



# A guide to what works for depression

An evidence-based review



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# Contents

<b>What is depression</b>	<b>6</b>	Metacognitive therapy (MCT)	28
<b>What causes depression</b>	<b>7</b>	Mindfulness-based cognitive therapy (MBCT)	28
<b>Are there different types of depression?</b>	<b>8</b>	Music therapy	29
<b>Depression and Aboriginal and Torres Strait Islander peoples</b>	<b>10</b>	Narrative therapy	29
<b>Who can assist?</b>	<b>11</b>	Neurolinguistic programming (NLP)	30
<b>How to use this booklet</b>	<b>14</b>	Positive psychology interventions (PPI)	30
<b>A summary of what works for depression</b>	<b>16</b>	Problem solving therapy (PST)	31
<b>Psychological interventions</b>	<b>19</b>	Psychodynamic psychotherapy	31
Acceptance and commitment therapy (ACT)	20	Psychoeducation	32
Animal-assisted therapy	20	Relationship therapy	33
Art therapy	21	Reminiscence therapy	33
Behaviour therapy (BT)	21	Schema therapy	34
Biofeedback	22	Solution-focused therapy (SFT)	34
Cognitive behaviour therapy (CBT)	22	Supportive counselling	35
Cognitive bias modification (CBM)	23		
Computer-assisted therapies (professionally-guided)	23		
Dance and movement therapy (DMT)	24		
Dialectical behaviour therapy (DBT)	24		
Emotion-focused therapy (EFT)	25		
Eye movement desensitisation and reprocessing (EMDR)	25		
Faith-based psychotherapy	26		
Family therapy	26		
Hypnosis (hypnotherapy)	27		
Interpersonal therapy (IPT)	27		
		<b>Medical interventions</b>	<b>36</b>
		Anti-anxiety drugs	37
		Anti-convulsant drugs	38
		Anti-glucocorticoid (AGC) drugs	38
		Antidepressant drugs	39
		Antipsychotic drugs	40
		Botulinum toxin A (Botox)	41
		Electroconvulsive therapy (ECT)	41
		Electroconvulsive therapy (ECT) continued	42
		Lithium	42
		Oestrogen	43
		Stimulant drugs	43
		Testosterone	44
		Thyroid hormones	45
		Transcranial magnetic stimulation (TMS)	45
		Vagus nerve stimulation (VNS)	46

## Complementary and lifestyle interventions

47

5-hydroxy-L-tryptophan (5-HTP)	48	Hyperthermia	65
Acupuncture	48	Inositol	66
Alcohol avoidance	49	Iron	66
Aromatherapy	49	Lavender	67
Asperugo procumbens	50	LeShan distance healing	67
Autogenic training	50	Light therapy	68
Ayurveda	51	Listening to music	69
Bach Flower Remedies	51	Magnesium	69
Bibliotherapy	52	Marijuana	70
Borage	52	Massage	71
Caffeine consumption or avoidance	53	Meditation	71
Carbohydrate-rich, protein-poor meal	53	Mediterranean-style diet	72
Carnitine/Acetyl-L-Carnitine	54	Nature-assisted therapy	73
Chewing gum	54	Nepeta menthoides	73
Chlorella	55	Nicotine patches	74
Chromium	55	Omega-3 fatty acids (fish oil)	74
Cinnamon	56	Osteopathy	75
Computer-assisted therapies (self-guided)	56	Peer support interventions	76
Craft groups	57	Pets	76
Craniosacral therapy	57	Phenylalanine	77
Creatine monohydrate	58	Pranic healing	77
Curcumin (turmeric)	58	Prayer	78
Cuscata planiflora	59	Probiotics	78
Distraction	59	Qigong	79
Dolphins (swimming with)	60	Recreational dancing	79
Energy psychology (aka meridian tapping)	60	Reiki	80
Exercise	61	Relaxation training	80
Expressive writing	62	Rhodiola rosea (golden root)	81
Folate	62	Rock climbing	81
Ginkgo biloba	63	Saffron	82
Ginseng	63	SAME (s-adenosylmethionine)	82
Glutamine	64	Schisandra	83
Homeopathy	64	Selenium	83
Humour/humour therapy	65	Smartphone apps	84
		St John's wort	85
		Sugar avoidance	86
		Tai chi	86
		Theanine	87
		Traditional Chinese medicine	87

Traditional Chinese medicine continued	88
Tyrosine	88
Vitamin B1 (thiamine)	89
Vitamin B6	89
Vitamin B12	90
Vitamin C	90
Vitamin D	91
Yoga	91
Young tissue extract	92
Zinc	92

### **Interventions not routinely available 93**

Anti-inflammatory drugs	94
Beta blockers	94
Brexanolone	95
Bupropion	95
Ketamine	96
Magnetic seizure therapy	96
Melatonin	97
Negative air ionisation	97
Pramipexole	98
Psychedelics	98
Transcranial current stimulation (TCS)	99

### **Interventions reviewed but where no evidence was found 100**

### **References 102**

**The information in this document is general advice only. The advice within it may therefore not apply to your circumstances and is not intended to replace the advice of a healthcare professional.**

# What is depression

While we all feel sad, moody or low from time to time, some people experience these feelings intensely, for long periods of time (weeks, months or even years) and sometimes without any apparent reason. Depression is more than just a low mood – it's a serious condition that has an impact on both physical and mental health.

Depression affects how people feel about themselves. They may lose interest in work, hobbies and doing things they normally enjoy. They may lack energy, have difficulty sleeping or sleep more than usual. Some people feel irritable and some find it hard to concentrate. Depression makes life more difficult to manage from day to day.

A person may be depressed if, for more than two weeks, they have felt sad, down or miserable most of the time or has lost interest or pleasure in usual activities, and has also experienced several of the signs and symptoms across at least three of the categories below.

It's important to note that everyone experiences some of these symptoms from time to time and it may not necessarily mean a person is depressed. Equally, not every person who is experiencing depression will have all of these symptoms.

## Behaviour

- not going out anymore
- not getting things done at work or school
- withdrawing from close family and friends
- relying on alcohol and sedatives
- not engaging in usual enjoyable activities
- not being able to concentrate

For more information about symptoms of depression, including a symptom checklist, visit [beyondblue.org.au](http://beyondblue.org.au)

## Feelings

- overwhelmed
- guilty
- irritable
- frustrated
- lacking in confidence
- unhappy
- indecisive
- disappointed
- miserable
- sad

## Thoughts

- 'I'm a failure.'
- 'It's my fault.'
- 'Nothing good ever happens to me.'
- 'I'm worthless.'
- 'Life's not worth living.'
- 'People would be better off without me.'

## Physical

- constantly tired
- sick and run down
- headaches and muscle pains
- churning gut
- sleep problems
- loss or change of appetite
- significant weight loss or gain

# What causes depression

While the exact cause of depression isn't known, several things can be associated with its development. Generally, depression does not result from a single event but is a combination of personal, genetic and environmental factors.

## Life events

Research suggests that continuing difficulties such as long-term unemployment, living in an abusive or uncaring relationship, long-term isolation or loneliness, and prolonged exposure to stress at work, are more likely to cause depression than recent life stresses. However, recent events (such as losing a job) or a combination of events can trigger depression in people who are already at risk because of past experiences or personal factors.

## Personal factors

- Family history – Depression can run in families and some people will be at an increased genetic risk. However, this doesn't mean that a person will automatically experience depression if a parent or close relative has had the condition. Life circumstances and other personal factors are still likely to have an important influence.
- Personality – Some people may be more at risk of depression because of their personality, particularly if they have a tendency to worry a lot, have low self-esteem, are perfectionists, are sensitive to personal criticism, or are self-critical and negative.
- Serious medical illness – Having a medical illness can trigger depression in two ways. Serious illnesses can bring about depression directly, or can contribute to depression through associated stress and worry, especially if it involves long-term management of the illness and/or chronic pain.
- Drug and alcohol use – Drug and alcohol use can both lead to and result from depression. Many people with depression also have drug and alcohol problems. Over 500,000 Australians will experience depression and a substance use disorder at the same time, at some point in their lives.<sup>1</sup>

## Changes in the brain

Although there has been a lot of research in this complex area, there is still much that we do not know. Depression is not simply the result of a 'chemical imbalance', for example because a person has too much or not enough of a particular brain chemical. There are in fact many and multiple causes of depression. Factors such as genetic vulnerability, severe life stressors, substances you may take (some medications, drugs and alcohol) and medical conditions can lead to faulty mood regulation in the brain.

Most modern antidepressants have an effect on the brain's chemical transmitters (serotonin and noradrenaline), which relay messages between brain cells – this is thought to be how medications work for more severe depression. Psychological treatments can also help to regulate a person's moods.

Effective treatments can stimulate new growth of nerve cells in circuits that regulate mood, which is thought to play a critical part in recovery from the most severe episodes of depression.

Everyone is different and it's often a combination of factors that can contribute to a person developing depression. It's important to note that a person can't always identify the cause of depression or change difficult circumstances. The most important thing is to recognise the signs and symptoms and seek help.

# Are there different types of depression?

There are different types of depression. Symptoms can range from relatively minor (but still disabling) through to very severe, so it is helpful to be aware of the range of disorders and their specific symptoms.

## Major depression

Major depression is sometimes called major depressive disorder, clinical depression, unipolar depression or simply depression. It involves low mood and/or loss of interest and pleasure in usual activities, as well as other symptoms such as those described on page 6. The symptoms are experienced most days and last for at least two weeks. The symptoms interfere with all areas of a person's life, including work and social relationships. Depression is often described in terms of severity (mild, moderate or severe) and sometimes according to the type of depression (melancholic or psychotic). Depression around the time of childbirth is also labelled as antenatal (before birth) or postnatal (after birth).

## Melancholia

This is the term used to describe a severe form of depression where many of the physical symptoms of depression are present. One of the major changes is that the person can be observed to move more slowly. The person is also more likely to have a depressed mood that is characterised by complete loss of pleasure in everything, or almost everything.

## Psychotic depression

Sometimes people affected by depression can lose touch with reality and experience psychosis. This can involve hallucinations (for example, seeing or hearing things that are not there) or delusions (false beliefs that are not shared by others), such as believing they are bad or evil, or that they are being watched or followed. They can also be paranoid, feeling as though everyone is against them or that they are the cause of illness or bad events occurring around them.

## Antenatal and postnatal depression

Women are at an increased risk of depression during pregnancy (known as the antenatal or prenatal period) and in the year following childbirth (known as the postnatal period). You may also come across the term 'perinatal', which describes the period covered by pregnancy and the first year after the baby's birth.

The causes of depression at this time can be complex and are often the result of a combination of factors. In the days immediately following birth, many women experience the 'baby blues', which is a common condition related to hormonal changes, affecting up to 80 per cent of women.<sup>2</sup> The 'baby blues', as well as general stress adjusting to pregnancy and/or a new baby, are common experiences, but are different from depression. Depression is longer-lasting and can affect not only the mother, but her relationship with her baby, the child's development, the mother's relationship with her partner and with other members of the family.

Almost 10 per cent of women will experience depression during pregnancy. This increases to 16 per cent in the first three months after having a baby.<sup>3</sup>

## Bipolar disorder

Bipolar disorder used to be known as 'manic depression' because the person experiences periods of mania in addition to periods of depression, with periods of normal mood in between.

Mania symptoms include feeling great, having lots of energy, having racing thoughts and little need for sleep, talking fast, having difficulty focusing on tasks, and feeling frustrated and irritable. This is not just a fleeting experience. Sometimes the person loses touch with reality and has episodes of psychosis.

Experiencing psychosis involves hallucinations (for example seeing or hearing something that is not there) or having delusions (e.g. the person believing they have superpowers).

Bipolar disorder seems to be closely linked to family history. Stress and conflict can trigger episodes for people with this condition and it's not uncommon for bipolar disorder to be misdiagnosed as depression, alcohol or drug abuse, attention deficit hyperactivity disorder (ADHD) or schizophrenia.

Diagnosis of bipolar disorder depends on the person having had an episode of mania and, unless observed, this can be hard to pick. It is not uncommon for years to pass before a person receives an accurate diagnosis of bipolar disorder. It can be helpful for the person to make it clear to their doctor or treating health professional that they are experiencing both highs and lows. Bipolar disorder affects approximately 2 per cent of the population.<sup>1</sup> Treatments for bipolar disorder are not specifically covered in this guide. For more information about bipolar disorder please visit [beyondblue.org.au/the-facts/bipolar-disorder](http://beyondblue.org.au/the-facts/bipolar-disorder)

### Cyclothymic disorder

Cyclothymic disorder is often described as a milder form of bipolar disorder. The person experiences chronic fluctuating moods over at least two years, involving periods of hypomania (a mild to moderate level of mania) and periods of depressive symptoms, with very short periods (no more than two months) of normality between. The duration of the symptoms is shorter, less severe and not as regular, and therefore doesn't fit the criteria of bipolar disorder or major depression.

### Persistent depressive disorder (dysthymia)

The symptoms of dysthymia are similar to those of major depression but are less severe. However, in the case of dysthymia, symptoms last longer. A person has to have this milder depression for more than two years to be diagnosed with dysthymia.

### Seasonal affective disorder (SAD)

SAD is a mood disorder that has a seasonal pattern. The cause of the disorder is unclear, however it is thought to be related to the variation in light exposure in different seasons.

It's characterised by mood disturbances (either episodes of depression or mania) that begin and end in a particular season. Depression that starts in winter and subsides when the season ends is the most common. SAD is usually diagnosed after the person has had the same symptoms during the same specific period or season for a couple of years. People with seasonal affective disorder depression are more likely to experience lack of energy, sleep too much, overeat, gain weight and crave carbohydrates. SAD is not as common in Australia and more likely to be found in countries with shorter days and longer periods of darkness, such as in the cold climate areas of the Northern Hemisphere.

### Depression is common, but often untreated

In any one year, around one million Australian adults experience depression. On average, one in eight men and one in five women will experience depression in their lifetime.<sup>1</sup>

A national survey of the mental health of Australians was carried out in 2007. This survey asked people about a range of symptoms of depression and other mental health issues. Software was developed to make a diagnosis based on the answers provided. Shown below are the percentages of people found to be affected.

### Percentage of Australians aged 16 years or over affected by depression<sup>1</sup>

Type of disorder	Percentage affected in previous 12 months	Percentage affected at any time in their life
Major depression	4.1%	11.6%
Dysthymia	1.3%	1.9%
Bipolar disorder	1.8%	2.9%
Any type of depression	6.2%	15.0%

Although these disorders are common, many people affected by them do not get treatment. In the national survey, more than half of those who had a type of depression in the previous 12 months did not receive any professional help.

# Depression and Aboriginal and Torres Strait Islander peoples

Aboriginal and Torres Strait Islander peoples have a holistic view of health and mental health is thought of more broadly in terms of social and emotional wellbeing. This is underpinned by spiritual, cultural, social, emotional, and physical influences on health, family and community relationships. These connections are the basis of culture and are important to community wellbeing. Mental health issues can arise when there is a problem in any one of the above areas, or when the balance is upset.

There is a scarcity of data relating to the national prevalence of clinically-diagnosed depression and other mental health conditions among Aboriginal and Torres Strait Islander peoples. However, the research available suggests that rates of psychological distress and depression are significantly higher in Aboriginal and Torres Strait Islander peoples compared to non-Aboriginal and Torres Strait Islander peoples living in Australia. Data from the latest Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS) found that nearly one in three Aboriginal and Torres Strait Islander adults have experienced high levels of psychological distress (which includes feelings of depression). The percentage affected by any mood disorder in the previous 12 months was reported to be 19.5 per cent and up to 32.2 per cent were affected at any time in their life.<sup>4</sup>

These higher rates of depression need to be understood in the historical context of intergenerational trauma. Since colonisation, individuals and communities have shown resilience throughout the many hardships and experiences of grief arising from the loss of land, children, culture, community, identity and pride. Trauma from these losses has been passed down from one generation to the next and can be compounded by new experiences of racism (the systematic oppression through society and its institutions) and hardship.

These experiences can contribute to Aboriginal and Torres Strait Islander peoples' experiences of anxiety, depression, suicide and attempted suicide.

Culturally safe and trauma-informed services, that recognise the role of trauma in depression, may be particularly important for Aboriginal and Torres Strait Islander peoples.<sup>5</sup>

As well as the health professionals described on page 12, Aboriginal and Torres Strait Islander peoples can access support for depression from a national network of Aboriginal Community Controlled Health Services. These services are based in local Aboriginal communities and deliver holistic, culturally appropriate health care and social and emotional wellbeing services. Further information is also available through the National Aboriginal Community Controlled Health Organisation (NACCHO).

# Who can assist?

Different health professionals (such as GPs, psychologists and psychiatrists) offer different types of services and treatments for depression. Below is a guide to the range of practitioners available and what kind of treatment they provide.

## General Practitioners (GPs)

GPs are the best starting point for someone seeking professional help. A good GP can:

- make a diagnosis
- check for any physical health problem or medication that may be contributing to the depression
- discuss available treatments
- work with the person to draw up a GP Mental Health Treatment Plan (they can get a Medicare rebate for psychological treatment if need be)
- provide brief counselling or, in some cases, talking therapy
- prescribe medication
- refer a person to a mental health specialist such as a psychologist or psychiatrist.

Before consulting a GP about depression, it's important to ask the receptionist to book a longer or double appointment, so there is plenty of time to discuss the situation without feeling rushed. If a longer appointment is not possible, it's a good idea to raise the issue of depression or anxiety early in the consultation so there is plenty of time to discuss it.

Ideally, a person's regular GP should be consulted or another GP in the same clinic, as medical information is shared within a practice. While some GPs may be more confident at dealing with depression and anxiety than others, the majority of GPs will be able to assist or at least refer people to someone who can, so they are the best place to start.

## Psychologists

Psychologists are health professionals who provide psychological therapies such as cognitive behaviour therapy (CBT), interpersonal therapy (IPT) and other

approaches. Clinical psychologists specialise in the assessment, diagnosis and treatment of mental health conditions. Psychologists and clinical psychologists are not doctors and cannot prescribe medication in Australia.

It is not necessary to have a referral from a GP or psychiatrist to see a psychologist. However, a GP Mental Health Treatment Plan from a GP is needed in order to claim the rebate through Medicare. People with private health insurance and extras cover may be able to claim part of a psychologist's fee. Individual health insurance providers should be contacted for more specific information.

## Psychiatrists

Psychiatrists are doctors who have undergone further training to specialise in mental health. They can make medical and psychiatric assessments, conduct medical tests, provide therapy and prescribe medication. Psychiatrists often use psychological treatments such as cognitive behaviour therapy (CBT), interpersonal therapy (IPT) and/or medication. If the depression is severe and hospital admission is required, a psychiatrist will be in charge of the person's treatment.

A referral from a GP is needed to see a psychiatrist and rebates can be claimed through Medicare.

The GP may suggest a psychiatrist is seen if:

- the depression is severe
- the depression lasts for a long time, or comes back
- the depression is associated with a high risk of self-harm
- the depression has failed to respond to treatment
- the GP thinks they don't have the appropriate skills required to treat the person effectively.

## **Mental health nurses**

Mental health nurses are nurses who have undertaken further training to care for people with mental health conditions. They work with psychiatrists and GPs to review the state of a person's mental health and monitor their medication. They also provide people with information about mental health conditions and treatment. Some have training in psychological therapies. GPs can generally provide a referral to a mental health nurse who works in a general practice.

## **Accredited Mental Health Social Workers**

Accredited Mental Health Social Workers specialise in working with and treating mental health conditions, such as depression and anxiety. Many are registered with Medicare to provide focused psychological strategies, such as CBT, IPT, relaxation training, psycho-education, interpersonal skills training and other evidence-based approaches.

## **Occupational therapists in mental health**

Occupational therapists in mental health help people who have difficulty functioning because of a mental health condition to participate in everyday activities. Some can also provide focused psychological strategies.

Medicare rebates are available for individual or group sessions with both Mental Health Social Workers and occupational therapists in mental health.

## **Aboriginal and Torres Strait Islander health workers**

Aboriginal and Torres Strait Islander health workers are health workers who understand the health issues of Aboriginal and Torres Strait Islander peoples and what is needed to provide culturally safe and accessible services. Some workers may have undertaken training in mental health and psychological therapies.

Support provided by Aboriginal and Torres Strait Islander health workers might include, but is not limited to, case management, screening, assessment, referrals, transport to and attendance at specialist appointments, education, improving access to mainstream services, advocacy, counselling, support for family, and acute distress response.

**The cost of getting treatment for depression from a health professional varies. However, in the same way that people can get a Medicare rebate when they see a doctor, they can also claim part or all of the consultation fee subsidised when they see a mental health professional for treatment of depression. It's a good idea to find out the cost of the service and the available rebate before making an appointment. The receptionist should be able to provide this information.**

## **Counsellors**

Counsellors can work in a variety of settings, including private practices, community health centres, schools, universities and youth services. A counsellor can talk through different issues a person may be experiencing and look for possible solutions. However, it is important to note that not all counsellors have specific training in treating mental health conditions like depression and anxiety.

While there are many qualified counsellors who work across different settings, unfortunately anyone can call themselves a 'counsellor', even if they don't have training or experience.

For this reason, it's important to ask for information about the counsellor's qualifications and whether they are registered with a national board or a professional society.

## **Complementary health practitioners**

There are many alternative and complementary treatment approaches for depression. It is a good idea to make sure the practitioner uses treatments that are supported by evidence that shows they are effective. However, many of these services are not covered by Medicare. Some services may be covered by private health insurance. If you don't have private health insurance, you may have to pay for these treatments. When seeking a complementary treatment, it is best to check whether the practitioner is registered by a national registration board or a professional society.

## Low intensity interventions

Low intensity interventions for treating people experiencing, or at risk of, mild depression are usually based on cognitive behaviour therapy (CBT, see page 22). Low intensity interventions may be delivered face-to-face, by telephone or online (see page 23: computer-assisted therapies [professionally-guided]). These interventions may be delivered by coaches who are members of the community who are appropriately trained and work under the supervision of a registered mental health professional. An example of a low intensity intervention is Beyond Blue's NewAccess program. It provides coaching services from CBT-trained people in many regions around Australia. Visit [beyondblue.org.au/get-support/newaccess](http://beyondblue.org.au/get-support/newaccess) for more information.

## People living in a rural or remote area

People living in rural and remote communities may find it difficult to access the mental health professionals listed here.

If a GP or other mental health professional is not readily available, there are a number of help and information lines that may be able to assist and provide information or advice. For people with internet access, it may also be beneficial in some cases to try online e-therapies. More information can be found on the Beyond Blue website [beyondblue.org.au](http://beyondblue.org.au) or by calling the Beyond Blue Support Service on **1300 22 4636**.

## How family and friends can support a loved one

Family members and friends play an important role in a person's recovery. They can offer support and understanding, and can assist the person to get appropriate professional help.

When someone close is experiencing depression, it can be hard to know what the right thing is to do. Sometimes, it's overwhelming, and can cause worry and stress. It is very important that people supporting a friend or family member with depression take the time to look after themselves and monitor their own feelings.

Information about depression and practical advice on how to support someone you are worried about is available at [beyondblue.org.au/supporting-someone](http://beyondblue.org.au/supporting-someone). Beyond Blue also has a range of helpful resources, including fact sheets, booklets and wallet cards about depression, available treatments and where to get support go to [beyondblue.org.au/resources](http://beyondblue.org.au/resources)

# How to use this booklet

There are many different approaches to treating depression. These include medical treatments (such as medications or medical procedures), psychological therapies (including talking therapies) and self-help (such as complementary and alternative therapies or lifestyle approaches).

All of the interventions included in this booklet have been investigated as possible ‘treatments’ for depression – see ‘How this booklet was developed’ on the next page. However, the amount of evidence supporting the effectiveness of different interventions can vary greatly. In addition, some of the approaches listed are not available or used as treatments – for example, marijuana is an illicit drug that is not available as a treatment for depression, but it has been used in research studies to test whether it reduces depression.

This booklet provides a summary of the scientific evidence for each approach. When an intervention is shown to have some effect in research, it does not necessarily mean it is available, used in clinical practice, or will be recommended or work equally well for every person. There is no substitute for the advice of a qualified mental health practitioner, who can advise on the best available treatment options tailored to the specific needs of the individual.

We have rated the evidence for the effectiveness of each intervention covered in this booklet using a ‘thumbs up’ scale:



There are a lot of good-quality studies showing that the approach works.



There are a number of good-quality studies showing that the intervention works, but the evidence is not as strong as for the best approaches.



There are at least two good-quality studies showing that the approach works.



The evidence shows that the intervention does not work.



There is not enough evidence to say whether or not the approach works.



The intervention has potential risks, mainly in terms of side-effects.

When a treatment is shown to work scientifically, this does not mean it will work equally well for every person. While it might work for some people, others may experience complications, side-effects or incompatibilities with their lifestyle. The best strategy is to try an approach that works for most people and that they are comfortable with.

If you do not recover quickly enough, or experience problems with the treatment, then try another.

Another factor to consider is beliefs. A treatment is more likely to work if a person believes in it and is willing to commit to it.<sup>6,7,8</sup> Even the most effective treatments will not work if they are not used as recommended. Some people have strong beliefs about particular types of treatment. For example, some do not like taking medications in general, whereas others have great faith in medical treatments. However strong beliefs in a particular approach may not be enough, especially if there is no good evidence that the treatment works.

**This booklet provides a summary of what the scientific evidence says about different approaches that have been studied to see if they reduce depression. The reviews in this booklet are divided into the following sections:**

## Psychological interventions

These interventions can be provided by a range of health practitioners, but particularly psychologists and clinical psychologists.

## Medical interventions

These interventions are generally provided by a doctor (usually a GP or psychiatrist).

## Complementary and lifestyle interventions

These interventions can be provided by a range of health practitioners, including complementary health practitioners. Some of them can be used as self-help.

## Interventions not routinely available

Interventions that are not typically available or used as a treatment for depression, but have been used in research studies.

Within each of these areas, we review the scientific evidence for each intervention to determine whether or not they are supported as being effective.

Some interventions are claimed to be effective but have not been tested in scientific studies. These are listed on page 100.

We recommend that people seek treatments that they believe in and are also supported by evidence. Whatever treatments are used, they are best done under the supervision of a GP or mental health professional. This is particularly important where more than one treatment is used. Often combining treatments that work is the best approach. However sometimes side-effects can result from combining treatments, particularly in relation to prescribed or complementary medications.

## How this booklet was developed

### Searching the literature

To produce these reviews, the scientific literature was searched systematically on the following online databases: the Cochrane Library, Medline, PsycINFO and Google Scholar.

### Evaluating the evidence

Studies were excluded if they involved people who had not been diagnosed as depressed or sought help. Where there was an existing recent systematic review or meta-analysis, this was used as the basis for drawing conclusions. A meta-analysis is a study that pools together the results of many different studies. Where a systematic review did not exist, individual studies were read and evaluated. Good-quality studies were used where possible. A study was considered good-quality if it had an appropriate control group and participants were randomised. Other study designs cannot confidently conclude that the effects were caused by the treatment. These include studies with no comparison groups or studies involving one person (case studies).

### Writing the reviews

The reviews were written for an eighth grade reading level or less.

Each review was written by one of the authors and checked for readability and clarity by a second author. All authors discussed and reached consensus on the 'thumbs up' rating for each treatment.

# A summary of what works for depression

## Psychological interventions

Acceptance and commitment therapy (ACT)

*For adults*



Animal-assisted therapy

*For people in nursing homes or hospitals*



Art therapy



Behaviour therapy (BT)



Cognitive behaviour therapy (CBT)



Computer-assisted therapies (professionally-guided)



Dance and movement therapy (DMT)

*For adults*



Dialectical behaviour therapy (DBT)



Eye movement desensitisation and reprocessing (EMDR)



Faith-based psychotherapy

*For people with relevant religious or spiritual beliefs*



Hypnosis (hypnotherapy)



Interpersonal therapy (IPT)



Metacognitive therapy (MCT)



Mindfulness-based cognitive therapy (MBCT)



Music therapy



Problem solving therapy (PST)



Psychodynamic psychotherapy

*For short-term psychodynamic therapy*



Psychoeducation



Relationship therapy



Reminiscence therapy

*For older adults*



Supportive counselling



## Medical interventions

Anti-anxiety drugs <i>For short-term treatment</i>	
Antidepressant drugs <i>For moderate to severe depression</i>	 
Antipsychotic drugs <i>For severe depression</i>	  
<i>For severe depression combined with an antidepressant</i>	
Electroconvulsive therapy (ECT) <i>For severe depression in adults who haven't responded to other treatment</i>	 
Lithium <i>For long-term depression</i>	  
<i>For depression, combined with an antidepressant</i>	
Stimulant drugs <i>In combination with an antidepressant</i>	
Testosterone <i>In men with low levels of testosterone</i>	
Transcranial magnetic stimulation (TMS) <i>For moderate to severe depression</i>	

## Complementary and lifestyle interventions

Acupuncture	
Alcohol avoidance <i>In people with a drinking problem</i>	
Bibliotherapy <i>With a professional</i>	
Carnitine/Acetyl-L-Carnitine (ALC)	
Computer-assisted therapies (self-guided)	
Curcumin (turmeric)	
Exercise <i>For adults</i>	
<i>For adolescents</i>	

Light therapy	
For seasonal affective disorder	
For non-seasonal depression	
Massage	
For pregnant women with depression	
Nepeta menthoides	
Omega-3 fatty acids (fish oil) Containing mainly EPA	
Peer support interventions	
Relaxation training	
Saffron	
SAMe (s-adenosylmethionine)	
Sleep deprivation For short-term mood improvement	
St John's wort	
For mild to moderate depression	
Tai chi	
For older people from a Chinese cultural background	
Traditional Chinese medicine	
Yoga	
Zinc In combination with an antidepressant	

### Interventions not routinely available

Anti-inflammatory drugs	
Brexanolone For postnatal depression	
Bupropion	
Ketamine For severe depression that hasn't responded to other treatments	
Negative air ionisation	
Transcranial current stimulation (TCS) For transcranial direct current stimulation (tDCS)	

# **Psychological interventions**

## Acceptance and commitment therapy (ACT)

### Evidence rating



For adults



For adolescents

### What is it?

Acceptance and commitment therapy (ACT) is based on cognitive behaviour therapy (CBT, see page 22). However, it does not teach people how to change their thinking and behaviour. Rather, ACT teaches them to 'just notice' and accept their thoughts and feelings, especially unpleasant ones that they might normally avoid. This is because ACT believes it is unhelpful to try to control or change distressing thoughts or feelings when depressed. In this way it is similar to mindfulness-based cognitive therapy (MBCT, see page 28). ACT usually involves individual meetings with a therapist but can also be done in groups or online.

### How is it meant to work?

ACT is thought to work by helping people to stop avoiding difficult experiences, especially by 'over thinking' these experiences. Over thinking occurs when people focus on the 'verbal commentary' in their mind rather than the experiences themselves. ACT encourages people to accept their reactions and to experience them without trying to change them. Once people have done this, they are then encouraged to choose a way to respond to situations that is consistent with their values, and to put those choices into action.

### Does it work?

ACT has been tested in a small number of high-quality studies in adults. These have shown that ACT is better than no treatment or usual treatment. Other studies have shown that ACT can be as effective as other psychological therapies (mainly CBT) in treating depression.

ACT has also been compared with usual treatment in two small high-quality studies in adolescents. One was a group study and the other was an individual study. Both of these showed benefits for depression. More research is needed with larger numbers of people.

### Are there any risks?

None are known.

### Recommendation

Although more research is needed, ACT is a promising new approach for depression.

## Animal-assisted therapy

### Evidence rating



For people in nursing homes or hospital



For others

### What is it?

Animal-assisted therapy is a group of treatments where animals are used by a trained mental health professional in the therapy. Usually these are pets such as dogs and cats, but other animals like horses are also used. The focus of the treatment is the interaction between the person and the animal. This is thought to have benefits for the person's mood and wellbeing.

### How is it meant to work?

It has been claimed that interacting with animals has physiological benefits, both through increased levels of activity and the beneficial effects of being around animals. It is also believed that interacting with and caring for animals can have psychological benefits by improving confidence and increasing a sense of acceptance and empathy.

### Does it work?

Animal-assisted therapy has been tested in a reasonable number of well-designed studies. One review pooled five of these studies together, and found that, overall, animal-assisted therapy did help depression more than no treatment. All of these studies were with older adults in nursing homes or people in hospital.

### Are there any risks?

None are known.

### Recommendation

Animal-assisted therapy appears to be helpful for depression in people who are in nursing homes or hospitals.

## Art therapy

### Evidence rating



### What is it?

Art therapy is a form of treatment that encourages people to express their feelings using art materials, such as paints, chalk, pencils or clay. In art therapy, the person works with a therapist, who combines other techniques with drawing, painting or other types of art work, and often focuses on the emotional qualities of the different art materials.

### How is it meant to work?

Art therapy is based on the belief that the process of making a work of art can be healing. Issues that come up during art therapy are used to help the person to cope better with stress, work through traumatic experiences, improve their judgement, and have better relationships with family and friends.

### Does it work?

Art therapy has been evaluated in three good-quality studies. Two studies looked at group art therapy sessions and one looked at individual sessions. Therapy sessions were held weekly and varied between 10 and 30 hours in total. Art therapy was compared with usual treatment or a group recreational class. All three studies showed that art therapy improved depression more than the comparison at the end of the treatment.

### Are there any risks?

Art therapy is low risk as long as the therapist is adequately skilled to manage any negative emotions that arise.

### Recommendation

There is some evidence that art therapy is helpful for adults with depression. More studies are needed to confirm this.

## Behaviour therapy (BT)

### Evidence rating



### What is it?

Behaviour therapy (BT), also called behavioural activation, is a key part of cognitive behaviour therapy (CBT, see page 22). It focuses entirely on increasing people's levels of activity and pleasure in their life. Unlike CBT, it does not focus on changing people's beliefs and attitudes. BT can be carried out with individuals or groups, and generally lasts eight to 16 weeks.

### How is it meant to work?

BT tries to help people who are depressed by teaching them how to become more active. This often involves doing activities that are rewarding, either because they are pleasant (e.g. spending time with good friends or engaging in hobbies) or give a sense of satisfaction. These are activities such as exercising, performing a difficult work task or dealing with a long-standing problem that, while not fun, gives one a feeling of a 'job well done'. This helps to reverse patterns of avoidance, withdrawal and inactivity that make depression worse, replacing them with enjoyable or rewarding experiences that reduce depression.

### Does it work?

A number of well-designed studies have been carried out, and some reviews have pooled the findings from a number of these studies. These studies showed that BT is effective for depression in adults. It may work slightly better than antidepressant drugs (see page 39) in the short term. Some studies have shown that BT might be more effective for severe depression. Pooling data from three small, good-quality studies also suggests BT is effective for depression in adolescents.

### Are there any risks?

None are known.

### Recommendation

BT is an effective treatment for depression in adults. It might be especially helpful for severe depression.

## Biofeedback

**Evidence rating**



### What is it?

Biofeedback involves learning to control the body's functions, like heart rate or the electrical activity of the brain. The person is connected to electrical sensors that give them information (feedback) about their body (bio).

### How is it meant to work?

Depression is thought to involve certain changes in the functioning of the body. For example, the heart rate is less variable and there are different patterns of electrical activity in the brain. It is thought that depression will improve if these are changed.

### Does it work?

Two studies have been carried out using biofeedback to increase heart rate variability. The first study involved 20 female students. Half received biofeedback and psychotherapy, while the other half received psychotherapy alone over six weeks. Those receiving biofeedback improved more. The second study of 11 people compared biofeedback with sham (fake) biofeedback over 10 weeks. There was no difference in improvement in depression. However, the study may have been too small to detect any difference.

Two other studies used biofeedback to change the electrical activity of the brain. The first involved 16 people who received either biofeedback or sham biofeedback over four weeks. The biofeedback group improved more. The second study with 23 people gave them either biofeedback or sham psychotherapy over five weeks. Again, the biofeedback group improved more. While both studies were positive, they gave feedback about different types of brain activity. The studies need to be repeated by other researchers before we can be confident about the findings.

### Are there any risks?

No adverse effects have been reported in these studies.

### Recommendation

There is not enough good evidence to say whether biofeedback works.

## Cognitive behaviour therapy (CBT)

**Evidence rating**



### What is it?

In cognitive behaviour therapy (CBT), people work with a therapist to look at patterns of thinking (cognition) and acting (behaviour) that are making them more likely to become depressed, or are keeping them from improving once they become depressed. Once these patterns are recognised, the person can make changes to replace them with ones that promote good mood and better coping. CBT can be conducted one-on-one with a therapist or in groups. Treatment length can vary, but is usually four to 24 weekly sessions.

### How is it meant to work?

CBT is thought to work by helping people to recognise patterns in their thinking and behaviour that make them more likely to become depressed. For example, very negative, self-focused, and self-critical thinking is often linked with depression. In CBT, the person works to change these patterns to use more realistic and problem-solving-based thinking. As well, depression is often increased when a person stops doing things they previously enjoyed. CBT helps the person to increase activities that give them pleasure or a sense of achievement. This is the behavioural component of CBT.

### Does it work?

CBT has been tested in more well-designed studies than any other form of psychological therapy for depression. It is effective regardless of depression severity for a wide range of people, including children, adolescents, adults and older people. Some studies show that it might be especially useful when combined with an antidepressant, but it can also be very effective on its own. CBT might also be good at helping to prevent depression from returning once a person has recovered.

### Are there any risks?

None are known.

### Recommendation

CBT is one of the most effective treatments available for depression.

## Cognitive bias modification (CBM)

**Evidence rating**



### What is it?

Cognitive bias modification (CBM) is also known as attention or interpretation modification or training and is delivered using a computer. It aims to change the way people pay attention to information so that they notice more than just negative situations.

### How is it meant to work?

CBM attempts to change biased ways of processing information by completing computer-based tasks. The tasks involve repeatedly shifting the person's attention without their knowledge from negative pictures, words, sentences or paragraphs to positive (or neutral) pictures, words, sentences or paragraphs. This may be useful for people with depression whose thoughts are mostly negative, which means they are more likely to pay attention to negative events going on around them.

### Does it work?

One review pooled findings from nine studies of adults with depressive disorders. CBM was found to be ineffective. Another study pooled findings from 14 studies on the effect of CBM on depression in children and adolescents. Again, no benefit was found.

### Are there any risks?

None are known.

### Recommendation

CBM does not appear to be effective for depression.

## Computer-assisted therapies (professionally-guided)

**Evidence rating**



### What are they?

Computer-assisted therapies use computer technology to deliver treatments, usually via the internet. Sometimes these approaches are also supported by a therapist who helps the person apply what they are learning to their life. The therapist regularly communicates with the person doing the computer therapy over the phone, or by text, instant messaging or email. Most computer-assisted therapy programs are based on cognitive behaviour therapy (CBT, see page 22). The headtohealth.gov.au website gives a list of available online treatments for depression.

### How are they meant to work?

The computer or web programs teach people the skills of CBT. These help to identify and change patterns of thinking and behaviour that are common in people with depression. Internet delivery is a way to make CBT more widely available at low cost to people than if everyone had to see a therapist face-to-face.

### Do they work?

Several reviews have pooled findings from multiple studies and found that computer assisted therapy can be effective in treating depression in adults and adolescents. Some of these studies have found that computer assisted therapy supported by a therapist is more effective than unsupported computer assisted therapy (see page 56). A few studies have suggested a similar amount of benefit as CBT delivered face-to-face.

### Are there any risks?

Studies suggest that people with less education are more likely to find the treatment unhelpful.

### Recommendation

Computer-assisted therapy is an effective way to deliver CBT for depression when it is combined with some assistance from a therapist. There may be problems with high rates of drop out (people not completing the program) and some people do not find this type of therapy acceptable or easy to use.

## Dance and movement therapy (DMT)

### Evidence rating



For adults



For adolescents

### What is it?

Dance and movement therapy (DMT) combines expressive dancing with more usual psychological therapy approaches to depression, such as discussion of a person's life difficulties. Usually, a DMT session involves a warm up and a period of expressive dancing or movement. This is followed by discussion of the person's feelings and thoughts about the experience and how it relates to their life situation.

### How is it meant to work?

DMT is based on the idea that the body and mind interact. It is thought that a change in the way people move will affect their patterns of feeling and thinking. It is also assumed that dancing and movement may help to improve the relationship between the person and the therapist, and may help the person to express feelings they are not aware of otherwise. Learning to move in new ways may help people to discover new ways of expressing themselves and to solve problems.

### Does it work?

DMT has been tested in a small number of studies with both adults and adolescents. Results from two studies for adults are encouraging and suggest that DMT plus antidepressant drugs (see page 39) is better than antidepressant drugs on their own. However, we do not know if it works as well as the most effective treatments for depression. Results from one study of adolescent girls found that DMT had no effect on depression symptoms compared with no treatment. More good-quality studies are needed before we can say confidently that DMT is an effective treatment.

### Are there any risks?

None are known.

### Recommendation

DMT appears likely to be a helpful treatment for depression in adults. However, it is probably best used together with established treatments, rather than on its own. We do not yet know if DMT is effective for depression in adolescents.

## Dialectical behaviour therapy (DBT)

### Evidence rating



### What is it?

Dialectical behaviour therapy (DBT) is a modified form of cognitive behaviour therapy (CBT, see page 22) that was designed to treat borderline personality disorder. More recently, it has been used to treat other mental health issues including depression. In addition to CBT strategies, DBT teaches other skills to reduce harmful actions and improve positive coping.

### How is it meant to work?

The term 'dialectical' means working with opposites. DBT uses opposing strategies of 'acceptance' and 'change'. Acceptance skills include mindfulness and distress tolerance. Change skills include managing emotions and communicating effectively.

### Does it work?

DBT for depression symptoms in adults has been evaluated in two small good-quality studies. The first study included people with depression who had not responded to medication. It found that there was more improvement in depression for the 10 people who received DBT than for the nine people who did not receive DBT. In this study, people had 16 weekly 90-minute group sessions. The second study pooled findings from two good-quality studies of older adults with personality disorders and long-term depression. It found that depression improved more for people who received DBT plus medication than those who took medication alone.

DBT has also been evaluated for depression symptoms in adolescents. One study pooled findings from 10 lower quality studies. This study found that DBT improved depression more than other types of treatment or no treatment. However, better-quality research is needed to confirm the benefits of DBT.

### Are there any risks?

None are known.

### Recommendation

DBT seems to be helpful for depression but some larger, better-quality studies are needed so we can be sure of this.

## Emotion-focused therapy (EFT)

**Evidence rating**



### What is it?

Emotion-focused therapy (EFT) is a type of psychological therapy that places emotions at the centre of treatment. It is sometimes called process-experiential therapy because it focuses on emotional processing and experience in the therapy session.

### How is it meant to work?

EFT aims to help people to have more awareness of their emotions and cope better with them. It also aims to help people to transform unhelpful emotions into more helpful ones.

### Does it work?

One study compared EFT with cognitive behaviour therapy (CBT, see page 22) in people with depression. Treatment involved weekly sessions of therapy for 16 weeks. Both treatments reduced depression symptoms. Another study compared EFT with a form of supportive counselling (see page 35) in people with depression. People in the EFT group had greater reductions in depression symptoms.

A study of pregnant women with depression who had five sessions of treatment showed that EFT was helpful for depression. However, this was a small study and there was no comparison group.

### Are there any risks?

None are known.

### Recommendation

EFT may be helpful for depression, but more good quality studies are needed.

## Eye movement desensitisation and reprocessing (EMDR)

**Evidence rating**



### What is it?

Eye movement desensitisation and reprocessing (EMDR) is a form of treatment that aims to reduce symptoms associated with distressing memories and unresolved life experiences. It was primarily designed to treat post-traumatic stress disorder (PTSD) but is occasionally also applied to depression. During treatment with EMDR, the person is asked to recall disturbing memories while making particular types of eye movements that are thought to help in the processing of these memories.

### How is it meant to work?

EMDR takes the view that distressing memories that are poorly processed are a cause of many types of mental health issues. It is believed that focusing on these distressing memories, while making certain eye movements, helps the brain to process the memories properly, and this helps to reduce the distress they cause.

### Does it work?

Although EMDR has been tested carefully for treating PTSD, there have been only a few studies of EMDR for depression. One review that pooled findings from four higher-quality studies found that EMDR is better than no treatment. It also suggested that when combined with other treatments (e.g. cognitive behaviour therapy (CBT), see page 22 or antidepressant drugs see page 39), EMDR can strengthen the benefits of other treatments.

### Are there any risks?

None are known, although it is possible that focusing on traumatic memories without the support of a skilled therapist could increase distress in some people.

### Recommendation

EMDR appears to be a promising treatment for depression. However more high-quality studies are needed so that we can be more confident about its effects.

## Faith-based psychotherapy

### Evidence rating



For people with relevant religious or spiritual beliefs

### What is it?

Faith-based psychotherapy includes religious or spiritual ideas in other types of psychological interventions.

### How is it meant to work?

For some people, religious or spiritual issues might contribute to depression. Other people might use faith as a source of strength and support for meeting treatment goals.

### Does it work?

One study pooled findings from seven good-quality studies that combined faith-based ideas with cognitive behaviour therapy (CBT, see page 22). It found some faith-based treatments to be as effective as CBT.

### Are there any risks?

None are known.

### Recommendation

Faith-based CBT might be helpful for people with depression who have religious or spiritual beliefs. Larger, better-quality studies are needed so we can be sure of this. These studies are also needed so we can know the effects of modifying therapies other than CBT to be faith-based.

## Family therapy

### Evidence rating



### What is it?

Family therapy involves changing the family system or pattern of interaction rather than focusing on just the person with depression. Usually the whole family (or at least some family members) will attend therapy sessions. The therapist tries to help the family members change their patterns of communication so that their relationships are more supportive and there is less conflict. Family therapy approaches are most often used when a child or adolescent is experiencing depression.

### How is it meant to work?

Family therapists take the view that, even if the problem is considered an 'individual' problem rather than a 'family' problem, involving the family in the solution will be the most helpful approach. This is true especially when a child or adolescent is depressed. This is based on the idea that relationships play a large role in affecting how we feel about ourselves. When family relationships are supportive and honest, this will often help to resolve problems and improve the mood of family members.

### Does it work?

Although there have been many studies that show that the family environment has a strong influence on mental health, there have been few studies of family therapy for depression in children and adolescents specifically. These have had mixed results. Two small studies found that it was better than treatment as usual and no treatment. Another two small studies showed that family therapy was as helpful as other psychological treatments (e.g. psychodynamic psychotherapy, supportive counselling, see pages 31 and 35). However, some studies show that family therapy is less effective than cognitive behaviour therapy (CBT, see page 22) for adolescents with depression.

### Are there any risks?

No major risks are known.

### Recommendation

There is not enough evidence to say whether family therapy works.

## Hypnosis (hypnotherapy)

### Evidence rating



Hypnosis should be provided by a qualified mental health professional who is trained in this technique.

### What is it?

Hypnosis involves a therapist helping the person to get into a hypnotic state. This is an altered state of mind where the person can experience very vivid mental imagery. Time may seem to pass more slowly or more quickly than usual and people often notice things that are passing through their mind that they might not otherwise notice. They might also find that they are able to ignore or forget about certain painful experiences, including physical pain.

### How is it meant to work?

Hypnosis is usually used along with another type of treatment, such as psychodynamic psychotherapy (see page 31) or cognitive behaviour therapy (CBT, see page 22). This means that there are many different types of hypnosis treatments for depression. However, all the treatments use hypnosis to help the person to make important changes, such as resolving emotional conflicts, focusing on strengths, becoming more active, or changing unhelpful ways of thinking. It is believed that these changes are easier to make when the person is in a hypnotic state.

### Does it work?

There are very few well-designed studies that have tested whether hypnosis works for depression. One good study has shown that cognitive hypnotherapy (a type of hypnosis combined with CBT) was slightly more effective than CBT. Another study pooled the findings from six studies and found that hypnosis was better than no treatment, but many of the studies were small or poorly designed.

### Are there any risks?

No major risks are known. However, hypnosis needs to be used by a properly trained mental health professional. Otherwise, it is possible that some people might become upset by strong feelings or mental images or they might become dependent on their therapist.

### Recommendation

Hypnosis, especially the combination of hypnosis with CBT, might be effective for depression. However, some larger studies should be done so we can be more confident of this.

## Interpersonal therapy (IPT)

### Evidence rating



### What is it?

Interpersonal therapy (IPT) is a psychological therapy that focuses on problems in personal relationships, and on building skills to deal with these problems. IPT is based on the idea that these interpersonal problems are a significant part of the cause of depression. It is different from other types of therapy for depression because it focuses more on personal relationships than what is going on in the person's mind (e.g. thoughts and feelings). Although treatment length can vary, IPT for depression is conducted usually over four to 24 weekly sessions.

### How is it meant to work?

IPT is thought to work by helping people recognise patterns in their relationships with others that make them more vulnerable to depression. In this treatment, the person and therapist focus on specific interpersonal problems, such as grief over lost relationships, different expectations in relationships between the person and others, giving up old roles to take on new ones, and improving skills for dealing with other people. By helping people to overcome these problems, IPT aims to help them improve their mood.

### Does it work?

IPT has been tested in a large number of well-designed studies and has been found to be effective for a range of people including adolescents, adults and older people, as well as women going through postnatal depression. There has been an especially large number of studies on IPT with adolescents.

### Are there any risks?

None are known.

### Recommendation

IPT is an effective treatment for depression.

## Metacognitive therapy (MCT)

**Evidence rating**



### What is it?

Metacognitive therapy (MCT) is a specific type of cognitive behaviour therapy (CBT, see page 22) that focuses on how people understand their own and others' thought processes (or 'metacognitions'). It is most commonly used for treating anxiety disorders.

### How is it meant to work?

MCT focuses on how a person's beliefs lead to unhelpful actions or thoughts that make their depression worse. MCT shows the person different ways of responding to thoughts. It helps the person become more flexible in their thinking processes.

### Does it work?

One study pooled findings from three good-quality studies that compared MCT with no treatment. MCT was more effective. In another study, MCT was as good as CBT and in another, it was better than antidepressant drugs (see page 39).

### Are there any risks?

None are known.

### Recommendation

MCT might be effective for depression. More high-quality studies are needed to be sure of this.

## Mindfulness-based cognitive therapy (MBCT)

**Evidence rating**



### What is it?

Mindfulness-based cognitive therapy (MBCT) involves learning 'mindfulness meditation' together with cognitive behaviour therapy (CBT, see page 22) methods. Mindfulness meditation teaches people to focus on the present moment, just noticing whatever they are experiencing, including pleasant and unpleasant experiences, without trying to change them. At first, this approach is used to focus on physical sensations (like breathing), but later it is used to focus on feelings and thoughts. Originally, MBCT was designed as an approach to prevent the return or relapse of depression. More recently it has been used to help people who are currently experiencing depression. Generally, it is delivered in groups. There are several other types of mindfulness-based interventions that include mindfulness-based meditation on its own or combined with other interventions. The focus here is just on MBCT.

### How is it meant to work?

MBCT helps people to change their state of mind so that they can experience and be aware of what is happening at present. It stops their mind wandering off into thoughts about the future or the past. It also stops their mind from trying to avoid unpleasant thoughts and feelings. This is thought to be helpful in preventing depression from returning because it allows people to notice feelings of sadness and negative thinking patterns early, before they have become fixed. Therefore, it helps the person to deal with these early warning signs better.

### Does it work?

A pooling of data from many studies found that MBCT was more effective than no treatment. It was also more effective than giving the person general support from a therapist. MBCT had similar effects to other psychological treatments that are known to be effective (e.g. CBT). These benefits were found to persist after treatment ceased.

### Are there any risks?

None are known.

### Recommendation

MBCT appears to be a very effective treatment for depression.

## Music therapy

**Evidence rating**



### What is it?

In music therapy a therapist uses music to help someone dealing with depression to overcome their problems. Music therapy is often combined with another approach to psychological therapy, such as behaviour therapy (BT, see page 21), psychodynamic psychotherapy (see page 31) or cognitive behaviour therapy (CBT, see page 22). Different approaches to music therapy can include people either playing and making up their own music, or just listening to music.

### How is it meant to work?

Listening to music is thought to help depressed people because it directly causes physical and emotional changes. Sometimes people are asked to perform another activity while listening to music, such as relaxation, meditation, movement, drawing or reminiscing. Making one's own music is thought to help with depression by allowing the person to experience a good relationship with the therapist through making music together, and to explore new ways of expressing oneself (similar to art therapy, see page 21).

### Does it work?

Recent reviews have combined the findings from higher quality studies of music therapy. One review involved nine studies of adolescents and adults. Another involved 10 studies of older people, some of whom had physical illnesses as well as depression. These studies have shown that combining music therapy with another standard treatment (e.g. medication and/or another psychological therapy) is more effective than standard treatment alone.

### Are there any risks?

None are known.

### Recommendation

Recent evidence suggests that music therapy may be an effective treatment for depression, but more good studies are needed.

## Narrative therapy

**Evidence rating**



### What is it?

Narrative therapy focuses on how people think about themselves and their life situations in terms of narratives or stories. People come for psychological therapy either alone, with their partner, or with their families. Narrative therapy is thought to be suited to Aboriginal and Torres Strait Islander peoples because storytelling is emphasised in their cultures.

### How is it meant to work?

Narrative therapy proposes that human problems are caused partly by the language we use to describe them. In particular, people tell themselves stories about their difficulties and the life situations in which they occur. Some of these stories can increase depression, especially stories where the person sees themselves as powerless or unacceptable. Narrative therapy helps people change these stories so that they are less likely to increase depression.

### Does it work?

Two small studies have compared narrative therapy with cognitive behaviour therapy (CBT, see page 22) in young adults. The results of these studies showed that narrative therapy had similar long-term effects to CBT. However, there has not been a study that compares narrative therapy with no treatment at all. More good-quality studies using larger sample sizes are needed. There is no evidence of effectiveness in Aboriginal and Torres Strait Islander peoples.

### Are there any risks?

None are known.

### Recommendation

Narrative therapy may be a helpful treatment for depression. However, more studies are needed, including those with Aboriginal and Torres Strait Islander peoples.

## Neurolinguistic programming (NLP)

Evidence rating



### What is it?

Neurolinguistic programming (NLP) is an approach to psychological therapy that was developed in the 1970s based on observing people who were thought to be expert therapists. NLP assumes that if we can understand the way these experts use language when they are counselling people, then others can be effective therapists by using language in a similar way.

### How is it meant to work?

NLP emphasises changing the way we see ourselves and the things that happen to us by changing the language we use. In NLP, the therapist uses specific patterns of communication with the person, such as matching their preferred sensory mode – vision, hearing or touch. These help to change the way people interpret their world. By changing the way people interpret their world, NLP aims to reduce depression. Negative and self-defeating beliefs are changed into ones that promote confidence and good moods.

### Does it work?

Despite its scientific sounding name, and the fact that it has been around for decades, NLP has not been evaluated properly in well-designed studies. Only a few reports of treatments with a single person (case studies) have been published. These reports are not enough to provide convincing evidence that it is likely to work for most people. Also, some of the psychological theories that underlie NLP have not been supported when they were tested in careful research.

### Are there any risks?

None are known.

### Recommendation

There is no convincing scientific evidence that NLP is effective for depression.

## Positive psychology interventions (PPI)

Evidence rating



### What are they?

Positive psychology interventions (PPI) aim to increase positive feelings and wellbeing rather than to reduce negative feelings like depression. There are different types of PPI. These often involve promoting savouring, gratitude, kindness, positive relationships, hope and meaning. These interventions are usually delivered by a health professional as part of therapy and use homework exercises. They can be delivered in groups or individually.

### How are they meant to work?

People who are depressed can experience low levels of positive feelings as well as high levels of negative ones. Boosting the positive ones might therefore help relieve depression.

### Do they work?

While there has been quite a lot of research on PPI, only six small studies have been carried out with people who are depressed. Two studies found that adding PPI to usual treatment had a benefit. However, a study comparing PPI to no treatment found no benefit. Another study found that PPI did worse than a sham (fake) treatment. There have also been two studies comparing PPI with cognitive behaviour therapy (CBT, see page 22). These found no difference, but the studies were small.

### Are there any risks?

None are known.

### Recommendation

The evidence is mixed about whether PPI works for depression.

## Problem solving therapy (PST)

### Evidence rating



### What is it?

Problem solving therapy (PST) is a type of psychological therapy in which a person is taught to identify their problems clearly, think of different solutions for each problem, choose the best solution, develop and carry out a plan, and then see if this solves the problem.

### How is it meant to work?

When people are dealing with depression, they often feel that their problems cannot be solved because they are too difficult or there are more problems than they think they can cope with. This will sometimes lead to people either trying to ignore their problems, or resorting to unhelpful ways of trying to solve them. PST helps people to use standard problem-solving techniques to break out of this deadlock and discover new effective ways of dealing with their problems.

### Does it work?

There has been a large number of good-quality studies on PST. When the results from these studies are pooled, the findings seem to indicate that people benefit from PST, although there are many differences between the specific studies. More research is needed to work out what causes these differences and how long the benefits of therapy last.

### Are there any risks?

None are known.

### Recommendation

PST is an effective treatment for depression. It includes some elements of cognitive behaviour therapy (CBT, see page 22), a well-established treatment for depression.

## Psychodynamic psychotherapy

### Evidence rating



For short-term psychodynamic therapy



For long-term psychodynamic therapy

### What is it?

Psychodynamic psychotherapy focuses on discovering how the unconscious patterns in people's minds (e.g. thoughts and feelings of which they are not aware) might play a role in their problems. Short-term psychodynamic psychotherapy usually takes less than a year (often about 20–30 weeks), while long-term psychodynamic psychotherapy can take more than a year, sometimes many years. Long-term psychodynamic psychotherapy is sometimes called 'psychoanalysis'. This can involve the person lying on a couch while the therapist listens to them talk about whatever is going through their mind. But more often, the person and therapist sit and talk to each other in a similar way to other types of psychological therapy.

### How is it meant to work?

In psychodynamic therapy the therapist uses the thoughts, images and feelings that pass through the person's mind, as well as their relationship with the person, to discover patterns that give clues about psychological conflicts of which the person is not aware, especially issues that are related to experiences early in life such as during childhood. By making the person more aware of these 'unconscious' conflicts, they can deal with them and resolve issues that can cause depressed moods.

*Psychodynamic psychotherapy continued over page.*

## Psychodynamic psychotherapy (continued)

### Does it work?

One review that pooled the results of 10 higher-quality studies found that short-term psychodynamic therapy was better than no treatment. It was also better than standard treatments, such as antidepressant drugs (see page 39). However, a second review that pooled the results of eight studies found that short-term psychodynamic therapy is as effective as other standard treatments, such as cognitive behaviour therapy (CBT, see page 22) and antidepressant drugs. Another review that pooled the results of 12 higher-quality studies found that short-term psychodynamic therapy on its own or combined with antidepressant drugs is effective. It also found that short-term psychodynamic therapy is better than long-term psychodynamic therapy.

### Are there any risks?

No major risks are known. However, the long-term therapy can be expensive and time consuming. It might be important to consider whether a short-term treatment might be just as effective.

### Recommendation

Short-term psychodynamic psychotherapy is effective for depression. However, more studies should be done so we can be clearer about how it compares to other standard treatments. More studies are also needed to inform us about the effect of long-term psychodynamic therapy.

## Psychoeducation

### Evidence rating



### What is it?

Psychoeducation involves giving people information to help them understand what depression is, what its causes are, and what to expect during recovery. It can be given via leaflets, emails or websites, or by a therapist to families, groups or individuals face-to-face. Psychoeducation is cheaper and easier to deliver than many other psychological interventions. It is often given as part of other psychological treatments.

### How is it meant to work?

Psychoeducation helps people to develop better knowledge about depression and how they can deal with symptoms. It can also help people to be more accepting of their depression. This can sometimes help them to recover more quickly by reducing feelings of anxiety or hopelessness.

### Does it work?

One review of 15 studies on psychoeducation for depression in adults found that it is generally helpful. Some studies also suggest benefits for adolescents with depression. Another good-quality study found that giving psychoeducation to the families of people with depression helps to prevent depression from returning.

### Are there any risks?

It is possible that detailed health information could increase anxiety and worry for some people.

### Recommendation

There is some evidence that psychoeducation may be helpful for depression. It is important for health professionals to check up on people receiving psychoeducation so that more active treatments can be used if they are not improving or are getting worse.

## Relationship therapy

### Evidence rating



### What is it?

Relationship therapy focuses on helping a person who is depressed by improving their relationship with their partner. Both members of the couple come for a series of psychological therapy sessions over a period of eight to 24 weeks. A person needs to be in a long-term relationship for this therapy to be used.

### How is it meant to work?

Relationship therapy for depression has two main aims. The first is to reduce negative interactions between partners, such as arguments, criticisms and abuse. The second aim is to increase supportive interactions, such as praise, empathy, forgiveness and problem solving. It focuses on changing behaviour, assuming that if the couple's behaviour changes in a positive way then their satisfaction with the relationship will improve, as well as the mood of the partner who is depressed.

### Does it work?

There are several well-designed studies on relationship therapy. Relationship therapy is much better than no treatment and is about as effective as well-established treatments for mild to moderate depression. Some studies have shown that relationship therapy is most effective for depression when the couple is having relationship problems. This is true of many, but not all, couples where one person is depressed.

### Are there any risks?

None are known.

### Recommendation

Relationship therapy is effective for depression, though is probably best used when there are relationship problems as well as depression.

## Reminiscence therapy

### Evidence rating



For older adults



For other age groups

### What is it?

Reminiscence therapy has been used mainly with older people with depression. It involves encouraging people to remember and review memories of past events in their lives. Reminiscence therapy can be used in groups where people are encouraged to share memories with others. It can also be used in a more structured way, sometimes called 'life review'. This involves focusing on resolving conflicts and regrets linked with past experiences. The person can take a new perspective or use strategies to cope with thoughts about these events. Reminiscence therapy is generally delivered in a group format.

### How is it meant to work?

Reminiscing might be particularly important during later life. It has been proposed that how you feel about your own 'life story' can strongly affect your wellbeing. Resolving conflicts and developing a feeling of gratitude for one's life are thought to help reduce feelings of despair.

### Does it work?

Reminiscence therapy has been evaluated in a number of studies, mainly with older people. Pooling data from over 20 of these studies showed that reminiscence therapy is effective for reducing depression and that the benefits can last. It also might be a good alternative to other types of psychological therapy.

### Are there any risks?

None are known.

### Recommendation

Reminiscence therapy appears to be an effective approach to treating depression in older people.

## Schema therapy

**Evidence rating**



### What is it?

Schema therapy focuses on identifying and changing people's unhelpful beliefs (or 'schemas') about themselves, others, the world and the future. It also tries to change unhelpful ways of coping with these sorts of beliefs.

### How is it meant to work?

Schema therapy was initially used to treat people with mental health issues other than depression (e.g. personality disorders). It uses cognitive behaviour therapy (CBT, see page 22) techniques to change unhelpful beliefs that develop from our early life experiences and stop us from having our needs met in a positive way. Schema therapists also use other techniques to help support the person to make lasting change, which can help prevent depression from coming back.

### Does it work?

Schema therapy has been evaluated in one good-quality study. In this study, adult participants with depression were offered weekly sessions for six months and monthly sessions for another six months. Schema therapy was compared with CBT. Both therapies were found to improve depression to a similar extent.

### Are there any risks?

None are known.

### Recommendation

More good-quality studies are needed to confirm that schema therapy works for depression.

## Solution-focused therapy (SFT)

**Evidence rating**



### What is it?

Solution-focused therapy (SFT) is a brief therapy that helps people focus on solutions rather than their problems.

### How is it meant to work?

SFT uses people's strengths and resources to help them make positive change. This may be useful for people with depression if their symptoms are related to specific situations or problems.

### Does it work?

One good-quality study compared SFT with short-term psychodynamic psychotherapy (see page 31). SFT and psychodynamic psychotherapy both improved symptoms of depression after one year.

### Are there any risks?

None are known.

### Recommendation

SFT may be helpful for depression. More good-quality studies are needed to be sure of this.

## Supportive counselling

### Evidence rating



#### What is it?

Supportive counselling aims to help a person to function better by providing personal support. It is usually provided over a long period, sometimes years. In general, the therapist does not ask the person to change, but acts as a support, allowing the person to reflect on their life situation in a setting where they are accepted.

#### How is it meant to work?

It is thought that for some people with long-term problems the most helpful approach is to provide them with a reliable, accepting environment. This helps them cope with the challenges of day-to-day life and is especially useful for dealing with long-term problems that are difficult to change. The relationship of support and acceptance with the person's therapist is critical to helping them to cope better, even if they cannot change many of the problems they are facing.

#### Does it work?

Pooling of data from a number of studies has found that supportive counselling is effective for depression. However, it is less effective than other treatments like interpersonal therapy (IPT, see page 27) and cognitive behaviour therapy (CBT, see page 22, especially in terms of longer-term benefits).

#### Are there any risks?

None are known.

#### Recommendation

Supportive counselling is an effective treatment for depression, but it does not work as well as the most helpful treatments, like IPT and CBT.

# **Medical interventions**

## Anti-anxiety drugs

### Evidence rating



For short-term treatment



Long-term use of anti-anxiety drugs can cause dependence. Common side-effects of these drugs can include sleepiness, dizziness, headache, and in some cases, memory loss.

### What are they?

Anti-anxiety drugs are used for severe anxiety. They may also be known as 'tranquillisers'. Because depression and anxiety often occur together, anti-anxiety drugs may also be used to treat depression. These drugs are usually used together with antidepressants (see page 39), rather than on their own. The most common class of anti-anxiety drugs are called benzodiazepines. Examples of these drugs include diazepam (Valium), alprazolam (Xanax), and oxazepam (Serepax).

### How are they meant to work?

Anti-anxiety drugs work on chemicals in the brain to affect the central nervous system.

### Do they work?

Studies evaluating anti-anxiety drugs for depression have shown mixed results. One study pooled data from trials comparing anti-anxiety drugs with placebo (dummy pills) or with tricyclic antidepressant (TCA) drugs. Anti-anxiety drugs were not better than placebo and were as effective as TCAs. Another study pooled data from trials comparing Xanax with placebo or TCAs. Xanax was better than placebo and as effective as TCAs.

Studies have also looked at combining an anti-anxiety drug with an antidepressant. Pooling data from these studies showed that combined treatment was more helpful than an antidepressant alone. However, the benefits were only seen in the short term (up to four weeks). In the longer term (six to 12 weeks) there was no difference between the two treatments.

### Are there any risks?

Long-term use of anti-anxiety drugs can cause dependence, as well as withdrawal symptoms when the medication is stopped. There can also be a range of side-effects, including sleepiness, dizziness, headache, and in some cases, memory loss.

### Recommendation

There is some evidence that anti-anxiety drugs may be useful as a short-term treatment for depression, but not all drugs are effective. Combining an anti-anxiety drug with an antidepressant may also be helpful, but only in the short term. Anti-anxiety drugs should be used only for a short time because of the potential side-effects and risk of addiction.

## Anti-convulsant drugs

### Evidence rating



Common side-effects include feeling dizzy, heavily sedated/sleepy, nausea, tremor, weight gain, and the risk of developing a serious rash.

### What are they?

Anti-convulsant drugs are used mainly in the treatment of epilepsy. However, they are also used as a mood stabiliser, which means that they help to reduce intense changes in mood. Anti-convulsants have been used mainly in bipolar disorder, as well as depression that has not responded to other treatments. These drugs are usually used together with another drug (e.g. an antidepressant). These drugs can only be prescribed by a doctor.

### How are they meant to work?

Anti-convulsant drugs work by reducing excessive activity of neurons (nerve cells) in the fear circuits in the brain. It is not known exactly how they work, but the effect is to calm 'hyperactivity' in the brain.

### Do they work?

Three studies have compared anti-convulsant drugs to placebo (dummy pills) in people with depression. These did not show a benefit from the anti-convulsant drugs. A number of studies have compared adding an anti-convulsant or placebo to antidepressant drugs (see page 39) in people whose depression has not responded to other treatment. The results of these studies have been mixed. Some show no difference between the groups, some show a benefit for adding the anti-convulsant drug, and one study found a benefit of placebo rather than the anti-convulsant.

### Are there any risks?

Common side-effects of anti-convulsants include the risk of developing a serious rash, as well as feeling dizzy, heavily sedated (sleepy), nausea, tremor (shakes) and weight gain. Different types of anti-convulsants have different side-effects. Most side-effects diminish over time.

### Recommendation

Anti-convulsants taken on their own do not appear to be helpful for depression. Based on the current research, it is not clear whether combining an anti-convulsant drug with an antidepressant is helpful for depression.

## Anti-glucocorticoid (AGC) drugs

### Evidence rating



Anti-glucocorticoid (AGC) drugs can cause a number of side-effects, including rash, fatigue, constipation, appetite changes and sleep problems.

### What are they?

AGCs are drugs that reduce the body's production of cortisol (the stress hormone). AGCs are prescribed by a doctor.

### How are they meant to work?

Some of the symptoms of depression, such as memory and concentration problems, are thought to be caused by overactivity of the body's stress system. This can lead to too much cortisol. It is believed that drugs that target the stress system might also help treat depression.

### Do they work?

Several studies involving adults with depression compared an AGC drug with placebo (dummy pills). The treatments were given for up to six weeks. These studies show mixed results. Two studies compared adding an AGC or placebo to antidepressants. One of these showed a benefit and the other did not.

### Are there any risks?

AGCs can cause a number of side-effects, including rash, fatigue, constipation, appetite changes and sleep problems.

### Recommendation

There is not enough evidence to say whether AGCs are helpful for depression.

## Antidepressant drugs

### Evidence rating



For moderate to severe depression



Some antidepressants have been associated with increased suicidal thinking in young people. All antidepressants have some side-effects, such as headache, nausea, feeling drowsy, or sexual problems.

There is little evidence from studies during pregnancy or for women with postnatal depression. Three studies suggest that SSRIs are more effective than placebo for postnatal depression in the short-term. Some evidence suggests maintaining rather than discontinuing antidepressants during pregnancy reduces relapse at this time.

Some antidepressants may improve depression more than others. However, the difference between them is likely to be small. Improvement does not happen right away and can take up to four to six weeks to occur.

### What are they?

Antidepressants are drugs that are used to treat depression. They can only be prescribed by a doctor. There are many different types of antidepressants. The group of drugs that are used the most are called selective serotonin re-uptake inhibitors (SSRIs). Some examples of SSRIs are sertraline (Zoloft), escitalopram (Lexapro), citalopram (Cipramil), paroxetine (Aropax), fluoxetine (Prozac) and fluvoxamine (Luvox). Also common are serotonin norepinephrine reuptake inhibitors (SNRIs), such as venlafaxine (Efexor) and duloxetine (Cymbalta). Some of the older types of antidepressants are called tricyclic antidepressants and monoamine oxidase inhibitors (MAOIs). Newer types include agomelatine (Valdoxan) and vortioxetine (Brintellix).

### How are they meant to work?

Different types of antidepressants work in slightly different ways, but they all act on chemicals in the brain related to emotions and motivation.

### Do they work?

There is a vast amount of research that has compared antidepressants to placebo (dummy pills). This research shows that antidepressants improve depression, especially when it is of moderate or severe intensity. There is much less research on effectiveness for mild forms of depression. Some studies show a benefit, but others do not. Also, the chance of people getting depression again is reduced if they continue to take antidepressants.

Research shows that SSRIs and SNRIs are effective in treating depression in children and adolescents. However, the effects are not as strong as those seen in adults. The most effective drug in this age group is fluoxetine. A doctor should check the progress of a young person often when they are taking antidepressants.

### Are there any risks?

All antidepressants have side-effects. Some have worse side-effects than others. SSRIs appear to have fewer side-effects than other types of antidepressants. Some common side-effects of SSRIs are mild headache, nausea, drowsiness, and sexual problems. Some of these last for only a short time.

In young people there is an increased risk of suicidal thinking or behaviour when taking SSRIs or SNRIs. However, there may be a point at which the potential benefits are judged to outweigh the risks. Young people starting on an antidepressant should check in with their doctor regularly, especially after beginning treatment, to make sure these problems are not occurring.

Antidepressants may increase some risks to babies when taken during pregnancy. For example, paroxetine has been linked to an increased risk of congenital heart defects. However, the potential risks and benefits from taking antidepressants during and after pregnancy should be weighed against the risks of non-treatment.

For everyone who begins taking an antidepressant, a doctor should check frequently to see if they are improving and whether there are side-effects or any sign of suicidal thinking. This is especially important in the first few weeks.

### Recommendation

There is strong evidence from a large number of studies that antidepressants are effective for treating moderate to severe depression in adults.

## Antipsychotic drugs

### Evidence rating



For severe depression



For severe depression, combined with an antidepressant



Common side-effects include weight gain, dry mouth, sexual problems and movement problems in the limbs and face.

### What are they?

Antipsychotic drugs are usually used to treat psychotic disorders, such as schizophrenia. They have also been used for bipolar disorder and for severe depression that has not responded to other treatments. They may be used alone or with antidepressants. The antipsychotic drugs that are usually used in treatment are referred to as 'atypical antipsychotics' or 'second-generation antipsychotics'. These are a newer class of drug than 'traditional' or older antipsychotics.

### How are they meant to work?

Different types of antipsychotics work in different ways, but they all act on chemicals in the brain.

### Do they work?

Studies have compared an antipsychotic drug to placebo (dummy pills) in people with severe depression. Most studies showed that the antipsychotic drugs were more effective in reducing depression symptoms. Several reviews of studies have looked at whether combining an antipsychotic drug with an antidepressant (see page 39) for antidepressant was beneficial. Most of these trials involved people with depression that had not responded to treatment or other types of severe depression. These studies showed that combining an antipsychotic and antidepressant was more helpful than an antidepressant or antipsychotic alone.

### Are there any risks?

Common side-effects of antipsychotics include dry mouth, weight gain and movement problems in the limbs and face. Different antipsychotics may produce different side-effects. Some of these may need to be checked often.

### Recommendation

There is emerging evidence from a small number of studies that antipsychotic drugs may be effective in reducing symptoms of depression. In those with severe depression that hasn't responded to other treatments, combining an antipsychotic drug with an antidepressant appears to be more helpful than an antidepressant alone. However, these benefits may be small and need to be balanced against the risks.

## Botulinum toxin A (Botox)

**Evidence rating**



### What is it?

Botulinum toxin A (BTA) is a toxin made by a bacteria. It causes muscle paralysis and has been used to treat medical conditions such as migraine. It is also used for cosmetic purposes (e.g. Botox). When injected into the muscles in the forehead it decreases frowning for about three months. Botox is a prescription-only drug.

### How is it meant to work?

It is thought that facial expressions can influence mood. Contraction of facial muscles sends a message to the emotional centres of the brain. Therefore, the experience of negative emotions may be reduced by not frowning or expressing negative emotions. It has been proposed that paralysing these facial muscles could improve depression. It is also possible that a happy facial expression may result in better social interactions and positive mood.

### Does it work?

Three small good-quality studies have examined BTA for depression in adults. Participants had moderate to severe frown lines in two of the studies. Most participants were female and all were already taking antidepressants. A single injection of BTA was compared to a placebo injection. All three studies showed BTA was more effective than placebo in improving depression symptoms.

### Are there any risks?

BTA is safe when given by a trained medical professional. Headache and irritation at the injection site are possible.

### Recommendation

While there is some evidence for BTA treatment for depression, more good-quality research is needed.

## Electroconvulsive therapy (ECT)

**Evidence rating**



For severe depression in adults who haven't responded to other treatments



Electroconvulsive therapy (ECT) may cause short-term side-effects such as confusion, problems concentrating and memory loss.

### What is it?

In ECT, electrical currents are passed through the brain to cause a seizure. The treatment is given under a general anaesthetic, along with muscle relaxants. Usually a series of ECT treatments is given over the course of several weeks. ECT is used most often for very severe depression that has not responded to other treatments, or where there is a risk of death from suicide or refusal to eat or drink. ECT may also be known as 'electroshock therapy'.

### How is it meant to work?

It is not understood exactly how ECT works to treat depression, other than stimulating parts of the brain.

### Does it work?

One review of six good-quality studies of adults with severe depression compared actual ECT with simulated (sham) ECT. Actual ECT was found to be more effective in reducing depression symptoms immediately after treatment than the sham treatment. However, one study that examined the effects in the longer term (six months) found no benefit of actual ECT over the sham treatment.

Another review that included more studies concluded that only about half of the 10 studies reviewed found that ECT was more effective than the simulated (sham) ECT.

There are no good-quality studies of ECT in adolescents. There are only case reports where ECT has been used to treat adolescents with severe depression. These show that most improve after ECT.

*Electroconvulsive therapy (ECT) continued over page.*

## *Electroconvulsive therapy (ECT)* *(continued)*

### **Are there any risks?**

There are risks associated with having a general anaesthetic. The most common side-effects of ECT are confusion and memory problems.

### **Recommendation**

ECT reduces symptoms in severely depressed adults immediately after treatment. However there do not appear to be any longer-term benefits of ECT.

## **Lithium**

### **Evidence rating**



For long-term depression



For depression combined with an antidepressant



There can be serious side-effects of toxic levels of lithium in the blood, including tremor and convulsions, and in some cases death. People who take lithium must have their blood monitored by a doctor.

### **What is it?**

Lithium is a drug that is used mainly to treat bipolar disorder. Because it has been found to be effective for treating bipolar disorder, lithium has also been used to treat depression. It may be used alone or with antidepressants.

### **How is it meant to work?**

It is not clear how lithium works to treat depression, other than to act on neurotransmitters (chemical messengers) in the brain.

### **Does it work?**

A review of eight studies compared the effectiveness of lithium to antidepressant drugs in adults with long-term depression. The results showed no difference between lithium and antidepressants (see page 39).

A pooling of results from nine studies that looked at combining lithium with an antidepressant found it helpful.

### **Are there any risks?**

Common side-effects of lithium include headache, nausea, and feeling dazed. High levels of lithium in the blood can be toxic and cause more serious side-effects, including tremor and convulsions, and in some cases death. People on lithium must have their blood monitored to make sure the dose is at a safe level.

### **Recommendation**

Several studies show that lithium may be as effective as antidepressant drugs for people with long-standing depression. Combining lithium with an antidepressant may also be effective in severe depression.

## Oestrogen

### Evidence rating



Oestrogen may increase the risk of cancer of the uterus and breast cancer, as well as blood clots in the veins. It can also cause a number of other problems such as tender breasts and vaginal bleeding.

### What is it?

Oestrogen is a hormone that occurs naturally in a woman's body. When used as a treatment, it is usually supplied as a tablet. It is also available in a skin patch, as a cream or gel, or injected or implanted just under the skin. Oestrogen is prescribed by a doctor.

### How is it meant to work?

The amount of oestrogen in a woman's body varies during menopause and pregnancy. Since it drops after childbirth, it is thought that oestrogen can help treat postnatal depression by increasing the amount of the chemical serotonin in the brain.

### Does it work?

A review of 10 studies comparing oestrogen with placebo (dummy pills) in menopausal women found no effect on depression.

In women with severe postnatal depression, one trial compared oestrogen with placebo. The group that received oestrogen had lower depression symptom scores than the placebo group up to three months after the treatment ended. It is worth noting though that more people in the oestrogen group were also taking antidepressant drugs (see page 39) than in the placebo group.

### Are there any risks?

Oestrogen treatment increases the risk of cancer of the uterus and may increase the risk of breast cancer and blood clots in the veins. It can also cause a number of other problems such as tender breasts and vaginal bleeding. It is not known if oestrogen is safe in breastfeeding.

### Recommendation

More research is needed to determine whether oestrogen is an effective treatment for women with severe postnatal depression or depression during menopause.

## Stimulant drugs

### Evidence rating



In combination with an antidepressant



Side-effects might include headache, difficulty sleeping, a lack of appetite and nausea. Some stimulants can also be highly addictive, so there are risks of abuse or dependence in some people.

### What are they?

Stimulants help improve alertness and energy levels. These drugs are not used as a regular treatment for depression. However, they may be used to treat certain symptoms of depression, such as fatigue, lack of energy or poor concentration. They are usually used with antidepressants (see page 39). Only a doctor can prescribe these drugs. Common types of stimulants include amphetamines, methylphenidate (Ritalin – used to treat attention deficit hyperactivity disorder) and modafinil.

### How are they meant to work?

Most stimulants work by increasing the activity of neurotransmitters (chemical messengers) in the brain. This is done in a different way to antidepressants, so the effect can be felt much more quickly.

### Do they work?

A review of 16 studies compared stimulant drugs to placebo (dummy pills) in adults with depression. In most studies the stimulants were an add-on to antidepressant drugs. The studies lasted for six weeks on average. The results showed that stimulants were more effective than placebos for depression, but the quality of included studies was low.

### Are there any risks?

Side-effects may include headache, difficulty sleeping, a lack of appetite and nausea. As some stimulants can be highly addictive, there are risks of abuse or dependence in some people.

### Recommendation

Stimulants may help to reduce certain symptoms of depression in the short term. However, there is no evidence of their longer-term benefits for depression.

## Testosterone

### Evidence rating



In men with low levels of testosterone



In men with normal levels of testosterone and women



Side-effects can include acne and oily skin. There are also gender specific side-effects of testosterone. Use of testosterone therapy has also been associated with an increased risk of some forms of cancer.

### What is it?

Testosterone is a naturally occurring hormone found in both males and females, although levels of testosterone are much higher in males. In males, it is the main sex hormone and is involved in sex drive (or libido) as well as muscle growth, strength, energy and stamina. When used to treat depression, testosterone replacement therapy can be provided as a patch that is worn on the skin, in tablet form or via injection. To be used properly and safely, testosterone treatments should be prescribed by a doctor.

### How is it meant to work?

As symptoms of depression can include low libido and lack of energy, it has been suggested that low levels of testosterone (especially in males) may be related to depression. Support for this theory comes from studies that have found lower levels of testosterone in depressed people compared to non-depressed people.

### Does it work?

There have been at least 10 good-quality studies that compared testosterone to placebo (dummy pills) in adult men with depression. In some of these studies, participants were also taking antidepressant drugs (see page 39). Most studies included people with other medical conditions, such as very low levels of testosterone and/or HIV. The results showed that testosterone was better than placebo in reducing symptoms of depression in the groups with low levels of testosterone, but not in those with normal levels.

### Are there any risks?

Common side-effects of testosterone can include acne and oily skin. There are also gender specific side-effects. In women, these include weight gain (mainly due to increased muscle rather than body fat) and hair growth. Males may experience hair loss or thinning. Testosterone replacement therapy has also been linked with an increased risk of cancers (including breast or gynaecological cancers in women and prostate cancer in men). More research is needed to understand these risks.

### Recommendation

Testosterone appears to be helpful to men with low levels of this hormone. It may not be effective for men with normal levels of testosterone who are depressed. There is no good-quality research on the effects of testosterone for women.

## Thyroid hormones

### Evidence rating



Thyroid hormones can cause side-effects such as high blood pressure, heart problems, sweating, anxiety and trouble sleeping.

### What are they?

Thyroid hormones occur naturally in the body. They are involved in the way the body uses energy. When used as a treatment, thyroid hormones are usually supplied as a tablet. Thyroid hormones are prescribed by a doctor. They are usually used with antidepressants (see page 39).

### How are they meant to work?

Some people with depression also have abnormal thyroid hormones. Thyroid hormones affect cells and neurotransmitters (chemical messengers) in the brain.

### Do they work?

Two reviews have pooled the results from trials that compared adding thyroid hormones or placebo (dummy pills) to antidepressants. One review of four good-quality studies did not show a benefit. The other review showed that adding thyroid hormones sped up the effect of antidepressants. More recent studies show mixed results from adding thyroid hormones to SSRI antidepressants for depression that hasn't responded to treatment.

### Are there any risks?

Thyroid hormones can cause side-effects including high blood pressure, heart problems, sweating, anxiety and trouble sleeping. Long-term treatment may cause bone problems.

### Recommendation

There is not enough evidence to say whether thyroid hormones work. However, thyroid hormones may be useful for people with low hormone levels and depression.

## Transcranial magnetic stimulation (TMS)

### Evidence rating



For moderate to severe depression



For mild depression



There is a very low risk of seizure when transcranial magnetic stimulation (TMS) is used correctly. Side-effects can include mild headache and scalp or neck pain.

### What is it?

TMS is a type of brain stimulation. A metal coil that contains an electric current is held to the side of the head. This produces a magnetic field that stimulates parts of the brain related to mood. TMS is usually given daily. It is used mainly for people who have tried other treatments but still have depression.

### How is it meant to work?

It is not known exactly how TMS works to treat depression, other than stimulating parts of the brain.

### Does it work?

A number of studies have given adults with depression either actual repetitive TMS or a sham (fake) treatment. Reviews of these studies have found a benefit from receiving TMS compared to sham treatment. The treatments were usually given daily across 10-30 sessions, with results suggesting greater benefit from more treatment sessions. Most of the people had moderate to severe depression and/or had not benefited from other types of treatment. Treatment effects appear to be smaller at follow-up once treatment has ended.

### Are there any risks?

Seizures are rare when TMS is used correctly. Side-effects can include mild headache and scalp or neck pain.

### Recommendation

TMS appears to be an effective treatment for depressed adults in the short term, but these benefits reduce beyond the period of treatment.

## Vagus nerve stimulation (VNS)

### Evidence rating



Vagus nerve stimulation (VNS) requires surgery to implant a device, so it is a highly invasive procedure. Voice changes are common and neck pain can also occur.

### What is it?

VNS is a type of brain stimulation. It requires surgery to insert a device (like a pacemaker) and wiring under the skin in the chest and neck. This sends electric signals to the vagus nerve, which is connected to the brain. VNS is used mainly for people with long-term, severe depression.

### How is it meant to work?

This is unclear, but it is thought to affect brain chemistry and blood flow to different parts of the brain.

### Does it work?

Only one high-quality study has compared actual VNS treatment to a control (sham or fake) VNS. In this study, VNS devices were implanted in adults who had experienced depression for at least two years, or had four or more episodes of depression. They were then given either 10 weeks of actual VNS or sham VNS. There was no benefit of the actual VNS treatment on depression symptoms in the short term.

### Are there any risks?

As surgery is involved in VNS, it is a highly invasive procedure. Voice changes are common, and neck pain can also occur.

### Recommendation

The available evidence suggests that VNS does not work for severe depression.

# **Complementary and lifestyle interventions**

## 5-hydroxy-L-tryptophan (5-HTP)

### Evidence rating



Common side-effects of 5-HTP include nausea, vomiting, and diarrhoea.

### What is it?

5-HTP is an amino acid. Amino acids are building blocks of proteins. It is produced in the body from L-tryptophan and may also be purchased as a dietary supplement.

### How is it meant to work?

5-HTP is converted into serotonin, a chemical messenger in the brain. Low levels of serotonin are thought to be related to depression. 5-HTP supplements may therefore increase the amount of serotonin.

### Does it work?

Only one small study has looked at 5-HTP compared to placebo (dummy pills). 10 severely depressed inpatients took placebo or up to 3g 5-HTP per day for three weeks. None of those taking placebo improved, whereas three of five who took 5-HTP improved. Another recent study compared the effectiveness of 5-HTP with an antidepressant. 5-HTP doses varied between 150mg and 400mg per day. People in both groups improved over eight weeks. However, the study did not have a comparison group that received only placebo.

### Are there any risks?

Common side-effects are nausea, vomiting and diarrhoea. There are concerns that supplements may be linked with eosinophilia myalgia syndrome (a serious neurological disease). However, this is unlikely to be a risk for 5-HTP.

### Recommendation

There is not enough good evidence to say whether 5-HTP works.

## Acupuncture

### Evidence rating



### What is it?

Acupuncture is a technique of inserting fine needles into specific points on the body. The needles can be rotated manually, or have an electric current applied to them. A laser beam can also be used instead of needles. Acupuncture can be given by a medical doctor or by a traditional Chinese medicine practitioner. The Chinese Medicine Board of Australia regulates all Australian traditional Chinese medicine practitioners. Acupuncture is not covered by Medicare unless it is provided by a medical doctor. It may be available as an extra with private health insurance.

### How is it meant to work?

This is not clear. Traditional Chinese medicine believes it works by correcting the flow of energy in the body. Western medicine believes it may stimulate nerves, which results in the release of serotonin and norepinephrine. These are chemical messengers in the brain thought to be involved in depression.

### Does it work?

Many studies have tested acupuncture for depression. Most studies have been conducted in China. Researchers have pooled together the results of all studies for a clearer picture of its effects. Acupuncture appears to be more effective than no treatment. However, the benefit is smaller when acupuncture is compared to 'sham' acupuncture. Sham acupuncture involves choosing different needle sites or only pricking the skin's surface. Overall, results appear promising but most studies are of low scientific quality. This means that findings should be interpreted with caution.

### Are there any risks?

Acupuncture is not free of risk but is relatively safe when practised by an accredited professional. Soreness, minor bleeding and bruising may occur.

### Recommendation

Acupuncture appears to be effective for depression. More high-quality studies are needed to confirm its effectiveness.

## Alcohol avoidance

### Evidence rating



In people with a drinking problem



In people without a drinking problem



Suddenly stopping or reducing alcohol use after heavy, long-term use can lead to withdrawal symptoms, which can be life threatening.

### What is it?

Alcohol avoidance means reducing or stopping drinking alcohol.

### How is it meant to work?

Alcohol is a typical depressant drug and alcohol intoxication (drunkenness) may cause temporary depressive symptoms. Changes to the brain in response to long-term, heavy drinking may lead to depression. Heavy drinking can also cause unpleasant life changes, such as job loss, which can lead to depression. For these reasons, it may be helpful to avoid drinking alcohol when depressed.

### Does it work?

Many people who enter treatment for alcohol problems are diagnosed with depression. A number of studies in these people have looked at the effect of detoxification on depression. These show a large improvement in depression after a few weeks of avoiding drinking alcohol. This means that in many people with drinking problems, alcohol was the cause of their depression.

There have been no studies of reducing alcohol in depressed people who do not have an alcohol problem.

### Are there any risks?

Suddenly stopping or reducing alcohol use after heavy, long-term use can lead to withdrawal symptoms. These can be life-threatening. Giving up alcohol altogether may also increase risk of some health problems. For example, moderate alcohol consumption may protect against heart disease.

### Recommendation

Depression in people with a drinking problem may be improved by not drinking alcohol. There is not enough evidence to say whether avoiding alcohol is helpful for depression in people without an alcohol problem.

## Aromatherapy

### Evidence rating



### What is it?

Aromatherapy is the use of essential oils for healing. Essential oils are highly-concentrated extracts of plants. They can be diluted in carrier oils and absorbed through the skin, or heated and vaporised into the air.

### How is it meant to work?

This is not known. Mood could be affected by the pleasant odour or by memories and emotions that are triggered by the smell. Alternatively, the oil's chemical components may have drug-like effects.

### Does it work?

Two studies have looked at aromatherapy for depression. In one study, adults with mild depression who were given regular aromatherapy massages improved their depression. However, there was no comparison group. A second study tested rose essence delivered via the nose during three nights of sleep. There was no effect on depressed mood compared to normal air.

### Are there any risks?

Essential oils should not be used undiluted as they can irritate the skin. Some oils may interact with conventional medicine. Some essential oils are not recommended for use during pregnancy.

### Recommendation

There is not enough good evidence to say whether aromatherapy works.

## Asperugo procumbens

**Evidence rating**



### What is it?

*Asperugo procumbens*, also known as German madwort, is a flowering plant used in traditional Persian medicine.

### How is it meant to work?

This is not known. *Asperugo procumbens* has been found to have sedative effects in animal studies.

### Does it work?

One study compared *Asperugo procumbens* with an antidepressant (see page 39) in 30 people over six weeks. While both groups improved, the group receiving the antidepressant improved more. There is no research comparing *Asperugo procumbens* with placebo (dummy pills).

### Are there any risks?

The above study reported that possible side-effects are headache, increased appetite, palpitation and constipation.

### Recommendation

There is not enough evidence to say whether *Asperugo procumbens* works.

## Autogenic training

**Evidence rating**



### What is it?

Autogenic training is the regular practise of simple mental exercises in body awareness. The exercises involve concentration on breathing, heartbeat, warmth and heaviness of body parts.

### How is it meant to work?

Autogenic training promotes relaxation and stress relief.

### Does it work?

One study of depressed adults compared autogenic training with psychological therapy and a group that received no treatment. The autogenic training group participants had greater improvement in their depression than the no-treatment group. However, they did not improve as much as the psychological therapy group. Another study looked at the effects of autogenic training in addition to psychological therapy. Autogenic training was done for eight weeks in a group. Two years later, autogenic training had reduced depression more than therapy on its own.

### Are there any risks?

None are known.

### Recommendation

Autogenic training for depression appears promising but more good evidence is needed.

## Ayurveda

**Evidence rating**



### What is it?

Ayurveda is the traditional healing system of India. Ayurveda translates as 'knowledge of life'. It aims to improve health by balancing the body, mind and spirit using diet, herbs, spices, meditation and exercise.

### How is it meant to work?

Ayurvedic medicines are a traditional treatment. Treatments are derived from over thousands of years of use in India. They aim to correct imbalances in the basic elements shared by living and non-living things: ether, air, water, fire and earth.

### Does it work?

One study has tested Ayurvedic treatment of depression in 81 adults. This showed a benefit from the treatment. However, there was no comparison group of people who did not receive treatment.

### Are there any risks?

Ayurvedic herbal medicines may interact with antidepressants.

### Recommendation

There is not enough evidence to say whether or not Ayurveda works.

## Bach Flower Remedies

**Evidence rating**



### What are they?

Bach (pronounced 'batch') Flower Remedies are a system of highly-diluted flower extracts. A popular combination of five remedies is sold as Rescue Remedy®.

### How are they meant to work?

Bach Flower Remedies are believed to contain small amounts of the plant's lifeforce energy, which heals emotional imbalances.

### Do they work?

There are reports that Bach Flower Remedies have been used to treat adults and children with depression. However, no scientific study has been carried out.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether Bach Flower Remedies work.

## Bibliotherapy

### Evidence rating



With a professional

### What is it?

Bibliotherapy is a form of self-help that uses books or other written material. The books provide information and homework exercises that readers work through on their own. Two self-help books for depression have been researched and are available to buy. These are *Feeling Good* and *Control Your Depression*. Other similar books that may be helpful are *Mind over Mood*, *Overcoming Depression* and *Overcoming Depression: A Five Areas Approach*.

### How is it meant to work?

Most bibliotherapy teaches a person how to use cognitive behaviour therapy (CBT, see page 22) on themselves. CBT is helpful for depression when delivered by a professional.

### Does it work?

There have been many studies carried out of bibliotherapy for depression. In all studies, participants were in contact with professionals. A pooling of data from 17 of these studies found that bibliotherapy reduced depression much more than no treatment.

Six studies have evaluated a specific book: *Feeling Good* by David Burns. Pooling of data from these studies also found that the book reduced depression more than no treatment. Results from four studies suggest that bibliotherapy may be as helpful as therapy from a professional.

### Are there any risks?

There are no known risks. However, bibliotherapy may not be suitable for everyone. Some people may lack enough concentration or have poor reading skills. Most self-help books require a high level of reading ability.

### Recommendation

Bibliotherapy appears to be helpful for depression when a professional is involved.

## Borage

### Evidence rating



### What is it?

Borage (*Borago officinalis* or *Echium amoenum*) is a herb originating in Syria.

### How is it meant to work?

This is not known. Borage is used in traditional Iranian medicine for mood enhancement.

### Does it work?

One study of depressed adults gave groups borage extract or placebo (dummy pills) for six weeks. The borage group showed greater improvement in depression after four weeks. However, the benefit had disappeared after six weeks.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether borage works for depression.

## Caffeine consumption or avoidance

### Evidence rating



Consumption



Avoidance

### What is it?

Caffeine is a stimulant that is found in coffee, tea, cola drinks and chocolate. Some people believe that caffeine improves mood and energy. Others say that avoiding caffeine altogether may be helpful for depression.

### How is it meant to work?

Caffeine is a central nervous system stimulant. It increases the release of several chemical messengers linked to depression. Depressed people tend to consume more caffeine than other people. This may be because depressed people self-treat with caffeine. Studies have also shown that moderate amounts of caffeine may protect against developing depression. However, some people may be extra sensitive to caffeine's effects, and therefore avoiding caffeine may be helpful for these people.

### Does it work?

One good-quality study has tested whether caffeine is helpful for depression. Male adults took either 60mg caffeine, 120mg caffeine, or placebo (dummy pills) each morning for four weeks. Participants were not regular coffee drinkers and all took an antidepressant during the study. Results showed a benefit from the low dose of caffeine, but not the high dose.

One small study of caffeine avoidance has been carried out. Depressed adults whose depression was thought to be caused by diet were involved. One group removed caffeine and refined sugar from their diet, while the other group cut out red meat and artificial sweeteners. The group that removed sugar and caffeine improved more than the other group.

### Are there any risks?

Anxiety may occur with large doses. More severe side-effects occur at much higher doses. High doses of caffeine may increase the risk of miscarriage. Suddenly stopping caffeine consumption may cause headaches, fatigue and irritability.

### Recommendation

There is not enough good evidence to say whether caffeine consumption or avoidance is helpful for depression.

## Carbohydrate-rich, protein-poor meal

### Evidence rating



### What is it?

It has been proposed that a meal rich in carbohydrates, but low in protein, lifts mood.

### How is it meant to work?

It is thought that a meal that is almost completely carbohydrate-based increases the level of tryptophan in the brain. Tryptophan is a building block of serotonin, a chemical messenger believed to be involved in depression. However, for this to work, the meal must be very low in protein. Most high-carbohydrate meals contain enough protein to block this mechanism. There is also a theory that carbohydrates have a role in seasonal affective disorder (SAD, or winter depression). People with this type of depression often crave carbohydrates. Carbohydrate meals eaten in the morning may fix problems in the body's internal rhythms caused by less sunlight in winter.

### Does it work?

Four studies have been carried out in adults with SAD. One study compared the effects on depressed mood of eating a carbohydrate-rich but protein-poor meal with eating a protein-rich but carbohydrate-poor meal. The meals did not differ in their effects as expected. However, the results were hard to interpret due to the way the research was designed.

One small study compared three different diets over nine days in women with SAD. One group ate a carbohydrate-rich meal in the morning, another ate one in the evening, and the third group ate a protein-rich meal in the evening. The diets did not differ in their effect on depression.

Two small studies compared a specially developed carbohydrate-rich drink with a mixed carbohydrate-protein (dummy) drink. The drinks were consumed twice daily over 12 days, along with normal meals. Both drinks improved depression with no difference between them.

### Are there any risks?

Eating a diet very low in protein would harm health in the long term.

### Recommendation

There is not enough good evidence to say whether eating carbohydrate-rich, but protein-poor, meals works.

## Carnitine/Acetyl-L-Carnitine

**Evidence rating**



### What is it?

Carnitine is a nutrient involved in energy metabolism. It is produced in the body and is available in food such as meat and dairy products or as a supplement. Acetyl-L-Carnitine (ALC) is a form of carnitine that easily enters the brain.

### How is it meant to work?

This is unknown. It could work by reducing stress hormone levels or through effects on lipids (fats) in the membranes (outer walls) of brain cells. It may also improve the creation of new brain cells in parts of the brain thought to be involved in depression.

### Does it work?

Several studies have tested ALC for depression. Most studies have used a 3g daily dose of ALC. Overall, pooling the results from these studies shows that ALC reduces depression more than placebo. Effects may be stronger in older adults. Two studies in people with a long-term low level of depression (known as dysthymia) have compared ALC with an antidepressant (see page 39). The ALC showed similar benefit to the antidepressant drugs.

### Are there any risks?

Long-term supplementation of doses up to 2g per day appears to be safe. Higher doses may be safe, but there is less evidence.

### Recommendation

There is some evidence on ALC to indicate that it may work for depression.

## Chewing gum

**Evidence rating**



### What is it?

Chewing gum is a product designed to be chewed without being swallowed.

### How is it meant to work?

This is unclear. Some people report that chewing gum helps reduce stress levels.

### Does it work?

One small study has looked at whether chewing gum is helpful for depression. 30 adults with depression took an antidepressant (see page 39) for six weeks. Half were told to chew a flavourless, sugarless gum for 20 minutes on four days in a row each week. The other half did not use chewing gum. The chewing gum group showed a larger improvement in appetite and gastrointestinal problems. However, other depressive symptoms were not affected.

### Are there any risks?

None are known.

### Recommendation

There is not enough evidence to say whether chewing gum is helpful for depression.

## Chlorella

**Evidence rating**



### What is it?

*Chlorella vulgaris* is a green microalgae. It is available to buy as a dietary supplement.

### How is it meant to work?

This is unclear. A low level of antioxidants may play a role in depression. Chlorella is rich in antioxidants.

### Does it work?

One study has tested chlorella in 92 adults with depression. Half took chlorella tablets in addition to antidepressants. The other half continued to take antidepressants on their own. After six weeks the chlorella group showed greater improvement in depression.

### Are there any risks?

There were few side-effects reported in the study above.

### Recommendation

There is not enough evidence to say whether chlorella is helpful for depression.

## Chromium

**Evidence rating**



### What is it?

Chromium is an essential trace mineral involved in carbohydrate, fat and protein metabolism. Chromium is available in food or as a supplement.

### How is it meant to work?

This is unknown. However, it could involve effects on neurotransmitters (chemical messengers in the brain) by increasing sensitivity to insulin.

### Does it work?

One study of chromium in depressed adults gave groups either chromium supplements or placebo (dummy pills) for eight weeks. Chromium did not improve depression more than placebo.

### Are there any risks?

There are few harmful effects linked to high intakes of chromium. However, some medications may interact with chromium, especially when taken on a regular basis.

### Recommendation

There is not enough good evidence to say whether chromium works or not.

## Cinnamon

Evidence rating



### What is it?

Cinnamon (also known as *Cinnamon verum* or *Cinnamon zeylanicum*) is a small tree. Its bark is used as a source of spice. It is used in traditional Persian medicine.

### How is it meant to work?

This is not known. The plant has anti-inflammatory and antioxidant effects, which might help depression.

### Does it work?

A study with 60 people taking antidepressants gave them either cinnamon essential oil or distilled water as additional treatment. Those taking cinnamon essential oil improved more. However, the study was of low scientific quality.

### Are there any risks?

This is unknown. While no adverse effects were reported in the above study, there is limited evidence available.

### Recommendation

There is not enough good evidence to say whether cinnamon works.

## Computer-assisted therapies (self-guided)

Evidence rating



### What are they?

Computer-assisted therapies use computer technology to deliver treatments, usually via the internet. Most treatment programs are based on cognitive behaviour therapy (CBT, see page 22). Computer or internet treatments deliver structured sessions of CBT and are similar to bibliotherapy (see page 52). Treatments can be used with or without support from a professional. This review covers self-guided treatments where there is no involvement from a therapist. See page 23 for the review on therapist-guided computer or internet treatments.

The headtohealth.gov.au website gives a list of available online treatments for depression.

### How are they meant to work?

CBT is helpful for depression when delivered by a professional. Its structured nature means it is well-suited to online delivery.

### Do they work?

Several studies of self-guided internet treatments for depression have been carried out. Pooling data from these studies has found a small benefit over control groups. Self-guided treatments are less effective than when a therapist provides support (see page 23). This is probably because people are more likely to stop using the treatment without a therapist motivating them to complete the program.

### Are there any risks?

The risk of getting worse appears to be similar to therapy delivered face-to-face.

### Recommendation

Self-guided computer or internet interventions appear to be somewhat helpful for depression. They are not as helpful as computer or internet treatments supported by a therapist.

## Craft groups

**Evidence rating**



### What are they?

Craft groups provide the opportunity to learn how to make different arts and crafts.

### How are they meant to work?

Engaging in crafts is a purposeful activity that may distract from negative thoughts. Craft groups also provide social interaction and may increase self-esteem, which may be helpful for depression.

### Do they work?

One study tested the effectiveness of a craft group in women with depression. Half the women took part in the craft group and half did not. All women continued to take antidepressants (see page 39) for antidepressants during the study. The craft group met weekly over three months and were instructed how to create different items including table mats, dolls and baskets. Women who took part in the craft group improved more than the comparison group.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether craft groups are helpful for depression.

## Craniosacral therapy

**Evidence rating**



### What is it?

Craniosacral therapists apply gentle pressure to the head and back to improve the flow of spinal fluid.

### How is it meant to work?

It is believed that moving the spinal fluid around the central nervous system improves a vital body rhythm. Improving this rhythm in the spinal fluid can heal emotional issues.

### Does it work?

There are reports that craniosacral therapy has been used to treat people with depression. However, no scientific study has been carried out.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether craniosacral therapy works.

## Creatine monohydrate

**Evidence rating**



### What is it?

Creatine monohydrate (creatine) is a nutrient produced in the body. It is available in foods such as meat and seafood or as a dietary supplement. It is often taken by athletes to improve strength and performance.

### How is it meant to work?

This is unclear. It may work by improving energy metabolism within brain cells.

### Does it work?

Three good-quality studies have evaluated creatine for depression and have shown mixed results. Creatine was given in addition to antidepressants in all studies. One study in 52 adult women with depression compared 5g creatine with placebo (dummy pills) over eight weeks. The creatine group improved more than the placebo group. A second study in 18 adults found no benefit compared to placebo after four weeks. A third study in 34 female adolescents with depression also showed no benefit from creatine compared with placebo.

### Are there any risks?

Creatine can cause mild stomach pain, diarrhea, muscle cramps and weight gain.

### Recommendation

There is not enough good evidence to say whether creatine works for depression.

## Curcumin (turmeric)

**Evidence rating**



### What is it?

Curcumin is a compound found in turmeric (*Curcuma longa*), a spice widely used in cooking.

### How is it meant to work?

This is unclear. Curcumin is used in traditional Chinese medicine (see page 87) to treat stress and depression. It is also used in Ayurveda (see page 51) to treat conditions caused by inflammation, such as arthritis. It could work by acting on neurotransmitters (chemical messengers) in the brain. It could also work by reducing inflammation in the body.

### Does it work?

Six studies have compared curcumin to placebo (dummy pills) for depression. Most participants were already taking antidepressant (see page 39) for antidepressants. Most studies used a dose of 1g per day of curcumin. Pooling the data from these studies showed a benefit compared to placebo.

### Are there any risks?

It may cause mild giddiness, nausea or diarrhea.

### Recommendation

The evidence for curcumin is promising, but more good-quality research is needed.

## Cuscata planiflora

**Evidence rating**



### What is it?

*Cuscata planiflora*, also known as Red Dodder, is a parasitic climbing-plant used in traditional Persian medicine.

### How is it meant to work?

This is not known.

### Does it work?

A study with 28 people compared capsules of ground-up *Cuscata planiflora* given in combination with an antidepressant (see page 39) with antidepressants alone over eight weeks. Those given the *Cuscata planiflora* improved more. There have not been any studies looking at *Cuscata planiflora* as a treatment by itself.

### Are there any risks?

This is unknown. While no adverse effects were reported in the above study, there is limited evidence available.

### Recommendation

There is not enough good evidence to say whether *Cuscata planiflora* works.

## Distraction

**Evidence rating**



### What is it?

Distraction is directing attention away from depression and towards pleasant or neutral thoughts and actions.

### How is it meant to work?

Depressed people tend to ruminate (i.e. think too much) about how they are feeling. They believe that this will lead to a greater understanding of why they are depressed and how they can get better. However, ruminating while feeling depressed may lead to more negative thinking and make depression symptoms seem an even bigger problem. Distraction may interfere with rumination and stop negative thinking. Once the depressed mood has lifted, more effective problem solving can occur.

### Does it work?

A number of studies have been carried out on the effects of distraction on mood in people with depression. These studies have looked at whether distraction is helpful for temporarily improving depressed mood. Different distraction tasks have been used. These include individual efforts such as thinking about broad social issues and visualising neutral things (e.g. the shape of the African continent or the layout of a typical classroom), or interpersonal activities such as describing pictures and playing a board game.

Distraction was compared with a rumination task involving focusing on 'your feelings right now and why you are feeling this way'. These studies usually find that rumination increases or maintains depressed mood, whereas distraction reduces depressed mood. Distraction also appears to be better than alternatives such as sitting quietly.

### Are there any risks?

Constantly using distraction to avoid dealing with problems may not be helpful in the long term.

### Recommendation

Distraction appears to be helpful for temporarily improving depressed mood. Other treatments are needed for more lasting improvements.

## Dolphins (swimming with)

**Evidence rating**



### What is it?

It has been suggested that swimming with dolphins may be helpful for depression. Swimming with dolphins is usually only available through a tour operator in selected locations.

### How is it meant to work?

This is unclear. Dolphins use sonar signals to navigate, which could affect cell membranes in the brain. Alternatively, the natural setting or the enjoyment from the activity could also help to reduce depression.

### Does it work?

One study with 30 mildly-depressed adults has evaluated swimming with dolphins. Half spent one hour a day swimming and playing with bottlenose dolphins for two weeks, and the other half swam and learnt about the marine ecosystem as a control. Both groups improved, however the dolphin group improved more. Other researchers have questioned these findings. They have argued that the swimming-only group would have been disappointed to miss out on interacting with dolphins and that the disappointment made them improve less.

### Are there any risks?

Swimming skills are required and there is a risk of accidental injury.

### Recommendation

There is not enough good evidence to say whether swimming with dolphins works.

## Energy psychology (aka meridian tapping)

**Evidence rating**



### What is it?

Energy psychology includes a number of treatments derived from acupuncture and acupressure. It has been called "acupuncture without needles". These treatments involve some sort of physical activity, like tapping an acupuncture point, while thinking about something that is a target for change. Particular types of treatment include 'thought field therapy', 'energy tapping', the 'tapas acupressure technique' and the 'emotional freedom technique' (EFT). EFT can be learnt via a website <https://www.emofree.com/> or self-help books.

### How is it meant to work?

Energy psychology is based on the idea that mental health issues are related to disturbances in the body's electrical energies. The treatments help correct these disturbances. Because they involve thinking about something that is a target for change, these treatments also involve a component of exposure therapy.

### Does it work?

Two small studies have looked at EFT in adults with depression. Both studies evaluated an eight-week group EFT treatment. The treatment included elements of cognitive behaviour therapy (CBT, see page 22) as well as EFT. One study with six people found the EFT treatment reduced depression symptoms. A second study with 10 people compared EFT to group CBT and found it reduced depression, but not as much as CBT.

### Are there any risks?

EFT is thought to be low risk.

### Recommendation

There is not enough evidence to say whether energy psychology treatments are helpful for depression.

## Exercise

### Evidence rating



For adults



For adolescents

### What is it?

The two main types of exercise are aerobic (exercises the heart and lungs, such as in jogging) or anaerobic (strengthens muscles, such as in weight training).

### How is it meant to work?

This is unclear, however low levels of physical activity are often linked with depression. There are a few ideas on how exercise might work, such as by:

- improving sleep patterns
- changing levels of chemicals in the brain, such as serotonin, endorphins or stress hormones
- interrupting negative thoughts that make depression worse
- increasing perceived coping ability by learning a new skill
- socialising with others, if the exercise is done in a group.

### Does it work?

A pooling of results from 35 studies looking at exercise for depression in adults found it moderately helpful. Exercise was compared with placebo (such as social activity) or no treatment in these studies. A smaller number of studies suggest it may be as helpful as psychological therapy and antidepressants. However, the benefits may fade if exercise is stopped. Five studies have looked at exercise for depression in adolescents. These studies also showed a benefit.

It is unclear what the best type of exercise is and how often and for how long it should be done. Current recommendations are that it should be aerobic (e.g. walking or cycling), done at low to moderate intensity, for at least 30 minutes, three to four times a week, for at least nine weeks, under the supervision of a professional trained in exercise.

### Are there any risks?

People may injure themselves by exercising.

### Recommendation

There is good evidence that exercise is helpful for depression in adults. It may also be helpful in adolescents. As it is not yet known which kind of exercise is best, people should choose a form they like, so that they will stick with it.

## Expressive writing

**Evidence rating**



### What is it?

Expressive writing is a technique that involves writing about a traumatic or upsetting event. The writing should include a person's deepest thoughts and feelings.

### How is it meant to work?

It has been proposed that confronting negative experiences and putting them into words can be healing.

### Does it work?

Four studies have looked at the benefit of expressive writing in adults with depression. These have shown mixed results. Two studies gave similar instructions to participants. Half were told to write for 15–20 minutes for three to four days about an important emotional issue or traumatic experience. The other half were told to write about how they use their time. One study found benefits from expressive writing, but one did not. The other two studies used a more intensive approach. Half of the study participants received weekly email instructions on writing tasks for several months. This included writing about negative and positive experiences. The writing group was compared to a group who did no writing. Some results suggested a small benefit from expressive writing.

### Are there any risks?

Some people may find the writing too upsetting, particularly those who are severely depressed.

### Recommendation

It is unclear whether expressive writing is helpful for depression.

## Folate

**Evidence rating**



### What is it?

Folate is an essential nutrient found in a variety of foods or in dietary supplements. It is available as folic acid or as methylfolate.

### How is it meant to work?

Depressed people often have lower levels of folate in their blood than non-depressed people. Lower folate levels are also linked with less benefit from treatment with antidepressant medication. It is not known exactly how folate works. However, it is involved in the production of serotonin, a chemical messenger in the brain that is involved in depression. It is also important in the creation of S-adenosylmethionine (see page 82), another brain chemical involved in mood. It is unclear whether folate is helpful for people with normal folate levels or only for those with low folate levels.

### Does it work?

Eight studies have been carried out using folate in addition to an antidepressant. Methylfolate was used in three studies and folic acid in five studies. A pooling of the results of four of these studies concluded that there is little or no benefit of taking folate over placebo (dummy pills) alongside antidepressants.

Three studies have also been carried out using folate as a treatment on its own. One was in depressed older adults who also had dementia. This study did not show a benefit in taking folate. The other study in depressed older adults found folate was very helpful. However, there was no comparison group, so these results are hard to interpret. A recent pilot study in adults showed some benefit of methylfolate alone.

Little is known about the best dosage of folate, but between 0.8mg and 5mg of folic acid per day may be suitable.

### Are there any risks?

Folate supplements have few or no side-effects. However, high folate intake may hide vitamin B12 deficiency or interact with epilepsy medicine.

### Recommendation

There appears to be little or no benefit in taking folate with antidepressants. The effects are likely to be small. There is not enough good evidence to say whether folate works as a treatment on its own. There is not enough good evidence to say whether methylfolate works better than folic acid.

## Ginkgo biloba

**Evidence rating**



### What is it?

Extracts from the leaves of the ginkgo biloba (maidenhair) tree are available in tablet form.

### How is it meant to work?

Ginkgo has been shown to reduce the production of stress hormones, which may play a role in depression. Ginkgo may also improve blood flow to the brain.

### Does it work?

One study compared ginkgo extract plus an antidepressant with antidepressant-only in older people. The people who were given the ginkgo extract showed greater improvement in depression symptoms. One study in adults with seasonal affective disorder (SAD, or winter depression) showed no benefit from ginkgo extract.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether ginkgo works for depression.

## Ginseng

**Evidence rating**



### What is it?

Ginseng is the root of plants of the genus Panax. It is used in traditional Chinese and Korean medicine. Korean Red Ginseng has been used for depression.

### How is it meant to work?

This is not known. There is some evidence from animal studies that ginseng might have antidepressant effects.

### Does it work?

One study has looked at the effect of Korean Red Ginseng extract in depressed women who did not fully recover with antidepressant treatment. Symptoms were found to improve over eight weeks. However, there was no comparison with placebo (dummy pills).

### Are there any risks?

Ginseng has been found to be safe, but side-effects have been reported. These include gut problems and headaches.

### Recommendation

There is not enough good evidence to say whether ginseng works.

## Glutamine

**Evidence rating**



### What is it?

Glutamine is an amino acid (one of the building blocks of protein) and is found in foods high in protein. It is available as a supplement from health food shops.

### How is it meant to work?

This is unknown. However, glutamine is a building block of two neurotransmitters (chemical messengers in the brain). It is promoted in health food shops as a 'brain food' that gives more energy and improves mood.

### Does it work?

There are two reports of cases where glutamine was used successfully in adults and children with depression. However, no scientific study has been carried out with an untreated comparison group.

### Are there any risks?

Glutamine supplementation of up to 14g per day appears safe. Higher doses may be safe, but there is less evidence.

### Recommendation

There is not enough good evidence to say whether glutamine works for depression.

## Homeopathy

**Evidence rating**



### What is it?

Homeopathy uses very small doses of substances to stimulate self-healing. Substances are selected that produce, in a healthy person, symptoms similar to those of the illness when used undiluted. Treatments are also based on the person's symptoms rather than their diagnosis. This means that two people with the same illness may receive different treatments. Treatments are prepared by diluting substances with water and alcohol, and shaking. This process is then repeated many times until there is little or none of the substance left. Homeopathic treatments are available by visiting a practitioner or buying over the counter.

### How is it meant to work?

Homeopathy is based on the principle of 'like cures like'. The diluting and shaking process is thought to have two functions – it removes any harmful effects of the substance, while the water retains the memory of the substance.

### Does it work?

One good-quality, small study compared an antidepressant with homeopathy. Both treatments improved depression, but the study did not have a comparison group that received only placebo. One good-quality study tested the effect of adding homeopathy and extra attention from homeopaths, to usual treatment in adults. The people in the homeopathy group had less depression after six months. Another good-quality study tested homeopathy in menopausal women. Homeopathy improved depression more than placebo.

### Are there any risks?

Homeopathy is thought to be safe because of the small doses involved.

### Recommendation

There is not enough good evidence to say whether homeopathy works for depression.

## Humour/humour therapy

**Evidence rating**



### What is it?

Humour could be used by an individual to help improve their depression, or as part of therapy provided by a professional.

### How is it meant to work?

Laughter has similar physiological effects as vigorous exercise. These include reducing stress hormones, relieving tension, and releasing endorphins into the brain. Responding to a stressful situation with humour may also help depression by causing a shift in thinking, promoting objectivity and distance from the threat or problem.

### Does it work?

One study had 33 adults listen to a short humorous tape daily for eight days. This had no effect on depression symptoms.

Two studies of group humour therapy have been carried out in depressed older adults. Both the humour therapy and the control condition improved depression.

Another study looked at whether a short humorous film could temporarily reduce depressed mood in depressed inpatients. It found that the humorous film was better than a neutral film in reducing depressed mood.

A fourth study trained six adults with depression in how to use humour as a coping strategy. Eight weeks of training did not improve depression. However, the study may have been too small to detect changes.

### Are there any risks?

Humour is a low-risk treatment.

### Recommendation

There is not enough good evidence to say whether humour or humour therapy works for depression.

## Hyperthermia

**Evidence rating**



### What is it?

Hyperthermia involves heating the body, either by hot air and steam baths or saunas, or with electrical coils or infrared lights.

### How is it meant to work?

Hyperthermia was a popular historical treatment for depression. Nerve pathways that are sensitive to heat may affect brain regions involved in depression.

### Does it work?

Four studies of hyperthermia in depressed adults have been carried out. Two of these used hot baths. One compared hot baths with a sham (fake) intervention involving sitting under a green light. The hot bath group improved more than the green light group. The other study compared hot baths with an exercise program. Depression improved more in the hot bath group. However, more than half the people in the exercise group dropped out, making it difficult to draw conclusions.

In another study, multiple sessions of dry sauna over several weeks were compared with resting in a temperature-controlled room. Neither group showed an improvement in depression.

One good-quality study compared hyperthermia caused by infrared lights and heating coils with sham treatment (orange light and non-heating coils) in adults with depression. Hyperthermia was more effective.

### Are there any risks?

Hyperthermia is a low-risk treatment.

### Recommendation

There is not enough good evidence to say whether hyperthermia works for depression.

## Inositol

**Evidence rating**



### What is it?

Inositol is a compound similar to glucose. The average adult consumes about 1g daily through diet, but supplements are also available at health food shops.

### How is it meant to work?

This is unclear, however levels of inositol in cerebrospinal fluid (fluid surrounding the brain) are low in people with depression. It may work because it helps to produce substances that are involved in signals within brain cells.

### Does it work?

One small study has looked at inositol as a treatment for depression. The study involved 28 severely depressed adults (either with depression or bipolar disorder) who took either 12g inositol or placebo (dummy pills) for four weeks. Inositol was found to be more helpful than placebo. The effect was seen most in females with depression. Two small studies compared inositol or placebo as an addition to antidepressant treatment. Inositol was not more helpful than placebo.

### Are there any risks?

No serious ill-effects have been reported. However, no long-term safety studies have been carried out.

### Recommendation

There is not enough good evidence to say whether inositol works for depression.

## Iron

**Evidence rating**



### What is it?

Iron is an important dietary mineral involved in making red blood cells. Iron can be found in foods such as red meat and beans. It can also be bought as a dietary supplement.

### How is it meant to work?

This is unclear. Pregnant women require higher amounts of iron. Studies have shown a link between iron deficiency and risk of postnatal depression.

### Does it work?

One study compared iron supplements with placebo (dummy pills) in women with postnatal depression. After six weeks, the group taking iron showed greater improvement in depression than the placebo group.

### Are there any risks?

Iron supplements can cause constipation. Too much iron can be toxic and lead to organ damage.

### Recommendation

There is not enough evidence to say whether iron supplements are helpful for depression.

## Lavender

**Evidence rating**



### What is it?

Lavender is a plant that is popular in herbal medicine. Essential oil extracts are obtained from the flowering tops. Patented lavender extracts with standardised ingredients (e.g. Silexan) are also available.

### How is it meant to work?

Lavender is a traditional herbal remedy that may aid sleep and relaxation.

### Does it work?

One study in depressed adults compared lavender with an antidepressant. Groups received either lavender drops plus placebo (dummy) tablet, lavender drops plus an antidepressant, or an antidepressant plus placebo drops. Depression improved in all groups, but more so in the antidepressant groups. Another study compared Silexan with placebo in adults with mixed anxiety and depression. Lavender was more helpful for depression than placebo.

Two studies have compared the effect of adding lavender infusion or placebo to antidepressants. One of these studies showed benefit in adding lavender and the other did not.

### Are there any risks?

No risks are known. Lavender is thought to be the mildest of essential oils. Silexan can cause burping.

### Recommendation

There is not enough good evidence to say whether lavender works for depression.

## LeShan distance healing

**Evidence rating**



### What is it?

LeShan distance healing is a meditation technique designed to help the healing of another person's medical problems. It can be done either at a distance or in the presence of the person being healed. It is a skill that can be learned by people with no experience in healing or meditation.

### How is it meant to work?

The healer's state of mind is thought to lead to an improvement in the person's self-healing abilities.

### Does it work?

One small study has been carried out of LeShan distance healing. Adults receiving treatment for depression were randomly divided into two groups. One group received no extra treatment. People in the other group were assigned to a stranger who performed daily distance healing for six weeks.

These healers never met the participants. The study did not find a benefit from the healing.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether LeShan distance healing works for depression.

## Light therapy

### Evidence rating



For seasonal affective disorder



For non-seasonal depression



There is a risk of mild side-effects such as nausea, headache, jumpiness and eye irritation. If the wrong type of light bulb is used, there is a risk of eye damage from infrared radiation.

### What is it?

Light therapy is exposure of the eyes to bright light for a suitable duration, often in the morning. The light is emitted from a box or lamp that the person sits in front of. These devices can be bought over the internet. Different devices may use different parts of the light spectrum, at different intensities of illumination.

### How is it meant to work?

Light therapy was originally used to treat seasonal affective disorder (SAD). It was thought to work by fixing disturbances in the body's internal rhythms caused by less sunlight in winter. It is less clear how it is meant to work in depression that does not vary with the seasons.

### Does it work?

Many studies have been carried out on light therapy. These have found good evidence that light therapy is helpful for SAD. The best effect is achieved when exposure is 5,000 lux per hour (lux is a measure of illumination), for example, exposure of 10,000 lux for 30 minutes or 2,500 lux for two hours. Researchers have also investigated whether lower-intensity blue light is as effective as the standard bright white light. Two studies have shown that it is.

A study pooling the results of nine trials of light therapy for non-seasonal depression showed that it was helpful. Another study pooled the results of six trials in older adults and also found light therapy helpful. It worked better when given for two to five weeks and when given on its own (without antidepressants). Another study that only included higher-quality trials was less positive about light therapy for non-seasonal depression.

### Are there any risks?

Light therapy is safe but may produce mild side-effects such as nausea, headache, jumpiness/jitteriness and eye irritation. Incandescent lights should not be used due to the risk of eye damage from infrared radiation.

### Recommendation

Light therapy is the best available treatment for SAD. It may also be helpful for depression.

## Listening to music

**Evidence rating**



### What is it?

People use music to change their mood. Music is also used by professional music therapists (see page 29 for music therapy).

### How is it meant to work?

Music appears to affect brain systems that control emotions. This emotional effect could be due to the rhythm and melody of the music or to the personal meaning to the individual.

### Does it work?

Two studies have looked at the immediate effect of listening to music. In one study teenagers who had dysthymia (a long-term, low level depression) listened to uplifting pop songs or tried to relax on their own. Even though the teenagers liked the music, it did not change their depressed mood. In the second study, young adult mothers who were depressed listened to either classical or rock music. Both types of music decreased depressed mood, but the study did not have a comparison group that did not listen to music.

Three other studies have looked at the longer-term effects of listening to music. One study, carried out in India, looked at how listening to Indian classical music before bedtime affected sleep problems in depressed adults. Listening to music over a month was compared to sleeping pills. No effect was found on depression, but music was better than sleeping pills for improving sleep. A second study compared listening to classical or modern music with listening to nature sounds or no treatment. People listened to the music for 30 minutes twice a day over a period of five weeks. Both types of music improved depression compared to no treatment. A third study compared listening to soft music for 30 minutes a day for two weeks with resting in bed for the same time. This study found more improvement in the people who listened to music, but the study was of poor scientific quality.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether listening to music can help depression either immediately or in the long term.

## Magnesium

**Evidence rating**



Side-effects of large doses of magnesium include mild stomach pain and diarrhea. Taking an excessive amount of magnesium can be toxic or even lead to death.

### What is it?

Magnesium is a mineral present in the diet. It can also be taken as a supplement.

### How is it meant to work?

It has been suggested that some cases of depression are due to magnesium deficiency. Magnesium deficiency is common in Western diets because it is removed in food-processing. Lack of magnesium can affect communication between nerve cells. It may also reduce the level of serotonin, which is a chemical messenger in the brain involved in depression.

### Does it work?

There have been two studies of treating depression in people who have a magnesium deficiency. The first study compared magnesium supplements to an antidepressant. This was a small study with 23 older people who had diabetes and a low level of magnesium in their blood. Equal improvements were found in those who were given magnesium and those given an antidepressant. However, there was no comparison with placebo (dummy pills), so it is possible that the improvement might have occurred without any treatment. The second study compared magnesium supplements with placebo in 60 depressed adults. It found that the supplements reduced depression more than placebo over eight weeks of treatment.

There have also been three studies using magnesium as a treatment for depressed people in general. The first compared magnesium supplements with no treatment in 126 adults over six weeks. Magnesium was found to be more effective than no treatment. However, the study did not have a group that received placebo. It is therefore possible that any improvement was due to the participants' expectations rather than the supplements. The second study involved 12 adults who had not improved with standard treatments. They were given a magnesium supplement directly into their bloodstream over a four-hour period. No improvement was found the next day, but the treatment period was very short.

*Magnesium continued over page.*

## Magnesium (continued)

The third study involved 37 adults who were being treated with an antidepressant. Half of them also received magnesium and the other half placebo for eight weeks. No benefit was found of adding magnesium to antidepressant treatment.

### Are there any risks?

Large doses may cause mild stomach pain and diarrhea. Excessive magnesium intake can be toxic and even lead to death.

### Recommendation

There is not enough evidence to say whether magnesium works, either for depressed people in general or those with a deficiency.

## Marijuana

### Evidence rating



Using marijuana heavily can increase risk of psychosis (i.e. losing contact with reality)

### What is it?

Marijuana is a mixture of dried shredded leaves, stems, seeds and flowers of the hemp plant (*Cannabis sativa*). Cannabis refers to marijuana and other preparations made from the same plant, such as hashish. The active ingredient of marijuana is the chemical THC.

### How is it meant to work?

People who use marijuana heavily are more likely to be depressed. There are different explanations for why this is the case. Depressed people might use marijuana in an attempt to self-medicate. On the other hand, heavy use of marijuana might have effects on the brain that lead to depression. Another possibility is that other factors, such as family or school problems, lead to both depression and marijuana use.

### Does it work?

Heavy users of marijuana sometimes report that they use it to help depression. However, in studies where depressed people are given either pills containing THC or placebo (dummy pills) no benefit has been found.

### Are there any risks?

Heavy marijuana use can increase risk of psychosis (losing contact with reality) and schizophrenia.

### Recommendation

There is no evidence that marijuana helps depression. Heavy use can increase the risk of developing more serious mental conditions.

## Massage

### Evidence rating



For pregnant women with depression



For others

### What is it?

Massage involves the manipulation of soft body tissues using the hands or a mechanical device. Massage is often done by a trained professional, however, non-professionals can be trained to do it. One of the aims of massage is to relieve tension in the body.

### How is it meant to work?

This is not known. However, it is possible that massage reduces stress hormones or reduces the body's physiological arousal.

### Does it work?

Five studies have been carried out on massage – one with depressed children and adolescents and the other four with depressed pregnant women. The study with children and adolescents compared massage to watching relaxing videotapes and found that massage produced a greater improvement in depression. The studies with pregnant women found that regular massages produced greater improvements than no treatment or relaxation training.

One study also found that massage combined with interpersonal therapy (IPT, see page 27) produced greater improvement than interpersonal therapy alone.

### Are there any risks?

None are known.

### Recommendation

There is evidence that massage works for depression in children and adolescents, and in pregnant women. However, studies are needed on its effects in other groups.

## Meditation

### Evidence rating



### What is it?

There are many different types of meditation. However, they all train people to focus their attention and awareness. Some types of meditation involve focusing attention on a word repeated silently, or on the breath. An example is transcendental meditation. Others involve observing thoughts without judgement. An example is mindfulness meditation. Although meditation is often done for spiritual or religious reasons, this is not always the case. Some meditation methods have been used within Western psychological treatments. An example is mindfulness-based cognitive therapy (MBCT, see page 28).

### How is it meant to work?

Meditation may reduce anxiety and promote relaxation. Also, mindfulness meditation might help people to distance themselves from negative thoughts.

### Does it work?

Two studies have been carried out on mindfulness meditation. One compared mindfulness meditation training to education about depression in 74 people with long-term depression. Greater improvement was found in those trained in mindfulness. The second was a small study of 37 people who were briefly trained in mindfulness or how to relax using imagery. Both groups improved equally over two weeks.

Several studies have been carried out on a breathing-based type of meditation called Sudarshan Kriya yoga (SKY). One study looked at the effect of SKY with 25 adults who were on antidepressants but had not improved. Those treated with SKY improved more than a comparison group who received no additional treatment. Another study of 45 adults compared SKY to antidepressant treatment and to electroconvulsive therapy (ECT, see page 41). SKY was as effective as antidepressants, but less effective than ECT. A third study with 30 adults compared 'full SKY' with 'partial SKY' and found no difference.

One study looked at a spiritual type of meditation called Sahaj Yoga. This meditation was compared to a sham (fake) meditation in 30 adults. The genuine meditation was found to be more effective.

*Meditation continued over page.*

## Meditation (continued)

There has also been a study looking at 'inner resources meditation'. This involves several different types of meditation and yoga exercises. The study was with 52 adults whose depression had lasted over two years. They received training in meditation, read self-help books or received hypnosis. Meditation produced greater improvement than the self-help books, but did not differ from hypnosis.

### Are there any risks?

None are known.

### Recommendation

While there is some promising evidence, there are not enough good studies to say whether specific meditation methods work.

## Mediterranean-style diet

**Evidence rating**



### What is it?

A Mediterranean-style diet is high in vegetables, fruit, wholegrains, nuts, legumes, lean meat and olive oil, and low in sweets, processed food and junk foods.

### How is it meant to work?

Studies show a link between diet and risk of depression. Rates of depression tend to be lower in people whose diets are higher in plant foods and lean proteins. Diets that include more processed food and sugary products are linked with higher rates of depression. It is not known exactly how diet may help depression. It has been suggested that a healthy diet may reduce inflammation, which may play a role in depression. Diet may also affect gut bacteria which can influence the brain.

### Does it work?

Two good-quality studies have tested a Mediterranean-style diet in adults with depression. Both studies excluded people who already had high-quality diets. One study compared a diet intervention with social support from a volunteer. The diet group received sessions of nutritional counselling by a dietician as well as food hampers, recipes and meal plans. Depression symptoms reduced more in the diet group than the social support group.

In the second study, a diet group received fortnightly food hampers and cooking workshops and took a fish oil supplement for three months. This was compared with a fortnightly social group. The diet group had greater improvement in their depression. However, it is not clear whether it was the diet or the fish oil that reduced depression.

### Are there any risks?

None are known.

### Recommendation

While there is promising evidence that changing dietary habits to a Mediterranean-style diet can be helpful for depression, this needs further research.

## Nature-assisted therapy

**Evidence rating**



### What is it?

Nature-assisted therapy is the use of plants, natural materials and the outdoor environment to improve health. Nature-assisted therapy covers a variety of activities. These include therapeutic horticulture (gardening and plant-related activities to improve wellbeing) and wilderness or outdoor adventure excursions.

### How is it meant to work?

This is unclear. It is thought that disconnection from the natural world can cause ill health and that reconnection can improve wellbeing.

### Does it work?

One study has been carried out looking at the effects of gardening for two months in depressed female university students. There were 50 students who either did the gardening or received no treatment. The gardening group was found to improve more. However, the quality of the study was poor.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether nature-assisted therapy works.

## Nepeta menthoides

**Evidence rating**



### What is it?

*Nepeta menthoides* is a flowering plant used in traditional Persian medicine.

### How is it meant to work?

This is not known. Animal studies have found that the herb has various effects on the nervous system.

### Does it work?

A study with 66 people compared an extract of *Nepeta menthoides* with an antidepressant over four weeks and found that it had greater effects. However, antidepressants usually take longer than four weeks to work. Another study with 30 people compared an extract of *Nepeta menthoides* given in combination with an antidepressant with an antidepressant alone over eight weeks. Those given the *Nepeta menthoides* extracts improved more.

### Are there any risks?

This is unknown. While no adverse effects were reported in the above studies, there is limited evidence available.

### Recommendation

There is some evidence indicating that *Nepeta menthoides* works for depression but more research is needed.

## Nicotine patches

**Evidence rating**



Nicotine is highly addictive.

### What are they?

Nicotine is a drug found in tobacco. People who are depressed are more likely to smoke cigarettes. One explanation for this is that they smoke to relieve symptoms of depression. Nicotine is also available via patches that stick on the skin and release nicotine into the bloodstream.

### How are they meant to work?

Nicotine increases the level of the neurotransmitter (chemical messenger) serotonin, like many antidepressants.

### Do they work?

There are a number of small studies looking at the effects of nicotine patches on depressed non-smokers. These studies find a short-term improvement in depression symptoms. While there is a short-term benefit, the longer-term effects are not clear.

### Are there any risks?

Nicotine is highly addictive. Nicotine patches can cause side-effects such as vomiting, anxiety, fatigue, headache and irritability in non-smokers.

### Recommendation

Nicotine may improve depression symptoms in the short term. However, its addictive potential means that it is not appropriate for long-term use.

## Omega-3 fatty acids (fish oil)

**Evidence rating**



Containing mainly EPA



Containing mainly DHA

### What are they?

Omega-3 fatty acids are types of polyunsaturated fats. The two main types are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). EPA and DHA are found in fish oil or can be made in the body from the oil found in foods like flaxseed, walnuts and canola oil. There is some research linking lack of omega-3 in the diet to depression:

- Countries where a lot of fish is eaten tend to have lower rates of depression.
- As omega-3 consumption has reduced in the typical diet in Western countries, rates of depression have also increased.
- Lower concentrations of omega-3 have been found in the blood of depressed people.

Omega-3 supplements containing EPA and DHA are available from health food shops and pharmacies.

### How are they meant to work?

One possibility is that omega-3 affects the outer wall of brain cells, making it easier to send messages between and within brain cells. Another possibility is that omega-3 prevents inflammation in the brain, which could be a cause of depression.

### Do they work?

There have been numerous studies on omega-3 supplements as a treatment for depression. A pooling of data from 25 of these studies found that omega-3 led to only a small improvement compared to placebo (dummy pills). However, there was a lot of inconsistency from study to study.

Another analysis of 35 studies found that EPA seems to be the important ingredient rather than DHA. Supplements that contained more than 50 per cent EPA were found to improve depression more than placebo. However, those with more than 50 per cent DHA had no effect.

*Omega-3 fatty acids (fish oil) continued over page.*

## *Omega-3 fatty acids (fish oil) (continued)*

A pooled analysis of 13 studies concluded that the amount of EPA in the supplement was what was important and that the amount of DHA made no difference. This analysis also found greater effects when EPA was used in conjunction with an antidepressant.

### **Are there any risks?**

None are known.

### **Recommendation**

Omega-3 supplements may work if they contain mainly EPA rather than DHA. However, more research is needed to be sure.

## **Osteopathy**

**Evidence rating**



### **What is it?**

Osteopathy is a system of complementary health care that involves manual manipulation of the body. In Australia, osteopathy is a regulated health profession.

### **How is it meant to work?**

This is unknown. It is thought that manipulation might affect the nervous system in some way.

### **Does it work?**

There has been one very small study involving 17 people who were being treated with antidepressant drugs and psychotherapy. Half were also given osteopathic manipulative therapy while the other half only got a sham (fake) version of osteopathy. After eight weeks, the group receiving osteopathy improved more. However, it is possible that the improvement was due to extra attention or receiving touch rather than the manipulation.

### **Are there any risks?**

None are known.

### **Recommendation**

There is not enough good evidence to say whether osteopathy works.

## Peer support interventions

**Evidence rating**



### What are they?

Peers are people who have recovered from depression and can offer support to others who are experiencing depression. There are different types of peer support interventions. These include mutual support groups, internet support forums, and peer support services offered by mental health services. These services may be delivered over the phone or in person. They often include emotional support, information and advice on managing depression, and help liaising with services.

### How are they meant to work?

Peers who have had similar experiences may have a good understanding of what it is like to have depression. This understanding means they can provide effective emotional and social support. Peers can inspire hope by demonstrating that recovery is possible. They can also assist with practical advice on how to achieve recovery.

### Do they work?

A review pooled the results of 14 studies that had looked at peer support for people with depression. Although overall there was a small positive effect on depression compared to no treatment, many of the studies did not show a benefit.

### Are there any risks?

There is a potential risk of harm from peers who have not been properly trained or supervised in their role.

### Recommendation

Some peer support interventions appear to be helpful for depression. However, more studies are needed to find out what types of peer support are helpful.

## Pets

**Evidence rating**



### What are they?

Many people report positive effects of interacting with their pets. Pets can also be used by professional therapists as part of their treatment (see animal-assisted therapy, page 20).

### How are they meant to work?

Pets provide companionship and protect people from loneliness. Caring for pets can also give a person a sense of responsibility and self-respect.

### Do they work?

One study of depressed young adults gave one group regular sessions where they interacted with a puppy. Another comparison group had no pet interaction. The group that interacted with the puppy had greater improvement in their depression. However, the study was poorly-done. The depressed people were not placed in the two groups on a random basis and they did not have the same level of depression at the start.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether interacting with pets works.

## Phenylalanine

**Evidence rating**



### What is it?

Phenylalanine is an amino acid. Amino acids are the building blocks of protein. It cannot be made in the body and must be included in the diet. Supplements are available through health food shops.

### How is it meant to work?

Phenylalanine is used by the body to make the chemical messengers norepinephrine and dopamine. These messengers are thought to be affected in depression.

### Does it work?

Several studies have tested phenylalanine as a treatment for depression and found improvements. However, they did not compare it to placebo (dummy pills). Another study compared phenylalanine to an antidepressant. People who received phenylalanine improved as much as those receiving the antidepressant. However, the study was small and there was no comparison with placebo.

### Are there any risks?

People with the rare genetic disorder phenylketonuria (PKU) should not use phenylalanine, as their bodies cannot break it down.

### Recommendation

It is unclear whether phenylalanine works for depression. Better scientific evidence is needed.

## Pranic healing

**Evidence rating**



### What is it?

Pranic healing is an ancient Indian healing therapy. It uses prana (life energy) as a source of healing. The healer projects prana to the ill person without touch.

### How is it meant to work?

There is no scientific explanation for how pranic healing works. The traditional explanation is that it uses energy fields surrounding and within the human body.

### Does it work?

There has been one study of pranic healing for depression. Depressed people taking antidepressant drugs were either given pranic healing or a mock pranic healing involving movement of the hands without pranic energy transfer. The pranic healing group was found to improve more after four weekly sessions. This study was carried out in India, where pranic healing is traditional. The effects in people from other cultures have not been tested.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether pranic healing works.

## Prayer

**Evidence rating**



### What is it?

Prayer is a means by which believers attempt to communicate with the absolute. Prayer has traditionally been used in times of illness and is often used by people to help cope with mental health issues. People can pray for themselves or to ask for healing for another person.

### How is it meant to work?

The religious explanation of prayer is that a supreme being responds to the prayer with a miracle of healing. However, there have been non-religious explanations as well. One is that prayer is a placebo treatment in which the expectation of healing produces the benefit. Another explanation, which applies to praying for another person, is the 'non-local mind theory'. This proposes the non-separateness of human beings. Human consciousness operates beyond the physical location of the person who is praying, to have healing effects everywhere at once.

### Does it work?

Two studies have been carried out looking at the effects of praying for a person who is depressed. In the first study, 20 depressed people who were receiving psychological therapy were divided into two groups. One group was prayed for and the other was not. To overcome expectations of healing, neither group knew whether or not they were prayed for. Some symptoms of depression improved more in the group that was prayed for, but other symptoms did not.

A second study involved 20 people who were receiving counselling for depression. Again, half of them were prayed for and half were not, and they did not know whether or not they were prayed for. Both groups improved, with no difference between them.

Another study looked at the effects of meeting with a lay minister and praying together. People who had six weekly prayer sessions improved more than those who did not. The benefit was found to persist one month after the end of the prayer sessions. However, it is not known whether the benefit was due to meeting with someone about issues or to the prayer.

### Are there any risks?

None are known.

### Recommendation

There is not enough evidence to say whether or not prayer works for depression.

## Probiotics

**Evidence rating**



### What are they?

Probiotics are live bacteria found naturally in the gut. They can also be ingested in certain foods and supplements.

### How are they meant to work?

It is thought that bacteria in the intestine can influence the brain and vice versa. This connection between the gut and the brain is called the 'gut-brain axis'. Probiotics are thought to alter the body's response to stress and affect levels of neurotransmitters (chemical messengers) in the brain.

### Do they work?

A pooling of data from three studies comparing probiotic supplements to placebo (dummy pills) found a positive overall effect in people with mild to moderate depression. However, the studies differed in bacterial strains used, doses and length of treatment, and not all were positive.

### Are there any risks?

No adverse effects have been reported in these studies.

### Recommendation

There is not enough good evidence to say whether probiotics work.

## Qigong

**Evidence rating**



### What is it?

Qigong is a 3,000-year-old Chinese self-training method involving meditation, breathing exercises and body movements.

### How is it meant to work?

The traditional Chinese medicine (see page 87) explanation is that qigong regulates the flow of qi (energy) throughout the body. It removes imbalances or blockages that cause emotional issues or physical symptoms. A scientific explanation is that qigong reduces the body's release of the stress hormone cortisol.

### Does it work?

There have been 18 studies looking at the effect of qigong on depression symptoms, but few of them have been with people who have depression. A pooling of data from nine of these studies found that qigong was not effective for people with more severe depressive symptoms. However, the quality of the studies was poor.

Another review pooled data from three studies on qigong for older people who were depressed and had a chronic physical illness. Qigong was not found to be effective for this group.

### Are there any risks?

None are known.

### Recommendation

There is no clear evidence that qigong works. However, the quality of the evidence is poor and better studies are needed.

## Recreational dancing

**Evidence rating**



### What is it?

Dancing of any type can be used to improve mood. Dance and movement therapy, which is done with a professional therapist, is reviewed on page 24.

### How is it meant to work?

Dancing involves many elements that are thought to be beneficial for depression. These include exercise, listening to music, social interaction, enjoyable activity, artistic expression and achievement from learning new skills.

### Does it work?

One small study compared ballroom dancing with no treatment in 22 depressed older adults. The dancing involved lessons for 45 minutes per week over eight weeks. Both the group that did ballroom dancing and the comparison group improved, with no difference between the two. However, the study may have been too small to detect any difference.

Another small study looked at the effects of dance on mood in 31 depressed people who were in hospital. This study compared participating in an upbeat group-dance session with listening to the dance music or exercising on a training bike. Dancing was found to improve mood immediately afterwards, but the study did not assess longer-term effects.

### Are there any risks?

None are known.

### Recommendation

More evidence is needed to know whether dancing works for depression.

## Reiki

**Evidence rating**



### What is it?

Reiki (pronounced 'ray-key') is a form of energy healing that originated in Japan. A session of reiki involves a practitioner lightly laying their hands or placing them a few centimetres away from parts of the person's body for three to five minutes per position. Distance reiki, where the practitioner can work without being physically present with the recipient, is also available.

### How is it meant to work?

There is no scientific explanation for how reiki works. Practitioners believe reiki uses life force energy present in all living things to promote self-healing. This energy is believed to flow through the practitioner's hands to the recipient.

### Does it work?

There have been three small studies on reiki for depression in adults. However, only a few of the people in these studies were clinically depressed. Therefore, there is not enough evidence to assess whether reiki helped.

There has also been one study of reiki with adolescents. The adolescents received either reiki, cognitive behaviour therapy (CBT, see page 22) or no treatment for 12 weeks. Those who received reiki improved more than those receiving no treatment. However, they did not improve as much as those who received CBT.

### Are there any risks?

Reiki appears to be generally safe.

### Recommendation

There is not enough good evidence to say whether reiki works.

## Relaxation training

**Evidence rating**



### What is it?

There are several different types of relaxation training. The most common one is progressive muscle relaxation. This teaches a person to relax voluntarily by tensing and relaxing specific groups of muscles. Another type of relaxation training involves thinking of relaxing scenes or places.

Relaxation training can be learned from a professional or done as self-help. Recorded instructions are available free on the internet.

### How is it meant to work?

Relaxation training is used as a treatment for anxiety. Because anxiety can lead to depression, it may reduce depression as well.

### Does it work?

Several small studies have been carried out on relaxation training. A pooling of data from five studies showed that relaxation training reduced depression more than no treatment. A more recent, larger study found that relaxation training added to the benefits of standard treatment from a GP.

Pooling of data from nine studies showed that relaxation training is not as effective as psychological therapies, such as cognitive behaviour therapy (CBT, see page 22). However, a more recent study found that relaxation training was as effective as cognitive bias modification (CBM, see page 23). A small study found that it was as effective as mindfulness meditation (see page 28).

### Are there any risks?

None are known.

### Recommendation

Relaxation training appears to work. However, it is not as effective as psychological therapies.

## Rhodiola rosea (golden root)

**Evidence rating**



### What is it?

Rhodiola rosea is a plant that grows in cold regions of the world, such as the Arctic and high mountains. In some parts of the world it has been used as a traditional remedy to cope with stress. Extracts of the plant have been marketed under the brand 'Arctic Root'.

### How is it meant to work?

This is a traditional remedy that is supposed to increase the body's resistance to stress. It is thought to change a number of chemical messengers in the brain.

### Does it work?

One study has been reported comparing extracts of Rhodiola rosea with placebo (dummy pills). Adults with depression were either given a higher dose, a lower dose or placebo over six weeks. Both groups receiving Rhodiola rosea showed greater improvements than the placebo group. The lower dose was as effective as the higher one.

A second study gave adults with depression either an extract of Rhodiola rosea, an antidepressant or placebo for 12 weeks. No difference was found between these treatments. However, the study may have been too small to detect any differences.

### Are there any risks?

None are known. The studies above reported few side-effects.

### Recommendation

There is too little evidence to say whether or not Rhodiola rosea works.

## Rock climbing

**Evidence rating**



### What is it?

Rock climbing is a sport involving climbing natural rock formations or artificial rock walls. 'Bouldering' is rock climbing to moderate heights without rope.

### How is it meant to work?

Rock climbing involves exercise, which can reduce depression (see page 61). It can also give a feeling of mastery, provide social contact and promote mindfulness.

### Does it work?

One small study of 47 people gave them either group 'bouldering therapy' or no treatment over eight weeks. As well as climbing, the therapy included some mindfulness meditation and education on coping methods. The bouldering therapy group was found to improve more. While the results were positive, rock climbing alone was not studied.

Another study of 40 people asked them to choose between a single session of rock climbing or one of relaxation training (see page 80). Those who chose rock climbing showed more improvement in depressed mood. However, effects beyond the single session were not studied.

### Are there any risks?

There is a risk of falls.

### Recommendation

There is not enough good evidence to say whether rock climbing works.

## Saffron

**Evidence rating**



### What is it?

Saffron is the world's most expensive spice, made from the stigma of the flower of the plant Crocus sativus. Saffron is used to treat depression in Persian traditional medicine.

Both the stigma and the petal (which is much cheaper) have been used for the treatment of depression.

### How is it meant to work?

This is not clear. However, it has been proposed that two of the components of saffron, crocin and safranal, affect the levels in the brain of the chemical messengers dopamine, norepinephrine and serotonin. These chemical messengers are thought to be affected in depression.

### Does it work?

Several studies have tested the effect of saffron on depression. Some used standardised extracts of saffron. Most of the studies were done in Iran. A pooling of data from nine of these studies found that saffron reduced depression more than placebo (dummy pills). This study also showed that saffron did not differ from antidepressants. However, longer-term effects have not been studied.

### Are there any risks?

None are known.

### Recommendation

Saffron appears to be helpful for depression.

## SAMe (s-adenosylmethionine)

**Evidence rating**



### What is it?

SAMe (pronounced 'sammy') is a compound that is made in the body and is involved in many biochemical reactions. SAMe supplements are available from some health food shops and pharmacies. However, these supplements are expensive.

### How is it meant to work?

SAMe is thought to affect the outer walls of brain cells, making cells better able to communicate with each other. It may also be involved in the production of chemical messengers in the brain that are thought to be affected in depression.

### Does it work?

A review of 17 studies comparing SAMe with placebo (dummy pills) found that SAMe generally produced more improvement. This review also looked at 13 studies comparing SAMe with antidepressants, with most finding no difference. However, the studies of SAMe have problems in scientific quality and longer-term effects have not been studied. A more rigorous review of the better-quality studies found no difference between SAMe and placebo, but concluded that more studies were needed.

### Are there any risks?

SAMe is generally safe, but in rare cases has been found to induce mania. The most common side-effect is nausea.

### Recommendation

SAMe may work in adults. However, large studies are needed to find out the best dose and to assess its longer-term effects.

## Schisandra

Evidence rating



### What is it?

Schisandra (*Schisandra chinensis*) is a berry originating in Siberia and China. A tincture (liquid extract) is made from the dried seeds.

### How is it meant to work?

Schisandra is thought to stimulate the nervous system and to increase endurance and mental performance.

### Does it work?

A number of studies were carried out in the former Soviet Union using schisandra as a treatment for depression. While positive effects were reported, the scientific quality of the studies was poor. For example, there were no comparison groups of people who did not receive treatment. Also, the way depression was diagnosed in these studies did not meet modern standards.

### Are there any risks?

None are known.

### Recommendation

There is not enough good evidence to say whether schisandra works.

## Selenium

Evidence rating



Selenium can be toxic at high doses.

### What is it?

Selenium is a mineral naturally present in the diet. Wholegrains and meats are both particularly good sources. Selenium is also available as a supplement.

### How is it meant to work?

It has been proposed that a lack of selenium in the diet can lead to anxiety and depression. There is some evidence that people who are depressed have a lower concentration of selenium in their blood.

### Does it work?

One small study has been carried out with depressed older people. They were given either selenium supplements or placebo (dummy pills). Unfortunately, the number of participants in the study was too small to give any clear results.

### Are there any risks?

In high doses, selenium can be toxic.

### Recommendation

There is no good evidence on whether selenium supplements work.

## Sleep deprivation

### Evidence rating



For short-term mood improvement



As a long-term treatment for depression



People with a history of epilepsy should not use sleep deprivation, because it can lead to a seizure. In people with bipolar disorder, it may also lead to mania.

### What is it?

Sleep deprivation can be either total or partial:

- Total sleep deprivation involves staying awake for one whole night and the following day, without napping.
- Partial sleep deprivation involves sleeping during either the early or later part of the night and staying awake for the other part.

### How are they meant to work?

This is not understood. One theory is that sleep deprivation normalises the functioning of the limbic system. This is a part of the brain important to emotion. Another theory is that sleep deprivation affects the neurotransmitter (chemical messenger) serotonin, which is thought to play a role in depression.

### Do they work?

Many studies have been done on total sleep deprivation. These show that 40 to 60 per cent of depressed people improve. The effects are variable, with some people showing major improvement and a minority worsening. The effect is delayed in some individuals, who improve only following sleep the next day. Partial sleep deprivation seems to be as effective as total sleep deprivation. Although the effect of sleep deprivation is rapid, typically the benefit does not last. More than 80 per cent of people who improve become depressed again after their next sleep.

### Are there any risks?

Sleep deprivation should not be used by people with a history of epilepsy, because it can lead to a seizure. It can also produce mania in some people with bipolar disorder.

### Recommendation

Sleep deprivation produces rapid improvement in many people. However, generally the effect does not last. More than 80 per cent of people who improve become depressed again after their next sleep.

## Smartphone apps

### Evidence rating



### What are they?

A large number of smartphone apps for depression are available. These apps can be used to support help from a professional or as a standalone treatment. The vast majority of apps have not been evaluated in scientific studies. Guides on the quality of available mental health apps can be accessed from [psyberguide.org](http://psyberguide.org) and [au.reachout.com/tools-and-apps](http://au.reachout.com/tools-and-apps) (apps for young people). [Headtohealth.gov.au](http://Headtohealth.gov.au) may also be a useful resource.

### How is it meant to work?

Apps may include different components thought to be helpful for depression. These include elements of cognitive behaviour therapy (CBT, see page 22), mindfulness meditation (see page 28), psychoeducation (see page 32), and mood monitoring. Delivering these components via a smartphone may be helpful, as the apps can be accessed quickly and easily throughout the day. App features such as feedback and reminders may also be helpful to reach treatment goals. Apps that include artificially intelligent chatbots may increase engagement with therapeutic content.

### Does it work?

A review pooled the results of 18 good-quality studies looking at 22 smartphone apps for depression symptoms in adults. Overall, the studies found a benefit from the apps. However, only two studies evaluated smartphone apps in people diagnosed with depression. These did not show a benefit.

### Are there any risks?

Smartphone apps may claim to be effective or based on evidence when this is not the case. Many apps do not have a privacy policy and personal data could be misused by developers.

### Recommendation

There is not enough good-quality evidence in people with depression to say whether smartphone apps are helpful.

## St John's wort

### Evidence rating



For mild to moderate depression



For severe depression



St John's wort interacts with a number of prescription medications, either affecting how these medications work or leading to serious side-effects. People who are taking other medications should check with their doctor first before using St John's wort.

### What is it?

St John's wort (*Hypericum perforatum*) is a small flowering plant that has been used as a traditional herbal remedy for depression. The plant gets its name because it flowers around the feast day of John the Baptist. In Australia, St John's wort extracts are widely available in health food shops and supermarkets. However, in some countries St John's wort extracts are available only with a prescription. Research studies on St John's wort use standardised extracts, which may differ from those found in shops.

### How is it meant to work?

The most important active compounds in St John's wort are believed to be hypericin and hyperforin, but other compounds may also play a role. How it works is not entirely clear. However, it might increase the supply of certain neurotransmitters (chemical messengers) in the brain that are thought to be affected in depression. These are serotonin, norepinephrine and dopamine.

### Does it work?

Quite a lot of research has been carried out on St John's wort as a treatment for depression. Researchers have pooled together the results of all these studies to get a clearer idea of its effects. St John's wort has been found to produce more benefit than placebo (dummy pills) for mild to moderate depression in adults. It also seems to produce as much benefit as antidepressant medications. However, there is little evidence on its effects for severe depression.

However, the findings across studies are not always consistent. Some large studies have found no benefit at all. The effects might vary with the type of preparation and dose used. Daily doses in the studies have ranged from 240mg to 1800mg.

### Are there any risks?

When taken alone, St John's wort has fewer side-effects than antidepressant medications. However, St John's wort interacts with many prescription medications, either affecting how these medications work or producing serious side-effects.

The Therapeutic Goods Administration says people taking any of the following medications should not start using St John's wort:

- HIV protease inhibitors (indinavir, nelfinavir, ritonavir, saquinavir)
- HIV non-nucleoside reverse transcriptase inhibitors (efavirenz, nevirapine, delavirdine)
- Cyclosporin, tacrolimus
- Warfarin
- Digoxin
- Theophylline
- Anticonvulsants (carbamazepine, phenobarbitone, phenytoin)
- Oral contraceptives
- SSRI antidepressants (see page 39) and related drugs (citalopram, fluoxetine, fluvoxamine, paroxetine, sertraline, nefazodone)
- Triptans (sumatriptan, naratriptan, rizatriptan, zolmitriptan)

Anyone who is taking any other medications and wishes to use St John's wort is advised to check with their doctor first.

### Recommendation

St John's wort appears to be helpful for mild to moderate depression. However, it should be used with caution in anyone taking prescribed medications, because of the risk of drug interactions.

## Sugar avoidance

**Evidence rating**



### What is it?

Eating refined sugar can provide a temporary increase in energy level and an improvement in mood. However, the longer-term effect is a decline in energy.

### How is it meant to work?

Some people are thought to be overly sensitive to sugar. Taking it out of the diet of these individuals may reduce symptoms of fatigue, moodiness, depression, excessive sleep, irritability, tenseness and headaches.

### Does it work?

A small study has been carried out with adults who were selected because their depression showed signs that it might be related to their diet. These people were treated either by removing sugar and caffeine from their diet or removing red meat and artificial sweeteners. Removing red meat and artificial sweeteners was used as a comparison and was not expected to work. After three weeks, the sugar and caffeine group improved more than the other group. This improvement was maintained three months later in those who had responded to the treatment. Later testing indicated that some of these people were sensitive to sugar.

### Are there any risks?

None are known.

### Recommendation

While there is some promising evidence that sugar avoidance might help a minority of depressed people, further research is needed to confirm that this treatment works.

## Tai chi

**Evidence rating**



For older people from a Chinese cultural background



For others

### What is it?

Tai chi is a type of moving meditation that originated in China as a martial art. It involves slow, purposeful movements and focused breathing and attention.

### How is it meant to work?

In traditional Chinese medicine (see page 87), tai chi is thought to benefit health through the effects of the particular hand and foot movements on important acupuncture points and body channels. Tai chi could also help depression because it is a type of moderate exercise or because it is a relaxing distraction from anxiety and stress.

### Does it work?

A review of studies where tai chi was compared to no treatment or a group activity found no benefit. However, another review of studies of older Chinese people did find that tai chi had positive effects. However, the authors of this review noted that the benefits of tai chi might be greater in people from a Chinese cultural background.

### Are there any risks?

None are known.

### Recommendation

There is some evidence that tai chi is effective in older people from a Chinese cultural background. However, more research is needed for people from other cultures and in other age groups.

## Theanine

**Evidence rating**



### What is it?

Theanine is an amino acid found in green tea. It is also available to buy in tablet form.

### How is it meant to work?

This is unclear. It may affect the activity of neurotransmitters (chemical messengers) in the brain, such as glutamate.

### Does it work?

One study gave 13 adults with depression theanine tablets for eight weeks. Most participants were also taking antidepressants. Depression symptoms improved over time, but there was no comparison with placebo (dummy pills).

### Are there any risks?

No side-effects were reported in the study above.

### Recommendation

There is not enough evidence to say whether theanine is helpful for depression.

## Traditional Chinese medicine

**Evidence rating**



### What is it?

Traditional Chinese medicine uses combinations of herbs, minerals, and animal products to treat disease. Combinations of herbs are usually tailored to individuals, but there are some herbs and combinations that are commonly used to treat depression. These include Free and Easy Wanderer Plus, Chaihu-Shugan-San, Xiao Yao San and Ganmai Dazao (note that the Chinese names are sometimes spelled in slightly different ways in English). The Chinese Medicine Board of Australia regulates all Australian traditional Chinese medicine practitioners.

### How is it meant to work?

Treatments are based on clinical experience from over thousands of years of use in China. Traditional Chinese medicine follows a different system of how to understand and treat disease compared to Western medicine. Herbs are chosen based on their taste (sweet, spicy, bitter, sour, salty), temperature, and which meridian they are thought to enter. Meridians are channels in the body through which energy flows.

### Does it work?

There have been hundreds of studies on traditional Chinese medicine for depression. Most studies have been carried out in China. Most of the research is low in quality. A pooling of data from 21 of the better studies found that Chinese herbal medicine was more effective than placebo (dummy pills). It was also as effective as antidepressants and had fewer side effects. However, even these better studies were not of high quality. Furthermore, the studies involved a wide variety of herbal treatments.

When specific herbal treatments have been studied, there have been a number of positive trials for specific products. These include Free and Easy Wanderer Plus, Chaihu-Shugan-San, Xiao Yao San, Shuganjieyu capsule, Guipi Decoction and Wuling capsule. These have been found to be either better than placebo or to enhance the effects of antidepressants. However, the quality of the studies is low.

*Traditional Chinese medicine continued over page.*

## Traditional Chinese medicine (continued)

### Are there any risks?

Generally, Chinese herbs are safe when prescribed by a knowledgeable traditional Chinese medicine practitioner. Chinese herbs may interact with Western medicines, such as warfarin, and some should not be used during pregnancy. There are some Chinese herbs that are toxic but most of these are not used in Western countries.

### Recommendation

While there is promising evidence for a number of traditional Chinese medicines, the quality of the research is low. More high-quality studies are needed to confirm its effectiveness, including when used in Australia.

## Tyrosine

### Evidence rating



### What is it?

Tyrosine is an amino acid – one of the building blocks of protein. It is found in food but can also be taken as a supplement.

### How is it meant to work?

Tyrosine is used by the body to make some neurotransmitters (chemical messengers) in the brain. One of these neurotransmitters is norepinephrine, which is thought to be decreased in people who are depressed.

### Does it work?

Two studies have compared tyrosine supplements with placebo (dummy pills) in people who are depressed. Neither study found any benefit.

### Are there any risks?

None are known.

### Recommendation

Tyrosine is not effective as a treatment for depression.

## Vitamin B1 (thiamine)

Evidence rating



### What is it?

Thiamine is an essential nutrient used to convert food into energy. It is found in many foods such as whole grains, meat and legumes. It is also available as a dietary supplement.

### How is it meant to work?

This is unclear. Some studies have found a relationship between lower levels of thiamine and more depression symptoms.

### Does it work?

One good-quality study has tested thiamine in adults with depression. Participants received either 300mg thiamine each day or placebo (dummy pills) for 12 weeks. Everyone also took an antidepressant during the study. The group taking thiamine showed a greater reduction in depression symptoms. It is not known whether participants were deficient in thiamine at the start of the study.

### Are there any risks?

No side-effects were found in the above study.

### Recommendation

More good-quality studies are needed to be sure whether thiamine is helpful for depression.

## Vitamin B6

Evidence rating



Very high doses (above 100mg per day) of vitamin B6 can produce painful nerve damage.

### What is it?

Vitamin B6 plays an important role in many processes in the body, including the brain. This vitamin is widely available in food but can also be taken as a supplement.

### How is it meant to work?

Vitamin B6 is involved in the production of several neurotransmitters (chemical messengers) in the brain. Some of these, such as serotonin and norepinephrine, are thought to be involved in depression. It is also known that vitamin B6 deficiency can result in depression. This led to interest in its use as a treatment, even in people who do not have a deficiency.

### Does it work?

There have been four studies comparing vitamin B6 with placebo (dummy pills) or no treatment. Overall, there was no consistent benefit of the treatment. However, some positive effects were found in two of the studies, which involved women whose depression was related to hormones. One of these studies was with women who had pre-menstrual syndrome and the other with depressed women taking oral contraceptives.

### Are there any risks?

Very high doses of vitamin B6 can produce painful nerve damage. Doses above 100mg per day increase this risk.

### Recommendation

Vitamin B6 does not appear to work for depression in general. However, there is some promising evidence that it might help women whose depression is hormone related.

## Vitamin B12

### Evidence rating



High doses of vitamin B12 can have side-effects, including skin problems and diarrhoea.

### What is it?

Vitamin B12 is important to the functioning of many processes in the body, including the brain. Meat, milk and eggs are important sources of vitamin B12. Supplements are also available.

### How is it meant to work?

Vitamin B12 deficiency can lead to depression. This has led to its use to treat depressed people who have a deficiency. However, even in people without a deficiency, vitamin B12 lowers the level of homocysteine in the blood. Homocysteine is a naturally-occurring protein that may increase risk of depression and heart disease.

### Does it work?

A review of studies that compared vitamin B12 supplements to placebo (dummy pills) found no benefit. Vitamin B12 also did not add any benefit when given together with antidepressant drugs. The findings were the same when vitamin B12 was given alone or with other B vitamins or folate (see page 62).

### Are there any risks?

High doses of vitamin B12 can cause side-effects, such as skin problems and diarrhoea.

### Recommendation

The limited evidence available does not show an effect of vitamin B12 supplements on depression.

## Vitamin C

### Evidence rating



### What is it?

Vitamin C is important to the functioning of many processes in the body, including keeping skin and bones healthy, helping wounds heal and preventing infections. Fruit and vegetables are important sources of vitamin C. Supplements are also available.

### How is it meant to work?

As an antioxidant, vitamin C may also protect against damage to nerves and other parts of the body.

### Does it work?

Two studies compared the effect of adding vitamin C or placebo (dummy pills) to antidepressants. One study in children showed benefits for depression. The other study, which was in adults, did not.

### Are there any risks?

High doses of vitamin C can cause side-effects, such as nausea, diarrhoea or skin flushing.

### Recommendation

There is not enough evidence to say whether vitamin C works for depression.

## Vitamin D

**Evidence rating**



Large doses of vitamin D can be toxic and lead to impaired kidney functioning.

### What is it?

Vitamin D is essential to certain bodily functions, particularly the growth and maintenance of bones. Few foods contain vitamin D. It is mainly made in the body by the action of sunlight on skin. It is also possible to buy vitamin D supplements.

### How is it meant to work?

Studies have suggested that low levels of vitamin D are linked with depression. Low vitamin D is common, even in a sunny country like Australia. Levels of vitamin D decrease in winter due to reduced sunlight exposure, which may increase seasonal depression.

### Does it work?

Two studies have been carried out on vitamin D for depression. One gave the vitamin by injection and the other by supplement as an addition to antidepressant treatment. Pooling the results from both studies showed that there may be an effect. Another study has been carried out on vitamin D for seasonal affective disorder (SAD). Vitamin D supplements were found to be no better than placebo (dummy pills).

### Are there any risks?

Large doses of vitamin D can lead to toxicity. This produces too much calcium in the blood and impaired kidney functioning.

### Recommendation

There is some evidence that vitamin D may help, but more research is needed.

## Yoga

**Evidence rating**



### What is it?

Yoga is an ancient part of Indian culture. Most yoga practiced in Western countries is Hatha yoga. This type of yoga exercises the body and mind using physical postures, breathing techniques and meditation.

### How is it meant to work?

There is some evidence that yoga can increase a number of chemical messengers in the brain. It may also affect release of the stress hormone cortisol.

### Does it work?

A pooling of data from 12 studies showed that yoga improved depression more than usual care (e.g. antidepressants, see page 39) relaxation training, and aerobic exercise. The benefits were found to be greater with meditation-based yoga interventions than for exercise-based yoga. However, the quality of the studies was low.

### Are there any risks?

To reduce the risk of injury, yoga should be practised in a class with a qualified instructor.

### Recommendation

Yoga is a promising treatment for depression, but more good-quality research is needed.

## Young tissue extract

**Evidence rating**



### What is it?

Young tissue extract (YTE) is extracted from fertilized, partially incubated hen eggs. It is formed into a powder and sold as a supplement.

### How is it meant to work?

It is thought that YTE might improve the body's ability to cope with stress.

### Does it work?

One small study showed that 1680mg of YTE daily for 12 weeks was more effective than placebo (dummy pills).

### Are there any risks?

No risks were reported in the above study.

### Recommendation

There is not enough good evidence to say whether young tissue extract works.

## Zinc

**Evidence rating**



Taken alone



In combination with an antidepressant



Taking zinc at a higher than recommended dose (40mg a day for adults) can be toxic.

### What is it?

Zinc is a mineral found in many foods and is essential for life. It can also be taken as a supplement.

### How is it meant to work?

Some research has found that the level of zinc in the blood is lower in people who are depressed. Lower levels of zinc can affect the neurotransmitter (chemical messenger) serotonin in the brain. Serotonin plays an important role in depression.

### Does it work?

Three small studies have looked at the effects of zinc in addition to treatment with antidepressants. These studies compared zinc supplements (25mg of Zn<sup>2+</sup> once daily) with placebo (dummy pills) for 12 weeks. Depression was reduced more in those taking zinc supplements than placebo in all studies. No studies have been done looking at zinc alone as a treatment.

### Are there any risks?

Taking zinc at higher than recommended doses can be toxic. The recommended upper limit for adults is 40mg a day (NHMRC Nutrient Reference Values for Australia and New Zealand).

### Recommendation

Zinc appears to work when taken with an antidepressant, but more good-quality research is needed. There is no evidence that it is helpful on its own.

# **Interventions not routinely available**

## Anti-inflammatory drugs

### Evidence rating



### What are they?

Nonsteroidal anti-inflammatory drugs (NSAIDs) have been researched as a potential treatment for depression. There are many different types of NSAIDs. The main one tested for depression is celecoxib, which is sold in Australia as Celebrex. Celecoxib requires a prescription from a doctor. There has also been some research on a number of other NSAIDs, including aspirin and ibuprofen. These are available over the counter.

### How are they meant to work?

Inflammation is a process the body uses to protect itself from infection. It is part of the immune system. However, in some diseases (e.g. arthritis), the body triggers inflammation when there is no infection to fight off. In these cases, the body's immune system can cause damage to its own tissues. There is a theory that inflammation plays a role in depression.

### Do they work?

NSAIDs have been tested as a treatment on their own and also in combination with antidepressants. A pooling of data from six studies comparing NSAIDs with placebo (dummy pills) found that overall they reduced depression in the short term. However, the studies were small and the findings were inconsistent. The longer-term effects are unknown.

### Are there any risks?

NSAIDs can have side-effects. They can produce problems in the gut, heart and blood vessels, and the body's response to infection. However, studies of NSAIDs as a short-term treatment for depression have not found side-effects to be a problem.

### Recommendation

There is some evidence that NSAIDs may help depression, but larger studies are needed and longer-term effects need to be researched.

## Beta blockers

### Evidence rating



### What are they?

Beta blockers are drugs that block the effects of the hormone adrenaline. They are often used to treat high blood pressure.

### How are they meant to work?

Beta blockers may increase the levels of neurotransmitters (brain chemicals) involved in depression. They are usually used with antidepressants.

### Do they work?

Two reviews have pooled the results from trials comparing adding beta blockers or a placebo (dummy pills) to antidepressants. One review in adults with depression who had not responded to treatment did not find any benefit. The other review found that people improved more quickly when beta blockers were added to antidepressants. However, the longer-term effects were not better than those of placebo.

### Are there any risks?

Common side-effects of beta blockers include dizziness, fatigue, dry mouth, headache or upset stomach.

### Recommendation

There is not enough evidence to say whether beta blockers work.

## Brexanolone

### Evidence rating



For postnatal depression

### What is it?

Brexanolone is a new treatment being investigated for women with postnatal depression. It is a synthetic version of allopregnanolone. This is a natural chemical that increases during pregnancy but reduces a lot after birth. Brexanolone is given intravenously so a stay in hospital is required. It has been approved for treatment of post-natal depression in the USA but not in Australia.

### How is it meant to work?

Brexanolone works on chemical receptors in the brain. These receptors may be sensitive to the reduction in allopregnanolone after birth. This has been proposed as causing postnatal depression in some women.

### Does it work?

Three good-quality studies have examined brexanolone for postnatal depression. Women were given an infusion of the treatment or a placebo infusion over a period of 60 hours. Results showed the treatment was more effective than placebo at the end of the infusion. Benefits lasted up to 30 days later in two of the studies. Longer-term effects have not been examined.

### Are there any risks?

There is a risk of mild dizziness, drowsiness and sedation.

### Recommendation

Brexanolone appears to be a promising treatment for women with postnatal depression.

## Bupropion

### Evidence rating



### What is it?

Bupropion is a type of antidepressant drug. It is available as a depression treatment in other countries. In Australia, the Therapeutic Goods Administration has not approved it for depression. However, doctors may decide to prescribe it when other antidepressant drugs have not worked well.

### How is it meant to work?

It acts on chemical messengers in the brain (dopamine and noradrenaline). These are thought to be involved in depression. Unlike other antidepressants such as SSRIs, it does not affect serotonin.

### Does it work?

Several studies have compared bupropion to placebos (dummy pills) in adults with depression. These generally found bupropion was more effective in reducing depression symptoms than placebo. Studies have also shown similar benefits to other antidepressants such as SSRIs. Studies also suggest that it can be helpful when added to another antidepressant for people who have not improved much.

### Are there any risks?

The most common side-effects are headache, dry mouth and nausea. Unlike other antidepressants (e.g. SSRIs), sexual problems and drowsiness are less common. Rarely, it has been linked with seizures.

### Recommendation

Bupropion appears to be somewhat helpful for depression.

## Ketamine

### Evidence rating



For severe depression that hasn't responded to other treatments



Serious side-effects, including death, may occur from using ketamine. This is an experimental treatment that is not routinely available from health professionals/doctors.

### What is it?

Ketamine is used mostly as an anaesthetic in vet practices to sedate animals. It is also an illegal street drug. Ketamine is a new, experimental approach for depression. A low dose of ketamine is usually given by injection or through the nose.

### How is it meant to work?

Ketamine affects brain chemicals that are different from those affected by antidepressant drugs. It is thought to work by blocking the brain chemical glutamate from sending its messages in the brain.

### Does it work?

Ketamine has been tested in studies with people whose depression had not responded to any other treatments. In these studies, the people who were given ketamine noticed a very quick improvement in their depression; usually within an hour or two. This is very different from antidepressants, which can take anywhere from days to weeks to work. Studies pooling data from trials showed that ketamine was more effective in treating depression than placebo (dummy pills). However, most studies had small numbers of people and only looked at short-term effects. More recent studies with ketamine given through the nose are more promising.

### Are there any risks?

Used under medical supervision, ketamine is relatively safe. However, side-effects can be serious. These include changes to vision or hearing, confusion, high blood pressure, feeling 'high', dizziness, and increased interest in sex. Abuse of this drug can produce very serious health effects, including death.

### Recommendation

Ketamine is a promising approach to treating people whose depression has not improved with other treatments. It is not known whether it works for people who do respond to other treatments. Also, much more work is needed to explore the safety of this drug.

## Magnetic seizure therapy

### Evidence rating



### What is it?

Magnetic seizure therapy is a new experimental treatment for depression. Like electroconvulsive therapy (ECT, see page 41), it causes a seizure in the brain. The seizure is caused by magnetic stimulation rather than electrical currents used in ECT. This is thought to cause fewer side-effects than ECT. The treatment is given under a general anaesthetic, along with muscle relaxants.

### How is it meant to work?

It is not understood exactly how it works to treat depression, other than stimulating parts of the brain.

### Does it work?

Magnetic seizure therapy has been tested for depression that has not responded to other treatments. Several small, low-quality studies have shown benefits. Some studies have also compared it to ECT. These have shown mixed findings.

### Are there any risks?

The risk of memory problems and confusion appears to be lower for magnetic seizure therapy than ECT.

### Recommendation

Magnetic seizure therapy may be a promising new treatment for depression that has not responded to other treatments. More research is needed to explore its effectiveness and safety.

## Melatonin

**Evidence rating**



### What is it?

Melatonin is a hormone produced by the pineal gland in the brain. It is involved in the body's sleep-wake cycle. Melatonin levels increase during night-time darkness. Melatonin is available as a dietary supplement. In Australia, it is sold as a homeopathic remedy. These contain only very small amounts of melatonin. Higher doses require a prescription from a doctor.

### How is it meant to work?

The production of melatonin might be disturbed in people with depression. In particular, a problem with the timing of melatonin production might cause seasonal affective disorder (winter depression).

### Does it work?

Three studies have compared melatonin with placebos (dummy pills) in adults with depression. Melatonin was not effective in two studies. One study found a benefit when it was added to an anti-anxiety drug (see page 37).

Melatonin has also shown mixed results when tested in adults with seasonal affective disorder. Two studies showed a benefit but two did not.

### Are there any risks?

Melatonin is generally safe. It may cause tiredness when taken during the day.

### Recommendation

There is not enough evidence to say whether melatonin is helpful for depression.

## Negative air ionisation

**Evidence rating**



### What is it?

A negative air ioniser is a device that uses high voltage to electrically charge air particles. Breathing these negatively-charged particles is thought to improve depression.

### How is it meant to work?

This is not clear. However, it may affect the neurotransmitter (chemical messenger) serotonin, which is thought to be involved in depression. It may also improve how the mind processes emotional information.

### Does it work?

Five studies have tested negative air ionisation for depression. Four studies were carried out in people with seasonal affective disorder. One study was in adults who had been depressed for a long time. All compared high density ionisation to a placebo (low density ionisation). Exposure varied from 30 to 90 minutes each day. Pooling the results together showed that the treatment was effective in reducing depression symptoms. The strength of ionisation was at least  $2.7 \times 10^6$  ions/cm<sup>3</sup> in these studies.

### Are there any risks?

None are known. However, many air ionisers that are sold will not produce the required high density of ionisation. They can also be expensive.

### Recommendation

Negative air ionisation appears to work, including for seasonal affective disorder. However, the air ioniser needs to be of the right type.

## Pramipexole

**Evidence rating**



### What is it?

Pramipexole is a drug used to treat Parkinson's disease. When used to treat depression it is usually added to antidepressants.

### How is it meant to work?

Pramipexole acts on dopamine, a neurotransmitter (brain chemical) that may be involved in depression.

### Does it work?

A small number of high-quality studies have tested the effect of adding pramipexole to antidepressants. These have shown mixed results. One study compared pramipexole with placebo (dummy pills). No benefit was shown.

### Are there any risks?

Common side-effects of pramipexole include muscle weakness, dizziness, dry mouth, nausea or sleep problems.

### Recommendation

There is not enough evidence to say whether pramipexole works.

## Psychedelics

**Evidence rating**



Serious side-effects may occur from using psychedelics. They are an experimental treatment not available from health professionals/doctors.

### What are they?

Psychedelics are also known as hallucinogens. They include lysergic acid diethylamide (LSD), psilocybin, DMT (dimethyltryptamine), ayahuasca or mescaline. They change thoughts and perceptions and can cause unusual experiences. Some people describe these as spiritual experiences. Some psychedelics have been used in ritual ceremonies in tribal cultures. Some are also illegal street drugs. Psychedelics are a new, experimental approach for depression. They are usually provided during supervised sessions with support from a therapist.

### How are they meant to work?

Psychedelics act on parts of the brain involved in depression. It has been proposed that they may change the brain to allow new ways of thinking to be learned.

### Do they work?

A review of older studies conducted before LSD was banned found that it helped with depression. However, these were small studies that did not have a comparison group of people who did not receive the treatment. Psychedelics have been tested in recent studies in people whose depression has not responded to treatment. Most of these were also small studies with no comparison groups. These have shown benefits. One study comparing the effects of one dose of ayahuasca with those of placebo (dummy pills) in people with depression showed benefits after one week.

### Are there any risks?

Used under medical supervision, psychedelics are relatively safe. However, side-effects can be serious. These include anxiety and psychosis.

### Recommendation

It is not known whether psychedelics work for people who do respond to other treatments. Also, much more work is needed to explore the safety of these drugs.

## Transcranial current stimulation (TCS)

### Evidence rating



For transcranial direct current stimulation (tDCS)



For cranial electrical stimulation (CES)

### What is it?

Transcranial current stimulation (TCS) is a form of brain stimulation. TCS devices deliver low levels of current via electrodes placed on the head. The amount of current or energy used is much lower than in electroconvulsive therapy (ECT, see page 41) or transcranial magnetic stimulation (TMS, see page 45). One type of TCS is called transcranial direct current stimulation (tDCS). Another is called cranial electrical stimulation (CES). These differ in the waveform of the electric current used. tDCS is an experimental approach and is not widely available from health professionals. CES devices are portable and are available for use at home.

### How is it meant to work?

It is not known exactly how TCS works to treat depression, other than stimulating parts of the brain. It is thought that the effect depends on where the electrodes are placed.

### Does it work?

The effectiveness of tDCS for depression has been evaluated in several studies. A pooling of data from six high quality studies found tDCS was more effective than sham (fake) tDCS. The treatment was given every day or every second day over one to three weeks.

Two small studies have compared CES with a sham version of CES in adults with depression. CES did not improve depression more than the sham in either study.

### Are there any risks?

TCS devices should be safe when used correctly. The main risk is skin burns from incorrect use of the electrodes. This risk is higher if devices are used at home unsupervised by a health professional. There have also been reports of poorer thinking skills after use.

### Recommendation

Evidence suggests that transcranial direct current stimulation may be effective for depression. However, there is not enough good-quality evidence to know whether cranial electrical stimulation is helpful.

# Interventions reviewed but where no evidence was found

Alexander technique	EMpowerplus
American ginseng ( <i>Panax quinquefolius</i> )	Euphytose
Ashwagandha ( <i>Withania somnifera</i> )	Feldenkrais
Astragalus ( <i>Astragalus membranaceous</i> )	Flax seeds ( <i>linseed</i> ) ( <i>Linum usitatissimum</i> )
Balneotherapy or bath therapy	Fragrance or perfume
Barley avoidance	γ-aminobutyric acid (GABA)
Basil ( <i>Ocimum spp.</i> )	Gerson therapy
Black cohosh ( <i>Actaea racemosa</i> or <i>Cimicifuga racemosa</i> )	Ginger ( <i>Zingiber officinale</i> )
Brahmi ( <i>Bacopa monniera</i> )	Gotu kola ( <i>Centella asiatica</i> )
California poppy ( <i>Eschscholtzia californica</i> )	Hawthorn ( <i>Crataegus laevigata</i> )
Catnip ( <i>Nepeta cataria</i> )	Hellerwork
Cat's claw ( <i>Uncaria tomentose</i> )	Holiday or vacation
Chamomile ( <i>Anthemis nobilis</i> )	Hops ( <i>Humulus lupulus</i> )
Chaste tree berry ( <i>Vitex agnus castus</i> )	Hyssop ( <i>Hyssopus officinalis</i> )
Chinese medicinal mushrooms ( <i>Reishi</i> or <i>Lingzhi</i> , <i>Ganoderma Lucidum</i> )	Kava ( <i>Piper methysticum</i> )
Clove ( <i>Eugenia caryophyllata</i> )	Ketogenic diet
Coenzyme Q10	Kinesiology
Colour therapy, chromotherapy or colorology	Lecithin
Cowslip ( <i>Primula veris</i> )	Lemon balm ( <i>Melissa officinalis</i> )
Crystal healing or charm stone	Lemongrass leaves ( <i>Cymbopogon citratus</i> )
Dairy-food avoidance	Licorice ( <i>Glycyrrhiza glabra</i> )
Damiana ( <i>Turnera diffusa</i> )	Milk thistle ( <i>Silybum marianum</i> )
Dandelion ( <i>Taraxacum officinale</i> )	Mindsoothe or Mindsoothe Jnr Mistletoe ( <i>Viscum album</i> )
	Motherwort ( <i>Leonurus cardiaca</i> )
	Multivitamins

Natural progesterone	Taurine
Nettles ( <i>Urtica dioica</i> )	Tension Tamer tea
Oats ( <i>Avena sativa</i> )	Thyme ( <i>Thymus vulgaris</i> )
Para-aminobenzoic acid (PABA)	Tissue salts
Passionflower ( <i>Passiflora incarnata</i> )	Tragerwork
Peppermint ( <i>Mentha piperita</i> )	Valerian ( <i>Valeriana officinalis</i> )
Pilates	Vervain ( <i>Verbena officinalis</i> )
Pleasant activities	Wheat avoidance
Potassium	Wild yam ( <i>Dioscorea villosa</i> )
Purslane ( <i>Portulaca oleracea</i> )	Wood betony ( <i>Stachys officinalis</i> or <i>Betonica officinalis</i> )
Reflexology	Worry Free
Rehmannia ( <i>Rehmannia glutinosa</i> )	Yeast
Rosemary ( <i>Rosmarinus officinalis</i> )	Zizyphus ( <i>Zizyphus spinosa</i> )
Rye avoidance	
Sage ( <i>Salvia officinalis</i> )	
Sedariston	
Sex to relax	
Shopping	
Siberian ginseng ( <i>Eleutherococcus senticosus</i> )	
Singing	
Skullcap ( <i>Scutellaria lateriflora</i> )	
Sleep hygiene	
Spirulina ( <i>Arthrospira platensis</i> )	
St Ignatius bean ( <i>Ignatia amara</i> )	
Suanzaorentang	

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Beyond Blue acknowledges the Traditional Owners of the Land in which our head office is based, the Wurundjeri peoples of the Kulin Nation. We pay our respects to Elders past, present and future and as an organisation with national reach, we extend our respect to all Elders and Aboriginal and Torres Strait Islander peoples across Australia.

## Where to find more information

### Beyond Blue

 [beyondblue.org.au](http://beyondblue.org.au)

Learn more about anxiety, depression and suicide prevention, or talk through your concerns with our Support Service. Our trained mental health professionals will listen, provide information, advice and brief counselling, and point you in the right direction so you can seek further support.

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