

# Holistic Strategies to Address Difficulty Sleeping

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# Angela Hywood, ND, Dip Bot Med



Angela Hywood is well respected as a leading educator and practitioner specializing in integrative endocrinology, reproductive endocrinology and gynecology. She runs a busy clinic in Sydney, Australia, and has more than 17 years of clinical experience.

Angela has lectured extensively at major naturopathic colleges internationally. In addition to her practice and education roles, Angela is a well-known featured speaker at complementary and integrative medicine conferences in Australia, New Zealand, the U.S., and Canada.

Angela uses her passion for the art and science of herbal medicine, clinical nutrition, homeopathy, whole food nutrition and lifestyle medicines to tailor dynamic clinical programs for her patients.

A photograph of a man in a white t-shirt sitting at a desk, resting his head on his hand in a state of stress or exhaustion. The background is a blurred office setting with a lamp and a window.

# Difficulty Sleeping

- Difficulty sleeping is often encountered in practice.
- Lack of restful sleep can be associated with impaired function in the workplace.
- Many millions of Americans occasionally experience difficulty sleeping each year.
- Difficulty sleeping is more common in women than in men.

Hirshkowitz, Max (2004). "Chapter 10, Neuropsychiatric Aspects of Sleep and Sleep Disorders (pp 315-340 Essentials of neuropsychiatry and clinical neurosciences (4 ed.). Arlington, Virginia, USA: American Psychiatric Publishing. ISBN 9781585620050.

"WHO technical meeting on sleep and health" (pdf). "Dyssomnias" (pdf). WHO. pp. 7–11. Retrieved 2009-01-25.

Morin, Charles M. (2000). "The Nature of Insomnia and the Need to Refine Our Diagnostic Criteria" (Editorial). *Psychosomatic Medicine* 62 (4): 62:483–485.

# Are You Getting Enough Sleep?

- According to a survey released from the National Sleep Foundation in 2011, two-thirds of Americans say their sleep needs are not being met during the week.
- About 15% of adults between the ages of 19 and 64 and 7% of 13-18 year olds say they sleep less than six hours on weeknights, substantially less than the recommended 8 hours.

The average person gets

**7 HRS**  
sleep  
a night



of adults say that they are so sleepy during the day that it interferes with their daily activities.

# Sleep

- The 1998 National Sleep Foundation survey findings are “a source of great concern,” warned Thomas Roth, Ph.D., Health and Scientific Advisor of the National Sleep Foundation and director of the Sleep Disorders Research Center at Henry Ford Hospital in Detroit.
  - People do not realize how important sleep is to their lives.
  - Most Americans need eight hours of sound sleep to function at their best, and good health demands good sleep.



<http://www.prnewswire.com/news-releases/new-survey-reports-more-than-168-million-american-adults-fail-sleep-iq-test-132-million-suffer-sleep-problems-77228272.html>

# Lack of Sleep and its Consequences

Common issues linked with lack of sleep include:

- Glucose metabolism
- Gastrointestinal
- Thyroid
- Fatigue
- Circulation
- Mood



Flamer HE (June 1995). "Sleep problems". Med. J. Aust. 162 (11): 603-7.

# Lack of Sleep and Mood

- Lack of sleep is present in the majority (over 80%) of subject's issues regarding mood.

M.M. Ohayon, T. Roth: Prevalence of restless legs syndrome and periodic limb movement disorder in the general population. *J Psychosom Res.* **53**, 2002, 547–554.





# Sleep Stages

- Restful sleep is divided into non-rapid eye movement (NREM) and rapid eye movement (REM) sleep
- The stages of sleep are:
  - Stage I (light sleep)
  - Stage II, stages III and IV (deep or delta-wave sleep)
  - REM sleep
- NREM sleep comprises stages I-IV
- Sleep is an active process that cycles at an ultradian rhythm of about 90 minutes

# Stages of Sleep

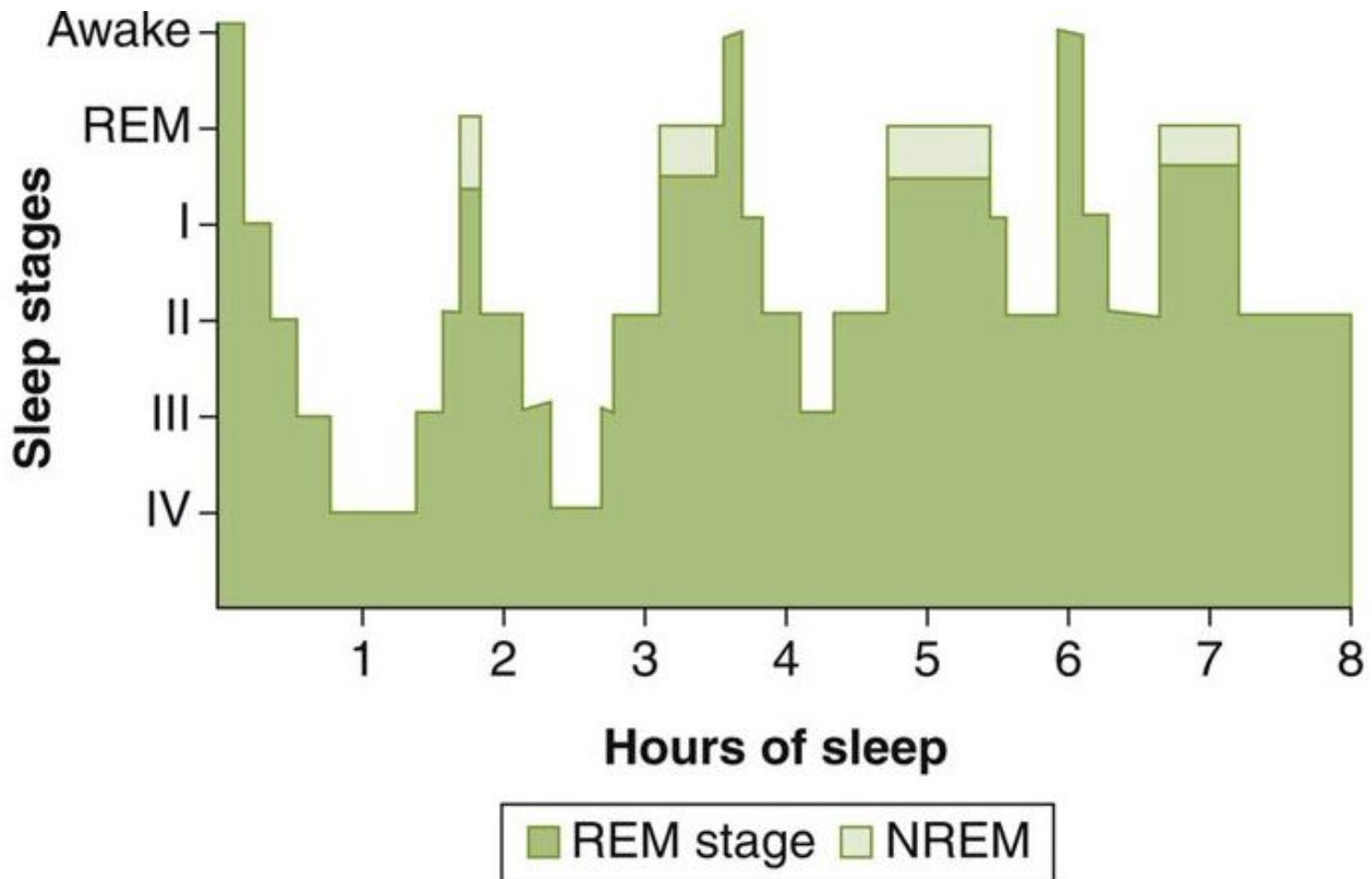
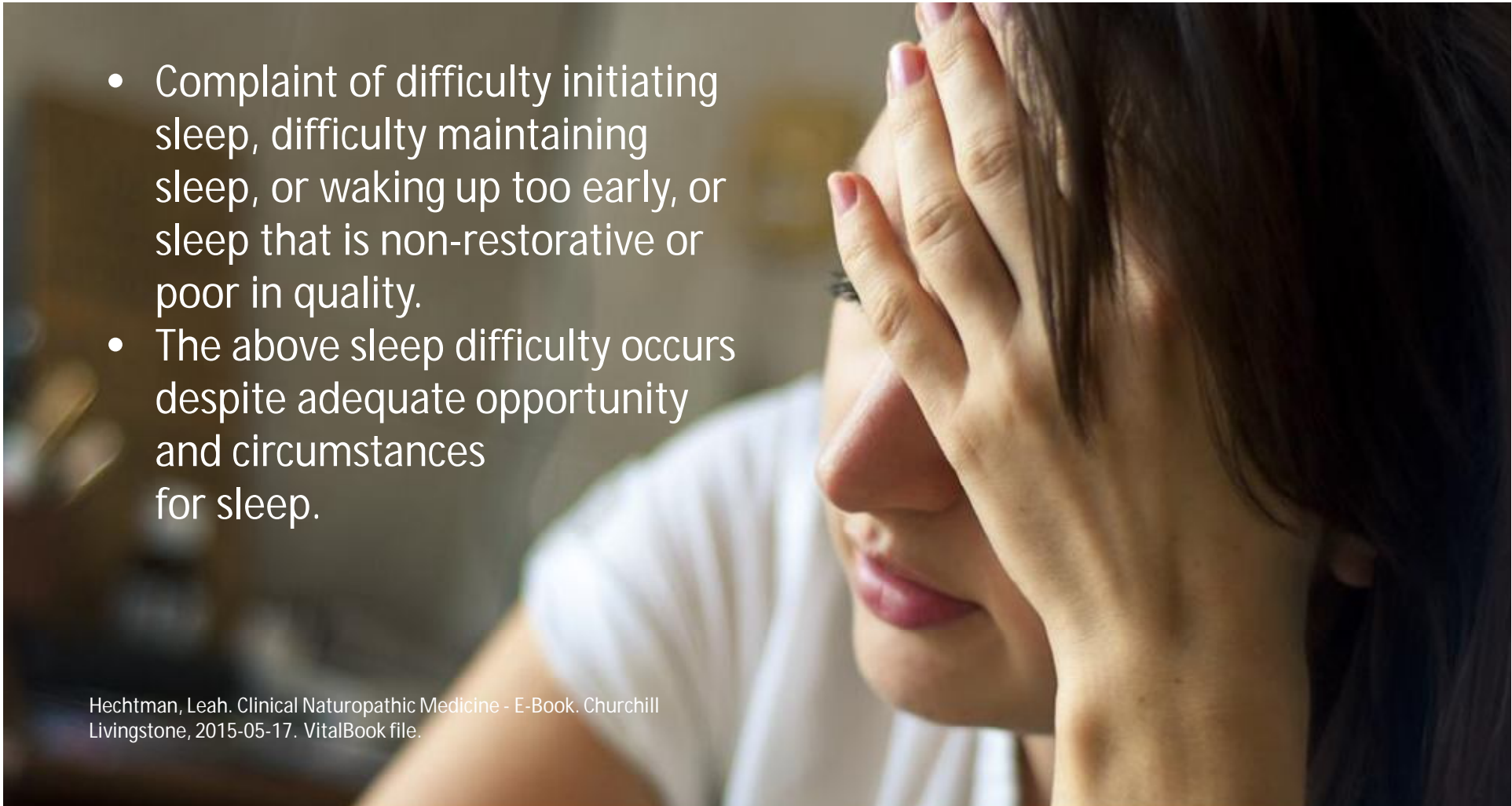


Image Reference: Hechtman, Leah. *Clinical Naturopathic Medicine - E-Book*. Churchill Livingstone, 2015-05-17. VitalBook file.

# Diagnostic Criteria

- Complaint of difficulty initiating sleep, difficulty maintaining sleep, or waking up too early, or sleep that is non-restorative or poor in quality.
- The above sleep difficulty occurs despite adequate opportunity and circumstances for sleep.



# Functions of Sleep

- Sleep rejuvenates our body for renewed energy, through the process of self detoxification.
- Sleep recharges the immune system and helps repair challenges done to the body.
- Sleep helps process, sort and store everything learned, felt, or experienced during the day.
- Sleep promotes growth, enhances memory, sharpens the mind, stabilizes the emotions and slows the aging process.

# Symptoms

At least one of the following forms of daytime impairment related to the night-time sleep difficulty is reported by the patient:

- Fatigue or malaise
- Attention, concentration or memory impairment
- Social or vocational dysfunction or poor school performance
- Mood disturbances or irritability
- Daytime sleepiness
- Motivation, energy or initiative reduction
- Proneness for errors at work or while driving
- Tension or gastrointestinal symptoms in response to sleep loss
- Concerns or worries about sleep

A woman with blonde hair is lying in bed, looking awake and slightly distressed. She is wearing a white top. The room is dimly lit with a blue hue. In the background, a round analog clock is visible, showing the time as approximately 10:10. The overall scene suggests a person who is having difficulty sleeping.

# Signs and Symptoms

- Difficulty maintaining sleep
- Difficulty initiating sleep
- Early wakening
- Non-restorative sleep

# Sleep in Adults

- In adults, sleep of 8-8.5 hours is considered fully restorative.
- Stage I is considered a transition between wake and sleep. It occurs upon falling asleep and during brief arousal periods within sleep and usually accounts for 5-10% of total sleep time.
- Stage II occurs throughout the sleep period and represents 40-50% of total sleep time.
- Stages III and IV delta sleep occur mostly in the first third of the night.
- They are distinguished from each other only by the percentage of delta activity and represent up to 20% of total sleep time.
- REM represents 20-25% of total sleep time.



# Difficulty Sleeping

- Major causes of sleep-onset difficulty sleeping include
  - Anxious feelings
  - Minor pain or discomfort
  - Caffeine and alcohol intake
- Sleep maintenance difficulty can be linked to:
  - Mood
  - Sugar metabolism
  - Minor pain or discomfort
  - Alcohol intake





# Restless Leg Syndrome

- This describes the repetitive movements of the lower limbs and is a common cause of disturbed sleep having been frequently observed on polysomnography.
- An epidemiological study undertaken in Europe observed an incidence of 3.9% in 18,980 subjects surveyed.
- Restless leg syndrome is associated with female gender, caffeine intake, and stress and nocturnal leg cramps.



M. Hornyak, B. Feige, D. Riemann, U. Voderholzer: Periodic leg movements in sleep and periodic limb movement disorder: prevalence, clinical significance and treatment. *Sleep Med Rev.* 10(3), 2006 Jun, 169–177.

M.M. Ohayon, T. Roth: Prevalence of restless legs syndrome and periodic limb movement disorder in the general population. *J Psychosom Res.* 53, 2002, 547–554.

# Therapeutic Strategy from the Naturopathic Perspective

The treatment goals for the sleep challenged patient include:

- Improvement in sleep quality and/or time
- Improvement of sleep-related daytime impairments such as improvement of energy, attention or memory difficulties, cognitive function, fatigue, or somatic symptoms
- Improvement in sleep symptoms such as:
  - Formation of a positive and clear association between the bed and sleeping
  - Improvement in sleep-related psychological distress
  - Restoration of adrenal and nervine function

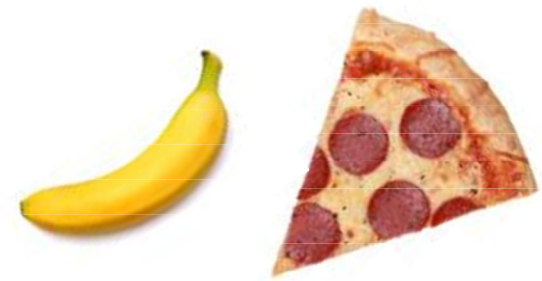
# Dietary Therapeutic Objectives

- Meals must be regulated throughout the day to ensure blood sugar levels maintain equilibrium
- Protein requires repletion which is best delivered in larger doses at night-time in combination with essential fatty acids to enable sufficient relaxation to initiate and sustain sleep
- Ensure that night-time meals are light and easily digestible
- Avoid all stimulant foods entirely, particularly after midnight
- Assess and determine if any food allergy or intolerance is present that precipitates an adrenaline reaction interfering with sleep initiation

# Avoid Tyramine Rich Foods

After 5pm, avoid tyramine containing foods as they can stimulate the nervous system.

- Ripe banana (the more ripe, the higher the concentration of tyramine)
- Pizza
- Processed and cured meats such as salami, processed meats, cured or pickled meats, and meat by-products and broths often contain great amounts of tyramine.
- Avocado (the more ripe, the higher the concentration of tyramine)
- Liver, especially pate



# Avoid Tyramine Rich Foods

- Caviar
- Cheese
  - Most aged cheeses contain tyramine. While there are some, such as cream cheese and cottage cheese, that have little to no notable amounts of tyramine, most aged cheeses have high concentrations of tyramine.
- Chocolate
- Alcohol, esp. red wine and champagne
- Soy
  - All soy products (but mainly fermented soy products) contain high levels of tyramine.
  - Avoid soy sauce, tofu, miso, and tempeh.



Merriman, S. H. "Monoamine oxidase drugs and diet." *Journal of Human Nutrition and Dietetics* 12.1 (1999): 21-28.

# Avoid Stimulants

- The use of stimulants should be eliminated from the diet all together, especially caffeine (coffee, tea, green tea and cola drinks).
- Alcohol can be considered a stimulant due to high GI index and intake should also be reduced if not omitted all together.
- Fermented alcohols, such as port, red wine, champagne are rich sources of tyramine, which activates cortisol production and can exacerbate difficulty sleeping.



Tamar Shochat and Sonia Ancoli-Israel (2007). "Sleep hygiene". Nature of Sleep and its Disorders. Armenian Medical Network. Retrieved 2007-09-19.

# Sleep Hygiene

- Unwinding at night can be important. Some ideas to assist the “unwind” process: adding a few drops of lavender oil to an evening bath; meditating; breathing exercises, low level light (i.e. candle), relaxing classical music.
- Avoid watching TV (especially in bed) or using the computer for at least 1 hour before bed. Light stops the sleep hormone melatonin from being released and light stimulates the wakefulness chemicals (cortisol) in the brain.



# Addressing Sleep Difficulty

- Remove all electrical appliances from the bedroom, including mobile phone.
- Use a battery-operated alarm as necessary.
- Don't use an electric blanket or charge cell phones near the bed—electromagnetic radiation disrupts sleep and restorative hormones.

Tamar Shochat and Sonia Ancoli-Israel (2007). "Sleep hygiene".  
Nature of Sleep and its Disorders. Armenian  
Medical Network. Retrieved 2007-09-19.





# Nutritional Support Zinc

- Zinc functions as a cofactor in numerous essential bodily processes where it is required structurally and as a modulator for many proteins and enzymes for neurotransmission cell signalling including that of the monamine oxidases.
- Any disruption to this cell signalling and neurotransmission is likely to affect sleep.
- As such, zinc status should be screened in all patients presenting with difficulty sleeping.
- As yet no studies could be found assessing the action of zinc in sleep.
- However, clinical experience provides a rationale for this important recommendation.
- When recommending zinc it is optimal to select a vitamin B6-free supplement if taking this nutrient immediately prior to sleep. This prevents the common occurrence of nausea or dream interference initiated by vitamin B6.

# Magnesium

- Magnesium is a cofactor for serotonin synthesis and thus deficiency will result in inadequate serotonin, a considerable problem since serotonin is involved in the regulation of sleep.
- Magnesium due to its relaxant action may also be useful to help ease muscle tension and relieve nervous tension stress.
- Clinical efficacy warrants the prescription of magnesium for sleep difficulty owing to its marked relaxing and muscular spasmolytic properties. However, a scarcity of formalized research exists warranting future research opportunities.

# B Complex

- The B vitamins play a pivotal role in the regulation of sleep mechanisms due to their multifaceted role within the body.
- One of the most important mechanisms with regards to sleep is the role of the B vitamins in the metabolism of serotonin: without adequate intake of B vitamins the body is unable to manufacture serotonin.
- Of the B vitamins both vitamin B3 and B6 are required for the synthesis of serotonin.
- Depletion of vitamin B3 has also been linked to sleep-deprivation induced neuronal challenge whereby Reimund suggests that alterations in neuronal energy metabolism in sleep deprivation occur due to NADH and ATP depletion secondary to vitamin B3.
- Lastly, acknowledging the stress as well as the fatigue that accompanies sleep difficulty, a B complex will also be required to provide support to the body.

# Adenosine

- The sedative and sleep promoting effects of adenosine, an energy by-product and inhibitory neurotransmitter, have been studied since the 1950s.
- Adenosine functions in the central nervous system to inhibit excitatory neurotransmitters as well as some inhibitory ones.
- Extracellular levels of adenosine increase in the basal forebrain during periods of wakefulness: thus it has been revealed to be an important nutrient for sleep where it functions as a sleep-wakefulness modulator inhibiting wakefulness-promoting neurons.
- Increases in duration and depth of sleep after wakefulness have been observed to be carefully modulated by increased concentrations of adenosine.
- Interestingly, caffeine acts as an antagonist to adenosine affecting both the A1 and A2A receptors, the latter of which promote wakefulness.

T. Porkka-Heiskanen, L. Alanko, A. Kalinchuk, D. Stenberg: Adenosine and sleep. *Sleep Medicine Reviews*. **6(4)**, 2002, 321–332.

R. Basheer, R.E. Strecker, M.M. Thakkar, R.W. McCarley: Adenosine and sleep-wake regulation. *Prog Neurobiol*. **73(6)**, 2004 Aug, 379–396.

T. Porkka-Heiskanen, R.E. Strecker, M. Thakkar, A.A. Bjørkum, R.W. Green, R.W. McCarley: Adenosine: a mediator of the sleep-inducing effects of prolonged wakefulness. *Science*. **276**, 1997.

# Restful Sleep: Key Herbs Include

- Valerian
- Ziziphus
- Passion Flower
- Kava
- Jamaican Dogwood
- California Poppy
- Corydalis



# Valerian

- Most of the clinical studies with Valerian relate to sleep difficulty
- Mild sedative action, however best used for at least 14 consecutive nights to see best results
- Can be effective for difficulty sleeping and maintenance of restful sleep
- Valerenic acid is a commonly used marker for qualitative and quantitative analysis of Valerian root and Valerian products

# Passion Flower

- Passion flower (*Passiflora incarnata*) has long been used in Western herbal medicine for the treatment of nervousness, restlessness, difficulty sleeping, wakefulness, nervous irritability, and spasmodic conditions
- It has also been used traditionally in the treatment of sleep difficulty due to its sedative nature

British Herbal Medicine Association's Scientific Committee. British Herbal Pharmacopoeia. BHMA, Bournemouth, 1983.

Felter HW, Lloyd JU. King's American Dispensatory, 18th Edn, 3rd revision, 1905, reprinted Eclectic Medical Publications, Portland, 1983.

# Ziziphus

- Ziziphus is used in traditional Chinese medicine (TCM) to treat irritability, difficulty sleeping and either blood stasis or yin deficiency
- It is also used to prevent both spontaneous sweating and night sweats
- In Western herbal medicine Ziziphus is used for its sedative, hypnotic, antihypertensive and hypotensive activity



# Ziziphus

- Ziziphus produced sedative and hypnotic effects in experimental models
- It has been studied in double-blind trials. One study found that it significantly improved mood, decreased sympathetic nervous system symptoms and improved performance
- Another study of sleep difficulty showed a significant improvement in sleep quality and well-being without side-effects

# Kava

- In a University of Queensland placebo-controlled, double-blind, crossover trial, MediHerb's Kava tablets were found to be effective in improving mood and in addressing mood challenges
- The effect of Kava in improving mood was highly significant compared to placebo, highly significant reductions in low mood were also evident<sup>1</sup>
- A qualitative study of this research has been published in the March 2010 edition of the Australian Journal of Medical Herbalism

1. Sarris J, Kavanagh D, Adams J, Bone K, Byrne G. Psychopharmacology 2009; 205(3): 399-407

# Kava and Valerian

- Kava and Valerian, claimed to have anxiolytic and sedative properties respectively, without dependence potential or any appreciable side-effects.
- A pilot study, 24 patients suffering from stress-induced difficulty sleeping were treated for 6 weeks with Kava 120 mg daily.
- Stress was measured in three areas: *social, personal and life-events*; difficulty sleeping in three areas also: *time to fall asleep, hours slept and waking mood*.
- Total stress severity was significantly relieved by both compounds ( $p < 0.01$ ) with no significant differences between them; as was also difficulty sleeping ( $p < 0.01$ ).
- The proportion of patients with no side-effects was 58% with each drug respectively and the 'commonest' effect was vivid dreams with Valerian (16%), followed by dizziness with Kava (12% ).

# California Poppy

- The traditional uses of California poppy, (*Eschscholzia californica*) include reducing minor pain, producing calm sleep, and treating anxious feelings and nervous bowel.
- The main active ingredients are alkaloids such as chelirubine, sanguinarine and macarpine. Other alkaloids are present in minor concentrations. The herb also contains flavonglycosides.
- Gentle in effect, the major health properties of this herb are sedative, minor analgesia and antispasmodic in action.
- The California poppy is a member of the poppy family and somewhat distantly related to the opium poppy (*Papaver somniferum*). While California poppy does contain some sedative alkaloids, it contains no opioids.

Hoffmann, David: *Herbs for a Good Night's Sleep*. New Canaan, Keats Publishing, Inc., 1997.

Mills, Simon & Kerry Bone: *The Essential Guide to Herbal Safety*. St. Louis, Elsevier 2005.

Balch, Phyllis A.: *Prescription for Herbal Healing*. New York, Avery 2002.

Kenner, Dan and Yves Requena: *Botanical Medicine. A European Professional Perspective*. Brookline, Paradigm Publications 1996.

Bergeron, Chantal, et al. "IN VITRO ANXIOLYTIC ACTIVITY OF CALIFORNIA POPPY (*Eschscholtzia californica* Cham.)." Website <http://www.tomsofmaine.com/downloads/pdf/CaliforniaPoppy.pdf> (viewed May 2007).

# Jamaican Dogwood

- Jamaica (or Jamaican) dogwood (*Piscidia erythrina* or *Piscidia piscipula*) has been used as a traditional remedy for treating minor nerve pain, feelings of fear, and nervous tension.
- As early as 1844, Western scientists discovered that Jamaican dogwood had minor pain relieving and sweat promoting properties.
- More recent scientific studies have also shown that bark extracts of this plant have anti-inflammatory, sedative, and antispasmodic (helps relieve smooth muscle spasms along the digestive tract) effects in animals.

Brinker F. *Herb Contraindications and Drug Interactions*. 2nd ed. Sandy, OR: Eclectic Medical Publications; 1998:86-87.

*British Herbal Pharmacopoeia*. 4th ed. Great Britain: Biddles Ltd, Guildford and King's Lynn; 1996:139-141.

Costello CH, Butler CL. An investigation of *Piscidia erythrina* (Jamaica dogwood). *J Am Pharm Assoc Am Pharm Assoc*. 1948 Mar;37(3):89-97.

Della Loggia R, Zilli C, Del Negro P, Redaelli C, Tubaro A. Isoflavones as spasmolytic principles of *Piscidia erythrina*. *Prog Clin Biol Res*. 1988;280:365-368.

Gruenwald J, Brendler T, Jaenicke C. *PDR for Herbal Medicines*, 4th ed. Montvale, NJ: Thomson Healthcare; 2007:478.

Newall C, Anderson L, Phillipson J. *Herbal Medicines: A Guide for Health-care Professionals*. London, England: Pharmaceutical Press; 1996: 174-175.

# Corydalis

- Like California poppy, corydalis has a long historical lineage as a sleep inducing herb.
- The tubers of the plant contain 6% total alkaloids, with one of the primary alkaloids called bulbocapnine representing about 20 to 35% of this total.
- Bulbocapnine seems to work with the dopaminergic neuronal transmitter system. Dr. Schafer notes "...that bulbocapnine possesses a selective action on the dopaminergic receptors, but by the interaction on the dopaminergic system it also influences other neurotransmitter systems, e.g. the serotonergic and cholinergic systems, in experiments with rats and mice."
- Several in vitro rat trials employing corydalis extract have demonstrated a sedative effect.

# Therapeutic Strategy

## Therapeutic Strategy

- Best results with Valerian come from continuous for at least two weeks, unless in a synergistic formulation with other herbs such as Passion flower and Ziziphus
- Nervine tonic herbs are indicated, especially if the difficulty sleeping is associated sleep maintenance. These include:
  - St John's Wort
  - Skullcap 1:2
  - Damiana 1:2

# Therapeutic Strategy

- If the patient's adrenals are fatigued and suffers from sleep maintenance difficulty then adrenal tonics (Licorice or Rehmannia) are very well indicated.
- These herbs will also help maintain healthy blood sugar levels already in a normal range during the night.
- Ideally, these should be dosed daytime only as they extend the half life of endogenous cortisol.
- Morning doses of adrenal tonic assist the "wake up" process (hence reducing dependence on stimulates such as caffeine)



# Nutritional Support for Difficulty Sleeping

## Calcium

- Calcium, especially when contained in food, has a sedative effect on the body.
- A calcium deficiency in the body causes restlessness and wakefulness.
- For adults, doses of approximately 600 milligrams of calcium have been shown to have a relaxing effect.

# Nutritional Support for Difficulty Sleeping

- Magnesium, in doses of approximately 250 milligrams, can help induce sleep.
- Magnesium deficiency is responsible for nervousness that prevents sleep.
- Magnesium therapy is well indicated to treat periodic leg movements-related difficulty sleeping.
- Magnesium-rich foods include kelp, wheat bran, almonds, cashews, blackstrap molasses, and brewer's yeast.
- Dose: 400-600 mg per day

Hornyak, Magdolna, et al. "Magnesium therapy for periodic leg movements-related insomnia and restless legs syndrome: an open pilot study." *Sleep* 21.5 (1998): 501-505.

# B Vitamins

- Vitamin B<sub>6</sub> supplements can help to support healthy sleep. A tablespoon or two of nutritional yeast is an excellent source of vitamin B<sub>6</sub>
- Dose: 50-100 mg per day

Madsen, Carol. "AmbeSleep Review."

- Vitamin B<sub>12</sub> supplemented with 100 milligrams of pantothenic acid (B<sub>5</sub>) can serve as an effective sleep supporting vitamin regimen.
- Dose: B<sub>12</sub> (25 mg) + B<sub>5</sub> (100 mg)

MLA Meolie, A. L., et al. "Oral nonprescription treatment for insomnia: an evaluation of products with limited evidence." *J Clin Sleep Med* 1.2 (2005): 173-87.

# Tryptophan

- L-tryptophan is a key amino acid that plays a key role in sleep and management of anxious feelings.
- In the brain, tryptophan is converted into serotonin, a natural sedative neurotransmitter.
- It also enhances the brain's ability to produce melatonin, the hormone that regulates your body's sleep cycles.
- L-tryptophan is found in foods such as milk and turkey.
- Clinical studies showed that L-tryptophan produces only modest effects in the support of restful sleep.
- Research showed that L-tryptophan can reduce REM sleep while increasing the time spent in non-REM sleep.
- Dose: 25-200 mg per day

Banki, C. M., G. Molnar, and I. Fekete. "Correlation of individual symptoms and other clinical variables with cerebrospinal fluid amine metabolites and tryptophan in depression." *Archiv für Psychiatrie und Nervenkrankheiten* 229.4 (1981): 345-353.

# Zinc

- Zinc deficiency is linked to both low mood and difficulty sleeping.
- Many biochemical reactions need vitamin B<sub>6</sub> (pyridoxine), but this vitamin, which is obtained from food, needs to be converted to a biologically active form (pyridoxine-5-phosphate or P5P) before it can be used in biochemical reactions. The enzyme converting vitamin B<sub>6</sub> to P5P is via a zinc dependent enzyme (pyridoxine kinase).
- Thus when the body is deficient in zinc it cannot utilize vitamin B<sub>6</sub>. Therefore, zinc deficiency may also cause low mood and difficulty sleeping.
- Zinc is a mineral that is absorbed across the gut membrane if it is combined with picolinic acid. This is produced from tryptophan in the pancreas under the influence of vitamin B<sub>6</sub>. Thus there is an interdependency between vitamin B<sub>6</sub> and zinc.

# Restful Sleep Summary Protocol

## Nutritional Support

- Magnesium: 600 mg per day
- Calcium: 1200 mg per day
- 5 HTP: 25-200 mg per day
- B<sub>6</sub>: 50-100 mg per day
- B<sub>12</sub>: 25 mg per day
- Zinc: 10-20 mg per day

# Key Products

## Standard Process®

- Min-Tran®
- Min-Chex®
- Zinc Liver Chelate™



## MediHerb®

- Kava Forte
- Valerian Complex
- Nervagesic



# Min-Tran®

Min-Tran is a vegetarian product that contains mineral complexes to support emotional balance

- Supports a healthy nervous system
- Mild calmative that helps maintain emotional balance
- Helps ease the effects of temporary stress
- Supports the actions of neurotransmitters that regulate mood\*

Suggested Use: Four tablets per meal, or as directed

| <b>Supplement Facts</b>                                       |         |      |
|---|---------|------|
| Serving Size: 4 Tablets Servings per Container: 22, 82 or 200 |         |      |
| Amount per Serving  |         | %DV  |
| Calories  | 5       |      |
| Total Carbohydrate  | 1 g     | <1%* |
| Calcium   | 120 mg  | 10%  |
| Iodine  | 200 mcg | 135% |
| Magnesium   | 19 mg   | 4%   |
| †Daily Value (DV) not established.                            |         |      |

Other Ingredients: Calcium lactate, kelp, magnesium citrate, alfalfa (whole plant), water, and calcium stearate.

\*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.



# Min-Chex<sup>®</sup>

Min-Chex is a combination of minerals and synergistic factors designed to support the nervous system

- Supports nervous system health
- Moderate calmative that helps maintain emotional balance
- Helps ease the effects of temporary stress
- Contains a combination of key ingredients from Min-Tran<sup>®</sup> and Orchex<sup>®</sup>\*

Suggested Use: One capsule one half hour before each meal, or as directed

| <b>Supplement Facts</b>  |         |                            |
|--|---------|----------------------------|
| Serving Size: 1 Capsule  |         | Servings per Container: 90 |
| Amount per Serving   |         | %DV                        |
| Calories   | 3       |                            |
| Calcium  | 20 mg   | 2%                         |
| Niacin   | 25 mg   | 130%                       |
| Vitamin B <sub>6</sub>   | 5 mg    | 250%                       |
| Iodine   | 300 mcg | 200%                       |
| <b>Proprietary Blend: 274 mg</b> Bovine orchic Cytosol <sup>™</sup> extract†, magnesium citrate, manganese lactate, bovine liver†, porcine stomach†, soy (bean)†, bovine spleen†, ovine spleen†, para-aminobenzoate†, defatted wheat (germ)†, porcine brain†, and ascorbic acid. |         |                            |
| †Daily Value (DV) not established.   |         |                            |

Other Ingredients: Calcium lactate, kelp, gelatin, niacinamide, water, pyridoxine hydrochloride, and calcium stearate.

\*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

# Zinc Liver Chelate™

Zinc Liver Chelate is used for short-term support of healthy immune function and skin health.

- Promotes protein synthesis
- Provides cofactor support for enzymatic functioning
- Supports male hormonal health
- Supports digestion\*

Suggested Use: One tablet per day, or as directed

**Caution:** For short-term restoration of zinc levels. Doses exceeding 100 mgs daily can depress immune function.

## Supplement Facts

Serving Size: 1 Tablet

Servings per Container: 90

Amount per Serving

%DV

Calories

2

Zinc

10 mg

70%

**Proprietary Blend: 228 mg** Bovine liver†, beet (root)†, carrot (root)†, and sweet potato†.

†Daily Value (DV) not established.

Other Ingredients: Zinc liver chelate, honey, arabic gum, and calcium stearate.

\*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

# Kava Forte

MEDI  HERB®

This tablet contains Kava root extracted with 100% water, which provides an extract with a full spectrum of compounds including the kavalactones. This product is standardized to contain 50 mg of kavalactones per tablet to ensure optimal strength and quality. The compounds in Kava Forte, particularly the kavalactones, work together to:

- Calm the nerves
- Ease the effects of everyday tension and stress
- Promote relaxation and sleep
- Support the relief of muscular tension\*

Suggested Use: 1 tablet 2 – 3 times daily, or as directed

Caution: US FDA advises that a potential risk of rare, but severe, liver injury may be associated with kava-containing dietary supplements. Ask a health care professional before use if you have or have had liver problems, frequently use alcoholic beverages, or are taking any medication. Stop use and see a doctor if you develop symptoms that may signal liver problems (eg unexplained fatigue, abdominal pain, loss of appetite, fever, vomiting, dark urine, pale stools, yellow eyes or skin). Not for use by persons under 18 years of age, or by pregnant or breastfeeding women. Not for use with alcoholic beverages. Excessive use, or use with products that cause drowsiness, may impair your ability to operate a vehicle or dangerous equipment. Not for prolonged use. Do not exceed recommended dose. For other contraindications and cautions consult your health care professional.

| Supplement Facts   |                            |
|--|----------------------------|
| Serving Size: 1 Tablet   | Servings per Container: 40 |
| Amount per Serving   | %DV                        |
| Calories   | 4                          |
| Kava root 7:1 water extract<br>from <i>Piper methysticum</i> root 3.2 g<br>Containing kavalactones 50 mg | 455 mg †                   |
| †Daily Value (DV) not established.   |                            |

Other Ingredients: Water, cellulose, hypromellose, maltodextrin, silicon dioxide, sodium starch glycolate, magnesium stearate and calcium acid phosphate.

\*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

# Valerian Complex

MEDI  HERB®

Valerian Complex contains Valerian, Passion Flower and *Ziziphus jujuba var. spinosa*. This combination of herbs contains many compounds including iridoids (known as valepotriates), an essential oil, cyclopentane sesquiterpenes (including valerenic acid), flavonoids and dammarane-type saponins called jujubosides. Together these herbs and their constituents can help the body to:

- Support nervous system health
- Obtain relief from occasional sleeplessness
- Promote relaxation
- Ease the effects of temporary or occasional stress\*

Suggested Use: 1 tablet 2 - 4 times daily, or as directed

Caution: Not to be used during pregnancy and lactation unless otherwise directed by a qualified health care professional.

| Supplement Facts  |                            |
|---|----------------------------|
| Serving Size: 1 Tablet  | Servings per Container: 40 |
| Amount per Serving  | %DV                        |
| Calories  | 3                          |
| Calcium   | 40 mg 4%                   |
| Valerian root & rhizome 5:1 extract from <i>Valeriana officinalis</i> root & rhizome 700 mg | 140 mg †                   |
| Passion Flower herb 5:1 extract from <i>Passiflora incarnata</i> herb 500 mg                | 100 mg †                   |
| Jujube seed 10:1 extract from <i>Ziziphus jujuba var. spinosa</i> seed 900 mg               | 90 mg †                    |
| †Daily Value (DV) not established.  |                            |

Other Ingredients: Calcium acid phosphate, cellulose, hypromellose, magnesium stearate, maltodextrin, silica and sodium starch glycollate.

\*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

# Nervagesic

MEDI  HERB®

Nervagesic contains California Poppy, Jamaican Dogwood and Corydalis. This combination of herbs contains many compounds including alkaloids, isoflavonoids and other flavonoids. Nervagesic can help:

- Ease nervous system discomfort
- Provide nervous system support during temporary or occasional nervous system discomfort
- Promote relaxation in the nervous system and muscles
- Support healthy nervous system tissue
- Ease the effects of temporary or occasional nervous stress
- Provide relief from occasional sleeplessness
- Enhance the ability to relax during the night
- Ease the effects of cramping associated with menstruation
- Relieve muscular cramping
- Ease muscular discomfort such as caused by exercising
- Provide antispasmodic activity for smooth muscle\*

Suggested Use: 2 tablets 2 times daily, or as directed

Contraindicated in pregnancy and lactation.

## Supplement Facts

Serving Size: 2 Tablets

Servings per Container: 20

Amount per Serving

%DV

|   |           |   |
|---|-----------|---|
| Calories  | 6         |   |
| California Poppy herb flowering 4:1 extract<br>from <i>Eschscholzia californica</i> herb flowering<br>1.6 g | 400<br>mg | † |
| Jamaican Dogwood bark 4:1 extract<br>from <i>Piscidia piscipula</i> bark 800 mg                             | 200<br>mg | † |
| <i>Corydalis yanhusuo</i> tuber 10:1 extract<br>from <i>Corydalis yanhusuo</i> tuber 1.6 g                  | 160<br>mg | † |

†Daily Value (DV) not established.

Other Ingredients: Cellulose, gum arabic, maltodextrin, sodium starch glycolate, croscarmellose sodium, hypromellose, magnesium stearate, calcium acid phosphate and silicon dioxide.

\*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

# Questions?

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