

# MODULE 12 - Sleep and Dreams

- What are the different states of consciousness?
- What happens when we sleep, and what are the meaning and function of dreams?
- What are the major sleep disorders, and how can they be treated?
- How much do we daydream?

# Introduction

- **Consciousness:** Awareness of the sensations, thoughts, and feelings we experience at a given moment. One's awareness of the environment outside of oneself and inner state.
  - Waking consciousness
  - Altered states of consciousness

# The Stages of Sleep

## Stage 1

- State of transition between wakefulness and sleep
- Rapid, low-amplitude brain waves

## Stage 2

- Slower, more regular wave pattern
- Sleep spindles

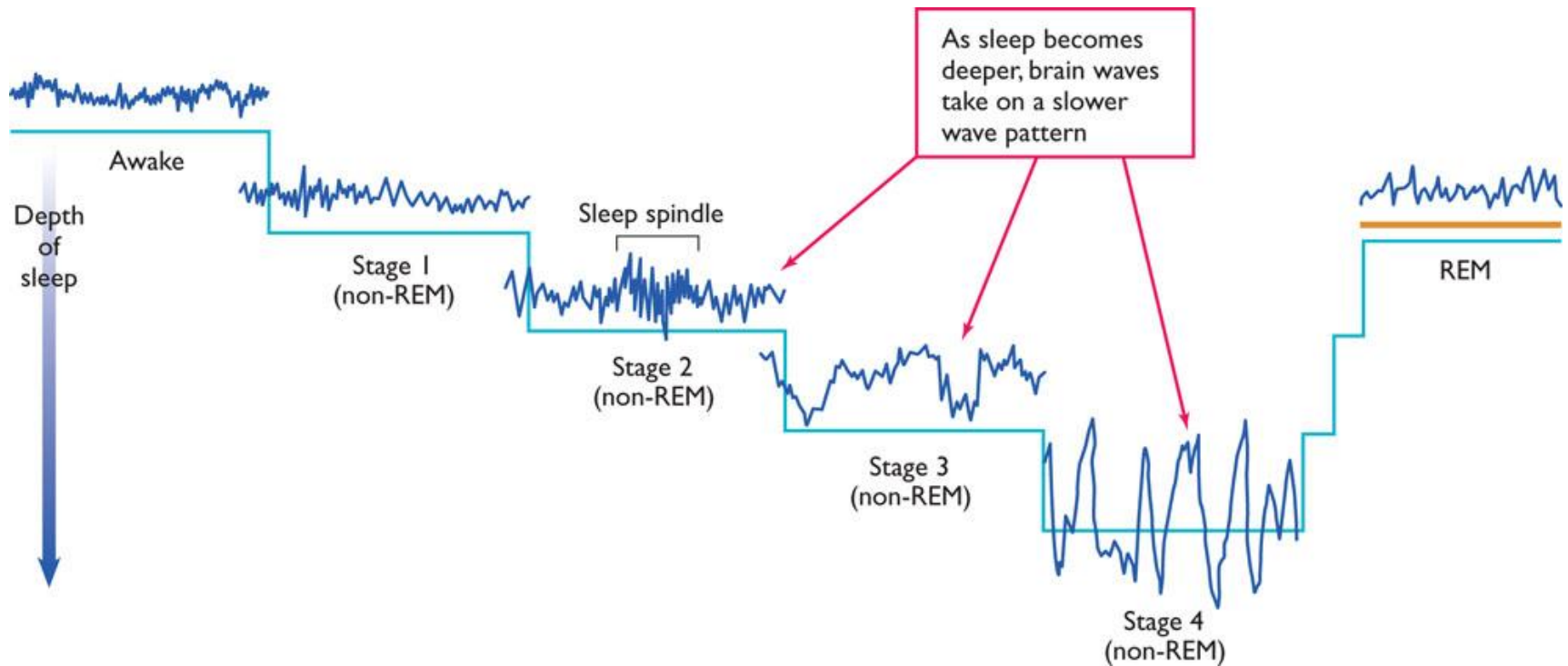
## Stage 3

- Higher peaks and lower valleys of waves

## Stage 4

- Deepest stage, least responsive to outside stimulation

# Figure 2 - Brain-Wave Patterns



# REM Sleep: The Paradox of Sleep

- **Rapid eye movement sleep:** Sleep occupying 20% of an adult's sleeping time, characterized by:
  - Increased heart rate and blood pressure
  - Breathing rate
  - Erections
  - Eye movements
  - The experience of dreaming

# REM Sleep: The Paradox of Sleep

- Rebound effect - REM-deprived sleepers spend more time in REM sleep than they normally would
- REM sleep plays a role in learning and memory
  - Allows us to rethink and restore information and emotional experiences

# Why do We Sleep, and How Much Sleep is Necessary? - “no definitive answer”

- Exact reason for sleep is unknown
- Explanations:
  - Evolutionary theory – conserve energy, look for food during sunlit hours
  - Restoration for brain and body – rest receptor cells. REM stops the release of neurotransmitters related to arousal.
  - Brain growth and development – People sleep between 7–8 hours per night
  - Varies among individuals

# The Function and Meaning of Dreams

- **Unconscious wish fulfillment theory:** Sigmund Freud's theory
  - Dreams represent unconscious wishes that dreamers desire to see fulfilled
- **Manifest and Latent content of dreams:** Disguised meanings of dreams, hidden by more obvious subjects
- Environmental influence and PET scan results limbic and paralimbic (emotion + motivation) active vs little activity in prefrontal lobe (analysis and attention).



# The Function and Meaning of Dreams

- **Dreams-for-survival theory:** Dreams permit information that is critical for our daily survival:
  - Information is to be reconsidered and reprocessed during sleep
  - Concerns in daily life

# The Function and Meaning of Dreams

- **Activation-synthesis theory:** The brain produces random electrical energy during REM sleep that:
  - Stimulates memories stored in the brain
  - Pons randomly sends messages to the cortex

# Sleep Disturbances: Slumbering Problems

Insomnia

Sleep Apnea

- Sudden Infant Death Syndrome (SIDS)

Night Terrors

Narcolepsy

Sleeptalking

Sleepwalking

# Circadian Rhythms: Life Cycles

- Biological processes that occur regularly on approximately a 24-hour cycle
  - Suprachiasmatic nucleus (SCN) - Controls circadian rhythms
  - Seasonal affective disorder - Severe depression which increases during the winter and decreases during the rest of the year

# Daydreams: Dreams Without Sleep

- Fantasies that people construct while awake
  - Part of waking consciousness
  - Time spent in daydreaming varies from individual to individual
  - Brains are relatively active – areas associated with problem solving

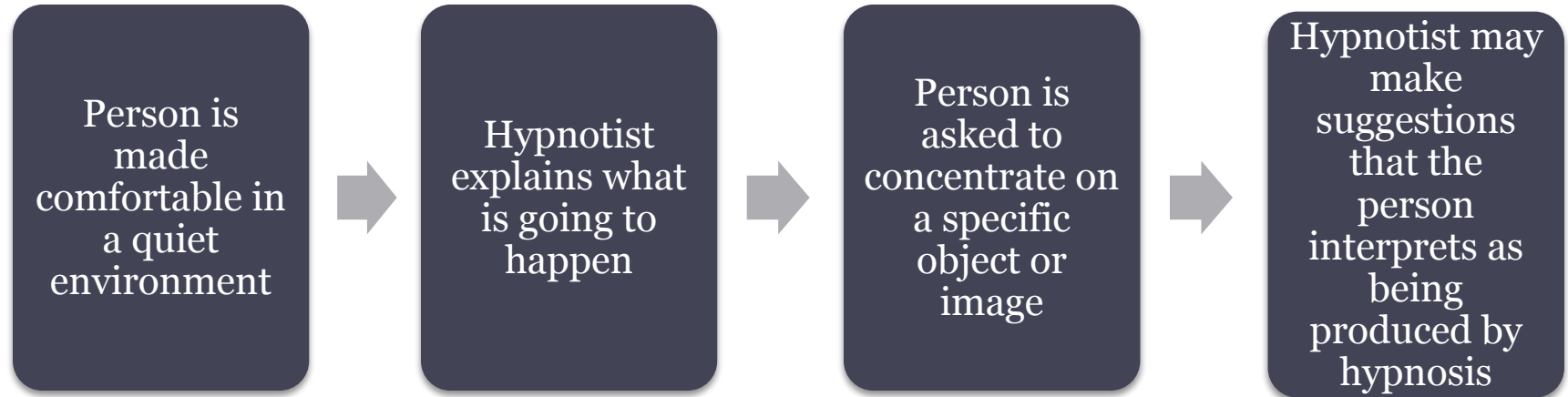
# MODULE 13 - Hypnosis and Meditation

- What is hypnosis, and are hypnotized people in a different state of consciousness?
- What are the effects of meditation?

# Hypnosis: A Trance-Forming Experience

- Trancelike state of heightened susceptibility to the suggestions of others
  - Susceptibility to hypnosis varies greatly
  - Ones' ability to focus and avoid – concentrate
  - Can't be asked to do things against ones' will.

# Hypnosis: Process





# Hypnosis: A Trance-Forming Experience

- A different state of consciousness?
  - Divided consciousness - Division, of consciousness into two simultaneous components – hidden observer
  - Uses
    - Controlling pain
    - Reducing smoking
    - Treating psychological disorders
    - Assisting in law enforcement
    - Improving athletic performance

# Meditation: Regulating our Own State of Consciousness

- Learned technique for refocusing attention that brings about an altered state of consciousness
  - Repetition of a mantra
- Long-term practice improves health because of the biological changes it produces

# MODULE 14 - Drug Use: The Highs and Lows of Consciousness

- What are the major classifications of drugs, and what are their effects?
- Commonly found throughout cultures

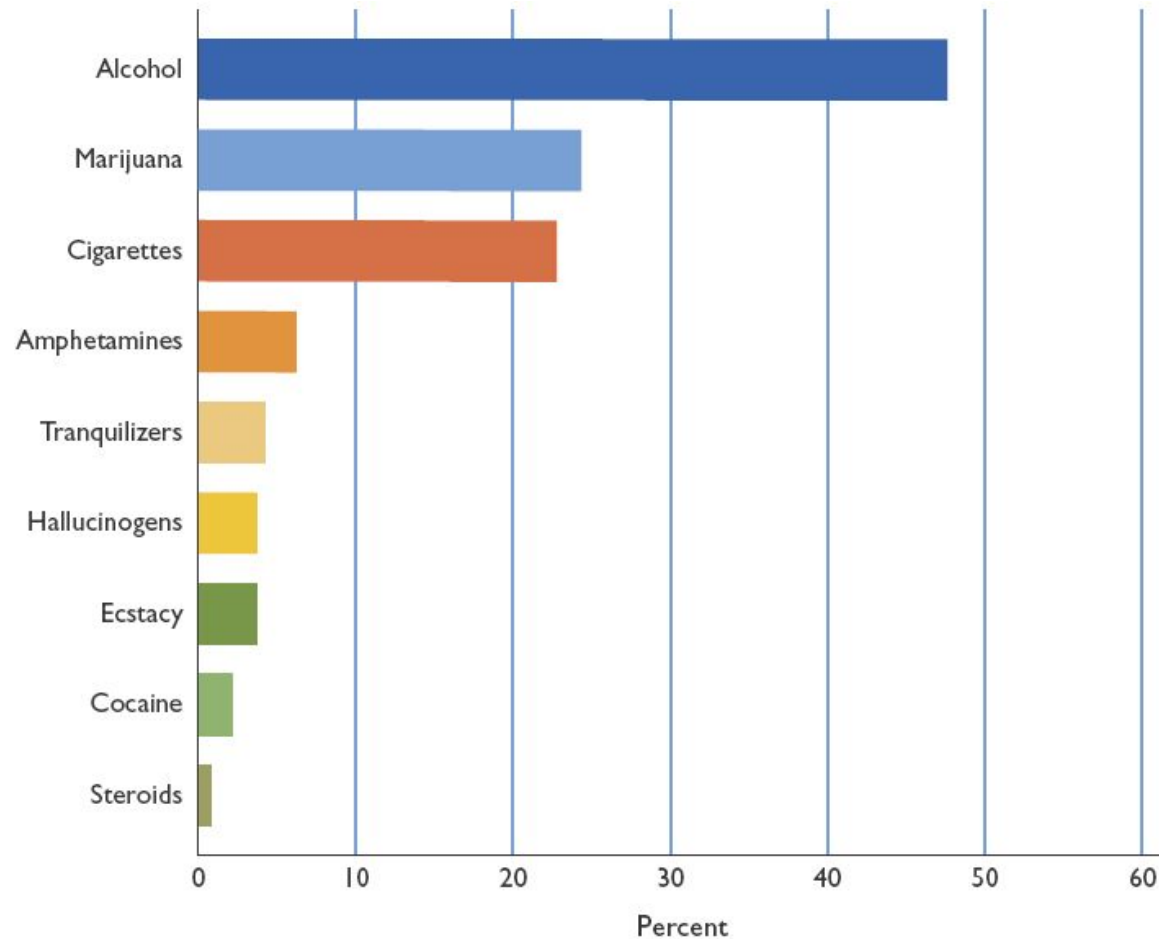
# Introduction

- **Psychoactive drugs:** Influence a person's emotions, perceptions, and behavior
- Blocking or enhancing the release of neurotransmitters or mimicking the effects
- **Addictive drugs:** Produce a biological or psychological dependence in the user
  - Withdrawal from them leads to a craving for the drug that is irresistible

# Introduction

- Reasons for drug intake
  - Perceived pleasure of the experience itself
  - Escape that a drug-induced high affords
  - Attempt to achieve a religious or spiritual state
- Genetic factors may predispose some people to be more susceptible to drugs
- D.A.R.E - Drug reduction program used in majority of schools

# Figure 1 - Number of Teenagers Who Use Drugs



# Stimulants: Drug Highs

- Drugs that have an arousal effect on the central nervous system
  - Caffeine
  - Nicotine
  - Amphetamines (speed)
    - Methamphetamine (meth)
  - Cocaine
    - Pleasure vs rewiring triggering physiological and psychological addiction

# Figure 4 - Drugs and Their Effects

Drugs	Street Name	Effects	Withdrawal Symptoms	Adverse/Overdose Reactions
<b>Stimulants</b>				
Amphetamines		Increased confidence, mood elevation, sense of energy and alertness,	Apathy, general fatigue, prolonged sleep,	Elevated blood pressure, increase in body temperature, face picking,
Benedrine	Speed		depression, disorientation,	suspiciousness, bizarre and repetitious behavior,
Dexedrine	Speed	decreased appetite, anxiety, irritability, insomnia, transient drowsiness, delayed orgasm	suicidal thoughts, agitated motor activity, irritability, bizarre dreams	convulsions, possible death
Cocaine	Coke, blow, snow, lady, crack			



# Figure 4 - Drugs and Their Effects

Drugs	Street Name	Effects	Withdrawal Symptoms	Adverse/Overdose Reactions
<b>Depressants</b>				
Alcohol	Booze	Anxiety reduction, impulsiveness, dramatic mood swings, bizarre thoughts, suicidal behavior, slurred speech, disorientation, slowed mental and physical functioning, limited attention span	Weakness, restlessness, nausea and vomiting, headaches, nightmares, irritability, depression, acute anxiety, hallucinations, seizures, possible death	Confusion, decreased response to pain, shallow respiration, dilated pupils, weak and rapid pulse, coma, possible death
Barbiturates				
Nembutal	Yellowjackets			
Seconal	Reds			
Phenobarbital				
Rohypnol	Roofies, rope, "date-rape drug"	Muscle relaxation, amnesia, sleep	Seizures	Seizures, coma, incapacitation, inability to resist sexual assault

# Figure 4 - Drugs and Their Effects

Drugs	Street Name	Effects	Withdrawal Symptoms	Adverse/Overdose Reactions
<b>Narcotics</b>				
Heroin	H, hombre, junk, smack, dope, crap, horse	Anxiety and pain reduction, apathy, difficulty in concentration,	Anxiety, vomiting, sneezing, diarrhea, lower back pain, watery eyes,	Depressed levels of consciousness, low blood pressure, rapid heart rate,
Morphine	Drugstore dope, cube, first line, mud	slowed speech, decreased physical activity, drooling, itching, euphoria, nausea	runny nose, yawning, irritability, tremors, panic, chills and sweating, cramps	shallow breathing, convulsions, coma, possible death

# Depressants: Drug Lows

- Drugs that slow down the nervous system
- Alcohol
  - Intoxication
  - Binge drinking
  - Depressive effects
    - Emotionally and physically unstable
    - Poor judgment and may act aggressively
    - Memory impairment
    - Diminished brain processing
    - Slurred speech

# Barbiturates and Rohypnol

- Barbiturates - Induce sleep or reduce stress
- Rohypnol - Date rape drug

# Narcotics: Relieving Pain and Anxiety

- Drugs that increase relaxation and relieve pain and anxiety
  - Morphine
  - Heroin
  - Methadone
    - Satisfies a heroin user's physiological cravings for the drug without providing the "high"
  - Oxycodone (oxycontin)

# Hallucinogens: Psychedelic Drugs

- Produces hallucinations, or changes in the perceptual process
  - Marijuana
    - Tetrahydrocannabinol (THC)
  - MDMA (ecstasy)
  - Lysergic acid diethylamide (LSD or acid)

# Figure 7 - Teenagers Who Have Used Marijuana in the Last Year

