

Nutritional Approaches for Depression

Treatments for depression usually revolve around anti-depressant drugs and counselling. However other approaches, including nutrition, can make a big difference and all too often get overlooked. **Few people and few doctors realise just how big an impact good nutrition has on our mental state and how many studies have confirmed these findings.**

This is highly relevant because the benefit from anti-depressant drugs is small (on average 1.8 points on the Hamilton scale) and 30% of people have depression resistant to medication. Talking therapies are not always the answer and work in only half of people with depression.

Food and Mood

A recent study from the University of Leeds and York of 45,000 people found each extra portion of fruit and vegetable eaten added to mental well-being and life satisfaction.

Both the quantity and frequency of fruit and vegetables eaten contributed to mental well-being. Not only does this improve mental health but it has the bonus of boosting physical health and immunity at the same time.

The Smiles study, published in 2007 by Professor Jacka, compared making dietary changes to visiting therapists. After three months the results were clear-cut. Of those who went on a healthy diet 38% were free of depression whereas only 8% meeting therapists were free of depression. This was a landmark study, as it was an intervention study, (rather than showing people who eat more healthy foods have less depression) and clearly demonstrated that changing the diet helped reduce the depression.

The diet they used was a Mediterranean diet with 5-8 of wholegrains daily, 6 servings vegetables daily, 3 servings of fruit daily, 3 tablespoonfuls of olive oil daily, 3-4 servings of legumes daily (peas and beans), one serving of unroasted, unsalted nuts daily and two portions of fish a week. They could have up to 6 eggs weekly, 2-3 portion of chicken weekly and 3-4 servings of lean red meat weekly. They also reduced sugar, sweets, refined cereals and processed meats and cut sugary drinks to less than three a week. The most protective foods were wholegrains.

In this trial (SMILES), 67 subjects with depression and poor diet were assigned either to a nutrition intervention group (supported in changing to a Mediterranean diet) or a befriending group (where they talked about things they enjoy and leisure activities; this is known to help depression). After 12 weeks the nutrition group were **four times as likely to be in remission** as the befriending group and had reduced severity of anxiety.

Another finding of the study was that **those having meat were 20-30% less likely to get depression**, however those who ate a lot of meat had more depression. It seems a little meat is protective but a lot has the opposite effect (I suspect the benefit was from the vitamin B12 and zinc which is largely absent from a vegetarian diet).

A study of people using a plant-based diet at 10 locations in the USA found improvements in mood, daily well-being, anxiety and depression.

A study of 3000 Canadians found that those eating more fruit and vegetables had less anxiety and depression and an American study showed the same benefit from fruit and vegetables noted at the University of Leeds and York. **In other words, the higher the intake of fruit and vegetable the better the mood and the lower the risk of depression.**

An Australian study of young men with moderate to severe depression again compared dietary change to befriending. The diet group were asked to reduce sugar, fast food and meat and eat more fruit and vegetables, oily fish wholegrains, unsalted nuts and olive oil. After 3 months the dietary group were significantly better than the befriending group and 36% of the diet group had depression scores of low to minimal. They also had better sleep and energy.

A study of women eating a diet of fruit, vegetables, wholegrains and unprocessed red meat found they were less likely to get anxiety and depression whereas those with higher scores on a western diet (more sugar and processed food) were 50% more likely to be depressed.

Another benefit was **these interventions worked quicker than traditional treatments, usually within three weeks.**

Diet really does work for mental health. Eat as many natural foods as possible –fruit, vegetables, wholegrains, seeds, nuts and oily fish. Avoid processed food with its high load of sugar, salt and adulterated fats.

Ultra-processed Foods

Ultra- processed foods typically contain sugar, denatured fats, salts and chemicals. They make up 55% of the foods eaten in the UK. These foods are definitely linked with anxiety and depression.

A French study of 26,000 people followed up for 5 years found a significant association with depression, as did a Spanish study of 14,000 University graduates. Those eating the highest amount of ultra-processed food had the highest risk of depression.

Trans fats which are found in most ultra-processed foods, are linked with depression and **the more of these that are eaten the more marked the depression** (See fats: the good and the bad for more information).

Oily Fish and Depression

Cross country studies have shown that the nations that eat the most fish have the lowest rates of depression. Omega 3 fats – found mainly in oily fish, have been shown to reduce depression and aggression. In six trials of omega 3 fats in depression, five showed significant improvements, including in patients resistant to standard antidepressants. The improvement was around 50% (compared with 15% for anti-depressant drugs). Omega 3 fats have also been found to improve sleep, increase libido and reduce thoughts that life is not worth living.

Eating oily fish such as mackerel, herrings, anchovies and sardines increase Omega 3 fats. Farmed salmon is not recommended as it has less Omega 3 fats and is high in toxic chemicals. EPA fish oils are also widely available at health food stores. Fish oils contain two key substances known as EPA and DHA - ideally use a fish oil which gives 1 gram daily of EPA as this is the key component for helping depression (DHA has a lesser effect but seems to reduce suicidal thinking).

The Omega 6 fat, evening primrose oil often helps in obsessive-compulsive disorder.

Other Nutrients

Adding folate to antidepressant drugs adds 3 point to the Hamilton score (NICE say this is significant), using 400-800mcg daily.

Deficiency of chromium leads to a 66% decrease in the Hamilton score and chromium supplementation leads to remission in 60% of cases of depression, using 400-600 mcg daily (see below). This is perhaps not surprising as it protects against hypoglycaemia. Levels of chromium are frequently low (especially if sugar and processed food intake is high).

Aspartame

This sweetener, which is found in diet drinks, and in over 6000 products and processed foods, deserves a special mention. Aspartame blocks the conversion of tryptophan to serotonin (see later).

Initial studies at Case Western Reserve University were stopped abruptly because aspartame caused severe reactions in patients with a history of depression. Later studies have found people without mental health problems became depressed and irritable within a week of taking higher doses of aspartame (equivalent to 3 litres of Diet Coke) on a daily basis. **In other words, if you are depressed avoid aspartame.**

Drugs and Depression

One study found **those taking three pharmaceutical drugs had 3 times the incidence of depression.** Danish studies have found that those taking the contraceptive pill take 70% more antidepressant drugs

and those between 15 and 19 taking the pill have **double the amount of depression** found in those not on the pill.

Hypoglycaemia

There's another important food factor that promotes depression and that's a **fluctuating blood sugar levels**. This is caused by a diet high in sugar (typical of the modern diet). In one study 92% of patients with anxiety had blood sugar problems with low sugar at certain times. Episodes of low sugar cause adrenaline release and this can make people feel anxious. The average person takes in over 30 teaspoonfuls of sugar daily, mostly in processed foods.

If you eat too much sugar or white flour or other refined carbohydrates then your sugar levels will be unstable, going up and down. Many people don't realise **how much better they can feel simply by cutting sugar out of their diet** or at least avoiding high sugar foods such as biscuits, cakes, cereals, yoghurts and most processed foods. But beware there is sugar in almost everything – read the labels. Anything ending in –"ose" or "ol" –sucrose, lactose, fructose is a sugar – and probably the worst sugar of all is high fructose corn syrup as it is absorbed so rapidly than the body can hardly tolerate it. Top of the list of foods to cut out are fizzy drinks, squashes and energy drinks which can have up to 8 teaspoonfuls of sugar in. **One study found people who drank more fizzy or sugary drinks had 30% more depression.** It might be tempting to use chemical sweeteners instead, but these only maintain a desire for sugar and have been shown to promote obesity –it is better to just cut the sugars out –after a while everything will taste better.

Remember that the body needs B vitamins and chromium to turn every teaspoonful of sugar into energy and these rapidly become depleted on a high sugar diet or with alcohol. Taking B vitamins can help. A study by a Dr McLeod, who gave 600mcg of chromium to people suffering from depression, found they had a 83% drop on the HRS scale and a follow-up trial showed a 65% improvement. Note chromium is the substance that is refined out of sugar and white flour.

Most anti-depressant drugs act by increasing the levels of **serotonin** (sometimes known as the happy chemical) and sometimes noradrenalin (the motivating chemical) in the brain. These drugs, called SSRIs, have been shown to decrease depression in some people. (However recent research has cast doubt on the theory that depression is caused by low serotonin). Improvements in depression are normally measured on the Hamilton Rating Scale (HRS) and anti-depressants improve this by 15% on average. Keep this figure in your mind as we compare with other treatments. Unfortunately, side-effects of drugs can be an issue. In particular they can cause a **doubling to tripling of suicides in the first few weeks of use.** Many find them addictive and difficult to stop.

Serotonin needs zinc to be effective. **People with low zinc often do not respond to standard antidepressants** for this reason. It is cheap and easy to supplement. Start at about 50 mg daily and reduce to 15mg daily after 3-6 months.

Serotonin and Noradrenaline

You might well ask why serotonin gets low in the first place. To make **serotonin** you need the right building blocks in your food. You need tryptophan which is then converted to 5 hydroxytryptophan (5HT) and then converted to serotonin. The most logical way to treat depression is to provide the building blocks of serotonin and this has been tried. Tryptophan is not available but **5 Hydroxytryptophan** is and there have been 11 double-blind trials of 5HT in depression and these have shown improvements on the HRS scale of between 13 - 61%, but mostly around 30-40%. 5HT has been found to have a greater effect on depression, anxiety and sleep disturbance than SSRI drugs. More importantly, side-effects were much less. Most studies have used 300mg daily of 5 hydroxytryptophan. However lower doses such as 50mg twice daily will often help. It is said to give a **"lying on the beach" feeling**. It is also good for sleep problems. Unfortunately, it cannot be prescribed but is available from some health food stores. It is relatively expensive.

Another solution is to eat foods which are high in tryptophan. Tryptophan used to be used in doses of 500 to 2000mg daily. These levels are not too hard to achieve with food. Cashew nuts are particularly rich (470mg per 100 gram; pumpkin seeds: 560mg per 100 grams). Most 100 gram portions of nuts and beans have about half this amount. Other good sources are dates and figs, eggs and Cheddar and Parmesan cheeses.

Low **noradrenalin** is thought to be a cause of depression, especially depression linked with lack of motivation. The building blocks for this are L phenylalanine and L-tyrosine. These amino acids have been tested in depression and found to work as well as standard anti-depressants but without the side-effects. The normal dose of tyrosine is between 1 and 2 grams daily and for L phenylalanine the dose is between 500mg and 3 grams daily. **Tyrosine is supposed to give a "world beater" or "on top of the world" feeling**. These can be obtained from some health food stores. Amino acids are better taken away from meals.

However, the majority of people have enough L phenylalanine on board but are unable to convert it to noradrenaline due to deficiency of Vitamin C. Using Vitamin C in large doses is often a cheap and effective way to improve levels of noradrenaline (see Vitamin C leaflet and aim at several grams a day).

NOTE: supplements containing tyrosine, tryptophan and 5HT should not be used with SSRI anti-depressant drugs as there is a risk of triggering serotonin syndrome which can be fatal.

Chemicals

A further factor in depression in some people is chemicals and it is worth considering this possibility. Ninety per cent of chemicals alter brain chemicals such as serotonin. People working with pesticides have higher rates of both depression and suicide and 50% of those exposed to solvents at work suffered from depression in one study. **Air fresheners have been linked with depression and it is a good idea to avoid aerosols wherever possible.** Chemicals from aerosols are absorbed directly into the brain where they interfere with normal brain function. The general rule here is to use as few chemicals as possible, especially those that smell.

Exercise

Another important way of improving depression is **exercise**. A study of people with depression who exercised for 30-60 minutes 3-5 times weekly found a 30% improvement on the HRS scale. Exposure to **daylight** also helps. Note that both exercise and sunlight are known to increase serotonin levels. Exercise has many other benefits apart from improving mood, including reducing your risk of heart disease, stroke and cancer.

Herbs

Some herbs can be helpful. St John's wort at a dose of 300 – 900mg (standardised to 0.3% hypericin) has been shown to help in mild depression. It is prescribed by doctors in Germany and is easy to obtain from health food stores. Eight trials have shown it to be as effective as anti-depressants and with less side effects.

People sometimes ask me whether it is better to use herbs, drugs or nutrients for various conditions. Where they work equally well my answer is very simple – **use the safest**. Nutrients (vitamins, minerals, essential fats) are natural to the body and side-effects are rare. There have never been any deaths recorded from using these. Herbs are also natural substances but unlike nutrients they are not natural to the body. They have a good safety record, but serious side-effects occasionally occur, especially with Chinese herbs. Pharmaceutical drugs have an important role to play but they are neither natural substances nor natural to the body. They generally work by blocking one of the body's key biochemical pathways. Side-effects are commonplace and correctly prescribed drugs are responsible for 10,000 deaths annually in the UK (three times more deaths than road accidents). For this reason, they need to be treated with a degree of caution.

Finally, it should be said that nutrition is only one approach to depression. Often it is necessary to look at the underlying causes and thought patterns. We also have a **leaflet on thinking processes** that deals with this issue.

Post-partum Depression

Nutrition can make a difference here. Women are particularly vulnerable to depression after pregnancy. They not only do they have big lifestyle changes, but the pregnancy can deplete them of nutrients. Higher fish intake during pregnancy is associated with lower post-partum depression (and less depression in pregnancy) and suicidal thinking doubles in those who eat the least seafood. This increased fish intake probably prevents lowering of essential fats, especially EPA and DHA which are essential for brain function. Low levels are linked with depression (see above). It takes 6- 8 weeks to build up these levels with essential fats (see Fats: the good and the bad). Low vitamin B12 is also common, especially in vegetarians and vegans.

A study of Greek mothers found those who kept closest to their traditional diet in pregnancy were only half as likely to get postnatal depression. (this is in keeping with the above studies on the Mediterranean diet being protective against depression). Zinc and magnesium also help to prevent post-partum depression. A study using the probiotic lactobacillus rhamnosus in pregnancy showed it had a protective effect against post-partum depression.