Oils and Fats in the Diet

Answers to questions commonly asked about oils
Fat in the Diet

How much fat should I include in my diet?
Fat provides our bodies with energy. Although we can get energy from other nutrients in our diet, we need some fat as it provides essential fatty acids that our bodies cannot make. It is also a carrier of the fat-soluble vitamins and is necessary for their absorption. In general, no more than about one third of our energy intake should come from fat as too much fat can be associated with high energy intakes that can lead to weight gain.

What are the different types of fat we eat in our diets?
The nature of the fat depends on the types of fatty acids which it contains. There are 2 types of fatty acids: saturates and unsaturated, which describes how the molecules in the fatty acid are joined together.

All fats contain both saturated and unsaturated (mono- and polyunsaturated) fatty acids but are sometimes described as ‘saturated’ or ‘unsaturated’ according to the proportions of fatty acids present. For example, butter is often described as a ‘saturated fat’ because it has more saturated fatty acids than unsaturated fatty acids, while most vegetable oils are described as ‘unsaturated fats’ as they have more unsaturated fatty acids than saturated.

As a rough guide, foods high in saturated fats are solid at room temperature and tend to be derived from animal sources. Most unsaturates are liquid at room temperature and are usually vegetable fats.

- **Foods high in Saturated Fats**: animal fats (meat, full fat dairy products), coconut oil, palm oil
- **Foods high in Monounsaturated Fats**: olive oil, nuts, avocados
- **Foods high in Polyunsaturated Fats**: most plant oils (rapeseed oil, sunflower oil), oily fish, nuts, seeds, spreads

Some of the polyunsaturated fatty acids cannot be made by our bodies but are essential for good health. These include the omega 3 fatty acid alpha-linolenic acid and the omega 6 fatty acid linoleic acid. It is important that we get these fatty acids from our diets.

Good sources of ALA (omega 3) are walnuts, seeds, soya bean, green leafy vegetables, linseed or rapeseed oils and spreads.

Good sources of LA (omega 6) are sunflower oil, olive oil.

Our bodies are not very good at converting ALA into the long chain omega 3 fatty acids (DHA and EPA) which seem to protect against heart disease and may have other health benefits. So it is important that we include oily fish like salmon, mackerel, or sardines (which is a good source of EPA and DHA) in our diets.
Fat and Heart Health

What type of fats affect cholesterol levels?
Fat is made up of different types of fatty acids which can have different effects on our health. In general, the unsaturated fatty acids help to reduce our blood cholesterol levels, and the saturated fatty acids bring about an increase in our blood cholesterol levels. An exception to this rule is the *trans*-fatty acids. These are unsaturated fatty acids that increase blood cholesterol levels.

So which is the best type of fat to eat for heart health?
The fats and oils we eat contain a mixture of fatty acids. So when you are choosing which oils to include in your diet, you may want to think about its fatty acid ‘profile’. Oils which contain mostly unsaturated fatty acids are often called ‘unsaturated fats’. These include vegetable oil, olive oil, sunflower oil, avocados and nuts. Fats and oils which contain mostly saturated fatty acids are often called ‘saturated fats’. These include the fats found in animal products such as red meat, butter and other dairy products as well as coconut oil and palm oil.

Choose a fat high in unsaturated fats as your everyday oil or fat spread as these are better for heart health.

My GP has told me that I should try to lower my cholesterol level. So which is the best type of fat to choose?
If you have been told that you have high cholesterol levels, you should choose a low fat spread containing unsaturated fatty acids as your everyday spread. You might also want to try using a spread enriched with natural compounds called plant sterols (or phytosterols). These compounds reduce cholesterol absorption from the gut into the blood. This causes the blood cholesterol level to fall which can reduce the risk of heart disease.

However, you will only get the greatest benefit if you also adopt a healthy eating pattern. It is therefore important to reduce your consumption of all types of fat (for example by selecting lean cuts of meat and lower fat dairy products, by reducing use of oil and full fat spreads, by eating fewer fried foods, and by moderating consumption of high fat foods such as cakes, biscuits and savoury snacks) and by opting for oils or spreads that are higher unsaturated fatty acids. You should also try to include oily fish in the diet once a week and include plenty of fruit and vegetables in your diet. Try to reduce your salt intake to below 6g/day (less for children) and include more starchy foods in the diet (for example bread, potatoes, yams, rice, pasta and oats). If you do drink alcohol you should avoid binge drinking and consume no more than 2-3 units a day for women and no more than 3-4 units a day for men.
Confused about trans-fat?

**What are trans-fats and why are they so bad for you?**

*Trans-fats* are a type of unsaturated fatty acid that are naturally present in small amounts in some foods, but can also be formed when oils are processed for use in food manufacturing.

*Trans-fatty* acids are considered to be bad for our health as they increase the amount of LDL (or ‘bad’) cholesterol and decrease the amount of HDL (or ‘good’) cholesterol in our blood. In this way they can increase the risk of heart disease if you consume too much of them.

**Do trans-fats occur in vegetable oils?**

*Trans-fats* naturally occur in lamb, beef and dairy products. Vegetable oils also contain low levels of *trans-fats*, but only if they have been partially hydrogenated. Hydrogenation is one of the processes used to make liquid oils more stable so they can be used in food manufacturing. Unsaturated fatty acids are converted into saturated fatty acids which are usually more solid and easier to use by the food industry. If some of the unsaturated fatty acids are not fully hydrogenated, *trans-fats* can form.

**Are there any alternatives?**

As we have become more aware of the negative effects of *trans-fats*, food manufacturers are using other processes to make more functional oils. This reduces the levels of *trans-fats* in foods, but can sometimes mean that the levels of saturated fat in a food can increase. It is important to check the nutrition label of the foods you buy to make sure that there is not too much saturated fat present.

**So how much of a problem are trans-fats?**

The Food Standards Agency conducted a review on the amount of *trans-fats* in our diets in 2007 using the latest data on the *trans-fatty* acid levels in foods and consumption patterns. The FSA concluded that, because so many manufacturers had voluntarily removed partially hydrogenated vegetable oils from foods, the levels of *trans-fat* were not of concern for the general population as they were under the recommended upper limit. However, most people are consuming too many saturated fats and there is a worry that by trying to further reduce the levels of *trans-fats* in the UK diet, we may inadvertently increase the amount of saturated fats we are eating.

Make sure that you read food labels and try to avoid eating too many foods containing partially hydrogenated vegetable oils. But also look out for the amount of saturated fat in your diet – aim to eat less than 20g saturated fat each day.
Different Types of Oil Available

There are many different types of oils on offer at the supermarket and many people purchase different oils for different purposes. For most, the choice of oil is based on the price, flavour or health benefits of the oil.

In terms of the health benefits, not enough is known about the specific effects of the different oils to claim that any one particular oil is better than another. Indeed, most people consume many different oils each day.

It is important to remember that all oils are roughly 99% fat so this makes them very calorific. If you are trying to watch your weight, you should aim to include only small amounts of oils in your daily diet.

This chart shows how the fatty acid make up of the different oils varies. It is important that you get a good balance of the different fatty acids in your diet and that you try to reduce the amounts of saturated fats you eat.
Rapeseed Oil

Most of the ‘vegetable’ oil in supermarkets in the UK is rapeseed oil as this is a readily available vegetable oil. It is frequently used in cooking and is also used to make spreads.

Is rapeseed oil really as healthy as they say?
Rapeseed oil has a good balance of the fatty acids present. It is lower in saturates than the other oils, high in monounsaturates. It also has a high content of the omega 3 fatty acid ALA. Therefore it is a good choice for an everyday cooking oil for good heart health.

But I’ve heard that it contains compounds like erucic acid which might be harmful
In the past, the consumption of rapeseed oil was discouraged because it contained high levels of a particular fatty acid called erucic acid. Erucic acid is naturally found in some oils. There have been no confirmed reports of erucic acid causing health problems in humans. However, findings from animal and laboratory studies suggest that regular consumption of high levels of erucic acid may add to the risk of developing heart disease. Today, levels of erucic acid in foods are strictly controlled and all rapeseed oil the market contains extremely low levels of this fatty acid so there is no risk of any harm to health.

Olive Oil

Produced mainly in Italy, but grown in Turkey, Tunisia, Greece and increasingly in Spain, olive oil is high in monounsaturates. The production and processing of olive oil is highly regulated by the Olive Oil Council and EC and the terms used to describe the various different types of olive oil are subject to strict EC regulations. Olive oil can be used for cooking or as a salad dressing and the olive itself can be eaten cooked or uncooked. Olive oil is now also used in spreads.

What’s the difference (health wise) between all of the above + Virgin/Extra virgin olive oils?
There is no nutrition difference between the different types of olive oil. The flavour of the different types of olive oil varies widely though, as does the price, so you might want to try the oils before you buy them.

I heard that olive oil is good for my heart. Does this mean the more I use the better?
Unfortunately not! Olive oil is a good choice for a healthy heart as the unsaturated fatty acids help to reduce blood cholesterol levels. However, it is still a fat and very calorific. Pouring a lot of olive oil onto a salad dramatically increases the calorie and fat content of the dish and so you should avoid using too much olive oil in your everyday cooking.
Sunflower Oil

Sunflower seeds have a high oil content. Sunflower oil is very high in polyunsaturates and low in saturates. The oil is used in the manufacture of spreads, in cooking and for dressing salads. The seeds can also be eaten as a snack.

Is sunflower oil good for my heart?
Sunflower oil contains a high proportion of the omega 6 polyunsaturates, which help to reduce blood cholesterol levels if eaten as part of a heart healthy diet.

Speciality Oils (Flavoured Oils or Nut Oils)
There are many other types of oil available that are particularly good to use as a salad dressing as they are quite strongly flavoured. You can make your own flavoured oils by adding herbs or spices to your favourite vegetable oil.

Some of these oils are very dark coloured; does this mean that they are better for you?
Just because an oil is darkly coloured, this doesn’t mean that it is necessarily any better for you. The colour of the oil is caused by the presence of bioactive compounds, similar to those you find in fruit and vegetables. We don’t yet know enough about these compounds to say whether or not they are any better for our health as there are many thousands of them, and there are only very low levels of these compounds in a teaspoon of oil. What we do know is that the fatty acid profile of the oil is key and it is important to include oils with a good balance of the different fatty acids.

So why are they so much more expensive?
As only small quantities of these oils are produced, the process is not as efficient as the extraction of oils from the more popular rapeseeds or sunflower seeds. Because of this, extra costs are incurred when the oils are processed, bottled and transported and these are often passed onto the consumer.

I have a food allergy, is it safe for me to eat these oils?
People with nut, peanut, sesame seed and soya allergies must pay particular attention to the oils in their diet. Refined oils are unlikely to be a problem because almost all the proteins that cause allergic reactions are likely to be removed during the manufacturing process. However, refined oil made from nuts, seeds and legumes is still covered by the food labelling rules and so the source of the oils will be listed as an allergen when used in pre-packed foods. Cold-pressed, or unrefined or unprocessed (crude) oils are likely to contain proteins, which can cause a reaction in people who are sensitive so should be avoided.
Cooking with Fats and Oils

What is the best oil to cook with?
When you cook with oils it is best to choose an oil with a high smoke point. This means that the oil can withstand higher temperatures before the fats start to break down and off-flavours develop. Good choices for frying at high temperatures are rapeseed oil, peanut oil or sunflower oil.

If you are preparing a salad dressing, you might want to use an oil with a good flavour and many people choose to use extra virgin olive oil, nut oils or flavoured oils.

Sometimes recipes require particular oils to add flavour to the dish such as sesame oil for eastern dishes. If you try out lots of different oils, be mindful of how you store them and make sure you use them up before they pass their use by date. (For more information, see the question below.)

Can I re-use oil?
When you heat oils to very high temperatures, such as those needed for deep frying, some of the unsaturated fats in the oils can become oxidised. It is not recommended to re-use vegetable-based oils that have been heated as they can become rancid and off-flavours develop. After you have finished cooking, allow the oil to cool down completely and dispose carefully.

Does cooking with oils at high temperature cause any ‘nasties’?
Very small amounts of trans-fats can form when any vegetable oils are heated up to very high temperatures under pressure. However, in general, high temperatures and hydrogen are required to produce trans-fats and these conditions are not achievable in a domestic kitchen.

Can I cook with a lower fat spread?
Lower fat spreads (spreads with less than 59% fat) can be used for everyday cooking. A reduced amount of fat in a spread can mean that cakes do not have the volume you might expect and they may not keep as long. So a spread with less than 38% fat may not be such a good choice for baking. For a very short pastry, you may prefer to use a spread with a higher fat content.

How long does oil last?
All oils are sensitive to heat, light and exposure to oxygen so it is important that you store them correctly to prevent the oils going ‘rancid’ and off-flavours developing. Ideally, oils should be kept in a dark, cool, dry place. Sunlight can destroy the vitamin E in the oil and storing oil at very cool temperatures, such as those in a refrigerator, can cause the oil to become cloudy and thicken slightly as the fatty acids with higher melting points precipitate. When left at room temperature, the crystals will melt and the oil will return to be a clear liquid. To delay the development of the rancid flavours the cap should be replaced tightly on the container after use. Typically, oils should be consumed within 12 months of purchase.
Butter or Spread?

What are the nutritional differences of a spread compared with butter?
This table shows you the main differences between the different spreads available in the supermarket and butter.

<table>
<thead>
<tr>
<th></th>
<th>Total fat (g/100g)</th>
<th>Saturates (g/100g)</th>
<th>Mono-unsaturates (g/100g)</th>
<th>Poly-unsaturates (g/100g)</th>
<th>Vitamins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter</td>
<td>82</td>
<td>52</td>
<td>21</td>
<td>3</td>
<td>A, D, E</td>
</tr>
<tr>
<td>Margarine (82% vegetable fat)</td>
<td>82</td>
<td>35</td>
<td>36</td>
<td>5</td>
<td>A, D, E</td>
</tr>
<tr>
<td>Spreadable butter</td>
<td>80</td>
<td>40</td>
<td>26</td>
<td>7</td>
<td>A, D, E</td>
</tr>
<tr>
<td>Baking fat 'for pastry' (75% vegetable fat)</td>
<td>75</td>
<td>26</td>
<td>34</td>
<td>15</td>
<td>A, D, E</td>
</tr>
<tr>
<td>Blended 70% fat spread with vegetable oils</td>
<td>70</td>
<td>16</td>
<td>20</td>
<td>34</td>
<td>A, D, E</td>
</tr>
<tr>
<td>Lighter spreadable butter</td>
<td>60</td>
<td>26</td>
<td>21</td>
<td>7</td>
<td>A, D, E</td>
</tr>
<tr>
<td>Baking fat 'for cakes' (59% vegetable fat)</td>
<td>59</td>
<td>15</td>
<td>30</td>
<td>14</td>
<td>A, D, E</td>
</tr>
<tr>
<td>59% vegetable fat spread with vegetable oil</td>
<td>59</td>
<td>12</td>
<td>17</td>
<td>30</td>
<td>A, D, E</td>
</tr>
<tr>
<td>38% vegetable fat spread with vegetable oil</td>
<td>38</td>
<td>9</td>
<td>9</td>
<td>19</td>
<td>A, D, E</td>
</tr>
<tr>
<td>18% vegetable fat spread with vegetable oil</td>
<td>18</td>
<td>5</td>
<td>4</td>
<td>9</td>
<td>A, D, E</td>
</tr>
<tr>
<td>59% vegetable fat spread with olive oil</td>
<td>59</td>
<td>14</td>
<td>30</td>
<td>15</td>
<td>A, D, E</td>
</tr>
</tbody>
</table>

The biggest difference is in the total fat and saturated fat content. Butter contains 82% fat and the majority of this are saturates. Spreads contain less fat than butter (70% fat or less), and most of the fatty acids are unsaturated so better for heart health. Spreads are also fortified with vitamins A, D and E to make them equivalent to butter.

Why do spreads contain saturated fats - I thought they were supposed to be healthier?
All fats contain a mixture of the different fatty acids, so it is not surprising that spreads contain saturated fats too. Spreads are a better choice for everyday use to help keep your heart healthy as there are more unsaturated fats than saturated fats and so overall they help to reduce blood cholesterol levels.

So which is best?
If you regularly consume a fat spread on your bread or in cooking, it is best to use a low or reduced fat vegetable spread. This is because these products contain a greater proportion of the unsaturated fats that are good for heart health. However, if you only consume a fat spread very occasionally, there is no harm in using a small amount of butter. It is high in saturated fat, but can be included in a healthy balanced diet in small amounts.