

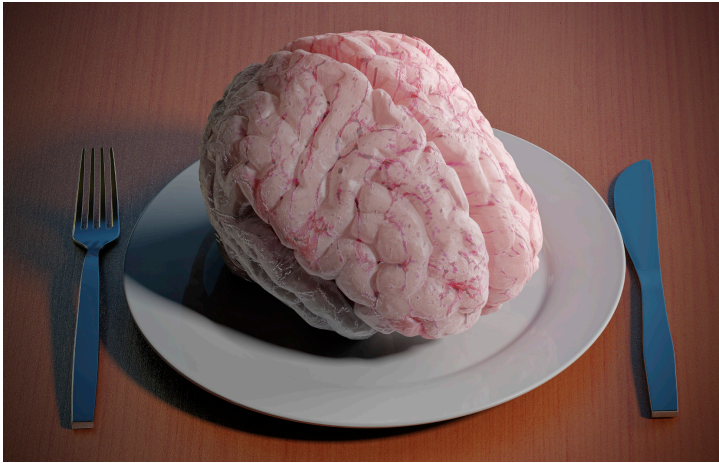
## Food and mood

We all have good days and bad days; we all have foods we like more, or like less. But is there a connection between feeling fine and the foods we have eaten? Do some foods make us feel grumpy? Is it possible to plan a diet for a good mood?

### Carbohydrate = Glucose = Brain Power

The ability to concentrate and focus comes from the adequate supply of energy – from blood glucose – to the brain. Glucose is also vital to fuel muscles. The glucose in our blood comes from all the carbohydrates we eat – foods including fruit, vegetables, potatoes, cereals, bread, rice, sugars and lactose in milk.

Eating breakfast and regular meals containing some carbohydrate ensures you will have enough glucose in your blood.



Healthier sources of carbohydrates include wholegrains, vegetables, fruits, legumes and lower fat dairy. These are also an important source of nutrients such as calcium and B vitamins.

Not having enough glucose in the blood (hypoglycaemia) makes us feel weak, tired and 'fuzzy minded'. This may happen when we don't eat enough carbohydrate-containing food, and is a particular risk for people with diabetes and athletes. It can also happen with people following very restrictive diets or with erratic eating patterns. However, though glucose ensures good concentration and focus, once your blood glucose is within the normal range, you cannot further boost your brain power by increasing your glucose levels! And if you consume some carbohydrate foods, additional sugary 'energy' drinks are not needed and not helpful.

### Comfort eating

There is a messenger chemical in the brain called serotonin, which improves mood and how we feel. Serotonin is made with a part of protein from the diet (tryptophan), and more of this may get into the brain when carbohydrate-rich foods are eaten. This suggestion has been used to explain 'carbohydrate craving' – eating sweet, comfort foods to boost mood. However, there is not enough research to show that eating lots of tryptophan or eating a lot of carbohydrates can really support mood improvement in

humans. But it may be that not consuming adequate amounts of carbohydrate (high protein/high fat diets) leads to low moods. You also may have heard the idea that eating chocolate can make you feel happier, and there are observations that people feeling depressed are more likely to eat chocolate. This is probably because of the cultural status of chocolate as a well-known reward and comfort food, rather than due to any potent physiological effects particular to cocoa.

“ Some of the pleasure from eating 'comfort foods' may come from strong cultural associations with reward and special occasion. ”

### Caffeine and the 'drug-effect'

Caffeine, found in coffee, cola and energy drinks, is often called a 'drug' as it acts as a stimulant and can improve the feelings of alertness, and counter the effects of fatigue. However there is also a suggestion that some of the effects of caffeine are more to 'normalise' the lower levels of alertness felt by regular users who have not consumed enough caffeine that day. Too much caffeine, particularly in people who are not used to it, may cause the adverse effects of irritability and headache.



# Vitamins and minerals

When you don't eat enough nutrient-rich food, your body will lack vital vitamins and minerals, often affecting your energy, mood and brain function. The table below shows how missing some vitamins/minerals can affect your mood, and what you can eat to replenish your body.



Missing vitamin/mineral	Effect on mood	Foods which can help
<b>Iron</b>  This results in low levels of oxygen carrying haemoglobin in the blood, resulting in the condition anaemia.	Feeling weak, tired and lethargic all the time.	The risk of anaemia is reduced with adequate intakes of iron, particularly from red meat, poultry and fish.  It may also be helped by avoiding drinking tea with meals.
<b>Thiamin B1, Niacin B3 or Cobalamin B12</b> (all B vitamins)	Tiredness and feeling depressed or irritable.	Fortified foods including wholegrain cereals, animal protein foods such as meat/fish, eggs and dairy.
<b>Folate</b>	Increased chance of feeling depressed, particularly important in older people.	Folate is found in liver, green vegetables, oranges and other citrus fruits, beans and fortified foods such as yeast extract (marmite) and fortified breakfast cereals.
<b>Selenium</b>	May increase the incidence of feeling depressed and other negative mood states.	Brazil nuts, meat, fish, seeds and wholemeal bread.

## Supplements

You should aim to get your vitamins and minerals from eating a healthy, balanced diet with plenty of fruit and vegetables but in certain circumstances or for certain people, supplements may be beneficial e.g. folic acid for women planning pregnancy; iron for people diagnosed with anaemia; and vitamin D for all pregnant and breast-feeding women, and older adults.

These can be used to treat people with low levels of vitamins and minerals. However, it is better to look at eating more foods that are naturally rich in these nutrients. This is because efficient absorption of vitamins is helped by other food components; for example, the fat soluble vitamins (A, D and E) are best absorbed when some fat is consumed at the same time. Plus, foods contain other nutrients too.

“ Plenty of fruits and vegetables and wholegrain cereal foods, with some protein foods, including oily fish, will support a good supply of nutrients for both good health and good mood. ”

## Summary - so does food affect mood?

There are many ways that foods can affect how we feel, just as how we feel has a large influence on what foods we choose. Some of the mood/food effects are due to nutrient content, but a lot of effects are due to existing associations of foods with pleasure and reward (chocolate) or diet and deprivation (plain foods). Some foods also have religious, economic and cultural significance which will influence how we feel when eating them.

Feeling good comes from a diet that provides adequate amounts of 'healthy choice' carbohydrate at regular times to keep blood glucose levels stable; eating breakfast is a sensible habit. Diets should also contain a wide variety of protein and vitamin and mineral containing foods to support the body's functions. As a rule, plenty of fruits and vegetables and wholegrain cereal foods, with some protein foods, including oily fish, will support a good supply of nutrients for both good health and good mood.

**Further information:** Food Fact Sheets on other topics including Sports, Pregnancy and Alcohol are available at [www.bda.uk.com/foodfacts](http://www.bda.uk.com/foodfacts)

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