

Insomnia

Causes - Exogenous

External stimuli:

- o Noise
- o Excessive heat or cold
- o Bright light
- o Partner with snoring or restless legs

Stimulants

- o Coffee
- o Chocolate
- o Tea

Alcohol and Sleep

Alcohol is more disruptive to sleep than caffeine

The body will produce adrenaline to compensate for the alcohol in the system

Alcohol makes people thirsty

Causes - Physical

- o Bodily dysfunctions:
 - o Pain.
 - o Decreased mobility.
 - o Disturbing sensations or movements
 - Periodic limb movements.
 - o Cardiac or respiratory problems
 - Asthma
 - Heart failure
 - Sleep apnea
 - o GI – reflux, IBD
- o Age.

Periodic Limb Movements, “Restless Legs”

Familial – consider megadoses of folic acid

10-30 mg

Check ferritin – iron deficiency may also provoke

For nocturnal myoclonus:

- o Marijuana, alcohol

Medications:

- o Sleeping pills and Tranquilizers (“rebound”)
- o Thyroid preparations
- o Oral contraceptives
- o Beta-blockers
- o SSRI’s

Magnesium

Vitamin E

Parkinson’s Drugs

Causes - CNS

- o Alterations in the central nervous system (CNS) that initiate and maintain sleep.
 - o Brain: stroke, head injury, dementia.
 - o Metabolic: liver disease, blood sugar, etc.
 - For repetitive 3 am awakening, try a protein snack before bed.
 - o Hormonal: thyroid, menopause.

Causes - Psychological

- o Personality:
 - o Anxious, tense, somatic vs. Relaxed, phlegmatic.
- o Stress.
 - o Life changes (birth, death, divorce, move, etc.).
- o Depression
- o Circadian rhythm sleep disorder
- o Poor Sleep Hygiene
 - o

Solutions

Remove Causal Factors

- o Stop alcohol, stimulants, etc
- o Treat pain
- o Treat heart failure, sleep apnea, etc
- o Earplugs/ heavy curtains, etc
- o Treat partner

Solutions

Principles of Sleep Hygiene

- Go to bed and arise from bed at the same time each day
- Avoid daytime naps or limit them to one midafternoon nap
- Avoid evening alcohol use
- Avoid caffeinated drinks late in the day
- Reduce or eliminate tobacco use, especially at night or in the evening
- Exercise in moderation; avoid evening exercise
- Use the bed only for sleep and sexual activity
- Keep the bedroom dark, quiet, and cool
- Avoid stress and worrisome thoughts in the evening before sleep

Sleep Restriction Therapy

- o No Naps
- o Rise at same time regardless of how little sleep
- o Limit sleep to 1-2 hours less than reported amount of sleep
 - Makes sleep more continuous
- o Then gradually increase sleep time

Stimulus Control Therapy

- o Associate bed, sleep environment only with sleep, intimacy
 - o No reading, eating, or watching TV in bed.
 - o Get out of bed and to do something relaxing if unable to sleep after 15 to 20 minutes.
(Not TV – light and content are arousing)

Light Therapy

- o Bright light in the morning
- o Avoidance of bright light in the evening
- o This works even in alcohol withdrawal

Relaxation techniques

Mental

- Prayer
- Journal
- Imagery
- Biofeedback
- Delta wave inducing sleep CD
- Music – postoperative study in CABG patients

Physical

- Breathing
- Progressive Relaxation
- Sounder Sleep System

Non-Drug Therapies Really Do Work!

- o Behavioral management of sleep disturbances secondary to chronic pain.
J Behav Ther Exp Psychiatry. 1989 Dec;20(4):295-302.
Documented effectiveness of a behavioral program on EEG and sleep architecture in patients with chronic pain.

The Sounder Sleep Solution

Sonja Roseth

Based on a program developed by Michael Krugman

www.soundersleep.com

Pills and Potions

Herbs and Medications to Aid Sleep

Medications – Pros and Cons

Pros

- o Work quickly
- o Covered by insurance

Cons

- o Stop working (Tolerance)
- o Dependence – Rebound
- o Sedation
- o Amnesia

Natural Substances

- o Minerals
 - o Calcium and Magnesium
- o Amino Acids: Tryptophan, 5HTP
- o Hormones: Melatonin
- o Herbs
- o Aromatherapy

Serotonin

- o Neurotransmitter in the brain that triggers sleep
- o Made from tryptophan – amino acid found in foods such as milk, turkey

5HTP

- o Increase REM sleep (typically by about 25%)
- o Increase deep sleep stages 3 and 4
- o No increase in total sleep time
- o 100–300 mg 30–45 minutes before retiring

Melatonin

- o Hormone produced by the pineal gland – part of the system that aligns our body with light and dark
 - Dosage: 3 mg at bedtime is more than enough
 - Dosages as low as 0.1 and 0.3 mg have been shown to produce a sedative effect when melatonin levels are low
- o Caution: Could disrupt the normal circadian rhythm. In one study, a daily dosage of 8 mg/day for only 4 days resulted in significant alterations in hormone secretions

Passionflower

- o The herbal “specific” for staying asleep
- o Studied vs. serax (benzodiazepine) for anxiety:
 - o Equally effective for anxiety
 - o No cognitive or motor impairment

Valerian

Takes 2 – 3 weeks to start working
Shown to significantly
reduce sleep latency
improve sleep quality
reduce night-time awakenings
Usually reduces morning sleepiness.

Valerian

- o Studies:
 - o Compared with placebo, valerian showed a significant effect
 - 44% reporting perfect sleep
 - 89% reporting improved sleep.
- o Studies:

- o Double-blind study of insomniacs:
 - Valerian root extract (160 mg) and Melissa officinalis extract (80 mg)
 - Benzodiazepine (triazolam 0.125 mg)
 - Placebo.
- Results:
 - Valerian effect comparable to drug
 - Able to increase deep sleep stages 3 and 4.
 - Did not cause daytime sedation
 - o No evidence of diminished concentration based on the Concentration Performance Test
 - o No impairment of physical performance

Other Herbs Used Traditionally

Lemon Balm
 Hops
 Chamomile
 Skullcap
 Kava
 End Fatigue Revitalizing Sleep Formula

Aromatherapy

Essential oil – scent or in hydrotherapy
 Lavender – nursing home study
 Rose
 Ylang-ylang
 Neroli

Drugs

The Ideal Sleeping Pill

- o Shorten latency to sleep
- o Maintain normal physiological sleep all night without blocking normal behavioral responses to the crying baby or the alarm clock
- o Leave neither hangover nor withdrawal effects the next day
- o No tolerance or side effects, such as impairment of breathing, cognition, ambulation, and coordination
- o Not habit-forming or addicting.
- o Has not been developed

Over-the-counter Drugs

- o e.g. Nytol, Sleep-Eez, Sominex, Anacin PM, Excedrin PM, Tylenol PM, Unisom
 - o antihistamines
 - not addictive
 - not effective in sustaining stage IV sleep
 - can affect the quality of sleep adversely.

Long vs. Short-Acting Hypnotics		
	Short	Long
Hangover	+	++++
Accumulation	0	+++
Tolerance	+++	+
Withdrawal insomnia	+++	+
Decrease anxiety	0	+++
Amnesia	+++	++

Table 1 -- Drugs with a Food and Drug Administration indication for insomnia

Drug name	Mechanism of action	Dose range	Elimination half-life
Estazolam (ProSom)	BzRA	1–2 mg	10–24 h
Flurazepam (Dalmane)	BzRA	15–30 mg	48–120 h ^[a]
Temazepam (Restoril)	BzRA	15–30 mg	8–20 h
Triazolam (Halcion)	BzRA	0.125–0.25 mg	2.4 h
Quazepam (Doral)	BzRA	7.5–15 mg	48–120 h ^[a]
Zolpidem (Ambien)	BzRA	5–10 mg	1.4–3.8 h
Zolpidem ER	BzRA	6.25–12.5 mg	2.8 h
Zaleplon (Sonata)	BzRA	5–20 mg	1 h
Eszopiclone (Lunesta)	BzRA	1–3 mg	6 h
Ramelteon (Rozerem)	MtRA	8 mg	1–2.6 h

More Medications Used for Insomnia

Imidazopyridines	Zolpidem (Ambien) 5-10 mg
Selective for alpha-1 GABA R	Zaleplon (Sonata) 5-10 mg
Less selective GABA R agonist	Eszopiclone (Lunesta) 2-3 mg
Melatonin receptor agonist	Rozerem 8 mg
Antihistamines	Diphenhydramine (Benadryl) 25 – 50 mg
Sedating antidepressants	Amitriptyline (Elavil) 10–75mg
	Trazodone(Desyrel) 25–100mg
	Doxepin 10 – 75 mg
	Imipramine 25 – 100 mg
	Remeron 15 mg
Anticonvulsants	Neurontin 300 – 1500 mg Helps pain and PLM/Restless legs
	Gabitril 4 mg 1-3 at bedtime
Muscle relaxants	Soma 350 mg Addictive
	Flexeril 10 – 20 mg at bedtime
Other	GHB (Xyrem)