States of Consciousness

Definition
- Consciousness is our awareness of various cognitive processes, such as sleeping, dreaming, concentrating and making decisions.

William James
- Consciousness is continuous and always changing
- Consciousness is a selective process of attending to certain stimuli
- Each person’s stream-of-consciousness is unique to the individual.

Consciousness Allows
Consciousness allows the individual to:
- restrict the input of overwhelming sensory information
- attend to certain stimuli
- select important stimuli for effective functioning
- store meaningful information for present or future use
- consider alternatives to real-world situations
- project imaginary consequences to our actions or thoughts

Freud’s Consciousness
Three levels
- the unconscious: all thoughts, ideas and feelings that we are not and normally cannot become aware of; the domain of the id
- the preconscious: thoughts, ideas and feelings that were not consciously aware of but can be readily called into awareness
- consciousness: our awareness of our thoughts, ideas and feelings

Alternate Forms of Consciousness
- daydreaming: one of the most common alternate states of consciousness we momentarily escape the demands of the real world; this can occur without much effort
- fantasy: an alternate consciousness in which people work out their difficulties, image alternative scenarios to conflicts, and wonder about or idealize the world around them
- circadian rhythms: physiological cycles that repeat every 24 hours; sleeping and dreaming are the most common of these

Sleep and Dream Measurements
- EEG: the electroencephalogram measures brain wave activity
- EMG: the electromyogram measures muscle activity

Sleep Cycles
- Relaxation:
  - the period before sleep when our muscles begin to relax
  - we lose concentration and alertness of our environment
- Stage 1:
  - lasts for about 10 minutes
  - dominated by theta waves of 3-7 cycles per second (CPS)
- Stage 2:
  - similar to Stage 1 with theta wave
  - also has short bursts of 12-16 CPS sleep spindles
- Stage 3:
  - deep sleep composed of delta waves (1-2 CPS) 20-50% of the time
- **Stage 4:**
  - deep sleep dominated by delta waves
- **REM sleep:**
  - rapid eye movement sleep
  - where our most vivid dreams occur

**REM Sleep and Dreaming**
- Sleepers awakened during REM sleep recount the most vivid, lifelike dreams
- Everyone dreams for 90-120 minutes per night
- Our dreams get longer in length as the night progresses and REM sleep extends

**Freud on Dreams**
- Believed that all dreams are wish fulfillments even nightmares
- Originate in our unconscious mind which is governed by the id, the child within us
- Are uncensored expressions of our thoughts, feelings and motives
- The id and our unconscious operate on the pleasure principle, gaining pleasure from expressing these thoughts and feelings

**Preconscious and Censorship**
- Freud called the dream content of the unconscious mind the *latent content*
- As we reach preconsciousness, our mind attempts to alter the dream content so it is not so damaging to our ego, our self-concept
- In the preconscious, a *censorship system* alters the dream content using several techniques

**Censorship Techniques**
- *Condensation:* condensing several dream elements into a composite of one dream element
- *Symbolism:* using other objects or people to represent something else
- *Displacement:* changing the emphasis or focus of certain dream elements onto other, more insignificant elements

**Secondary Revision**
- The preconscious operates on the *unpleasure principle* in which we gain pleasure through censoring information
- At this point, the dream goes through *secondary revision* by the preconscious
- As we reach consciousness and recollect our dream, we are remembering what Freud calls the *manifest content*

**Dream Work and Dream Analysis**
- The process of moving from the latent content to the manifest content is what Freud called the *dream work*
- The goal of *dream analysis* is to get from the manifest content to the real or latent content of the dream.

**Insomnia**
- *Insomnia* is characterized by difficulty in falling asleep or remaining asleep throughout the night
- 30 million insomniacs
- The cause of their sleeping disorder is unknown
- Evidence indicates insomnia is more prevalent in women and the elderly
- Attempts to control insomnia with medication usually does more harm than good; the body builds up a tolerance to the medication and a "rebound effect" when the medication is discontinued makes the insomnia worse
Sleep Apnea

- Sleep apnea is a disorder characterized by breathing difficulty during the night and feelings of exhaustion during the day.
- The episodes usually occur in short periods and there are few long term dangers.
- Approximately 38,000 cardiovascular deaths each year are a result of sleep apnea.
- Those most susceptible to sleep apnea are obese males during middle age.
- Also suspected as a cause of SIDS.
- Consequences of sleep apnea include memory loss, hypertension, heart disease and stroke.

Narcolepsy

- Narcolepsy is a hereditary sleep disorder characterized by sudden nodding off during the day and sudden loss of muscle tone following moments of emotional excitement.
- Can be dangerous because of the muscle paralysis that accompanies the disorder.
- The cause of narcolepsy is unknown and it is highly resistant to treatment.

Night Terrors

- Night terrors or sleep terrors affect children between 4-12 years old.
- Different from nightmares.
- Children suffering from night terrors typically sit up in bed and begin screaming.
- Can be awakened from nightmares but not night terrors.
- Usually not remembered in the morning.
- Usually do not occur past childhood.

Sleepwalking

- Sleepwalking involves getting out of bed and moving around; it can involve engaging in complex behaviors while asleep.
- Sleepwalking affects up to 17% of children, usually between 8-12 years old; adult prevalence is approximately 4%.
- Treatment includes the use of antidepressants or benzodiazepine.
- Hypnosis has also helped make sleepwalking less likely.

Incubus Attack

- Incubus attacks are characterized by sleep paralysis with hypnagogic hallucinations.
- 15% to 40% of Americans will experience at least one episode; recurrent episodes afflict 4% of the population.
- More common in women than men, and among younger people.
- Treatment involves cognitive behavior therapy.
- The goal of treatment is sleep consolidation—remaining asleep throughout the night without waking up.

Sensory Deprivation

- Sensory deprivation involves extreme reduction of sensory stimuli.
- Studied at McGill University in Montreal by having volunteers spend days at a time in special sensory deprivation chambers.
- Effects include:
  - hallucinations
  - impaired judgment
  - irritability

Meditation

- Defined as various methods of concentration, reflection or focusing of thoughts undertaken to suppress the activity of the sympathetic nervous system.
- Used to treat certain medical problems and offers physiological benefits.
- Additional benefits include emotional and spiritual awareness, well-being and relaxation.
Types of Meditation

- *Zen meditation* focuses on respiration
- *Sufism* involves frenzied dancing and prayer
- *Transcendental meditation* has its participants intone a mantra (special sounds selected by the TM teacher)

Hypnosis

- A trancelike state in which a person responds readily to suggestions
- Sigmund Freud studied hypnosis under Jean Martin Charcot in Paris at the turn of the century and incorporated it as part of psychoanalysis
- Involves a state of increased suggestibility, focused attention and an inability to act independently

Specifics of Hypnosis

- Under hypnosis, subjects can focus their attention on certain behaviors or thoughts and usually accept distortions of reality
- While hypnotized subjects are aware of what's going on around them, their memory abilities are neither improved nor impaired under hypnosis
- Has been used effectively in pain reduction and in controlling phobias such as fear of flying

Susceptibility to Hypnosis

- Freud learned very early on that hypnosis could not be universally applied
- Recent evidence indicates that susceptibility to hypnosis relies on several variables:
  - Hypnosis can be more easily implemented if the patient feels comfortable with the therapist
  - If the person being hypnotized typically daydreams or fantasizes
  - If the subject is female
  - If the suggested behavior or thought by the therapist is not too anxiety-producing in the person being hypnotized

Drug-Altered Consciousness

- *tolerance*: phenomenon whereby higher doses of a drug are required to produce its original effects or to prevent withdrawal symptoms
- *withdrawal*: unpleasant physical or psychological effects that follow the discontinuance of a dependence-producing substance
- *abuse*: a pattern of compulsive drug taking that often results in tolerance and/or withdrawal
- *dependence*: a pattern of drug use that diminishes the user's ability to fulfill responsibilities that results in repeated use of a drug in dangerous situations, legal problems
- *addiction*: extreme physical or psychological dependency, tolerance and withdrawal are usually characteristic of addiction

- Drug studies typically involve a *double-blind procedure*:
  - Both the subject and the therapist are unaware of who has received the drug and who has received the *placebo* (or "nothing drug")
  - A placebo must be administered or the subject will become aware of whether they are in the *experimental group* (receives the drug) or *control group* (does not receive the drug)

Depressants: Alcohol

- *Alcohol* is the most commonly used depressant
- Over 100,000 deaths per year attributed to alcohol use
- Brain activity is slowed down which leads to problems in decision-making and motor coordination
- Drinking on an empty stomach facilitates intoxication because the alcohol is absorbed faster
• Drinkers fall prey to *alcohol myopia* in which they are oblivious to many behavioral cues in the environment and are not able to make full sense of the cues they do perceive
• Alcohol use by pregnant women can result in a variety of birth defects, most notably fetal alcohol syndrome
• Alcohol interferes with memory storage

• It is virtually unheard of in Mormon and Muslim circles
• It is used for religious rituals by Orthodox Jews and Chinese. Irish Americans and adolescent American Indians have high rates of alcohol abuse
• There seems to be a direct relationship between alcohol use and poverty and unemployment

**Depressants: Barbiturates**
• *Barbiturates* are potentially deadly depressants
• First used for their sedative and anticonvulsant properties, now used only to treat such conditions as epilepsy and arthritis
• The effects of barbiturates are very similar to alcohol
• Barbiturates disrupt the body’s natural sleep pattern and can be addictive when used long-term

**Depressants: Opiates**
• *Opiates* are drugs, such as opium and heroin, derived from the opium poppy, that dull the senses and induce feelings of euphoria, well-being and relaxation
• Synthetic drugs resembling opium derivatives are also classified as opiates
• Opiates cause strong dependence and addiction with severe withdrawal symptoms

• *Heroin* is derived from morphine and produces a high rate of addiction
• To treat heroin addiction, addicts take *methadone* which has similar chemical properties to heroin but does not produce the same severe effects
• Tolerance to opiates can cause the user to take more and more of the drug to produce the desired effects
• These increased doses can lead to arrested breathing

**Stimulants**
• *Stimulants* are drugs, including amphetamines and cocaine, that stimulate the sympathetic nervous system and produce feelings of optimism and boundless energy

**Stimulants: Caffeine**
• *Caffeine* is, by far, the most widely used stimulant
• It can be found in coffee, tea, cocoa, sodas, over the counter drugs and prescription painkillers
• In moderate amounts, caffeine produces no read danger other than a mild dependency

• Extreme amounts (more than 600 mg per day) can cause *coffee nerves* which includes anxiety, headaches, heart palpitations, insomnia and diarrhea
• Caffeine increases cellular metabolism and blocks inhibitory neurotransmitters in the brain
• Caffeine has been shown to aggravate symptoms of many psychiatric disorders

**Stimulants: Nicotine**
• *Nicotine* is a much more dangerous stimulant
• Its short term effects include increased heart rate and constricted blood cells, as well as accelerating the aging process
• Its long term effects include cardiovascular disease, blindness and an increased risk of lung and other cancers
• Dependence and addiction rates to nicotine are high
Stimulants: Amphetamines

- *Amphetamines* are stimulant drugs that initially produce "rushes" of euphoria often followed by sudden "crashes" and, sometimes, severe depression.
- Amphetamines resemble epinephrine which is a neurotransmitter that stimulates the sympathetic nervous system.
- Amphetamines do not increase alertness but, instead, mask fatigue.
- They can cause irregular heartbeat and an increase in blood pressure.
- Habitual use can lead to aggressive and violent behavior because of the paranoia that can accompany excessive use.
- Methamphetamine, such as MDMA or Ecstasy, cause an extraordinary loss of inhibition, euphoria and increased energy.
- However, short-term excessive use can cause long-term effects of disturbances in sleep, mood, appetite and impulsiveness.
- This is caused by damage to the neuroconnectors between lower brain centers and the cortex.

Stimulants: Cocaine

- *Cocaine* is a drug derived from the coca plant that, while producing a sense of euphoria by stimulating the sympathetic nervous system.
- It also leads to anxiety, depression and addictive cravings.
- Cocaine can be inhaled, sniffed or injected.
- It elevates heart rate and blood pressure.
- Cocaine highs don't last long and result in feelings of depression afterwards.
- This causes users to desire more use of the drug.
- Cocaine is extremely addictive, even after short-term usage.

Hallucinogens

- *Hallucinogens* are any number of drugs, such as LSD and mescaline, that distort visual and auditory perception.
- They have an unpredictable effect on consciousness, producing vivid hallucinations.
- While there are no withdrawal symptoms, tolerance builds rapidly.
- One negative effect is "bad trips," or negative experiences while under the influence of the drug.
- Another negative effect are flashbacks or recurrences of hallucinations that occur weeks after ingesting the drug.
- Other negative consequences include memory loss, paranoia, panic attacks and aggression.

Marijuana

- *Marijuana* is a mild hallucinogen that produces a "high" often characterized by feelings of euphoria, a sense of well-being and swings in mood from gaiety to relaxation.
- It may also cause feelings of anxiety and paranoia.
- The active ingredient is *THC* (*tetrahydrocannabinol*).
- Marijuana dilates the blood vessels in the eyes, can distort time, depresses the immune system, can produce chromosomal abnormalities, and alters memory and attention.
- Marijuana use during pregnancy can result in smaller babies and miscarriages, and smoking marijuana has been found to be more dangerous than cigarettes in terms of respiratory diseases and cancer.
AP Check

AP students in psychology should be able to do the following:

• Describe various states of consciousness and their impact on behavior.
• Discuss aspects of sleep and dreaming:
  – stages and characteristics of the sleep cycle
  – theories of sleep and dreaming
  – symptoms and treatments of sleep disorders
• Describe historic and contemporary uses of hypnosis (e.g. pain control, psychotherapy).
• Explain hypnotic phenomena (e.g. suggestibility, dissociation).
• Identify the major psychoactive drug categories (e.g. depressants, stimulants) and classify specific drugs, including their psychological and physiological effects.
• Discuss drug dependence, addiction, tolerance and withdrawal.
• Identify the major figures in consciousness research (e.g. William James, Sigmund Freud, Ernest Hilgard).