**Effects of Drugs on the Body**

Notes: Welcome to the Health 9 Lesson: Effects of Drugs on the Body. Please click the next button to continue.

**1.2 Harmful Substances and Effects**

Notes: Any drug can be harmful to the body. The harmful effects produced by the drug can affect the body in both the short and long term.
### 1.3 Tobacco: It’s Toxic!

#### Notes:

The first substance we will discuss in this module is tobacco. The EPA categorized tobacco smoke as a carcinogenic, or cancer causing, agent back in 1992. Tobacco contains 3 main harmful substances: nicotine, tar, and carbon monoxide. Let's look at each of these substances a little more closely....

Nicotine is the addictive drug found in tobacco leaves which causes both physiological and psychological dependence for the smoker. Because nicotine is a stimulant, this means it speeds up the central nervous system, thereby increasing heart rate, blood pressure and other body systems. In addition, it contributes to the potential for heart attacks and strokes. Smokers will need more and more nicotine once they become addicted.

Along with nicotine, tobacco contains a thick, sticky substance called tar. Tar is has a devastating effect upon the lining of the respiratory system, including the destruction of cilia and alveoli. Once tar takes over in the lungs, it destroys the lung tissue itself and prevents it from functioning.

In addition, tobacco contains the poisonous, colorless and odorless gas called carbon monoxide. CM takes over oxygen and therefore, deprives body tissue of the much needed oxygenated blood. CM increases a smoker’s risk for high blood pressure, heart disease, and hardening of the arteries.
Tar (Slide Layer)

Tobacco: It's Toxic!

In 1992, the EPA classified tobacco smoke as carcinogenic, a cancer causing agent.

Both tobacco smoke as well as second-hand smoke have carcinogenic properties.

Tobacco contains three main ingredients:

- nicotine
- tar
- carbon monoxide

- A thick, sticky, dark fluid produced when tobacco burns
- When tar penetrates the respiratory system, it destroys cilia, which lines the upper respiratory system and protects against infection
- It damages alveoli, or air sacs, which take up oxygen and eliminate carbon dioxide
- Tar also destroys lung tissue which certainly destroys the lungs ability to function

Nicotine (Slide Layer)

Tobacco: It's Toxic!

In 1992, the EPA classified tobacco smoke as carcinogenic, a cancer causing agent.

Both tobacco smoke as well as second-hand smoke have carcinogenic properties.

Tobacco contains three main ingredients:

- nicotine
- tar
- carbon monoxide

- An addictive drug found in tobacco leaves
- Causes physiological and psychological dependence
- A stimulant which speeds up the CNS, heart and other body systems. It raises blood pressure & heart rate and contributes to heart disease and stroke.
- Once addicted, smokers need more and more tobacco to satisfy the craving for nicotine
1.4 Smokeless Tobacco

Smokeless Tobacco (ST)

Contains all of the same harmful substances as smoked tobacco, however it delivers 2-3 times the amount of both nicotine and carcinogens than a single cigarette!

In addition, smokeless tobacco can cause leukoplakia, an irritation of the mouth’s sensitive tissues.

Cancers of the throat, larynx, esophagus, stomach and pancreas are more common in smokeless tobacco users.

Notes: Smokeless tobacco(ST) contains all of the harmful substances as smoked tobacco, however it can be even more potent. ST delivers 2-3 times the amount of nicotine and carcinogens as a single cigarette. ST can also cause leukoplakia, which is an irritation of the mouth's tissues. Cancer of the throat, larynx, esophagus, stomach and pancreas are more common in ST users.
1.5 Effects of Tobacco Use

Notes:

The short term effects of tobacco use are pretty apparent: dependence on nicotine, increased breathing and heart rate, dulled taste buds, bad breath, smelly hair, clothes and skin.

Long term effects of tobacco use are chronic bronchitis, emphysema, lung cancer, stroke and coronary heart disease.

Short Term (Slide Layer)
1.6 Alcohol and the Body

Notes: Interactions between medications and alcohol can lead to illness, injury, and even death. The presence of both alcohol and medication or another drug within a person's body can be very dangerous.
1.7 Factors That Influence the Effects of Alcohol

**Factors That Influence the Effects of Alcohol**

**Body size and gender**
A small person feels the effect of the same amount of alcohol faster than a large person does. In general, alcohol moves into the bloodstream faster in females.

**Food**
Food in the stomach slows down the passage of alcohol into the bloodstream.

**Amount and rate of intake**
As the amount of alcohol consumed increases, the level of alcohol in the bloodstream also rises.

**Notes:** Factors that influence the effects of alcohol are body size, gender, food in the stomach, and amount and rate of intake.

1.8 Short-Term Effects of Alcohol

**Short-Term Effects of Alcohol**
Physical and mental impairment begin with the first drink of alcohol and increase as more alcohol is consumed.

**Notes:** Physical and mental impairment begin with the 1st drink. Please take some time to review the chart.
1.9 Driving Under the Influence

**Blood Alcohol Concentration**
- A person is said to be intoxicated when his or her blood alcohol concentration (BAC) exceeds the state's legal limit.
- In most states, driving while intoxicated is defined as having a 0.1 percent BAC, although in some states the figure is 0.08.
- Remember that for anyone under 21, there is no acceptable BAC percentage.

**Notes:** What is Blood Alcohol Concentration? It is when your alcohol level exceeds the state limit which in VA is .08.

1.10 Binge Drinking

**What is Binge Drinking?**

Recent studies show that binge drinking is a serious problem among young people.

Rapid binge drinking (sometimes done on a bet or dare) is especially dangerous because it is possible to consume a fatal dose of alcohol.

Binge drinking can cause alcohol poisoning.

**Notes:** Did you know that binge drinking can be fatal or cause alcohol poisoning?
1.11 Alcohol Poisoning

Notes: There are many dangers of over-intake of alcohol, it can shut down or stop involuntary actions which can be fatal.

1.12 Dangers of Over-Intake

Notes: It is very dangerous and can be deadly to drink a large amount of alcohol. Alcohol poisoning is a severe and potentially fatal physical reaction to an alcohol overdose. Symptoms that indicate alcohol poisoning include: mental confusion, stupor, coma, and pale or bluish skin color. If someone displays the symptoms of alcohol poisoning, do not leave them alone and call 911.
1.13 Effects of Alcohol Poisoning

**Effects of Alcohol Poisoning**

Passing out is a common effect of drinking too much alcohol.

Alcohol in the stomach and intestines continues to enter the bloodstream, and blood alcohol concentration continues to rise.

For this reason, it's dangerous to assume that a person who has consumed a lot of alcohol will be fine if left to "sleep it off".

**Notes:** Passing out is a common effect of drinking too much alcohol.

Alcohol in the stomach and intestines continues to enter the bloodstream, and blood alcohol concentration continues to rise.

For this reason, it's dangerous to assume that a person who has consumed a lot of alcohol will be fine if left to "sleep it off".

1.14 Call 911

**Call 911**

A person who exhibits signs of alcohol poisoning or has passed out may die if left untreated. If you suspect that a person has alcohol poisoning, call 911 immediately.

**Notes:** A person who exhibits signs of alcohol poisoning or has passed out may die if left untreated. If you suspect that a person has alcohol poisoning, call 911 immediately.
1.15 Alcohol and Drug Interactions

**Alcohol and Drug Interactions**

Alcohol combined with medicines or other drugs can result in the multiplier effect.

The multiplier effect is when the medication has a greater or different effect than if it were taken alone.

Both prescription and over-the-counter medicines can alter the ways in which alcohol affects the body.

Medicine labels contain warnings against combining alcohol and medication (over the counter and/or prescription).

**Notes:** When alcohol is combined with medicines or other drugs, the multiplier effect can occur. The multiplier effect is when the medication has a greater or different effect than if it were taken alone. Do not combine drugs and alcohol.

1.16 Alcohol and Metabolism

**Alcohol and Metabolism**

Alcohol may slow down a drug’s absorption by the body.

Drinking may increase the number of metabolizing enzymes in the body.

Metabolizing enzymes can alter some medications into chemicals that damage the liver and other organs.

Alcohol can increase the effects of some drugs.

**Notes:** When a drug enters the body, it travels through the bloodstream to its target organ or tissue. Over time, the body metabolizes the drug. Metabolism is the process by which the body breaks down substances.
1.17 Effects of Marijuana

**Effects of Marijuana**

All forms of marijuana are mind Altering and can be Addicting.

Studies have shown than an individual who uses marijuana is 17 times more likely to use cocaine than one who has never used marijuana.

When combined with other drugs and substances, such as alcohol, marijuana can be deadly.

**Notes:** Marijuana, the common name for the Indian hemp plant cannabis, is a plant whose leaves, buds, and flowers are usually smoked for their intoxicating effects. It is one of the most widely used illegal drugs. It is often the first drug teens experiment with after alcohol.

1.18 Marijuana and Addiction

**Marijuana and Addiction**

Marijuana raises levels of a brain chemical called dopamine
- Dopamine is a chemical in the brain that produces a pleasurable feeling
- The pleasure sensation stops abruptly and is referred to as a "crash"

Marijuana contains more cancer-causing chemicals than tobacco smoke

Marijuana affects the immune system, making it weaker and susceptible to infections

**Notes:** As with other mood-altering drugs, marijuana raises levels of a brain chemical called dopamine.

This chemical produces a pleasurable feeling. Marijuana contains more cancer causing chemicals than tobacco smoke and carries the same health risks as smoking tobacco.
1.19 Health Risks of Marijuana

Notes: Many of the physical effects of marijuana use are summarized in the figure shown above.

1.20 Mental and Emotional Health Effects of Marijuana Use

Notes: Marijuana has many mental and emotional health consequences. Marijuana users may experience slow mental reflexes and may suffer feelings of anxiety and paranoia. Users often experience distorted perception, loss of coordination, and trouble with thinking and problem solving.
1.21 Physical Consequences of Marijuana Use

**Physical Consequences of Marijuana Use**

Marijuana use in teens affects the reproductive system.

In males, sperm production and the level of testosterone is reduced.

In females, testosterone is increased, resulting in unwanted facial hair and possible infertility.

**Notes:** For teens, marijuana poses physical risks to the reproductive organs. Avoiding marijuana and other illicit drug use shows that you understand the impact of personal health behaviors on body systems.

1.22 Inhalants and the Body

**Inhalants and the Body**

Inhalants are substances whose fumes are sniffed and inhaled to achieve a mind-altering effect.

Inhalants travel immediately to the brain causing damage and killing brain cells that will never be replaced.

Examples of inhalants include:
- solvents and aerosols such as glues, spray paints, gasoline, and varnishes
- nitrates and nitrous oxides

**Notes:** Inhalants are breathable chemical vapors that users intentionally inhale because of the chemicals’ mind-altering effect. Most inhalants go immediately to the brain, causing damage and actually killing brain cells that will never be replaced. Examples of inhalants include spray paint, gasoline, and common household items such as hair spray, nail polish remover, and lighter fluid.
1.23 Health Risks of Inhalants

**Health Risks of Inhalants**

- Inhalants depress the CNS (central nervous system)
- Inhalants produce effects such as a glassy stare, slurred speech, and impaired judgment
- Huffing or inhaling the fumes from aerosol cans, can cause sudden death by increasing the heart rate resulting in cardiac arrest or it can cause death by suffocation

**Notes:** Inhalants produce effects similar to those of anesthesia. They slow down the body, produce a numbing feeling and can cause unconsciousness. Prolonged abuse can permanently affect thinking, movement, vision, and hearing.

1.24 Anabolic-Androgenic Steroids

**Anabolic-Androgenic Steroids**

- Anabolic-androgenic steroids are synthetic substances that are similar to the male sex hormone testosterone.
  - Anabolic refers to muscle building
  - Androgenic refers to increased male characteristics
- Steroid use can cause mood swings, impaired judgment, and paranoia.

**Notes:** Most anabolic steroids are synthetic substances similar to the male sex hormone testosterone. They are taken orally or are injected. Major effects of steroid abuse can include liver damage, high blood pressure, and increase in "bad" cholesterol.
1.25 Legal and Social Consequences of Steroid Use

Legal and Social Consequences of Steroid Use

All steroid use other than prescribed by a licensed physician is illegal and dangerous.

Steroid use often turns to other illegal, addictive drug use to combat the side effects of the steroids.

In addition to health risks, athletes who fail a drug test for steroids can face exclusion from an event, expulsion from the team, monetary fines, and jail time.

Notes: Ever wonder how those bulky weight lifters got so big? While some have gotten their muscles through a strict regimen of weight lifting and diet, others may have gotten that way through illegal use of anabolic steroids. Doctors never prescribe anabolic steroids to young, healthy people to help them build muscles. Without a prescription from a doctor, anabolic steroids are illegal.