

The Role of the Body Clock in Healing Chronic Insomnia

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1. Introduction

Insomnia is believed to affect one out of every ten people.

Although the reasons and causes of insomnia are varied, one of the most common contributing factors is an out-of-sync body clock.

Nowadays, because of changes in the rhythm and pace of our modern lifestyle, the human body clock is often out-of-sync with the natural environment. This means that large numbers of people exist in a state of permanent “social jet lag”. (The term “social jet lag” was coined by Professor Till Roenneberg and his research team, University of Munich.)

This permanent state of social jet lag can lead to the onset of chronic insomnia, mild depression and symptoms related to premature ageing.

The disruption of the body’s biorhythms has also been linked to the development of neurodegenerative syndromes such as Alzheimer’s disease.

The “master” body clock is located in our brain. It controls our sleeping and waking patterns, the production of our hormones, our appetite, our mood and our memory. Consequently when the rhythms of our body clock become disrupted, our sleep cycle, hormones, appetite, metabolism, memory and mood are adversely affected.

One in five women in the United States are said to be on antidepressants (Marci Shimoff, *Love for No Reason*, 2010).

According to the World Health Organisation, 15% of the population in most Western countries suffer from severe depression. For a long time, insomnia has been viewed as one of the side effects of depression. However, lately researchers are discovering that chronic insomnia can be one of the causes (rather than an effect) of depression.

The people that are most affected by the disruption of the body clock are:

- The elderly
- Women experiencing pregnancy, the menopause or menstruation
- People with eyesight problems
- People who work changing shift patterns
- Aviation staff or people who continually travel through different time zones

The disruption of the body clock also tends to affect people who live in urban areas, lead sedentary lifestyles and who spend little of their time outdoors in natural daylight.

Supplements that are used to correct melatonin deficiency or disruptions in the body clock may often have serious side effects, if used on a long-term basis.

Therefore, it is important to increase awareness about the role of the body clock and about the natural techniques that can be used to regulate it. This will help to prevent the onset of the illnesses that make the use of supplements and sleeping medications necessary.

Sleep expert, Dr Neil Stanley of Norwich University Hospital said in December 2007, that even though there are over 89 sleeping disorders, medications all target the same neurotransmitter in the brain (GABA). He said that the “one-size-fits-all” approach to treating insomnia does not really match the varied individual causes and effects of sleeping deprivation.

Approaches to dealing with insomnia that are tailored to meet the specific causes and needs of the individual, rather than a blanket overall approach, may also be a more effective way of dealing with sleeping deprivation.

2. The Role of the Body Clock

As early humankind developed, the human body clock evolved to adapt to the demands of the natural environment. However in modern times, the human body clock remains adapted to the rhythm of nature and not to the schedules determined by our hectic modern life.

Experiments have shown that even when humans are placed in isolation units with no access to finding out the time of the day, and no clues from the outside world such as daylight or sunshine, their bodies are still influenced by a rhythm of approximately 24 hours. The body clock is extremely sensitive and powerful, able to anticipate changes in the environment, influence emotional behaviour and regulate an estimated 15% of our genes.

According to researchers, we have an internal mechanism that is controlled by a single building block of protein which triggers off a process that sets the rhythm of the body clock. There are 10,000 nerve cells in the hypothalamus (a region of the brain), and these cells are responsible for our sleeping and waking patterns, helping us to wake up in the morning and go to sleep at night. If this process becomes faulty, it can have far-reaching effects over the body's whole system.

Professor Till Roenneberg believes that for large numbers of people, the body clock is running over two hours behind, which makes it difficult for people to wake up in the morning without the aid of an alarm. This is because modern life dictates that we sleep and get up at times that are not right for our biological clock.

A study carried out by the Liverpool John Moores University team, reported in March 2007, uncovered reports of health problems experienced by cabin crew and aviation staff who have to travel across multiple time zones. Symptoms included problems with the menstrual cycle, problems with concentration and memory, and episodes of psychosis.

The symptoms of jet lag usually include a disruption of the sleep-wake cycle, an inability to concentrate, indigestion, headaches and irritation.

The researchers, who carried out this study, said that melatonin supplements, which are often used to treat problems relating to jet lag, are unlicensed drugs and should be used with caution.

Neurophysician Professor Joke Meijer has discovered that the communication between the nerve cells in the brain that are responsible for the working of our body clock, becomes less effective as we grow older. This means that as we age, we may feel less desire to sleep at night and are more liable to fall asleep during the day.

3. The Challenges of Treating Problems with the Body Clock

In a *Daily Mail* article, in November 2010, Professor Roenneberg is quoted as saying that the consequences of social jet lag may affect our kidney functions, our metabolism, cause weight gain due to eating at the wrong “body clock” time and may also increase addiction to the stimulants that keep us alert during bouts of daytime fatigue.

Because the body clock regulates our heart rate, hormone production, our cognitive processes and our moods, when the body clock goes out of sync, we may be at increased risk of developing heart disease, degenerative brain syndromes or depression.

Melatonin, which is secreted by the pineal gland in the brain, is a powerful antioxidant against cancer. A study carried out in the U.S. in 2005 revealed that low levels of melatonin could encourage the growth of tumours.

Melatonin supplements and 5-HTP supplements are often used to treat problems that relate to the body clock such as the symptoms of jet lag or sleeping problems related to the menopause. But there is a risk of experiencing side effects when taking melatonin supplements over a longer period of time. These side effects may include nausea, drowsiness, nightmares, headaches, dizziness or abdominal cramps.

Sometimes symptoms of depression have increased when taking large doses of melatonin. Pregnant women and people who have a history of heart problems, high blood pressure, diabetes or who experience seizures are usually advised to avoid taking melatonin supplements. However these groups of people tend to be the most vulnerable to insomnia or problems with the body clock.

Sleeping medications are commonly prescribed as a solution to insomnia. Experts advise that they should only be taken on a short-term basis. If taken in the long-term, the body can become accustomed to the medication which then reduces or cancels out their effect. The dosage may then sometimes be increased which runs the risk of creating dependency or **addiction**.

Withdrawal symptoms, after coming off prescribed medication, may also lead to high anxiety and further insomnia.

Some forms of sleeping medication, such as **barbiturates**, can suppress the REM (rapid eye movement) dream stage of sleep of the sleep cycle that is vital for our emotional and physical health.

Sleeping pills or **sedatives** can also disturb the body’s circadian rhythms. People have been known to walk, eat or attempt to drive in their sleep after taking sedative-hypnotics.

Both sleeping medications and 5-HTP supplements work by raising the levels of serotonin in the brain. However excessively high levels of serotonin can be harmful and the condition, **serotonin syndrome**, can be potentially fatal. Symptoms of serotonin syndrome include muscle twitching, euphoria or sensations akin to intoxication and sweating.

The reported side-effects that some people experience when they take 5-HTP supplements include heartburn, constipation, diarrhoea, bloating, rashes and vivid dreams or nightmares. The likelihood of experiencing such side effects can be increased if taken in the same time period as when taking antidepressants, alcohol, weight loss medications or antibiotic drugs.

4. Natural Holistic Solutions

More use should be made of natural techniques to reset the body clock, both as a preventative measure against the onset of illnesses and psychological conditions, and also as a complementary method of treating problems caused by insomnia and its related illnesses.

These techniques include:

- Using natural methods to raise the levels of serotonin in the brain without the aid of sleeping medications
- Using simple techniques to increase the production of melatonin rather than using melatonin supplements
- Adapting our lifestyle, as much as we possibly can, to the rhythm of the natural environment
- Eating foods that are a rich source of the vital hormones that we need to help us to sleep, wake up and regulate our mood, memory and appetite. This form of nutrition will also help to stabilise the body clock.

As well as helping to repair the sleep-wake cycle and alleviate sleep deprivation, these natural techniques will also help to:

- improve and enhance cognitive performance, (concentration, long-term memory, working memory, perception, visualisation skills, judgement, reason, attention span and listening skills)
- alleviate mood swings and raise the spirits
- regulate the appetite and in so doing, maintain the ideal weight
- increase self-esteem and improve social interaction skills

These are all factors that are affected by the stability of the internal human body clock.

5. Better Sleep Coaching Program

The **Better Sleep Coaching Program** has been devised to work as a complementary holistic system to help beat insomnia. Part of the program involves using natural techniques to reset or stabilise the internal body clock. Although natural techniques for resetting the body's biological clock are accessible, free or cost-effective, they may require lifestyle adjustments and initially, a good deal of motivation to carry them out on a long-term basis. The coaching structure, through providing action steps and accountability, would help to support the client with incorporating these changes into their daily life.

The Better Sleep Coaching program can also be used in conjunction with the conventional forms of medical treatment that a client may already be receiving.

As well as the Coaching Program, more details about natural techniques for maintaining the body clock can be found in the ebooks ***Banish Insomnia Now*** and ***5 Ways to Get More Sleep, Boost Your Energy and Feel Younger***.

Banish Insomnia Now provides an overview of the whole holistic system whereas ***5 Ways to Get More Sleep, Boost Your Energy and Feel Younger*** focuses mainly on caring for the body's internal biological clock.

For people who want to focus exclusively on the area of their body clock, a standalone audio version of ***5 Ways to Get More Sleep*** will also be available shortly.

Other areas covered by the Better Sleep Coaching program include **nutrition** and **mental relaxation techniques**.

Further information about the Better Sleep Coaching Program and its related products can be found at this website: <http://www.ways-to-sleep.com>.

6. Closing Summary

This paper explored the growing problem of sleeping difficulties that are related to the disruption of the human biological clock. The phenomenon which is now being described as “social jet lag” is becoming more prevalent due to leading a lifestyle which is out of sync with the natural environment.

Insomnia and problems relating to the body clock can lead to the development of illness, neurodegenerative diseases or psychological conditions.

Current methods for treating insomnia and body clock related problems are limited mainly to medication, supplements or light therapy. Sleeping medications and supplements work quickly and effectively, but if taken as long-term remedies, can result in other serious complications.

Natural techniques for resolving insomnia and body clock related problems do not work as fast as sleeping medications and supplements. However, as a long term solution, the continued implementation of natural techniques can help to gradually reprogram the brain and reset the body clock so that it runs more in sync with the natural environment, or as much as is possible within the constraints of modern living.

Maintaining the health of the body clock, not only helps to stabilise the body’s sleep-wake cycle, but can create a host of additional benefits which affect the mental and emotional well-being such as improved cognitive performance, social skills and self-esteem.

The Better Sleep Coaching Program and its related products offer additional ways to help beat the problems of insomnia and the body clock. These solutions involve using natural holistic techniques that involve nutrition and establishing new behaviours and habits that contribute to the regulation of the body’s sleep-wake cycle.

For more information about the Better Sleep Coaching Program and its related products, visit <http://www.ways-to-sleep.com>.