Unit 4: Alcohol, Tobacco and Other Drugs

Medicines and Drugs
Tobacco
Alcohol
Illegal Drugs
Medicines and Drugs

- New Vocabulary
  - Medicines
  - Drugs
  - Vaccine
  - Side effects
  - Additive interaction
  - Prescription medicines
  - Over-the-counter (OTC) medicines
  - Medicine misuse
  - Medicine abuse
  - Drug overdose
Lesson 1: The Role of Medicines

• Medicines are classified based on how they work in your body
  • **Medicines:** Drugs that are used to treat or prevent diseases or other conditions
    • Four categories:
      • Prevent disease
      • Fight pathogens
      • Relieve pain
      • Manage chronic conditions or restore health
  • **Drugs:** Substances other than food that change the structure or function of the body or mind
    • Effective in treating illness when taken as directed by a physician or according to the label instructions

*All medicines are drugs, but not all drugs are medicines.*

• Preventing Disease:
  • **Vaccines:** Preparation that prevents a person from contracting a specific disease
    • 95% of children receive vaccines
    • Contain weakened or dead pathogens that cause the disease
    • When injected, the body creates antibodies that fight those pathogens
    • Memory cells are produced creating long-lasting protection
    • Protection can fade:
      • Flu: needed annually
      • Tetanus: every 10 years
The Role of Medicines cont.

• Fighting Pathogens:
  • *Antibiotics*: class of drug that destroy disease-causing micro-organisms, bacteria
    • Penicillin

• Relieving Pain:
  • *Analgesics*: pain relievers
    • May also reduce: fever, inflammation, redness

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Antidepressant</th>
<th>Antihistamine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillin G</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfadiazin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amoxicillin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clavulanic acid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxytetracycline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erythromycin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• Pain Reliever Dependence:
  • Can be addictive
  • Narcotics
  • Require a prescription

• Managing Chronic Conditions:
  • *Allergy Medicine*:
    • Antihistamines
    • Block the chemicals released by the immune system that cause an allergic response
    • Epinephrine
  • *Body-Regulating Medicine*:
    • Insulin
      • Regulates the amount of sugar in the blood
    • Blood pressure
The Role of Medicines cont.

• Taking Medications:
  • Medicines enter the body in a variety of ways:
    • Oral:
      • Tablets, capsules liquids
      • Digestive system to bloodstream
    • Topical:
      • Applied to the skin
      • Transdermal skin patches
    • Inhaled:
      • Asthma medicines
      • Fine mist or powder
    • Injected:
      • Shot
      • Directly to the bloodstream

• Reactions to Medications:
  • Side effects: Reactions to medicine other than the one intended
    • Mild to severe, can even cause death
  • Medicine Interactions:
    • Additive interaction: Occurs when medicines work together in a positive way
      • Anti-inflammatory and muscle relaxant
    • Synergistic effect: the interaction of two or more medicines that results in a greater effect than when each medicine is taken alone
    • Antagonistic interaction: the effect of one medicine is canceled or reduced when taken with another medicine
Lesson 2: Using Medicines Safely

- **Standards for Medicines**
  - Medicines are regulated to make them safe
  - All new medicines in the US must meet standards set by the **FDA**:
    - Chemical composition
    - Intended use
    - Effects
    - Possible side effects
  - Drug manufacturers test new drugs according to FDA guidelines
    - At least 3 clinical trials
      - Human volunteers
      - If not completed, people with life-threatening illnesses may be allowed to use the drug, referred to as experimental

- **Prescription medicines**: Medicines that are dispensed only with the written approval of a licensed physician or nurse practitioner
  - A licensed pharmacist dispenses these meds
  - Prescription meds should be taken only by the person whose name appears on the label

- **Over-the-counter (OTC) medicines**: Medicines you can buy without a doctor’s prescription
  - FDA considers these meds to be safe if they are used as directed
  - Distribution of some OTC may be controlled
    - Cold medications that contain pseudoephedrine (sudafed)
Using Medicines Safely cont.

• **Medicine misuse:** Using a medicine in ways other than the intended use
  • Taking meds unnecessarily or without following the label instructions in dangerous
  • Misuse includes:
    • Not following directions
    • Taking other people’s meds
    • Taking too much/too little
    • Taking for longer/shorter period of time
    • Discontinuing without telling healthcare provider
    • Mixing meds

• **Medicine abuse:** Intentionally taking medications for nonmedical reasons
  • 96% of teens use meds correctly
  • Avoid using drugs to:
    • Lose weight
    • Stay awake
    • Fit in with peers

• **Drug overdose:** Strong, sometimes fatal reaction to taking a large amount of a drug
Tobacco

• New Vocabulary:
  • Addictive drug
  • Nicotine
  • Stimulant
  • Carcinogen
  • Tar
  • Carbon monoxide
  • Smokeless tobacco
  • Leukoplakia
  • Nicotine withdrawal
  • Nicotine substitutes
  • Tobacco cessation program
  • Environmental tobacco smoke (ETS)
  • Mainstream smoke
  • Sidestream smoke
Lesson 1: The Health Risks of Tobacco Use

• Health Risks of Tobacco Use:
  • All forms of tobacco contain chemicals that are dangerous to your health
    • *Nicotine*: The addictive drug found in tobacco leaves
  • *Addictive drug*: Substance that causes physiological or psychological dependence
    • Reason why tobacco users have a hard time quitting
  • *Stimulant*: Drug that increases the action of the central nervous system, the heart and other organs
The Health Risks of Tobacco Use cont.

• Poisonous Substances in Tobacco Smoke:
  • Tobacco is considered a **carcinogen**:  
    • Cancer-causing substance  
  • Contains the same poisonous compounds found in:  
    • Paint  
    • Rat poison  
    • Toilet cleaner  
  • **Tar**: Thick, sticky, dark fluid produced when tobacco burns  
    • Damages the lungs  
    • Makes smokers more susceptible to diseases such as:  
      • Bronchitis  
      • Pneumonia  
      • Emphysema  
      • Heart disease  
      • Cancer  
    • 87% of cancer deaths result from smoking

• **Carbon Monoxide**: Colorless, odorless, poisonous gas  
  • Absorbed more easily than oxygen
The Health Risks of Tobacco Use cont.

• Pipes, Cigars and Smokeless Tobacco
  • Cigars:
    • Contain significantly more tar and carbon monoxide than cigarettes
    • One cigar can contain as much nicotine as a whole pack of cigarettes (20)
  • Smokeless Tobacco: Tobacco that is sniffed through the nose, held in the mouth or chewed
    • Not a safe alternative to smoking
    • Absorbed into the blood through the mucous membranes in the mouth or digestive tract
    • Up to 3x the amount of nicotine as a single cigarette
    • Leukoplakia: Thickened, white, leathery-looking spots on the inside of the mouth that can develop into oral cancer
The Health Risks of Tobacco Use cont.

• **Short Term Effects:**
  - Brain chemistry changes:
    - Cravings
    - Withdrawal symptoms
  - Respiration and heart rate increase:
    - Breathing during physical activity becomes difficult
    - Decreased endurance
  - Taste buds are dulled and appetite is reduced:
    - Lose ability to enjoy food
  - Bad breath, yellowed teeth, smelly hair, skin and clothes:
    - Can become permanent

• **Long Term Effects:**
  - Chronic bronchitis:
    - Build up of tar in the lungs causing chronic coughing and excessive mucus secretion
  - Emphysema:
    - More difficult for the person to absorb oxygen
    - Person with emphysema can use 80% of their energy just to breathe
  - Lung cancer:
    - 90% of lung cancer deaths are caused by smoking
  - Coronary heart disease and stroke:
    - Can be caused by nicotine (nicotine constricts blood vessels)
    - Hardened arteries (arteriosclerosis)
  - Weakened immune system:
    - Long-term smoking makes the body more vulnerable to disease
The Health Risks of Tobacco Use cont.

• Tobacco use is costly:
  • Costs to society:
    • Tobacco related illnesses cost the US $165 billion/yr
  • Cost to individuals:
    • A person smoking one pack of cigarettes a day will spend $1,500/yr
  • Legal consequences:
    • Selling tobacco products to people under 18 is illegal
    • Using tobacco products on school property may lead to suspension or expulsion
MONEY ISSUES: CIGARETTES

- Average cost of a pack of cigarettes in the U.S. = $4.32
  - Lowest: $3.43 (Missouri)
  - Highest: $6.46 (Maine)
- One pack of cigarettes per day = $30.24 per week
- Cost per year at one pack a day = almost $1600
- Smokers pay more for life & health insurance
- Lose resale value on homes and cars
- Can even be fired or not hired for being a smoker
TOBACCO AND TEENS

- Average age to start smoking is 12 years.
- More than 4,000 kids try smoking every day.
- Only takes 1-3 cigarettes to become addicted.
- Most (2 out of every 3) teen smokers want to quit, only 1% are successful.
HEALTH PROBLEMS:
LUNG CANCER

- 1 out of 3 smokers will die from smoking
- 4000 chemicals in tobacco smoke
  - At least 60 of them are known to cause cancer
Cancer From Tobacco
Cancers

- Mouth & Lips
- Esophagus
- Larynx (voicebox)
- Kidney
- Bladder
- Cervix (women)
- Head & Neck
- Throat (windpipe)
- Leukemia
- Lung
- Stomach
- Pancreas
SOCIAL CONSEQUENCES

Smokers' Breath

Yellow Teeth

Fast-Aging Skin

Offensive Odor on Clothes, Hair, Skin

Gives off Secondhand Smoke that is a Danger to Others

Smokers' Cough

Kent III taste Experience it!
Have Tobacco Companies Ever Targeted Children?
Lesson 2: Choosing to Live Tobacco-Free

• Teens and Tobacco:
  • Why some teens use tobacco:
    • Believe smoking will control their weight or help cope with stress
    • Seem mature or independent
    • Influenced by movies, TV, ads
    • Think it is glamorous
  • Truth:
    • Reduces body’s capability for physical activity
      • Weight gain
    • Dependency on tobacco may increase stress levels

• Reduced Tobacco Use Among Teens:
  • CDC reports that 77% of HS students nationwide DO NOT smoke
  • Several factors contribute to this:
    • Tobacco legislation:
      • Advertising to young people is restricted
      • Illegal for purchase 18 years or younger
    • No-smoking policies:
      • Public places and businesses
    • Family values:
      • Teens whose parents who avoid tobacco are more likely to avoid it too
    • Positive peer pressure:
      • Healthy role models
    • Health risks:
      • Health education 😊
Choosing to Live Tobacco-Free cont.

- Benefits of Living Tobacco-Free
  - Better cardiovascular endurance and lung function
  - Able to improve your fitness level and athletic performance
  - Reduce risk of:
    - Lung cancer
    - Heart disease
    - Stroke
  - Mental/Emotional and Social Benefits:
    - Sense of freedom
    - Less stress
    - More confidence

- Strategies for Avoiding Tobacco:
  - Surround yourself with positive influences
  - Reduce peer pressure
  - Be prepared with refusal skills

- Quitting Tobacco Use:
  - What are some reasons why teens/adults might quit using tobacco?
  - Ending the Addiction Cycle
    - **Nicotine withdrawal**: the process that occurs in the body when nicotine is no longer used
      - Symptoms:
        - Irritability
        - Difficulty concentrating
        - Anxiety
        - Sleep disturbances
        - Craving for tobacco
      - Relieve symptoms:
        - **Nicotine substitutes**: Products that deliver small amounts of nicotine into the user's system while he/she is trying to give up tobacco
          - Gum
          - Patches
          - Nasal sprays
          - Inhalers
          - Smoking while using nicotine substitutes is dangerous due to increased nicotine exposure

Smoking and Stress
% of respondents who say they are “frequently” stressed.

- Current Smokers: 50
- Former Smokers: 35
- Non-smokers: 31
Choosing to Live Tobacco-Free cont.

• Getting Help to Quit Tobacco Use:
  • Prepare for the quit day
  • Get support and encouragement
  • Access professional health services
    • *Tobacco cessation program*: a course that provides info and help to people who want to stop using tobacco
  • Replace tobacco use with healthy behaviors

• What are some healthy behaviors that could replace tobacco use?
Lesson 3: Promoting a Smoke-Free Environment

- Health Risks of Tobacco Smoke:
  - Tobacco smoke can harm nonsmokers
  - *Environmental tobacco smoke (ETS):* Second hand smoke; air that has been contaminated by tobacco smoke
    - 4,000 chemical compounds
    - More than 50 of those are cancer-causing
    - Infants and young children who are exposed to ETS are more likely to develop asthma

- **Mainstream smoke:** Smoke exhaled from the lungs of a smoker
  - Lower concentration of carcinogens, nicotine and tar

- **Sidestream smoke:** The smoke from the burning end of a cigarette, pipe or cigar
  - More dangerous than mainstream smoke

*The children of smokers are more than twice as likely to smoke themselves.*
Promoting a Smoke-Free Environment cont.

• Reducing your risk:
  • What are some ways to reduce your risk of inhaling second-hand smoke?

• Creating a Smoke-Free Society:
  • According to the US Surgeon General, the only way to fully protect people from the damaging health effects of ETS is to prohibit smoking in public places.
Alcohol

• New Vocabulary
  • Ethanol
  • Fermentation
  • Depressant
  • Intoxication
  • Binge drinking
  • Alcohol poisoning
  • Psychological dependence
  • Physiological dependence

• Alcohol abuse
  • Alcoholism
  • Blood alcohol concentration (BAC)
  • Fetal Alcohol Syndrome (FAS)
  • Alcoholic
  • Recovery
  • Sobriety
Lesson 1: The health Risks of Alcohol

• Alcohol is an addictive drug
  • What do the advertisements for alcoholic beverages look like?

• Ethanol: The type of alcohol in alcoholic beverages

• Fermentation: The chemical action of yeast on sugars
  • Water, flavoring and minerals are mixed with ethanol to produce beverages such as beer and wine
  • Alcohol can be processed to create whiskey and vodka
The Health Risks of Alcohol Use cont.

**Short Term Effects:**
- **Depressant:** Drug that slows the central nervous system down
- Slows reaction time
- Impairs vision
- Diminishes judgment
- **Intoxication:** the body is poisoned by alcohol or another substance and the person’s physical/mental control is significantly reduced

**Long Term Effects:**
- Damage to brain cells
- Increase in blood pressure leading to heart attack or stroke
- Buildup of fat cells in the liver
- Damage to digestive lining of the stomach
- Destruction of the pancreas

**Factors that Influence Alcohol’s Effects:**
- **Body Size**
- **Gender**
- **Food**
- **Rate of intake:** if a person drinks alcohol faster than the liver can break it down, the person becomes intoxicated
- **Amount**
- **Medicine:** medicines can heighten the effects of alcohol
The Health Risks of Alcohol Use cont.

- Binge Drinking and Alcohol Poisoning
  - **Binge drinking:** Drinking 5 or more drinks at one sitting
    - Rapid binge drinking is sometimes done on a bet or a dare
  - **Alcohol poisoning:** Severe and potentially fatal physical reaction to an alcohol overdose
    - Involuntary actions such as breathing and gag reflex that prevents choking may be impaired
    - Effects of Alcohol Poisoning:
      - Mental confusion
      - Coma
      - Vomiting and seizures
      - Slow respiration
      - Irregular heartbeat
      - Low body temperature
      - Pale or bluish skin color
    - Even if a person is unconscious a person’s blood alcohol level can still continue to increase
Lesson 2: Choosing to Live Alcohol-Free

• Alcohol Use:
  • **Psychological dependence:**
    • Condition where a person believes that a drug is needed in order to feel good or to function normally
  • **Physiological dependence:**
    • Condition where the user has a chemical need for a drug

• Factors that Influence Alcohol Use:
  • **Peer pressure**
  • **Family**
  • **Media messages**

• Advertising Techniques:
  • Billions of dollars spent
  • Associate products with youthful, healthy people who seem to be having fun
  • Sponsor sporting events
  • Never show consumers the negative side of alcohol use
Choosing to Live Alcohol-Free cont.

• Health Risks of Alcohol Use:
  • In the US nearly 50 people/day die as a result of alcohol related traffic collisions.
  • Alcohol use is linked to deaths from drowning, fire, suicide and homicide

• Alcohol and the Law:
  • Illegal for anyone under the age of 21 to buy, possess or consume alcohol

• Alcohol and Violence:
  • Fights are more likely to break out at parties where alcohol is present

• Alcohol and Sexual Activity:
  • More likely to become sexually active at an earlier age
  • Approx 25% of sexually active teens use alcohol or drugs
Choosing to Live Alcohol-Free cont.

• Alcohol and the Family:
  • Estimated that 25% of all youth are exposed to alcohol abuse: Excessive use of alcohol
    • High risk for:
      • Neglect, abuse or social isolation
      • Economic hardship
      • Personal use of alcohol
      • Mental illness
  • Studies show that a person who begins drinking alcohol as a teen is 4x more likely to develop alcohol dependence.
    • Alcoholism: Disease in which a person has a physical or psychological dependence on drinks that contain alcohol
Choosing to Live Alcohol-Free cont.

• Alcohol and School:
  • Zero-tolerance policies

• Avoiding Alcohol:
  • It is a choice!
  • Benefits:
    • Maintaining a healthy body
    • Establishing healthy relationships
    • Avoiding risky behavior
    • Avoiding illegal activities
    • Achieving goals

• Refusing Alcohol:
  • “I don’t like the taste”
  • “I don’t drink alcohol, besides, it’s time for me to leave.”
  • Plan alcohol free activities
Lesson 3: The Impact of Alcohol Abuse

• Alcohol and Driving:
  • Drinking and Driving is very dangerous.
  • **Blood alcohol concentration (BAC):** The amount of alcohol in a person’s blood, expressed as a percentage.
    • Depends on:
      • Quantity and type of alcohol that was consumed
      • The rate of consumption
      • Body size
      • Gender
  • Any amount of alcohol in the blood can cause:
    • Slow reflexes
    • Reduced ability to judge distances and speeds
    • Increase in risk-taking behaviors
    • Reduced concentration and increased forgetfulness

• Driving while intoxicated (DWI) or driving under the influence (DUI) is illegal.
  • Adult drivers who have a BAC of 0.08 percent can be charged with drunk driving
  • **For those under 21, what is the BAC limit?**
  • Consequences include:
    • Injuries or death to the driver and others
    • Arrest, jail time, court appearances, etc...
    • Restricted driving privileges and/or immediate confiscation of driver’s license
    • Higher auto insurance rates or a canceled auto insurance policy
The Impact of Alcohol Abuse cont.

- Alcohol and Pregnancy
  - A female who drinks during pregnancy can harm her fetus
  - When a pregnant female drinks, alcohol passes directly from her body into the bloodstream of the fetus
  - A fetus processes alcohol much slower than the mother.
  - Thus there is more alcohol in the fetus’ system for a longer period of time
- Fetal alcohol syndrome (FAS)
  - A group of alcohol related birth defects that include physical and mental problems

- Effects of Fetal Alcohol Syndrome (FAS):
  - Small head and deformities of the face, hands of feet
  - Heart, liver and kidney defects
  - Vision and hearing problems
  - Central nervous system problems, developmental disabilities and poor coordination
  - Difficulties learning and short attention span
  - Hyperactivity, anxiety and
Illegal Drugs

- New Vocabulary:
  - Substance abuse
  - Illegal drugs
  - Illicit drug use
  - Overdose
  - Addiction
  - Marijuana
  - Paranoia
  - Inhalants
  - Anabolic-androgenic steroids
  - Psychoactive drugs

- Designer drugs
- Hallucinogens
- Euphoria
- Depressants
- Stimulants
- Opiates
- Drug-free school zones
- Drug watches
- Rehabilitation

You will need to find these definitions on your own!