

Drug Busters – Drugs, Alcohol, and the Brain

Week 1 Facts – Grade 8

Day 1

1. The chemicals and ingredients in tobacco products, alcohol, marijuana, cocaine, heroin, inhalants, LSD, and ecstasy interact in the brain to establish a process called addiction.*
2. The process of addiction is much faster to develop in a teen than in an adult. Particular sets of brain circuits involved in the development of addictions are the same ones that are rapidly undergoing change during adolescence. Because of these developmental changes, addiction may occur more rapidly and with more permanence. Research has shown teen addictions develop in between 6 to 18 months. For an adult, the process occurs in from 5 to 15 years.*
3. If someone does not begin drinking until after age 21, it is extremely unlikely they will ever develop an unhealthy drinking pattern.* In a recent survey (2000), 42% of 9th grade students reported drinking alcohol at least once before the age of 13.
4. Drug/alcohol dependence (addiction) may be thought of as a disease that is often progressive and fatal. It can lead to overdose, vital organ destruction (brain, liver, kidneys) and contribute to motor vehicle crashes and other accidents.*
5. Drug/alcohol abuse may also cause other negative consequences. Some of these are: family problems, very poor social relationships, child abuse, arrests and problems in the legal system, poor functioning at school or work, financial problems, and impaired ability to think and reason effectively.* Alcohol is a factor in the four leading causes of death among persons ages 10 to 24: (1) motor-vehicle crashes, (2) unintentional injuries, (3) homicide, and (4) suicide. In 1999, 21% of 15 to 20 year old drivers who were killed in crashes were intoxicated.

Day 2

1. Major brain differences between addicted and non-addicted individuals have been identified. The continued use of drugs can actually change the way the brain works. This change can be seen in the brain using MRI and brain scans. Once this physical change in the brain occurs, it is not possible to go back to the way the brain was originally formed. Scientists are working to develop medications that will reverse this process and hopefully help unlock the hold of an addiction and prevent relapse (going back to drugs/alcohol) from occurring.* Adolescent alcohol abuse and dependence may prove to be more damaging than alcoholism in adulthood by killing brain cells in the hippocampus, blocking brain receptors that form memories and causing long-term neurological impairments.
2. People abuse drugs because they turn on the pleasure center of the brain. Drugs do this by altering the normal processes of the brain. This changes personalities, responses, reactions, and lives.*
3. The brain can be divided into several large regions: (1) cerebral cortex which handles conscious thinking and feeling (see, hear, smell, taste, touch, move, speak, understand) (2) cerebellum which controls balance and muscle coordination (3) brain stem which connects to the spinal column (nervous system) and controls breathing, digestion, heart rate, blood pressure, being awake and alert. At the upper end of the brain stem is a group of brain structures called the limbic system (includes the hippocampus) which allows us to connect the outside world with our emotions, motivations, perceptions, and actions. Drugs impact the brain and eliminate the most human part (limbic system) from its role in controlling our behavior.*
4. Combining drugs with alcohol or other drugs may lead to increases in reactions and effects. This effect of combined drug usage is dangerous because drug interactions in the body are complex. It is very dangerous to combine different drugs (even prescription drugs without a doctor's OK).* In 2002, non-medical use of Vicodin was reported by 9.6% of 12th graders.

5. Addiction is psychological or physical changes that occur with repeated intake of substances and which lead to a chronic relapsing illness characterized by compulsive drug seeking and use. It is characterized by loss of control, spending a lot of time thinking about the substance, continued use despite negative consequences and a loss of voluntary control.

Day 3

1. Tobacco contains nicotine. Nicotine is a drug. When people smoke or chew tobacco, they are using a drug. It is one of the most addictive substances.*
2. Nicotine affects the nervous system. In the brain, limbic pathways are affected. Circulation is impaired.
3. When people attempt to stop smoking, they suffer anxiety, depression, headaches, and fatigue. They need help and support as they attempt to break the addiction.* In a recent survey,
4. The most preventable cause of death in the U.S. is smoking. Smoking is responsible for close to 420,000 deaths each year.*
5. Exercising and participating in sports are more difficult if you smoke.
6. The effects of second hand smoke on the health of other people is an important consideration; smoking does endanger the health of other people.
7. Nicotine reaches the brain in 8 seconds when smoking. When tobacco is chewed it takes from 3-5 minutes to reach the central nervous system.

Day 4

1. Chronic alcohol use can damage the frontal lobe of the brain, reduce the overall size of the brain, cause a vitamin deficiency. Alcohol blocks the messages going to the brain and alters perceptions, emotions, vision, hearing, and coordination.* Due to heavy binge drinking, nearly one out of every five teenagers has experienced “black outs” after which they could not remember what happened the previous night.
2. Every time the mother drinks, her unborn child gets the same dose of alcohol within minutes after the drink is consumed. Alcohol disrupts normal brain development in babies; even moderate drinking by the mother may lower the child’s I.Q.*
3. Babies with Fetal Alcohol Syndrome have smaller heads and brains, some degree of mental retardation, poor coordination, hyperactivity, abnormal facial features, and other birth defects.*
4. If you know someone with a drinking problem, talk to the person and urge them to seek help. One source of help is a group called Alcoholics Anonymous. Teens can get help and support through Alateen and Al-Anon organizations. The Texas Commission on Alcohol and Drug Abuse may be called for help also. The toll-free hotline is (800)832-9623.*
5. Alcohol is the world’s oldest known drug since it has been produced for thousands of years. Alcohol is the #1 substance used by 8th, 10th, and 12th graders.
6. Alcohol is a central nervous system depressant which acts on the spinal cord, cerebellum, and cerebral cortex, and other brain systems.
7. When someone tries to stop drinking after becoming addicted, they suffer shaking, sleep problems, nausea, hallucinations, and seizures.

Day 5

1. Talking to the child about drugs and alcohol and setting a family standard regarding drug and alcohol use will help to prevent problems.*
2. Helping children set realistic and yet high goals for academics, social areas, and athletics will protect the child from involvement in less beneficial activities.*

3. Listening and showing care and respect produces a climate in the home, the school and the community that promotes high achievement and success. The impact of this type of behavior is tremendous.*
4. Making rules at home clear and fair with enforced consequences will help protect the child from drug/alcohol problems.
5. Talking with children about their lives and what they feel will help to ensure that children pursue positive activities.
6. Encouraging and helping a child develop responsible friendships will help the child engage in productive activities and behaviors.

DFW Community Newspapers.

Middle School Health Education Curriculum, Grade 8. Plano Independent School District.

Search Institute. "40 Developmental Assets."

The Addicted Brain. Catherine Christie and Susan Mitchell.

Summary of Findings from the 1999 National Household Survey on Drug Abuse, US Department of Health and Human Services, August 2000

Kann, L., et al. (2000). Youth Risk Behavior Surveillance – United States, 1999. Morbidity and Mortality Weekly Report, vol. 49 (SS05): 1-96

Traffic Safety Facts, 1999, National Highway Traffic Safety Administration