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What does the Liver do for you- how can you prevent liver failure?

Transcript:
Yes, that is what we are going to talk about today.
There are three organs in your body that can just fail to function- they are the heart, the kidneys, and the liver. These are the main organs that fail to function when you suffer from most chronic diseases towards the terminal stages. Then, you call it organ failure

The liver is the largest organ in the human body. It increases with age until about 15 years of age. The size depends on the age, sex, body size and shape. The mean liver size is 7 cm for women and 10.5 cm for men. The liver weighs from 1200 to 1400 g in the adult woman and 1400 to 1500 h in the adult man.

Before we discuss how your liver can fail in its functions, lets talk about what the liver does for you.

No doubt, liver is a factory or a work horse you never give the care and the respect it deserves. It does not rest right through your life but works day and night for you, just like your heart, kidneys, among others.

The main functions of the liver are:
The liver breaks down your food for you to provide energy. In other words, it metabolizes proteins, carbohydrates, and fats.
It stores glycogen, vitamins, and other substances.
Synthesizes blood clotting factors.
Fights and eliminates infections,
Prevent toxic chemicals entering your body.
Regulates blood volume and destroys old red blood cells.
Makes bile which helps carry away waste and breakdown of fats in the small gut.
Makes certain proteins for blood plasma. Makes cholesterol and special proteins to help carry fats through the body called
lipoproteins.
Let us talk about the bile that your liver producers.
The liver makes bile. It is a digestive juice which helps to absorb fat, including recycled cholesterol, into the blood stream.

Bile that is released from the liver is stored in the gall bladder, and when you eat fatty foods, it is released from the gall bladder, enters through the bile duct into the small bowel.

Bile breaks down dietary fats into fatty acids and is absorbed into your body.
Fats in your meal are broken down in the mouth through lipase in your mouth called lingula lipase.
Lipase from the pancreas and bile from the liver enables the breakdown of fats into fatty acids.

Let us talk about the dietary proteins and how the liver uses it
Amino acids formed from dietary proteins in the gut, are absorbed and transported into the liver in the portal veins. They are taken by the hepatocytes -i.e. hepatic cells.
The liver is composed full of hepatic cells. You may call them the machinery in the factory working day and night.
The liver makes proteins out of the amino acids, derived from the dietary protein breakdown in the gut, and the excess is converted or broken down to produce glucose.
So, eating too much of proteins in your diet also produce glucose in the liver and stored as glycogen.
Formation of glucose in the liver is called Gluconeogenesis.
The carbs you eat are broken down into monosaccharide glucose in your small gut. They are absorbed through the portal veins and transported to the liver.
Excess glucose in the blood stream is taken up by the liver and stored as glycogen. Glycogen is mainly stored in the liver and the muscles and provides the body with a readily available source of energy if blood glucose level decreases.
When the blood sugar level drops, the liver breaks down glycogen into glucose and exports it to the body tissues.
At night, while we are asleep, the liver releases glucose into the blood stream. The liver acts as glucose warehouse and keeps us supplied until we eat breakfast.
Those diabetics on metformin prevents this conversion of glycogen into glucose, thereby reducing the blood glucose level.
So, if you get lost in the jungle, liver comes to play and produce glucose from glycogen stores in your liver. What marvelous work the liver can do for your survival, without food.
When the liver glycogen reserves become exhausted, the liver synthesizes glucose from other sources like fat and proteins.
Unlike fats and sugars, the liver cannot store amino acids from the proteins in your food. Amino acid breakdown in the liver produces an amine group (NH_2) which cannot be used by the body and is potentially toxic.
The liver removes such amino groups by converting them to harmless products. This process in the liver is called ‘detoxification’.
So, the liver is the major site for converting excess carbs and proteins you consume into fatty acids and triglycerides.
These fatty acids and triglycerides are stored in fat cells as triglycerides.
Liver also synthesizes phospholipids and cholesterol.
Phospholipids are crucial for building the protective barrier around your body cells.
Cholesterol is a fat and cannot be transported in the blood which is water soluble. Mixing a fat and water-soluble substance forms a lotion. Such a lotion can cause fat embolism and lead to death. So, the liver is smart to produce a molecule called phospholipid to cover fats and then transported in the blood stream, like a water-soluble chemical.
Now you know why bad cholesterol is called LDL- stands for low density lipoprotein and good cholesterol as HDL.
Cholesterol in your blood comes from two sources: the food you eat and your liver.
So, now you realize the important part the liver plays in your life. You need to consume the right foods in moderate quantities if you want to keep the liver functioning efficiently.
If the liver is damaged, it means that it is not able to work as well.

If the liver is unable to do its job properly, it can be a life-threatening situation.
One of the functions of the liver is to manufacture cholesterol and breakdown cholesterol. If the liver is not working properly, it can cause cholesterol to build up and result in heart disease.
A diet can create fat around the liver if it is high in cholesterol. This can lead to a non-alcoholic fatty liver disease (NAFLD).
Fatty liver can increase the risk of health problems, such as stroke and diabetes.
So, it is important to reduce the amount of fat and added sugar in food to prevent liver disease.
Diet can help to cut the risk of developing liver disease.
If you have alcohol-related liver disease you need to cut down on your consumption of alcohol.
Early stages of liver disease can be felt as pain in the upper part of the abdomen, on the right side.
According to the American Liver Foundation, at least 30 million people, or 1 in 10 Americans, have some form of liver disease.
In advanced liver disease in addition to the pain you may get fever
dark urine
pale, bloody, or tar-colored stools
nausea and vomiting
weight loss
yellowish skin
severe tenderness when touching the abdomen
swelling in the abdomen or in the legs and ankles
itchy skin
chronic fatigue
loss of appetite
If you have any of the above symptoms you need to see your doctor for blood test for liver function.
When your liver gets damaged it swells first. Then fibrous tissue or scar tissue is formed between hepatic cells. When the scarring is permanent the liver becomes solid and you refer to this scarring as cirrhosis.
In such a situation you disturb the normal functions of the liver described earlier and the liver goes into failure which would be life threatening.
At this stage, your eyes and skin may look yellowish- referred to as jaundice. You could lose your appetite, legs and ankles and your belly starts swelling. You may get severe upper abdominal pain.
Obesity
With increased weight will also raise the rates o liver disease. You may be having non-alcoholic fatty liver disease when fat builds up in your liver. Unless you change your lifestyle and lose weight you may lead to cirrhosis and other problems.