 followed 43,732 men over 14 years and concluded that *"These findings do not support associations between intake of total fat, cholesterol, or specific types of fat and risk of stroke in men."* ^[21]

One of the most worrying aspects of the advice to lower fat consumption, and specifically saturated fat, was an analysis published in OpenHeart in February 2015 which looked at the evidence available in 1983 when the UK were first told to restrict fat concluded that *"Dietary recommendations were introduced for 220 million US and 56 million UK citizens by 1983, in the absence of supporting evidence from randomised controlled trials."* ^[22]

In retrospect, there was never any strong evidence to recommend reducing total and saturated fat consumption and in the 30 years since the deteriorating health of the UK population suggests such advice may have been a dire mistake, however well-intentioned. Quite possibly if the UK had been advised to *go for* foods in their natural form instead of unnaturally man-made low-fat foods for the past 30 years then there would not be such high rates of obesity, type 2 diabetes and cardiovascular disease, nor the associated social and financial costs they incur.

In light of this scientific evidence the Public Health Collaboration suggests that the UK stops recommending the avoidance of foods because of saturated fat content in order to focus on the consumption of food in its natural form, however much saturated fat it contains.

- Concern 2 -

The dietary reference value of no more than 35% total fat

The dietary reference value for total fat consumption for the UK is no more than 35% of total calorie intake, which is almost identical to the National Diet and Nutrition Survey at 34.6%. Yet the UK is in the midst of an obesity and type 2 diabetes epidemic. With such an apparent paradox, it is logical and reasonable to ask, why are guidelines for total fat consumption set at no more than 35%? There is no definitive answer to be found on the NHS Choices website as to why but the first sentence on the *Fat: the facts* page says *"Too much fat in your diet, especially saturated fats, can raise your cholesterol, which increases the risk of heart disease."* ^[23] This statement is not backed up by any scientific references and is strongly contradicted from the evidence presented in our first concern. Also on this *Fat: the facts* page under *External links* it references to a Food Fact Sheet written by the British Dietetic Association (BDA) which states that *"We all need some fat in our diet but eating too much of any fat makes us more likely to become overweight."* ^[24] Again there are no scientific references attached to this statement.

The main concerns that the NHS and the BDA seem to have in regard to eating more than 35% fat are the possible increased risk of heart disease and becoming overweight. However, in February 2016 an analysis was published in the British Journal of Nutrition finding that *"Compared with subjects on low-fat diets, subjects on low-carbohydrate diets experienced significantly greater weight loss, greater triglycerides reduction and greater increase in HDL-cholesterol after 6 months to 2 years of intervention."* Therefore, according to the most up to date analysis of the scientific literature eating a low-carbohydrate diet, which contains much greater than 35% total fat intake, is more effective for weight loss and reducing heart disease risk than eating a diet with less than 35% fat, as The Eatwell Guide recommends ^[25].

Putting restrictions on total fat is becoming so unconvincing that in the most recent Dietary Guidelines For Americans the Department of Health and Human Services and the U.S. Department of Agriculture have completely removed their limit of 30% on total fat and now no longer place any restrictions on total fat intake ^[26]. However, as with our first concern it would appear that there was never any strong evidence to support recommendations to restrict total fat intake ^[22].

In light of this scientific evidence the Public Health Collaboration suggests that the UK remove the recommendation to eat no more than 35% of total calorie intake from fat. Instead, recommendations should focus on the health benefits of eating food in its natural form, regardless of how much fat it contains.

- Concern 3 - *The quality and quantity of carbohydrates*

Well managed blood glucose is of paramount importance in maintaining good health, especially in a population such as the UK where type 2 diabetes and pre-diabetes are rapidly increasing year upon year. People who are obese are often also insulin resistant, which means that their body is unable to respond to insulin, a hormone that transports glucose from the bloodstream into the tissues. This results in blood glucose levels rising, leading to the pancreas secreting more insulin. However, high insulin levels promote the accumulation of fat stores, particularly in the internal organs, and this contributes to the development of type 2 diabetes. Insulin resistance and impaired insulin production mean that blood glucose levels can no longer be controlled. Insulin resistance is also associated with much greater risk of developing non-alcoholic fatty liver disease, polycystic ovary syndrome, heart disease, cancer and Alzheimer's disease ^{[27] [28] [29] [30] [31] [32]}.

Given the above, it becomes clear that in an overweight population such as the UK, eating foods that promote insulin secretion is likely to increase the risk of worsening insulin resistance and hasten the onset of type 2 diabetes. Yet, recommending lots of carbohydrates with every meal does just that. Such carbohydrates can either be naturally found in a food as sugar or starch, such as fruit, rice and potatoes, or could be artificially added, such as in refined cereals, chocolate bars and sweetened yoghurts. On the other hand, a diet that does not rapidly increase blood glucose and does not provide too much carbohydrate to the body will help reduce the risk of worsening insulin resistance and could actually improve it. This can be achieved with a low glycaemic index diet, which has been shown to reduce the risk of type 2 diabetes ^[33].

The glycaemic index (GI) is a scale out of 100 based on how much the carbohydrate in a food increases your blood glucose compared to pure glucose. Above 70 is high, 55-69 is medium and below 55 is low. Foods that are mostly carbohydrate can affect blood glucose vastly differently. Corn flakes have a GI of 93, a baked potato has a GI of 82 and an apple has a GI of 39 ^[34]. Recommending foods with a high GI, as The Eatwell Guide currently does by advising the public to "*Base meals on potatoes, bread, rice, pasta or other starchy carbohydrates*", is illogical and opposite to what should be recommended in order to halt the ever increasing rates of obesity and type 2 diabetes.

Although the glycaemic index is a useful tool it does have limitations. For instance peas have a GI of 51, and although this is technically a low GI it seems rather high for a healthy food. This is because one has to keep in mind the low density of carbohydrate in peas. This can all be accounted for by using carbohydrate-density.

Carbohydrate-density (CD) is simply the amount of carbohydrate per 100g, which is printed on every nutrition label or on supermarket websites making it easy to implement. If a food has 25g of carbohydrate per 100g it has a CD of 25%, if a food has 5g of carbohydrate per 100g it has a CD of 5%. When looking at foods in their natural form it is uncommon to find foods that exceed a CD of approximately 25% ^[35], which complements the average carbohydrate consumption of traditional hunter-gatherer diets of 22% ^[36]. Carbohydrate-density also correlates well with glycaemic load (GL), which corrects GI for the amount of carbohydrate ingested. With all of this in mind an enlightening comparison to make is between the GL and CD of an Eatwell Guide breakfast and that of a PHC recommended breakfast:

Eatwell Guide Breakfast	Glycaemic Load	Carbohydrate-Density
Orange Juice (160ml)	7	10
Shredded whole-wheat cereal biscuits (44g)	22.5	69
Semi-skimmed Milk (150ml)	2.4	4.8
Wholemeal toast (35g)	9.4	39
Low fat spread (5g)	0	2.8
Marmalade (5g)	1.4	67
Tea (160ml) with semi-skimmed milk (30ml)	0.5	4.8
TOTAL	43.2	N/A
PHC Breakfast	Glycaemic Load	Carbohydrate-Density
2 Eggs	0	0
2 Slices of Bacon	0	0
Tomatoes (100g)	0.54	3.6
Coffee (160ml) with whole milk (30ml)	0.4	4.7
TOTAL	0.94	N/A

Evidently a breakfast recommended by The Eatwell Guide in comparison to a PHC recommended breakfast has foods with much higher carbohydrate-densities alongside a total glycaemic load 46 times higher. This marked difference will raise blood glucose significantly more as well as for longer, which in turn increases the risk of developing type 2 diabetes and obesity ^{[37] [10]}.

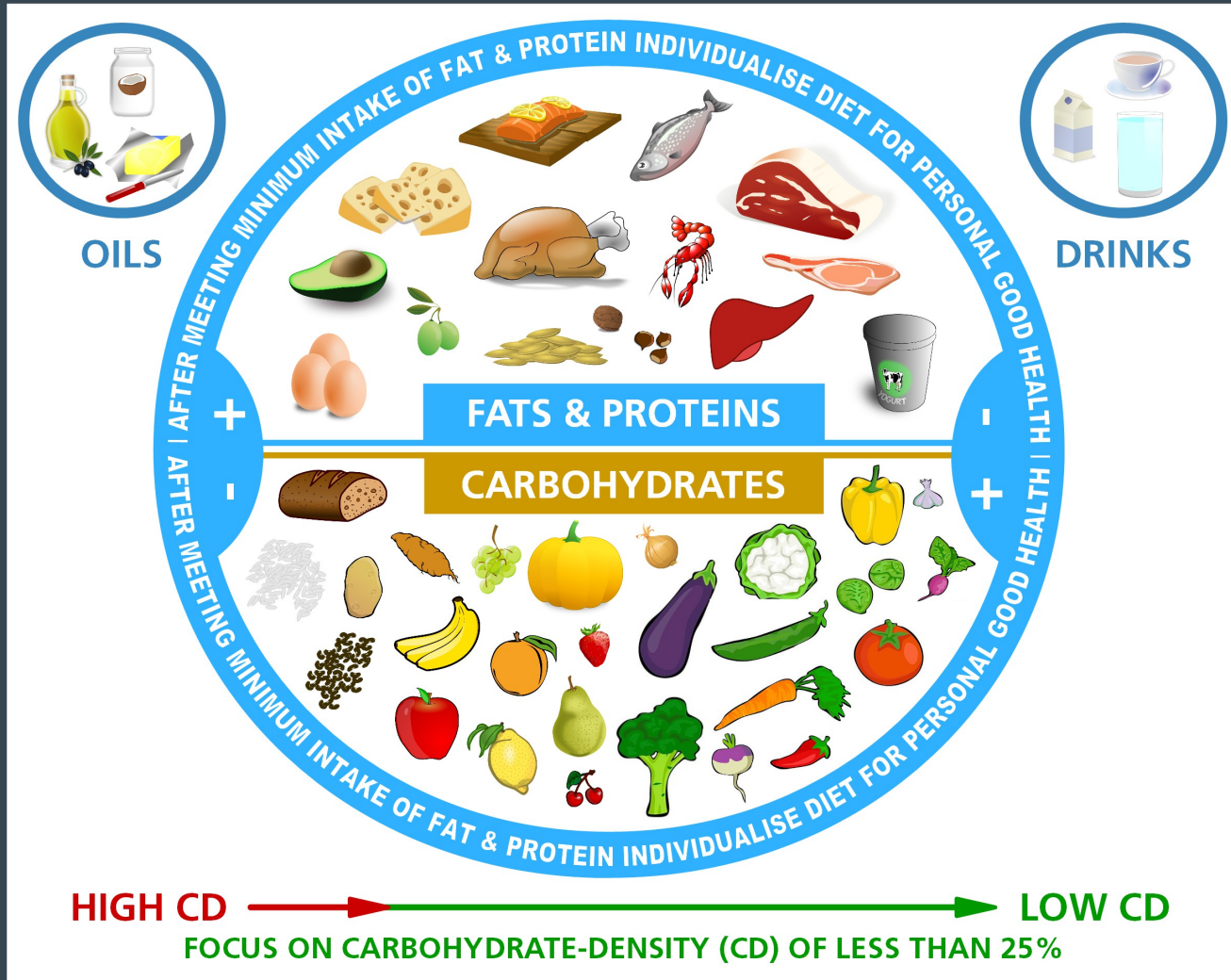
Achieving more stable blood glucose and insulin levels is not the only benefit of eating foods with a lower carbohydrate-density. It has also been shown to significantly reduce hunger in comparison to a low-fat diet, similar to that recommended by The Eatwell Guide ^[38] ^[39], in part because of lowered insulin levels ^[37] ^[40].

Recommending high GL and high CD foods at every meal, as The Eatwell Guide does, risks aggravating chronically raised blood insulin levels and so it is not surprising that following current healthy eating guidelines has been associated with increased rates of type 2 diabetes and obesity. Therefore it would be prudent not to recommend the foods that could be the root cause of the conditions from which so many of the UK population suffer, especially when carbohydrate restriction has been shown to be a particularly effective intervention for managing and even reversing type 2 diabetes ^[41]. NICE already recommends individualising carbohydrate intake for people living with type 2 diabetes; we suggest expanding this to the entire population of the UK in order to improve public health ^[42].

In light of this scientific evidence the Public Health Collaboration suggests that the UK should avoid foods that have a high carbohydrate-density in order to focus on the consumption of foods and drinks that have carbohydrate-density of less than 25%, as they are usually found in their natural form.

THE REAL FOOD LIFESTYLE

FAT MINIMUM INTAKE = 30g PER DAY FOR WOMEN & 40g PER DAY FOR MEN



PROTEIN MINIMUM INTAKE = 1g PER 1kg OF BODYWEIGHT PER DAY

EAT REAL FOOD | AVOID FAKE FOOD | BE ACTIVE EVERYDAY

Traditional human diets consisted of real food containing varying amounts of the three macronutrients; carbohydrates, fats and proteins, with little or no obesity, type 2 diabetes or heart disease ^[43]. The two factors common to all traditional lifestyles in different populations are that they ate real food and were active everyday. The Real Food Lifestyle enables individual flexibility in eating all real foods, whereas current official advice has been one approach for all. The Real Food Lifestyle is particularly apt as the UK is a multi-ethnic society, with different ethnicities having specific dietary needs as well as different cultural dietary habits.

With this in mind we recommend switching the focus of healthy eating guidelines from maximum amounts, which can be perceived as targets to reach, to minimum intakes of essential nutrients with no upper limits. This approach ensures everyone consumes the minimum intakes of essential nutrients and then allows for individual flexibility to maintain personal good health through real food, signified by the plus and minus signs on the diagram. In fact the first ever dietary recommendation for the UK in 1950 from the British Medical Association was similar to this and advised that dietary fat intake should provide a minimum of 25% of daily calories with no upper limit ^[44].

In human nutrition fat and protein are the two essential macronutrients for sustaining health, as they provide essential fatty acids and amino acids that the human body cannot create on its own. These nutrients are critical in health because they are needed to absorb certain vitamins and to allow the body to function correctly. Carbohydrate, the other macronutrient, is not an essential nutrient for sustaining human health but is part of a healthy diet as long as a person's minimum intakes of fat and protein are met ^[45].

Minimum intakes for protein should be set slightly higher than the current 0.75g ^[46], to 1g for 1kg of total bodyweight per day. This figure is based on the impact that increased protein intake has on reducing appetite, as well as its ease of use to implement ^[47]. An example of this in practice is that an adult who weighs 64kg (approximately 10 stone) should eat at least 64g of protein per day. This intake of protein can be met by eating the total equivalent of 50g of raw almonds, 100g of mackerel and 100g of chicken with skin eaten per day. The protein content of foods is available on the majority of food labels or on supermarket websites in grams, allowing such a recommendation to be easily implemented. It should also be noted that it is important for individuals to eat sources of complete proteins, which mostly come from animal foods.

Minimum intakes for fat should be set at greater than 40g for men and greater than 30g for women with no upper limit. These figures are based on recommendations from the Food And Agricultural Organization Of The United Nations (FAO) on minimum total fat intakes for adults of no less than 15% of total calorie intake ^[48]. The same total equivalent of 50g of raw almonds, 100g of mackerel and 100g of chicken with skin eaten per day also meets the minimum intake for fat. Again the fat content of foods is available on the majority of food labels or on supermarket websites in grams, allowing such a recommendation to be easily implemented. It should also be noted that it is important to keep a near equal balance of omega 3 to omega 6 fatty acids. As most people are deficient in omega 3 it is recommended to eat dense sources that are also low in mercury such as mackerel, salmon and sardines at least two times a week ^[49]. Pregnant and breastfeeding women should not exceed two portions of low mercury fish per week.

Below is a table of everyday foods that will each meet a third of the minimum daily intakes for fat and protein, meaning that it is a suggested minimal portion at one of a possible three meals in a day:

Food	Fried Liver	Salmon Steak	Roasted Lamb	Fried Eggs	Cheddar Cheese	Walnuts	Mackerel
Fat (>30g for women, >40g for men)	77g (W)	64g (W)	37g (W)	64g (W) (1 Large)	29g (W)	15g (W)	30g (W)
	103g (M)	85g (M)	50g (M)	85g (M) (1.5 Large)	38g (M)	19g (M)	40g (M)
Protein (1g/1kg of body weight*)	70g	86g	73g	144g (2 Large)	83g	144g	90g

* Based on a 10 st/ 64kg adult.

The Real Food Lifestyle also recommends that carbohydrates should be from real foods that have a carbohydrate-density (CD) of less than 25%, as this is how foods are usually found in their natural form. CD is the amount of carbohydrate per 100g, which is printed on every nutrition label or on supermarket websites making it easy to implement. Below is a table of 10 common carbohydrates with their carbohydrate-densities:

Food	Spinach	Courgette	Pepper	Broccoli	Cauliflower
Carbohydrate-density (%)	1.5	2	2.5	3	3.5
Food	Tomato	Strawberry	Orange	Apple	New Potato
Carbohydrate-density (%)	3.5	6	8.5	12	15

The essential micronutrients in human nutrition are the vitamins A, B6, B12, C, D, E, K, thiamin, riboflavin, niacin, folic acid, biotin and pantothenic acid and the minerals calcium, phosphorus, magnesium, sodium, potassium, chloride, iron, zinc, copper, selenium, iodine, chromium and molybdenum ^[50]. Many people perceive that micronutrients are mostly found in fruits and vegetables, and a lot are, but they're also present in a variety of real foods. For instance carrots are commonly known to be a good source of vitamin A, with 100g containing 13,790 IU, but 100g of chicken liver contains more at 14,378 IU of vitamin A. Milk is also recognised to be a good source of calcium with 100g containing 113mg, but 100g of sardines contains 3 times more at 382mg. It is important to note that vitamins A, D, E and K are fat soluble and must be eaten with some fat in order for the body to absorb these vitamins.

Below is a table of everyday foods that will each meet a third of the minimum daily intakes for essential vitamins, meaning that it is a suggested minimal portion at one of a possible three meals in a day. However, this does not mean that individuals need to eat all of the foods presented but demonstrates the variety of real foods that contain the respective vitamins ^[50]:

Vitamin	Minimum Intake For An Adult	Example Food 1	Example Food 2	Example Food 3
Vitamin A	800µg	34g Boiled Spinach	2g Fried Lambs Liver	36g Boiled Curly Kale
Vitamin B ₆	1.4mg	80g Roast Turkey	100g Pistachio Nuts	100g Pork Belly
Vitamin B ₁₂	2.5µg	3g Fried Lambs Kidney	21g Cheddar Cheese	75g Fried Eggs (1 Large)
Vitamin C	80mg	11g Bell Peppers	23g Steamed Broccoli	42g Raspberries
Vitamin D	5µg	11g Grilled Herring	20g Baked Salmon	42g Tuna Fish canned in water
Vitamin E	12mg	11g Sunflower Seeds	16g Almonds	30g Pine Nuts
Vitamin K ₁	75µg	7g Raw Spinach	43ml Olive Oil	48g Asparagus
Thiamin (B ₁)	1.1mg	40g Brazil Nuts	45g Belly Pork	62g Smoked Salmon
Riboflavin (B ₂)	1.4mg	5g Beef Sirloin Steak Grilled	7g Fried Lambs Liver	122g Full Fat Greek Yoghurt
Niacin (B ₃)	16mg	18g Baked Tuna	22g Fried Lambs Liver	70g Portobello Mushrooms
Folic Acid (B ₉)	200µg	22g Edamame Beans	40g Asparagus	42g Raw Baby Spinach
Biotin (B ₇)	50µg	8g Chicken Liver	23g Sunflower Seeds	26g Almonds
Pantothenic Acid (B ₅)	6mg	74g Sunflower Seeds	134g Ham & Cheese Omlette	170g Shiitake Mushrooms

Below is a table of everyday foods that will each meet a third of the minimum daily intakes for essential minerals, meaning that it is a suggested minimal portion at one of a possible three meals in a day. However, this does not mean that individuals need to eat all of the foods presented but demonstrates the variety of real foods that contain the respective minerals ^[50]:

Mineral	Minimum Intake For An Adult	Example Food 1	Example Food 2	Example Food 3
Calcium	800mg	32g Cheddar Cheese	44g Canned Sardines	55g Fried Pig Kidney
Phosphorus	700mg	37g Fried Lambs Liver	43g Okra Stir-Fry	68g Grilled Kippers
Magnesium	375mg	22g Brazil Nuts	24g Pumpkin Seeds	82g Okra Stir-Fry
Sodium	2,400mg	50g Smoked Salmon	57g Grilled Kippers	74g Cheddar Cheese
Potassium	2,000mg	171g Raw Baby Spinach	260g Avocado	67g Pistachio Nuts
Chloride	800mg	54g Smoked Salmon	62g Grilled Kippers	80g Cheddar Cheese
Iron	14mg	17g Dried Seaweed	55g Fried Pig Kidney	64g Fried Lambs Liver
Zinc	10mg	34g Sesame Seeds	40g Fried Lambs Liver	53g Fried Pig Kidney
Copper	1mg	3g Fried Lambs Liver	6g Raw Oysters	6g Dried Seaweed
Manganese	2mg	17g Raw Pecans	11g Raw Hazelnuts	3g Ground Ginger
Selenium	55µg	13g Cooked Crab	22g Fresh Tuna	31g Grilled Sardines
Iodine	150µg	4g Raw Nori Seaweed	30g Baked Cod	50g Steamed Pollock
Chromium	40µg	100g Pumpkin Seeds	15g Garlic	100g Broccoli
Molybdenum	50µg	66g Peas	66g Lentils	100g Raw Almonds

The two main groups on The Real Food Lifestyle diagram reflect how foods come in their natural form. Foods such as eggs, cheese, fish, meat and nuts are mostly fat and protein, which enable individuals to meet their minimum intake of essential fat and protein. Foods such as potatoes, rice, beans, fruits and vegetables are mostly carbohydrate. On The Real Food Lifestyle diagram they are organised by highest carbohydrate-density on the left and lowest carbohydrate-density on the right, making it easy to identify the preferable types of carbohydrate.

The two groups off the plate are drinks that should be consumed and oils that should be used for cooking. Drinks should be as natural as possible such as water, whole milk, unsweetened teas and coffee. Oils for cooking should be rich in monounsaturated or saturated fats such as butter, coconut oil and olive oil to minimise the formation of toxic compounds from heating ^[12].

Once these minimum intakes for fat, protein and micronutrients are met, individuals then have the flexibility and freedom to eat whichever real food enables them to maintain personal good health. Some may find that a real food low-fat diet enables them to maintain personal good health, but equally others may find that a real food high-fat diet enables them to maintain personal good health. As long as the principles of The Real Food Lifestyle are followed and individuals maintain personal good health there should be no prejudice to whichever real foods enable someone to maintain personal good health. Personal good health is defined as:

1. Waist circumference less than 90cm (35.5 inches) for men and less than 80cm (31.5 inches) for women.
2. Fasting blood glucose less than 5.6 mmol/L.
3. Blood pressure less than 140 mmHg for systolic and less than 90 mmHg for diastolic.
4. Fasting triglycerides less than 1.7 mmol/L.
5. Fasting HDL-cholesterol greater than 1.03 mmol/L for men and greater than 1.29 mmol/L for women.

If three or more out of the five are out of range then this would mean that a person has metabolic syndrome and is no longer maintaining personal good health. Metabolic syndrome is defined by the International Diabetes Federation (IDF) with updated blood pressure recommendations from NICE ^[51] ^[52]. If someone finds themselves no longer in personal good health they should review and adjust their lifestyle in order to re-obtain personal good health and should consider following The Real Food Lifestyle For Weight Loss, which is described later in this report.

Although as humans we need a minimum amount of energy to maintain personal good health The Real Food Lifestyle does not recommend counting calories. Instead we recommend that individuals follow these three focuses for healthy living:

1. **Eat real food, until you're satisfied.** These are foods that are naturally nutrient dense and are minimally altered from their natural state, which will nourish you and satisfy hunger.
2. **Avoid fake foods, as much as you can.** These are foods that have been highly-processed from their natural state with free sugars, highly-processed oils and fortified nutrients, which do not nourish you and will not satisfy hunger.
3. **Be active everyday, with an activity you enjoy.** Whether it be a brisk walk up the stairs or a vigorous workout in an exercise class, it'll help improve cardiovascular health, mood and sleep.

Here are some common examples of real foods:

1. **Fats & Proteins.** Eggs, sardines, mackerel, salmon, beef, chicken (with skin), lamb, pork, liver, kidney, heart, avocados, olives, full-fat cheese, full-fat yoghurt, cream, almonds, macadamia nuts, brazil nuts, walnuts.
2. **Carbohydrates.** Broccoli, spinach, green beans, bell peppers, tomatoes, mushrooms, cauliflower, courgettes, onions, carrots, butternut squash, blueberries, strawberries, apples, oranges, lemons, parsnips, beans, legumes, potatoes, fermented breads.
3. **Drinks.** Water, tea, herbal tea, fruit tea, coffee, full-fat milk, full-fat cream.
4. **Oils.** Beef tallow, butter, coconut oil, ghee, goose fat, lard and cold-pressed olive oil.

Here are some common examples of fake foods:

1. **Fats & Proteins.** Low-fat cheeses, low-fat yoghurt, low-fat spreads, beans in sauce, flavoured nuts, canned whipped cream.
2. **Carbohydrates.** Sugary cereals, refined breads, refined pastas, crisps, biscuits, cakes, dried fruit.
3. **Drinks.** Sugary soft drinks, fruit juices, low-fat milk, sugary milkshakes, pre-packaged smoothies.
4. **Oils.** Sunflower oil, corn oil, vegetable oil, soya oil and rapeseed oil.

A week of living The Real Food Lifestyle could be as follows:

	Breakfast	Lunch	Dinner	Snack	Activity
Monday	Full fat Greek yoghurt with nuts and berries	Salmon with green beans and boiled new potatoes	Chicken curry with cauliflower	Almond butter with celery	20 minutes strength exercise
Tuesday	Fried kippers with tomatoes	Lentil soup	Moussaka with grilled courgettes	Macamadia nuts	20 minutes walk at lunchtime
Wednesday	Full fat Greek yoghurt with nuts and berries	Frittata with salad and olive oil	Cream cheese stuffed chicken wrapped in bacon with buttered broccoli	Olives	4 minutes aerobic interval training
Thursday	Ground almond and flaxseed scone with butter and blueberries	Avocado and prawn salad with balsamic vinegar	Sirloin steak with cauliflower, spinach and garlic mash	Peach	20 minutes strength exercise
Friday	Strawberries and unsweetened coconut flakes	Homemade cream vegetable soup	Seafood and okra stir-fry cooked in coconut oil	Brazil nuts	20 minutes walk at lunchtime
Saturday	Scrambled eggs and bacon with fried mushrooms	Tinned tuna and kidney bean salad with olive oil	Homemade beef bolognese with courgette spaghetti	Apricot	4 minutes aerobic interval training
Sunday	Full fat Greek yoghurt with nuts and berries	Roast chicken, potatoes and vegetables	Homemade cream of mushroom soup	Pecan nuts	1 hour walk in park or countryside

In conclusion The Real Food Lifestyle is an approach that allows for individual flexibility, and accepts that a variety of real food diets can be used to maintain personal good health. In order to improve public health in the UK the Public Health Collaboration recommends that as a nation we follow The Real Food Lifestyle by eating real food, avoiding fake food and are active everyday.

Weight Loss Advice

Weight loss advice in the UK from the NHS is currently based on NICE guidelines which state *“Diets that have a 600 kcal/day deficit (that is, they contain 600 kcal less than the person needs to stay the same weight) or that reduce calories by lowering the fat content (low-fat diets), in combination with expert support and intensive follow-up, are recommended for sustainable weight loss.”* [8]. These guidelines were set in 2006 and have not been fully updated in 10 years despite increasing evidence from analyses of randomised controlled trials, the most reliable form of nutrition science, that other dietary interventions are more effective for both weight loss and overall health.

Since 2006 there have been four meta-analyses published specifically looking at randomised controlled trials between ad libitum low-carbohydrate diets and the currently recommended calorie counting low-fat diets in regard to weight loss.

The first was published during August 2008 by the Centre for Obesity Research and Epidemiology in Obesity Reviews that concluded *“Evidence from this systematic review demonstrates that low-carbohydrate/high-protein diets are more effective at 6 months and are as effective, if not more, as low-fat diets in reducing weight and cardiovascular disease risk up to 1 year. More evidence and longer-term studies are needed to assess the long-term cardiovascular benefits from the weight loss achieved using these diets.”* [53]

Four years later in the same journal there was a review that followed up on the concluding concerns made by the previous analysis about the cardiovascular benefits of low-carbohydrate diets that summarised its findings as *“The low-carbohydrate diet was shown to have favourable effects on body weight and major cardiovascular risk factors; however the effects on long-term health are unknown.”* [54]

The second specific analysis was published in October 2013 in the British Journal of Nutrition concluding that *“the present meta-analysis demonstrates that individuals assigned to a very-low-carbohydrate ketogenic diet achieve significantly greater long-term reductions in body weight, diastolic blood pressure and triglycerides, as well as greater LDL and HDL increases when compared with individuals assigned to a low-fat diet; hence, the very-low-carbohydrate ketogenic diet may be an alternative tool against obesity. Investigations beyond that of blood cardiovascular risk factors merit further study.”* [55]

The third specific analysis was published in October 2015 in PLOS ONE that concluded *“Low-carbohydrate diets appear to achieve greater weight loss and reduction in predicted risk of atherosclerotic cardiovascular disease risk events compared with low-fat diets.”* [56]

Finally, in February 2016 the fourth specific analysis was published in the British Journal of Nutrition finding that *"Compared with subjects on low-fat diets, subjects on low-carbohydrate diets experienced significantly greater weight loss, greater triglycerides reduction and greater increase in HDL-cholesterol after 6 months to 2 years of intervention."* [25]

The common message from these analyses is that low-carbohydrate diets are significantly better for weight loss and a number of cardiovascular risk factors. However, it is usually recommended that more research should be undertaken to investigate whether they are safe in long term health. The Public Health Collaboration suggests that enough time has now passed to conclude that ad libitum low-carbohydrate diets are indeed healthy and safe in the long term.

Our main concern with current weight loss advice from NICE and the NHS is that only one option is recommended despite the scientific evidence repeatedly showing that ad libitum low-carbohydrate-high-fat (LCHF) diets are more effective for weight loss and result in better improved overall cardiovascular disease risk. This was highlighted in an analysis published in The Lancet by the Department of Nutrition at the Harvard School of Public Health in December 2015 which reviewed 53 studies involving 68,128 people and concluded that *"When compared with dietary interventions of similar intensity, evidence from randomised controlled trials does not support low-fat diets over other dietary interventions for long-term weight loss."* and also found that *"In weight loss trials, higher-fat weight loss interventions led to significantly greater weight loss than low-fat interventions"*. [57]

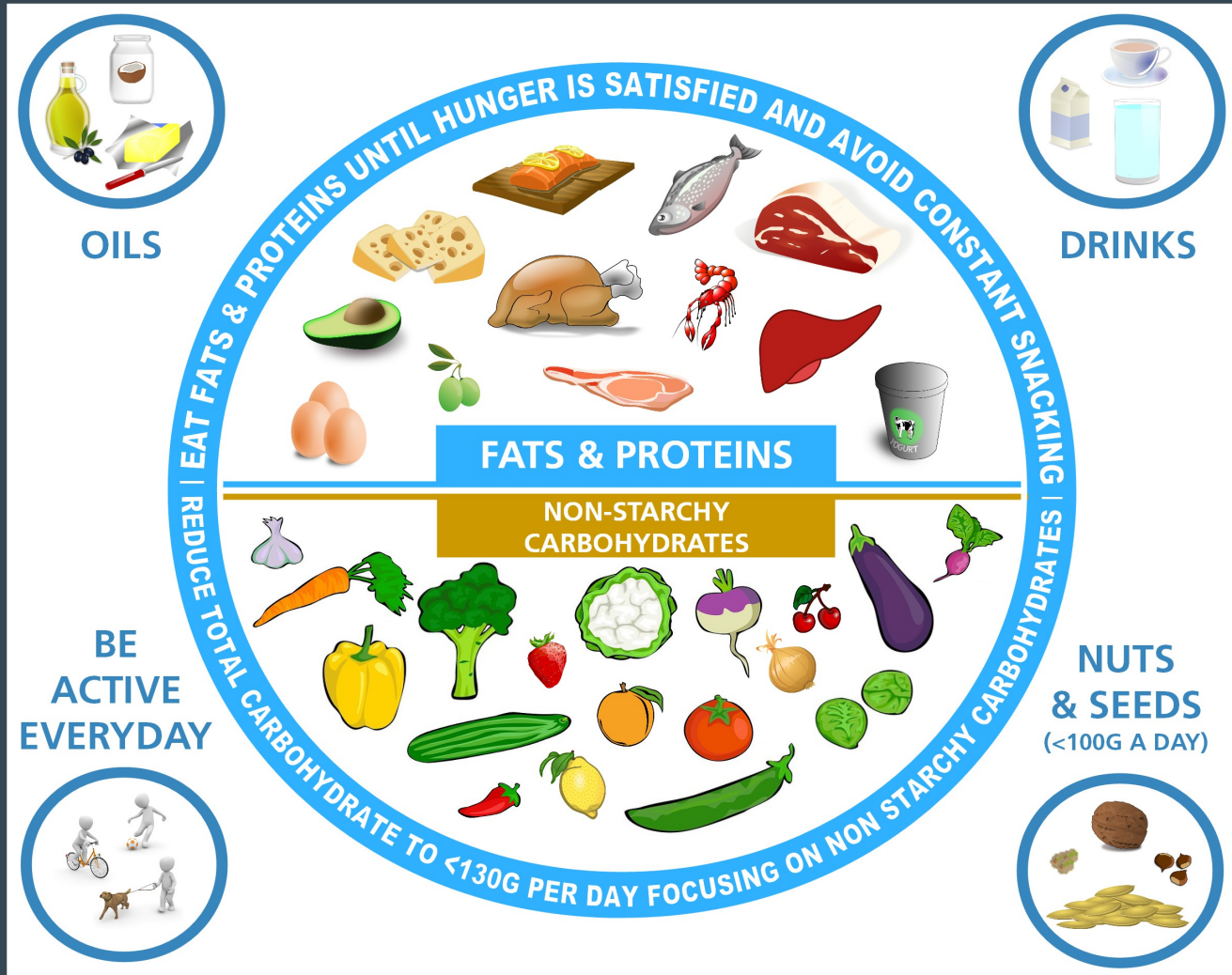
With this concern in mind the Public Health Collaboration searched the scientific literature for all published randomised controlled trials (RCTs) comparing LCHF diets to low-fat diets. We managed to find 53 published RCTs which compared LCHF diets consisting of less than 130g per day of total carbohydrate and greater than 35% total fat, to calorie counting low-fat diets consisting of less than 35% total fat that lasted a minimum of a month and up to two years. Out of the 53 trials we found, five showed that following the currently recommended low-fat diet resulted in greater weight loss, although none showed a statistically significant benefit, two of the trials showed the same weight loss, and finally 46 of the 53 trials showed that following the LCHF diets resulted in greater weight loss, with 26 of those being statistically significant [58]. The LCHF diets also showed three times more beneficial health outcomes compared to the low-fat diets. The average advised total fat intake for the LCHF diets was approximately 65%, and the average advised carbohydrate consumption was 10%. Therefore according to the most reliable form of nutrition science we have available, advising an ad libitum LCHF diet is more effective at lowering weight and improving other health outcomes than the current NICE guidelines of following a calorie counting low-fat diet.

NICE might have concerns that the current knowledge and experience of healthcare professionals may not be adequate to implement the LCHF diet throughout the NHS. However, some are already advising this lifestyle to patients living with type 2 diabetes based on current NICE guidelines to individualise carbohydrate intake ^[42]. One of our founding members from Norwood Surgery in Southport, Dr. David Unwin has published data on the significant benefits of recommending the LCHF diet. For his team's work they were recently awarded Innovator of the Year at the NHS Leadership Recognition Awards 2016. Dr. Unwin has managed to dramatically improve his patients' health as well as spending £45,000 per year less on drugs for type 2 diabetes compared to the average in his local Clinical Commissioning Group area ^{[59] [60] [61]}. Replicating these results in all 9,400 surgeries across the UK would lead to savings over £400 million each year on drugs for diabetes alone. This approach would undoubtedly also have beneficial economic effects and health outcomes in respect to other conditions related to insulin resistance, such as non-alcoholic fatty liver disease, polycystic ovary syndrome, heart disease, some cancers and Alzheimer's disease ^{[27] [28] [29] [30] [31] [32]}.

In light of this scientific evidence the Public Health Collaboration recommends that the guidelines for weight loss in the UK should include an ad libitum low-carbohydrate-high-fat diet of real foods as an acceptable, effective and safe approach.

THE REAL FOOD LIFESTYLE FOR WEIGHT LOSS

CREATE A PERSONAL PURPOSE AS TO WHY YOU WANT TO LOSE WEIGHT...



...BECAUSE WITH A STRONG ENOUGH WHY YOU CAN OVERCOME ANY HOW

EAT REAL FOOD | AVOID FAKE FOOD | BE ACTIVE EVERYDAY

In accordance with the scientific evidence The Real Food Lifestyle For Weight Loss primarily advises to follow a low-carbohydrate diet of real foods. This means that total carbohydrate intake should be reduced to less than 130g per day, including the newly recommended 30g of fibre ^[41] ^[62]. The carbohydrates eaten should mostly come from non-starchy vegetables such as cauliflower, broccoli and courgettes as well as high-fibre fruits such as raspberries, blackberries and avocado. The amount of carbohydrate and fibre in foods are available on the majority of food labels or on supermarket websites in grams, allowing such a recommendation to be easily implemented.

As a general rule as long as individuals focus on non-starchy vegetables and high-fibre fruits then there should not be any need to count or weigh the amount of carbohydrate eaten. An individual who is trying to lose weight should be somewhat wary of nuts, as although they are very healthy they are easily overeaten and can contain high amounts of carbohydrate. For instance cashew nuts contain 26.5g per 100g of carbohydrate. Thus it is recommended that nut intake should not exceed 100g a day, which is approximately a closed handful. However, they are a good source of fibre. Almonds contain 7.4g of fibre per 100g, almost a third of the recommended daily intake of 30g, and so should be eaten when following The Real Food Lifestyle For Weight Loss.

For individuals transitioning from the currently advised calorie counting low-fat diet to The Real Food Lifestyle For Weight Loss this approach may sound daunting. We suggest before making this lifestyle change to first think about why they want to lose weight and become healthier, as with a strong enough 'why' you can overcome any 'how'. That is to say with a powerful enough reason as to why an individual wants to lose weight they will inevitably overcome adversity to succeed. This reason could be because they simply want to slim down for a holiday or because they want to be able to run around with their children without getting out of breath. Once an individual has decided on why they want to make a lifestyle change, they should write this reason down on a piece of paper or blank business card. The reason should be clear, concise and personal. They should then place this on top of the credit card that they use the most, so that every time they make a purchase they are reminded of why they want to lose weight and become healthier. We call this a personal purpose credit card, and it should be used to help focus an individual's efforts and motivate them to achieve their ideal weight.

It is worth noting that whilst transitioning to The Real Food Lifestyle For Weight Loss a small percentage of individuals might feel slightly lethargic for the first week or two. This is due to the body acclimatising to having less available glucose from carbohydrates to burn for quick energy and having to use fat for energy instead. Once the body becomes used to this change the lethargy does subside, and energy levels return to normal. During this time it is important to make sure that 5g of salt per day is consumed, which is approximately a levelled teaspoon of salt. This is because the real foods recommended do not contain much sodium, which is essential for water balance. An easy way to achieve this is to sprinkle 1/3 of a teaspoon of salt at each meal.

The secondary focus of The Real Food Lifestyle For Weight Loss is to be active every day. If an individual is feeling slightly lethargic during the first two weeks of transitioning to this lifestyle then it is recommended not to be overly active and to purely focus on the diet until the lethargy stops. If, like the majority, an individual doesn't feel lethargic then they are encouraged to be active from the start. Being active every day doesn't mean doing vigorous exercise every single day, rather it means that people should move their body in any which way they enjoy.

This could be as simple as taking the stairs instead of a lift or taking a 20 minute walk at lunch time. Once a base level of fitness has been reached more vigorous activities can be undertaken such as cycling, running, swimming, exercise classes or team sports. Enjoying an activity is the key to long term adherence of activity, so experimenting with different activities is encouraged until one is found that is particularly enjoyable. A week of living The Real Food Lifestyle For Weight Loss could be as follows:

	Breakfast	Lunch	Dinner	Activity
Monday	Full fat Greek yoghurt with nuts and berries	Salmon with green beans	Chicken curry with cauliflower	20 minutes strength exercise
Tuesday	Fried kippers with tomatoes	Homemade liver, bacon and onion soup	No-potato moussaka with grilled courgettes	20 minutes walk at lunchtime
Wednesday	Full fat Greek yoghurt with nuts and berries	Omelette with salad and olive oil	Cream cheese stuffed chicken wrapped in bacon with buttered broccoli	4 minutes aerobic interval training
Thursday	Ground almond and flaxseed scone with butter and blueberries	Avocado and prawn salad with balsamic vinegar	Sirloin steak with cauliflower, spinach and garlic mash	20 minutes strength exercise
Friday	Strawberries and unsweetened coconut flakes	Homemade cream vegetable soup	Seafood and okra stir-fry cooked in coconut oil	20 minutes walk at lunchtime
Saturday	Scrambled eggs and bacon with fried mushrooms	Tinned fish with salad and olive oil	Homemade beef bolognese with courgette spaghetti	4 minutes aerobic interval training
Sunday	Full fat Greek yoghurt with nuts and berries	Roast chicken with no starchy vegetables	Homemade cream of mushroom soup	1 hour walk in park or countryside

The above table is an example and should be personalised to an individual's lifestyle. For instance three meals a day with snacks is not always necessary, as we recommend to eat until hunger is satisfied and to only eat when hungry. One person may have 2 meals and a snack a day, whereas another person might have 1 large meal and a few snacks a day. This is why there are no any portion sizes in the above table as satisfaction and hunger are different for everyone.

If an individual has followed this lifestyle for at least a month and hasn't lost any weight there are two common areas to explore:

Sleep and stress

Sleep and stress are intrinsically linked as one can significantly impact the other. If someone is stressed it can prevent them from sleeping well, and not sleeping well makes them even more stressed. This detrimental cycle can also have an impact on a person's weight by affecting the 24 hour hormone cycle, known as the circadian rhythm ^[63]. The easiest way to reduce stress and improve sleep is by being active. Whether it be a long walk with the dog, a leisurely cycle in the park or a football match with friends being active is an important part of having a well functioning body in order to lose weight. If being more active is not feasible, another effective method to reduce stress levels is mindfulness meditation ^[64], which is a common practice in many yoga classes available across the country.

Quantity

The initial recommendation of The Real Food Lifestyle For Weight Loss is to follow a real food low-carbohydrate diet, which means that total carbohydrate intake should be reduced to less than 130g per day. If there hasn't been any weight loss after a month of following this initial recommendation then it is recommended that they reduce their total carbohydrate intake further to less than 50g per day, to a very-low-carbohydrate diet ^[41]. If after another month there hasn't been any weight loss then it is recommended to visit a General Practitioner to explore other options.

In conclusion The Real Food Lifestyle For Weight Loss is the approach that has been shown to be the most effective for weight loss and reducing cardiovascular disease risk in the most reliable nutrition science available. That is not to say that other weight loss interventions do not work but that this is the first one to try. In order to decrease obesity and overweight rates more effectively than the current approaches the Public Health Collaboration suggests that the UK recommends The Real Food Lifestyle For Weight Loss as the primary approach for weight loss.

Closing Remarks

In the late 1960's Archie Cochrane, a doctor recognised for his critical contribution in making randomised controlled trials the gold standard, helped plan a trial to compare the effectiveness of heart disease patients recovering at the hospital or at home. When the first report of results came in after a few months one of the researchers showed the partial results to a coronary care unit enthusiast, who was adamant that people should recover in the hospital, and not at home. The results were clear that there was a higher death rate for people recovering at home. The enthusiast declared that the trial was unethical and should be stopped immediately. The researcher then revealed that he had in fact reversed the results. There was actually a slightly higher death rate for those recovering at the hospital. Despite the fact that the enthusiast had called the trial unethical when the results went his way, the researcher could not persuade him to say that recovery in the hospital was unethical.

This story from *Effectiveness and Efficiency: Random Reflections on Health Services* by Dr Cochrane is a lesson to us all about how easily we can stick to a pre-conceived idea despite contrary evidence showing us that we are incorrect. In the last paragraph of the book Dr. Cochrane wrote *"I hope clinicians in the future will abandon the pursuit of the 'margin of the impossible' and settle for 'reasonable probability'. There is a whole rational health service to gain."* We hope that this report has explained what is the reasonable probability rather than the margin of the impossible, and that the evidence presented is not ignored because it does not fit with current guidelines.

At this very moment in time we are at a crossroads for improving public health in the United Kingdom. We can either carry on recommending current healthy eating guidelines and weight loss advice, which have not made any progress for the past 20 years, or we can accept that what was previously thought to be true is no longer so. In order to make progress we must accept that mistakes have been made and move forward with the lessons learned.

As Dr Cochrane said in the 1960's *"There is a whole rational health service to gain."*

Emma Williams MBE

Emma is the founder and CEO of Matthew's Friends, a charity that supports medical dietary therapy for epilepsy, brain tumours and other neurological disorders. In 2004 her 9 month old son, Matthew, started having seizures and no medication he tried stopped them. After enduring prolonged seizures that nearly killed him, he developed devastating brain damage. At 7 years old Matthew got the chance to a trial a medical dietary therapy carried out at Great Ormond Street Hospital. Within 2 weeks of starting the dietary therapy his seizures reduced by 90% and within 8 months he was weaned off all of his medication.



Anthony, Geoff & Ian Whittington

Anthony, Geoff and Ian are the family of film-makers behind the documentary Fixing Dad. The story of Geoff, whose lifestyle choices caught up with him until his two sons resolved to save him. In over a year of honest and intimate filming you watch Anthony and Ian struggle to transform their dad from an obese, barely mobile night time security guard to a fighting fit endurance cyclist and health activist. Gradually Geoff has become determined to inspire and improve the health of others alongside his own by giving talks around the world about the challenges of reversing type 2 diabetes from the patients perspective.



Lisa Quinn

Lisa is a Level 4 Personal Trainer and has run her own personal training business for the past ten years. On top of being a qualified personal trainer, Lisa is qualified in Obesity and Diabetes Management. Lisa also runs health and weight management courses with wellness seminars. She has helped clients achieve great weight loss success, as well as significantly improving health markers and seen some of her clients come off of medication under the guidance of their Doctor.





Ian MacGregor

Ian is an entrepreneur, his company Marco Cable Management employs more than seventy people and is the UK's largest manufacturer of steel wire cable tray. In 2009 Ian was diagnosed with type 2 diabetes. Part of the process included a meeting with a dietician who provided a copy of the *eatwell plate* to follow. In a chance conversation in 2010 with a friend, everything changed. As a result Ian dramatically reduced his carbohydrate consumption and increased his fat consumption. From that day he started testing his blood glucose levels, adapting his diet to keep his blood glucose under control. Today Ian has no evidence of type 2 diabetes.

Hannah Sutter

A qualified solicitor and passionate advocate for the use of natural low carbohydrate diets for the management of general health and the use of nutritional ketogenic diets for the management of diabetes, epilepsy and many other serious health conditions. In 2004 Hannah founded Natural Ketosis, a natural low carb and nutritional ketogenic solution for obesity and weight loss, providing delivered meals and one to one support for a long lasting, weight loss solution. In 2011 she authored "Big Fat Lies – Is your government making you fat?" A critique of the Eat Well Plate and exposé of the conflicts of interest in SACN (Scientific Advisory Committee on Nutrition).



Justin Walters



Justin is an entrepreneur active in digital health. He is founder of Ways of Eating, a business using coaching and an app to help people succeed with healthy eating. The Ways of Eating programs are based on real foods, low carb eating, and intermittent fasting. Justin is also Chairman of My Clinical Outcomes, a business enabling the collection and analysis of patient reported outcomes data. Earlier in his career Justin was founder and CEO of Investis, and he led the digital team at the Guardian. Justin has an MBA from Insead, an MA in PPE from Oxford, and was elected as a Fellow of All Souls College in Oxford.

Linda O' Byrne

Linda is the Atkins International Nutritionist and has worked in the nutrition industry for over 15 years. After receiving her Bachelors of Science in Nutrition she continued her education by becoming ISSA certified in Performance Nutrition, Fitness Coaching & Fitness Nutrition. Linda is also an avid runner and enjoys regular endurance events. She also enjoys writing, having contributed to numerous fitness magazines including Men' s Fitness, Men' s Health, Bella, Shape, Maximum Fitness and many others.



Dr. Kanap Patel

Dr. Patel works as a General Dental Practitioner at his mixed NHS and private practice in Guildford, Surrey. He has been a partner there since 2006. He qualified from Guy's, King's and St.Thomas' Dental Institute, London. He has undertaken numerous further educational and training courses with special focus on Prevention and Minimally Invasive Aesthetic Dentistry. He has also obtained a qualification in Executive Business Management related to Dental Practice. He now has a strong passion for achieving and maintaining good general health as well as dental health, through nutrition and minimally invasive protocols and processes. He believes in our health being our true wealth and that as a society we need to start investing in that now.



Helen Buchanan

After retiring from being a Company Director, Helen became enthralled by the real food movement and has become an all out real food enthusiast as well as a loving Grandmother.





Jane & Malcolm Roweth



Jane owns Aspire Fitness Solutions, which brings health and fitness solutions to her local community in rural Mid-Sussex. Previously Jane was a P.E teacher and has a degree in Sports Science from Loughborough University. Malcolm is a runner, who used to think that running 50 miles a week would keep him healthy and so he ate what he liked. After watching *Cereal Killers* it completely changed his outlook on life. Malcolm writes the popular blog *LCHF 4 Runners* where he posts about public health matters and his experience of being a 50-something running marathons faster than ever before fuelled on fat.

Janice Meakin

Janice is a diabetes educator with a long professional interest in exploring the benefits of physical activity, stress management and nutrition in the prevention and management of long term conditions.



Keith Rathbone



As a Design Engineer for over 25 years in Science Research, Keith's role was to investigate what worked and what failed to work, in order to improve future designs. 3 years ago when his GP suggested he probably had type 2 diabetes, Keith employed his engineering logic to find a solution to high blood glucose levels in order to normalise them. He is passionate about helping other people make a real difference to their health by discovering real food solutions, and believes that the Public Health Collaboration is the way forward to improve our public health.

References

1. The Balance of Good Health. FSA.
<http://www.food.gov.uk/sites/default/files/multimedia/pdfs/bghbooklet.pdf>
2. The eatwell plate: external reference group review. PHE.
<https://www.gov.uk/government/publications/the-eatwell-plate-external-reference-group-review>
3. The Eatwell Guide. NHS Choices. <http://www.nhs.uk/Livewell/Goodfood/Pages/the-eatwell-guide.aspx>
4. Statistics on Obesity, Physical Activity and Diet: England, 2013. The Health and Social Care Information Centre. <https://catalogue.ic.nhs.uk/publications/public-health/obesity/obes-phys-acti-diet-eng-2013/obes-phys-acti-diet-eng-2013-rep.pdf>
5. FACTS AND STATS. Diabetes UK. https://www.diabetes.org.uk/Documents/Position%20statements/Diabetes%20UK%20Facts%20and%20Stats_Dec%202015.pdf
6. How the world could better fight obesity. McKinsey Global Institute.
<http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/how-the-world-could-better-fight-obesity>
7. National Diet and Nutrition Survey: results from Years 1 to 4 (combined) of the rolling programme for 2008 and 2009 to 2011 and 2012. PHE & FSA.
<https://www.gov.uk/government/statistics/national-diet-and-nutrition-survey-results-from-years-1-to-4-combined-of-the-rolling-programme-for-2008-and-2009-to-2011-and-2012>
8. Obesity: identification, assessment and management. NICE.
<https://www.nice.org.uk/guidance/cg189>
9. The Relationship of Sugar to Population-Level Diabetes Prevalence: An Econometric Analysis of Repeated Cross-Sectional Data. Basu et al.
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0057873>
10. Glycemic index, glycemic load, and risk of type 2 diabetes. Willett et al.
<http://ajcn.nutrition.org/content/76/1/274S.full>
11. The cardiometabolic consequences of replacing saturated fats with carbohydrates or Ω -6 polyunsaturated fats: Do the dietary guidelines have it wrong? James J DiNicolantonio. <http://openheart.bmj.com/content/1/1/e000032.full>
12. Detection, monitoring, and deleterious health effects of lipid oxidation products generated in culinary oils during thermal stressing episodes. Grootveld et al.
<http://www.aocs.org/Membership/informArticleDetail.cfm?itemnumber=40690>
13. Prevalence of prediabetes in England from 2003 to 2011: population-based, cross-sectional study. Mainous III et al. <http://bmjopen.bmj.com/content/4/6/e005002>
14. Non-alcoholic Fatty Liver Disease. BLT. <http://britishlivertrust.org.uk/wp-content/uploads/NAFLD.pdf>
15. Milk and dairy in your diet. NHS Choices.
<http://www.nhs.uk/Livewell/Goodfood/Pages/milk-dairy-foods.aspx>
16. Meat in your diet. NHS Choices.
<http://www.nhs.uk/Livewell/Goodfood/Pages/meat.aspx>

17. Meta-analysis of prospective cohort studies evaluating the association of saturated fat with cardiovascular disease. Siri-Tarino et al.
<http://ajcn.nutrition.org/content/91/3/535.long>
18. The relationship between high-fat dairy consumption and obesity, cardiovascular, and metabolic disease. Kratz et al. <http://link.springer.com/article/10.1007/s00394-012-0418-1>
19. Association of Dietary, Circulating, and Supplement Fatty Acids With Coronary Risk: A Systematic Review and Meta-analysis. Chowdhury et al. <http://annals.org/article.aspx?articleid=1846638>
20. Intake of saturated and trans unsaturated fatty acids and risk of all cause mortality, cardiovascular disease, and type 2 diabetes: systematic review and meta-analysis of observational studies. de Souza et al.
<http://www.bmj.com/content/351/bmj.h3978.long>
21. Dietary fat intake and risk of stroke in male US healthcare professionals: 14 year prospective cohort study. Ka He et al.
<http://www.bmj.com/content/327/7418/777.short>
22. Evidence from randomised controlled trials did not support the introduction of dietary fat guidelines in 1977 and 1983: a systematic review and meta-analysis. Harcombe et al. <http://openheart.bmj.com/content/2/1/e000196.full>
23. Fat: the facts. NHS Choices. <http://www.nhs.uk/Livewell/Goodfood/Pages/Fat.aspx>
24. Food Fact Sheet. Fat. BDA. <https://www.bda.uk.com/foodfacts/FatFacts.pdf>
25. Effects of low-carbohydrate diets v. low-fat diets on body weight and cardiovascular risk factors: a meta-analysis of randomised controlled trials. Mansoor et al.
<http://journals.cambridge.org/action/displayAbstract?aid=10109166&fileId=S0007114515004699>
26. Dietary Guidelines For Americans. 2015-2020. Eighth Edition. USDA
<http://health.gov/dietaryguidelines/2015/guidelines/>
27. Non Alcoholic Fatty Liver Disease, Hepatic Insulin Resistance and Type 2 Diabetes. Birkenfeld et al. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3946772/>
28. Insulin Resistance and the Polycystic Ovary Syndrome: Mechanism and Implications for Pathogenesis. Dunaif. http://press.endocrine.org/doi/10.1210/edrv.18.6.0318?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed&
29. Insulin resistance and cardiovascular disease. Ginsberg.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC380256/>
30. Insulin Resistance and Cancer Risk: An Overview of the Pathogenetic Mechanisms. Arcidiacono et al. <http://www.hindawi.com/journals/jdr/2012/789174/>
31. Association of Insulin Resistance With Cerebral Glucose Uptake in Late Middle-Aged Adults at Risk for Alzheimer Disease. Williette et al.
<http://archneur.jamanetwork.com/article.aspx?articleid=2398420>
32. Unraveling Alzheimer's: Making Sense of the Relationship between Diabetes and Alzheimer's Disease. Schilling. <http://content.iospress.com/articles/journal-of-alzheimers-disease/jad150980>

33. Low-glycemic index diets in the management of diabetes: a meta-analysis of randomized controlled trials. Brand-Miller et al.
<http://www.ncbi.nlm.nih.gov/pubmed/12882846>
34. Glycemic index and glycemic load for 100+ foods. Harvard Medical School.
http://www.health.harvard.edu/healthy-eating/glycemic_index_and_glycemic_load_for_100_foods
35. Comparison with ancestral diets suggests dense acellular carbohydrates promote an inflammatory microbiota, and may be the primary dietary cause of leptin resistance and obesity. Spreadbury. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3402009/>
36. Diets of modern hunter-gatherers vary substantially in their carbohydrate content depending on ecoenvironments: results from an ethnographic analysis. Ströhle et al.
<http://www.ncbi.nlm.nih.gov/pubmed/21745624>
37. Diet, Lifestyle, and the Risk of Type 2 Diabetes Mellitus in Women. Hu et al.
<http://www.nejm.org/doi/full/10.1056/NEJMoa010492>
38. Perceived Hunger Is Lower and Weight Loss Is Greater in Overweight Premenopausal Women Consuming a Low-Carbohydrate/High-Protein vs High-Carbohydrate/Low-Fat Diet. Nickols-Richarson et al. [http://www.andjrn.org/article/S0002-8223\(05\)01151-X/abstract](http://www.andjrn.org/article/S0002-8223(05)01151-X/abstract)
39. The Effects of a Low-Carbohydrate Ketogenic Diet and a Low-Fat Diet on Mood, Hunger, and Other Self-Reported Symptoms. McClernon et al.
<http://onlinelibrary.wiley.com/doi/10.1038/oby.2007.516/full>
40. Glycemic response and health—a systematic review and meta-analysis: relations between dietary glycemic properties and health outcomes. Livesey et al.
<http://ajcn.nutrition.org/content/87/1/258S.long>
41. Dietary carbohydrate restriction as the first approach in diabetes management: Critical review and evidence base. Feinman et al. [http://www.nutritionjrn.com/article/S0899-9007\(14\)00332-3/fulltext](http://www.nutritionjrn.com/article/S0899-9007(14)00332-3/fulltext)
42. Type 2 diabetes in adults: management. NICE.
<https://www.nice.org.uk/guidance/ng28/chapter/1-recommendations>
43. Nutrition and physical degeneration. Price.
[http://explore.bl.uk/primo_library/libweb/action/display.do?dscnt=1&elementId=0&recIdxs=0&frbrVersion=&scp.scps=scope%3A%28BLCCONTENT%29&tab=local_tab&displayMode=full&dstmp=1463573090791&ct=display&mode=Basic&vl\(488279563UI0\)=creator&indx=1&vl\(1423900464UI1\)=all_items&recIds=BLL01011704090&renderMode=poppedOut&doc=BLL01011704090&vl\(freeText0\)=%20Weston%20%20A.%20%20%20Price%20%2C%20%28%20Weston%20%20Andrew%29&vid=BLVU1&fn=search&tabs=moreTab&fromLogin=true](http://explore.bl.uk/primo_library/libweb/action/display.do?dscnt=1&elementId=0&recIdxs=0&frbrVersion=&scp.scps=scope%3A%28BLCCONTENT%29&tab=local_tab&displayMode=full&dstmp=1463573090791&ct=display&mode=Basic&vl(488279563UI0)=creator&indx=1&vl(1423900464UI1)=all_items&recIds=BLL01011704090&renderMode=poppedOut&doc=BLL01011704090&vl(freeText0)=%20Weston%20%20A.%20%20%20Price%20%2C%20%28%20Weston%20%20Andrew%29&vid=BLVU1&fn=search&tabs=moreTab&fromLogin=true)
44. 40th Anniversary Briefing Paper: Food availability and our changing diet. British Nutrition Foundation. https://www.nutrition.org.uk/attachments/144_Food%20availability%20and%20our%20changing%20diet.pdf
45. Report of the IDECG Working Group on lower and upper limits of carbohydrate and fat intake. Bier et al. <http://www.nature.com/ejcn/journal/v53/n1s/pdf/1600759a.pdf>

46. Nutrition Requirements. British Nutrition Foundation.
https://www.nutrition.org.uk/attachments/article/234/Nutrition%20Requirements_Revised%20Nov%202015.pdf
47. High protein intake sustains weight maintenance after body weight loss in humans. Westerterp-Plantenga et al. <http://www.ncbi.nlm.nih.gov/pubmed/14710168>
48. Fats and fatty acids in human nutrition Report of an expert consultation. FAO.
<http://www.fao.org/3/a-i1953e.pdf>
49. Fish and shellfish. nidirect. <https://www.nidirect.gov.uk/articles/fish-and-shellfish-0>
50. Questions and Answers on the application of the Regulation (EU) N° 1169/2011 on the provision of food information to consumers. European Commission.
http://ec.europa.eu/food/safety/docs/labelling_legislation_qanda_application_reg1169-2011_en.pdf
51. IDF WORLDWIDE DEFINITION OF THE METABOLIC SYNDROME. IDF.
<http://www.idf.org/metabolic-syndrome>
52. Hypertension overview. NICE.
<http://pathways.nice.org.uk/pathways/hypertension#content=view-node:nodes-diagnosis>
53. Systematic review of randomized controlled trials of low-carbohydrate vs. low-fat/low-calorie diets in the management of obesity and its comorbidities. Hession et al.
<http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2008.00518.x/full>
54. Systematic review and meta-analysis of clinical trials of the effects of low carbohydrate diets on cardiovascular risk factors. Santos et al.
<http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2012.01021.x/abstract>
55. Very-low-carbohydrate ketogenic diet v. low-fat diet for long-term weight loss: a meta-analysis of randomised controlled trials. Bueno et al.
<http://journals.cambridge.org/action/displayFulltext?type=6&fid=9016490&jid=BJN&volumeId=110&issueId=07&aid=9016489&bodyId=&membershipNumber=&societyETOCSession=&fulltextType=RV&fileId=S0007114513000548#cjotab>
56. Dietary Intervention for Overweight and Obese Adults: Comparison of Low-Carbohydrate and Low-Fat Diets. A Meta-Analysis. Sackner-Bernstein et al.
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0139817>
57. Effect of low-fat diet interventions versus other diet interventions on long-term weight change in adults: a systematic review and meta-analysis. Tobias et al.
[http://www.thelancet.com/pdfs/journals/landia/PIIS2213-8587\(15\)00367-8.pdf](http://www.thelancet.com/pdfs/journals/landia/PIIS2213-8587(15)00367-8.pdf)
58. A summary table of 53 randomised controlled trials of low-carb-high-fat diets of less than 130g per day of total carbohydrate and greater than 35% total fat, compared to low-fat diets of less than 35% total fat compiled by the Public Health Collaboration.
<https://phcuk.org/wp-content/uploads/2016/04/Summary-Table-53-RCTs-Low-Carb-v-Low-Fat.pdf>
59. Norwood Surgery. OpenPrescribing. <https://openprescribing.net/practice/N84008>
60. Low carbohydrate diet to achieve weight loss and improve HbA1c in type 2 diabetes and pre-diabetes: experience from one general practice. Unwin et al.
<http://www.practicaldiabetes.com/SpringboardWebApp/userfiles/espdi/file/March%202014/PP%20Unwin%20final%20proofs%20revised.pdf>

61. A pilot study to explore the role of a lowcarbohydrate intervention to improve GGT levels and HbA1c. Unwin et al.
http://www.diabetesinpractice.co.uk/media/content/_master/4311/files/pdf/dip4-3-102-8.pdf
62. Carbohydrates and Health. Scientific Advisory Committee on Nutrition.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/445503/SACN_Carbohydrates_and_Health.pdf
63. The association between short sleep and obesity after controlling for demographic, lifestyle, work and health related factors. Milia et al.
<http://www.ncbi.nlm.nih.gov/pubmed/23419528>
64. The potential effects of meditation on age-related cognitive decline: a systematic review. Gard et al. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4024457/>