How can I help reduce healthcare associated infections?
Infection control is important to the well-being of our patients and for that reason we have infection control procedures in place. Keeping your hands clean is an effective way of preventing the spread of infections. We ask that you, and anyone visiting you, use the hand sanitiser available at the main entrance of the hospital and at the entrance to every clinical area before coming in to and after leaving the clinical area or hospital. In some situations hands may need to be washed at the sink using soap and water rather than using the hand sanitiser. Staff will let you know if this is the case.

www.buckshealthcare.nhs.uk
Introduction

After a Spinal Cord Injury (SCI) it is important to look after your heart health. Cardiovascular disease (CVD), or heart disease, has become common in the long-term Spinal Cord Injury (SCI) population.

CVD is a broad term and includes many diseases affecting the heart and blood vessels. The most common form of CVD is atherosclerosis (narrowing or blocking of the blood vessels). This is the most common cause of heart attacks.

Risk Factors

There are many different risk factors. Some risk factors you cannot do anything about, such as your gender, age, ethnicity and family history.

There are other factors, however, that you may be able to change through diet, medications, lifestyle and habits, e.g.:

- being overweight or obese,
- abnormal blood lipids (fats) – see page 10,
- being physically inactive,
- having high blood pressure and
- smoking

What can I do?

You can help to reduce your risk of developing heart disease by avoiding smoking, losing weight if necessary, being as active as possible and eating a healthy, balanced diet which is good for your heart.

Food Labels

Most products have nutritional information on the label. Some products also have colour coding on the front, which tells you at a glance if the food has high (red), medium (amber) or low (green) amounts of fat, saturated fat, sugars and salt per 100g of the product – see image below.

Most pre-packed foods show a list of ingredients. They are listed in order from largest to smallest amount. So if the first few items are high in fat, like butter, cream or oil, then the product is a high fat food.

Low fat means there is no more than 3g fat per 100g

Reduced fat means that the product is at least 30% lower in fat than the standard version of the product

Light/Lite mean at least 30% lower in one value than the standard product, e.g. calorie or fat content

No Added Sugar means no extra sugar has been added, however, it could contain naturally occurring fruit sugar or milk sugar.
Other Ways to Protect your Heart

As well as being a healthy weight and shape, the following can help to protect your heart.

Cut down on salt
Eating less salt can lower your risk of high blood pressure, which is linked to heart disease and stroke. No more than 6g/day (1 teaspoon) is recommended but most of the salt we eat is already in our food and drinks.

Some tips include:
- Reduce ready-made meals and processed foods
- Choose unsalted breakfast cereals, such as a low salt and sugar muesli, shredded wheat or puffed wheat
- Use herbs and spices instead of salt to flavour foods
- Remove salt from the table to reduce temptation
- Check labels – choose low salt versions where possible

Reduce Alcohol Intake
Drinking more than the sensible limit of alcohol can lead to heart muscle damage, high blood pressure, stroke and some types of cancer. All alcohol is high in calories so limit your intake if you want to lose weight.

It is recommended that men and women should not regularly drink more than 14 units per week. Try to have alcohol free days weekly and do not binge drink.

Choose low calorie/sugar free mixers; try a wine spritzer with sparkling water, choose half pints/small can/small glass/single measure; limit the number of drinks.

1 unit =
125 ml glass red/white wine
25 ml of spirits
50 ml sherry
½ pint normal strength beer

Overweight

Being overweight and carrying excess fat increases your risk of high blood pressure and diabetes.

Body Mass Index (BMI) – the ratio of weight to height – is often used to determine if someone is overweight or obese, however, most people with SCI have lost “lean body mass” due to muscle atrophy (shrinking or wasting) below the level of injury and even due to loss of calcium from bones.

Therefore, someone with SCI can have an excessive amount of body fat at a traditionally “normal” weight-to-height ratio (BMI). For this reason, BMI in SCI is as follows:

- Healthy range = 18.5 – 22Kgm2
- Overweight = BMI 22.1Kgm2 – 25Kgm2
- Obese = BMI > 25Kgm2

Use the following BMI table to check your BMI.

Losing Weight if You Need To

To achieve weight loss:
- Your energy output (from being physically active) must be greater than your energy intake (from food and drink consumed).
- As your mobility following SCI is likely to have significantly reduced, you may need to reduce or change your food and drink habits to avoid gaining weight.

Ask your healthcare professional for the ‘Weight Management with Spinal Cord Injury (SCI)’ diet sheet for more information on ways to reduce your weight.
Using plant sterols and stanols

People with high cholesterol may benefit from having foods and drinks that have added plant sterols and stanols (fortified).

There is a range of dairy foods which have been fortified with plant sterols and stanols. Both branded and own-label products are available. These include fortified milk, spreads, yoghurts and yoghurt drinks.

*If you do choose* to use a plant sterol or stanol product in addition to the changes outlined, they need to be eaten every day, with meals, and in the right amount. This can help to lower your cholesterol levels by from 7-12.5%.

To be effective any plant sterol or stanol fortified foods or supplements need to be consumed at meal times. This is because they work by mixing with the food in your intestines.

To provide 1.5-3g (the effective dose) per day of plant stanol/sterol you need to consume either:

- one plant sterol or stanol fortified mini yoghurt drink per day or
- 2-3 portions of foods providing at least 0.8g of plant sterol per day:
  - two teaspoons fortified spread
  - one fortified yoghurt
  - a glass (250ml) of fortified milk.

### What about my Cholesterol?

#### Body Mass Index Chart

<table>
<thead>
<tr>
<th>Height in m</th>
<th>4</th>
<th>3</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
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<th>18.2</th>
<th>18.7</th>
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<tbody>
<tr>
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<td>24</td>
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<td>29</td>
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<td>1.214 ft</td>
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<td>23</td>
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<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>34</td>
</tr>
</tbody>
</table>

**Weight in lbs**

- 77 | 81 | 85 | 88 | 92 | 97 | 101 | 106 | 111 | 115 | 124 | 128 | 133 | 137 | 141 | 148 | 150 | 155 | 159 | 164

**Weight in kg**

- 35 | 37 | 39 | 40 | 42 | 44 | 46 | 48 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 64 | 66 | 68 | 70 | 72 | 74

**Key**

- Underweight < 18.5
- Normal 18.5-22
- Overweight 23-25
- Obese 26-39
- Morbidly Obese > 40
Eating more fibre, including wholegrains
Foods high in fibre – especially those high in soluble fibre – help to lower total cholesterol and LDL by reducing the amount of cholesterol that is absorbed into the bloodstream from your intestine. Good sources of foods that are high in soluble fibre include oats, barley, pulses such as baked beans, kidney beans, soya beans, peas, lentils and chickpeas and certain fruit and vegetables like apples, pears, sweet potato and more.

Foods high in fibre also help to fill you up, which can be helpful if you are trying to lose weight. Eating more fruit and vegetables can help you meet your fibre needs as well as helping to lower the overall risk of heart disease.

Eating a range of unsalted nuts
Unsalted nuts and seeds contain healthy unsaturated fats, antioxidants and fibre which can help lower total cholesterol and LDL. However, nuts and seeds also contain a lot of calories, so keep to the recommended one handful (30g) of unsalted nuts and seeds a day.

Eating soya
Soya products are naturally low in saturated fat and a good source of soluble fibre, antioxidants and protein and when used in place of high saturated fat foods, may help to lower your cholesterol.
The EatWell Guide (on the next page) describes the variety and proportions of foods and drinks to consume in a healthy, balanced diet. A variety of items from different food groups is needed to provide the range of nutrients your body needs, i.e. energy, protein, vitamins and minerals and fibre for healthy bowels.

The Food Groups of the EatWell Guide include:

- Fruit and vegetables
- Potatoes, bread, rice, pasta and other starchy carbohydrates
- Dairy and alternatives
- Beans, pulses, fish, eggs, meat and other proteins
- Oil & spreads
- Fluid

### Choosing healthier fats – To help your cholesterol level

<table>
<thead>
<tr>
<th>Trans fats</th>
<th>Saturated fats</th>
<th>Polyunsaturated fats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter</td>
<td>Hard cheese</td>
<td>Cream</td>
</tr>
<tr>
<td>Pastries</td>
<td>Whole milk</td>
<td>Cheese</td>
</tr>
<tr>
<td>Cakes</td>
<td>Fatty meats</td>
<td>Suet</td>
</tr>
<tr>
<td>Crackers</td>
<td>Meat products</td>
<td>Some spreads</td>
</tr>
<tr>
<td>Fried foods</td>
<td>Biscuits</td>
<td>Some spreads</td>
</tr>
<tr>
<td>Takeaways</td>
<td>Cream</td>
<td>Some spreads</td>
</tr>
</tbody>
</table>

### Foods that have partially hydrogenated oils or fats or hydrogenated oils or fats in the list of ingredients are likely to contain trans fats.

<table>
<thead>
<tr>
<th>Omega-6</th>
<th>Omega-3</th>
<th>Unsaturated fats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn oil</td>
<td>Oily fish such as herring, mackerel, sardines, salmon, trout and fresh tuna</td>
<td></td>
</tr>
<tr>
<td>sunflower oil and soya oil</td>
<td>seeds and sunflower seeds</td>
<td></td>
</tr>
<tr>
<td>Omega-6</td>
<td>Omega-3</td>
<td>Polyunsaturated fats</td>
</tr>
<tr>
<td>Oily fish such as herring, mackerel, sardines, salmon, trout and fresh tuna</td>
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<td>seeds and sunflower seeds</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Omega-6</th>
<th>Omega-3</th>
<th>Monounsaturated fats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive oil and rapeseed oil</td>
<td>Avocado</td>
<td></td>
</tr>
<tr>
<td>Omega-6</td>
<td>Omega-3</td>
<td>Polyunsaturated fats</td>
</tr>
<tr>
<td>Oily fish such as herring, mackerel, sardines, salmon, trout and fresh tuna</td>
<td></td>
<td></td>
</tr>
<tr>
<td>seeds and sunflower seeds</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Which foods are these found in?</th>
<th>Unsaturated fats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive oil and rapeseed oil</td>
<td>Oily fish such as herring, mackerel, sardines, salmon, trout and fresh tuna</td>
</tr>
<tr>
<td>Avocado</td>
<td>Some spreads made from monounsaturated fats</td>
</tr>
<tr>
<td>Nuts and seeds</td>
<td>Enriched products</td>
</tr>
<tr>
<td>Almonds, cashews, hazelnuts, peanuts and pistachios</td>
<td></td>
</tr>
</tbody>
</table>
What About my Cholesterol?

Choosing healthier fats
Foods containing fat are made up of a combination of saturated fats, monounsaturated fats and polyunsaturated fats.

Reducing the total amount of fat you eat – especially if you are overweight will be beneficial to your health. Choosing healthier fats can help protect your heart, but remember all fats are high in calories.

To help improve your cholesterol level, cut down on saturated fats and trans fats and replace them with monounsaturated fats and polyunsaturated fats.

- **Saturated fats** are unhealthy fats and can increase total cholesterol and LDL. LDL increases the risk of fatty deposits developing in your arteries.
- **Trans fats** are also unhealthy fats which can increase LDL and lower HDL.
- **Monounsaturated fats** are healthy fats and can lower the LDL level without lowering the level of HDL.
- **Polyunsaturated fats** are also healthy fats and include omega-3 and omega-6 fats (see page 15).
  - Omega-3 fats in particular can help to lower triglyceride levels, help prevent the blood from clotting and help keep the heart rhythm regular.
  - Aiming for a portion of oily fish per week can help to improve our levels of Omega-3 (see sources on page 15. Vegetarian sources of Omega-3 are also given here.)
  - In general, we tend to get enough Omega-6 fats in our diet
The Importance of Each Food Group

Fruit and vegetables
- Provide a variety of vitamins, minerals and dietary fibre.
- Opt for a rainbow of colours of fruit and vegetables, as different colours contain different vitamins.
- Aim to eat 5 portions or more of fruit and vegetables per day (1 portion = size of your fist).
- Avoid drinking more than 1 glass of any fruit juice per day as it is high in natural sugar.

Potatoes, bread, rice, pasta and other starchy carbohydrates
- Provide energy, fibre and B vitamins.
- Opt for wholemeal/wholegrain options that help fill you up and maintain good bowel habits.
- These include foods such as potatoes, bread, rice, pasta and cereals.
- It is recommended to have some of these foods at each meal but it is often easy to have more of these foods than we need and so when trying to lose weight, aim for a ¼ of your plate to be from this group.

Dairy and alternatives
- Provide calcium which is important for strong bones and helps prevent osteoporosis
- Low fat dairy products still have as much calcium and protein as full fat alternatives. Ensure dairy alternatives, e.g. soya, almond etc. have added vitamins and minerals. Unsweetened versions are best.
- Aim to have 3 portions a day e.g. match box size of cheese, glass of milk or a pot of yogurt.

What About my Cholesterol?

How do I lower my cholesterol?
Choosing a healthier diet can help improve your cholesterol levels. Making healthy changes to your diet benefits your heart in other ways, for example, it can help protect against high blood pressure, diabetes and gaining weight.

Some ways that can help you to lower your cholesterol include:
- Choosing healthier fats, including Omega-3 fats (see page 15)
- Eating more fibre, including wholegrains (see page 16)
- Eating a range of unsalted nuts (see page 16)
- Eating soya (see page 16)
- Using plant sterols and stanols (see page 17)

Other ways to help you protect your heart:
- Cut down on salt (see page 18)
- Reduce alcohol intake (see page 18)
What About my Cholesterol?

Triglycerides
Triglycerides are another type of fatty substance in the blood. People who are overweight, eat a lot of fatty and sugary foods, or drink too much alcohol are more likely to have a high triglyceride level.

People with a high triglyceride level carry a greater risk of heart disease and stroke than people with lower levels. Particularly if you have high cholesterol, you smoke, you have diabetes or high blood pressure.

Total Cholesterol
Your total cholesterol level is the total of the LDL, HDL and other fats in your blood.

People with a high total cholesterol have a higher risk of heart disease than those with lower levels. The risk is particularly high if you have a high LDL and a low HDL.

What causes high cholesterol?
Some people have an inherited condition which causes high cholesterol, known as Familial Hypercholesterolaemia (FH). Some people also have high cholesterol as a result of other health conditions or having too much alcohol.

A common cause of high blood cholesterol is eating too much saturated fat.

Beans, pulses, fish. Eggs, meat and other proteins
- Provide essential proteins, minerals and healthy oils.
- Aim to have a portion from this food group at each meal.
- Aim to have 2 portions of fish per week, including one oily fish, such as mackerel, pilchards or salmon.
- To reduce saturated fat, try a meat-free meal each week. Instead try eggs, beans, lentils, soya mince, quorn, tofu or unsalted nuts.
- Limit consumption of red meat and processed meats (<70g/day) such as beef, lamb, pork, sausages and pies which contain saturated fat which can raise your cholesterol (see page 10).

Foods containing fat
- A small amount of fat is needed as part of a healthy, balanced diet.
- Source of essential fatty acids and it also helps to absorb fat soluble vitamins, e.g. vitamin A, D and E.
- All types of fat are high in calories. We should aim to reduce saturated fat (which increases cholesterol levels) and replace some of these with unsaturated fats – see cholesterol section.

Foods high in sugar/salt
- Not strictly part of a healthy eating diet. A high intake of sugar can lead to weight gain and tooth decay.
- Use confectionary, pastries, biscuits, fast food/takeaways for occasional treats only, and try to limit your sugar in hot drinks and on cereals.

Remember fluid
- Fluid is important to help keep the skin elastic and therefore reduces the risk of developing pressure sores and prevents constipation. You should aim for 2 litres per day (8-10 glasses). Avoid drinks that contain sugar as these are high in calories and can also lead to weight gain.
What About my Cholesterol?

What is cholesterol and what does “blood lipids” mean?

Blood lipids is the name for all the fats in the blood, including cholesterol and triglycerides (see page 12).

Cholesterol is a waxy substance which is mainly made in the body. Without cholesterol your body would not work as it forms part of the outer shell of every cell. It is abundant in the brain, nervous tissue, skin and adrenal glands.

However, too much cholesterol in the blood increases the risk of fatty deposits developing in your arteries (atheroma) and therefore increases the risk of cardiovascular disease (CVD).

Ask your Doctor or Dietitian what your blood lipid results mean.

Dietary Cholesterol

Very little dietary cholesterol is found in foods, except for eggs, liver and kidneys, and seafood such as prawns. The cholesterol found in these foods does not contribute very much to the level of cholesterol in your blood. However, if you have familial hypercholesterolaemia (FH) you will need to be more careful about eating foods with cholesterol. Foods containing saturated fat and trans fat raise your blood cholesterol level (see pages 14-15).

LDL and HDL

Cholesterol is carried through the bloodstream on lipoproteins. There are 2 main types of lipoproteins – LDL (low density lipoprotein) and HDL (high density lipoprotein).

LDL carries cholesterol from the liver through the bloodstream to the cells and is known as the “bad” type of cholesterol.

HDL returns extra cholesterol that is not needed from the bloodstream to the liver. HDL is a “good” type of cholesterol because it removes the cholesterol that is not needed from the blood rather than depositing it in the arteries.

The liver makes some of the cholesterol in your body from the saturated fats in the foods you eat.