



PSYCHOLOGY
(8th Edition)
David Myers

PowerPoint Slides
Aneeq Ahmad
Henderson State University



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States of
Consciousness

Chapter 7

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States of Consciousness

Consciousness and
Information Processing

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States of Consciousness

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States of Consciousness

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History of Consciousness

1. Psychology began as a science of consciousness.
2. Behaviorists argued about alienating consciousness from psychology.
3. However, after 1960, mental concepts (consciousness) started reentering psychology.

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Forms of Consciousness

Consciousness, modern psychologists believe, is an awareness of ourselves and our environment.



Some occur spontaneously	Daydreaming	Drowsiness	Dreaming
Some are physiologically induced	Hallucinations	Orgasm	Food or oxygen starvation
Some are psychologically induced	Sensory deprivation	Hypnosis	Meditation

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Neuroscience & Consciousness

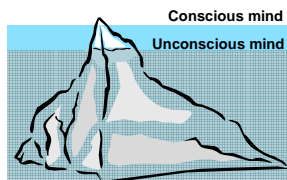
Neuroscientists believe that consciousness emerges from the interaction of individual brain events much like a chord that is created from different musical notes.



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Consciousness & Information Processing

The unconscious mind processes information simultaneously on multiple tracks, while the conscious mind processes information sequentially.



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Sleep & Dreams

Sleep – the irresistible tempter to whom we inevitably succumb.



Mysteries about sleep and dreams have just started unraveling in sleep laboratories around the world. ¹⁰

Biological Rhythms

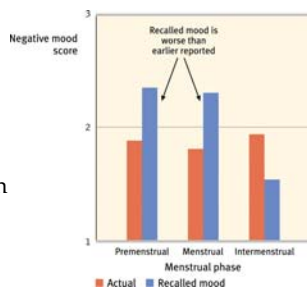
Biological rhythms are controlled by internal “biological clocks.”

1. **Annual cycles:** On an annual cycle, geese migrate, grizzly bears hibernate, and humans experience seasonal variations in appetite, sleep, and mood. *Seasonal Affective Disorder (SAD)* is a mood disorder people experience during dark winter months.

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Biological Rhythms

2. **28-day cycles:** The female menstrual cycle averages 28 days. Research shows menstruation may not affect moods.



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Biological Rhythms

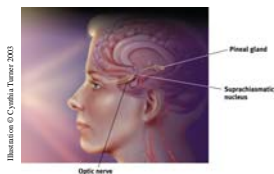
3. **24-hour cycles:** Humans experience 24-hour cycles of varying alertness (sleep), body temperature, and growth hormone secretion.

4. **90-minute cycles:** We go through various stages of sleep in 90-minute cycles.

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Rhythm of Sleep

Circadian Rhythms occur on a 24-hour cycle and include sleep and wakefulness, which are disrupted during transcontinental flights.

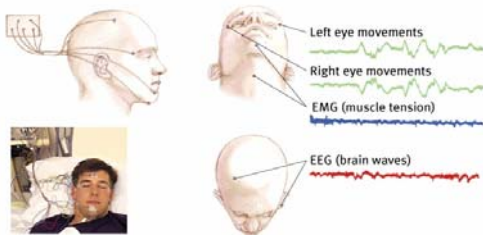


Light triggers the suprachiasmatic nucleus to decrease (morning) melatonin from the pineal gland and increase (evening) it at night fall.

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Sleep Stages

Measuring sleep: About every 90 minutes, we pass through a cycle of five distinct sleep stages.



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Awake & Alert

During strong mental engagement, the brain exhibits low amplitude and fast, irregular **beta waves (15-30 cps)**. An awake person involved in a conversation shows beta activity.

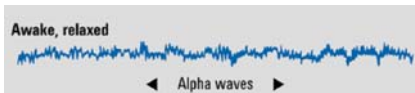


Beta Waves

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Awake but Relaxed

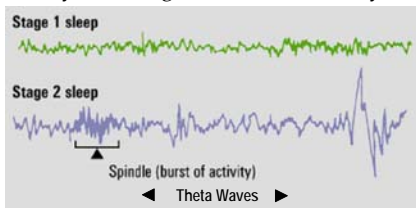
When an individual closes his eyes but remains awake, his brain activity slows down to a large amplitude and slow, regular **alpha waves (9-14 cps)**. A meditating person exhibits an alpha brain activity.



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Sleep Stages 1-2

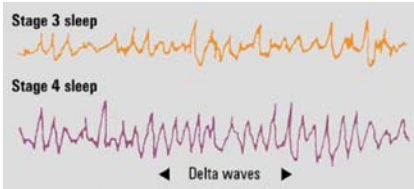
During early, light sleep (stages 1-2) the brain enters a high-amplitude, slow, regular wave form called **theta waves (5-8 cps)**. A person who is daydreaming shows theta activity.



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Sleep Stages 3-4

During deepest sleep (stages 3-4), brain activity slows down. There are large-amplitude, slow **delta waves (1.5-4 cps)**.



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Stage 5: REM Sleep

After reaching the deepest sleep stage (4), the sleep cycle starts moving backward towards stage 1. Although still asleep, the brain engages in low-amplitude, fast and regular **beta waves (15-40 cps)** much like awake-aroused state.

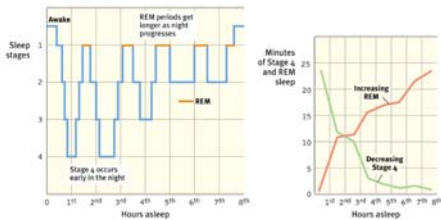


A person during this sleep exhibits Rapid Eye Movements (REM) and reports vivid dreams.

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90-Minute Cycles During Sleep

With each 90-minute cycle, stage 4 sleep decreases and the duration of REM sleep increases.



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Why do we sleep?

We spend one-third of our lives sleeping.

If an individual remains awake for several days, they deteriorate in terms of immune function, concentration, and accidents.



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Sleep Deprivation

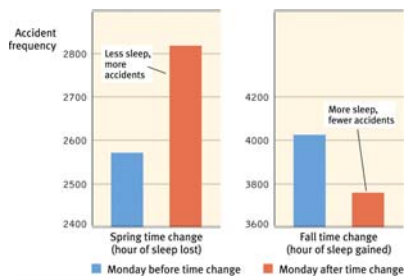
1. Fatigue and subsequent death.
2. Impaired concentration.
3. Emotional irritability.
4. Depressed immune system.
5. Greater vulnerability.



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Accidents

Frequency of accidents increase with loss of sleep



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Sleep Theories

1. **Sleep Protects:** Sleeping in the darkness when predators loomed about kept our ancestors out of harm's way.
2. **Sleep Recuperates:** Sleep helps restore and repair brain tissue.
3. **Sleep Helps Remembering:** Sleep restores and rebuilds our fading memories.
4. **Sleep and Growth:** During sleep, the pituitary gland releases growth hormone. Older people release less of this hormone and sleep less.

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Sleep Disorders: Insomnia

1. **Somnambulism:** Sleepwalking.
2. **Nightmares:** Frightening dreams that wake a sleeper from REM.
3. **Night terrors:** Sudden arousal from sleep with intense fear accompanied by physiological reactions (e.g., rapid heart rate, perspiration) that occur during SWS.

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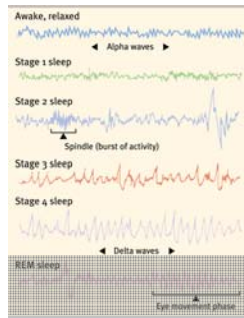
Sleep Disorders: Insomnia

4. **Narcolepsy:** Overpowering urge to fall asleep that may occur while talking or standing up.
5. **Sleep apnea:** Failure to breathe when asleep.

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Dreams

The link between REM sleep and dreaming has opened up a new era of dream research.



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What do we Dream?

1. **Negative Emotional Content:** 8 out of 10 dreams have negative emotional content.
2. **Failure Dreams:** People commonly dream about failure, being attacked, pursued, rejected, or struck with misfortune.
3. **Sexual Dreams:** Contrary to our thinking, sexual dreams are sparse. Sexual dreams in men are 1 in 10; and in women 1 in 30.
4. **Dreams of Gender:** Women dream of men and women equally; men dream more about men than women.

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Why do we dream?

1. **Wish Fulfillment:** Sigmund Freud suggested that dreams provide a psychic safety valve to discharge unacceptable feelings. The dream's manifest (apparent) content may also have symbolic meanings (latent content) that signify our unacceptable feelings.
2. **Information Processing:** Dreams may help sift, sort, and fix a day's experiences in our memories.

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Hypnosis

A social interaction in which one person (the hypnotist) suggests to another (the subject) that certain perceptions, feelings, thoughts, or behaviors will spontaneously occur.



Hypnos: Greek god of sleep

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Mesmerism

Credit for the popularity of hypnosis goes to Franz Anton Mesmer, a physician, who mistakenly thought he discovered "animal magnetism." Some of his patients experienced a trancelike state and felt better upon waking up.



Franz Mesmer (1734 - 1815)

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Aspects of Hypnosis

1. **Posthypnotic Suggestion:** Suggestion carried out after the subject is no longer hypnotized.
2. **Posthypnotic Amnesia:** Supposed inability to recall what one experienced during hypnosis.

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Hypnotic Feats

Strength, stamina, and perceptual and memory abilities similarly affect those who are hypnotized and those who are not hypnotized.



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Facts and Falsehood

Those who practice hypnosis agree that its power resides in the subject's openness to suggestion.

Can anyone experience hypnosis? Yes, to some extent.

Can hypnosis enhance recall of forgotten events? No.

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Facts and Falsehood

Can hypnosis force people to act against their will? No.

Can hypnosis be therapeutic? Yes. Self-suggestion can heal too.

Can hypnosis alleviate pain? Yes. Lamaze can do that too.

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Is Hypnosis an Altered State of Consciousness?

1. Social Influence Theory:

Hypnotic subjects may simply be imaginative actors playing a social role.

2. Divided Consciousness Theory:

Hypnosis is a special state of dissociated (divided) consciousness (Hilgard, 1986, 1992).



(Hilgard, 1992)

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Both Theories

Attention is diverted from an aversive odor.
How?

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



Walter Dill Scott

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

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Drugs and Consciousness

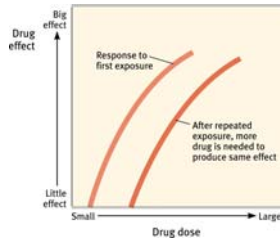
Psychoactive Drug: A chemical substance that alters perceptions and mood (effects consciousness).

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Dependence & Addiction

Continued use of a psychoactive drug produces **tolerance**.

With repeated exposure to a drug, the drug's effect lessens. Thus it takes greater quantities to get the desired effect.



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Withdrawal & Dependence

1. **Withdrawal:** Upon stopping use of a drug (after addiction), users may experience the undesirable effects of withdrawal.
2. **Dependence:** Absence of a drug may lead to a feeling of physical pain, intense cravings (**physical dependence**), and negative emotions (**psychological dependence**).

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Misconceptions about Addiction

Addiction is a craving for a chemical substance, despite its adverse consequences (physical & psychological).

1. Addictive drugs quickly corrupt.
2. Addiction cannot be overcome voluntarily.
3. Addiction is no different than repetitive pleasure-seeking behaviors.

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Psychoactive Drugs

Psychoactive drugs are divided into three groups.

1. Depressants
2. Stimulants
3. Hallucinogens

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Depressants

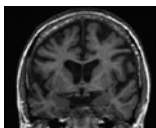
Depressants are drugs that reduce neural activity and slow body functions. They include:

1. Alcohol
2. Barbiturates
3. Opiates

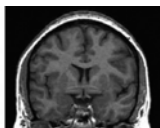
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Alcohol

1. **Alcohol** affects motor skills, judgment, and memory...and increases aggressiveness while reducing self awareness.



Scan of woman with alcoholism



Scan of woman without alcoholism



Drinking and Driving

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Barbiturates

2. **Barbiturates:** Drugs that depress the activity of the central nervous system, reducing anxiety but impairing memory and judgment. Nembutal, Seconal, and Amytal are some examples.

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Depressants

3. **Opiates:** Opium and its derivatives (morphine and heroin) depress neural activity, temporarily lessening pain and anxiety. They are highly addictive.



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Stimulants

Stimulants are drugs that excite neural activity and speed up body functions.

1. Caffeine
2. Nicotine
3. Cocaine
4. Ecstasy
5. Amphetamines
6. Methamphetamines

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Caffeine & Nicotine

Caffeine and nicotine increase heart and breathing rates and other autonomic functions to provide energy.



<http://www.rock-on-ital.com>



<http://office.microsoft.com/ital>

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Amphetamines

Amphetamines stimulate neural activity, causing accelerated body functions and associated energy and mood changes, with devastating effects.



National Institute of Drug Abuse

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Ecstasy

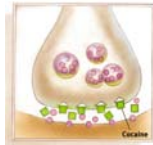
Ecstasy or Methylenedioxymethamphetamine (MDMA) is a stimulant and mild hallucinogen. It produces a euphoric high and can damage serotonin-producing neurons, which results in a permanent deflation of mood and impairment of memory.



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Cocaine

Cocaine induces immediate euphoria followed by a crash. Crack, a form of cocaine, can be smoked. Other forms of cocaine can be sniffed or injected.



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By binding to the sites that normally reabsorb neurotransmitter molecules, cocaine blocks reuptake of dopamine, norepinephrine, and serotonin (Wu & Kuo, 1998). The extra neurotransmitter molecules therefore remain in the synapse, intensifying their normal mood-altering effects and producing a euphoric rush. When the cocaine level drops, the absence of these neurotransmitters produces a crash.

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Hallucinogens

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



Ronald K. Siegel

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Hallucinogens

1. **LSD**: (lysergic acid diethylamide) powerful hallucinogenic drug (ergot fungus) that is also known as *acid*.
2. **THC** (delta-9-tetrahydrocannabinol): is the major active ingredient in marijuana (hemp plant) that triggers a variety of effects, including mild hallucinations.

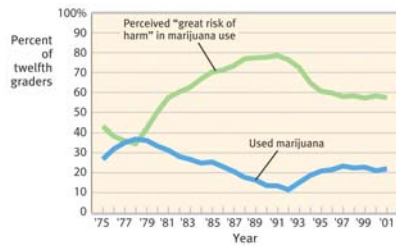


Hemp Plant

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Marijuana Use

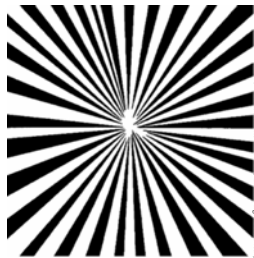
The use of marijuana in teenagers is directly related to the “perceived risk” involved with the drug.



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Near-Death Experiences

After a close brush with death, many people report an experience of moving through a dark tunnel with a light at the end. Under the influence of hallucinogens, others report bright lights at the center of their field of vision.



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Mind-Body Problem

Near-death experiences raise the mind-body issue. Can the mind survive the dying body?

1. **Dualism:** Dualists believe that mind (non-physical) and body (physical) are two distinct entities that interact.
2. **Monism:** Monists believe that mind and body are different aspects of the same thing.

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