



LIVER HEALTH EDUCATION CURRICULUM

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OBJECTIVES FOR PRESENTATION:

1. Describe the liver

CONTENT

The liver is about the size of a football, weighing 3 pounds in an adult. The liver has two major lobes, the right lobe and the left lobe. The hepatic artery supplies the liver with oxygen and other essential elements. The hepatic portal vein delivers nutrient rich blood from the small intestine to the liver. The hepatic vein carries toxins out of the liver. It is comprised of trillions of microscopic liver cells that perform over 200 complex chemical functions 24/7 essential to one's health and life itself. It's a silent, non-complaining organ that often shows little or no warning signs of trouble until the liver is severely damaged.

2. Identify important functions of the liver

The food you eat is the fuel your liver needs to jump start hundreds of body functions. Food travels from the stomach, to the small intestine where bile is added, allowing the nutrients to be transported via bile ducts to the liver for processing.

As the body's internal chemical power plant and food processor, the liver refines and detoxifies food and drugs ingested, and chemicals inhaled and absorbed through the skin. Bile enhances digestion and rids the body of toxins, excreting them via bile ducts to the intestinal tract.

The liver:

- a. Stores energy
- b. Produces and excretes cholesterol controlling the buildup of plaque in blood vessels.
- c. Makes bile to aide digestion
 - breaks up fats so the small intestine can absorb vitamins and minerals from fatty foods essential to the body for developing strong bones and muscles.
 - Filters and excretes toxins from food, alcohol, drugs, and environmental pollutants via the hepatic vein
 - Cleanses blood of bacteria
- d. Makes immune factors to protect the body from infectious germs and viruses
- e. Makes hormones essential to innumerable body functions
- f. Makes amino acids from protein in foods to build muscles.
- g. Creates clotting factors to control bleeding.

3. Identify risk behaviors detrimental to a healthy liver.

- a. Misuse and overuse of alcohol and drugs
- b. Combining drugs and alcohol
- c. Using and sharing contaminated paraphernalia for snorting or injection drug use
- d. Exposure to blood borne pathogens through sharing needles, sharps, toothbrushes and razors.
- e. Having unprotected sex.
- f. Eating excess fats and sugary foods and drinks
- g. Breathing in smoke, fumes, disinfectants and aerosol sprays.
- h. Getting insect repellants and other chemicals on exposed skin
- i. Being too lazy to exercise daily

4. Discuss ways to motivate individuals to avoid liver damaging activities.

Effective use of memorable analogies that individuals can relate to in their daily lives. Describing specific body functions that depend on a healthy liver, empowers individuals to understand the critical role the liver plays 24/7 in sustaining their health, well-being and life itself. Memorable analogies encourage them to retain and act on what they have learned.

5. Identify causes and effects of liver damage on numerous body functions.

Drugs, alcohol, viruses, environmental pollutants, and excess fats can cause liver cells to die and be replaced with scar tissue called *cirrhosis*.

- Continued assault causes zillions of dead liver cells (cirrhosis) to spread throughout the entire liver. The combination of the cirrhosis and regeneration of new liver cells between the scar tissue, causes the liver to become hard and lumpy.
- This causes a blockage of the blood containing the vital life sustaining nutrients transported from the intestines to be processed by liver cells. Due to this pressure varicose veins form in the stomach and intestines.
- As the pressure builds up and without any warning the varicose veins can rupture causing a life threatening hemorrhage.

6. Warnings of potential liver problems.

For the most part, there are few if any early warning signs of liver problems.

- With a diminished number of healthy liver cells, the first sign of trouble may be fatigue and/or symptoms similar to the flu.
- Female waist measure of more than 35 inches, and male waist measure of more than 40 inches may indicate that fat is being accumulated in the liver that can lead to cirrhosis.
- Additional signs may occur as cirrhosis advances including a distended belly, jaundice and mental confusion.
- Diminished efficacy of therapeutic medications for other infections due to a damaged liver that cannot process medications properly.

7. Lifestyle decisions essential to supporting liver functions and life itself.

- Food choices can influence future liver related health problems such as fatty liver, diabetes, atherosclerosis, high cholesterol and heart attacks beginning in infancy.
- Limiting intake of sugary drinks and excess fatty foods will help avoid liver related diseases.
- Limiting alcoholic beverages to 1 drink a day for women, and 2 drinks a day for men will protect liver cells.
- Exercising daily promotes good circulation and general wellness.
- Protecting mucus membranes (in eyes, nose, genitals, and anus) from STDs including hepatitis by always using protection when having more than one sex partner.

- Preventing inhalation of toxic fumes and aerosol sprays by having proper ventilation and/or wearing a mask.
- Protecting the skin from breaks, cuts, or needle pokes.
- Taking medications as prescribed or indicated on labels of OTC drugs to avoid toxic combinations which can cause liver damage.

Note:

Because liver function tests are not routinely administered, it is important to request periodic liver screenings for potential problems. This is essential for individuals who are taking multiple medications, who drink alcohol on a regular basis, who are obese, or who may be exposed to environmental pollutants. These may include hairspray, paint thinners, disinfectants, cleaners, exhaust fumes, etc.



Script of Analogies To Describe Liver Functions

1. Energy You wouldn't have been able to get out of bed this morning if it hadn't been for your liver feeding you back some of the energy it stored from the meal you ate last night. You'd be limp as a puppet.

2. Cholesterol Did you know it is the liver that controls the production and excretion of cholesterol? By controlling the development of cholesterol there would be less risk for cardiovascular diseases and heart attacks .

 Bad Cholesterol (LDL)
 - Build-up of plaque in blood vessels begins with poor food choices, starting from day one. Plaque can clog blood vessels, increasing the probability of midlife heart attacks.Good Cholesterol (HDL)
 - HDL carries LDL cholesterol away from the arteries and back to the liver, where it is broken down and passed from the body. A healthy level of HDL cholesterol may also protect against heart attack and stroke, while low levels of HDL cholesterol have been shown to increase the risk of heart disease.

3. Clotting Factors If you gentlemen cut yourself shaving, and nicked your chin, you would be mopping up your chin all day if it weren't for your liver making clotting factors necessary to stop the bleeding.

4. Digestion You wouldn't have been able to digest your food properly if liver cells were not producing bile, that nasty tasting green stuff. Bile has two major jobs:
 - Bile acts as a detergent, breaking up fats ingested to enable them to be absorbed by the small intestine, transported to the liver, where they are metabolized, processed, and made available to support bone health, muscle development, etc.
 - Bile removes the toxins in drugs, pollutants, alcohol, etc and passes them through bile ducts to the intestines for excretion.

5. Immune Factors Remember when you had the chicken pox, and itched and scratched all day long? If it weren't for the liver making immune factors you might have gotten chicken pox over and over again, and been a sitting duck for every germ that surrounds you.
6. Hormones Liver cells help regulate the balance of sex hormones, thyroid hormones, cortisol and other adrenal hormones which are all essential for proper bodily function.
7. Muscle Development Proteins ingested are converted into amino acids that help build and maintain healthy muscles.

Comment:

** Tell Apple Energy Story here.



Tips for Analogies

The Liver is Your Body's Engine

Where is the engine in your car? --- under a hood to protect it

Where is your engine? --- under your ribs (on the right side) to protect it

What do your parents put in the car's engine to make it go? --- gasoline

What do you put in your engine to make you go? --- milk, juice, etc.

What if you put alcohol or sodas in your engine? --- it would go "put put" and stop working.

Ants on windowsill

Some ants had invaded my kitchen running across the windowsill. Not having any bug spray I used a mosquito repellent. It killed the ants, however, when I wiped the window sill off with a paper towel, it took the paint off.

Powerful chemicals in sprays of any kind can be inhaled and/or enter your body through your skin. Wear protection and wash off any chemicals as soon as possible.

A E I O U vowels

Confused about Hepatitis A, B, C, D, and E?

Remember learning that A E I O and U are vowels.

Hepatitis A and E (vowels) are found in the bowels.

Hepatitis B, C and D are found in blood.

Sleeping bag - poke a hole in it

If you poke a hole in your sleeping bag, it lets the dampness and water inside.

Poking holes in your skin for a tattoo or body piercing allows viruses and germs inside your body. Once there, they travel through a network of blood vessels to your liver where they can cause life threatening infections from hepatitis B or C.

Fasten seat belt

A three year old reminded her grandma to fasten her seatbelt in the car.

Grandma's response was "Love Your Liver". If young children can learn to fasten their seat belt they can learn about liver health that can help prevent major health issues in years ahead.

Bacon grease in car instead of gas

Would you ever think of putting bacon grease in your car. It would muck your engine big time. But you think nothing of putting French fries, greasy burgers, and pizza in *your* engine, your miraculous liver, and expect it to work for you non-stop. Fatty liver diseases affecting an estimated 50% of Americans will soon be the number one reason for needing a liver transplant

Seattle Boy with HBV

A distraught Dad called to ask how hepatitis B was transmitted. His 13 year old son was on the wrestling team and had just been diagnosed with Hepatitis B that had advanced to cancer of his liver. Unaware of any prior signs or symptoms, the family was devastated. His son's Mom was Asian and unaware that she was an HBV carrier. The disease had been transmitted to her son in blood at time of delivery and tragically he was not immunized at birth against hepatitis B.

Two pills are good - 4 pills are better

Have a headache? Find yourself saying, "Two pills are good, four pills would be better"? Doubling up on any medication may cause liver damage.

Drugs and Good Grades

College kids are popping Adderall to improve academic performance; acetaminophen for their hangovers; and binging on alcohol to relieve the stress. The combination of these toxins can cause serious liver damage and potential death due to overdosing.

Honda- Regular Gas. High octane- More expensive

Hondas are built to run on regular gas. If you use high octane gas, you pay more causing expensive exhaust fumes –Taking excess vitamins and protein supplements are expensive, not needed by the liver and dispend with through your exhaust system.

Avocado Grove HBV Malathion spray

A gentleman in my audience commented that he had chronic hepatitis B for many years. It was only when he sprayed his avocado trees with Malathion that he became jaundiced. He did not realize that he had breathed in the Malathion and had absorbed the chemicals in the spray it through his skin causing further damage to his liver.

President Carter's aide

President Carter's aide, an Italian who regularly had wine with dinner, came down with the flu. He kept popping in Tylenol pills more frequently than recommended and woke up in the hospital after he had a liver transplant. He had lapsed into a coma and would have died had they not found a liver in time.

Marijuana

A caller on our hotline reported having hepatitis and asked if smoking marijuana would hurt him. I reminded him that he had a sick liver. If you had the flu would you like someone to come in and pound on you? Toxins in marijuana are processed through your ailing liver. UGH!

Steroids

Giant Football Players knew that steroids cause their muscles to expand. What they didn't know was that they caused their testicles to shrink.

Snorting Coke

Your skin is your first line of defense; mucous membranes are the lining of your body attached at your eyes, nose, mouth and genitals. When these membranes are exposed to viruses through sex, kissing, or snorting cocaine (passing the straw from one infected nostril to another) they travel to your liver causing it to be infected.