

Low calorie diets: using meal replacement products for people with type 2 diabetes

Phase One: 800 calories per day

Studies¹ have shown that for some people, type 2 diabetes can be put into remission by substantial weight loss. How much you need to lose depends on your starting body mass index (BMI). If you are starting out just above the desirable upper limit of 25kg/m² then a BMI of 20 - 21kg/m² is a more appropriate target (see appendix for full BMI chart classifications). The likelihood of remission is greatest within 6 - 10 years of diagnosis.

For this diet to be successful, it is important to stick to around 800 calories (kcal) a day for at least eight to twelve weeks. In some circumstances this diet can be continued for up to 20 weeks but only under medical supervision. It's tough and doesn't suit everyone, but it's easier to do with support.

For anyone with diabetes complications, on medications or who has any other medical conditions, it is vital to let your GP and diabetes health care professionals know before starting this diet.

Exemptions: If you have had a Myocardial Infarction (MI, or heart attack) in the last 3 months, or you have had an eating disorder in the past such as binge eating or restrictive eating, please do not try this diet. Additionally, children, pregnant women, or breastfeeding mothers, should not follow a low calorie diet. Please also be aware that there are some forms of type 2 diabetes that will not respond to this diet. If you have any concerns, please speak to us or your GP.

How to do it:

- Use a meal replacement product: soups or shakes, 4 individual sachets per day, each providing approximately 200 kcal. This provides a total of 800 kcal. You must have all the shakes to ensure you are getting all the essential vitamins and minerals required to prevent nutritional deficiencies.
- Have these instead of your usual meals/snacks.
- The only equipment you need is a shaker/mixer cup



OUR VALUES



Dietary replacement products

Choose a product that matches the criteria below (*all values are calculated after the shake or soup has been made with either milk or water as per the manufacturer's guidance*):

- At least 15g of protein per serving
- At least 2.5g of fibre per serving
- Less than 20g of sugar per serving (this includes any natural sugars found in milk)
- No corn syrup or hydrogenated vegetable oils
- At least 33% of the Daily Value for vitamins and minerals

Suggested examples: **

- Asda Great Shape shakes - make up with skimmed milk
- Tesco Ultralim/slim shakes - make up with skimmed milk
- Slimfast - make up with skimmed milk
- Optifast soups and shakes - make up with water
- Cambridge soups and shakes - make up with water
- Exante soups and shakes - make up with water



**If you have any dietary intolerances/preferences please check with a dietitian, as there are some products which may not be suitable and they can recommend alternatives.

Please note that none of these products are funded by the NHS in West Hampshire.

Advantages	Disadvantages
Doesn't involve any food planning or cooking, which removes some of the temptations. They are also easy to have 'on the go'.	Initially you may experience symptoms like headache, dizziness, tiredness and hunger but these are expected to wear off after a few days, once your body adjusts.
A complete break from old eating habits and behaviours, so that at the end of 8 weeks you can begin creating new eating habits when you begin to reintroduce foods.	Increased risk of constipation, although this can be managed and prevented by ensuring an adequate fluid intake and, if required, taking a fibre supplement.
The shakes or soups are quick and easy to prepare, come in a variety of flavours, and are nutritionally complete (if having four a day in total).	Some people may experience hair loss/thinning, but this is usually only temporary and hair will re-grow.
Rapid weight loss is expected due to the calorie deficit created and it can be very motivating to see results quickly, especially if it allows you to come off some of your medications.	You may experience an increased sensitivity to the cold, so are advised to wrap up warmly and include warm fluids. The soup sachets in the colder months can be useful.
It can be cost effective as it is less expensive than doing a weekly food shop, especially if using a supermarket own brand (see our suggestions above).	It can be socially isolating, since many social events include food and alcohol and especially as the duration of the diet is at least 8 weeks. You may need a lot of support

Additional supplements

Most commercial diet shakes are fortified with vitamins and minerals and if taken in the recommended amounts (of four shakes per day) are nutritionally complete in 800 kcal.

If iron deficiency anaemia is suspected prior to starting, then your iron status should be assessed by your GP. You are more at risk of iron deficiency if you follow a vegan/vegetarian diet.

Fibre

Constipation can be a common side effect when following this diet, as the meal replacement shakes provide a lower fibre intake than the UK recommended guideline amount of 30 grams per day.

Therefore it's important that you drink plenty of fluids (see below) and from day one, to prevent constipation becoming a problem, start taking taking an over-the-counter fibre supplement such as Fybogel or Optifibre. Take one sachet per day to start.

Fluids

You will need to ensure an adequate fluid intake of between 2 - 3 litres (4 - 6 pints) of sugar free and non-fizzy drinks every day. This includes:

- Water
- Tea and coffee***
- Bovril or vegetable bouillon (stock)
- No added sugar/sugar-free squash and flavoured waters



Avoid all fizzy drinks and DO NOT have any alcoholic drinks during the duration of the diet.

***You can use up to 100ml allowance of skimmed or 1% milk for tea and coffee.

Monitoring

If you are on insulin or already testing your blood glucose levels, we recommend monitoring at least four times a day for the first week and also if you feel funny or unwell.

Please contact us or your GP/practice nurse if:

- Your blood glucose levels are above 14mmol/l on waking or before meals
- Your blood glucose levels are frequently below 4mmol/l.

Medication and other complications

Your GP, practice nurse, diabetes specialist nurse or dietitian will help you to manage your diabetes and any related complications based on your individual circumstances and adjust your medication accordingly.

If you use insulin or sulphonylureas (e.g. Gliclazide tablets) to manage your type 2 diabetes, being on a low-calorie diet can make hypoglycaemia (low blood glucose levels) more likely. There are also more risks involved if you take tablets for high blood pressure.

On commencing a low calorie diet:

Insulin: close monitoring of your blood glucose levels is essential as suggested earlier.

- If using a basal-bolus regime you are likely to be converted to long-acting (basal) insulin only, taking it once daily or twice a day in equal doses. You will likely stop/reduce your fast acting (bolus) insulin (Novorapid, Humalog, Apidra, Fiasp) or short acting insulin (Humulin S, Actrapid, Insuman Rapid).
- If you are on a mixed insulin, reduce your total insulin doses by 25% and continue to reduce down until you are getting blood glucose readings of 4 - 7 before meals. This means that your insulin resistance is improving. It may take some time, so be patient with yourself. Some people may be able to withdraw their insulin altogether.

Sulphonylureas: Stop or reduce dose by half when you start the low calorie diet.

Other diabetes medication: All other oral medications can be decreased or stopped in agreement with your GP or practice/diabetes nurse, depending on how well your diabetes control improves. Some people may stay on Metformin, as this also has some long-term protective qualities.

Blood pressure medications: Unless blood pressure (BP) is poorly controlled or you are on 2 or more medications, your dose can be halved or stopped when you start the low calorie diet. Please review your blood pressure medications with your GP. If you can, self-monitor your BP yourself at home at least once a week. If you see any big changes in your usual readings, or you feel light-headed or dizzy, please contact your GP straight away.

Retinal screening: If you already have some background retinopathy, we advise a step-down approach, for example starting at 1200 kcal and lowering gradually. If you already have more severe retinopathy, have your eyes re-screened within six months of any significant improvement in your HbA1c. Please talk to us or your GP if you are worried.

Longer term: There are a number of different ways that weight loss can be achieved and anyone with type 2 diabetes is eligible to see a dietitian as part of their care. They can give you individualised advice about which diet may suit you best (for example Mediterranean, low-carbohydrate, low fat, 5:2 fasting diet). Everyone is different and what works for one person may not work for someone else.

Meal replacement shakes are not a long-term solution for weight management. Long-term weight loss requires a significant change in lifestyle, including making some permanent changes to your diet. This doesn't mean you can never enjoy 'treat' foods again, but you will need to maintain a balance, so these are an occasional treat, rather than part of your daily diet. We will support you with this: Phase Two is all about gradually re-introducing food and learning (or relearning) healthy habits.

What to do if you are unwell

If you experience any abdominal pain or feel unwell then please contact your GP in the normal way.



800 calorie diet: food

The DiRECT study* used meal-replacement shakes during their trial. However, some people have followed the diet using food and still had excellent results. If you would like to follow the 800 calorie (kcal) diet using food, rather than shakes/soups, we recommend the following:

- Take a multivitamin (any A-Z complete) for the duration of the diet, as you are very unlikely to be able to meet your micronutrient requirements on this number of kcals. (Shakes/soups are fortified for this reason.)
- Follow an established plan (see suggestions below) to help you keep to 800 kcal per day and to maximise nutritional intake and balance
- As it is much easier to go over 800 kcal on food rather than shakes, weighing each portion is important. Remember, this is just for the duration of the 800 kcal diet; you won't have to weigh your food for the rest of your life
- Aim for plenty of green/leafy and salad vegetables as these are low kcal/high fibre and filling
- Aim for at least 2 litres of fluid, e.g. water/tea, per day.



Useful resources:

- *The 8-Week Blood Sugar Diet* and *The Fast 800*, both by Michael Mosley;
- *Carbs and Cals Carb & Calorie Counter* (for individual food contents) and *Very Low Calorie Recipes and Meal Plans* (for recipes/meal plans) by Cheyette and Balolia, 2016/2017
- BBC Good Food Recipes: <https://www.bbcgoodfood.com/recipes/collection/200-400-kcals>; <https://www.bbcgoodfood.com/recipes/collection/400-kcal-meal>; <https://www.bbcgoodfood.com/recipes/collection/400-kcal-breakfast>

What next?

Following the 800 kcal section of the diet, there are several approaches you can take for further weight loss/weight maintenance:

- *The 5:2 Diet* by Michael Mosley can be used for further weight loss and also for weight maintenance.
- Diabetes UK have several helpful and detailed meal plans on their website, including kcal-controlled, Mediterranean, and low carbohydrate: <https://www.diabetes.org.uk/guide-to-diabetes/enjoy-food/eating-with-diabetes/meal-plans>
- For handy portion guides, try the British Nutrition Foundation leaflet: https://www.nutrition.org.uk/attachments/article/1193/Find%20your%20balance_%20booklet.pdf or their full version: https://www.nutrition.org.uk/attachments/article/1193/Find%20your%20balance_%20full%20portion%20size%20list.pdf

You may find a gradual increase in kcals helpful, e.g. increasing to 1200 kcal for a month, then 1500 kcal, and then to your maintenance intake. We will discuss this in our interactive sessions.