

Patient information from the BMJ Group

Insomnia in adults

In this section

[What is it?](#)

[What are the symptoms?](#)

[How is it diagnosed?](#)

[How common is it?](#)

[What treatments work?](#)

[What will happen?](#)

[Questions to ask](#)

Insomnia in adults

Insomnia, or poor sleep, can make it difficult to live life normally. You may find it difficult to concentrate on your work and you may be more likely to have accidents. But there are treatments that can help.

We've brought together the best research about insomnia and weighed up the evidence about how to treat it. You can use our information to talk to your doctor and decide which treatments are best for you.

What is insomnia?

Insomnia is poor-quality sleep. You may find it difficult to get to sleep or to stay asleep at night. You may wake early in the morning or not feel refreshed when you get up.

Some people have problems sleeping only for a short time, whereas others have longer-lasting insomnia. ^[1]

Insomnia for a short time

- **Temporary insomnia** can happen for a couple of days to people who usually sleep well. Your sleep may be disturbed by noise, shift work, jet lag, or short-term anxiety or depression.
- **Short-term insomnia** may last for a few weeks. And it may happen again. You may find it difficult to sleep because you're worried about something (such as an illness or anxieties about money) or because of an emotional problem (such as the death of someone close to you).

Insomnia in adults



There are a number of things that can make insomnia more likely, such as getting stressed.

Longer-lasting insomnia

If you've had problems sleeping on at least three nights a week for one month or more, you probably have **longer-lasting** (or **chronic**) **insomnia**.^[2]

Some people don't sleep well because of a medical or psychiatric condition, such as sleep apnoea, depression, or dementia. If you have one of these conditions, you may sleep better if it's treated. (To learn more about these conditions, see our information on [sleep apnoea](#) , [depression](#) , and [dementia](#) .) Women also have more sleep problems when they are pregnant than when they are not.^[3]

Here we're looking only at chronic insomnia that hasn't been caused by any other illness. This is known as **primary insomnia**.

Here we look at sleep problems in adults. We have a separate section on [sleep problems in children](#) .

Insomnia: why me?

We don't know for certain why some people have problems sleeping and others don't. But we do know that:^[2] ^[4] ^[5]

- You're more likely to have problems sleeping if you're over 65. This may be because of changes in your body clock (your circadian rhythm) that can happen as you get older
- Changes in your life as you get older can make the changes to your sleep pattern seem worse. You may become less satisfied with sleep
- Stress can sometimes lead to sleep problems

Insomnia in adults

- Some people have trouble sleeping because they are too alert, aware, or wakeful
- Napping during the day might make it harder to sleep at night. But in some countries people regularly take an afternoon 'siesta' without any problems
- Stimulants can interfere with your sleep. These include alcohol, nicotine from smoking, and caffeine in tea, coffee, chocolate, and fizzy drinks
- Some medicines can disturb your sleep. These include diuretics (water tablets), steroids, beta-blockers, and some painkillers
- Some people may just need less sleep. How long people sleep and what they think is normal varies a lot. Most people sleep for between six hours and eight hours a night. But you may find you sleep less as you get older.

What are the symptoms of insomnia?

If you have insomnia (poor-quality sleep), you may find it hard to fall asleep or to stay asleep, or both.

The three main types of sleep disturbance are:^[6]

- Difficulty falling asleep: this is the most common problem
- Difficulty staying asleep: older people are more likely to have this problem
- Early morning awakening: you may wake up early and be unable to get back to sleep. This problem is less common.

You could also have problems during the day because you haven't had enough sleep. You may:

- Feel tired
- Be irritable
- Find it hard to concentrate.

How common is insomnia in adults?

Insomnia is very common, and studies have suggested that about 40 in 100 adults sleep badly.^{[7] [8] [9] [10]} It is particularly common among older people. One study found that between 31 in 100 and 38 in 100 people aged 18 to 64 years had insomnia, compared with around 45 in 100 people aged 65 to 79.^[11]

What treatments work for insomnia?

In the long run, therapies that don't involve taking medicines may work best for insomnia (poor-quality sleep). And they have fewer risks than drug treatments. There are even some things you can try at home. However, sleeping tablets can help if your insomnia is making your life difficult and causing you a lot of distress. But they don't treat the cause of your sleeplessness, and they have side effects.

Key points about treating insomnia

- There are some simple things you can do that might help you sleep better, such as avoiding large meals just before bed, and keeping your bedroom cool and quiet. To learn more, see [How to get a good night's sleep](#).
- A talking treatment called **cognitive behaviour therapy (CBT)** may improve your sleep. CBT aims to change how you feel, think, and behave.
- Regular exercise may help too, but don't do it just before bedtime.
- Your doctor might prescribe sleeping tablets if your insomnia is making your life difficult and causing you a lot of distress.
- You shouldn't take sleeping tablets for more than four weeks, because you can become dependent on them. This means you may find it hard to sleep without taking a tablet at night.
- More research is needed to know how safe sleeping tablets are for older people (over 65), especially if you're taking other medicines as well.

Which treatments work best? We've looked at the best research and given a rating for each treatment according to how well it works.

Your doctor will probably give you advice about ways to help you sleep better first. Or they may refer you for a talking treatment such as cognitive behaviour therapy.

Treatment Group 1

Treatments for insomnia in adults

Treatments that work

- [Cognitive behaviour therapy \(CBT\)](#)

Treatments that work, but whose harms may outweigh benefits

- [Benzodiazepines](#)
- [Newer sleeping tablets \(zopiclone, zolpidem, and zaleplon\)](#)

Treatments that need further study

- [Acupuncture](#)
- [Antihistamines \(diphenhydramine\)](#)
- [Exercise](#)
- [Light therapy](#)
- [Melatonin](#)
- [Music-assisted relaxation](#)

What will happen to me?

If you have problems sleeping you may find it affects you during the day. For example, you may find it difficult to concentrate on your work. Older people with sleep problems may be more prone to falls.

No one can say whether your insomnia will go away, or whether you'll continue to have this problem. There hasn't been much good-quality research. Insomnia sometimes lasts a long time. Or it might come and go.^[12]

There hasn't been much research on how poor sleep affects your health and life. But you may have:

- A poorer quality of life
- More chances of an accident because of sleepiness during the day.

Sleeping well can make a big difference to your overall health and how you feel about life.

Long-lasting sleep problems may make you depressed or forgetful, and make it hard to think clearly, especially if you are older (over 65). This can put you at risk of having a fall or needing to be looked after in a residential home.^{[12] [13]} So it's a good idea to ask your doctor for help if you have long-lasting sleep problems.

Treatments:

Cognitive behaviour therapy (CBT)

In this section

There's a good chance that having sessions of a talking treatment called cognitive behaviour therapy (CBT) will help you sleep better. You can have this treatment with a

Insomnia in adults

therapist on your own or in a group. You might also be able to use a booklet or have therapy over the internet.

CBT helps you look at and change the way you feel, think, and behave. It might include some or all of the following:

- Sleep hygiene advice. This gives you information about things you can change to help you sleep better (for example, avoiding alcohol, heavy meals, and exercise before going to bed). You can also read our information on [How to get a good night's sleep](#)
- Stimulus control. You learn ways to control the things that affect sleep. You might improve your sleep by getting up at the same time every morning, getting out of bed if you are awake for a long time, and avoiding daytime naps
- Sleep restriction. First you limit the time you spend in bed at night to how long you actually sleep. Then you gradually increase the time in bed so that you begin to sleep for longer
- Muscle relaxation. You learn how to tense and then relax the different muscles in your body. This may make you feel less anxious and more sleepy
- Sleep education. For example, you learn how long people usually sleep for. You might no longer aim to be sleeping so much or go to bed so early.

We found five summaries of the research ([systematic reviews](#)) on CBT, as well as two more studies. ^[16] ^[17] ^[18] ^[19] ^[20] Overall, researchers found that people who had CBT fell asleep faster and slept better than those not having the treatment. However, the improvements were usually fairly small and many people continued having sleep problems.

We found one good-quality study of CBT where one group of people had CBT on its own and another group had CBT plus one of the [newer sleeping tablets](#) (zolpidem). ^[21] The study found that sleep problems improved most over six months if people received both CBT and zolpidem at first, then stopped taking zolpidem but carried on having CBT once a month.

The research we looked at didn't say there were any harmful effects from CBT.

We also found one small study (a [randomised controlled trial](#)) that looked at having CBT over the internet, rather than through sessions with a therapist. The sleep problems of the group who had CBT delivered via the internet improved, whereas those of a group who were on a waiting list for regular CBT did not change. The improvement in the internet CBT group lasted for at least six months. ^[22]

Newer sleeping tablets (zopiclone, zolpidem, and zaleplon)

In this section

Insomnia in adults

Taking one of the newer sleeping tablets can help you get to sleep more easily. You may also sleep a bit longer and wake less at night.

These medicines work just as well as some older ones called [benzodiazepines](#) , which are also used to treat insomnia (poor-quality sleep). ^{[23] [24] [25] [26]}

You might also hear these medicines called 'Z drugs' because their names start with Z.

If your insomnia is making your life difficult and causing you a lot of distress, your doctor might prescribe one of these newer sleeping tablets:

- Zopiclone (Zimovane)
- Zolpidem (Stilnoct)
- Zaleplon (Sonata).

The National Institute for Health and Care Excellence (NICE), which decides which drugs can be prescribed on the NHS in England and Wales, has given doctors guidance about using these newer types of sleeping tablets. The NICE guidance says that: ^[27]

- Doctors should think about using a non-medicine treatment before prescribing a sleeping tablet. For example, your doctor may advise you about good sleeping habits or attending a relaxation class (To learn more about good sleeping habits, see [How to get a good night's sleep](#))
- If your doctor thinks you need a sleeping tablet, they will probably prescribe a type of drug called a benzodiazepine. This is because zolpidem, zopiclone, and zaleplon are more expensive and there's no firm evidence that they work better
- Your doctor should prescribe a Z drug only if the benzodiazepine has caused side effects
- Doctors should only prescribe sleeping tablets for a short time
- If your insomnia hasn't got better with one of these drugs, your doctor shouldn't prescribe another one.

Several studies (randomised controlled trials) have shown that people fell asleep more quickly when they took one of the newer sleeping tablets. ^{[23] [28] [29] [30] [31] [32] [33]}

- One study found that zolpidem helped people get to sleep more quickly. ^[29]
- People also slept for 30 or 40 minutes longer each night.

Becoming dependent on newer sleeping pills

You shouldn't take one of the newer sleeping tablets for more than four weeks, because you could become dependent on it. This means you get unpleasant effects when you stop taking the medicine. For example, you may feel anxious and have [panic attacks](#) if you don't take your medicine every night. You may also find it hard to sleep without the medicine.

Side effects from taking newer sleeping pills

In the studies we found, the people taking these drugs had some side effects: ^[29] ^[30]

- Headaches
- Pain
- Drowsiness
- A blocked nose
- Dizziness.

But many of these side effects also happened in people who took a dummy treatment (a placebo). So we don't know if the side effects were caused by the drug.

You get more side effects and more serious ones if you take higher doses of these medicines. In one study, almost one-third of people who were taking a high dose of zolpidem were: ^[31]

- Agitated or had a fall during the night
- [Incontinent](#) at night
- Confused when they woke up.

Rebound insomnia from newer sleeping pills

You may also get a problem called rebound insomnia if you take a newer sleeping tablet. This means that your sleeping gets worse for one or two nights after you stop taking the medicine. In one study, more than 10 in 100 people had rebound insomnia, compared with 5 in 100 who took a dummy treatment (placebo). ^[30]

A study comparing the newer sleeping tablets with older tablets (benzodiazepines) showed that problems with side effects were just as likely with both types of drug. ^[26] The study said that people taking these drugs had twice the chance of having an unwanted side effect as they had of getting an improvement in sleep.

We need more research to know for certain how safe the newer sleeping tablets are if you're over 65, especially if you're taking other medicines or taking the tablets for a long time.

Benzodiazepines

In this section

Taking a benzodiazepine can help you sleep slightly better. But benzodiazepines also have serious side effects.

These are the benzodiazepines your doctor is most likely to prescribe for insomnia (poor-quality sleep):

- Loprazolam
- Lormetazepam
- Temazepam.

If you are anxious during the day and have sleeping problems, your doctor might prescribe diazepam. Another benzodiazepine that might be used is lorazepam.

You shouldn't take any of these drugs for more than four weeks, because you could become dependent on them. This means you get unpleasant effects when you stop taking the medicine. For example, you may feel anxious and have [panic attacks](#) if you don't take your medicine every night. You may also find it hard to sleep without the treatment.

One big summary of the research (a [systematic review](#)) found that people who took a benzodiazepine had better quality sleep. On average, they slept around 30 minutes longer, with fewer awakenings, compared with people taking a dummy ([placebo](#)) drug. [\[26\]](#)

Two additional studies ([randomised controlled trials](#)) found similar results. One also found that people taking a benzodiazepine fell asleep faster. [\[26\]](#) [\[34\]](#)

Benzodiazepines can cause serious side effects. Studies have shown that: [\[35\]](#)

- You may feel sleepy during the day. This is especially harmful if you're older, because you're more likely to fall and perhaps even fracture your hip. [\[36\]](#) [\[37\]](#) [\[38\]](#) You may not be able to coordinate your movements so well
- You may get rebound insomnia. This means you have problems sleeping when you stop taking the medicine
- You may not be able to think clearly or remember things very easily.

Insomnia in adults

A study comparing benzodiazepines with [newer sleeping tablets](#) showed that problems with side effects were just as likely with both types of drug. ^[26]

The study said that people taking these drugs had twice the chance of having an unwanted side effect as they had of getting an improvement in sleep.

We need more research to know for certain how safe benzodiazepines are if you're over 65, especially if you're taking other medicines or you've been taking the tablets for a long time.

Exercise

In this section

You might sleep better if you exercise during the day (but not just before bedtime). But more studies are needed to find out if exercise really works as a treatment for insomnia (poor-quality sleep).

One small study (a randomised controlled trial) found that people slept better if they took moderate exercise four times a week. This meant they spent 30 to 40 minutes walking or doing low-impact aerobics. ^[39]

Another study found that people who did tai chi three times a week fell asleep faster, and had improvements in their sleep quality, how many times they awoke at night, and how long they slept. ^[40] Tai chi is a centuries-old type of exercise that involves slow, rhythmic movements designed to bring about mental relaxation and enhance balance, strength, and flexibility.

The studies did not tell us about any side effects of exercise. But your health is likely to benefit in general if you exercise regularly.

Light therapy

In this section

There has been little research on whether being exposed to a bright light during the daytime can help you sleep better at night. ^[39] One small study of 36 women and 15 men found that the sleep quality of a group exposed to bright light from a special lamp was no different from that of a group exposed to dim light. ^[41]

Light is important for your body to naturally produce a **hormone** called melatonin that helps regulate your body clock. Spending time outside should give your body the light it needs to do this.

Antihistamines (diphenhydramine)

In this section

Insomnia in adults

We couldn't find many good-quality studies that showed whether antihistamines help insomnia (poor-quality sleep).

Antihistamines are not as strong as sleeping tablets, such as [Z drugs](#) and [benzodiazepines](#) .

One study (a [randomised controlled trial](#)) showed that people were less likely to wake up during the night if they'd taken an antihistamine called diphenhydramine. But there are problems with the study that make it hard to rely on. ^[42]

Antihistamines are usually used to treat [allergies](#) such as hay fever. But some types cause drowsiness as a side effect.

You can buy diphenhydramine (brand names Dreemon, Medinex, Nightcalm, Nytol) from a pharmacy as an occasional treatment for insomnia.

You may feel drowsy the day after you take an antihistamine. ^[43] You may also become tolerant to the medicine. This means that after you've taken the tablets for a couple of days they may no longer make you feel drowsy. There's also a risk that you'll get:

- Headaches
- Coordination problems
- Blurred vision
- A dry mouth.

Side effects are more common in older people (over 65 years).

Melatonin

In this section

Taking a tablet or capsule of melatonin before bedtime may help you sleep earlier and for longer. ^[44] But we need more research on the effects of melatonin in older people, and whether it is safe to take this treatment if you're taking other medicines.

Melatonin is a hormone. Hormones are chemicals your body makes to control some of the things it does. For example, hormones can tell your body how to use energy, or when to go to sleep.

Melatonin controls your body clock. Normally, your body makes melatonin during the night to help you sleep, starting when it gets dark and stopping when it gets light. The melatonin used as a treatment for insomnia (poor-quality sleep) is a man-made version of this hormone.

Insomnia in adults

In the UK, doctors can prescribe a brand of melatonin called Circadin. It's recommended for people over the age of 55.^[45] You can't buy melatonin over the counter in the UK.

In the US, melatonin can be sold to the public in health food shops and pharmacies. However, it isn't sold as a medicine but as a supplement, like vitamin tablets or cod liver oil. This means that, like all supplements, it may not be made to the same standards as medicines. So you can't be certain how good its quality is.

If you're thinking of buying melatonin in the US, or over the internet, there are a few things to bear in mind. The exact ingredients can vary between different brands, so it can be hard to know what you're buying. Scientists have found impurities in the melatonin tablets sold by some companies. This means that some tablets contain things that aren't listed on the label. Tablets sold over the internet won't have gone through the safety checks that usually apply to drugs in the UK. It can be difficult to know which companies to trust.

Two summaries of the research ([systematic reviews](#)) showed that melatonin can help adults, including older people, to sleep better.^[46] ^[47] You can expect to get to sleep a few minutes sooner and to sleep slightly longer.

We don't know how safe melatonin is, or how safe it is to take regularly for a long time. There hasn't been enough research to say. We also don't know how much melatonin you need and when you should take the dose.^[47]

The summaries we found didn't mention any side effects from melatonin. But some studies in children found that some of them who took melatonin:^[48] ^[49]

- Felt cold
- Lost their appetite
- Felt dizzy
- Felt in a low mood
- Had mild headaches.

Some drugs can interfere with other medicines or stop them working. Or if you have another medical condition, some drugs may make it worse. You should check with your doctor before taking melatonin if you're already taking other medicines.

Experts say you shouldn't take melatonin if you:^[50]

- Have [epilepsy](#)
- Take a medicine to stop your blood clotting (for example, warfarin).

Music-assisted relaxation

In this section

A summary of five studies (randomised controlled trials) with 308 people found that relaxing with music had a small effect on improving sleep quality. It is possible that music reduces the anxieties that can make it hard to go to sleep.^[51] However, we need more research to explore this.

Acupuncture

In this section

There is no good evidence that acupuncture works to help sleep problems. A summary of 33 studies (a systematic review) says the research on using acupuncture for insomnia is not very good, and does not support using it.^[52]

Further informations:

How to get a good night's sleep

Certain habits can stop you sleeping well, whereas others can help you sleep better. You may hear people call this advice **good sleep hygiene**. Following this advice can help some people sleep better.^[14] ^[15]

- Take some exercise during the day, but not just before you go to sleep.
- Avoid eating a large meal just before you go to bed.
- Avoid tobacco and drinks that contain caffeine or alcohol for a few hours before bedtime. (Alcohol can help you get to sleep, but it may make you wake up later on in the night and stop you getting back to sleep.)
- If you need to go to the toilet in the night and can't get back to sleep afterwards, try to avoid drinking any fluids for a couple of hours before bedtime.
- Go to bed only when you feel sleepy, and not just because you think it's time for bed.
- Use the bedroom just for sleeping and having sex. Don't use it to read, watch television, eat, or work.
- Try to keep your room cool and quiet.

Insomnia in adults

- If you can't sleep after about 15 or 20 minutes, go to another room. Try reading with a fairly dim light. But don't watch television, as this gives off bright light. This can stimulate you rather than help you relax. Go back to bed only when you feel sleepy.
- Get up at the same time every morning, even if you don't feel rested.
- Try not to nap during the day. But if you feel tired, nap for no longer than 30 minutes in the afternoon.

Glossary:

diuretics

Diuretics are a type of medicine that reduce the amount of fluid in your body. The extra fluid is removed in your urine.

steroids

Steroids are a type of chemical. Your body naturally produces steroids, which play a part in many of its processes. For example, steroids are involved in how your immune system, reproductive system and metabolism work. Steroids can also be given as medicines and are used for a number of different conditions: including asthma, rheumatoid arthritis and eczema. Corticosteroids are not the same as the steroids used by some body builders and athletes. Those steroids are called 'anabolic steroids'.

Beta-blockers

These drugs work by blocking the effects of certain chemicals produced by your body (such as adrenaline). Beta-blockers slow your heart rate and improve the beating of your heart. They are often used in people with angina or heart failure.

cognitive behaviour therapy

Cognitive behaviour therapy (CBT) is a type of talking treatment (psychotherapy). It is based on the idea that the negative thoughts and beliefs people have play an important role in how they feel and how they act. CBT helps people identify, look at and change unwanted thoughts, feelings and behaviours.

systematic reviews

A systematic review is a thorough look through published research on a particular topic. Only studies that have been carried out to a high standard are included. A systematic review may or may not include a meta-analysis, which is when the results from individual studies are put together.

randomised controlled trials

Randomised controlled trials are medical studies designed to test whether a treatment works. Patients are split into groups. One group is given the treatment being tested (for example, an antidepressant drug) while another group (called the comparison or control group) is given an alternative treatment. This could be a different type of drug or a dummy treatment (a placebo). Researchers then compare the effects of the different treatments.

randomised controlled trials

Randomised controlled trials are medical studies designed to test whether a treatment works. Patients are split into groups. One group is given the treatment being tested (for example, an antidepressant drug) while another group (called the comparison or control group) is given an alternative treatment. This could be a different type of drug or a dummy treatment (a placebo). Researchers then compare the effects of the different treatments.

placebo

A placebo is a 'pretend' or dummy treatment that contains no active substances. A placebo is often given to half the people taking part in medical research trials, for comparison with the 'real' treatment. It is made to look and taste identical to the drug treatment being tested, so that people in the studies do not know if they are getting the placebo or the 'real' treatment. Researchers often talk about the 'placebo effect'. This is where patients feel better after having a placebo treatment because they expect to feel better. Tests may indicate that they actually are better. In the same way, people can also get side effects after having a placebo treatment. Drug treatments can also have a 'placebo effect'. This is why, to get a true picture of how well a drug works, it is important to compare it against a placebo treatment.

incontinence

If you have incontinence, you cannot control when you pass urine (this is called urinary incontinence) or have a bowel movement (faecal incontinence).

hormones

Insomnia in adults

Hormones are chemicals that are made in certain parts of the body. They travel through the bloodstream and have an effect on other parts of the body. For example, the female sex hormone oestrogen is made in a woman's ovaries. Oestrogen has many different effects on a woman's body. It makes the breasts grow at puberty and helps control periods. It is also needed to get pregnant.

allergy

If you have an allergy to something (such as pollen or a medicine), your body always overreacts to it. The reaction happens because your immune system (your body's system for fighting infection) is too sensitive to it.

Sources for the information on this leaflet:

1. British National Formulary. Central nervous system. Section 4. British Medical Association and Royal Pharmaceutical Society of Great Britain. Available at <http://www.bnf.org> (accessed on 23 January 2014).
2. National Heart, Lung and Blood Institute Working Group on Insomnia. Insomnia: assessment and management in primary care. *American Family Physician*. 1999; 59: 3029-3038.
3. Facco FL, Kramer J, Ho KH, et al. Sleep disturbances in pregnancy. *Obstetrics and Gynecology*. 2010; 115: 77-83.
4. Bliwise DL. Sleep in normal aging and dementia. *Sleep*. 1993; 16: 40-81.
5. National Center on Sleep Disorders Research Working Group. Recognizing problem sleepiness in your patients. *American Family Physician*. 1999; 59: 937-944.
6. World Health Organization. Insomnia in general practice. World Health Organisation, Geneva; 1993.
7. Liljenberg B, Almqvist M, Hetta J, et al. Age and the prevalence of insomnia in adulthood. *European Journal of Psychiatry*. 1989; 3: 5-12.
8. Morphy H, Dunn KM, Lewis M, et al. Epidemiology of insomnia: a longitudinal study in a UK population. *Sleep*. 2007; 30: 274-280.
9. Calem M, Bisla J, Begum A, et al. Increased prevalence of insomnia and changes in hypnotics use in England over 15 years: analysis of the 1993, 2000, and 2007 National Psychiatric Morbidity Surveys. *Sleep*. 2012; 35: 377-384.
10. Foley DJ, Monjan AA, Brown SL, et al. Sleep complaints among elderly persons: an epidemiologic study of three communities. *Sleep*. 1995; 18: 425-432.
11. Mellinger GD, Balter MB, Uhlenhuth EH. Insomnia and its treatment. Prevalence and correlates. *Archives of General Psychiatry*. 1985; 42: 225-232.
12. Reynolds CF, Buysse DJ, Kupfer DJ. Treating insomnia in older adults: taking a long term view. *Journal of the American Medical Association*. 1999; 281: 1034-1035.
13. Cricco M, Simonsick EM, Foley DJ. The impact of insomnia on cognitive functioning in older adults. *Journal of the American Geriatrics Society*. 2001; 49: 1185-1189.
14. Kupfer DJ, Reynolds CF. Management of insomnia. *New England Journal of Medicine*. 1997; 336: 341-346.
15. Holbrook AM, Crowther R, Lotter A, et al. The diagnosis and management of insomnia in clinical practice: a practical evidence-based approach. *Journal of the Canadian Medical Association*. 2000; 162: 216-220.
16. McCurry SM, Logsdon RG, Teri L, et al. Evidence-based psychological treatments for insomnia in older adults. *Psychology & Aging*. 2007; 22: 18-27.
17. Montgomery P, Dennis J, Montgomery P, et al. Cognitive behavioural interventions for sleep problems in adults aged 60+. In: *The Cochrane Library*. Wiley, Chichester, UK.
18. Irwin MR, Cole JC, Nicassio PM. Comparative meta-analysis of behavioral interventions for insomnia and their efficacy in middle-aged adults and in older adults 55+ years of age. *Health Psychology*. 2006; 25: 3-14.
19. Soeffing JP, Lichstein KL, Nau SD, et al. Psychological treatment of insomnia in hypnotic-dependant older adults. *Sleep Medicine*. 2008; 9: 165-171.

Insomnia in adults

20. Germain A, Moul DE, Franzen PL, et al. Effects of a brief behavioral treatment for late-life insomnia: preliminary findings. *Journal of Clinical Sleep Medicine*. 2006; 2: 403-406.
21. Morin CM, Vallières A, Guay B, et al. Cognitive behavioral therapy, singly and combined with medication, for persistent insomnia: a randomized controlled trial. *Journal of the American Medical Association*. 2009; 301: 2005-2015.
22. Ritterband LM, Thorndike FP, Gonder-Frederick LA, et al. Efficacy of an Internet-based behavioral intervention for adults with insomnia. *Archives of General Psychiatry*. 2009; 66: 692-698.
23. Ochs R, Fillingim J, Savannah GA, et al. The effect of Zolpidem in elderly patients with chronic insomnia. *Journal of Sleep Research*. 1992; 328 (supplement 1): S164.
24. Morgan PJ, Chapados R, Chung FFT, et al. Efficacy of zolpidem in patients with transient insomnia on the night before elective surgery. *Journal of Sleep Research*. 1991; 20: 84.
25. Roger M, Attali P, Coquelin J. Multicenter, double-blind, controlled comparison of zolpidem and triazolam in elderly patients with insomnia. *Clinical Therapeutics*. 1993; 15: 127-135.
26. Glass J, Lancot KL, Herrmann N, et al. Sedative hypnotics in older people with insomnia: Meta-analysis of risks and benefits. *BMJ*. 2005; 331: 1169-1173.
27. National Institute for Health and Care Excellence. Guidance on the use of zaleplon, zolpidem and zopiclone for the short-term management of insomnia. April 2004. Technology appraisal 77. Available at <http://guidance.nice.org.uk/ta77> (accessed on 23 January 2014).
28. Walsh JK, Fry J, Richardson GS, et al. Short-term efficacy of Zaleplon in older patients with chronic insomnia. *Clinical Drug Investigation*. 2000; 20: 143-149.
29. Ancoli-Israel S, Walsh JK, Mangano RM, et al. Zaleplon, a novel nonbenzodiazepine hypnotic, effectively treats insomnia in elderly patients without causing rebound effects. *Primary Care Companion to the Journal of Clinical Psychiatry*. 1999; 1: 114-120.
30. Hedner J, Yaeche R, Emilien G, et al. Zaleplon shortens subjective sleep latency and improves subjective sleep quality in elderly patients with insomnia. *International Journal of Geriatric Psychiatry*. 2000; 15: 704-712.
31. Roger M, Dallot JY, Salmon O, et al. Hypnotic effects of zolpidem in geriatric patients: a dose-finding study. In: Sauvagnet JP, Langer SZ, Morselli PL (editors). *Imidazopyridines in sleep disorders: a novel experimental and therapeutic approach*. Raven Press, New York, NY; 1998.
32. Walsh JK, Soubrane C, Roth T, et al. Efficacy and safety of zolpidem extended release in elderly primary insomnia patients. *American Journal of Geriatric Psychiatry*. 2008; 16: 44-57.
33. Ancoli-Israel S, Krystal AD, McCall WV, et al. A 12-week, randomized, double-blind, placebo-controlled study evaluating the effect of eszopiclone 2 mg on sleep/wake function in older adults with primary and comorbid insomnia. *Sleep*. 2010; 33: 225-234.
34. Morin CM, Colecchi C, Stone J, et al. Behavioral and pharmacological therapies for late-life insomnia: a randomized controlled trial. *Journal of the American Medical Association*. 1999; 281: 991-999.
35. Grad RM. Benzodiazepines for insomnia in community dwelling elderly: a review of benefit and risk. *Journal of Family Practice*. 1995; 41: 473-481.
36. Sorock GS, Shimkin EE. Benzodiazepine sedatives and the risk of falling in a community-dwelling elderly cohort. *Archives of Internal Medicine*. 1988; 148: 2441-2444.
37. Ray WA, Griffin MR, Schaffner W, et al. Psychotropic drug use and the risk of hip fracture. *New England Journal of Medicine*. 1987; 316: 363-369.
38. Ray WA, Fought RL, Decker MD. Psychoactive drugs and the risk of injurious motor vehicle crashes in elderly drivers. *American Journal of Epidemiology*. 1992; 136: 873-883.

Insomnia in adults

39. Montgomery P, Dennis J. Physical exercise for sleep problems in adults aged 60+ (Cochrane review). In: The Cochrane Library. Wiley, Chichester, UK.
40. Irwin MR, Olmstead R, Motivala SJ, et al. Improving sleep quality in older adults with moderate sleep complaints: a randomized controlled trial of Tai Chi Chih. *Sleep*. 2008; 31: 1001-1008.
41. Friedman L, Zeitzer JM, Kushida C, et al. Scheduled bright light for treatment of insomnia in older adults. *Journal of American Geriatrics Society*. 2009; 57: 441-452.
42. Glass JR, Sproule BA, Herrmann N. Effects of 2-week treatment with temazepam and diphenhydramine in elderly insomniacs: a randomized, placebo-controlled trial. *Journal of Clinical Psychopharmacology*. 2008; 28: 182-8.
43. British National Formulary. Central nervous system. Section 4. British Medical Association and Royal Pharmaceutical Society of Great Britain. Available at <http://www.bnf.org> (accessed on 23 January 2014).
44. Kamel NS, Gammack JK. Insomnia in the elderly: cause, approach and treatment. *American Journal of Medicine*. 2006; 119, 463-469.
45. electronic Medicines Compendium. Circadin 2mg prolonged-release tablets. September 2013. Available at <http://www.medicines.org.uk/EMC/medicine/25643/SPC/Circadin/> (accessed on 23 January 2014).
46. Olde Rikkert MG, Rigaud AS. Melatonin in elderly patients with insomnia: a systematic review. *Zeitschrift fur Gerontologie und Geriatrie*. 2001; 34: 491-497.
47. Brzezinski A, Vangel MG, Wurtman RJ, et al. Effects of exogenous melatonin on sleep: a meta-analysis. *Sleep Medicine Reviews*. 2005; 9: 41-50.
48. Smits MG, Nagtegaal EE, van der Heijden J, et al. Melatonin for chronic sleep onset insomnia in children: a randomized placebo-controlled trial. *Journal of Child Neurology*. 2001; 16: 86-92.
49. Smits MG, van Stel HF, van der Heijden K, et al. Melatonin improves health status and sleep in children with idiopathic chronic sleep-onset insomnia: a randomized placebo-controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2003; 42: 1286-1293.
50. Herxheimer A, Petrie KJ. Melatonin for the prevention and treatment of jet lag (Cochrane review). In: The Cochrane Library. Wiley, Chichester, UK.
51. de Niet G, Tiemens B, Lendemeijer B, et al. Music-assisted relaxation to improve sleep quality: meta-analysis. *Journal of Advanced Nursing*. 2009; 65: 1356-1364.
52. Cheuk DK, Yeung WF, Chung KF, et al. Acupuncture for insomnia. In: The Cochrane Library. Wiley, Chichester, UK.

This information is aimed at a UK patient audience. This information however does not replace medical advice. If you have a medical problem please see your doctor. Please see our full [Conditions of Use](#) for this content. For more information about this condition and sources of the information contained in this leaflet please visit the Best Health website, <http://besthealth.bmj.com>. These leaflets are reviewed annually.

