Sleep Disorders
Sleep Disorders: An Overview

- Types of Sleep Disorders
  - Dyssomnias
    - Quantity
    - Quality
    - Sleep onset
  - Parasomnias
    - Abnormal behavioral
    - Physiological events
Sleep Disorders: Assessment

• Sleep efficiency

• Polysomnographic (PSG) Evaluation
  – Detailed history
  – Sleep hygiene & efficiency
  – Electroencephalograph (EEG)
  – Electrooculograph (EOG)
  – Electromyography (EMG)

• Actigraph
The Dyssomnias: Insomnia

You can die from lack of sleep

There are several types of insomnia

• **Primary insomnia**
  – Unrelated to any other condition
  – Rare
  – *Microsleeps (several seconds or longer)* after being aware 40 hrs
The Dyssomnias: Insomnia

• Statistics
  – Prevalence = 33% (year)
  – Female : Male = 2:1
    • More likely to report?
  – Frequently associated with:
    • Anxiety
    • Depression
    • Substance use (alcohol)
The Dyssomnias: Insomnia

• Causes
  – Pain, physical discomfort
  – Delayed temperature rhythm
  – Light, noise, temperature
  – Other sleep disorders
    • Apnea
    • Periodic limb movement disorder
  – Stress
  – Anxiety
  – Problems specific to US
The Dyssomnias: Insomnia

• Causes (cont.)
  – Cultural and social expectations
  – Parents
    • Practices
    • Presence
  – Poor sleep habits
  – Sleeping pills
    • Rebound insomnia
The Dyssomnias: Hypersomnia

- **Hypersomnia**
  - Sleeping too much
  - Excessive sleepiness
  - Subjective experience as a problem
  - Different from insomnia symptom (tired during day) because the person has slept fine all night before.

- **Primary hypersomnia**
  - Unrelated to other condition
  - Rare
The Dyssomnias: Hypersomnia

• Facts and Statistics
  – 39% have a family history
  – Associated with exposure to viral infections
The Dyssomnias: Narcolepsy

• **Narcolepsy**
  – Daytime sleepiness
  – **Cataplexy**
  – Cataplectic attacks
    • Sudden onset of REM sleep
    • Triggered by strong emotion
  – **Sleep paralysis**
    • Hypnagogic hallucinations
The Dyssomnias: Narcolepsy

• Statistics
  – Prevalence = .03% to .16%
  – Female : Male = 1:1
  – Onset = adolescence
  – Typically improves over time
  – Daytime sleepiness persists without treatment
The Dyssomnias: Breathing-Related Disorders

• Breathing-Related Sleep Disorders
  – Daytime sleepiness
  – Disrupted sleep at night
  – Sleep apnea
    • Restricted air flow
    • Brief cessations of breathing
The Dyssomnias: Breathing-Related Disorders

• Subtypes of Sleep Apnea
  – Obstructive (OSA)
  – Central (CSA)
  – Mixed
The Dyssomnias: Breathing-Related Disorders

• **Statistics**
  - Prevalence = 10-20%
  - Female < Male
  - Associated with
    • Obesity
    • Increasing age
The Dyssomnias: Circadian Rhythm Disorders

- **Insomnia** or **hypersomnia**
- Inability to synchronize day and night
- **Suprachiasmatic nucleus**
  - Brain’s biological clock
  - Pathway from eyes based on changing light.
  - Stimulates melatonin

- Types
  - Jet lag
  - Shift work
Although light is the main setter of the human biological clock, researchers believe melatonin influences the timekeeping center, too. Darkness stimulates production of the hormone melatonin. Production is abruptly suppressed in bright light.

When melatonin reaches receptors in the hypothalamus the body thinks it is dark out.

Suprachiasmatic nucleus

Light signals from retina are conveyed by nerve fibers directly to suprachiasmatic nucleus.

The suprachiasmatic nucleus transfers information to the hypothalamus.

Hypothalamus

Pineal gland

After traveling through nerves in the spinal cord, the signal reaches the pineal gland. In the absence of light signals, the gland begins production of melatonin.
• Know the basics about treatments for the different types of sleep disorders
Medical Treatment of Sleep Disorders

• Insomnia
  – Benzodiazepines
    • Short-term solutions
    • Excessive sleepiness
    • Rebound insomnia
    • Dependence
    • Sleep-walking (Ambien)
Medical Treatment of Sleep Disorders

• Hypersomnia/Narcolepsy
  – Stimulants
    • Ritalin, amphetamine, modafrinil

• Cataplexy
  – Antidepressants
Medical Treatment of Sleep Disorders

• Breathing-Related Sleep Disorders
  – Medications
    • Tricyclics: acts on locus coeruleus that affects REM
  – Weight loss
  – Mechanical devices
    • CPAP machine
    • Dental splint
  – Surgery
Environmental Treatments for Dyssomnias

- Circadian Rhythm Sleep Disorders
  - Phase delays
  - Phase advances
  - Phototherapy
Psychological Treatments for Dyssomnias

- **Stimulus Control**
  - Improved *sleep hygiene*
  - Regular bedtime routine
- **Relaxation**
- **Reduces stress**
- **Modify unrealistic expectations about sleep**
- **Combined medication/behavioral treatments**

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**TABLE 8.7 Psychological Treatments for Insomnia**

<table>
<thead>
<tr>
<th>Sleep Treatment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td>This approach focuses on changing the sleepers’ unrealistic expectations and beliefs about sleep (“I must have 8 hours of sleep each night”); “If I get less than 8 hours of sleep, it will make me ill”). The therapist attempts to alter beliefs and attitudes about sleeping by providing information on topics such as normal amounts of sleep and a person’s ability to compensate for lost sleep.</td>
</tr>
<tr>
<td>Guided imagery</td>
<td>Because some people become anxious when they have difficulty sleeping, this approach uses relaxation imagery to help with relaxation at bedtime or after a night waking.</td>
</tr>
<tr>
<td>Graduated extinction</td>
<td>Used for children who have tantrums at bedtime or wake up crying at night, this treatment instructs the parent to check on the child after progressively longer periods until the child falls asleep on his own.</td>
</tr>
<tr>
<td>Paradoxical intention</td>
<td>This technique involves instructing individuals in the opposite behavior from the desired outcome. Telling poor sleepers to lie in bed and try to stay awake as long as they can is used to try to relieve the performance anxiety surrounding efforts to try to fall asleep.</td>
</tr>
<tr>
<td>Progressive relaxation</td>
<td>This technique involves relaxing the muscles of the body in an effort to introduce drowsiness.</td>
</tr>
</tbody>
</table>
Preventing Sleep Disorders

• Improving sleep hygiene
  – Setting regular sleep and wake times
  – Avoiding stimulants
    • Caffeine and nicotine

• Educating parents about child’s sleep patterns

<table>
<thead>
<tr>
<th>TABLE 8.8 Good Sleep Habits</th>
</tr>
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<tbody>
<tr>
<td>Establish a set bedtime routine.</td>
</tr>
<tr>
<td>Develop a regular bedtime and a regular time to awaken.</td>
</tr>
<tr>
<td>Eliminate all foods and drink that contain caffeine 6 hours before bedtime.</td>
</tr>
<tr>
<td>Limit any use of alcohol or tobacco.</td>
</tr>
<tr>
<td>Try drinking milk before bedtime.</td>
</tr>
<tr>
<td>Eat a balanced diet, limiting fat.</td>
</tr>
<tr>
<td>Go to bed only when sleepy and get out of bed if you are unable to fall asleep or back to sleep after 15 minutes.</td>
</tr>
<tr>
<td>Do not exercise or participate in vigorous activities in the hours before bedtime.</td>
</tr>
<tr>
<td>Do include a weekly program of exercise during the day.</td>
</tr>
<tr>
<td>Restrict activities in bed to those that help induce sleep.</td>
</tr>
<tr>
<td>Reduce noise and light in the bedroom.</td>
</tr>
<tr>
<td>Increase exposure to natural and bright light during the day.</td>
</tr>
<tr>
<td>Avoid extreme temperature changes in the bedroom (that is, too hot or too cold).</td>
</tr>
</tbody>
</table>

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The **Parasomnias**: An Overview

- Abnormal events during sleep or transition between sleep and waking

- **Types**
  - REM sleep
  - NREM sleep
The Parasomnias: Nightmare Disorder

• **REM sleep**

• Involves dreams:
  – Distressing & disturbing
  – Disrupt sleep, cause awakening
  – Interfere with functioning

• More common in children
The Parasomnias: Nightmare Disorder

- **Treatment**
  - Antidepressants
  - Relaxation training
The Parasomnias: **Sleep Terror Disorder**

- **Non-REM sleep**
- More common in children
- Piercing scream
- Signs of elevated arousal (e.g., sweating)
- Person looks extremely upset
- Difficult to awaken
- Little memory of the event
The Parasomnias: Sleep Terror Disorder

• **Treatment**
  – “Wait-and-see” posture
  – Scheduled awakenings
  – Medications
    • Antidepressants
    • Benzodiazepines
The Parasomnias: Sleep Walking Disorder

• **Somnambulism**
  - Non-REM sleep
  - Usually during first few hours of deep sleep
  - Person must leave the bed

• Related Conditions
  - Nocturnal eating syndrome – Person eats while asleep
The Parasomnias: Sleep Walking Disorder

• Somnambulism
  – non-REM sleep
    • first few hours of deep sleep
  – Person must leave the bed
  – More common in children
  – Difficult (not dangerous) to wake
  – Genetic component
  – Usually resolves on its own
  – Related to nocturnal eating syndrome
    • Person eats while asleep
Review

• What is the difference between nightmare disorder and sleep terrors?
<table>
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<th>Sleep Disorder</th>
<th>Description</th>
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<tr>
<td><strong>Dyssomnias</strong></td>
<td>(Disturbances in the amount, timing, or quality of sleep)</td>
</tr>
<tr>
<td>Primary insomnia</td>
<td>Difficulty initiating or maintaining sleep, or sleep that is not restorative (person not feeling rested even after normal amounts of sleep)</td>
</tr>
<tr>
<td>Primary hypersomnia</td>
<td>Complaint of excessive sleepiness that is displayed as either prolonged sleep episodes or daytime sleep episodes</td>
</tr>
<tr>
<td>Narcolepsy</td>
<td>Irresistible attacks of refreshing sleep occurring daily, accompanied by episodes of brief loss of muscle tone (cataplexy)</td>
</tr>
<tr>
<td>Breathing-related sleep disorder</td>
<td>Sleep disruption leading to excessive sleepiness or insomnia that is caused by sleep-related breathing difficulties</td>
</tr>
<tr>
<td>Circadian rhythm sleep disorder (sleep–wake schedule disorder)</td>
<td>Persistent or recurrent sleep disruption leading to excessive sleepiness or insomnia that is due to a mismatch between the sleep–wake schedule required by a person’s environment and his or her circadian sleep–wake pattern</td>
</tr>
<tr>
<td><strong>Parasomnias</strong></td>
<td>(Disturbances in arousal and sleep stage transition that intrude into the sleep process)</td>
</tr>
<tr>
<td>Nightmare disorder (dream anxiety disorder)</td>
<td>Repeated awakenings with detailed recall of extended and extremely frightening dreams, usually involving threats to survival, security, or self-esteem; the awakenings generally occur during the second half of the sleep period</td>
</tr>
<tr>
<td>Sleep terror disorder</td>
<td>Recurrent episodes of abrupt awakening from sleep, usually occurring during the first third of the major sleep episode and beginning with a panicky scream</td>
</tr>
<tr>
<td>Sleepwalking disorder</td>
<td>Repeated episodes of arising from bed during sleep and walking about, usually occurring during the first third of the major sleep episode</td>
</tr>
</tbody>
</table>
Links!

- http://www.cbsnews.com/video/watch/?id=683884n
- http://www.youtube.com/watch?v=lKbvHN2AZmY
- http://www.youtube.com/watch?v=PPMUz8RAdjks&feature=related
- http://www.youtube.com/watch?v=K7AaxN2MyaM&NR=1
- http://www.youtube.com/watch?v=DVEjXIdrTIM
- http://www.youtube.com/watch?v=4Vh56g9b92U
- http://www.youtube.com/watch?v=bSVwmSzxKtU