States of Consciousness

On the Nature of Consciousness

• Awareness of _________ and _________ Stimuli
  – Variations on levels of
    • _________ – stream of consciousness
    • _________ – unconscious
    • Sleep/dreaming research

• A family of practices that train _________ to
  heighten awareness and bring _________
  processes under greater _________ control
• _________ & _________ waves become
  more prominent
• _________, _________, _________,
  oxygen consumption, & carbon dioxide
  elimination _________
• Possible _________ long-term effects (but
  more research is needed!)
Sleep
The Sleep-Wake Cycle
• ________ Rhythm
  – Any periodic fluctuation in a ________ organism.
• ________ Rhythm
  – A biological cycle that occurs approximately every ________ hours, e.g., sleeping and waking.

Biological Rhythms and Sleep
• ________ Rhythms – 24 hr biological cycles
  – Regulation of sleep/other body functions
• ________ pathway of the biological clock:
  – Light levels → retina → ________ of hypothalamus → ________ gland → secretion of ________
• Ignoring circadian rhythms
• Realigning circadian rhythms

Sleep
_________ rhythm
• ________ from the suprachiasmatic nucleus of the ________
• Jet lag
• Shift work
Your ________ Rhythm

• Your body roughly synchronizes with the 24-hour cycle of day and night through a biological clock called the ________ rhythm.
• What is your ________ rhythm?

The ________:
A Physiological Index of Consciousness

• ________— monitoring of brain ________ activity
• Brain-waves
  – ________ (height)
  – ________ (cycles per second)
    • ________ (13-24 cps)
    • ________ (8-12 cps)
    • ________ (4-7 cps)
    • ________ (<4 cps)

Sleep

• Electrodes measure ________
  – EMG measures ________
• EEG measures ________
• A camera may also record ________.

Measuring Sleep

1. Sleep movements
2. Muscle movements
3. EMG movements
4. EEG movements
5. Sleep data (e.g., heart rate, blood pressure)
Sleep

Stages of Sleep

Sleep

A Typical Night’s Sleep

• Typically 4-5 episodes of ________, (_______) sleep per night occur.
  – Later episodes are longer and farther apart.
• Most “________” (_______) occurs early in the night.

Sleep

Night Work, Sleeping, and Health

• ________ (rotating day and night shifts) is more dangerous than night work.
• About _________ traffic accidents a year are ________ related.
• Those who drive in the middle of the night take ________.
  – Brief episodes of sleep that occur in the midst of a ________ activity.
Sleep Deprivation

- **Complete**
  - 3 or 4 days max

- **Partial** or **sleep**
  - impaired attention, reaction time, coordination, and decision making
  - accidents: Chernobyl, Exxon Valdez

- **Selective**
  - REM and slow-wave sleep: rebound effect

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Sleep

**How to Stay Awake When Driving**

- Participants drove two hours in a __________.
- During a __________, they drank caffeine, or a placebo, or took a nap.
- Both caffeine and nap __________ the number of traffic incidents during the __________ hour.

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Sleep Problems

- __________ – difficulty falling or staying asleep

- __________ – falling asleep uncontrollably
  - Affects animals and humans

- __________ – reflexive gasping for air that awakens person

- __________ – sleepwalking
The Nature and Contents of Dreams

• __________ – mental experiences during sleep
  – Content usually __________
  – Common themes
  – Waking life spillover – day residue
• Western vs. Non-Western interpretations
Figure 5.8: Three theories of dreaming

__________ : Altered State of Consciousness or Role Playing?

- _________ = a systematic procedure that increases suggestibility
- Hypnotic _________ : individual differences
- Effects produced through _________:
  - _________
  - Sensory _________ and _________
  - _________
  - _________ suggestions and amnesia

Drugs & Behavior
• The study of psychoactive drugs

• _______ drugs – Drugs that affect the _______ and bring changes in _______ and other _______ processes

• A “drug” is a chemical not normally needed for physiological activity that can affect a body upon entering it

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Psychopharmacology

• _______

  – Drugs must cross a _______ in the brain’s _______ that limits which substances can enter the brain from the bloodstream

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Blood-brain barrier

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How drugs interact with the brain...

- ________ drugs alter ________ interactions.
- ________ block normal neurotransmitter-receptor binding without stimulating the receptors.

The “Reward Pathway”

- Three brain components:
  - ________
  - ________
  - ________

Substance Abuse

- The use of psychoactive drugs in ways that deviate from ________
  - Psychological
    - When a person uses a drug ________, and is preoccupied with ________ of the drug it becomes unavailable
    - May occur with or without ________
  - ________ (addiction)
    - A ________ state in which continued drug use is needed to prevent ________ syndrome
Substance Abuse

• The use of psychoactive drugs in ways that deviate from cultural norms.
• Psychological dependence
• Physical dependence (addiction)

Physical Dependence

• __________ Syndrome – Physiological and psychological disturbances resulting from a _________ of drugs
  – Include _________ for the drug and effects generally _________ those of the drug.
• _________ – Larger doses are needed to produce the same effect.

Expectations & Effects

• The effects of drugs on behavior can be _________.
  – _________ can form by watching react to drugs.
  – Drug effects _________ from one _________ to another.
Types of Drugs

• __________
  – __________
  – __________
  – __________

• __________
  – Alcohol
  – Barbiturates

• __________
  – __________
  – Cocaine
  – __________
  – Nicotine

• __________
  – activity of the CNS
  – activity of GABA (_________ postsynaptic neuron activity)
  – _________ (i.e. Amytal)
  * “Downers” like sleeping pills cause sleepiness, mild pleasure, poor muscle coordination, and lowered mental concentration

• __________
  – behavioral or mental activity (i.e. Ritalin)
  – _________ (“uppers” increase the release and decrease the removal of norepinephrine and dopamine at synapses)
Drug Classes, cont’d...

- Induce sleep and relieve pain
  - _______ is an active ingredient in opium and is used in pain relief
  - _______ is derived from morphine but is 3 times more potent
  - Stimulate receptors normally stimulated by ________, the body’s naturally occurring painkillers

- _______ is derived from morphine but is 3 times more potent
  - _______ is derived from morphine but is 3 times more potent
  - _______ is derived from morphine but is 3 times more potent
  - _______ is derived from morphine but is 3 times more potent

- Produce a temporary loss of contact with reality and changes in emotion, perception, and thought
  - _______ produce a temporary loss of contact with reality and changes in emotion, perception, and thought

- Reduce physiological symptoms associated with _________
  - _______ are the most typical _________, although alcohol (a depressant) can have similar effects

The Addicted Brain