Getting Your Winks:
Insomnia and Other Sleep Disorders

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Insomnia: Some Basic Facts

- Affects 35% of the general population (NIH 1984).
- It cost the American public, in 1995, about $13.9 billion in medical expenses, ramifications of accidents, and reduced productivity due to absenteeism and decreased work efficiency (Walsh et al 1995) .

Insomnia: Some Basic Facts

- Definitions.
  - Insomnia is not a diagnosis per se. It is symptom.
  - It is not defined by total sleep time per 24 hours.
  - It is the inability to obtain sleep of sufficient length or quality to produce refreshment the following morning.
- Sleep onset insomnia is the inability to fall sleep.
- Sleep maintenance insomnia is the inability to stay sleep.
- Terminal insomnia: waking up too early.

Insomnia: Some Basic Facts

- Depression and other psychiatric illnesses are not the most common causes of insomnia.
- Untreated insomnia, itself, is a risk factor for the subsequent development of clinical depression.
- Patients with primary insomnia are often fatigued but not sleepy.
  - Unable to fall asleep when trying to take naps.
  - Do not fall asleep unintentionally during the day.

Insomnia: Causes

- **Primary insomnias**
  - Psychophysiologic, or conditioned, insomnia
  - Idiopathic, or childhood-onset, insomnia
  - Sleep-state misperception insomnia
- **Secondary insomnias**
  - Poor sleep hygiene
  - Insomnia in psychiatric neurological and medical conditions
  - Insomnia in other sleep disorders
  - Menopause-related insomnia
  - Medication-induced insomnia
  - Restless legs syndrome
  - Environmentally induced insomnia

Sleep Hygiene Guidelines.

- Go to bed only when sleepy.
- Avoid caffeine, nicotine and alcohol in the late afternoon and evening.
- If you have trouble sleeping at bedtime, don't nap during the day.
- Exercise regularly, but do so at least three hours before bed-time.
- Establish a regular, relaxing bedtime routine that will allow you to unwind.

Sleep Hygiene Guidelines.

- Before bedtime, schedule a period to review stressful events of the day.
- Don't use your bed for anything other than sleep or sex.
- Make your sleep environment as pleasant, comfortable, dark and quiet as you can.
- Eliminate clocks in the bedroom.
- If you can't go to sleep after 30 minutes, don't stay in bed tossing and turning. Get up and involve yourself in a relaxing activity, such as listening to soothing music or reading, until you feel sleepy.
- *Remember: Try to clear your mind; don't use this time to solve your daily problems.*

Caffeine content of common foods

Product	Caffeine Content (mg)	Product	Caffeine Content (mg)	Product	Caffeine Content (mg)
Diet & reg cola 8 oz	31 mg	*Coffee 8 oz*	110 mg	*Brewed tea 8 oz*	40-60 mg
Red Bull 250 ml	80 mg	*Espresso 1 oz*	90 mg	*Iced tea 8 oz*	25 mg
Dr. Pepper Reg & Diet 8 oz	28 mg	*Coffee drip 8 oz*	80 mg	*Milk Chocolate 1 oz*	6 mg
Mountain Dew diet and regular 8 oz	37 mg	*Coffee instant 8 oz*	75 mg	*Dark chocolate 1 oz*	20 mg
Jolt 8 oz	48 mg	*Cappuccino 6 oz*	90 mg	*Cocoa Beverage 8 oz*	6 mg

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Insomnia: Diagnosis.

- History: the most important diagnostic tool.
  - Person's sleep habits.
  - List of medical problems.
  - Relation to menopause.
  - List of medications.
  - Exposure to other chemicals.
  - Falling sleep during the day.
  - Symptoms of **restless legs syndrome**.

Insomnia: Diagnosis

- Sleep logs
  - A sleep log is a graph on which, for 2 to 3 weeks, the patient records bedtime, approximate sleep time, times and duration of awakenings during the sleep period, final awakening time, and naps taken during the day. This record summarizes the patient's perception of the amount and quality of sleep he or she is getting.

Sleep Logs.

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Sleep Log

Name_____ MRN _____ Date _____

Instructions

1. Be sure to write your name on the sheet.
2. Block in each 1/2 hour you slept. Don't block in any 1/2 hour periods during which you were awake.
3. Use a bold diagonal line for those periods when you were sleepy.
4. Add up the time you spent sleeping and enter it in the far right column.
5. Use the below symbols or letters above the time of activity or experience.

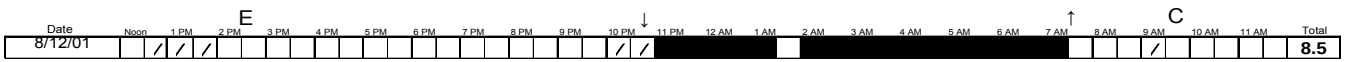
Awake

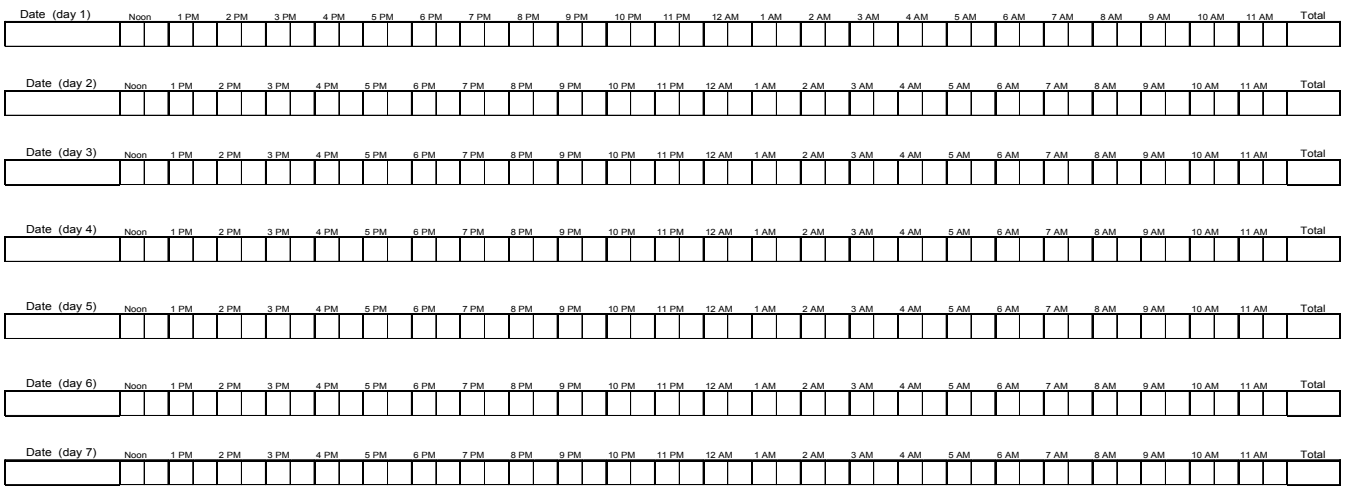
Sleepy

Asleep

↓ = lights out ↑ = lights on C = coffee/tea/soda E =Exercise P =Pain A = alcohol S = sleep medicine

Example:





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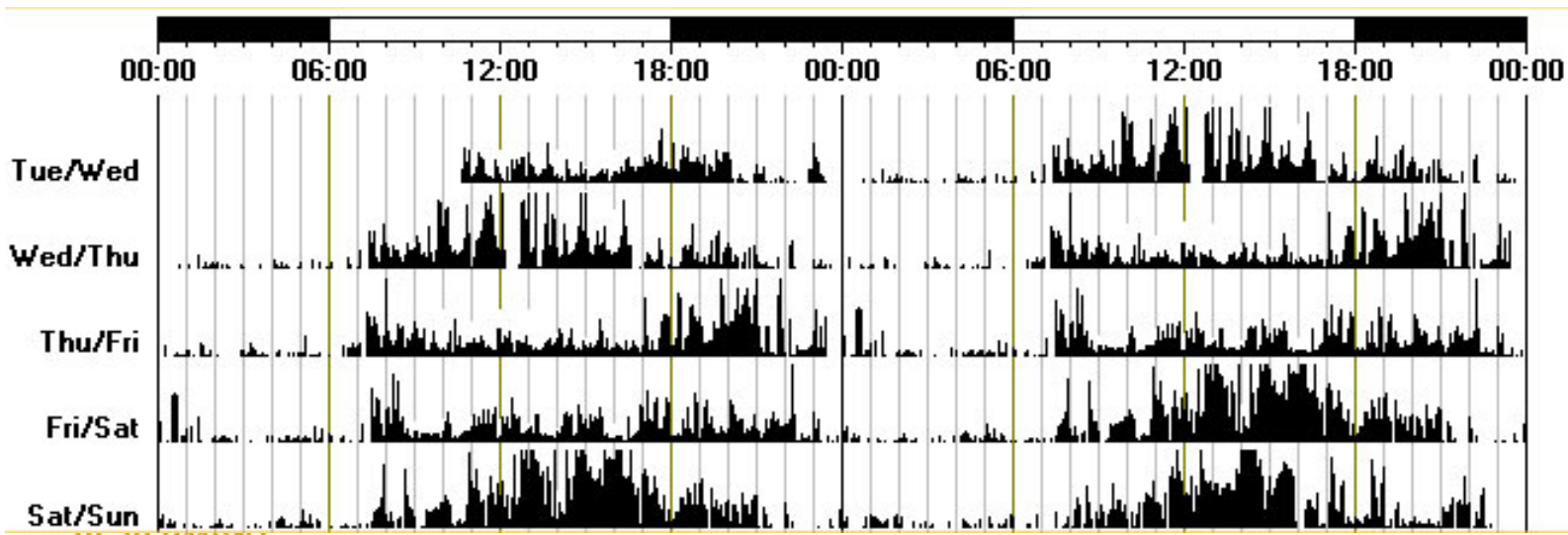
Insomnia: Diagnosis

- Actigraphy.
  - Actigraphy records activity during waking and sleeping without application of any electrodes.
  - It consists of a movement detector and considerable memory, so it can record movement and nonmovement data plotted against time for a week or two.
  - The patient can wear it continuously during sleep and as he or she goes about routine daily activities.
  - Actigraphy is ideal for extended examination of the sleep / wake cycle in the patient's home environment.

Insomnia: Diagnosis

- Actigraphy.
  - There is a very close correlation, up to 90%, between the rest activity findings recorded by the actigraph and the sleep wake pattern as determined by a polysomnogram.

Actigraphy.



Treatment

Behavioral Treatment.

- Stimulus control therapy.
  - Stimulus control focuses on the association between your bed and sleep. Do you find yourself balancing a checkbook or writing a letter in bed? In this way you link bedtime with alerting activities rather than sleeping. The stimulus control approach helps you think more about your bed as a place for sleeping.

Behavioral Treatment.

- Sleep restriction consolidation.
  - Focuses on restricting time in bed only to the number of hour spent sleeping. Initially difficult to do but its benefits are many.
- Sleep hygiene education.
  - Focuses on 2-3 major behaviors incompatible with sleep.
- Relaxation therapy
  - A sleep specialist can help teach relaxation therapy.

Sleep Aids.

- **Medications May Be Taken When:**
  - The cause of insomnia has been identified and is best treated with medication.
  - Sleep difficulties cause problems in accomplishing daily activities.
  - Behavioral approaches have proven ineffective and the person is unwilling to try them.
  - A person is suffering insomnia-related distress and beginning behavioral therapy.
  - Insomnia is temporary or short-term.
  - Insomnia is expected or occurs in association with a known medical or biological condition (e.g. *Premenstrual Syndrome*) or an event such as giving a speech or traveling across time zones.

Sleep Aids.

- **Medication Treatment Guidelines**
  - Treatment with medications should:
  - begin with the lowest possible effective dose
  - be short-term, if used nightly
  - be intermittent, if used long-term
  - be used only in combination with good sleep practices and/or behavioral approaches

Sleep Aids.

- Prescription medications that promote sleep are called *hypnotics*. These are the most effective sleep aids available.
- Some sedating antidepressants have been prescribed in low doses for insomnia.
- In the absence of clinical depression, however, there is little evidence to support the use of these drugs for insomnia.

Sleep Aids.

- Hypnotics: *benzodiazepine agonists* were developed in the l960's. These sleep-promoting drugs have since proven effective and safe.
- Depending on the chemical structure benzodiazepine agonists can be either *benzodiazepines* or *nonbenzodiazepines*.

Sleep Aids.

- Accepted guidelines call for short-term treatment, but long-term use of sleep aids is not uncommon.
- Four weeks is the recommended limit.
- *Not* prescribing hypnotics may cause unnecessary patient distress, particularly when the person does well on the same dose and has *no* side effects.
- Sleep specialists share the belief that sleep aids shouldn't be a long-term answer to poor sleep.
- More studies are needed on long-term effects of the use of sleep aids.
- *GET ENOUGH SLEEP WHILE ON SLEEP AIDS*

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Sleep Aids.

- Hypnotics: Caution.
  - Nighttime falls.
  - Early morning accidents due to drowsiness.
  - Rebound insomnia.
  - Many people worry about prescription sleep aids, believing them to be addictive, researchers offer a reassuring picture.
  - Studies show that people with insomnia don't tend to abuse sleep aids. They don't tend to take higher doses than prescribed.

Sleep Aids.

- Who is at risk for problems
  - People with history of current or prior drug and alcohol abuse.
  - The elderly.
  - People who have to get up early and operate heavy machinery.
  - People who have sleep apnea.

Sleep Aids.

- Over the counter sleep aids:
  - Many contain antihistamines.
  - These substances are designed to block chemicals released during a cold or allergy attack, not to promote sleep.
  - As with hypnotics, OTC sleep aids should not be used by people who are also drinking alcohol or on other drugs that cause drowsiness.
  - Older persons should be cautious because drugs stay in the body longer and can then cause daytime sleepiness.
  - In addition, OTC sleep aids should be avoided by people with breathing problems, glaucoma, chronic bronchitis, and difficulty urinating because of an enlarged prostate gland, or women who are pregnant or nursing.

Sleep Aids

- Herbals: melatonin & valerian
  - Herbal products and nutritional supplements (such as melatonin) are not required to undergo the same rigorous testing as drugs do in order to meet government standards. Their long-term impact, side effects and possible interactions with other drugs or medical conditions are often not known.

A Few Words on RLS.

- Restless Legs Syndrome
  - Ten percent of adults in USA.
  - Symptoms:
    - An urge to move the legs, often accompanied by uncomfortable sensations in the legs. (The arms may also be affected, but that's much less common.)
    - The need to move the legs to relieve the discomfort. Moving usually offers some temporary relief of symptoms.
    - A definite worsening when lying down, especially when trying to fall asleep at night, or during other forms of inactivity.
    - A tendency to experience the most discomfort late in the day and at night.

A Few Words on RLS.

- Cause is unknown but there is some evidence for heredity playing a role.
  - Low serum iron and ferritin.
  - Pregnancy.
- Diagnosis is done by history.
- Not life threatening but disturbing.
- Several medications can be helpful.
- Iron (ferrous sulfate), is used in patients with serum ferritin levels of <50 mcg.

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Obstructive Sleep Apnea.

- The muscles of the soft palate at the base of the tongue and the uvula (the small fleshy tissue hanging from the center of the back of the throat) relax and sag, the airway becomes blocked, making breathing labored and noisy and even stopping it altogether.
- Unknown to the person, this results in heavy snoring, periods of no breathing, and frequent arousals (causing abrupt changes from deep sleep to light sleep).

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Obstructive Sleep Apnea.

- Alcohol and sleeping pills make sleep apnea worse.
- The reduction in oxygen and increase in carbon dioxide alert the brain to resume breathing and cause an arousal.
- With each arousal, a signal is sent from the brain to the upper airway muscles to open the airway; breathing is resumed, often with a loud snort or gasp.
- Frequent arousals, although necessary for breathing to restart, prevent the patient from getting enough restorative, deep sleep.

How common is it?

- It is found in 2% of women & 4% of men.
- Most common in middle aged, overweight adults.
- Obstructive sleep apnea is also seen often in children, young women, and thin people.

Consequences of OSAS

- Excessive Sleepiness due to poor sleep quality
- High Blood Pressure
- Heart disease
- Stroke

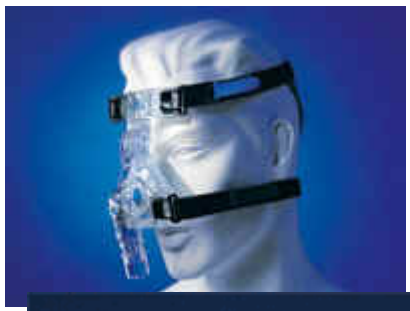
OSAS: Diagnosis

- Formal sleep studies (polysomnograms) are mandatory in suspected cases
- The polysomnogram records brain waves, eye movements, muscle activity, blood oxygen, limb movements, airflow, heart rate, body position, snoring sound and chest and abdominal movements during sleep, usually for the entire night.

OSAS: Treatment

- Treatment of choice for obstructive sleep apnea is nasal continuous positive airway pressure.
- Surgical procedures: permanent tracheostomy, uvulopalatopharyngoplasty, mandibular-advancement measures, and hyoid suspension.
- Mechanical devices designed to advance the mandible may be effective in certain (usually mild) cases.

Treatment



Treatment

Finally Shift Work.

- Twenty five million Americans have non-traditional work schedules, and many of these individuals have difficulty sleeping during the day and staying alert on the job at night.
- Their sleep and work schedules conflict with their biological clocks.
- Shift workers attempt to sleep when their bodies tell them to be awake, which results in chronic sleep loss.

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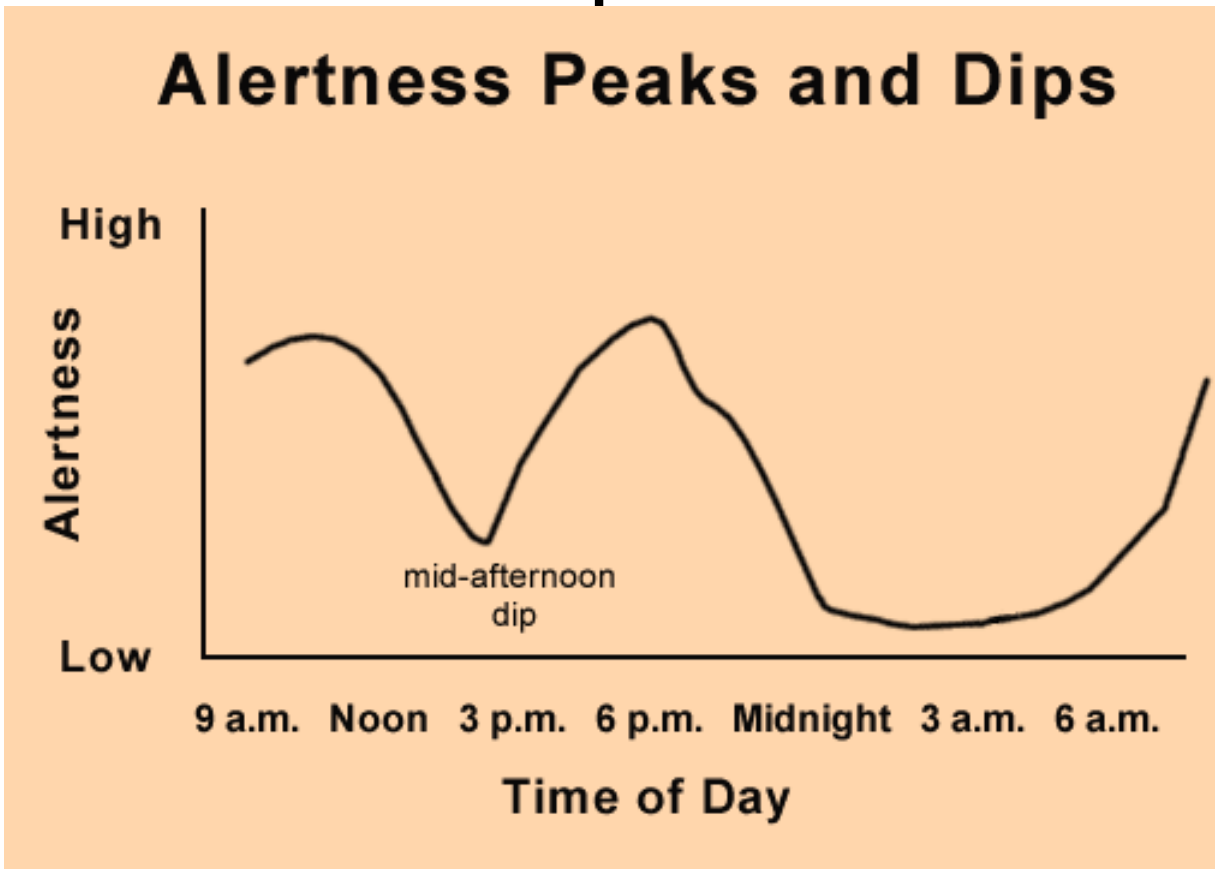
Circadian Rhythm of Wakefulness & Sleep.



Complications.

- Trouble with memory and concentration and impaired job performance
- Stomach problems (heartburn and indigestion)
- Menstrual irregularities
- Colds and flu
- Weight gain
- High blood pressure and heart problems
- Workplace and automobile accidents

Coping Mechanisms.

- Melatonin: 3 mg 2-3 hour before bedtime to simulate melatonin levels occurring at night.
- Wearing dark shades while driving home to prevent the sunlight from resetting the internal clock
- No using caffeine just before finishing one's shift.
- Making sure that the bedroom is dark and quiet and conducive to sleep.

Coping Mechanisms.

- It is important to keep a regular sleep schedule, even on days off and weekends. However, if you can't get enough sleep or feel drowsy, naps as short as 20 minutes can be helpful.
- Driving home after work can be risky for the shift worker.

Facts About Drowsy Driving.

- Works:
  1. AVOID drowsy driving.
  2. Getting a ride home or using public transportation.
  3. A 20 minute nap and/or a cup of coffee before going home post-shift.
  4. Stopping driving and pulling off the road at a safe place, for a short nap.

- Does not work
  1. Turning up the radio
  2. Opening the car window
  3. Chewing gum
  4. Blowing cold air (water) on face
  5. Slapping (pinching) one's self hard
  6. Promising one's self a reward for staying awake

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