Module 22- Understanding Consciousness & Hypnosis

- Fundamental, hard to define Psychological Concept
- Difficulties in defining consciousness led those specializing in behaviorism to look at direct observations of behavior
- Compared to a car’s speedometer: *Doesn’t make it go, reflects what is happening.*

**Consciousness** is our awareness of ourselves and our environment

- Part of Dual Processing that goes on in our two track minds.
- Selective Attention allows us to consciously place our attention on something, but there is more processing going on outside our realm of attention
- We move between states of consciousness such as: *Sleeping, Walking, Daydreaming, Food Deprivation, Meditation*
**Hypnosis** is a social interaction in which one person (the subject) responds to suggestions from a hypnotist to bring about an altered state of consciousness.

**Can anyone experience hypnosis?**

- Power resides in the hypnotized individual’s openness to suggestion and their ability to focus on certain images or behaviors.

**Can hypnosis enhance recall of forgotten events?**

- Not all memories are encoded and stored so all memories are not available, and even those that are available may not be able to be retrieved.

- “Hypnotically refreshed” memories combine fact with fiction.
Can hypnosis force people to act against their will?

- Research has found that people behave similarly when asked to throw acid in the researchers face. Findings indicate that with or without hypnosis subjects were willing to follow instructions.

Can hypnosis be therapeutic?

- Posthypnotic suggestion has shown benefits; especially helpful for obesity; not as helpful for drug, alcohol or smoking addictions.

Can hypnosis relieve pain?

- Yes. When asked to put their arm in an ice bath, unhypnotized people felt intense pain within 25 seconds. Hypnotized people did not feel pain.
Theories of Hypnosis

Attention is diverted from a painful ice bath. 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 cold.

ice bath example
Hypnosis

Levels of Analysis for Hypnosis

- **Biological influences:**
  - distinctive brain activity
  - unconscious information processing

- **Psychological influences:**
  - focused attention
  - expectations
  - heightened suggestibility
  - dissociation between normal sensations and conscious awareness

- **Social-cultural influences:**
  - presence of an authoritative person in legitimate context
  - role-playing “good subject”
Module 23- Sleep Patterns and Sleep Theories

**Biological Rhythms and Sleep**

Two Biological Rhythms

1) 24 Hour Biological Clock       *Circadian Rhythm*

2) 90 Minute Sleep Cycle         *REM sleep Cycle*

**Circadian Rhythm**

-the Biological Clock: regular bodily rhythms; age & experience alter rhythm

  - Body Temperature rises in the morning

  - Thinking and Memory best when in peak of circadian arousal

  - Teens are up later, older people wake earlier

  - Morning types tend to do better in school, take more initiative, and be less vulnerable to depression
REM Sleep Stages

-Sleep Stages; 4 distinct stages; 90 minutes

- Brain waves vary in different sleep stages

- **Alpha Waves**: awake and calm

- **Delta Waves**: from NREM3- deep in sleep

  **REM** reoccurring sleep stage during which vivid dreams occur. Muscles are relaxed, other body systems active

  **NREM-1** brief period; may experience images resembling hallucinations without sensory stimulus (falling or floating)

  **NREM-2** about 20 minutes; sleep spindles (periodic bursts of rapid, rhythmic brain-wave activity)

  **NREM-3** about 30 minutes; deep sleep; delta waves
Sleep patterns are affected by genetics and cultural influences

- **Biological Influences**: Suprachiasmatic Nucleus (SCN) a pair of cell clusters in the hypothalamus that control circadian rhythm. SCN responds to light and causes pineal gland to adjust melatonin production, modifying our feeling of sleepiness.

- **Cultural Influences**: Work and School schedules, access to modern lighting, technology and media.

**Sleep Theories**

Sleep Protects - from hurting oneself  
(hunter gathers survived by working during the day, sleeping away from danger at night)

Sleep Helps Us Recuperate - restores and repairs brain tissue; neurons prune or weaken unused connections.
Sleep Helps Restores and Rebuild Our Fading Memories of the Day’s Experiences
when sleeping our memories are consolidated, our neural memory is strengthened and stabilized

Sleep Feeds Creative Thinking
Dreams can inspire; complete night of sleeping boosts our thinking and learning

Sleep Supports Growth
In deep sleep, pituitary gland releases growth hormone which is necessary for muscle development
Module 24- Sleep Deprivation, Sleep Disorders and Dreams

Sleep Deprivation

Effects of Lost Sleep
- feeling tired on all levels (*physical, mental, emotional*)
- can be a predictor of depression
- difficulty studying and learning
- diminished productivity
- irritable
- prone to making mistakes
- weight gain
- suppression of immune cells
- impacts visual attention
Sleep Disorders

Insomnia 1 in 10
- recurring problems in falling or staying asleep
- as you age waking in the night becomes the norm
- common quick fixes (sleeping pills & alcohol) can make it worse

Narcolepsy 1 in 2000
- attacks of overwhelming sleepiness, lasting less than 5 minutes
- genetic component

Sleep Apnea 1 in 20
- recurring problems in falling or staying asleep
- as you age waking in the night becomes the norm

Night Terrors
- mostly children; sit up or walk and taking incoherently
What We Dreams
- sequence of images, emotions, and thoughts passing through a sleeping person’s mind
- Spend 6 years of our life in dreams
- Trauma can cause nightmare
- Sensory stimuli (odors or phone ringing) can make their way into a dream

Why We Dreams

To Satisfy Our Own Wishes

Manifest Content - Freud - remembered story line of a dream   Latent Content -underlying meaning
According to Freud dreams are the key to our inner conflicts

To File Away Memories   Information Processing Perspective

Dreams may help sift, sort and fix the day’s experiences into memory
Brain scans confirm the link between REM sleep and memory

To Develop and Preserve Neural Pathways   Physiological Function

Dreams provides the sleeping brain with periodic stimulation

To Make Sense of Neural Static

One theory states that dreams erupt from neural activity, essentially attempting to make sense of neural activity

To Reflect Cognitive Development

Dreams reflect knowledge & understanding;   Top down control of our dream content
<table>
<thead>
<tr>
<th>Theory</th>
<th>Explanation</th>
<th>Critical Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Freud's wish-fulfillment&quot;</td>
<td>Dreams provide a “psychic safety valve”—expressing otherwise unacceptable feelings; contain manifest (remembered) content and a deeper layer of latent content—a hidden meaning.</td>
<td>Lacks any scientific support; dreams may be interpreted in many different ways.</td>
</tr>
<tr>
<td>Information-processing</td>
<td>Dreams help us sort out the day’s events and consolidate our memories.</td>
<td>But why do we sometimes dream about things we have not experienced?</td>
</tr>
<tr>
<td>Physiological function</td>
<td>Regular brain stimulation from REM sleep may help develop and preserve neural pathways.</td>
<td>This does not explain why we experience meaningful dreams.</td>
</tr>
<tr>
<td>Neural activation</td>
<td>REM sleep triggers neural activity that evokes random visual memories, which our sleeping brain weaves into stories.</td>
<td>The individual’s brain is weaving the stories, which still tells us something about the dreamer.</td>
</tr>
<tr>
<td>Cognitive development</td>
<td>Dream content reflects dreamers’ cognitive development—their knowledge and understanding.</td>
<td>Does not address the neuroscience of dreams.</td>
</tr>
</tbody>
</table>
Module 25 - Psychoactive Drugs

When Is Drug Use a Disorder?

A person may be diagnosed with substance use disorder when drug use continues despite significant life disruption. Resulting changes in brain circuits may persist after quitting use of the substance (thus leading to strong cravings when exposed to people and situations that trigger memories of drug use). The severity of substance use disorder varies from mild (two to three symptoms) to moderate (four to five symptoms) to severe (six or more symptoms) (American Psychiatric Association, 2013).

Impaired Control
1. Uses more substance, or for longer, than intended.
2. Tries unsuccessfully to regulate substance use.
3. Spends much time gaining, using, or recovering from substance use.
4. Craves the substance.

Social Impairment
5. Use disrupts obligations at work, school, or home.
6. Continues use despite social problems.
7. Use causes reduced social, recreational, and work activities.

Risky Use
8. Continues use despite hazards.
9. Continues use despite worsening physical or psychological problems.

Drug Action
10. Experiences tolerance (need more substance for the desired effect).
11. Experiences withdrawal when attempting to end use.

A Guide to Selected Psychoactive Drugs

<table>
<thead>
<tr>
<th>Drug</th>
<th>Type</th>
<th>Pleasurable Effects</th>
<th>Adverse Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>Depressant</td>
<td>Initial high followed by relaxation</td>
<td>Depression, memory loss, organ damage, impaired reactions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and disinhibition</td>
<td></td>
</tr>
<tr>
<td>Heroin</td>
<td>Depressant</td>
<td>Rush of euphoria, relief from pain</td>
<td>Depressed physiology, agonizing withdrawal</td>
</tr>
<tr>
<td>Caffeine</td>
<td>Stimulant</td>
<td>Increased alertness and wakefulness</td>
<td>Anxiety, restlessness, and insomnia in high doses; uncomfortable withdrawal</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>Stimulant</td>
<td>Euphoria, alertness, energy</td>
<td>Irritability, insomnia, hypertension, seizures</td>
</tr>
<tr>
<td>Cocaine</td>
<td>Stimulant</td>
<td>Rush of euphoria, confidence, energy</td>
<td>Cardiovascular stress, suspiciousness, depressive crash</td>
</tr>
<tr>
<td>Nicotine</td>
<td>Stimulant</td>
<td>Aroused and relaxation, sense of well-being</td>
<td>Heart disease, cancer</td>
</tr>
<tr>
<td>Ecstasy (MDMA)</td>
<td>Stimulant; mild</td>
<td>Emotional elevation, disinhibition</td>
<td>Dehydration, overheating, depressed mood, impaired cognitive and immune functioning</td>
</tr>
<tr>
<td></td>
<td>hallucinogen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td>Mild hallucinogen</td>
<td>Enhanced sensation, relief of pain,</td>
<td>Impaired learning and memory, increased risk of psychological disorders, lung damage from smoke</td>
</tr>
<tr>
<td></td>
<td></td>
<td>relaxation</td>
<td></td>
</tr>
</tbody>
</table>
**Depressants**

**Alcohol**
- Slows brain activity and controls judgment and inhibitions
- Low Doses - Slows Sympathetic Nervous System
- High Doses - Slows reactions, speech and performance
- Memory Disruption
- Reduced Self Awareness & Self-Control
- Expectancy Effect -- if you believe it will affect behavior, it will

**Barbiturates**
- Tranquilizers, depress nervous system
- Induce sleep, Reduce Anxiety
- High Doses - impairs judgement and memory

**Opiates**  *Heroin, Codeine, Morphine*
- Depress neural functioning
- Pupils constrict, breathing slows, pleasure replaces pain and anxiety
- After repeated use; the brain stops producing endorphins
**Stimulants**

**Amphetamines**
- stimulates that cause a speeding up of neural activity; increase energy and mood changes

**Nicotine**
- As addictive as heroin & cocaine
- Withdrawal symptoms include: cravings, insomnia, anxiety irritability and distractibility

**Cocaine**
- Blocks reuptake of Serotonin, Dopamine, and Norepinephrine

**Methamphetamine**
- Triggers release of dopamine, stimulates moods enhances energy, reduced dopamine production

**Ecstasy**
- Triggers dopamine release, releases stored serotonin and blocks its reuptake
Hallucinogens

LSD
- Emotions range from euphoria to detachment to panic
- Hallucinations; as they peak people feel separated from their body and experience dreamlike scenes

Marijuana
- Mild hallucinogen; amplifies sensitivity to color, sounds, taste and smell
- Impairs motor coordination; perceptual skills and reaction time