

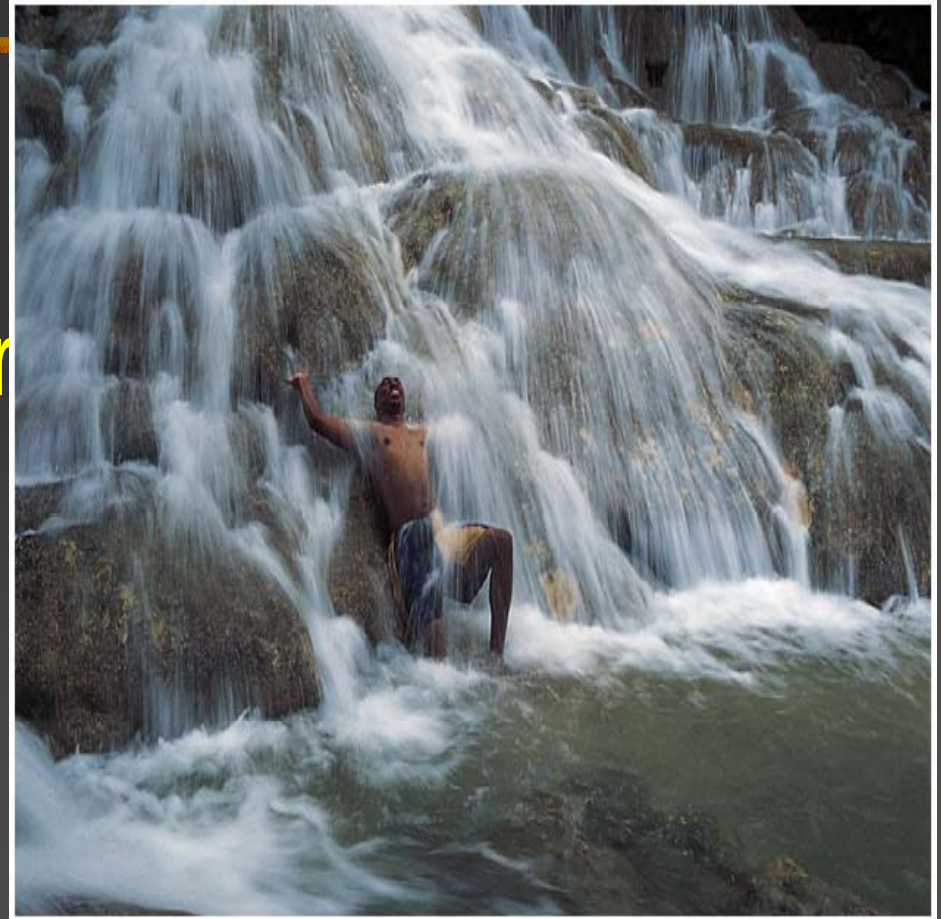


States of Consciousness



Waking Consciousness

- Consciousness
- our awareness of ourselves and our environments
- Exists along a continuum



Altered States of Consciousness

- Sleep
 - Dreams
 - Hypnosis
 - Meditation
 - Psychoactive Drugs
-

- Biological Rhythms

- periodic physiological fluctuations

- Circadian Rhythm

- the biological clock
- regular bodily rhythms occur on 24-hour cycle, such as of wakefulness and body temperature

Hard for body to adjust

- Monday morning blues
 - Time changes “Spring ahead”
 - Jet Lag
 - 2nd / 3rd Shift jobs
-

- Hypothalamus serves as a clock
- Light traveling from retina to hypothalamus, which then accordingly adjust timing of sleep-wake cycle

- Natural dip in alertness between 3 and 5 p.m.

- Are you a lark or owl?

- Pineal Gland hormone melatonin-
makes you sleepy

- Influenced by light



■ Annual Cycle

- Season Affective Disorder (SAD)
 - Fall back, less daylight, shorter days
- 

Sleep

- Essential life process
- Rats deprived will die w/in 2-3 weeks
- 25 yrs of your life sleeping
- EEG 1920
- REM sleep discovered 1980s
- Sleep deprivation leads to loss of productivity at school or work, increase accident rates

Misconceptions about Sleep

1. Sleep is time for the body and brain to shut down for rest
 - Certain brain waves more active during sleep, endocrine system increases certain hormones
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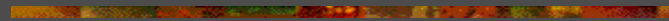
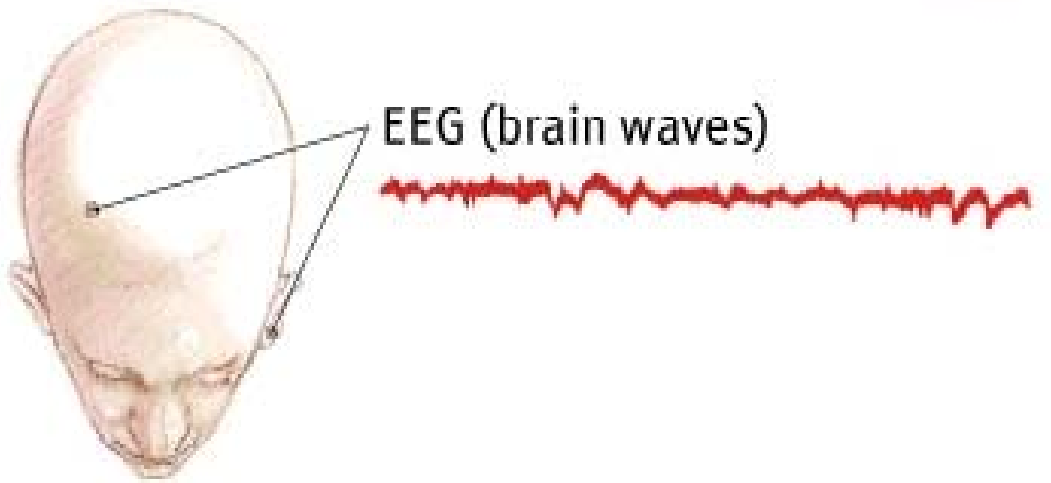
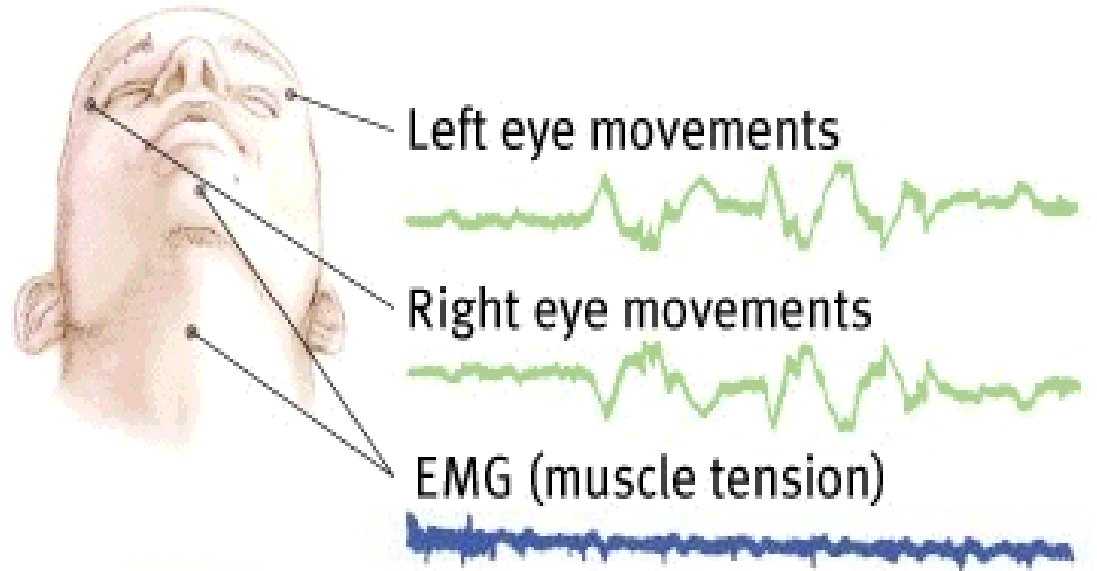
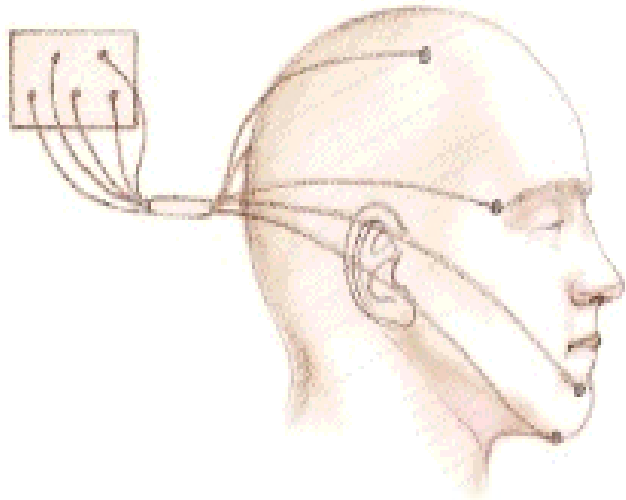
2. Getting one hr less of sleep per night will not have any effect on functioning

- A “sleep debt” develops

- Becomes too great, lead to serious problems, sleepiness, health issues, decrease productivity

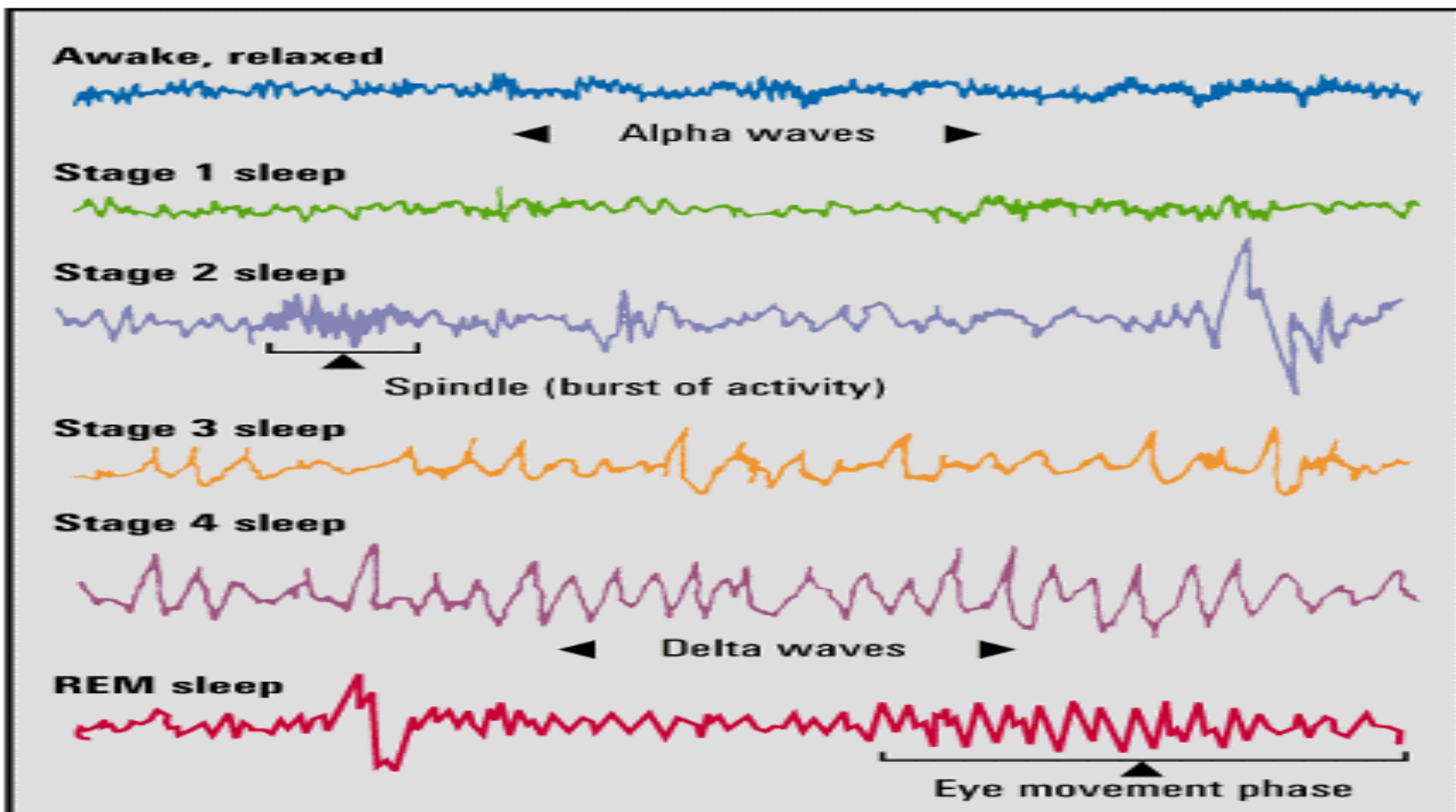
3. Body adjusts quickly to different sleep schedules

- NO, work shifts, time changes, jet lag, etc.



Brain Waves and Sleep Stages

- Alpha Waves
- Sleep Spindles
- Delta Waves



NREM SLEEP

- Stage 1
- 5 minutes
- Alpha waves
- Fantasiful images, sensation of falling, body may suddenly jerk
- Stage 2
- Sleep spindles-burst of brain activity
- Waken fairly easily
- Sleepwalking this stage or any other
- 2 and 3 K complexes

- Stage 3 and 4
- Large delta waves
- 30 minutes or so
- Hard to waken
- End of stage 4 bedwetting or sleep walking

- **SO FAR NREM**

- Every 90 minutes (110) or so pass through a cycle of sleep
- 4-6 cycles a night

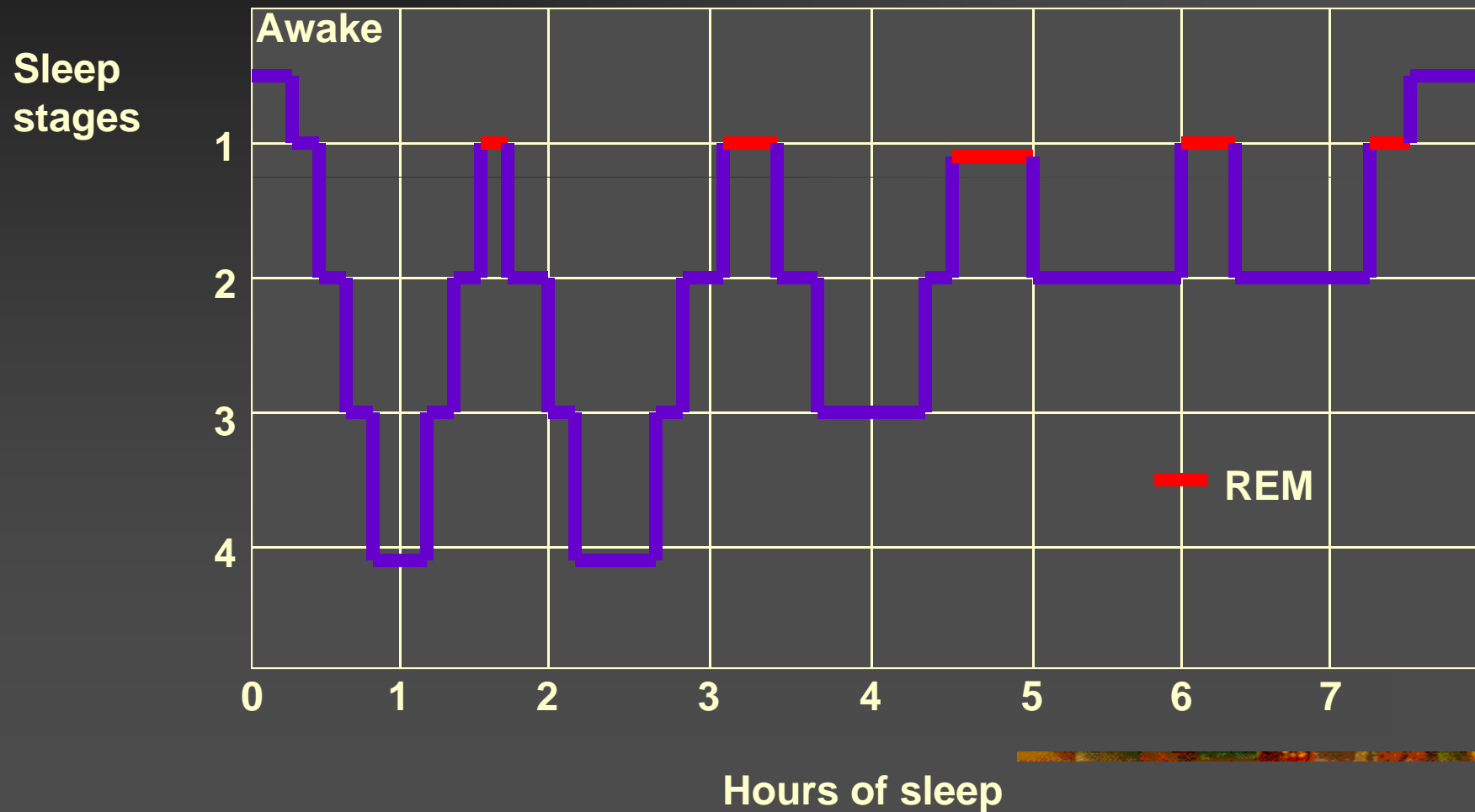
- REM (Rapid Eye Movement) Sleep
- vivid dreams
- “paradoxical sleep”
- muscles are generally relaxed, but other body systems are active

- After first 90 minutes return to stage 3, then stage 2

- NOW you enter REM Sleep

- REM sleep may last 5-15 minutes
- Muscles relaxed but paralyzed
- Vivid dreams
- Sleep cycle repeats every 90 minutes, stage 4 briefer and briefer, REM gets long and longer

Stages in a Typical Night's Sleep



Sleep Patterns

- Newsborns sleep ave. 16-18 hrs a day
 - May spend 50% in REM sleep
 - 3-5 yrs old 10-12 hrs a day
 - School age children 8-10 hrs a day
 - Adulthood 8 hrs
-

Sleep Deprivation

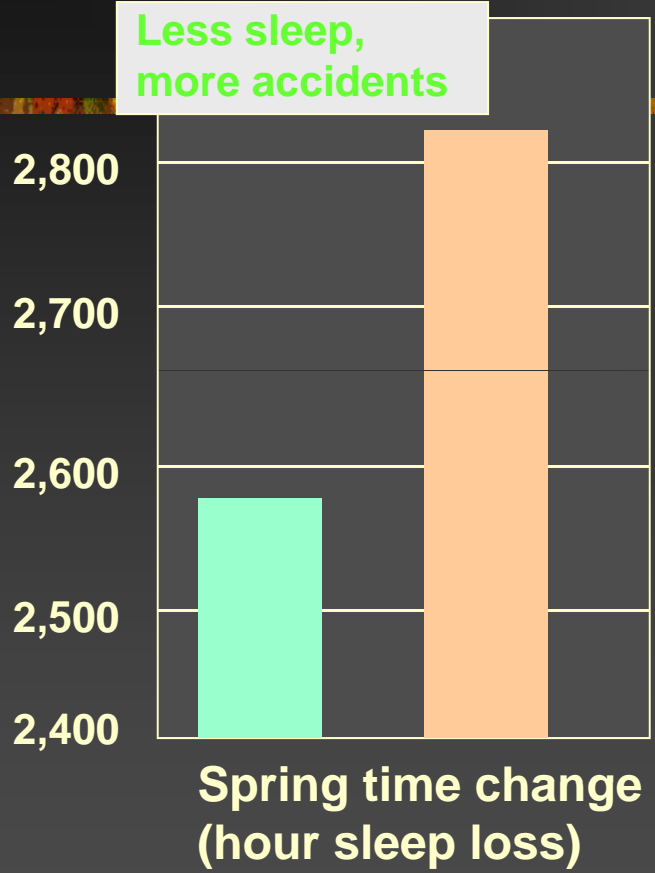
Effects of Sleep Loss



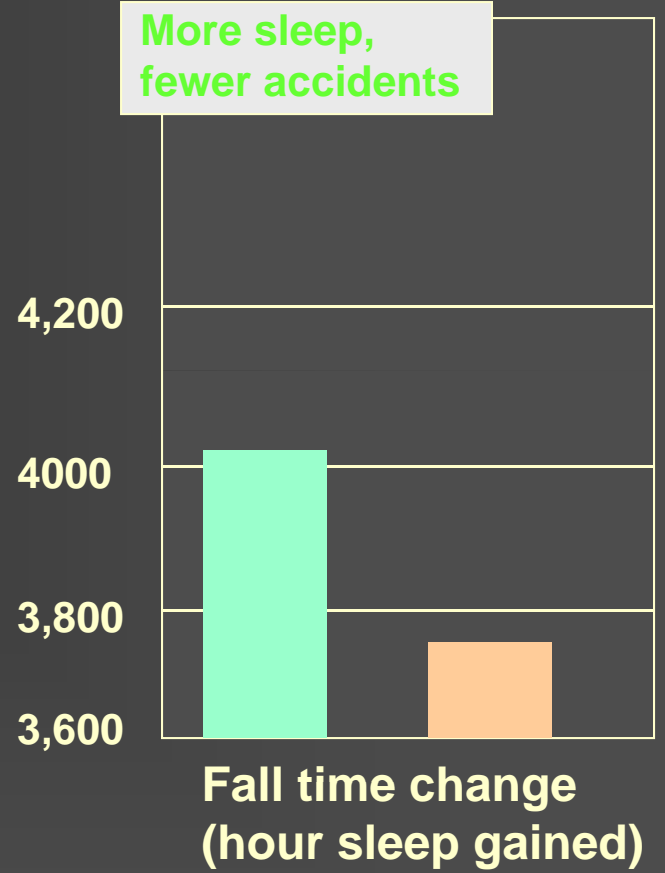
- fatigue
- impaired concentration
- depressed immune system
- greater vulnerability to accidents

Sleep Deprivation

Accident frequency



Monday before time change



Monday after time change

Function of Sleep-still many questions unknown and unanswered

1. Essential for survival
 2. Extreme deprivation causes states of paranoia and hallucinations
 3. Allows organs to replenish energy stores and repair itself after energy consumption
 4. Reinforces learning and memory (NREM and REM important)
-

- 
5. Brain development for young kids
 6. Safe discharge of emotions
- 

Functions of Sleep

- REM Rebound
 - Amount of REM sleep increases by much as 50%
 - Same if deprived NREM
 - Brain keeps record of sleep for two weeks
-

Restorative Theory

- NREM important in restoring the body
- REM restoring mental and brain functions

Evolutionary Theory

- Sleep patterns evolve to help promote survival and environmental adaptation

Sleep Disorders

36 % Americans suffer

- Insomnia
- Narcolepsy
- Sleep Apnea

Insomnia 50% but don't seek treatment

- Regularly inability to fall, stay asleep or feel adequately rested
- >3 nights a week, continues for >6 months
 - Chronic insomnia
 - 10%

Sleep Apnea 18 million

- Stops breathing, often unnoticed
- Air flow is obstructed b/c throat muscles and tongue are relax and block
- Often in obese people
- Increase in carbon dioxide alert the brain
- May last 10 seconds or longer
- Repeat itself >400 times a night

- Side Effects
- Irritable, learning and memory difficulties, falling asleep during day, high blood pressure
- Treatments
 - CPAP-mask
 - Dental applications
 - Surgery

Narcolepsy 2,000

- Chronic, neurological disorder involves CNS
- Sudden, uncontrollable episodes of sleep
- Instantly enter REM sleep, experience sleep paralysis, hypnagogic hallucinations
- Lack chemical hypocretin
- Treatment meds, daily routine, avoid

REM Sleep Behavior Disorder

- Males >60 brain's failure to suppress muscle movements during REM
 - Acts out their dreams
-

Restless Legs Syndrome RLS

- Urge to move legs, often accompanied by uncomfortable sensation in legs
 - Sleep disturbance range from mild to sever
 - Causes still unknown
-

Sleep Related Eating Disorder

- Eating episodes which occur while sleeping
 - 2/3 are women, average age 27
 - Unaware of nighttime eating
 - Drugs as treatment
-

Excessive Daytime Sleepiness

EDS

Night Terrors and Nightmares

- Night Terrors
 - occur within 2 or 3 hours of falling asleep, usually during Stage 4
 - high arousal-- appearance of being terrified
-

Dreams: Freud

- Dreams
- sequence of images, emotions, and thoughts passing through a sleeping person's mind
- hallucinatory imagery
- delusional acceptance of the content
- difficulties remembering

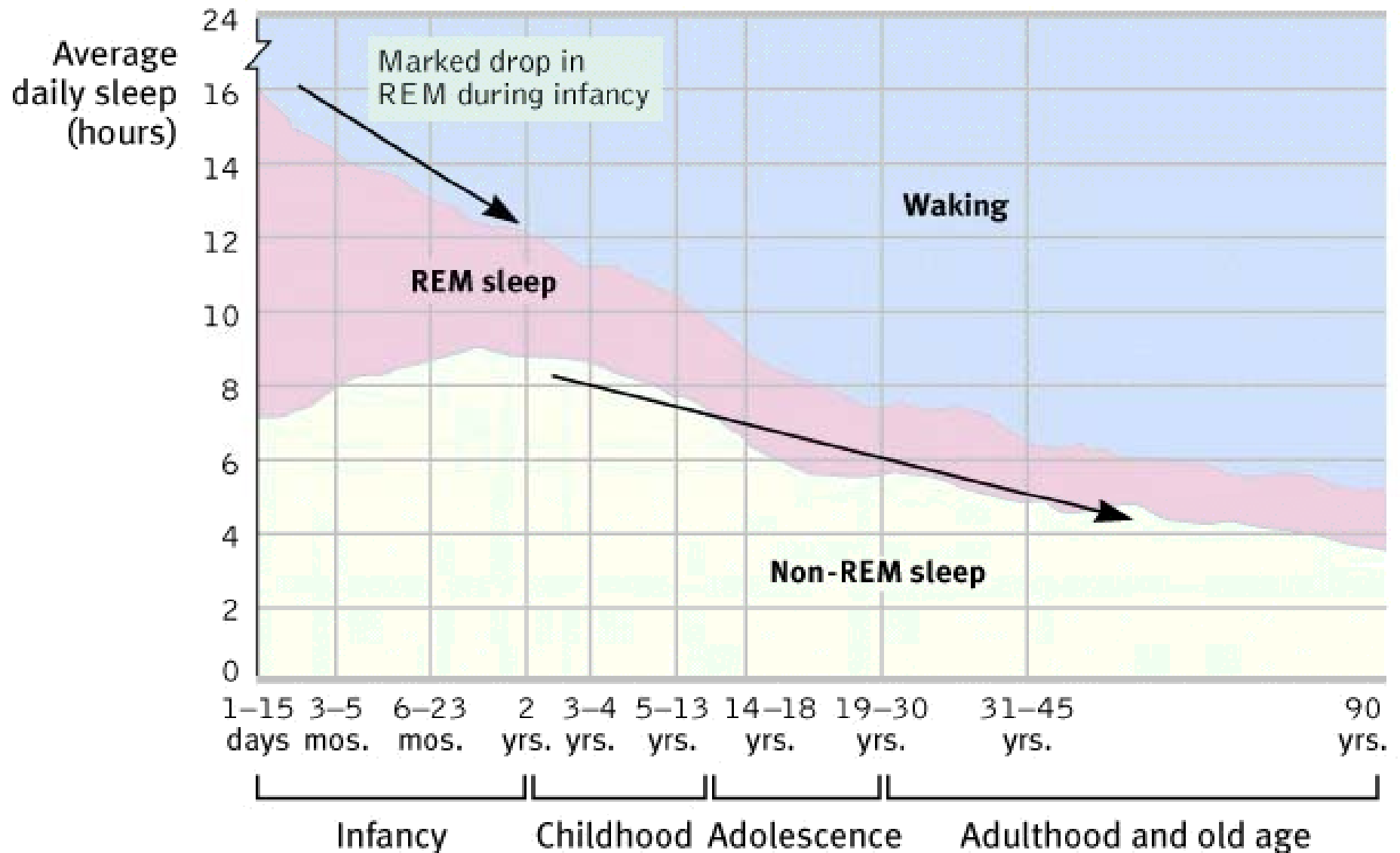
Freud

- --The Interpretation of Dreams (1900)
 - wish fulfillment
 - discharge otherwise unacceptable feelings
- Manifest Content
 - remembered story line
- Latent Content
 - underlying meaning

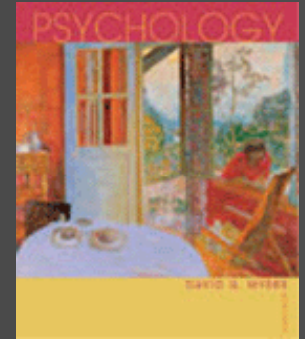
Dreams

- As Information Processing
 - helps facilitate memories
- REM Rebound
 - REM sleep increases following REM sleep deprivation

Sleep Across the Lifespan

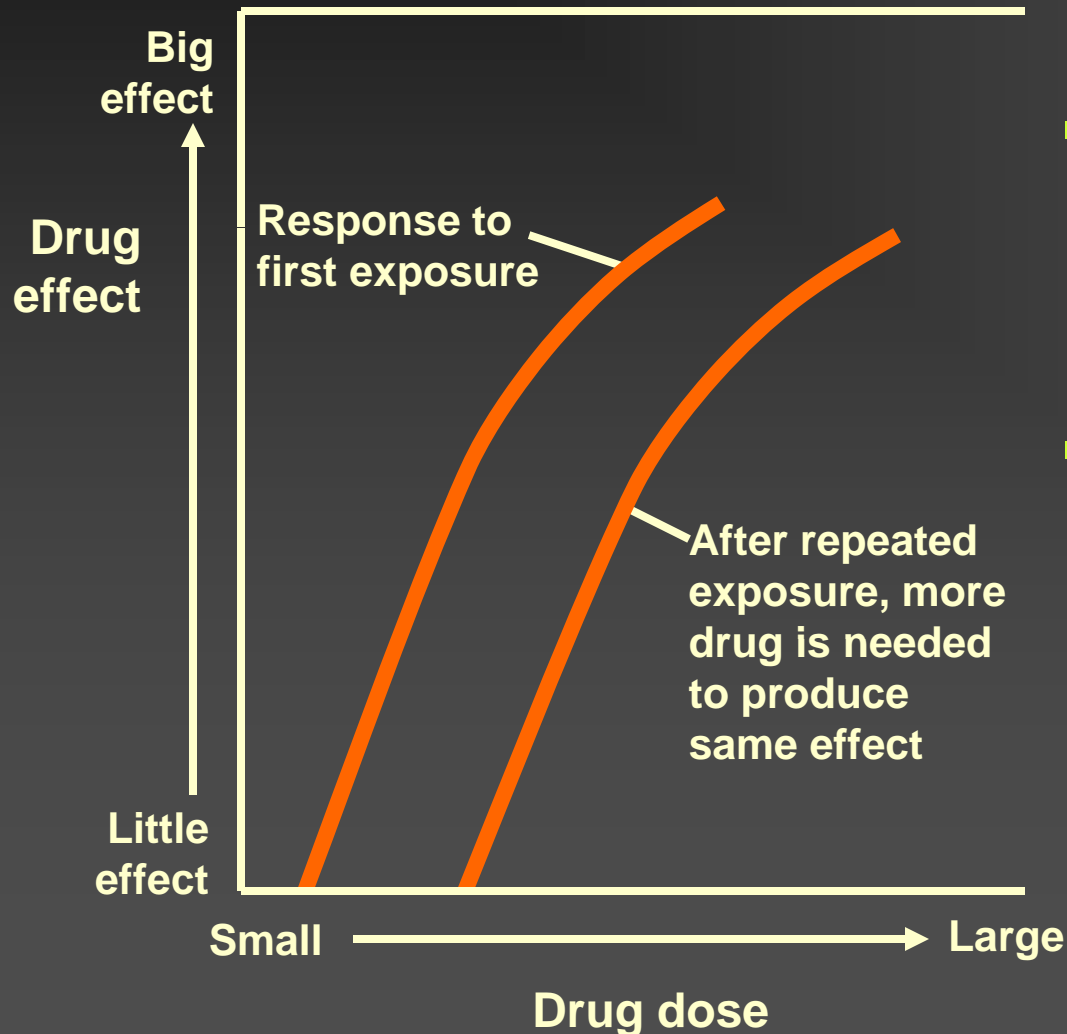
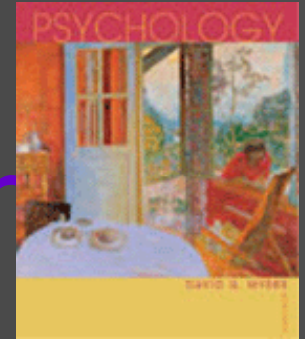


Drugs and Consciousness



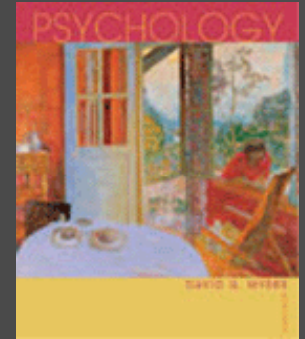
- **Psychoactive Drug**
 - a chemical substance that alters perceptions and mood
- **Physical Dependence**
 - physiological need for a drug
 - marked by unpleasant withdrawal symptoms
- **Psychological Dependence**
 - a psychological need to use a drug
 - for example, to relieve negative emotions

Dependence and Addiction



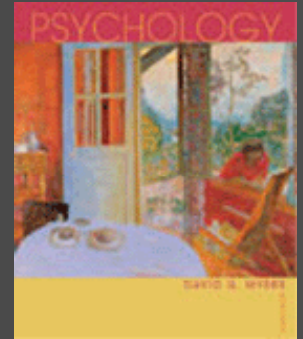
- Tolerance
 - diminishing effect with regular use
- Withdrawal
 - discomfort and distress that follow discontinued use

Psychoactive Drugs



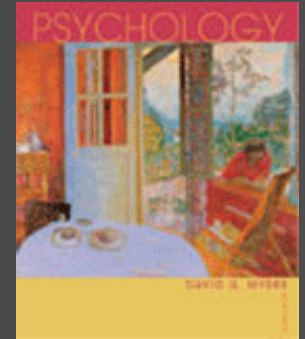
- **Depressants**
 - drugs that reduce neural activity
 - slow body functions
 - alcohol, barbiturates, opiates
- **Stimulants**
 - drugs that excite neural activity
 - speed up body functions
 - caffeine, nicotine, amphetamines, cocaine

Psychoactive Drugs



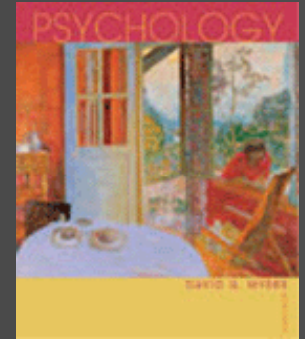
- **Hallucinogens**
 - psychedelic (mind-manifesting) drugs that distort perceptions and evoke sensory images in the absence of sensory input
 - LSD

Psychoactive Drugs



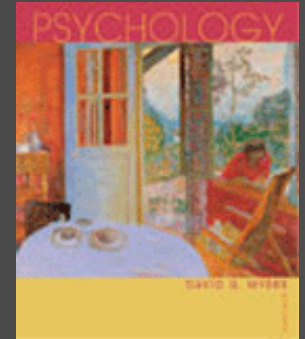
- Barbiturates
 - drugs that depress the activity of the central nervous system, reducing anxiety but impairing memory and judgment

Psychoactive Drugs

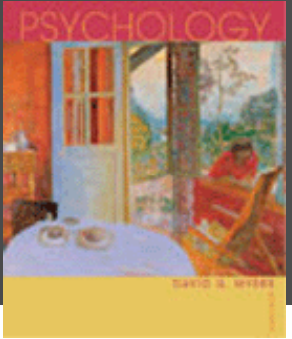


- Opiates
 - opium and its derivatives (morphine and heroin)
 - opiates depress neural activity, temporarily lessening pain and anxiety

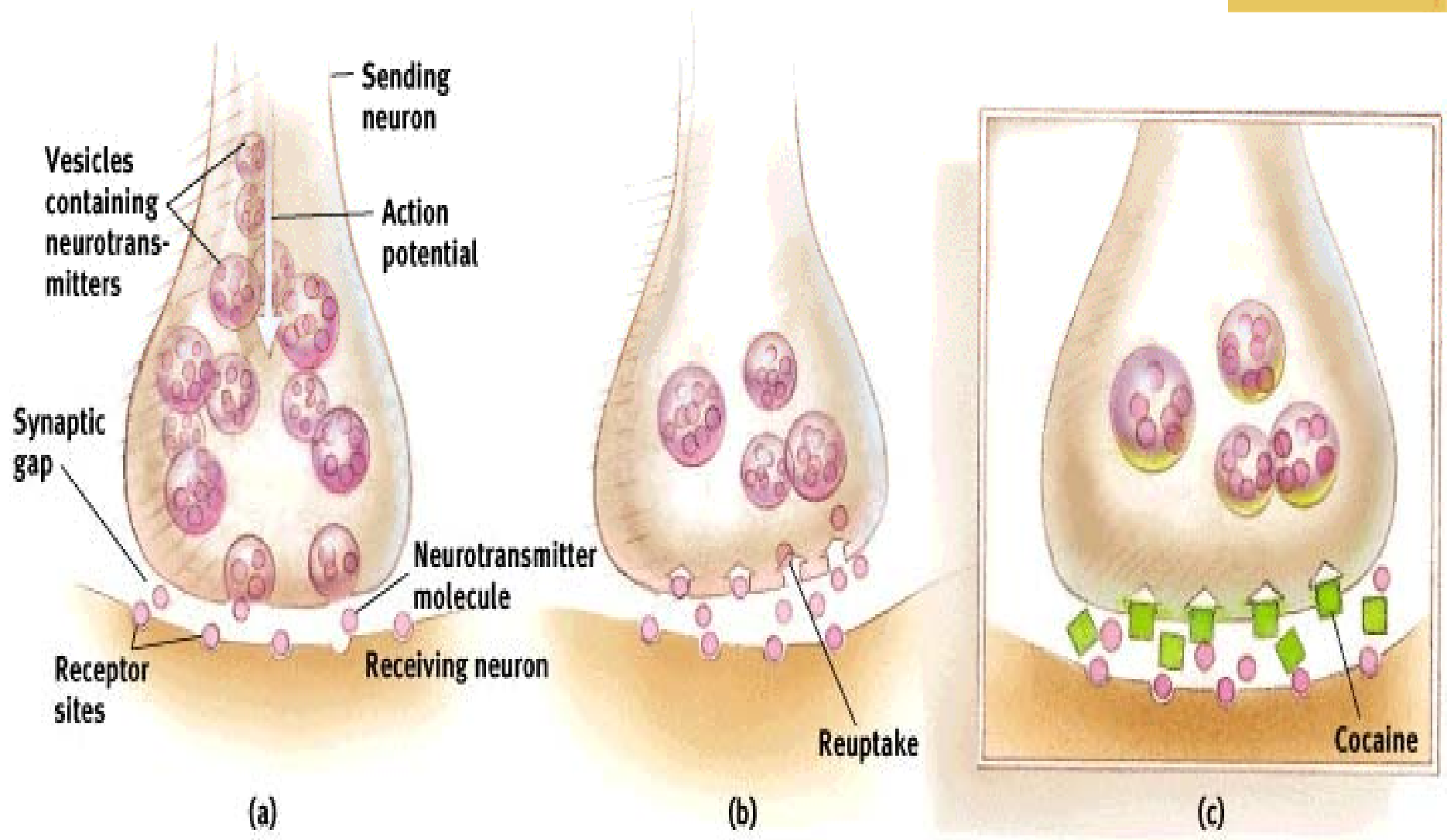
Psychoactive Drugs



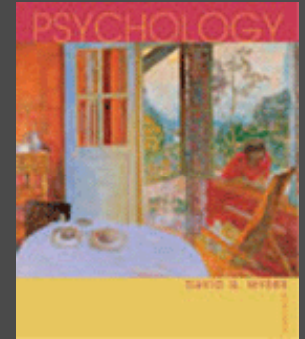
- Amphetamines
 - drugs that stimulate neural activity, causing speeded-up body functions and associated energy and mood changes



Cocaine Euphoria and Crash



Psychoactive Drugs



- Ecstasy (MDMA)
 - synthetic stimulant and mild hallucinogen
 - both short-term and long-term health risks
- LSD
 - lysergic acid diethylamide
 - a powerful hallucinogenic drug
 - also known as acid
- THC
 - the major active ingredient in marijuana
 - triggers a variety of effects, including mild hallucinations

Psychoactive Drugs

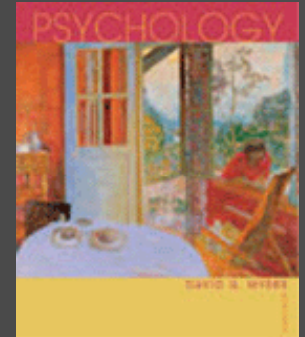
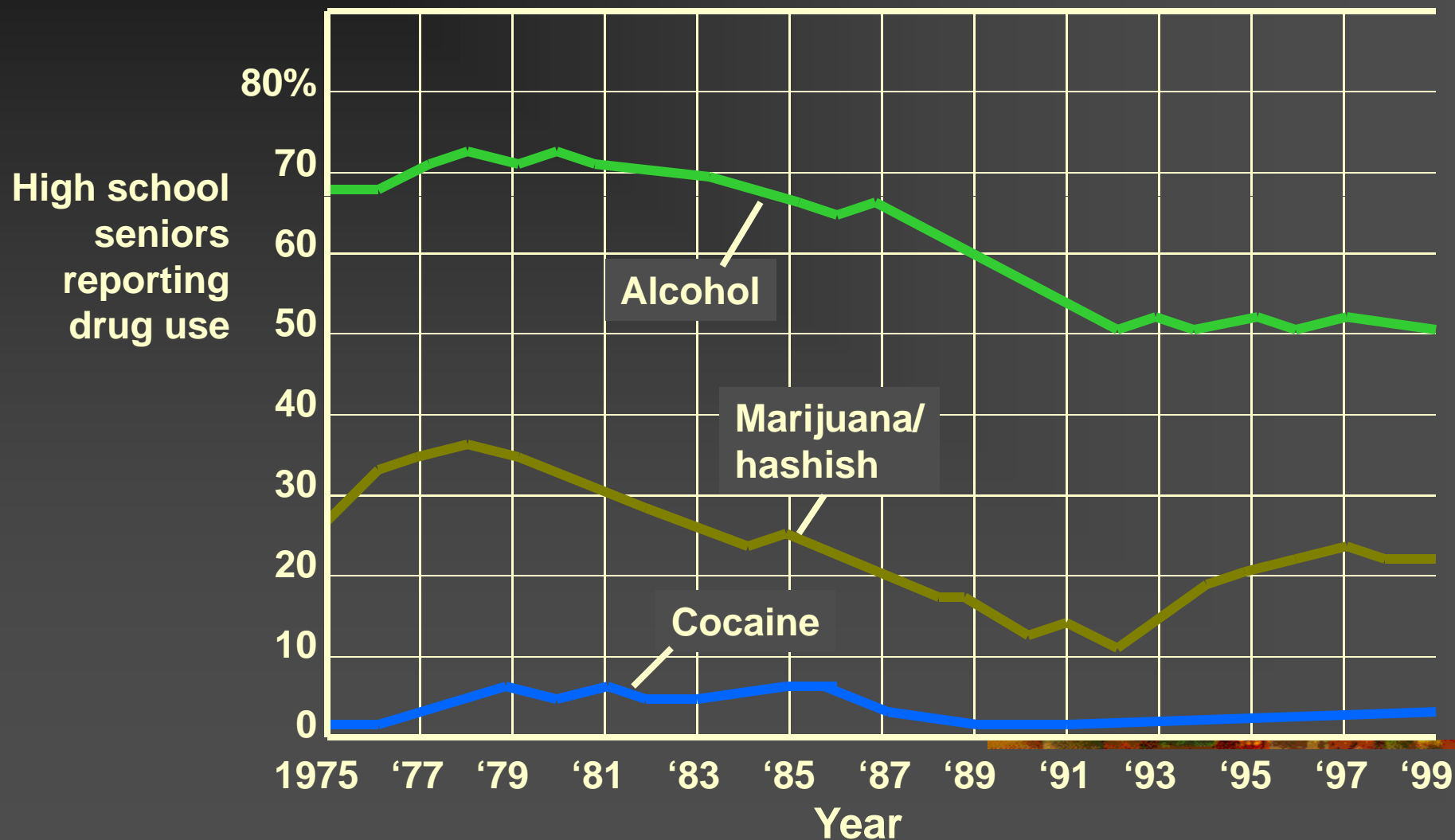
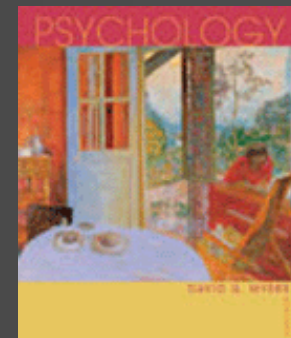


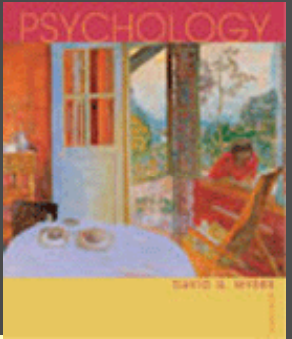
TABLE 7.2

A GUIDE TO SELECTED PSYCHOACTIVE DRUGS

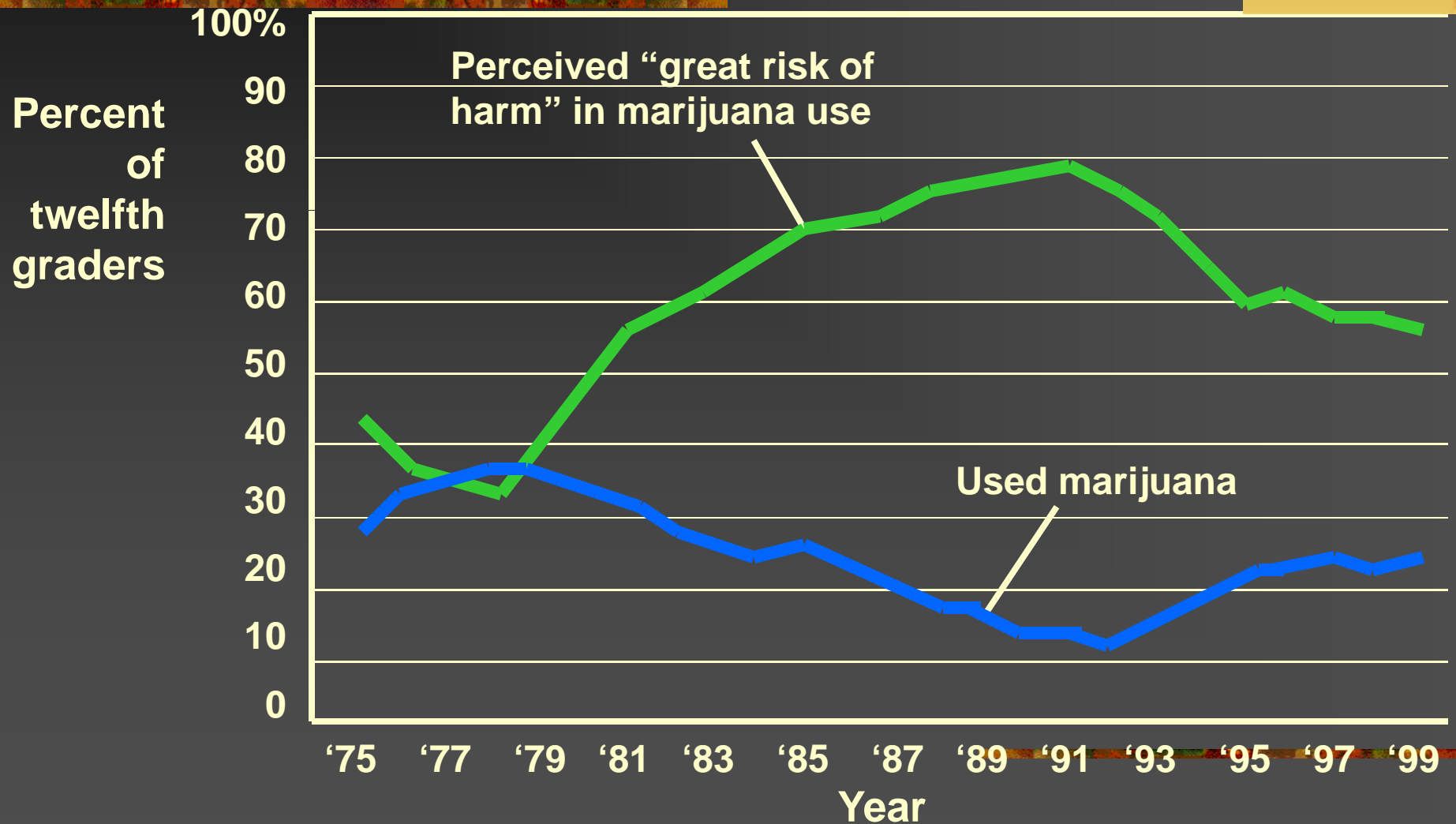
Drug	Type	Pleasurable Effects	Adverse Effects
<i>Alcohol</i>	Depressant	Initial high followed by relaxation and disinhibition	Depression, memory loss, organ damage, impaired reactions
<i>Heroin</i>	Depressant	Rush of euphoria, relief from pain	Depressed physiology, agonizing withdrawal
<i>Caffeine</i>	Stimulant	Increased alertness and wakefulness	Anxiety, restlessness, and insomnia in high doses; uncomfortable withdrawal
<i>Methamphetamine</i> (“speed,” “ice”)	Stimulant	Euphoria, alertness, energy	Irritability, insomnia, hypertension, seizures
<i>Cocaine</i>	Stimulant	Rush of euphoria, confidence, energy	Cardiovascular stress, suspiciousness, depressive crash
<i>Nicotine</i>	Stimulant	Arousal and relaxation, sense of well-being	Heart disease, cancer (from tars)
<i>Ecstasy (MDMA)</i>	Stimulant; mild hallucinogen	Emotional elevation, disinhibition	Dehydration and overheating, depressed mood and cognitive functioning
<i>Marijuana</i>	Mild hallucinogen	Enhanced sensation, relief of pain, distortion of time, relaxation	Disrupted memory, lung damage from smoke

Trends in Drug Use

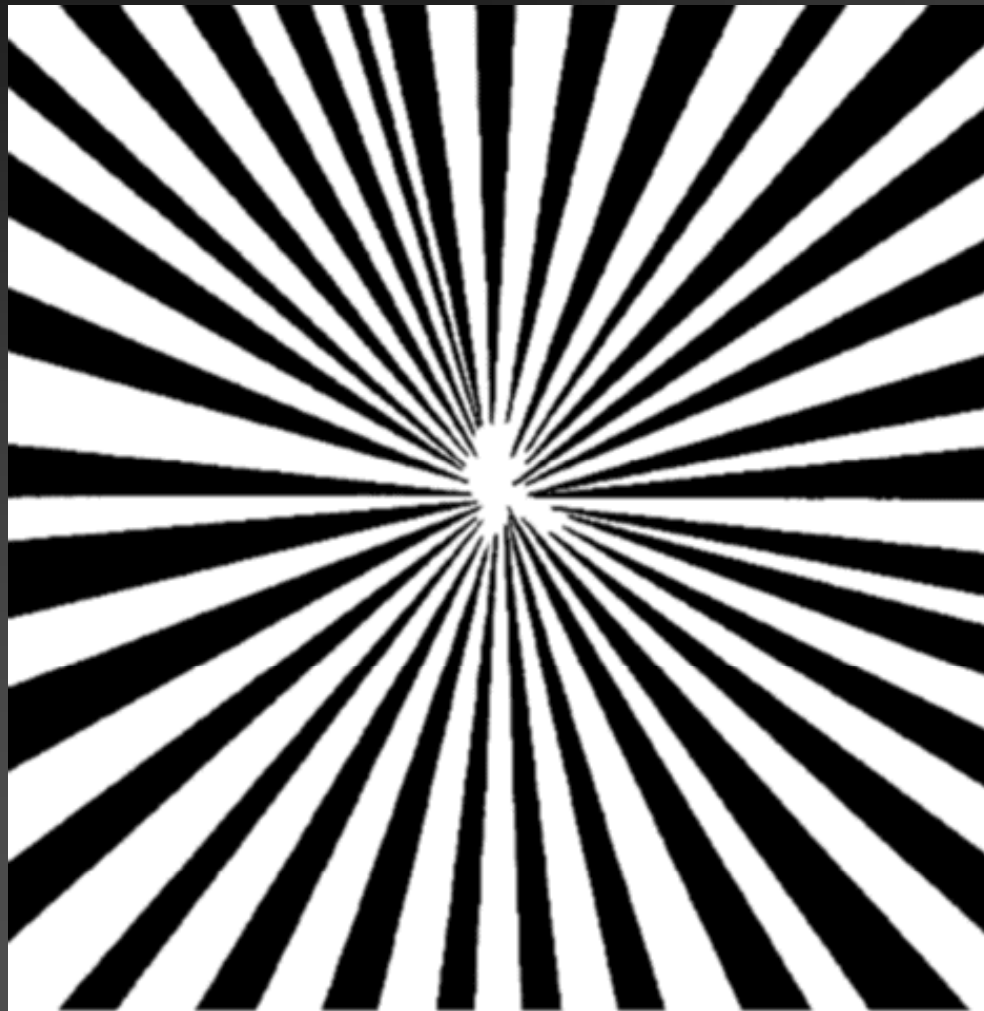
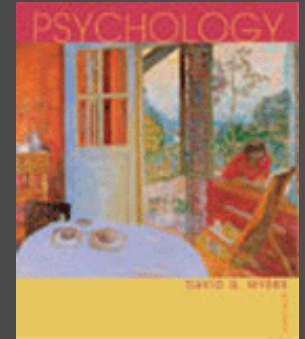




Perceived Marijuana Risk

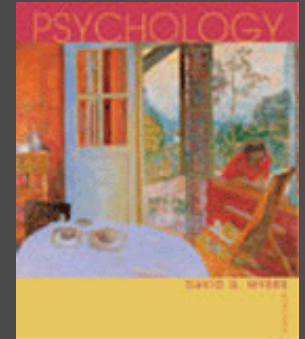


Near-Death Experiences



- Near-Death Experience
 - an altered state of consciousness reported after a close brush with death
 - often similar to drug-induced hallucinations

Near-Death Experiences



- Dualism
 - the presumption that mind and body are two distinct entities that interact
- Monism
 - the presumption that mind and body are different aspects of the same thing

- **-When you hear the word hypnosis, you may picture the mysterious hypnotist figure popularized in movies, comic books and television. This ominous, goateed man waves a pocket watch back and forth, guiding his subject into a semi-sleep, zombie-like state. Once hypnotized, the subject is compelled to obey, no matter how strange or immoral the request. Muttering "Yes, master," the subject does the hypnotist's evil bidding.**

Hypnosis

- Hypnosis

- a social interaction in which one person (the hypnotist) suggests to another (the subject)
- Characterized by intense concentration, extreme relaxation, high suggestibility

- **Subjects in a hypnotic trance are not slaves to their "masters" -- they have absolute free will. And they're not really in a semi-sleep state -- they're actually hyperattentive.**

- Hypnosis puts your conscious in back seat, direct communication with subconscious
- Explains playfulness, uninhibitedness
- Subconscious regulates bodily sensations and emotional feelings, storage of memories

Explaining Hypnosis

Attention is diverted
from an aversive odor.
How?

**Divided-consciousness
theory:**
hypnosis has caused a
split in awareness



**Social influence
theory:**
the subject is so caught
up in the hypnotized role
that she ignores the
odor

Facts/Falsehoods

- Power lies w/in subject's openness to suggestion
- Everyone is suggestible
- Highly hypnotizable 20%
- Are vulnerable to false memory suggestion
- Can NOT do anything against your will

Hypnosis

- Dissociation

- a split in consciousness
- Dissociates sensation of pain stimulus from emotional suffering

Hypnosis

- Showroom, Clinical Hypnotherapy (pain, addiction, phobias), Law Enforcement to help recover repressed memories from unconscious, Medical Hypnotherapy

General characteristics of hypnosis, and they have some model of how it works. It is a trance state characterized by extreme suggestibility, relaxation and heightened imagination.

It's not really like sleep, because the subject is alert the whole time.

It is most often compared to daydreaming, or the feeling of "losing yourself" in a book or movie.

You are fully conscious, but you tune out most of the stimuli around you.

special mental state, people feel uninhibited and relaxed.

Presumably, this is because they tune out the worries and doubts that normally keep their actions in check. You might experience the same feeling while watching a movie

In this state, you are also highly suggestible. That is, when the hypnotist tells you do something, you'll probably embrace the idea completely.

This is what makes stage hypnotist shows so entertaining. Normally reserved, sensible adults are suddenly walking around the stage clucking like chickens or singing at the top of their lungs.

Fear of embarrassment seems to fly out the window. The subject's sense of safety and morality remain entrenched throughout the experience, however.

A hypnotist can't get you to do anything you don't want to do.

- In the hypnotism shows of Las Vegas, as well as the traveling hypnotism demonstrations on the college circuit, hypnotism is used primarily for entertainment purposes. It's an amazing experience watching somebody turn ordinary people, perhaps your friends or family, into outrageous performers. The power of suggestion and imagination, and the lowering of inhibition, does make for a fantastic show.

- **But these demonstrations only scratch the surface of what hypnotism can do -- all the suggestions are intentionally frivolous, to ensure that nobody gets hurt. The hypnotist uses his or her access to the unconscious mind only to play with the subject. More involved hypnotism uses this access to affect long-term changes in the subject.**

The most widespread example of this hypnotic behavioral modification is habit-control hypnotic treatment.

In this application, a hypnotist focuses on one particular habit that is embedded in your unconscious (smoking or overeating, for example).

Some hypnotists do this by connecting a negative response with the bad habit.

For example, the hypnotist might suggest to your subconscious that smoking will cause nausea.

If this association is programmed effectively, you will feel sick every time you think about smoking a cigarette. Alternatively, the hypnotist may build up your willpower, suggesting to your subconscious that you don't need cigarettes, and you don't want them

- Posthypnotic Amnesia
 - supposed inability to recall what one experienced during hypnosis
 - induced by the hypnotist's suggestion

■ Posthypnotic Suggestion

- suggestion to be carried out after the subject is no longer hypnotized
- used by some clinicians to control undesired symptoms and behaviors