

Diet

Fact Sheet

Multiple
Sclerosis
Trust

MS

Information

Education

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Support

Diet

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1. Introduction

This factsheet summarises and reviews evidence about diet in MS, and is intended for those looking for general information. However, it does not constitute medical advice. If you are in any doubt, please discuss this with your MS nurse or GP, or ask for a referral to a registered dietician.

2. Comparison with the general population

A diagnosis of MS does not mean that a person has nutritional difficulties. One research study showed that the majority of people who are newly diagnosed or who have only mild MS symptoms had a comparable level of overall nutritional health with the general population¹.

However, some people with MS may be more susceptible to complications arising from a poor diet. Weight gain may become an unwanted side effect of some medications, or due to limited mobility. Similarly, problems can be caused by an over reliance on convenience foods if fatigue is a major problem. By contrast, some people with MS may experience significant weight loss, perhaps through problems in preparing food, or from the side effects of some medications that act as appetite suppressants.

Poor diet and nutrition can worsen existing symptoms such as fatigue and weakness. Eating a heavy meal can exacerbate fatigue; therefore rather than eating a few large meals per day, it may be more beneficial to eat smaller nourishing meals interspersed with some healthy snacks.

If you are overweight, underweight or have unwanted weight loss/gain, ask your GP for an appointment with a dietician. It is important that any dietary changes you make will not be detrimental to health. Avoid 'crash dieting' or excluding food groups to lose weight.

3. Is diet a factor in developing MS?

Studies of where MS occurs (epidemiology) have shown that the risk of MS is higher in countries where there is a high consumption of animal fat. However, studies of the population as a whole in these countries have not shown that eating a diet high in saturated fat causes someone to develop MS.

Conversely, no study has found that eating more fruit and vegetables protects against developing MS. Consequently, a link between animal fat intake and developing MS has not been proven².

There is a growing body of research suggesting a link between inadequate levels of vitamin D and the risk of developing MS, and that lack of exposure to sunlight and/or inadequate dietary intake of vitamin D in childhood increases the likelihood that a person may develop MS in later life³. There have been repeated calls in the press recently advocating the routine use of vitamin D supplementation, but no optimal dose has been suggested. However, the UK Food Standards Agency (FSA) currently recommends that people should not exceed a guidance level of 25 micrograms of vitamin D supplement per day. Whether vitamin D supplementation is beneficial for people who have already developed MS is less clear, as clinical trials have not definitively concluded whether increasing vitamin D intake makes a difference to the course of an individual's MS^{4, 5}.

4. What is a good diet for MS?

Research into diet and MS has been limited. Diet is notoriously difficult to research, for a number of reasons:

- it is usually impossible for researchers to control exactly what a person eats over a period of time;
- it is often very difficult to contrast an 'active' element with a 'dummy' placebo;
- what a person eats is known and obvious, so there cannot be any 'blinding', as there would be in a drug trial;

- most research is expensive and costs need to be recouped. Many foods are cheap, so there is little financial incentive in proving them beneficial.

However, there has been research into a healthy diet for other conditions, notably cardiovascular disease, which is much more common than MS in the general population. This research found that a diet that was low in fat, with lots of fruit and vegetables reduced a person's risk of developing heart disease, strokes and certain cancers. Consequently it forms the Government's advice for a normal balanced diet. See the website www.eatwell.gov.uk for more information.

5. Elements of a balanced diet

A balanced diet is essential to provide all the nutrients needed to be as active and healthy as possible. A balanced diet needs to include foods from the major food groups of fruit and vegetables, carbohydrates, fat, protein and dairy products. Each of these is considered in turn.

5.1. Fruit and vegetables

Fruit and vegetables provide a range of vitamins and minerals. The current recommended daily intake is five portions a day, a portion being, for example, an apple, a small glass of fruit juice, two plums, three tablespoons of cooked vegetables (fresh, frozen or tinned), or a small bowl of salad. Fruit and vegetables are a vital source of antioxidant vitamins, which are important in helping to maintain and protect myelin. Fruit and vegetables are also an important source of soluble fibre, which can help healthy bowel function.

5.2. Carbohydrates

Carbohydrates are vital for producing slow-release sugars, which provide energy, and are found in starchy foods such as bread, cereals, potatoes, pasta and rice. It is recommended that carbohydrates should make up around a third of the daily diet. High fibre carbohydrates, such as whole grain

cereals, wholemeal or fibre fortified white bread, can help prevent and relieve constipation.

5.3. Fat

Fat is a vital element in any diet because it contains concentrated calories or energy. Fats are made up of fatty acids. There are two kinds of fat:

- saturated fat - normally hard at room temperature. This is found in meat and animal fats (eg lard), and dairy products such as butter and hard cheese;
- unsaturated fats - usually soft or liquid at room temperature. Found in margarine, and vegetable, seed and fish oils.

There are two types of unsaturated fats:

- monounsaturated - found in olive oil;
- polyunsaturated - essential fatty acids are the building blocks of polyunsaturated fats. The body is unable to make polyunsaturated fatty acids itself, so it is essential that they are consumed through the diet, hence they are also known as essential fatty acids.

Research has shown a link between a high intake of saturated fat and an increased risk of heart disease and certain cancers, suggesting that a diet that reduces the intake of saturated fat is desirable. Monounsaturated fats are better for the heart than saturated fats, but do not have any proven benefits for MS.

Polyunsaturated fats have been the focus of the majority of studies into diet and MS. Polyunsaturated fats are further divided into two important forms: omega 3 essential fatty acids and omega 6 essential fatty acids. It is important to achieve a balance between these two groups, so it is recommended that foods containing both types are included in the diet.

Omega 3 essential fatty acids are present in oily fish such as salmon and mackerel, which are also good sources of protein and vitamin D. Other sources include green leafy vegetables and linseed oil. Omega 3 essential fatty acids are important as part of a balanced diet, but the main benefit for MS has been found with omega 6 essential fatty acids.

The main omega 6 essential fatty acid is linoleic acid. This is found in the oils of seeds and nuts, such as sunflower, safflower, soya, corn seeds or walnut oils. A combined analysis of three small controlled trials into linoleic acid indicated that taking 17-23g linoleic acid a day, via a spread or oil, could benefit some people with relapsing/remitting MS⁶. There was a reduction in the number and severity of relapses, particularly for those who were newly diagnosed or more mildly affected. In terms of increase in disability, less or no benefit was shown in people who had more symptoms at the start of the trials. However, those who were newly diagnosed or had minimal disability at the start of the trial seemed to stabilise, with little decrease in ability over the two and a half years of the trial when compared to the control group. There is no evidence that increasing linoleic acid benefits people with progressive MS as an insufficient number of people with this type of MS were included in the trial.

Based on this research, the NICE Guideline for the Clinical Management of MS recommends linoleic acid for people with relapsing/remitting MS⁷. However, since the NICE Guidelines were published, a subsequent review has cast doubt on the quality of the original research trials and called for further research in this area⁸.

5.4. Protein

Protein is vital to enable the body to build and maintain amino acids, the fundamental building blocks of the human body. Protein is present in foods such as meat, fish, beans and cheese. The Government recommends two portions of protein a day. Foods containing protein can also be a source of saturated fat.

5.5. Dairy products

Dairy products including milk, cheese, yoghurt and cream are a good source of calcium and vitamins A, B12 and D. All full fat dairy products are a source of saturated fat, and rich in calories. Therefore, low fat products are a healthier substitute, particularly if weight gain is an issue. Conversely, for people with low weight, full fat products can be a useful way of consuming more calories easily.

6. Other dietary concerns

6.1. Vitamin D, calcium and osteoporosis

People with MS have been shown to have a lower bone density than those in the general population (known as osteopenia). This puts them at a higher risk of developing osteoporosis, a progressive condition that causes the bones to become thin and brittle, making them more prone to fractures^{9, 10}.

Osteoporosis is most common in women who have gone through the menopause, as they have reduced levels of the hormone oestrogen, which has a protective effect against the condition. However, it can also occur in men. Factors that increase the risk of osteoporosis include problems with mobility and weight bearing, and long-term exposure to corticosteroids (sometimes used to treat MS relapses).

Osteoporosis tends to be under-recognised and under-diagnosed, so it is important to ensure that regular screening is requested from your GP if you have any of the risk factors listed above. Bone density is typically measured by DEXA scan; which is more sensitive than a traditional x-ray. Provision of bone scans varies considerably across the UK and waiting times can be very long.

Osteoporosis is also associated with an inadequate intake of vitamin D and calcium. Vitamin D is manufactured by the skin on exposure to sunlight. However, heat sensitivity and living in the UK may mean that many people with MS do not get enough exposure to sunlight to gain their vitamin D in this

way. Vitamin D is also found in oily fish such as salmon and mackerel, and in dairy products.

Calcium is another vital mineral for building and maintaining healthy bones. It is mainly found in dairy products, and in some green leafy vegetables such as broccoli and cabbage. For those who avoid dairy products, calcium fortified soya products can increase the amount of protein and calcium in the diet, as well as adding variety. Additionally, a range of vitamins and minerals are present in many fortified breakfast cereals.

6.2. Other vitamins and minerals

Various research studies have examined possible relationships between numerous other vitamins and minerals and MS. It is beyond the scope of this factsheet to consider all this research, but the MS Trust Information Service is happy to investigate the published literature in response to enquiries about specific vitamins and minerals.

6.3. Fluid

Adequate fluid intake is essential to prevent dehydration. Too little fluid can increase the risk of urine infections, tiredness, headaches, constipation, and thus worsen existing MS symptoms. Recommended guidelines are one and a half litres, or eight glasses, of fluid a day. Caffeinated drinks such as tea, coffee, cola and caffeine fortified soft drinks are best consumed in moderation, eg no more than four mugs of coffee a day, as caffeine can irritate the bladder. The same is true of alcoholic drinks.

More information on the importance of fluid intake is available in our factsheets: *Bladder problems* and *Bowel problems*.

7. Specific diets for MS

Many diets are promoted in terms of managing or even improving MS. The majority of these diets are exclusion diets. Exclusion diets suggest that you stop eating one or several groups of foods, or that some foods are not combined with other foods. Those who recommend some exclusion diets state that food allergies are common in MS; there has not been any research that upholds this theory. If a food allergy is suspected, your GP should be able to refer you to an NHS allergy clinic.

Two of the most widely-known diets for MS are:

7.1. Swank diet

In 1948, Dr Roy Swank began treating people with MS with a very low fat diet, because of the possible association between dietary fat and MS. Results were reported in 1970 and again in 1990. 144 people were followed for up to 34 years, with good results reported on the long-term level of disability. Those people who adhered strictly to the diet and were experiencing mild symptoms when they started the diet had slower disability progression than those who had not adhered strictly to the diet¹¹.

However, the design of this trial was flawed, in that there was no comparison group and there was no 'dummy' treatment, so the results are of limited significance. People who did not continue with the diet may have perceived no benefit from it because they were deteriorating, so we cannot know whether the good results represent a genuine improvement over other groups of people with MS, or occurred due to chance alone.

7.2. Best Bet Diet

The Best Bet Diet is a strict exclusion diet developed by Ashton Embry. It is based on the hypothesis that MS is caused by intact food proteins escaping from a leaky gut, which causes the immune system to malfunction. In 2006, a small trial of the Best Bet Diet began recruiting at Ninewells Hospital in Dundee. However, no results have yet been published from this study.

Anecdotal reports from people with MS suggest that the Best Bet Diet works for some people, but does not work for others. There are concerns about how easy it is to achieve a balance of all the food groups whilst following this diet. The diet recommends consuming large quantities of supplements, which can be expensive and which is not necessary with a normal balanced diet.

7.3. Points to consider for any MS-specific diet

Any diet can be difficult to follow, and, before embarking on one, it is worth considering these points:

- have you been given balanced or evidence-based information about the diet, or does it only seem to be promoted by enthusiasts?
- will the diet be worse than the symptoms that it might alleviate - for example, will it stop you eating all the foods you enjoy, or make going out for meals/meals with family or friends difficult?
- does it make realistic claims for improvements in MS?
- will your diet still be balanced?
- how affordable is it?
- will cooking/preparing it be a problem?
- is it recommended by your GP/dietician?

8. Supplements

Dieticians consider that a balanced diet should contain the full range of normal vitamins and minerals for healthy living. Supplements in themselves cannot replace a balanced diet. When taking large doses of supplements it is also possible to overdose on some vitamins, which may be harmful. If you are concerned about a specific deficiency, consult your GP, or ask for a referral to a registered dietician.

9. Further reading

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Publications

We hope that you have found this information helpful. The MS Trust offers a wide range of publications, including our quarterly newsletter *Open Door*, which provides an update on research and latest developments. Our website is regularly updated www.mstrust.org.uk

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