

## CONTENTS

What is insomnia?	Page 1
Who suffers from insomnia?	page 1
What's the difference between transient and chronic insomnia?	page 1
What patterns of insomnia are there?	Page 1
Who is insomnia treated?	Page 2
Circadian rhythm and melatonin	Page 3
Effects of magnetic fields on the pineal gland and the production of melatonin	Page 4
How to use magnetic field therapy to increase melatonin levels	Page 4
References	Page 5

# Melatonin therapy for the treatment of insomnia

A report for World of Magnets by Debbie Shimadry RN Dip, Dip MT

## What is insomnia?

Insomnia can be described simply as being disordered sleep. However it is usually characterised by a difficulty getting to sleep with or without repeated waking through the night. It usually results in a feeling of permanent tiredness.

Most of us will experience insomnia at some point in our life, but it lasts only a few nights or at most a few weeks and then resolves itself with out treatment. Most common forms of temporary insomnia are jetlag after changing time zone when going or returning from holiday, environmental disturbances i.e noise outside the house from neighbours, car alarms, traffic etc, temporary illness such as a cold , flu or other illness. Some people suffer from chronic insomnia ( i.e. having trouble getting to sleep or staying a sleep nearly all or every night for a period of over 3 weeks.)

## Who suffers from insomnia?

Insomnia is the most common complaint about sleep. 2 out of 3 adults in the U.K suffer with chronic insomnia, that's approx 32 million people. Many studies have shown that women complain of poor sleep twice as often as men and that most elderly people are awake for up to one fifth of the night. Studies have also shown that people with anxious personalities , those suffering from depression and stress are major sufferers of insomnia.

## What's the difference between transient and chronic insomnia?

### Transient

**Duration**– Usually less than 3-4 weeks.

**Causes**-Life stress, brief illness, travel, sleep deprivation, hormonal changes, pain.

**Effects**– Minimal, rapid recovery once the causes have been resolved.

### Chronic

**Duration**– Longer than 3-4 weeks, often permanent.

**Causes**– Old age, long term illness, chronic pain, depression, chronic stress

**Effects**– Poor concentration/performance, muscle aches, reduced immune function, hormonal imbalances, a state of permanent tiredness.

## What patterns of insomnia are there?

The following is a list of the major patterns of insomnia. These can be both transient or chronic problems:

1. Sleep onset insomnia-i.e. taking longer than 30 minutes to get to sleep. Caused by sudden anxiety, grief, environmental noise, drugs, depression, stress.

2. Sleep maintenance insomnia– i.e. frequent nocturnal awakening which can be at regular or random intervals. For example at 90 minute intervals after periods of distressing REM sleep ( dream sleep). Random awakenings can occur in sleep apnoea ( sleep apnoea is stop breathing for short periods of time which require stimulus from the brain to resume breathing)
3. Early morning waking– occurs in depression.
4. Phase-shift disorders– normal sleep duration but at abnormal times of the day.
5. Cyclical insomnia– due to drugs or alcohol abuse

### How is insomnia treated?

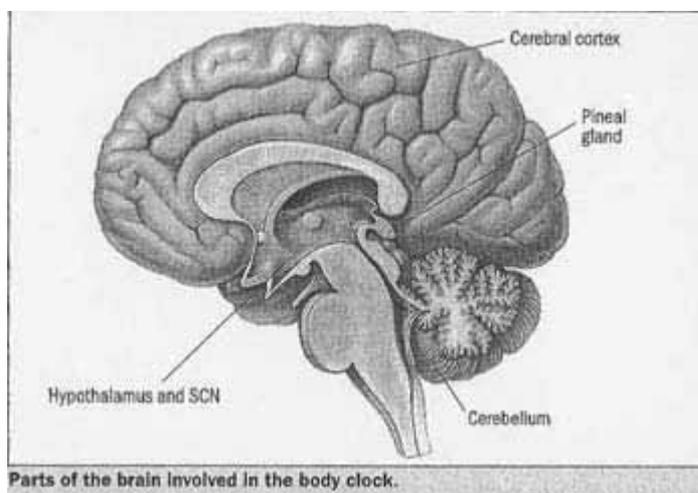
Acute or short term insomnia may not require treatment. If your insomnia makes it hard to function during the day because you are sleepy and tired, your G.P. may prescribe sleeping pills for a short period of time. The rapid onset, short acting medications now available do not have as many side effects of older medications. Some medications become less effective after several weeks of use and long term safety and effectiveness of sleeping tablets is not yet known.

Treatment for chronic insomnia includes first treating any underlying conditions or health problems that are causing the insomnia. Your G.P. may prescribe sleeping tablets or behavioural therapy which focuses on changing habits which may exacerbate the insomnia. Such as reducing external noise factors, this can mean insulating windows against noise or using ear-plugs, or changing pillows and bedding if this prevents you from sleeping, avoidance of caffeine during the evening and not using any form of stimulants. Most medications including those available over the counter have side effects and must be used with caution.

Natural treatments for insomnia include: acupuncture, herbal remedies, reflexology, aromatherapy, hypnosis and relaxation therapy. These techniques are much less damaging to the body and do have a limited success but none has shown consistent results with all types of insomnia.

### Circadian rhythm and melatonin.

The body's' circadian rhythm ( biological body clock), which determines when you sleep and when you wake is controlled by a hormone called melatonin– which in turn is released by the pea sized pineal gland buried deep in the brain. As with other hormones, levels of melatonin decrease with age, so that by age 60 your body produces half the amount of melatonin it did when you were age 20.



Parts of the brain involved in the body clock.

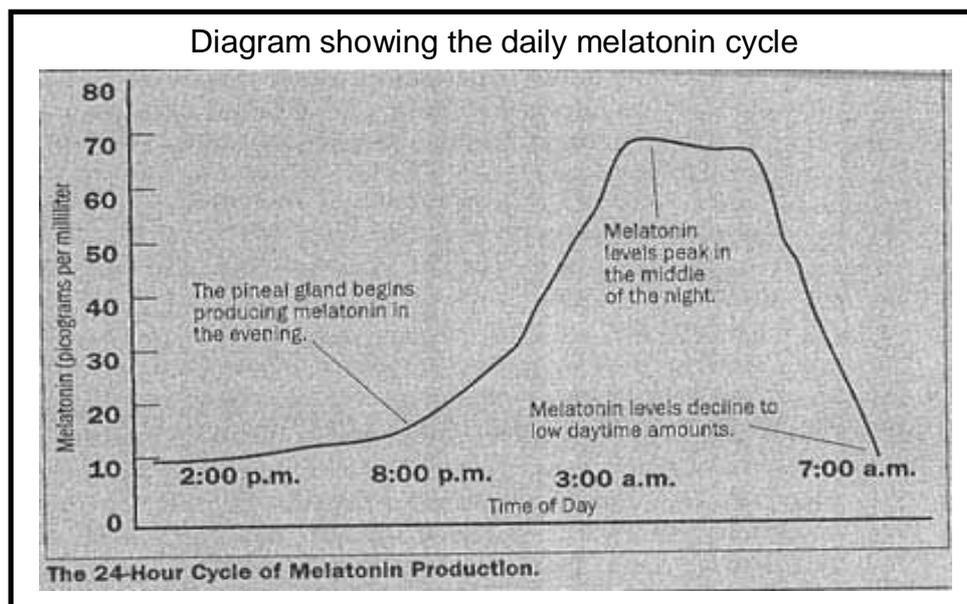
The pineal gland is sensitive to outside influences such as environmental pollution, stress, illness and other hormonal changes these can reduce the levels of melatonin produced by the pineal gland.

Studies have shown that just tiny doses of replacement melatonin taken at bedtime can quickly bring blood levels of the hormone back to normal and help induce a good nights sleep. Patients taking melatonin reported that they had less trouble getting to sleep in the first place— they dropped off in less than half the time of those with out melatonin supplements. They slept for longer and they woke up feeling alert and refreshed.

Melatonin has been tested on air stewards on long haul flights to re-regulate their body clocks and to avoid the worst disruptions of jet-lag. The results were that those taking melatonin did not display the usual symptoms of jet-lag , while their colleagues with out melatonin did display the symptoms of jet-lag.

### The natural Melatonin cycle of the body.

In a person who is not suffering with insomnia the bodies circadian regulates the production and secretion of Melatonin via the pineal gland. During the day, melatonin levels are at their lowest level in the body. As the day progresses and evening comes the pineal gland begins to secrete more melatonin , from around 8.00pm the melatonin level in the body continues to increase until it reaches its peak at around 03.00 am . Whilst the melatonin levels increase over the period of the evening into the night the body begins to feel relaxed and starts to wind down into sleep mode. Between 10.00-11.00pm the body begins to feel tired and sends go to bed signals to the brain to tell the person to go to sleep. It is t this point that the body is ready to fall into a natural sleep. After 03.00 am the pineal gland reduces the amount of melatonin it is secreting and continues to reduce production until it reaches the body's lowest level at around 07.00 am. This allows the body to slowly wake up in the morning with out feeling heavy headed or still sleepy.



If a person's circadian rhythm is out of alignment then this process will not occur and the body will not fall into a natural sleep at bedtime. Which is way a person with insomnia will find it difficult to get to sleep as their melatonin levels are not sufficient to induce sleep. Also with out the high melatonin levels it is possible to wake many times during the night and be unable to get back off to sleep because the is insufficient melatonin to remain asleep during the night.

### **Effects of magnetic fields on the pineal gland and the production of melatonin.**

A negative magnetic field can influence many biochemical processes within the body that directly relate to maintaining proper sleep patterns. The pineal gland, which is a magnetic organ, is sensitive to magnetic fields. Negative magnetic fields can help reverse changes in the body's circadian rhythm by stimulating the pineal gland. Magnetic field therapy is very effective in treating and preventing all types of sleep disorders. The following are general guidelines for the use of magnetic therapy to treat insomnia:

1. Sleep on a magnetic bed pad composed of tiny negative magnets placed sufficiently close together to provide a full negative magnetic field. Exposure to the magnetic bed pad serves to increase melatonin production inside the intestinal tract. The intestinal tract can also be stimulated to produce melatonin by placing a negative magnetic wrap around the abdomen.
2. Sleeping with your head surrounded by a negative magnetic field is even more effective in producing sound sleep than a magnetic bed pad. Place small negative magnets close together inside your pillow. The top of the head be as close as possible to the magnets.

Researchers have generated a great deal of scientific information about the hormone melatonin. Several studies have shown the benefits of increasing melatonin levels to reverse insomnia as well as preventing the signs of aging.

There is a concern that supplementing melatonin with synthetic melatonin replacement may suppress the normal production of the hormone made by the pineal gland. Given the potential problems associated with supplementing synthetic melatonin the focus should be on stimulating the body to produce the hormone naturally.

A negative magnetic field will stimulate the pineal gland, the retina of the eye and also the intestinal tract to produce melatonin. Treating the brain with a negative magnetic field produces energy-restoring deep sleep and all the healing benefits of melatonin.

### **How to use magnetic field therapy to increase melatonin levels.**

As previously discussed the pineal gland needs stimulation by a negative magnetic field. These can be applied in a variety of ways. The application of individual magnets to the head, face or neck requires specialist knowledge to ensure the magnetic field is of sufficient strength and the magnets are placed where they will stimulate the pineal gland. An easier option is to attach magnets to your headboard or to the inside of your pillow. When attaching magnets to the headboard careful attention must be given to the height of the magnets and the distance between each magnet the height and distance is relative to the individual strength of each magnet and to the sleeping position of the person. Magnets can be placed inside your pillow case these need to be placed in the same format as with the headboard placement.

It can be difficult to calculate the positioning and strength of magnets required to stimulate the pineal gland adequately. To alleviate this problem special negative field magnetic pillows have been designed. They have had the amount, strength and placement calculated and the magnets are fixed into position so they will not deviate from their position. The pillow is inserted into your pillow case on top of your existing pillow. The magnets will have contact with the top of the head through out the night.

Natural stimulation of the pineal gland to increase melatonin levels is the most successful treatment for both transient and chronic insomnia. Negative magnetic field therapy is now easy to use and apply by using specialist magnetic pillows. The amount of insomnia sufferers in the U.K. will reduce substantially with regular use of negative magnetic field therapy.

#### References.

Hughes RJ, et al, "The role of melatonin and circadian phase in age related sleep maintenance insomnia": Assessment in a clinical trial of melatonin replacement. *Sleep*, 1998, 21: 52-68

Dawson PK et al , " A double blind trial of melatonin as a treatment for jet-lag in international cabin crew." *Biol Psychiatry*. 1993, 33 : 526-30

Dolberg OT et al, 1998, "Melatonin for the treatment of sleep disturbances in major depressive disorder." *AM J Psychiatry*. 1998, 155: 119-21

Philpott W et al, 2000, "Magnet Therapy," *Alternative Medicine*. COM inc.

Brewer Dr S, 2002, " Healing with Magnetic Therapy.", D Jay Ltd.