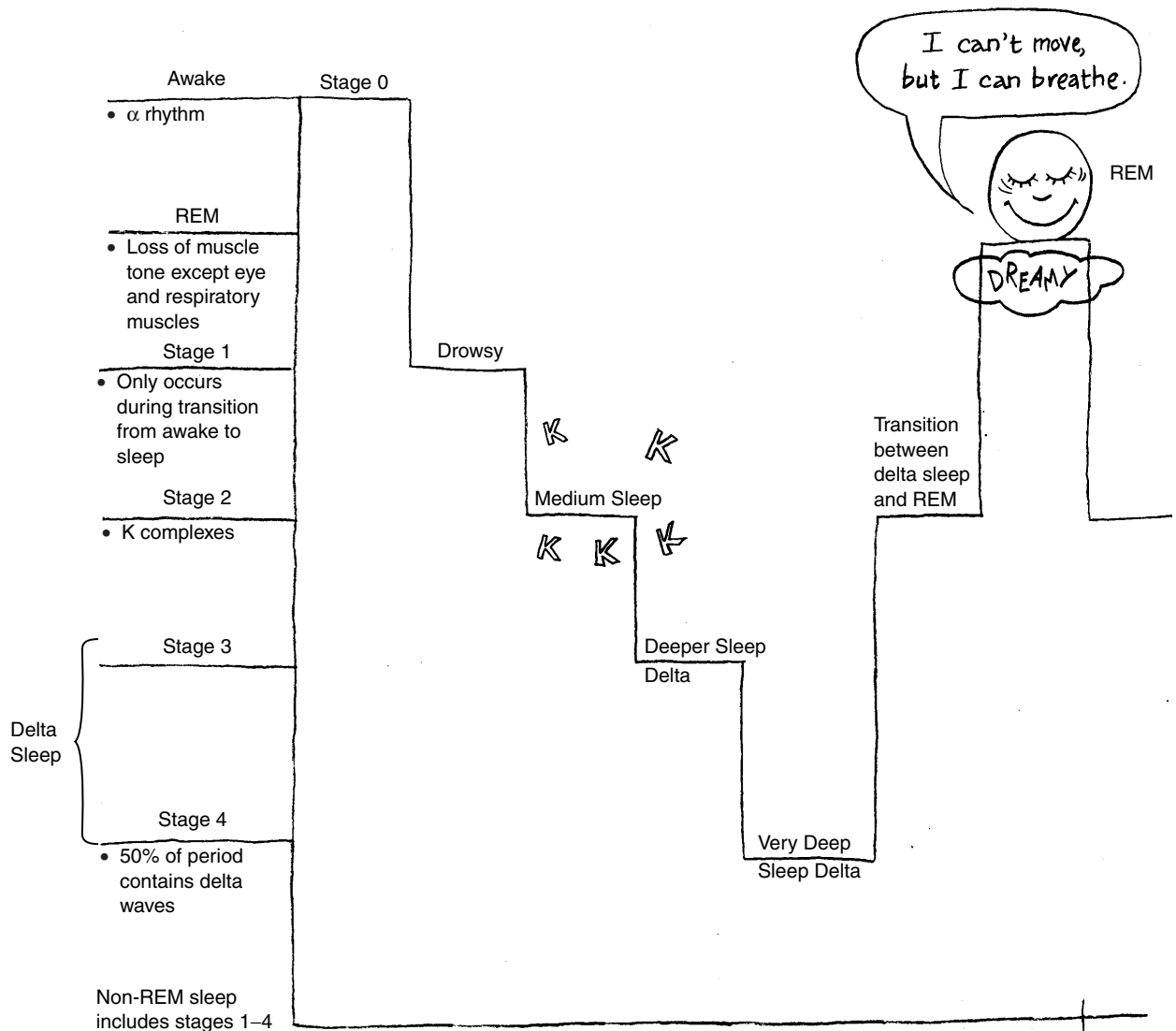


NOTES

STAGES OF SLEEP

- NREM Sleep – Nonrapid eye movement; non-REM
 - Stage 0: Awake; alpha rhythm
 - Stage 1: Transition from wakefulness to sleep; light sleep
 - Stage 2: Transition between delta and REM sleep; medium sleep; sleep spindles and K complexes
- Delta Sleep – non-REM
 - Slow-wave sleep
 - Stage 3: Deeper depth of sleep than stage 2; approximately 20% to 50% of a period consists of delta waves
 - Stage 4: Greater delta-wave activity than stage 3; very deep sleep; greater than 50% of a period consists of delta waves
- REM Sleep – Rapid eye movement
 - Active EEG
 - Dream sleep
 - Depth of sleep between stage 2 and stage 3
 - Loss of muscle tone except ocular and respiratory muscles
 - REM sleep occurs 60 to 90 minutes after onset of sleep
- Polysomnography is used to determine sleep states and includes electroencephalograms (EEGs), electromyograms (EMGs), electrocardiograms (ECGs), and eye movements.
- Normal sleep progresses through the four stages of non-REM sleep in order 1 through 4. Stage 2 then occurs as a transition between delta sleep and REM sleep. REM sleep occurs next, and the entire cycle lasts about 90 minutes. Four to six cycles occur each night in a normal adult.



NOTES

**SLEEP DISORDERS:
DYSSOMNIAS**

Dyssomnias include five primary sleep disorders consisting of difficulty initiating and maintaining sleep and excessive sleep. According to DSM-IV-TR criteria, all of the disorders cause distress or affect social functioning or work and are not caused by a physical or mental condition, medications, or substance abuse.

■ PRIMARY INSOMNIA

- DSM-IV-TR criteria include difficulty falling asleep or maintaining sleep
- Anxiety and depression often coexist
- Treatment includes Zolpidem (Ambien) and Zaleplon (Sonata), which are both benzodiazepine agonists. Short-acting benzodiazepines may be used temporarily. Sedating antidepressants such as trazodone (Desyrel) and amitriptyline (Elavil) may also be used
Zolpidem ⇒ pie
- Also advise proper sleep techniques:
 - Discontinue caffeine, nicotine, and alcohol
⇒ cigarettes, soda, beer in trash
 - Avoid daytime napping
 - Avoid exercise before sleeping, but encourage regular exercise
 - Avoid meals before sleeping
 - Keep a consistent schedule of waking and sleeping at the same time every day
⇒ alarm clock

■ PRIMARY HYPERSOMNIA

- DSM-IV-TR criteria include:
 - Excessive sleepiness occurring for one month
 - Associated with daytime sleepiness
- Treatment includes stimulants for daytime sleepiness

■ NARCOLEPSY

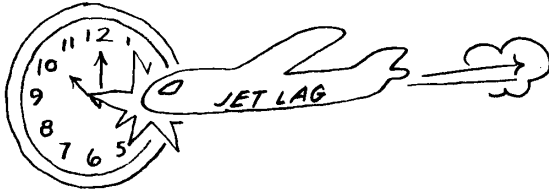
- DSM-IV-TR criteria include:
 - Sleep attacks during the day with abnormal REM sleep (e.g., sleep paralysis, sleep-onset REM, cataplexy, hallucinations)
⇒ sun with REM
- Cataplexy involves the sudden onset of sleep with reversible bilateral loss of skeletal muscle tone and may be triggered by emotions
cataplexy ⇒ sleeping cat
- Hypnagogic hallucinations occur at the beginning of sleep
- May be familial, and greater than 90% have HLA-DR2
- Daytime naps often relieve sleepiness
- Treatment includes Modafinil, a nonamphetamine stimulant approved for narcolepsy. Methylphenidate (Ritalin), a stimulant, is also used.
Ritalin ⇒ fin

■ BREATHING-RELATED SLEEP DISORDER (SLEEP APNEA)

- DSM-IV-TR criteria include sleep disruption resulting in daytime sleepiness
- Sleep apnea involves abnormal breathing, snoring, frequent awakenings, and oxygen desaturation
- Sleep apnea can result in depression, anxiety, and memory and concentration disturbances
- Central sleep apnea is caused by brainstem dysfunction
⇒ flower stem on brain
- Obstructive sleep apnea is caused by airway obstruction
⇒ X on neck
- Treatment includes continuous positive airway pressure (CPAP)
- Weight loss or nasal surgery may also be indicated

■ CIRCADIAN RHYTHM SLEEP DISORDER

- ⇒ clock
- DSM-IV-TR criteria include mismatch between intrinsic circadian rhythm and actual sleep periods
- May occur with jet lag, long work shifts, or night shifts
⇒ jet



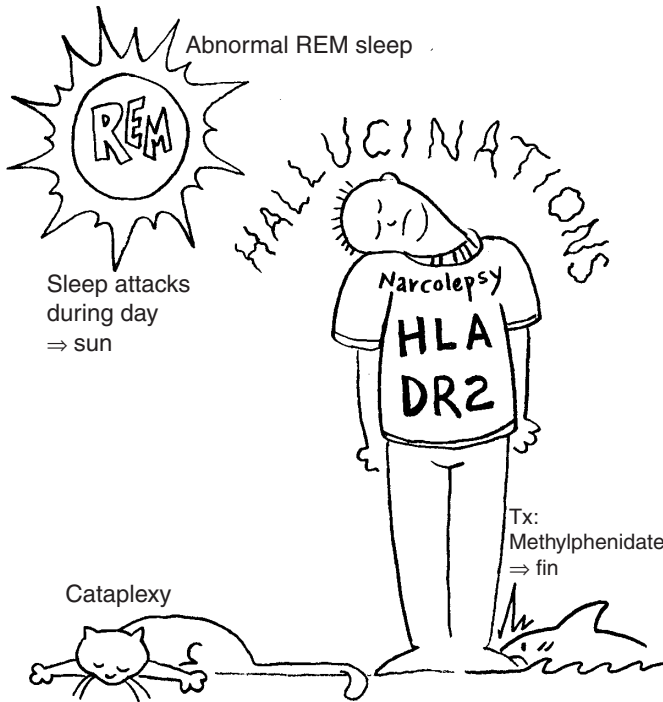
Circadian Rhythm Sleep Disorder

⇒ clock

- Mismatch between circadian rhythm and actual sleep periods
- Occurs with jet lag and long shifts ⇒ jet

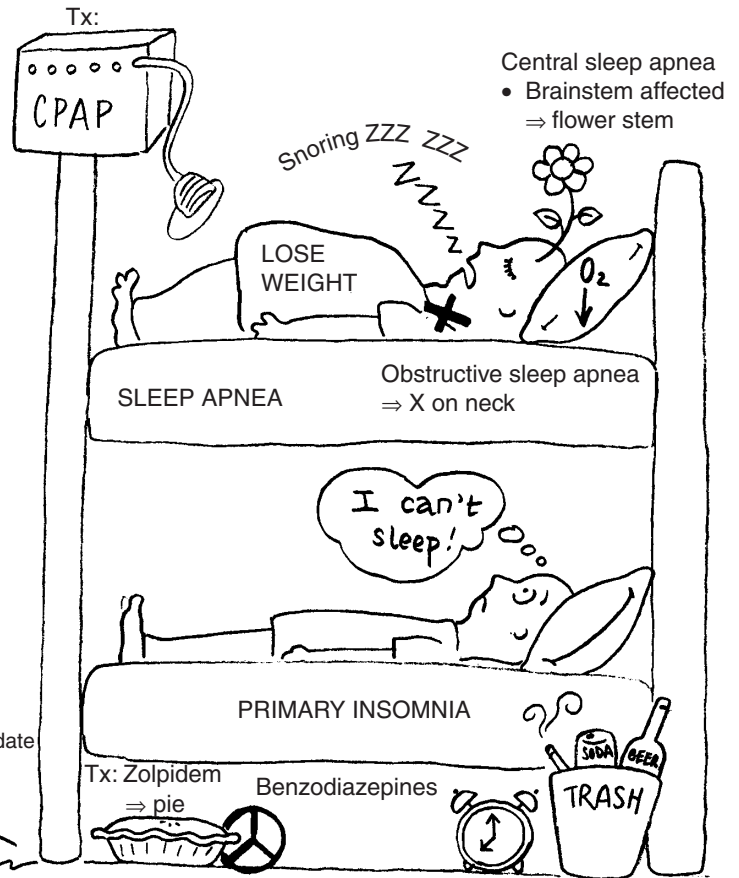
Sleep Apnea

- Involves snoring, frequent awakenings, and O₂ desaturation
- Central sleep apnea is caused by a brainstem dysfunction ⇒ flower stem on brain
- Obstructive sleep apnea ⇒ X on neck
- Treatment includes CPAP and weight loss



Narcolepsy

- Sleep attacks during the day with abnormal REM sleep ⇒ sun with REM
- Cataplexy ⇒ sleeping cat
 - Sudden onset of sleep
 - Reversible bilateral loss of skeletal muscle tone
- HLA-DR2 in 90%
- Hypnagogic hallucinations
- Treatment includes stimulants such as methylphenidate (Ritalin) ⇒ fin



Primary Insomnia

- Difficulty falling asleep or maintaining sleep
- Treatment includes:
 - Zolpidem (Ambien) ⇒ pie
 - Short-acting benzodiazepines
 - Sedating antidepressants (trazodone or amitriptyline)
- Proper sleep techniques
 - Avoid caffeine, nicotine, and alcohol ⇒ cigarettes, soda, and beer in trash
 - Avoid daytime napping
 - Avoid meals before sleeping
 - Keep a consistent schedule ⇒ alarm clock

NOTES

**SLEEP DISORDERS:
PARASOMNIAS**

⇒ Parasomnias = Pair of Pears

- Parasomnias include three primary sleep disorders and involve behavioral events that occur during sleep:

■ SLEEPWALKING DISORDER

- Walking during sleep initiated during slow-wave (delta) sleep
 - ⇒ slow-wave sleep = walking on wave
- Accompanied by confusion and complex behaviors and motor activity

■ NIGHTMARE DISORDER

- Scary dreams that occur during REM sleep and usually wake a person from sleep
 - ⇒ bad dream
 - ⇒ awoken from sleep = eyes open

■ SLEEP TERROR DISORDER

- Sudden episodes of apparent terror during slow-wave (delta) sleep. May scream or cry out, but do not usually awaken during the episode
 - ⇒ slow-wave sleep = walking on wave
 - ⇒ do not awaken = eyes closed

⇒ Pair of Pears = Parasomnias

- Sleep Terror Disorder
- Occurs during slow-wave sleep
⇒ walking on wave
 - May scream out
 - Do not awaken
⇒ eyes closed

- Nightmare Disorder
- ⇒ bad dream
 - Occurs during REM sleep
 - Awaken from sleep
⇒ eyes open

- Sleepwalking Disorder
- Occurs during slow-wave sleep
⇒ walking on wave

