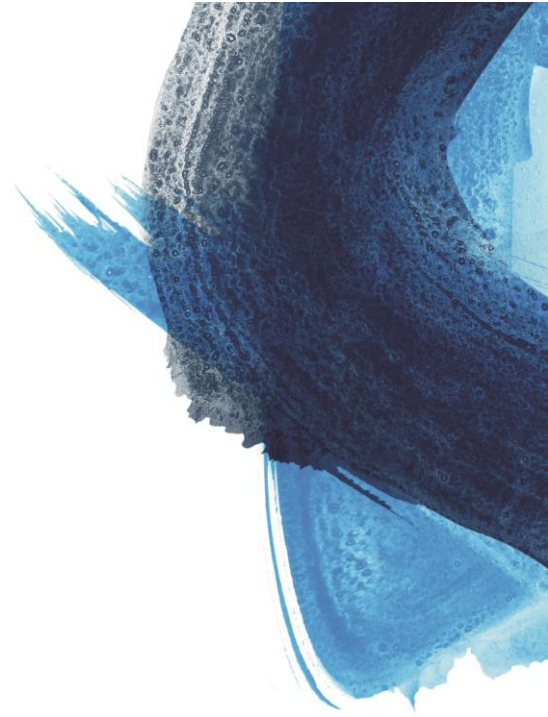




**FRESENIUS
KABI**

caring for life



Weight Management

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How to diagnose

When it comes to diagnosing overweight and obesity, it's often necessary to use more than one method. For most Dietitian's, this will be BMI and waist circumference

BMI

	BMI (Non Asian)	Adult Asians
Underweight	<18.5	<18.5
Healthy weight	18.5-24.9	18.5-22.9
Overweight	25-29.9	23-24.9
Obese I	30-34.9	25-29.9
Obese II	35-39.9	>30
Obese III	40+	>35

(WHO, 2000)

Waist circumference

	Low risk	Increased risk	Substantial risk
Non Asian men	<94cm	>94-101cm	>102cm
Asian men			>90cm
Non Asian women	<80cm	>80cm	>88cm
Asian women			>80cm

(WHO, 2004)

Body fat Percentage

Measuring skinfolds is an excellent measure of adiposity and muscularity. However, it is important that you get trained in a method of measuring skinfolds with callipers to ensure a standardization of skinfold sites and technique. Nonetheless it is considered too difficult to use in the overweight and obese, and is more suitable to those that are healthy weight (Duren *et al*, 2008). As a technique it is a popular method due to convenience and cost. The client may prefer it as it provides information to them on the spot, in absolute measures which they can compare with sequential data. However it is invasive, so isn't ideal on the first meeting. It's also difficult to do, the more overweight the person is.

There is no single universally recommended method for measuring body composition in obese people. BIA may be a better choice in a clinic setting as the person doesn't feel poked,

prodded or pinched. Unfortunately BIA has been applied to overweight or obese samples in only a few studies so the prediction equations entered into the machine are not necessarily applicable to overweight or obese people. The large predictive errors mean it's insensitive to small improvements in response to nutritional intervention (Duren *et al.*, 2008). If you do not have a BIA machine, and use a scales instead, make sure to measure BMI and waist circumference and use this as your guide.

Helping someone understand the causes of obesity

Being overweight is multifactorial. For this reason the intervention needs to be multifactorial. To succeed you must look at all aspects of life, applying a holistic approach from the beginning. Referral onto other health care professionals may be needed, for example a chartered physiotherapist to help with back pain to enable more movement or a chartered psychologist to help treat disordered eating.

Causes of obesity

1. Environmental and social factors
2. Excess calories, poor nutrient timing and unbalanced diet and lack of physical activity
3. Drugs e.g. some anti-psychotics, insulin, lithium, corticosteroids
4. Genetic and Neurological factors
5. Psychological factors

Consequences of Obesity

Obesity related diseases:	Mechanical complications	Other complications
<ul style="list-style-type: none"> • Type 2 Diabetes • Hypertension • Dyslipidaemia • Metabolic syndrome • Reproductive issues • Gallstones • Cancers 	<ul style="list-style-type: none"> • Osteoarthritis • Back pain • Asthma • Sleep apnoea • Asthma • Osteoarthritis • Breathlessness 	<p>Reproductive</p> <ul style="list-style-type: none"> • Erectile dysfunction • Poly cystic ovarian syndrome <p>Psychological</p> <ul style="list-style-type: none"> • Quality of life • Depression

<ul style="list-style-type: none"> • Cardiovascular disease 		
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What is your aim? And what is theirs?

It may not be preferable to discuss this on the first appointment. Do not have a set way of dealing with all people trying to lose weight. If someone comes to you and is very motivated, goal setting with numbers may take from this. Their focus may be on getting the information from you and running with it! Nevertheless, be ready to discuss this when and if needed. At a later stage, once the initial surge of motivation begins to waver, discuss all that they have gained from losing and discuss other symptoms of being overweight. This brings the goal away from a number which can no often disappoint, towards the notion that sustained weight loss comes as a consequence of healthy habits added together over time.

When the person reaches a milestone, congratulate them on their improved health. For example, if they lose 5-10% of their weight.

What will 5-10% or 5-10kg
<ol style="list-style-type: none"> 1. Reduces blood pressure 2. Improves cholesterol 3. Reduces the risk of type 2 diabetes 4. Improves lung function in asthma 5. Improves blood sugar control 6. Reduce osteoarthritis-related disability

(SIGN, 2010)

Faddy diets

There are many different diets out there... For the majority of people, the best approach will be to eat a healthy balanced diet that's based on plants and includes a variety of different protein sources. To be more specific, the diet that research suggests is best for optimal health is one that contains lots of vegetables, some fruit, nuts, seeds, healthy oils and some protein sources like dairy, pulses, lentils, lean meats and fish.

In terms of weight loss, there are many different approaches. For most, steering clear of any sort of 'fad diet' is a good idea. However it's important that all Dietitian's are aware of them

and learn from them. Something is a fad for a reason. There are pros to each diet which make it suitable for a person in the short term. They are of course full of holes. Nevertheless, it's a Dietitian's job to remain person-centred, adapt, fill nutritional gaps and ultimately use all the tools available to help someone do one of the hardest things to achieve, which is lose weight.

The 5:2 diet

What is it? The 5:2 diet is a diet where you fast intermittently to produce results. So for 5 days of the week, you eat your normal diet, and on two days of the week you fast.

Claims: The benefits are claimed to be weight loss as well as improvements in brain function, protection against certain conditions such as dementia as well as increased longevity!

Risks: If you're fasting on two of the days you create a deficit when you consider your calorie intake across the week. However, if you eat too much on the 5 days, you delete this deficit.

Side effects reported include difficulties sleeping, fatigue, bad breath and dehydration.

Nutritional deficiencies can occur if nutritional balance across the week is not considered.

Who may it suit? This diet may be for someone who can fast safely. For example, if you are on diabetes medications, this diet would need medical support. The person following this regime must have the physical and mental ability to severely restrict their diet to 500-600kcal on two days of each week. It will suit someone who feels that there are too many barriers to sticking to a regimen full time. Additionally they need to be able to stick to a healthier regime on the 5 non-fast days, rather than indulge in unlimited feasting. People who feel dizzy, irritable, get headaches or struggle to concentrate if not fed regularly may not be able to continue on this diet long term.

Dukan diet

What is it? The Dukan diet is a diet that is low in carbohydrate (carbs) and high in protein. The diet has 4 phases, 2 of which are designed to result in weight loss and 2 phases are created to aid weight stabilisation.

During phase 1 you stick to a list of 68 high protein foods for 2 to 5 days. No carbs are eaten during this time except for a little oat bran. Phase 1 is therefore restrictive, even on vegetables! The idea is that you use up your stores of carbs in your body and encourage your body to start to use your own fat stores as fuel.

Phase 2 increases the number of foods in your diet to 100 by adding in certain vegetables. However you alternate days with veg with days with no veg at all until the weight loss goal is achieved.

Phase 3 to 4 then slowly re-introduces vegetables, fruits and carbohydrates back into the diet with the aim of weaning onto a mixed, healthy diet that achieves long-term weight loss and management. The final phases make up a normal healthy diet with the exception of one day per week that involves eating only protein. Exercise is strongly encouraged.

Risks: During the initial phase, your body is adapting to low carbohydrate. Your brains preferred source of fuel is carbohydrate, so a lot of the side effects are due to this withdrawal and the need for the body to create either carbohydrate within the body or to start using fat as fuel. Side effects include bad breath, tiredness, dizziness, and difficulty with sleeping. Constipation is also a possible problem due to the lack of fibre initially.

Who may it suit? It's suited to someone who wishes to wipe the slate clean and rebuild their diet from the ground up. As it has an emphasis on animal protein, it may be harder to follow if vegetarian. Although vegetables need to form the bulk of the diet, the focus on protein from the get-go helps support the metabolism, preserve muscle mass and also prevent hunger. Some people strive on a very strict and prescriptive diet that is easy to follow. Calories are not counted and food for the most part is not weighed which makes the diet simpler. Nevertheless this does mean that the opportunity to educate the dieter on better food choices and portions is missed.

Paleo diet

What is it? The paleo diet a.k.a. the caveman diet has become extremely popular. This diet encourages the intake of foods that can be hunted, fished for and gathered. It's based on the supposed eating habits during the Palaeolithic times... Although an excellent idea as it encourages the wholefood approach, it is quite inaccurate.

Firstly, what part of the world are they basing the diet on? The actual Paleo diet eaten during this time varied hugely depending on what continent you were looking at, as it does today. Although today's Paleo diet is quite low in carbs, there were diets during the Palaeolithic time that were actually quite high in carbohydrates! What's more, many if not all of the foods that were available in the Palaeolithic time are not available today. Finally, the people alive at this time didn't not have modern day transport so would lack variety in food choices. Many that follow the diet lifestyle also use Paleo cookbooks... If farming methods were not in use during this time, it's safe to say cooking foods in woks and saucepans wouldn't be either!

Evidence is serious lacking on this 'diet'! Evidence is lacking... Nonetheless, all of the processed or refined foods are discouraged which is excellent. However, dairy is also discouraged. Arguments like 'we're the only mammal that drinks another mammals milk' is thrown a lot into debate. But let's consider this logically... Do you think a rat would be able to suckle on a giraffes teet? Or any other animal for that matter? Of course not! The animal wouldn't allow it. Also, has anyone seen any animals walk into a shop and purchase milk? Of course not!! Perhaps all mammals would drink the milk of another if they had access.

Aside from the lack of dairy, it also bans certain carbohydrates such as the potato. Now, potatoes grow out of the ground looking similar to how you find them on your plate. They couldn't be any more natural! In fact, not only do they provide lots of vitamins and minerals, but they are also one of the lower calorie carbohydrates per portion.

Advocates or followers of the diet claim that it can help with weight loss and reduce the risk of many conditions and diseases including diabetes and heart disease. Unfortunately studies are lacking... However, with the inclusion of a little dairy or else dairy alternatives as well as some more carbohydrate, this diet could be really great. **Risks:** Risks depending on the interpretation of what the diet is about. This diet isn't set out in stone as the paleo diet is largely based on guesswork about the past. The main issue for most following this diet is cost... Eating meat and seafood isn't cheap. What're more it's a difficult diet for vegetarians to follow!

Who may it suit? This diet is suited to anyone who eats too much refined foods. Refined foods tend to be high in fat, sugar and salt as well as low in fibre. Reducing consumption of these high-calorie foods will have excellent health benefits.

Finally if you want to fully adhere to the Paleolithic man's diet and lifestyle, you best get moving! Activity levels were high at this time in order to hunt and gather food.

Meal replacement diets

Meal replacement weight loss plans are based on meal-replacement products that are very low in calories resulting in rapid weight loss. Often this style of diet is based on shakes and soups but may also include meal replacement bars. Generally speaking, they are the sole source of nutrition. However with some brands, one healthy meal may be allowed.

Pros: Due to the low calorie intake on these plans, rapid weight loss is achieved. Generally the meal replacements products are nutritionally balanced. Therefore the participant doesn't suffer from vitamin and mineral deficiency during this time.

Some people like this option as it can act as a break away from trying to make healthy food choices as well as food shopping. This break can provide time for the participant to reflect on their current eating patterns and behaviours that have resulted in them having to make such a drastic choice in diet.

Cons: However, as with all diets that put you into ketosis, a process where the body uses body fat as fuel, side effects such as bad breath, extreme tiredness, mood changes, dizziness, constipation and difficulty sleeping can occur.

Obviously, any strict diet such as this takes a lot of will power. Due to the restrictive nature of the diet, people may find it boring, unsocialable and often miss chewing food!!

A barrier to sticking to the plan can be simply the taste of the products. An alternative option to this diet would be the milk diet, where 4-6 pints of skimmed milk are drunk each

day. This option is not nutritiously complete, but can be considered by some to be more palatable.

Medical supervision is advisable if very overweight or if the person has medical conditions like diabetes.

South Beach Diet

The South Beach Diet is quite famous, especially in America, as it has been around for some time. It's based on a low GI (glycaemic index) concept that doesn't use calorie counting or portion control. It includes a sensible plan of 3 balanced meals each day alongside two healthy snacks and encourages exercise. For those with more weight to lose, a two-week quick weight loss regime is encouraged at the start of the diet. This 2 week diet consists of lean proteins, some low-GI vegetables and unsaturated fats. Low GI carbohydrates are then re-introduced thus encouraging continued gradual and sustainable weight loss.

Pros: Although the first two weeks may be tough going if following the quick weight loss plan, the concept behind the rest of the diet is healthy and sustainable. It follows the basic principles of healthy eating and is therefore full of health boosting nutrients and fibre as well as metabolism-supporting protein.

Cons: The transition onto the initial low carbohydrate diet can be tough going and would result in similar side-effects to those experienced on the meal replacement diets. Some of the initial weight loss will be carbohydrate stores and water. However if the participant gets through the first two weeks, spurred on by dramatic weight loss, the diet is sensible and theoretically sustainable. Nonetheless, as the diet is based on the practices of healthy eating, it is only as sustainable as healthy eating is to that person. In the long term, with compliance to the diet, fat loss with preservation of lean tissues will be achieved due to the focus exercise and feeding lean protein to the body regularly.

Weight loss clubs

Slimming clubs involve regular attendance and weight monitoring. Often they work through a method of counting points, sins or through basic healthy dos and don'ts. This results in an energy deficit and weight loss. Generally the plans encourage a high fibre, low fat diet which discourages the intake of confectionary and encourages exercise. The plans are designed to help participants lose about 1lb to 2lb a week.

Pros: They provide a club atmosphere which is quite supportive if attendance levels are good. With constant monitoring and when sticking to the plan, weight loss is often achieved. They often encourage the intake of vegetables which are incredibly important to ensure hunger levels are kept minimal, the body's immune system is supported and that the body is protected against illness. These programmes also create an awareness around healthy food choices and portions.

Cons: The group meetings are excellent for some, but can put others off who may be more private when it comes to their weight and health. Also, as the clubs are not run by Dietitians, the diets are not individualised to members' specific body, lifestyle and medical

needs. Furthermore, not all slimming groups encourage appropriate balance of meals and guidelines for intake of certain nutrients. Therefore inadequate intake of certain nutrients may occur.

How to treat – follow the evidence

Excess body weight is a symptom of an unhealthy lifestyle. Work on encouraging healthy habits and weight loss will follow! It takes 66 days to make a healthy habit stick, so encourage patience (Gardner *et al.*, 2012). Choose some of these pointers and work on one at a time.

1. Don't over-educate

Is education on the healthier choices going to solve this problem? No of course not. There would be no such thing as an overweight dietitian if that were the case! We'd all effortlessly maintain our weight, and never struggle to say no to chocolate, chips or other less healthy foods if all we needed was information.

In an interesting experiment, Nutritionists were put to the test at a social event by being randomly given a large or small bowl at a social event with ice-cream. Those that were given a large bowl served themselves 31% more ice-cream and when they were given a larger ice-cream scoop they ate 14.5% more (Wansink *et al.*, 2006)! If nothing else, this proves that there is more to weight loss than education. Be sure to continuously and regularly ask them along their weight loss journey why they think their weight was gained. You'll find that there may be some enlightening and important moments along the way. Encourage them to reflect with 3 simple questions;

- What
- So what?
- Now What? (Driscoll, 2007)

2. Bump up the veg!

There is strong epidemiology evidence to show that a higher dietary fibre intake prevents obesity. Two cross-sectional studies and four prospective cohort studies indicated a strong negative association between fibre intake and obesity (Anderson *et al.*, 2009).

Fibre appears to work on hunger in many ways by;

1. displacing available calories from the diet;

2. increasing chewing, which promotes the secretion of saliva into your mouth and digestive juices into your stomach, making your stomach fill up
3. increased satiety from the bulkiness of higher fibre foods
4. by creating a gel in your stomach slowing down the entire digestive process keeping you fuller for longer (Slavin, 2005).

A 2011 review concluded that greater intakes of dietary fibre reduced appetite by 5%, decreased long-term energy intake by 2.6%, and lowered body weight by 1.3% (Wanders *et al.*, 2011). Research published in the journal *Nutrition Reviews* found that by increasing the amount of fibre people ate, their weight came down without trying to eat less. By increasing fibre intake by 14g, overall calorie intake came down by 10% resulting in a loss of just over 4lb in under 4 months (Howarth *et al.*, 2001).

3. Make colourful meals the norm

Fruit and vegetables are a great source of fibre, but also a myriad of other healthful ingredients. Helping someone lose weight as a Dietitian is about making that person feel and be healthier. Fruit and vegetable intakes are associated with reduced risk of cardiovascular disease, cancer and all-cause mortality. A systematic review clearly shows that 5 a day is good, but 10 a day is even better (Aune *et al.*, 2017)! The more vegetables that are pushed into a diet, the less room there is for unhealthy food. Encourage an increase in intake with very doable practical advice such as food prep, utilising frozen and fresh ready-to-buy options and tasty quick recipes. Help make eating colourful meals the norm.

4. Bump up the protein

Muscles and bones are constantly turning over. Not drastically, it's a slow process, but it is constantly happening. That's why they are referred to as 'active tissues' and require a lot of calories to fuel themselves. Thus the taller and stronger you are, the faster your metabolism. Adequate protein at each meal is necessary to preserve muscle after 30 years of age and in weight loss (Leidy *et al.*, 2015).

Eating protein prevents the secretion of the hunger hormone ghrelin and stimulates the secretion of the satiety hormones PYY (peptide YY), GLP-1 (glucagonlike peptide 1), and CCK (cholecystokinin) (Bolster *et al.*, 2016). In addition, protein appears to blunt the brain's responses to food stimuli and thus decreases food motivation and food cravings (Bolster *et al.*, 2016). Protein is more satiating than carbohydrate or fat, and therefore helps people feel full longer (Phillips *et al.*, 2016) therefore it may help people stay feeling in control and more content when trying to lose weight.

Often people do not eat breakfast, or if they do, do not eat enough protein at breakfast. We know that eating a breakfast that is high in protein has been shown to increase fullness

while reducing appetite (Phillips *et al.*, 2016), food cravings, and neural signals that regulate reward-driven eating behaviour as well as result in decreases in late-night snacking of foods high in sugar and fat (Bolster *et al.*, 2016).

Enough protein for per meal

Chicken/ turkey breast	200g Greek yoghurt
Tin/ fillet of fish	Eggs x 2 & some beans
1 pint milk (soy or animal)	3 slices of meat
300g tofu	150g Quorn
1 ball Mozzarella	200g cottage cheese

5. Eat crunchy food

Which do you think is most filling – an apple, apple sauce or apple juice? A study investigated the effects of eating different forms of apples on satiety. The results showed that eating a whole apple reduced lunch calorie intake by 15% and decreased overall calorie intake compared with applesauce and apple juice (Flood-Obbagy & Rolls, 2009). There are many reasons that this would happen. Let's look at it logically. Your stomach is a bag that you store food before it's digested. It can only hold so much. A crunchy apple takes up more space within this bag than the juice. Additionally, in order for it to be digested, it needs to be broken down, which takes time. So the apple takes up more space in your stomach and stays there for longer. This leads to greater satiety from the whole crunchy apple, and subsequently a reduced energy intake in the meal that follows. Therefore a Dietitian should encourage people to eat a crunchy fruit 15 minutes before their meal, and/or ensure meals are crunchy too. An apple before breakfast isn't too much of a tall ask!

6. Soup before dinner in Winter, salad before dinner in Summer

Generally speaking, people overeat when they have time to do so. For most people this is in the evening (Harvey *et al.*, 2011). Adding in a salad or soup before dinner may help, in a similar fashion to the point above.

A study published in the *Journal of the American Dietetic Association* discovered that eating a small low calorie salad of ~50kcal before having a meal reduced the amount eaten in the meal by 7%. If you ate a large low calorie salad of ~100kcal before a meal, it reduce calorie intake by 12%! When they make the salads more calorific, there didn't see any changes to how much you ate. It really was down to filling up on a lot of low calorie veggies (Roe *et al.*, 2012)!

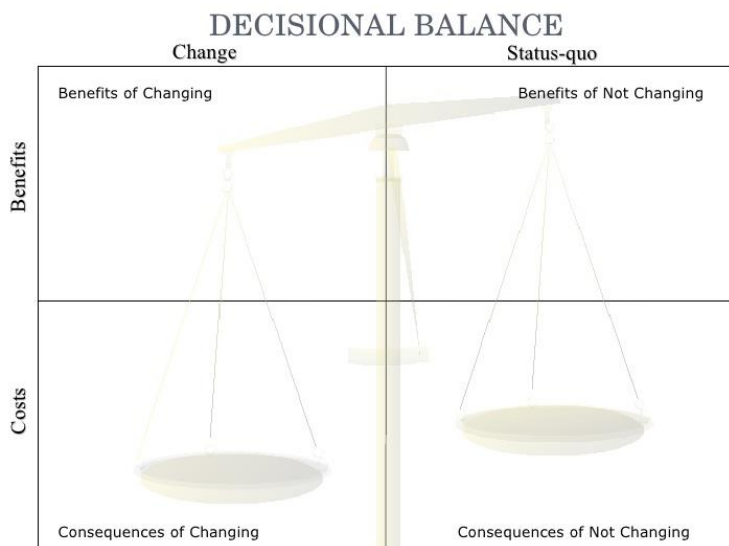
Fortunately, the same could be seen for soup. A study compared no soup before a meal with soup before a meal, as well as different textures of soup (broth and vegetables served separately, chunky vegetable soup, chunky-pureed vegetable soup, or pureed vegetable soup). Results showed that by having soup before your meal, reduced how much you ate in the follow up meal and the number of calories you consumed overall. Soup reduced overall calorie intake by 20% or 134kcal (Flood & Rolls, 2007).

Soups and salads are an excellent example of low-calorie appetizers that can take the bite out of hunger. The soup is perfect during the colder months, while salad are ideal as the weather warms.

7. Ambivalence chart

Use the ambivalence chart. It helps you understand the barriers to weight loss, thus being able to build plan designed to overcome them. Understanding ambivalence and strategies for resolving ambivalence are central to Motivational Interviewing (Armstrong *et al.*, 2011). It's a worthwhile tool to have in your tool box.

In the shorter terms, understanding someone's boundaries to smaller changes allows you to help find solutions. For example, if the perceived effort of preparing meals is getting in the way of someone eating healthily, could you recommended meal delivery services, healthy ready meals or perhaps quick recipes?



8. SMART goals



Teaching your client to make SMART goals puts them in the driver seat. Once they've set SMART goals, challenge them to strengthen them! For example, an easy one might be if someone wants to go on more walks. Encourage them to consider;

Where they will walk? e.g. at their lunch break, before work, after work, at weekends.

When will you walk? What might get in the way?

How many times a week? This should take into account where they are starting from.

Who with? With a friend? Family member? On their own? Mixture?

What will you need? E.g. bring runners into work, leave runners by the front door etc...

9. Focus on peak performance pillars

Dietitians are trained in the application of nutrition. However, it is perfectly acceptable to give advice on lifestyle, if you think they support your nutritional advice. Obviously there are boundaries and limitations to what you advise, but don't let the existence of boundaries deter you. There are 4 key areas to peak performing in life. The stronger each pillar is, the sturdier the healthy lifestyle, in my opinion.

Work on these 4 areas regularly.

Nutrition: e.g. 2 vegetables at lunch and dinner

Fitness: e.g. 10,000 steps each day

Mindset: e.g. 10min of mindfulness each day

Rest and recovery: e.g. 7-9 hours of sleep each night

10 Work on sleep

Obesity is multifactorial. In order to break someone's connection with this condition, you need to discover what links them to it. This takes time and a lot of open discussion. Showing someone how all aspects of lifestyle are connected could help them join the dots.

For example, there is a clear association between sleep and elevated BMIs (Beccuti & Pannain, 2011). Even levels of total cholesterol, HDL-cholesterol, triglycerides and blood pressure have been negatively impacted by lack of sleep quantity or quality (Bjorvatn *et al.*, 2007; Kaneita *et al.*, 2008; Lusardi *et al.*, 1999). A study looked at tart Montmorency cherries which contain high levels of phytochemicals including melatonin, a hormone critical in regulating the sleep-wake cycle. In an RCT, volunteers consumed either a placebo or tart cherry juice concentrate for 7 days. There were significant increases in time in bed, total sleep time and sleep efficiency total ($P < 0.05$) with cherry juice supplementation (Howatson *et al.*, 2012). By improving sleep, you may improve their physiology and perhaps their good choices. So nutrition helps their nutrition. This may help the person see nutrition in a new light, thus helping to build a healthier relationship with food.

11 Remove liquid sugar

Mindless intake is easy to do with sugary beverages and it is why they have received much attention in the war on obesity. One study found that for each can of fizzy drink that a child consumed each day, the odds of becoming obese increased by 60% during 1½ years of follow-up (Ludwig *et al.*, 2001). In fact, 43% of the increase in calorie consumption over the past 30 years has been attributed to these unnecessary calories according to the UCLA Center for Health Policy Research and the California Center for Public Health Advocacy. The biggest issue with the intake of these drinks into our body is that people don't tend to compensate for the calories consumed in beverages. If you had 500kcal worth of nuts a day, that would offset your intake of subsequent foods (Mattes *et al.*, 2008). This is not the case with 500kcal worth of sugary fluid. Keep liquids to water, tea/coffee (no sugar) and milk.

12 Change their plates and bowls

Interestingly, plate size doesn't seem to influence the estimate of food portions. Surprisingly, if you plate 400g of pasta and sauce on a large plate it's considered a large portion and when the same amount is plated on a small plate, it's considered a small portion (Penaforte *et al.*, 2014). Therefore, the evidence seems to encourage the use of large plates not small plates, which goes against certain weight loss mantras.

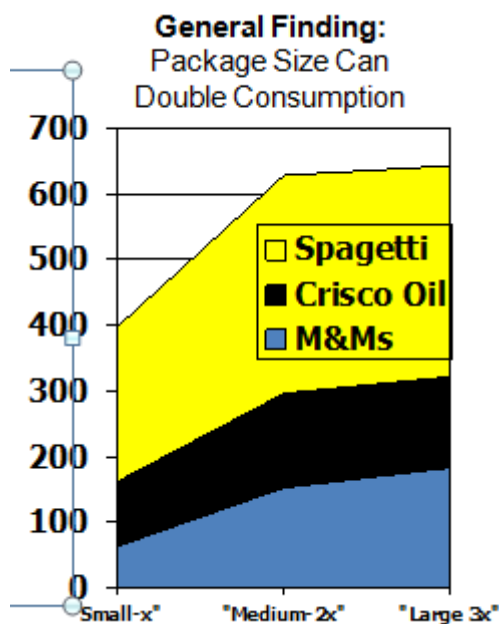
Nonetheless, a study looked at a plate's rim width and colouring and how it influences perceived portion size. In the first of their experiments they tested the effect of rim width on perceived portion size. The subjects significantly overestimated the diameter of food portions by 5% and the visual area of food portions by 10% on plates with wider rims compared to thinner rims. In the second of their experiments, they tested the effect of the

colour of the rim on perceived portion size. The subjects overestimated the diameter of food portions by 1.5% and the visual area of food portions by 3% on plates with colourful rims compared to those with no colour (McClain *et al.*, 2014). The evidence therefore suggests the use of larger plates with thin, plain rims!

13 Change portion size request

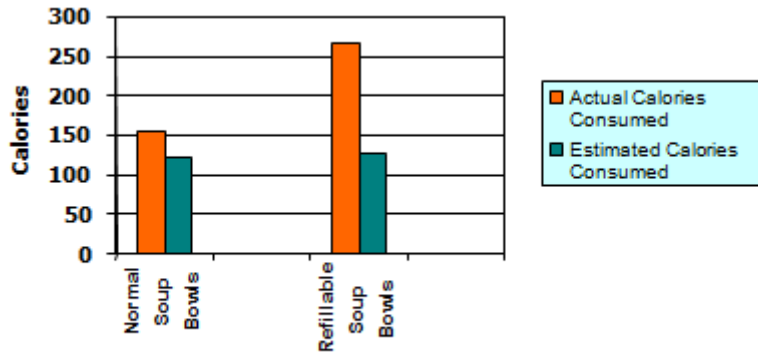
Try and get your client into the habit of choosing the smaller size of food, especially treats. An interesting study compared portion sizes of popcorn (large –v- extra large) and freshness (fresh –v- 10 days old). It showed that we eat 45-50% more from extra large popcorn containers and we still eat 40-45% more if it's stale popcorn (Wansink *et al.*, 2001)! So going for the smaller option of popcorn, and other treat like foods, regardless of taste, is important.

Package size is important across the board, not just with treats. People who pour from larger containers eat more than those pouring from small, which was shown to be consistent across 47 of 48 categories (Wansink, 1996).



14. Serve yourself

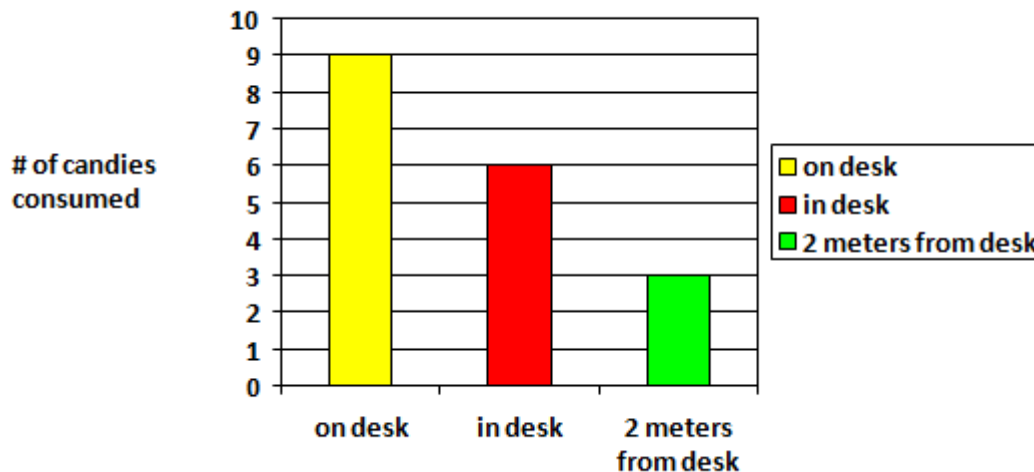
It's common practice to try and encourage those trying to lose weight to take ownership of their food. There is evidence to suggest that the person should serve themselves more often than not. An interesting study compared normal sized bowls with refillable soup bowls. None too surprising, those with a refillable bowl ate more, but surprisingly they were not aware that they consumed more (Wansink & Painter, 2005). This really does highlight the importance of not allowing other people to top up your meals at the dinner table!



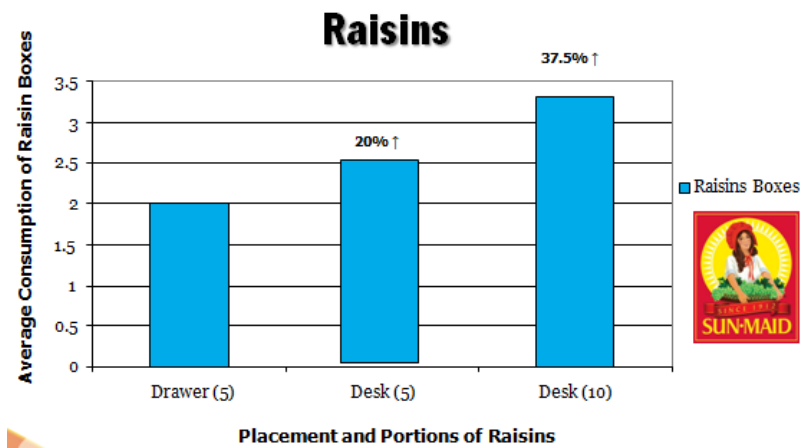
15. Don't make eating treats easy!

It's important that those trying to lose weight keep treats as far away from themselves as possible! This includes keeping them out of the house! If it involves effort to go and get it, we seem to decline. Similarly, if it's in our eye line and close to use, we seem to be less able to turn it down! An intervention used 30 small chocolates in a closed container that was replenished daily. There were three conditions:

1. on top of the desk (visible & convenient)
2. in a desk drawer (not visible & convenient)
3. away from desk (inconvenient)



Inconvenience is key to reducing intake! The more than were in the eye-line, the more that were eaten (Gaydosh & Painter, 2010)!



This is the same for healthier foods too. In a similar study it showed that if the food was in 'out of sight' it was more likely to be 'out of mind'. The more that was in the eye line of the person, the more they took (Gaydosh & Painter, 2010).

16. Focus on low energy density foods

The key to sustainable weight loss would be to make the plan as easy as possible to follow. An important approach in reducing overall calorie intake is to make sure you get more bang for your buck! By choosing low energy density foods, people get to eat the same volume of food, and still cut their calories.

In a study in the *American Journal of Clinical Nutrition*, participants were served a random lunch entrée. The small meals were either lower or higher in calories per bite and small, medium or large in portion. When a subject was given the largest portion of the higher calorie option, they consumed 56% more calories compared with when they were served the smallest portion of the lower calorie entrée. Despite the 56% difference in energy intake between the two entrées, participant ratings of hunger and fullness did not differ after the meals (Kral; *et al.*, 2004).

At a later date, a systemic review was conducted on the relationship between food energy density and body weight changes in obese adults. Thirteen experimental and observational studies were identified looking at a total of 3628 individuals. Although the studies varied greatly the meta-analysis revealed a significant association between low energy density foods and body weight reduction (Stelmach-Mardras *et al.*, 2016). Simplify this to make it easier to adhere too. For example, white proteins more than dark proteins, vegetables that can be eaten cooked or raw rather than ones than have to be cooked to be eaten.

17 Eat regularly

So in other words it's not just a case of how much you eat across the day, but when you eat it! A study in the *British Journal of Nutrition* found that eating three meals compared with two meals with the same amount of calories increased satiety over 24 hours. Quite often, people take this a little too far. If you're not an athlete, eating 6 meals a day is not necessary! The ideal is a large breakfast, medium sized lunch and a small dinner. 3 meals, with a decreased in calorie-density as the day goes on, is the best way to avoid hunger (Smeets & Westerterp, 2008).

The sad statistics you read suggesting that people who are obese stay obese are predominantly based on those fighting this condition alone. Overweight and obesity reduce both quantity of life and quality of life. Dietitians are fighting in the front line against the war on obesity. Use every tool, keep bettering yourself, learn from your mistakes and triumphs and whatever you do, keep adapting. The most important thing you can do is to stay positive around the person you're trying to help. Keep believing in them.

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