



## Brainbox: Insomnia

**Insomnia – we’ve all had it. And many more people seem to be suffering with it during the lockdown than at any time in the recent past. But what is it?**

Insomnia is a sleep disorder in which people have trouble sleeping. It’s sometimes called sleeplessness. People with insomnia may have difficulty falling asleep, or they may wake up early and can’t get back to sleep. They may wake up several times during the night or they may lie awake at night. The trouble with not getting enough sleep during the night is that people feel sleepy the following day although they find it hard to nap during the day even though they’re tired. They also feel low on energy, they can be irritable, and may feel depressed. Episodes of insomnia may be short-term or may go on for much longer.

Sometimes, insomnia is linked with other conditions such as stress, chronic pain, heart failure, hyperthyroidism, heartburn, restless leg syndrome, menopause, certain medications, and drugs such as caffeine, nicotine, and alcohol. Insomnia can also be associated with working night shifts and sleep apnoea (where a person has pauses in their breathing or periods of shallow breathing during sleep). Poor sleep quality is defined as the individual not reaching stage 3 or delta sleep, which has restorative properties. We’ll talk about these stages of sleep later.

Let’s look at some statistics. It’s been estimated that between 10 and 30 percent of adults have insomnia at any given point in time and up to half the population experiences insomnia at some point over the course of a year. About 6 percent of people have insomnia that is not due to another problem and lasts for more than a month. Women are more often affected than men.

**People have a higher chance of experiencing insomnia if they:**

- Are older than 60.
- Have a history of mental health disorder including depression, etc
- Are experiencing emotional stress or work stress.

- Work late/night shifts.
- Have travelled through different time zones.
- Have chronic diseases such as diabetes, kidney disease, lung disease, Alzheimer’s, or heart disease.
- Have alcohol or drug use disorders.
- Have gastrointestinal reflux disease.
- Are heavy smokers.

**You know you’ve got insomnia if you:**

- Have difficulty falling asleep, including difficulty finding a comfortable sleeping position.
- Wake during the night and are unable to return to sleep or you wake up early.
- Are not able to focus on daily tasks and have difficulty in remembering.
- Experience daytime sleepiness, irritability, depression, or anxiety.
- Feel tired or have low energy levels during the day.
- Have trouble concentrating.
- Are irritable, or act aggressively or impulsively.

**Insomnia can be classified as transient, acute, or chronic:**

- Transient insomnia lasts for less than a week. It can be caused by another disorder, by changes in the sleep environment, by the timing of sleep, by severe depression, or by stress. Its consequences (i.e. sleepiness and impaired psychomotor performance) are similar to those of sleep deprivation.
- Acute insomnia is the inability to consistently sleep well for a period of less than a month. Insomnia is present when there is difficulty initiating or maintaining sleep or when the sleep that is obtained is non-refreshing or of poor quality. These problems occur despite adequate opportunity and circumstances for sleep and they must result in problems

with daytime function. Acute insomnia is also called short-term insomnia or stress-related insomnia.

- Chronic insomnia lasts for longer than a month. It may or may not be caused by another disorder. People with high levels of stress hormones or shifts in the levels of cytokines are more likely than others to have chronic insomnia. Its effects can vary according to its causes, but they may include muscular weariness, hallucinations, and/or mental fatigue. Chronic insomnia can cause double vision.

Insomnia can be measured using the Athens Insomnia Scale (AIS). It assesses eight factors on a scale of 0–3. The factors are: sleep induction; awakenings during the night; final awakening (how early); total sleep duration (how sufficient); sleep quality; well-being during the day; functioning capacity during the day; sleepiness during the day. The higher the number on the scale, the worse things are. A total score of 6 or above equates to a diagnosis of insomnia.

It's worth noting that sleep onset insomnia, which is a difficulty falling asleep at the beginning of the night, is often a symptom of anxiety disorders. Delayed sleep phase disorder (DSPD) is often misdiagnosed as insomnia. DSPD is where sleep onset is delayed until much later than normal while waking up is also much later in the day.

Paradoxical insomnia is where people say they have slept poorly, or not slept at all, but they actually have. Using electrodes or other sleep monitoring devices, it can be shown that there's a huge mismatch – the person has slept much better than they report. People with paradoxical insomnia have the illusion of poor sleep, when it's not actually poor.

So, what are the causes of insomnia? There are two models of why people get insomnia. In the cognitive model, people are thought to be unable to get to sleep through rumination or hyperarousal. The second model, the physiological model, is based on what's found in people with insomnia. Firstly, there's increased urinary cortisol and catecholamines (e.g. adrenalin and noradrenalin), which have been found, suggesting increased activity of the HPA axis and arousal. Secondly, people with insomnia, have been found to have increased global cerebral glucose utilization during wakefulness and non-REM sleep. Thirdly, increased full body metabolism and heart rate has been found in people with insomnia. These findings suggest that there's a dysregulation of the arousal system, cognitive system, and HPA axis that contribute to insomnia. What's not known is which is the 'cause', and which is the 'effect'.

Other common causes of insomnia include: noise, a room that's too hot or cold, an uncomfortable bed, alcohol, caffeine or nicotine, recreational drugs like cocaine or ecstasy, jet lag, or shift work.

As mentioned earlier, sleep disturbance is about twice as common in women as men. Additionally, around half of post-menopausal women experience sleep disturbances. This seems to be due in part to changes in hormone levels. Also, changes in sex hormones in both men and women as they age may account in part for increased prevalence of sleep disorders in older people.

So, what does ordinary sleep look like for those people who get it? Sleep is divided into four stages (it used to be five, but stages 3 and 4 were combined). The first three stages are non-REM (NREM) sleep, and the fourth stage is REM (Rapid Eye Movement) sleep.

### These stages are:

- **Stage 1** – which can be considered a transition period between wakefulness and sleep and lasts around five to 10 minutes. The brain produces high amplitude theta waves, which are very slow brain waves.
- **Stage 2** – where people become less aware of their surroundings, their body temperature drops, and their breathing and heart rate become more regular. It lasts around 20 minutes. The brain begins to produce bursts of rapid, rhythmic brain wave activity called sleep spindles. People spend around 50 percent of their total sleep in this stage.
- **Stage 3** – where a person's muscles relax, and blood pressure and breathing rate drop. Slow brain waves (delta waves) are generated. People become less responsive, and noises and activity in the environment may not get a response.
- **Stage 4 REM sleep** – where the brain becomes more active, and the body becomes relaxed and voluntary muscles become immobilized. Dreams occur and the eyes move rapidly. There is also an increase in respiration rate, and increased brain activity. People spend around 20 percent of their total sleep in this stage.

Sleep begins in stage 1 and progresses into stages 2 and 3. After stage 3, stage 2 sleep is repeated before entering REM sleep (stage 4). Once REM sleep is over, the body usually returns to stage 2 sleep. Sleep cycles through these stages approximately four or five times throughout the night. Typically, sleep cycles last around 90 minutes. The first cycle of REM sleep might last only a short amount of time, but each cycle becomes longer through the night. REM sleep can last up to an hour as sleep progresses.

What's going on inside your brain when you go to bed? In good sleepers, the amygdala, the hippocampus, and the alertness regions of the brain stem become less active as they begin to fall asleep. With insomniacs, these regions stay active. Their thalamus also stays active. People with insomnia also have lower quality of sleep with shallower and less powerful brainwaves during NREM sleep, and more fragmented REM sleep.

The hypothalamus contains the suprachiasmatic nucleus (SCN), which receives information about light exposure from the eyes and controls a person's circadian rhythms. It produces the neurotransmitter gamma-Aminobutyric acid (GABA), which reduces the activity of arousal centres in the hypothalamus. The brain stem communicates with the hypothalamus to control the transitions between wake and sleep. The brain stem also produces GABA, which reduces the activity of arousal centres in the brain stem.

During most stages of sleep, the thalamus becomes quiet, ignoring messages from the outside world. But during REM sleep, the thalamus is active, sending the cortex images, sounds, and other sensations. The pineal gland receives signals from the SCN and increases production of the hormone melatonin, which helps put a person to sleep once the lights go out. When the eyes receive light from the sun, the pineal gland's production of melatonin is inhibited. When the eyes do not receive light, melatonin is produced in the pineal gland and a person becomes tired.

The basal forebrain promotes sleep and wakefulness, while part of the midbrain acts as an arousal system. Adenosine is produced by astrocytes (a type of glial cell) in the basal forebrain. Adenosine is a neurotransmitter/neuromodulator affecting the sleep process, particularly the initiation of sleep. In the brain, it is an inhibitory neurotransmitter and inhibits many processes associated with wakefulness. While awake, levels of

adenosine in the brain continue to rise, increasing a person's level of sleepiness. Adenosine levels decrease during sleep. Neurons, located predominantly in the hypothalamus, produce orexin, which is a neuropeptide that seems to promote wakefulness. It also regulates arousal, feeding, energy expenditure, and modulates visceral function. The role of the orexin system is to integrate metabolic, circadian, and sleep debt influences to determine whether an animal should be asleep or awake and active. Orexin neurons strongly excite various brain nuclei with important roles in wakefulness including the dopamine, noradrenalin, histamine, and acetylcholine systems, and appear to play an important role in stabilizing wakefulness and sleep.

#### If you get enough sleep, it:

- Reduces stress
- Reduces the risk of depression
- Makes you more alert
- Improves your memory
- Cleans up your brain
- Makes you cleverer
- Helps your body repair itself
- Reduces inflammation
- Keeps your heart healthy
- May prevent cancer
- May help you lose weight.

#### But what happens if you don't get enough sleep? Insomnia:

- Is linked with depression and anxiety
- Makes you forgetful
- Impairs your judgement
- Cognitively impairs your thinking
- Causes accidents, eg falling asleep at the wheel
- Is linked to health issues (heart attack, stroke, diabetes)
- Kills sex drive
- Ages your skin
- Can cause weight gain
- Increases the risk of death.

So, if your client does have insomnia, what can you do to help? Milton Erickson had a client with insomnia. He famously used an avoidance-avoidance bind to resolve his client's symptoms. The client was a meticulous elderly man who prided himself on doing all his own housework. All of it except waxing the floors, which he hated. Erickson told the man that there was an obvious solution to his insomnia problem, but he might not like it (a typical Erickson comment!). The man insisted that he would do whatever was necessary in order to sleep. Erickson, as usual, was reluctant to tell the man what he needed to do, and the man insisted that he'd do whatever was necessary, giving various examples of how persistent he was in dealing with difficult problems. Erickson finally told

him that if he wasn't asleep within fifteen minutes of going to bed, he had to get up and wax floors until he felt he could sleep. After that, if he was still not asleep within fifteen minutes, he had to get up again and continue this procedure until he was asleep. The end result was that the man had well-waxed floors and slept very well.

Clients may want to try medications from their doctor, but, remember, these are not recommended for more than four or five weeks, and chronic insomnia can last longer than that.

Therapists can also suggest (what's called) 'sleep hygiene' changes. Sleep hygiene is a common term for all of the behaviours relating to the promotion of good sleep. So, what could you suggest? Here are some ideas. Clients should:

- Go to bed and wake up at the same time every day (including weekends)
- Make sure their mattress, pillows, and covers are comfortable
- Find soothing ways to relax into sleep, including use of white noise
- Use the bed only for sleeping (and sex)
- Make sure the bedroom is dark, cool (18°C), and quiet
- Relax at least 1 hour before bed
- Take a bath or read a book before bed
- Eat a small amount of food rich in carbohydrates, such as cereal. In addition, the milk with the cereal contains tryptophan which promotes the production of melatonin.
- Exercise regularly during the day. Exercise not only improves sleep, but good sleep improves a person's performance of exercise
- Get exposure to sunlight during the day
- Sprinkle lavender or neroli oil on their pillow before sleeping
- Try some moderately difficult mental arithmetic
- Get out of bed after 15 minutes of wakefulness and do something relaxing or non-stimulating for twenty minutes before going back to bed.
- If in these days of working from home (#WfH) and if their bedroom is also their office, make the room look different during the daytime and the night time, e.g. put a different blanket over the bed during the day.

#### And here are some things for them to avoid:

- Do not sleep in after a bad night's sleep
- Do not nap during the day
- Do not strengthen any links between bed and the idea of not sleeping.
- Do not keep checking the time
- Do not watch television or use devices with screens right before going to bed
- Do not smoke or drink alcohol, tea, or coffee at least 2 hours before going to bed

- Do not eat a big meal late at night
- Do not exercise at least 2 hours before bed

One technique that is sometimes used is to restrict the amount of time that people with insomnia spend in bed – maybe to just six hours. By keeping people awake for longer, this builds up the sleep pressure, and people fall asleep faster and sleep better. It also increases their expectation that they will sleep better in future.

You can also recommend that clients who can't sleep try 'paradoxical intention'. This is where, instead of lying there struggling to get to sleep, a person remains passively awake and avoids any efforts to fall asleep. This eliminates any performance anxiety that may inhibit sleep onset. People often naturally fall asleep.

If your client's insomnia is caused by stress or anxiety or feeling depressed, then we can help with that. It's the usual bucket emptying and emphasis on the 3Ps – positive thoughts, positive actions, and positive interactions. (And that fourth P – purpose.) And, of course, listening to your download/CD will help them to get to sleep – whether that's when they first go to bed or in the middle of the night. Sleep well.

#### References:

[https://en.wikipedia.org/wiki/Sleep\\_apnea](https://en.wikipedia.org/wiki/Sleep_apnea)  
<https://www.nhs.uk/conditions/insomnia/#overview>  
<https://www.hypnotherapy-directory.org.uk/memberarticles/twelve-steps-to-better-sleep>  
<https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Understanding-Sleep>  
 Matthew Walker. *Why We Sleep: The New Science of Sleep and Dreams*. Penguin. ISBN-10: 9780141983769  
<https://www.verywellhealth.com/the-four-stages-of-sleep-2795920>



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