

Living with a Spinal Injury

Nutritional Guide



**Expert advice from a registered
NHS dietitian**

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Introduction



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Whether your spinal cord injury was recent or some time ago, there may be areas of your health that are linked to your injury that you're looking to improve for you to feel like you can live your best life.

Everybody's spinal cord injury is different, as are their experiences, and so we have listened to some people living with these injuries about aspects of their health they would like support with. We have put together this guide to boost your confidence in empowering yourself with nutrition and using it to feel as healthy and happy for as long as possible.

This guide was written by Registered Dietitian Laura Coster who has helped produce some of our other guides we have mentioned here. If you would like specialist and tailored nutrition advice, ask your GP for a referral to your local NHS Dietitian or you can find someone in private practice via the British Dietetic Association's website.





If your nerve signals from your spine to your bladder have been affected by your injury, then you might find it difficult to pass urine or to stop its flow. You may be using a catheter which can be helpful for both situations, but it could mean you are not passing urine as frequently. When this happens, your kidneys can find it trickier to filter your blood as well as normal and that can make you ill. This can also trigger a set of symptoms that are part of a syndrome called autonomic dysreflexia where you may become very sweaty and have severe headaches, overall feeling very unwell and might need to stay in hospital. Catheters can also make it easier for bacteria to travel up your urinary system that cause urinary infections where you may feel ill or possibly need to visit hospital. While your medical team can support you with medications and catheters, you can also use the powerful tool of nutrition to help.

When we are well hydrated, this helps our blood vessels better able to carry our blood through our body, including through the filtering of our kidneys. It also means the urine we produce is less concentrated which makes it easier to flush through what our body is trying to get rid of, e.g. bacteria that may be travelling up our urinary system. To help with all the above, we can try to drink enough hydrating fluids but also include hydrating foods.

Our Top Tips

Our separate 'Living with a Urinary Catheter Hydration Guide' has lots of helpful hydrating tips even for those without catheters.

- 1 Unless you have been given different hydration advice by a kidney-specialist Doctor or Dietitian, aim for 2L of water a day and you might find it beneficial to have 1-2 glasses of water with each meal and between them. You can flavour your water with fruit slices and herbs like mint, perhaps having cold-infusion 'tea bags', and options like low-sugar squash, decaf teas and coffees and some milk. Fizzy drinks, fruit juice and caffeinated drinks can potentially cause us to lose more fluid than normal, so it is best to choose other options.



Urinary Health



2 Hydrating foods include fruits and vegetables, especially tomatoes, cucumber, bell peppers, berries, and melon. There are also other options like soups, stews, sauces, jelly, yoghurt, and cottage cheese.

3 If your medical team has said you may develop calcified kidney stones, or you have them already, you do not need to reduce your calcium unless a kidney-specialist dietitian has given this advice specifically to you. In our section on bone health we talk a little about the importance of calcium after a spinal cord injury.

4 There are a few clinical studies on the effects of taking cranberry supplements or juice and bladder health, with some researchers focusing on those with spinal cord injuries. Just like the research that includes people without these injuries, some studies have shown cranberry-products can reduce the chances of urinary infections, but others found they are not helpful at all. If you would like to try cranberry-products to aid your bladder health, then it is best to have this approved by your medical team to ensure it does not counteract any other medical advice you are following.





Gut Health

You might have had a change to your bowel function and been told you have a 'reflex bowel' or a 'flaccid bowel' and have incontinence or have difficulty passing stools. If you are constipated you may feel generally quite uncomfortable and unwell, you might develop haemorrhoids or tears towards the end of your gut. For some, like mentioned in our urinary health section, this might trigger a set of symptoms of autonomic dysreflexia where you can become quite ill and need to stay in hospital.

Constipation can also reduce your appetite and you may be able to eat less food than you need for basic functions like an efficient immune system. You might find incontinence changes how comfortable you feel doing your usual activities and you're less keen to be sociable, it can also increase the chance of skin wounds called pressure ulcers happening and mean you're in pain or are more prone to infections.

Both incontinence and constipation are thought to happen to almost 40-50% of those with spinal cord injuries - you are not alone in experiencing this and there are some positive nutrition swaps you can make to help.

There are different types of fibre and they each can help with gut health. Fibre is not digested by our body, so it passes through our whole digestive tract. Often called 'insoluble fibre', this bulks what becomes our stool making it easier to travel through our gut. 'Soluble fibre' dissolves with water to make a gel-like texture and this softens the stool so our gut can more easily move it along. Hydrating ourselves is also key to being able to replace excess fluids that are lost on loose bowel movements. Some foods and drinks can irritate or over-stimulate our gut, but this will not happen to everybody and the triggers and amounts of these can vary too.

Our Top Tips

No matter your overall gut health, it is important to be hydrated and you might find our advice under our urinary health section useful. Our separate 'Living with a Urinary Catheter Hydration Guide' has lots of helpful hydrating tips even for those without catheters.

Softening your stools

- 1 Choose higher-fibre starchy carbohydrates like granary or wholemeal bread/pasta/rice or swap rice for cous cous, quinoa or similar grains.
- 2 Aim for 5 or more portions of fruits and vegetables a day, and if you are aiming to reach a slimmer size and shape then you can try for vegetables to make up half your plate at mealtimes. To get a variety of the types of fibre, aim for as many different fruits and vegetables as you can and keep the skins on foods like potatoes, carrots, parsnips, and others.

Firming your stools

Our 'Living with a Stoma Nutritional Guide' has advice on minimising gut irritants and food swaps for lower-fibre options.

- 1 Caffeine, alcohol, high-sugar or fizzy drinks might irritate your gut so choose the hydrating options we mentioned in our urinary health top tips section. High-fat foods may over-stimulate your gut so choose home cooked meals over pre-prepared options/takeaways and choose tomato-based instead of creamy sauces. Chilli can cause loose stools so you might like to experiment in finding the balance between eating the amount of chilli you enjoy and what you find is kindest to your gut.
- 2 You may find you better tolerate lower-fibre starchy carbohydrates like 'white' rice/bread/potatoes rather than options that are labelled as 'brown' or 'wholegrain'. It is worth trialling 'white' and 'brown' options to see what suits your gut.
- 3 For general health, it is best to aim for **5 or more** portions of fruits and vegetables a day. If you are trialling the other advice to firm your stools and needing more help, then having **up to 5** portions equally spread across your day might suit you better. You could have a cupped handful of vegetables at each main meal and then a portion of fruit as a snack twice a day. If you would like tailored support, reach out to your GP for a referral to an NHS Dietitian but you can also find freelance Dietitians via the British Dietetic Association's website.



Bone Health

If you are less physically independent since your injury, then you may have found it harder to keep your muscle strength up. Muscle strength helps our bones to hold on to their internal minerals that make up their structure, which in turn makes them strong and better able to support our muscles for us to mobilise ourselves. A natural part of anyone's aging process is for bones to start gradually releasing their minerals, but this can happen prematurely and quicker after a spinal cord injury.

Weaker bones are more prone to 'compression' fractures that can happen when you are mobilising yourself, or when you are helped to move by others. If a fracture happens then this might reduce how able you are to do your usual activities while they heal. What you eat and drink can influence the structure of your bones therefore you can help keep your bones strong through your nutrition choices.

The main mineral which gives our bones structure is calcium therefore consuming enough high-calcium foods can minimise the amount of minerals our bones release. To absorb the calcium from what we eat and drink we need enough vitamin D levels in our blood. Collagen is also key to building and maintaining the healthy structure of our bones; when we eat foods containing protein, our bodies can digest and then use them to produce collagen. Vitamin C and zinc also help our bodies form the collagen.

Our Top tips

- 1 Have at least 3 portions of high-calcium food and drinks a day and you might like to have one at each meal, or as part of a snack if you are trying to regain lost weight. High-calcium foods are milk, yoghurt, cheese, tofu, and tinned fish that still contain the soft bones e.g. salmon or pilchards,

Bone Health



but also some plant-based dairy alternatives and cereals that on their label show added calcium. There are some serving size suggestions in our 'Living with a Stoma Nutritional Guide'.

2 We might not be able to produce enough Vitamin D if we do not get much time in the sun or have non-pale skin, nor consume enough because levels in food fluctuate throughout the year. Foods that are labelled as 'high in vitamin D' can include certain brands of eggs, mushrooms, cereals, plant-based dairy alternatives, but also oily fish like salmon. Low vitamin D levels affect many people even without a spinal cord injury and so the NHS recommends people consider taking a 10 microgram vitamin D supplement each day - speak with your pharmacist or doctor before starting this to check it does not interfere with any medications you're prescribed.

3 Aim for a quarter of your plate at each meal to contain a high-protein food to help your body to produce collagen: these foods are also high in zinc. Some examples are meat, poultry, fish, eggs, tofu, 'mince' made from soy or mycoprotein, cheese, milk, and yoghurt. There are some suggested portion sizes in our 'Living with a Stoma Nutritional Guide'.

4 To get enough vitamin C, aim for 5 or more fruits and vegetables a day, eating a variety across the day and week. You could have a third of your meal as vegetables, or half if you are aiming to reach a slimmer size or shape.





Skin Health

If since your injury you're less mobile and physically independent, you may be staying in particular laying or sitting positions for longer than you would have before, which can put extra pressure on your skin and the vessels that carry the nutrients to it. The more pressure these are both under, the less able your skin is to keep healthy which can lead to wounds called pressure ulcers. These wounds can be uncomfortable or painful, but they can also increase the chance of getting infections and becoming unwell that might need medications or treatment in hospital. These can also take longer to heal if you are not mobilising or helped to mobilise frequently. Making nutritious and hydrating choices is one of the best ways to help keep your skin healthy so that you can spend more of your time doing what you love.

Most of our skin is made from collagen and our body can produce this when we eat enough protein at our meals. We also need zinc and vitamin C to help our

bodies produce collagen from the protein that we eat. Iron helps our red blood cells carry oxygen to our skin to fuel our cells so it can stay strong and repair any damage that happens. Water helps carry nutrients around our body, including to our skin, plus it helps our skin be more elastic and better cope with pressure changes. Our shape and size can also influence the pressure on our skin when laying or sitting and you might like to read that topic's section after these skin health top tips.

Our Top tips

- 1** Aim to choose hydrating drinks and foods such as those in our urinary health top tips section. Our separate 'Living with a Urinary Catheter Hydration Guide' has lots of helpful hydrating tips even for those without catheters.

Skin Health

- 2** As you might have read in our top tips for maintaining bone health, include at least a quarter of your plate as a high-protein food at each meal, these foods are often also high in zinc and iron. We gave some examples of such foods in the previous section and we also have some suggested portion sizes in our 'Living with a Stoma Nutritional Guide'.
- 3** Like for bone health, aim for 5 or more fruits and vegetables a day, eating a variety across the day and week to get enough vitamin C but also other vitamins and minerals. Aim for a third of your meal to be vegetables, or half if you are aiming to reach a slimmer build.
- 4** At present, there is no long-term and strong clinical evidence that taking collagen supplements improves how our bodies produce collagen and this has been researched in groups of people with spinal cord injuries and those without. There can be risks and side-effects when taking supplements and it is more effective and safer to eat high-protein foods at each meal and trying to choose a variety of types across the day and week.



Our Shape and Size

There is more to life than our shape and size and how you feel about your quality of life is arguably what matters the most. Some people with a spinal cord injury find they lose a lot of their muscle strength but also a significant proportion of their internal energy stores of fat, which can be part of being less mobile but also not feeling as hungry or able to eat in the same way as before. Others find their muscle mass decreases but as

they are less mobile, and their hunger is the same or higher, they find their internal energy stores increase even if they have not changed how they eat or drink. Both of these scenarios can make it feel more tiring to be as physically independent as you'd like, make you more prone to developing diabetes but also put extra pressure on your joints and skin that can cause pressure ulcers. Ultimately, every individual wants to be as healthy and



Our Shape and Size

happy for as long as possible and you can use nutrition to help.

When we eat and drink, we consume much needed nutrients like fat, protein and carbohydrate that provide energy that is needed to power our bodies, plus vitamins and minerals that are essential for functions like having an efficient immune system. Everybody has some internal energy stores because they help protect our organs and keep us warm; how much energy we consume can help us increase or decrease them. Whether you are looking to maintain your shape or size, or increase or decrease your internal energy stores, it's always important to eat a variety of foods to get enough nutrients so you can stay well and do the activities you enjoy.

Our Top tips

No matter what you are hoping to achieve, find recipes you love so you can include a variety of foods

and make them taste great. Food is as much about enjoyment as it is nourishment and taking pleasure in what we eat can help us feel more satisfied, along with boosting our mood and mental health.

To increase your build

- 1** If you get full easily and cannot finish meals, consider having drinks after eating or about 15-30 minutes before starting to eat so the drinks do not reduce your appetite.
- 2** Aim for each third of your plate as below, and if you cannot finish all on your plate prioritise these foods in this order:

A high-protein food like meat, poultry, fish, eggs, tofu, lentils etc

Starchy carbohydrates such as rice or potatoes

Some fruits and vegetables e.g. broccoli, carrots, tomatoes

Our Shape and Size

3 Swap products labelled as 'low fat' for natural and minimally processed fats. Include a serving of natural fat with each meal such as a drizzle of olive oil, a tablespoon of butter, a sprinkle of cheese, nuts, or seeds.

4 You might find it easier to eat ~4-6 small meals or large snacks instead of 3 main meals. 'Complete' or 'A-Z' multivitamin and mineral supplements do not replace a well-balanced way of eating and drinking, but they can help in some circumstances so reach out to your Doctor if you think these may benefit you and do not counteract any other medical advice you're following.

To slim your build

1 Being hydrated helps our body tell the difference between hunger and thirst, plus drinking enough with meals and between them can help us feel fuller and more satisfied from our meals. We have shared a few suggestions in our other sections, but our separate 'Living with a Urinary Catheter Hydration Guide' is full of ideas to help you drink enough throughout the day.

2 Aim for 3 well-balanced meals a day rather than snacking or grazing because otherwise it can be easy to overeat. Having occasional foods such as crisps, chocolate etc, but also nutritious snacks like yoghurt and berries, is unlikely to counteract all your other healthy habits and can be





Our Shape and Size

part of eating being flexible, enjoyable, and ultimately sustainable. However, if you are frequently snacking then it potentially can hold you back from reaching your personal health goals. Whatever you eat, take your time, and savour each mouthful so you find more pleasure when eating and are more satisfied from a smaller or regular portion size.

3 Try adjusting your meal proportions help keep you fuller for longer:

Half your plate as vegetables e.g. broccoli, carrots, tomatoes

A quarter of your plate as a high-protein food like meat, poultry, fish, eggs, tofu, lentils etc

A quarter of your plate as starchy carbohydrates such as rice or potatoes

4 Choose more homemade meals or minimally processed options as these will be more nutritious to help with your skin, bone, and overall health, plus will often be more filling and satisfying. There are lots of great recipes available in various cookbooks and for free online on many websites. There are also 'homemade-takeaway' recipes you can find such as for curries, pizza, and other dishes.



Meal Plan Example 1:



TIMINGS

ORIGINAL

ADAPTED

For better hydration, bone health, reducing constipation and helping reach a slimmer shape and size

07:30

2 fried eggs on white toast.
Some sips of water.

Drinking half a pint of water before eating.
2 dry-fried, boiled, or poached eggs on granary toast, filling the rest of the plate with spinach.

10:30

A cereal bar.
A cup of tea.

Drinking a pint of water between breakfast and lunch.

13:00

A supermarket 'meal-deal' of a chicken and mayonnaise sandwich, packet of crisps.
Non-diet fizzy drink.

Drinking half a pint of water before eating.
Made at home: A wrap spread with some mayonnaise before filling with sliced chicken, cucumber, lettuce and tomato, then having the rest of the plate as crudités e.g. bell peppers and carrot.

15:00

A handful of nuts.
A cup of tea.

Drinking a pint of water between lunch and dinner.

19:00

A whole cook-from-frozen pepperoni pizza.
Some sips of water.

Drinking half a pint of water before eating.
A quarter of that pizza, or a small homemade pizza or a 'pitta bread pizza' of a wholemeal pitta topped with tomato puree, sliced chorizo or pepperoni and sprinkle of cheese, with half a plate of mixed salad.

20:30

An ice cream.
Some sips of water.

Drinking a pint of water between dinner and the hour or two before bed.
A pot of yoghurt.



Meal Plan Example 2:



TIMINGS

ORIGINAL

ADAPTED

Adapted for better hydration and bone health while adding extra energy for smaller appetites

07:30

A coffee.
A small bowl of porridge both made with semi-skimmed milk.

Making both the porridge and coffee with whole-milk.
Having the coffee after eating the meal.

10:30

Sips of water between breakfast and lunch.

A pot of yoghurt (not low fat).
Having a glass of drink they like e.g. low-sugar orange squash.

13:00

A cup of tea.
Half a jacket potato with beans.

Half a jacket potato with butter, beans, and cheese.
A cup of tea after eating.

15:00

A cup of tea.
A couple of plain biscuits.

Two shortbread biscuits.
A cup of tea after eating.

19:00

A small bowl of vegetable soup and half a slice of toast.
Sips of water.

A meat-based or lentil soup, with a drizzle of cream on top, half a slice of toast with thickly spread butter.
Drinking water after eating.

20:30

A cup of tea.

A decaf coffee made with whole milk or a malted milky drink.





Everybody, with a spinal cord injury or without, is different and so our specific nutritional needs and health goals can be too.

We hope each of you have found some of our advice helpful for yourselves or those you care for. There is no such thing as a 'perfect diet' and so use the parts of our top tips that feel valuable to you and what you are hoping to achieve. Aim to eat what your body will thank you for but most importantly find pleasure in what you eat and drink to look after both your physical and mental health.

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