HERBAL EXTRACT
COMPANY

THE NATUROPATH'S GUIDE

INSOMNIA

A focus on the herbal approach for managing insomnia

WRITTEN BY CHRISTINE THOMAS
PUBLISHED FEBRUARY

PASSION FLOWER
(Passiflora incarnata)

INSOMNIA

Put simply, insomnia is the inability to sleep when desired. It is not just the occasional night of poor sleep but a prevalent and persistent, doctor diagnosed disorder that can profoundly impact a person's health, wellbeing and productivity. [1]

Insomnia is a common and complex sleep condition that can persist for decades if left untreated. It relates to a problem initiating or maintaining sleep, despite the opportunity for adequate sleep, and tends to result in distress and daytime symptoms of poor sleep. It can be caused by psychological, medical, substance related or environmental causes. It is estimated that 20% of Australian adults experience acute insomnia and 11.3% of the Australian population experience insomnia without the presence of other diseases. The prevalence of chronic insomnia in Australia is unknown, but is anticipated to be at 10%. [2]

Condition Overview

Sleep is essential for survival and is an important part of reaching health goals, providing rest and recuperation for the mind and body. It is as essential to wellbeing as a healthy diet and regular exercise, and just as difficult to achieve and maintain, yet it is frequently overlooked and ignored. Getting enough sleep can help with regulating appetite, metabolism and mood, as well as immune, hormonal and cardiovascular functioning. Sleep is also vital for healthy growth, learning and development in children, and for cognitive functioning and workplace performance in adults. It is concerning that four in every ten Australians are not getting adequate sleep which indicates there is a need for a greater focus to be placed on sleep health. [3]

Although often the undesirable result of our busy lives, insufficient sleep may also be indicative of imperfect health and can itself lead to future health problems such as depression and anxiety. Inadequate sleep can be caused by sleep disorders such as insomnia or by insufficient sleep due to lifestyle factors, such as work patterns or the use of electronic media. An Australian Government inquiry and report on Sleep Health Awareness in Australia is particularly concerned about the impact that smartphones and other forms of electronic and digital devices may be having on the sleep health of children. Adults are also risking their health by not prioritising sleep in their daily lives. As with children, many adults are using digital media in the late evening and night, which may have a detrimental impact on their sleep. In addition, a culture of 'burning the candle at both ends', which encourages people to work late into the evening can also result in reduced sleep. Environmental factors such as noise or light may also contribute to insufficient sleep. Approximately one in five Australians is estimated to be affected by a major sleep disorder, others being obstructive sleep apnoea, restless legs syndrome, circadian rhythm disorders and a neurological sleep/wake disorder known as hypersomnolence, which is recurrent episodes

of excessive daytime sleepiness or prolonged nighttime sleep. [4] [5]

Most people experience some sort of sleep disturbance during their lifetime. If it happens sporadically then it is not a problem. However, when it starts becoming a regular occurrence then treatment is paramount. Whatever a person's individual needs, lack of sleep or poor sleep quality can have far reaching consequences including increased risk of chronic diseases and serious health conditions such as obesity, diabetes, cardiovascular conditions and cancer. In addition, insufficient sleep has been associated with a range of mental health issues such as an increased risk of depression, cognitive decline in older people and possible links to the development of Alzheimer's disease. The mechanisms are thought to be multifactorial and mediated by the dysregulation of the hypothalamic-pituitary axis (HPA), increased sympathetic tone (identified as a characteristic of several cardiovascular diseases including hypertension) and inflammation. Insufficient sleep can also impair judgement and mental functioning and the impact that this had on productivity alone was estimated to cost Australia $17.9 billion in 2017. It can also lead to fatigue, which is a major contributing factor to road accidents. Fatigue kills more people on the road than alcohol and drugs combined. The seriousness of these effects depends on how bad the sleep deprivation is (e.g., less sleep versus no sleep or one night's poor sleep versus chronic problems) and the tasks and responsibilities of the day. [6] [7]

How much sleep an individual needs each night may vary as different people can have different sleep needs to support their general health and functioning. There are no formal guidelines on sleep for adults, however as people age they tend to need less sleep to support their health. Based on international guidelines seven to nine hours are recommended for 18 to 64 year olds and seven to eight hours for people aged 65 and over. Children and young people need eight to 17 hours of sleep a day, depending on their age. Sleep difficulties tend to be considered a problem when they occur a few times a week or more. [8]

The different ways insomnia can present include:

- Sleep onset (or initiation): going to sleep takes more than 30 minutes. Major causes include anxiety, pain or discomfort, caffeine and alcohol.
- Sleep maintenance: being awake during the night (more than 30 to 45 minutes). This is linked to depression, sleep apnoea, fibromyalgia syndrome, nocturnal hypoglycaemia, pain or discomfort and alcohol.
- Early termination (sleep offset): waking earlier than intended without being able to resume sleep.
- Nonrestorative: persistent sleepiness regardless of sleep of adequate duration.
- A combination of the above difficulties. [9]

There are two separate classification systems for sleep disorders, the International Classification of Sleep Disorders, 3rd edition (ICSD-3) and the Diagnostic and Statistical Manual for Mental Disorders, 5th edition (DSM-5). Insomnia can be classified in terms of either its duration (acute or chronic) or its causes (primary or secondary). Primary insomnia refers to people who do not have a single known cause for their insomnia. Secondary insomnia is caused by a health condition (like asthma, depression, arthritis, cancer or heartburn), pain, medication, or substance use (like alcohol). Symptoms such as sleep onset, sleep maintenance or waking too early, where these 'sleep times' take longer than 30 minutes, need to occur at least three times or more per week and have been present for more than three months to be defined as chronic. Acute insomnia (lasting 24 to 48 hours or less than three months), also known as episodic or transient insomnia, is commonly associated with significant events and stress such as occupational stress, personal losses, bereavement, family, relationship, financial situations, or jetlag. However, it can easily develop into a chronic condition from these predisposing factors. Some people present with chronic acute insomnia, meaning they have a week when they don't sleep, followed by months of good sleep, followed by a week of no sleep. It is important to note that both the ICSD-3 and DSM-5 have steered away from the classification of primary and secondary insomnia (i.e. insomnia comorbid with another disorder). This change reflects a growing awareness that when insomnia symptomatology arises in the context of another condition, it may evolve into a separate disorder that may not necessarily resolve after successful treatment or resolution of the first condition. This is relevant in patients with a psychiatric history, given the frequency with which insomnia and psychiatric disturbances can occur concurrently. About one-

third of adults (30 to 36%) in Australia may have some insomnia symptoms (e.g. poor sleep quality and non-restorative sleep) without meeting full diagnostic criteria. [10] [11]

Four factors are thought to underpin insomnia: predisposing factors (such as an anxious temperament and perfectionist qualities), precipitating factors (e.g. stressful events), perpetuating factors (behaviours employed to compensate for sleeplessness such as staying in bed while awake, daytime napping, spending excessive time in bed and dependence on alcohol and other sedatives to assist with sleep initiation) and Pavlovian conditioning which stimulates an arousal response to the bedroom environment (e.g. patients may report 'I'm sleepy but as soon as I hit the pillow I'm awake'). [12]

Insomnia is often accompanied by hyperarousal. Psychological and behavioural hyperarousal may be caused by effort to try to sleep. Patients may 'try hard to sleep', adopt rigid nightly routines and engage in avoidance and safety behaviours (e.g., cancelling a work meeting because of poor sleep and increasing time in bed to make up for lack of sleep). Patients may start planning their lives around sleep and ruminating about upcoming events that require a deviation from their usual routine in fear of a poor night's sleep. Not unexpectedly this usually results in increased emotional and cognitive arousal, which is not conducive to sleep. Patients may also develop unhelpful thoughts and beliefs (e.g. 'If I can't sleep within the next 15 minutes, I will not sleep'), and catastrophise about the consequence of poor sleep (e.g. 'If I don't sleep, my day is ruined'). Patients' cognitions and beliefs regarding sleep often present themselves in the language and emotions used, which can assist with the formulation of therapeutic intervention to address sleep. [13]

The regulation of sleep is processed by the circadian rhythm, the sleep/wake cycle. Circadian rhythm is the 24-hour internal clock in the brain that regulates cycles of alertness and sleepiness by responding to light changes in the environment. When properly aligned, a circadian rhythm can promote consistent and restorative sleep but when this circadian rhythm is thrown off, it can create significant sleeping problems, including insomnia. [14] [15]

Common Symptoms

The most obvious symptom of insomnia is a long and restless night, but it is the daytime symptoms that can really take their toll.

- Difficulty falling asleep at night
- Waking up during the night
- Waking up too early
- Lack of energy, fatigue, not feeling well-rested after a night's sleep
- Daytime tiredness or sleepiness
- Feeling 'tired and wired' during the day but not necessarily sleepy
- Low mood, irritability, depression or anxiety
- Difficulty paying attention, focusing on tasks or remembering
- Increased errors or accidents
- Ongoing worries about sleep or about functioning the next day
- Tension headaches or digestive problems [16]

Risk Factors

Age: Insomnia is frequent in older people and it has been estimated that it affects nearly half of all those over the age of 65 years. In some patients it can be caused by an underlying medical condition (such as dementia, particularly those with Alzheimer's disease, musculoskeletal disorders, frequent urination at night related to benign prostatic hypertrophy in men and bladder instability with decreased urethral resistance in women, congestive heart disease, chronic obstructive lung disease and Parkinson's disease) or a medication side effect. Use of medication increases with age. Depression and anxiety disorders, common among people over 65 years of age, frequently contribute to insomnia. Elderly women tend to report sleep disturbances more frequently than elderly men which may be partly related to changes in the postmenopausal profile of sex hormones. Oestrogen deficiency in particular has been postulated to contribute to the sleep difficulties that women often begin to experience in their perimenopausal period, and then increasingly with age. [17]

Sex: Women are more likely to have insomnia than men because they experience unique hormonal changes that can cause insomnia symptoms. These include hormonal changes during the menstrual

cycle, especially in the days leading up to their period, pregnancy (see below), especially in the third trimester, perimenopause and menopause, when hot flushes and night sweats can disturb sleep. Also, some health problems that can cause secondary insomnia are more common in women than in men including depression, anxiety and fibromyalgia. [18]

Pregnancy: Maternal sleep quality worsens during pregnancy, from the first trimester on and especially in the third trimester. Primary insomnia during pregnancy is multifactorial and might be associated with physical (nausea and vomiting, frequent urination at night, joint and back pain, heartburn, nasal congestion, thermoregulatory problems, contractions, foetal movements, uncomfortable or unusual sleeping positions, dreams and nightmares) and mental (especially depression and anxiety) causes. Poor sleep quality has shown to be associated with the increased risk of complications such as gestational diabetes, preterm delivery, prolonged labour and increased risk of caesarean section. [19]

Psychological illness: Having a history of mental health disorders such as depression, generalised anxiety disorder and posttraumatic stress disorder can increase the chances of insomnia. In Australia the prevalence of insomnia is 4.3 times higher in those with at least one mental health condition. [20]

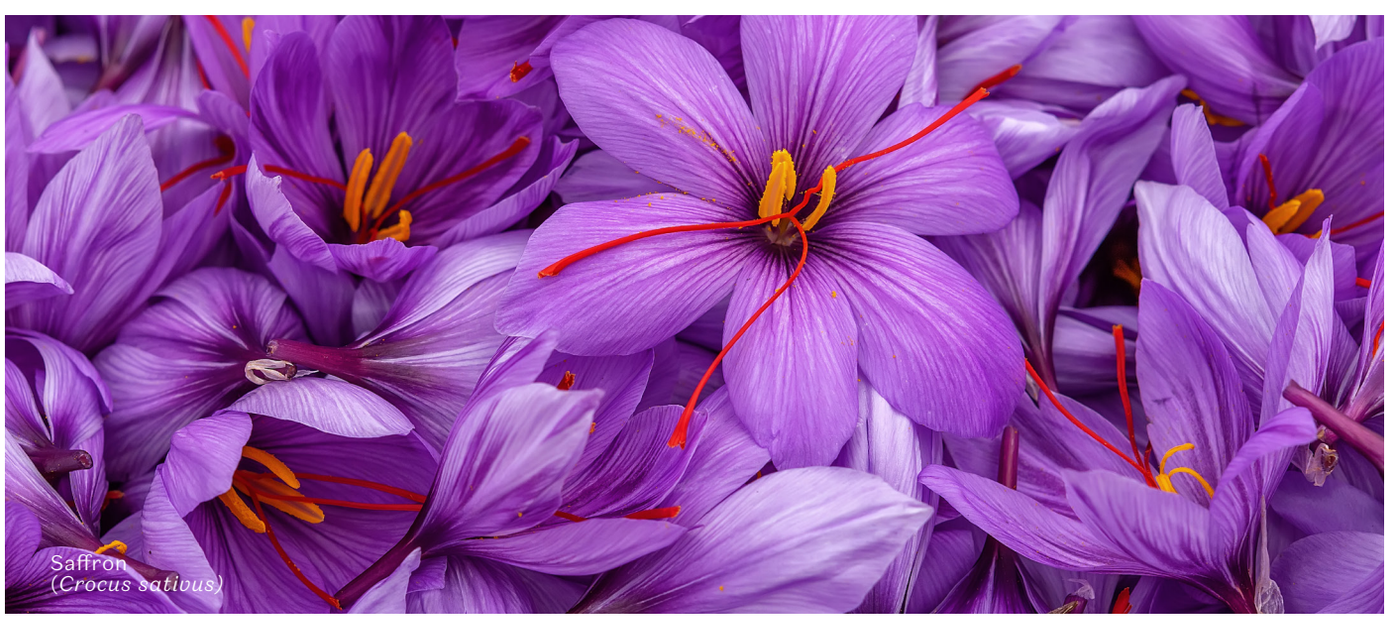
Stress and anxiety: These often lead to insomnia and sleep problems. By the same token, lack of proper rest can contribute to stress. And because stress and sleep problems share such a reciprocal relationship, addressing one of these issues can often lead to improvements for the other. [21]

Recent stressful event: The nature and severity of stressors that produce insomnia can vary a great deal across individuals. It may involve major life events such as bereavement, marital separation, impending surgery or more minor but repeated stressors such as work-related deadlines, traffic congestion or interpersonal conflicts. Reports of more stressful events in a given week were associated with more sleep disturbances during the subsequent week and, importantly, this association was stronger among those with greater sleep reactivity (the degree to which stress exposure disrupts sleep) at baseline. [22]

Working at night or in shifts: Individuals working in rotating shifts for more than 15 days have significantly higher prevalence of insomnia than day workers. [23]

Travelling through different time zones: Insomnia can be a sign of jet lag caused by flying globally over various time zones. Most passengers who fly over six or more different time zones generally require four to six days after travelling to resume their usual sleep patterns and to feel less lethargic during the day. [24]

Nocturnal hypoglycaemia: This has been found to be a common cause of insomnia. When there is a drop in the blood glucose level it causes the release of hormones that regulate glucose levels. These compounds stimulate the brain and are a


Saffron
(*Crocus sativus*)

natural signal that it is time to eat. During the night the brain can perceive this as a signal to wake up and eat. This phenomenon can cause a disruption in sleep and affect overall sleep quality. Fortunately, it can be prevented by eating a high-carbohydrate snack and avoiding high-protein foods in the hour or two before bedtime. This is partly because eating carbohydrates can significantly increase levels of serotonin, which can increase relaxation and initiate sleep. [25]

Medical illness: Conditions linked with insomnia include arthritis, muscle aches and pains, lung disease including asthma, heart disease, diabetes, overactive thyroid, headaches, colitis, gastroesophageal reflux disease, heartburn, infections, hot flushes, menstrual pains, leg cramps and restless leg syndrome. [26]

Medication: Many prescription drugs can interfere with sleep such as certain antidepressants and medications for asthma or blood pressure. Many over-the-counter medications, such as some pain medications, allergy and cold medications and weight-loss products, contain caffeine and other stimulants that can disrupt sleep. [27]

Negative conditioning: Psychophysiological insomnia is a form of primary insomnia where negative emotions and unhelpful coping strategies drive the insomnia. [28]

Poor sleep habits: This can include an irregular bedtime schedule, naps, stimulating activities before bed, an uncomfortable sleep environment and using bed for work, eating or watching television. Computers, televisions, video games, smartphones or other screens just before bed can interfere with the sleep cycle. [29]

Sedentary life: Prolonged sedentary behavior (sitting, being in a lying position or reclining needing a very low expenditure of energy) tends to be associated with an elevated risk of insomnia and sleep disturbance in the existing literature. [30] [31]

Reduced exposure to sunlight: Lack of daytime sunlight exposure is a risk factor for insomnia, depressive symptoms and poor mood. [32]

How To Get The Correct Diagnosis

A diagnosis of insomnia does not depend on the number of hours an individual may sleep but is based on the patient's self-report. It is important to take a thorough history to distinguish between insomnia and sleep disturbance. While sleep disturbance is a common complaint, many people continue to function well throughout the day. In contrast, insomnia has an impact on daytime functioning. [33]

Self-report measures are used in the diagnosis of insomnia and to clarify comorbidities (e.g. mood, circadian rhythm abnormality), which can assist with selecting the right treatment. Questions and sleep measures used to establish a diagnosis include sleep schedule, comorbidities, the patient's perception and duration and frequency of sleep. The Consensus Sleep Diary (available freely online) is the most reliable way to determine sleep schedule and sleep variability. Polysomnography is useful in patients with suspected comorbid sleep disorder. This is a sleep study which is a comprehensive test used to diagnose sleep disorders. It records the patient's brain waves, the oxygen level in the blood, heart rate and breathing, as well as eye and leg movements. [34]

Patients with insomnia usually describe sleep as 'non-refreshing' or 'non-restorative', attributing daytime impairments, such as fatigue and irritability, to poor sleep. They also tend to underestimate their actual time asleep and overestimate the wakefulness and time to fall asleep and are more likely to identify themselves as being awake even though polysomnography indicates they are asleep. This phenomenon is referred to as sleep state misperception. [35]

Conventional Treatment & Prevention

The first step in managing insomnia is to educate the patient about healthy sleep habits and change any lifestyle factors that may be contributing to the problem. Current guidelines suggest cognitive behavioural therapy is the first-line treatment for insomnia. This may be complemented with short-term pharmacological intervention. The Australasian Sleep Association (ASA) recommends that "cognitive behavioral therapy should be used whenever possible, and medications should be limited to the lowest necessary dose and shortest necessary duration." However, the ASA acknowledges that pharmacological intervention is necessary in some circumstances. In patients who are not responding

to pharmacological intervention, or patients in whom pharmacologic intervention is contraindicated (e.g. substance use history), specialist treatment is best undertaken by a multidisciplinary team that includes collaboration between a sleep physician, psychologist and general practitioner. [36]

Patients presenting with acute symptoms of insomnia may benefit from short-term medication with sleep hygiene education. In the case of chronic insomnia, where other methods have not helped, doctors may prescribe medication. This can be useful for a short period of time however long-term medication use can cause addiction and may have side effects. These could include night wandering, agitation, excessive drowsiness, impaired thinking, balance problems or allergic reactions. In Australia medications approved for the treatment of insomnia include benzodiazepines, benzodiazepine receptor agonists (referred to as 'Z-drugs') and dual orexin receptor antagonists. Other medications include sedative antidepressants, melatonin, antihistamines and calcium channel alpha-2 ligands. [37]

Pharmacotherapy for insomnia should not be used in isolation from cognitive behaviour therapy or other evidence-based psychological interventions.

If medication is considered necessary, non-benzodiazepine hypnotic agents such as zolpidem (e.g. Stilnox) and zopiclone (e.g. Imovane) are the preferred first-line agents. [38]

" By the time the average person reaches his or her average life expectancy of around 80 years, they will have invested 28 years of their lives in sleep. It is remarkable that an activity of this scale is so taken for granted" [39]

Californian Poppy
(Eschscholzia californica)

INTERVENTION	Hypnotic, sedative	Antispasmodic, analgesic, anodyne	Relaxing nervine, nervine tonic, anxiolytic and antidepressant	Adaptogen, adrenal restorative, hormone regulator
Californian Poppy	✓	✓	✓	
Chamomile	✓	✓	✓	
Holy Basil		✓	✓	✓
Hops	✓	✓	✓	✓
Lemon Balm	✓	✓	✓	
Magnolia	✓	✓	✓	
Passion Flower	✓	✓	✓	
Rehmannia				✓
Saffron	✓	✓	✓	✓
Scullcap	✓	✓	✓	
Valerian	✓	✓	✓	✓
Withania	✓	✓	✓	✓

Natural Therapies For Treatment & Prevention

The most effective treatment for insomnia is identifying and addressing causative factors and current sleep hygiene status. Herbal medicine represents one of the most frequently used complementary and alternative treatments of insomnia. It provides safe, effective and reliable treatment strategies aimed at addressing both the symptoms and cause of insomnia. Herbal treatments for insomnia tend to offer a cost-effective alternative to conventional medicines with no associated issues relating to tolerance and dependence and their other side effects. [40]

Insomnia can be one of the easiest or one of the hardest issues to resolve. It is pragmatic then to address the issues that might be contributing to insomnia while prescribing herbs for primary insomnia. A detailed and careful case history is required asking extensive questions to determine what type of insomnia the patient is experiencing and any underlying causes. The key is to not 'force' the sleep process and not overwhelm people who have insomnia, remembering that they are sleep deprived. Offer two to three sleep hygiene suggestions based on their answers. Advise them to be patient, to be compliant with sleep hygiene techniques, and try to address any social factors affecting sleep. Herbs can be gentle, supportive and help someone get to sleep for insomnia but need to be used from a holistic mind set and not just for short term insomnia relief without getting to the root cause. Adaptogens and relaxing nervines can be used during the day, especially if there is a lot of stress, with something stronger at night. [41] [42]

The key treatment goals include: [43] [44]

- Determine the cause(s) of the insomnia and then treat accordingly. This could include reducing depression or stress, treating pain, alleviating anxiety, reducing addiction, modulating hormones.
- Determine the current sleep hygiene status and educate on good sleep hygiene practices.
- Regulate circadian rhythm and HPA function.
- Regulate and support the nervous system. Assess, monitor and if required refer any substance use issues, medical or psychiatric conditions.
- Encourage beneficial lifestyle changes.
- Appropriately address external stressors (e.g. relationship/job factors). [45]

Lifestyle

Work with a psychotherapist/psychologist

Work through emotional problems leading to insomnia. Five main evidence-based psychological and behavioural treatments exist in managing insomnia:

- **Stimulus control therapy:** Involving going to bed only when sleepy, getting out of bed when not sleepy, using the bed only for sleeping and arising the same time from bed
- **Sleep restriction therapy:** Curtail time in bed to the average time the person sleeps. For example, if they only sleep six out of eight hours in bed, then reduce to six hours and work up to eight hours
- **Relaxation training:** Techniques to reduce somatic and psychological stress via muscular relaxation, imagery or meditation.
- **Sleep hygiene education (see below):** Instruction on health practices to enhance sleep such as exercise, diet, substance use, environmental factors (light, noise, temperature, bed quality, removal of beside clocks).
- **Cognitive therapy:** Challenging and changing incorrect beliefs about sleep. Cognitive therapy may assist some sleep sufferers who form inaccurate beliefs about their sleep pattern. They may catastrophise by thinking thoughts such as 'I can never get to sleep' or 'I need a sleeping pill to sleep'. They may also present with a trait of being a chronic worrier, and may be kept up by an overactive internal dialogue (if so, screen for generalised anxiety disorder). [46]

Good Sleep Hygiene

Set a schedule

Go to bed and wake up at the same time each day. Varying bedtime hours and waking hours dramatically leads to a confused circadian rhythm. Sleeping in on weekends makes it harder to wake up early on Monday morning because it re-sets sleep cycles for a later awakening. Western Medicine, Ayurveda and Traditional Chinese Medicine all agree

that getting to sleep by 10pm is important for long term health. [47]

Use bed only for sleep and intimacy

Television, computers and other distractions can interfere with sleep. Experts say one of the most alluring sleep distractions is the 24-hour accessibility of the internet. Reduce screen time and bright lights before bedtime. [48]

Get regular exercise each day

Exercise and physical activity is advised to assist in balancing the function of the HPA axis. Regular graded physical exercise may promote relaxation and raise core body temperature, this activity potentially benefitting the sleep pattern. Exercise also addresses weight gain and obesity, which are also factors that increase the occurrence of sleep disorders. For maximum benefit try to get exercise for about two to three hours before going to bed. Exercise immediately before bed stimulates the body and may make it difficult to fall asleep. [49]

Try to spend some daytime outdoors in natural light

Light is important for the body to produce melatonin which is a sleep promoting substance. Sunlight early in the day is particularly helpful in synchronising the body clock. Sleep experts recommend exposure to an hour of morning sunlight for people having problems falling asleep. It is better to address why a person is not making their own melatonin than supplement with it. Chastetree (*Vitex agnus-castus)*, used commonly for hormonal and menstrual irregularities, may exert a novel melatoninergic effect. To date no human clinical trials exist testing chastetree in insomnia, however in a study of 20 healthy human males a significant, dose-dependent, increase of melatonin secretion was demonstrated using 120mg, 240mg and 480mg of the extract per day compared with placebo for 14 days. [50]

Make the bedroom as restful as possible

A quiet, dark room with comfortable bedding and good temperature control is important. A white noise machine can help with ambient noise problems.

Take medications as directed

Prescription medications may cause patients to be alert or sleepy so the instructions that come with them should be followed. The time of day that the medication is taken should not be varied.

Be comfortable and relaxed before bed

A warm bath (not to be underestimated), gentle reading or another relaxing routine such as keeping a night journal or breathing exercises can make it easier to fall sleep. Patients can train themselves to associate certain restful activities with sleep and make them part of their bedtime ritual. They should not go to bed too hungry or too full. If needed, eat a protein snack before bed and avoid sugar and high carbohydrate dinners. This may help people with diabetes stabilise their blood sugar levels overnight. Sleep pillows, pillows loosely filled with single herbs or herbal combinations, are a long standing remedy to facilitate a good night's sleep. Herbs traditionally used are chamomile, hops, lavender and lemon balm. Try a cup of chamomile tea before bed to harness its relaxing properties. Aromatherapy, especially lavender essential oil placed on the pillow, in an Epsom salts bath, in a diffuser, in massage oil or inhaled, can help relaxation and promote a peaceful sleep. A glass of warm milk with nutmeg or saffron is an old fashioned recipe. If frequent trips to the toilet are a problem during the night, try not to drink too much before bedtime and make sure they go to bed with an empty bladder.

Avoid alcohol, caffeine and cigarettes

Alcohol robs people of deep sleep and keeps them in the lighter stages of sleep. Caffeine (tea, coffee, chocolate, soft drinks, diet drugs, some pain relievers) and the nicotine in cigarettes are stimulants that can keep people awake. Even a few squares of chocolate after dinner can be sufficient to prevent sleep. Caffeine creates a vicious cycle of no sleep, coffee, no sleep, coffee and on and on and on. No amount of coffee or caffeinated beverage is okay if a person has insomnia. It has to be eliminated for a short while. Patients can slowly wean off it so they do not get withdrawal symptoms. Adaptogens can be used for a month before weaning off coffee which can help with energy. The sensitivity to the stimulant effects of caffeine varies greatly from one person to the next and is largely a reflection of how quickly the body can eliminate caffeine. Smokers tend to sleep very lightly and often wake up in the early morning due to nicotine withdrawal. [51]

Avoid daytime naps

If a nap is necessary, for example because of a late night, then limit this to about 30 minutes. Make sure that the patient is awake for at least four hours before going back to bed. [52]

Avoid sleeping pills except in exceptional circumstances

They do not fix the cause of the sleeping problem. In Australia the most commonly prescribed medications for insomnia are the benzodiazepines temazepam and diazepam. Although these medications are efficacious, they are associated with tolerance, dependence, residual daytime sedative effects, cognitive and psychomotor impairment and discontinuation syndromes, including rebound insomnia and withdrawal symptoms. For this reason, their use should be judicious and short-term. [53]

Don't lie in bed awake

If the patient does not fall asleep in a reasonable time, about 20 to 30 minutes, then they should get up and do something else in another room, like reading, until they feel tired. The anxiety of being unable to fall asleep can actually contribute to insomnia. Try and keep the lighting dim. When they are tired go back to bed. Scientists have determined that counting sheep is ineffective for putting oneself to sleep. Evidently it is too boring and imagining a calming landscape generally works much better. [54]

Diet

The diet provides the nutrients required to create and regulate adrenal hormones and psychoactive neurotransmitters (B vitamins, magnesium, calcium and vitamin C). These will help support a healthy functioning nervous system.

Regulate meals throughout the day to ensure balanced blood sugar levels are maintained.

Avoid excess stimulant foods including caffeine and alcohol (see above in lifestyle), sugar, artificial sweeteners, garlic, chillies and curries.

Determine if there are food allergies or intolerances present.

Evening meal portions should not be excessive (may cause rebound hypoglycaemia) however sufficient calorific intake is required to avoid waking up. [55]

Potential Treatment Plans

Sleep onset insomnia	Californian Poppy	Hops	Passion Flower	Scullcap	Valerian
Sleep maintenance insomnia	Californian Poppy	Magnolia	Passion Flower	Valerian	Scullcap
Insomnia with menopause	Lemon Balm	Valerian	Passion Flower	Withania	Saffron
Insomnia with depression/ anxiety	Chamomile	Holy Basil	Lemon Balm	Magnolia	Saffron

Desired Herbal Actions and Potential Herbs Include:

It should be considered that medicinal plants can have synergistic or additive effects with conventional drugs, leading to several adverse effects. Although medicinal plants can be alternatives for conventional drugs in managing insomnia, evaluating the safety of concurrent use of medicinal herbs and conventional medicines is necessary. [56]

Hypnotic and Sedative

These herbs are the mainstay of treatment. They can be taken throughout the day to prevent a build up of tension or mental excitability that might result in insomnia. An additional dose is recommended around one hour before bed. Hypnotic herbs are usually strong nervine relaxants with a reputation for easing a person into sleep. Herbs such as bacopa, black cohosh, Californian poppy, chamomile, gotu kola, hops, Jamaica dogwood, lemon balm, lavender, lime flowers, magnolia, motherwort, oats green, passion flower, red clover, saffron, scullcap, valerian, vervain, withania, zizyphus.

Antispasmodic, Analgesic, Anodyne

If pain interferes with sleep then these herbs are indicated for pain management, including pain associated with inflammation or smooth muscle cramping. For people who have muscle tension, restless legs, pain from muscle cramping or intestinal colic. Herbs such as black cohosh, Californian poppy, chamomile, holy basil, hops, Jamaica dogwood, lavender, lemon balm, lime flowers, magnolia, motherwort, mugwort, passionflower, saffron, St. John's wort, scullcap, valerian, wild yam, white willow.

Relaxing Nervine, Nervine Tonic, Anxiolytic and Antidepressant

These work well at easing the tensions that often produce sleeplessness. They are especially indicated if the insomnia is associated with fibromyalgia or sleep maintenance insomnia. Herbs such as bacopa, Californian poppy, chamomile, damiana, gotu kola, holy basil, hops, lavender, lemon balm, lime flowers, magnolia, motherwort, mugwort, oats green, reishi, rhodiola, saffron, St. John's wort, schizandra, passionflower, scullcap, vervain, valerian, withania, zizyphus.

Adaptogen, Adrenal Restorative, Hormone Regulator

Indicated if it is sleep maintenance insomnia related to nervous exhaustion and if the patient is debilitated. Chronic insomnia needs support throughout the day to help break the vicious cycle of non-restorative sleep in stressed patients. Adrenal restorative herbs will additionally help to maintain blood sugar levels during the night. Herbs include astragalus, bacopa, black cohosh, chastetree, gotu kola, holy basil, hops, liquorice, rehmannia, reishi, saffron, shatavari, withania.

Magnolia
(Magnolia officinalis)

Herbal Support Could Include:

HERB NAME	DESCRIPTION	ACTIONS
Californian Poppy *(Eschscholzia californica)* 	Californian poppy is calming, soothing and restoring to the nervous system, similar to St. John's wort *(Hypericum perforatum)* but without the worry of sun sensitivity and drug interactions that St. John's wort comes with. It also relieves anxiety and pain. As a sedative it works well in sleep onset insomnia caused by busy thoughts or sleep maintenance insomnia when people cannot go back to sleep. [57]	Anxiolytic Mild Sedative Hypnotic Nervine Analgesic
Chamomile *(Matricaria chamomilla)* 	Chamomile is a remarkable relaxant for the nervous system and is one of the best herbs for early childhood conditions such as difficulty sleeping. A 2019 systematic review and meta-analysis of randomised trials found that chamomile appears to be efficacious and safe for sleep quality and generalised anxiety disorders. [58]	Mild Sedative Relaxing Nervine Antispasmodic
Holy Basil *(Ocimum tenuiflorum)* 	Regular, ongoing, daily consumption of holy basil is recommended to assist in adaptation to the stresses of daily life and to promote general health, wellbeing and longevity. The results from a September 2022 clinical trial suggest that eight weeks of supplementation with holy basil may reduce objective and subjective measures of stress and improve subjective measures of sleep quality. Another study involving 79 people found that holy basil (1200mg for six weeks) significantly improved general stress scores as well as symptoms such as forgetfulness, frequent feeling of exhaustion, and sexual and sleep problems of recent origin. [59 60]	Adaptogen Relaxing Nervine Antidepressant Anxiolytic Analgesic
Hops *(Humulus lupulus)* 	Traditionally used to brew beer, hops are often used for people who have difficulty sleeping. People who struggle with sleep, and who also feel hot and restless, can benefit from hops' cooling abilities. A recent preclinical study recommended administration of non-alcoholic beer to aid nocturnal sleep due to the sedative action of hops. The study found that hops effectively decreased nocturnal activity in the circadian activity rhythm. [61 62]	Hormone Modulator Hypnotic Nervine Sedative Anxiolytic Antispasmodic

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Lemon Balm *(Melissa officinalis)* 	The definition of balm is to heal and soothe, and this calming and delicious plant does just that. The results of a 2021 study revealed that lemon balm may be recommended for improving the quality of life of menopausal women with sleep disturbance. Another trial showed that eight weeks supplementation with 3g of lemon balm can decrease anxiety, depression, stress and sleep disorder in patients with chronic stable angina. [63] [64]	Relaxing Nervine Anxiolytic Antidepressant Sedative Nervine Tonic Antispasmodic
Magnolia *(Magnolia officinalis)* 	Magnolia has become a game changer in formulas for people with sleep maintenance insomnia who wake in the early hours of the morning and can not fall back to sleep. It may work by modulating blood sugar or stress induced night time cortisol spikes. In a 2020 human clinical trial magnolia significantly improved sleep quality, and alleviated fatigue and depression, in post-natal women. [65] [66] [67] [68]	Anxiolytic Mild Sedative Analgesic Antispasmodic
Passion Flower *(Passiflora incarnata)* 	Spanish conquerors of the Americas first learned of passion flower from pre-Colombian people who traditionally used it as a sedative to treat insomnia and nervousness. They took passion flower to Europe where it became widely cultivated and was introduced to European folk medicine becoming a popular traditional remedy for the relief of mild symptoms of mental stress, anxiety and mild sleep disorder. In a 2020 human clinical study passion flower demonstrated positive effects on objective sleep parameters, including total sleep time, on polysomnography in adults with insomnia. [69] [70]	Anxiolytic Mild Sedative Antispasmodic Hypnotic Anodyne
Rehmannia *(Rehmannia glutinosa)* 	Stressed individuals will benefit if their adrenal glands are supported. Rehmannia was deemed a herb of restoration in Traditional Chinese Medicine. It possibly works by regulating the cortisol levels and supporting the adrenal cortex and pituitary gland during prolonged stress. Rehmannia supports adrenal gland function but, unlike liquorice *(Glycyrrhiza glabra)*, is not hypertensive so useful for patients with high blood pressure. [71] [72]	Adaptogen Adrenal Tonic

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Saffron *(Crocus sativus)* 	Results of a 28 day trial, published in 2020, suggest saffron intake was associated with improvements in sleep quality in adults with self-reported sleep complaints. Research from 2019 showed saffron (14mg twice daily) was an effective add on to pharmaceutical antidepressants in patients experiencing mild to moderate depression. Many of the people in the study reported improvements in their sleep. [73] [74]	Nervine Tonic Antidepressant Anxiolytic Adaptogen Sedative Analgesic Antispasmodic
Scullcap *(Scutellaria lateriflora)* 	Scullcap is the plant herbalists reach for as a nourishing tonic to relax and soothe the nervous system. Insomnia, stress, tension, anxiety, nervousness and panic attacks are all indications for this bitter and cooling herb. It is said to be particularly good as a supporting nervine for workaholics compelled to work long hours with resulting mental exhaustion. It can also assist in the withdrawal of benzodiazepines and other addictions. While it works well for acute situations it can also be taken long term to broadly support the nervous system and help to reduce the negative effects of chronic stress. [75] [76]	Nervine Tonic Relaxing Nervine Sedative Antispasmodic Analgesic
Valerian *(Valeriana officinalis)* 	Valerian is famously used for people with insomnia. Its sedative qualities have been researched extensively and it has repeatedly been shown to be effective even when compared to pharmaceutical drugs. The results of a 2021 randomised controlled trial have shown that taking valerian could significantly and safely improve patients' sleep quality after coronary artery bypass graft surgery. Thirty-six patients received 530mg valerian capsules for 30 nights after their surgery. [77]	Anxiolytic Sedative Hypnotic Antispasmodic Relaxing Nervine

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Withania *(Withania somnifera)* 	Withania has long been revered as a medicinal plant which can strengthen those who are tired by restoring healthy sleep cycles. Even the species name *somnifera* means sleep-inducing in Latin. A January 2021 randomised controlled trial confirmed that withania can improve sleep quality and help in managing insomnia. In the study 40 healthy people and 40 people with insomnia were assigned to two groups, either withania (600mg/day) or placebo, and studied for eight weeks. In both the healthy and insomniac people there was a significant improvement in the sleep parameters in the withania supplemented group. The improvement was found to be more significant in insomniacs than healthy people. [78]	Adaptogen Anxiolytic Nervine Tonic Tonic Mild Sedative

Conclusion

Adequate sleep is a primary component of a healthy lifestyle and the quest for longevity. Sleep disorders are common in the general population and are associated with significant adverse behavioral and health consequences. Insomnia is a complex sleep condition that affects a large proportion of individuals and requires appropriate recognition and management. An integrative approach involving sleep hygiene education, psychological, dietary, lifestyle and herbal intervention should offer a sustained benefit if compliance is maintained. Herbal treatments offer an effective, safe and cost effective alternative to pharmaceutical treatment and allow an integrated approach to managing the presenting symptoms and underlying cause for an improved long term outcome. [79] [80]

Resources

[1] Australian Institute of Health and Welfare. Sleep problems as a risk factor for chronic conditions. Cat. no. PHE 296. Australian Government:Canberra: AIHW. Sleep problems as a risk factor for chronic conditions (updated Nov 2021; accessed8 Nov 2022). Available from https://www.aihw.gov.au/getmedia/7e520067-05f1-4160-a38f-520bac8fc96a/aihw-phe-296.pdf.aspx?inline=true

[2] Sleep Disorders. Inquiry into Sleep Health Awareness in Australia. (updated 18 Oct 2018; accessed 22 Nov 2022). Available from https://www.aph.gov.au/Parliamentary_Business/Committees/House/Health_Aged_Care_and_Sport/SleepHealthAwareness/Report/Section?id=committees%2freportrep%2f024220%2f26954

[3] Insuffient Sleep. Inquiry into Sleep Health Awareness in Australia. (updated 18 Oct 2018; accessed 22 Nov 2022). Available from https://www.aph.gov.au/Parliamentary_Business/Committees/House/Health_Aged_Care_and_Sport/SleepHealthAwareness/Report/section?id=committees%2Freportrep%2F024220%2F26953

[4] Sleep Disorders. Inquiry into Sleep Health Awareness in Australia. (updated 18 Oct 2018; accessed 22 Nov 2022). Available from https://www.aph.gov.au/Parliamentary_Business/Committees/House/Health_Aged_Care_and_Sport/SleepHealthAwareness/Report/Section?id=committees%2freportrep%2f024220%2f26954

[5] Insuffient Sleep. Inquiry into Sleep Health Awareness in Australia. (updated 18 Oct 2018; accessed 22 Nov 2022). Available from https://www.aph.gov.au/Parliamentary_Business/Committees/House/Health_Aged_Care_and_Sport/SleepHealthAwareness/Report/section?id=committees%2Freportrep%2F024220%2F26953

[6] Australian Institute of Health and Welfare. Sleep problems as a risk factor for chronic conditions. Cat. no. PHE 296. Australian Government:Canberra: AIHW. Sleep problems as a risk factor for chronic conditions (updated Nov 2021; accessed8 Nov 2022). Available from https://www.aihw.gov.au/getmedia/7e520067-05f1-4160-a38f-520bac8fc96a/aihw-phe-296.pdf.aspx?inline=true

[7] Insuffient Sleep. Inquiry into Sleep Health Awareness in Australia. (updated 18 Oct 2018; accessed 22 Nov 2022). Available from https://www.aph.gov.au/Parliamentary_Business/Committees/House/Health_Aged_Care_and_Sport/SleepHealthAwareness/Report/section?id=committees%2Freportrep%2F024220%2F26953

[8] Australian Institute of Health and Welfare. Sleep problems as a risk factor for chronic conditions. Cat. no. PHE 296. Australian Government:Canberra: AIHW. Sleep problems as a risk factor for chronic conditions (updated Nov 2021; accessed8 Nov 2022). Available from https://www.aihw.gov.au/getmedia/7e520067-05f1-4160-a38f-520bac8fc96a/aihw-phe-296.pdf.aspx?inline=true

[9] Bone K, Mills S. Principles and Practice of Phytotherapy. 2nd ed. Edinburgh:Churchill Livingstone Elsevier; 2013. p. 279

[10] Grima NA, Bei B, Mansfield D. Insomnia theory and assessment. Aust J Gen Pract. 2019 Apr;48(4):193-197. doi: 10.31128/AJGP-12-18-4780. PMID: 31256488.

[11] Sleep Disorders. Inquiry into Sleep Health Awareness in Australia. (updated 18 Oct 2018; accessed 22 Nov 2022). Available from https://www.aph.gov.au/Parliamentary_Business/Committees/House/Health_Aged_Care_and_Sport/SleepHealthAwareness/Report/Section?id=committees%2freportrep%2f024220%2f26954

[12] Grima NA, Bei B, Mansfield D. Insomnia theory and assessment. Aust J Gen Pract. 2019 Apr;48(4):193-197. doi: 10.31128/AJGP-12-18-4780. PMID: 31256488.

[13] Grima NA, Bei B, Mansfield D. Insomnia theory and assessment. Aust J Gen Pract. 2019 Apr;48(4):193-197. doi: 10.31128/AJGP-12-18-4780. PMID: 31256488.

[14] Suni E. Circadian Rhythm. Sleep Foundation. c2022 OneCare Media, (updated Nov 4 2022; accessed Nov 7 2022). Available from https://www.sleepfoundation.org/circadian-rhythm

[15] Reddy S, Reddy V, Sharma S. Physiology, Circadian Rhythm. [Updated 2022 May 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK519507/

[16] Insomnia. 1998-2022 Mayo Foundation for Medical Education and Research. (accessed 21 Nov 2022). Available from https://www.mayoclinic.org/diseases-conditions/insomnia/symptoms-causes/syc-20355167

[17] Wolkove N, Elkholy O, Baltzan M, Palayew M. Sleep and aging: 1. Sleep disorders commonly found in older people. CMAJ. 2007 Apr 24;176(9):1299-304. doi: 10.1503/cmaj.060792. PMID: 17452665; PMCID: PMC1852874.

[18] Insomnia. Office on Women's Health in the Office of the Assistant Secretary for Health at the U.S. Department of Health and Human Services. (updated Feb 22 2021; accessed 17 Nov 2022). Available from https://www.womenshealth.gov/a-z-topics/insomnia

[19] Polo-Kantola P. Sleep disturbances in pregnancy: Why and how should we manage them? Acta Obstet Gynecol Scand. 2022 Mar;101(3):270-272. doi: 10.1111/aogs.14325. PMID: 35238029; PMCID: PMC9564426.

[20] Australian Institute of Health and Welfare. Sleep problems as a risk factor for chronic conditions. Cat. no. PHE 296. Australian Government:Canberra: AIHW. Sleep problems as a risk factor for chronic conditions (updated Nov 2021; accessed8 Nov 2022). Available from https://www.aihw.gov.au/getmedia/7e520067-05f1-4160-a38f-520bac8fc96a/aihw-phe-296.pdf.aspx?inline=true

[21] Fry A. Stress and Insomnia. Sleep Foundation One Care Media. c2022.(updated Jun 24 2022; accessed 15 Nov 2022). Available from https://www.sleepfoundation.org/insomnia/stress-and-insomnia

[22] Morin CM. Why do some people develop insomnia in response to stressful life events and others do not?, Sleep, Volume 45, Issue 11, November 2022, zsac207, https://doi.org/10.1093/sleep/zsac207

[23] Chatterjee K, Ambekar P. Study of insomnia in rotating shift-workers. Ind Psychiatry J. 2017 Jan-Jun;26(1):82-85. doi: 10.4103/ipj.ipj_59_17. PMID: 29456327; PMCID: PMC5810173.

[24] Cingi C, Emre IE, Muluk NB. Jetlag related sleep problems and their management: A review. Travel Med Infect Dis. 2018 Jul-Aug;24:59-64. doi: 10.1016/j.tmaid.2018.05.008. Epub 2018 May 19. PMID: 29787851.

[25] Fredricks R. Hypoglycemia and Sleep Quality. MentalHelp net. c2022. (accessed 10 Nov 2022). Available from https://www.mentalhelp.net/blogs/hypoglycemia-and-sleep-quality/

[26] Insomnia. 1998-2022 Mayo Foundation for Medical Education and Research. (accessed 21 Nov 2022). Available from https://www.mayoclinic.org/diseases-conditions/insomnia/symptoms-causes/syc-20355167

[27] Insomnia. 1998-2022 Mayo Foundation for Medical Education and Research. (accessed 21 Nov 2022). Available from https://www.mayoclinic.org/diseases-conditions/insomnia/symptoms-causes/syc-20355167

[28] Ehrnstrom C. Psychophysiological insomnia: How worrying becomes a cycle. Dawn. C2022 Sleepedy. (updated 6 Jun 2022; accessed 15 Nov 2022). Available from https://www.dawn.health/blog/what-is-psychophysiological-insomnia

Resources (Cont.)

[29] Insomnia. 1998-2022 Mayo Foundation for Medical Education and Research. (accessed 21 Nov 2022). Available from https://www.mayoclinic.org/diseases-conditions/insomnia/symptoms-causes/syc-20355167

[30] Yang Y, Shin JC, Li D, An R. Sedentary Behavior and Sleep Problems: a Systematic Review and Meta-Analysis. Int J Behav Med. 2017 Aug;24(4):481-492. doi: 10.1007/s12529-016-9609-0. PMID: 27830446.

[31] Pengpid S, Peltzer K. Sedentary Behaviour and 12 Sleep Problem Indicators among Middle-Aged and Elderly Adults in South Africa. Int J Environ Res Public Health. 2019 Apr 20;16(8):1422. doi: 10.3390/ijerph16081422. PMID: 31010026; PMCID: PMC6518187.

[32] Burns AC, Saxena R, Vetter C, Phillips AJK, Lane JM, Cain SW. Time spent in outdoor light is associated with mood, sleep, and circadian rhythm-related outcomes: A cross-sectional and longitudinal study in over 400,000 UK Biobank participants. J Affect Disord. 2021 Dec 1;295:347-352. doi: 10.1016/j.jad.2021.08.056. Epub 2021 Aug 27. PMID: 34488088; PMCID: PMC8892387.

[33] Ng L, Cunnington D. Management of insomnia in primary care. Aust Prescr 2021;44:124-8. https://doi.org/10.18773/austprescr.2021.027

[34] Grima NA, Bei B, Mansfield D. Insomnia theory and assessment. Aust J Gen Pract. 2019 Apr;48(4):193-197. doi: 10.31128/AJGP-12-18-4780. PMID: 31256488.

[35] Roth T. Insomnia: definition, prevalence, etiology, and consequences. J Clin Sleep Med. 2007 Aug 15;3(5 Suppl):S7-10. PMID: 17824495; PMCID: PMC1978319.

[36] Mansfield D, Grima NA, Bei B. Insomnia management. Aust J Gen Pract. 2019 Apr;48(4):198-202. PMID: 31256489.

[37] Mansfield D, Grima NA, Bei B. Insomnia management. Aust J Gen Pract. 2019 Apr;48(4):198-202. PMID: 31256489.

[38] Treating insomnia. Australian Government Department of Veterans' Affairs. Open Arms - Veterans & Families Counselling c2019 (accessed Nov 8 2022). Available from https://www.openarms.gov.au/health-professionals/assessment-and-treatment/treating-insomnia.

[39] Mansfield DR, Hillman DR, Antic NA, McEvoy RD, Rajaratnam SM. Sleep loss and sleep disorders. Med J Aust. 2013 Oct 21;199(8):S5-6. doi: 10.5694/mja13.11157. PMID: 24138357.

[40] Leach MJ, Page AT. Herbal medicine for insomnia: A systematic review and meta-analysis. Sleep Med Rev. 2015 Dec;24:1-12. doi: 10.1016/j.smrv.2014.12.003. Epub 2014 Dec 17. PMID: 25644982.

[41] Bone K, Mills S. Principles and Practice of Phytotherapy. 2nd ed. Edinburgh:Churchill Livingstone Elsevier; 2013. p. 279

[42] de la Forêt R. Insomnia. Herbs in Practice. LearningHerbs.com c2022. (updated May 13 2014; accessed Nov 30 2022). Available from https://herbmentor.learningherbs.com/course/herbs-in-practice/insomnia/

[43] G Currie, J Wheat. Insomnia: An Overview Of Herbal Treatments. The Internet Journal of Alternative Medicine. 2007 Volume 5 Number 2.

[44] Bone K, Mills S. Principles and Practice of Phytotherapy. 2nd ed. Edinburgh:Churchill Livingstone Elsevier; 2013. p. 279

[45] Sarris J, Wardle J. Clinical Naturopathy, 2nd ed. Chatswood:Elsevier. 2014. p.260

[46] Mansfield D, Grima NA, Bei B. Insomnia management. Aust J Gen Pract. 2019 Apr;48(4):198-202. PMID: 31256489.

[47] de la Forêt R. Insomnia. Herbs in Practice. LearningHerbs.com c2022. (updated May 13 2014; accessed Nov 30 2022). Available from https://herbmentor.learningherbs.com/course/herbs-in-practice/insomnia/

[48] Hechtman L. Clinical Naturopathic Medicine. Sydney:Churchill Livingstone Elsevier. 2012. p. 1209

[49] Nicolaides NC, Vgontzas AN, Kritikou I, et al. HPA Axis and Sleep. [Updated 2020 Nov 24]. In: Feingold KR, Anawalt B, Boyce A, et al., editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK279071/

[50] Dericks-Tan JS, Schwinn P, Hildt C. Dose-dependent stimulation of melatonin secretion after administration of Agnus castus. Exp Clin Endocrinol Diabetes. 2003 Feb;111(1):44-6. doi: 10.1055/s-2003-37500. PMID: 12605350

[51] Hechtman L. Clinical Naturopathic Medicine. Sydney:Churchill Livingstone Elsevier. 2012. p. 1213

[52] Fiorentino L, Martin JL. Awake at 4 AM: treatment of insomnia with early morning awakenings among older adults. J Clin Psychol. 2010 Nov;66(11):1161-74. doi: 10.1002/jclp.20734. PMID: 20845423; PMCID: PMC3377480.

[53] Begum M, Gonzalez-Chica D, Bernardo C, Woods A, Stocks N. Trends in the prescription of drugs used for insomnia: an open-cohort study in Australian general practice, 2011-2018. Br J Gen Pract. 2021 Oct 28;71(712):e877-e886. doi: 10.3399/BJGP.2021.0054. PMID: 33950853; PMCID: PMC8366783.

[54] Harvey AG, Payne S. The management of unwanted pre-sleep thoughts in insomnia: distraction with imagery versus general distraction. Behav Res Ther. 2002 Mar;40(3):267-77. doi: 10.1016/s0005-7967(01)00012-2. PMID: 11863237.

[55] Sleep Health Foundation[Internet]. Blacktown (NSW): Ten tips for a good night's sleep; c2011[updated 2014 Aug 20; cited 2022 Dec 1] Available at http://www.sleephealthfoundation.org.au/files/pdfs/facts/Tips%20for%20a%20Good%20Night%27s%20Sleep.pdf

[56] Ranjbar M, Mazaheri M, Ansaripour M, Babaeian M, Jalali A, Zarshenas MM. Herbal Medications to Manage Insomnia: An Overview of Clinical Trials using Herbal Treatment for Insomnia. Trad Integr Med. 2022;7(2):254-265.

[57] Brown K. Carefree California poppy. Herbalrootszine. July 2013;5(7):10-12.

[58] Hieu TH, Dibas M, Surya Dila KA, Sherif NA, Hashmi MU, Mahmoud M, Trang NTT, Abdullah L, Nghia TLB, Y MN, Hirayama K, Huy NT. Therapeutic efficacy and safety of chamomile for state anxiety, generalized anxiety disorder, insomnia, and sleep quality: A systematic review and meta-analysis of randomized trials and quasi-randomized trials. Phytother Res. 2019 Jun;33(6):1604-1615. doi: 10.1002/ptr.6349. Epub 2019 Apr 21. PMID: 31006899.

[59] Lopresti AL, Smith SJ, Metse AP, Drummond PD. A randomized, double-blind, placebo-controlled trial investigating the effects of an Ocimum tenuiflorum (Holy Basil) extract (HolixerTM) on stress, mood, and sleep in adults experiencing stress. Front Nutr. 2022 Sep 2;9:965130. doi: 10.3389/fnut.2022.965130. PMID: 36185698; PMCID: PMC9524226.

[60] Saxena RC, Singh R, Kumar P, et al. Efficacy of an Extract of Ocimum tenuiflorum (OciBest) in the Management of General Stress: A Double-Blind, Placebo-Controlled Study. Evid Based Complement Alternat Med. 2012;2012:894509. doi:10.1155/2012/894509

Resources (Cont.)

[61] Franco L, Sánchez C, Bravo R, Rodriguez A, Barriga C, Juánez JC. The sedative effects of hops (Humulus lupulus), a component of beer, on the activity/rest rhythm. Acta Physiol Hung. 2012 Jun;99(2):133-9. doi: 10.1556/APhysiol.99.2012.2.6. PMID: 22849837.

[62] de la Forêt R. Hops monograph. [Internet] Herb Mentor:Learning Herbs c2020 [accessed October 23 2020.] Available from https://herbmentor.learningherbs.com/herb/hops/

[63] Haybar H, Javid AZ, Haghighizadeh MH, Valizadeh E, Mohaghegh SM, Mohammadzadeh A. The effects of Melissa officinalis supplementation on depression, anxiety, stress, and sleep disorder in patients with chronic stable angina. Clin Nutr ESPEN. 2018 Aug;26:47-52. doi: 10.1016/j.clnesp.2018.04.015. Epub 2018 May 19.

[64] Shirazi M, Jalalian MN, Abed M, Ghaemi M. The Effectiveness of Melissa Officinalis L. versus Citalopram on Quality of Life of Menopausal Women with Sleep Disorder: A Randomized Double-Blind Clinical Trial. Rev Bras Ginecol Obstet. 2021 Feb;43(2):126-130. doi: 10.1055/s-0040-1721857. Epub 2021 Jan 19. PMID: 33465795.

[65] Xue L, Zhang J, Shen H, Ai L, Wu R. A randomized controlled pilot study of the effectiveness of magnolia tea on alleviating depression in postnatal women. Food Sci Nutr. 2020;8(3):1554–1561. Published 2020 Feb 10. doi:10.1002/fsn3.1442

[66] Talbott SM, Talbott JA, Pugh M. Effect of Magnolia officinalis and Phellodendron amurense (Relora®) on cortisol and psychological mood state in moderately stressed subjects. J Int Soc Sports Nutr. 2013;10(1):37. Published 2013 Aug 7. doi:10.1186/1550-2783-10-37

[67] Garrison R, Chambliss WG. Effect of a proprietary Magnolia and Phellodendron extract on weight management: a pilot, double-blind, placebo-controlled clinical trial. Altern Ther Health Med. 2006 Jan-Feb;12(1):50-4.

[68] Groves MN. Herbal and Natural Sleep Support [Internet] Herb Mentor:Learning Herbs c2020 [accessed Apr 21 2020: updated Jan 21 2020] Available from https://herbmentor.learningherbs.com/articles/herbal-topics/herbal-and-natural-sleep-support/

[69] Miroddi M, Calapai G, Navarra M, Minciullo PL, Gangemi S. Passiflora incarnata L.: Ethnopharmacology, clinical application, safety and evaluation of clinical trials. J Ethnopharmacol. 2013 Oct 17. pii: S0378-8741(13)00698-3. doi: 10.1016/j.jep.2013.09.047.

[70] Lee J, Jung HY, Lee SI, Choi JH, Kim SG. Effects of Passiflora incarnata Linnaeus on polysomnographic sleep parameters in subjects with insomnia disorder: a double-blind randomized placebo-controlled study. Int Clin Psychopharmacol. 2020 Jan;35(1):29-35. doi: 10.1097/YIC.0000000000000291. PMID: 31714321.

[71] Zha LL. Experimental effect of Rehmannia glutinosa on the pituitary and adrenal cortex in a glucocorticoid inhibition model using rabbits. Zhong Xi Yi Jie He Za Zhi. 1988 Feb;8(2):95-7, 70.

[72] AA Kecskes Traditional Chinese Medicine Can Help Adrenal Fatigue. Pacific College of Health and Science. (accessed July Available from https://www.pacificcollege.edu/news/blog/2014/10/24/traditional-chinese-medicine-can-help-adrenal-fatigue

[73] Lopresti AL, Smith SJ, Metse AP, Drummond PD. Effects of saffron on sleep quality in healthy adults with self-reported poor sleep: a randomized, double-blind, placebo-controlled trial. J Clin Sleep Med. 2020;16(6):937–947.

[74] Lopresti AL, Smith SJ, Hood SD, Drummond PD. Efficacy of a standardised saffron extract (affron®) as an add-on to antidepressant medication for the treatment of persistent depressive symptoms in adults: A randomised, double-blind, placebo-controlled study. J Psychopharmacol. 2019;33(11):1415-1427. doi:10.1177/0269881119867703

[75] Bartram T. Bartram's Encyclopedia of Herbal Medicine. Constable and Robinson:London. 1998.

[76] de la Forêt R. Skullcap monograph. [Internet] Herb Mentor:Learning Herbs c2020 [accessed Jun 29 2020.] Available from https://herbmentor.learningherbs.com/herb/skullcap/

[77] Zare Elmi HK, Gholami M, Saki M, Ebrahimzadeh F. Efficacy of Valerian Extract on Sleep Quality after Coronary Artery bypass Graft Surgery: A Triple-Blind Randomized Controlled Trial. Chin J Integr Med. 2021 Jan;27(1):7-15. doi: 10.1007/s11655-020-2727-1. Epub 2021 Jan 8. PMID: 33420602.

[78] Langade D, Thakare V, Kanchi S, Kelgane S. Clinical evaluation of the pharmacological impact of ashwagandha root extract on sleep in healthy volunteers and insomnia patients: A double-blind, randomized, parallel-group, placebo-controlled study. J Ethnopharmacol. 2021 Jan 10;264:113276. doi: 10.1016/j.jep.2020.113276. Epub 2020 Aug

[79] G Currie, J Wheat. Insomnia: An Overview Of Herbal Treatments. The Internet Journal of Alternative Medicine. 2007 Volume 5 Number 2.

[80] Nicolaides NC, Vgontzas AN, Kritikou I, et al. HPA Axis and Sleep. [Updated 2020 Nov 24]. In: Feingold KR, Anawalt B, Boyce A, et al., editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK279071/

PURE PLANT
POWER

HERBAL EXTRACT
COMPANY

GROUNDED
IN TRADITION

Our powerful herbal healing is grounded in tradition, and we are devoted to sharing this with you.

Our practitioner-quality herbal extracts are handmade to harness the pure power of nature.

To learn more about this condition and potential remedies please contact us:

1300 443 727

pracsupport@herbalextracts.com.au

HERBALEXTRACTS.COM.AU