## LIVER DISEASES

### Hepatitis

**What does the liver do?**
- **Metabolic Function:** Metabolism of Carbohydrates, Protein, Fats, Vitamins & Minerals.
- **Storage Functions:** Glycogen, amino acid, iron, folic acid, vitamin A, B₁₂ & D.
- **Synthesis:** Glucose by gluconeogenesis, plasma protein and other proteins like clotting factors, hormone binding proteins, steroids, somatomedin & heparin.

**What causes liver damage?**
- **Dietary Deficiencies:** Fatty liver, high proportion of fat in metabolic mixture in starvation, and uncontrolled diabetes.

### Fatty Liver Disease & Cirrhosis

**What does the liver do?**
- **Excretory Function:** Excretes cholesterol, bile pigments, heavy metals (like lead, arsenic, bismuth), toxins, bacteria and virus.
- **Secretion of Bile:** Secretes bile (bile salts, bile pigments, cholesterol, fatty acids and lecithin) which helps in digestion & absorption of fats.
- **Hematopoietic & Haimolytic Function:** Liver produces blood cells in fetus. It stores Vit B₁₂ & iron necessary for erythropoiesis. The senile RBC are destroyed by Kupffer cells of liver after 120 days.

**What causes liver damage?**
- **Toxic Agents:** Excessive alcohol consumption, drugs like paracetamol, tolbutamide, etc. and industrial chemicals like arsenic, carbon tetra chloride.

### Liver Cancer (Hepatocellular Carcinoma)

**What does the liver do?**
- **Inactivation of Hormones & Drugs:** Liver catabolizes growth hormones, parathormone, cortisol, insulin, glucagon & estrogen. It also inactivates fat soluble drugs (converts into water soluble substances which are excreted through urine or bile).

**What causes liver damage?**
- **Infective Agents:** Hepatitis A Virus, Hepatitis B Virus, poor personal hygiene.

### Hemochromatosis & Wilson’s Disease

**What does the liver do?**

**What causes liver damage?**

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According to the WHO data (2018), liver disease deaths in India reached 264,193 or 3% of total deaths. The age-adjusted death rate is 23 per 100,000 of population. India ranks 62 in the world.

https://www.fattyliverfoundation.org

https://www.hopkinsmedicine.org

https://medlineplus.gov

https://liverfoundation.org
HOW DOES YOUR BODY SHOW SIGNS OF LIVER DAMAGE?

- Abdominal pain
- Jaundice
- Pale-colored stool
- Nosebleed
- Fatigue
- High fever
- Unexplained weight loss
- Loss of appetite
- Dark urine

NUTRITION ASSESSMENT

- Serial monitoring of body weight and anthropometry
- Dietary intake
- Subjective Global Assessment
- Laboratory tests for nutritional deficiencies such as vitamins, magnesium, iron and others

SUBJECTIVE GLOBAL ASSESSMENT (SGA)

- HISTORY: changes in dietary intake, gastrointestinal and other symptoms that impair food intake/absorption
- FUNCTIONAL CAPACITY: potential stress of disease and/or cachexia. Changes in weight over past 6 months. Trajectory of recent change
- PHYSICAL: loss of subcutaneous fat: triceps, chest, trunk
- MUSCLE WASTING: deltoids, quadriceps, biceps
- EDEMA: ankle, sacral, ascites; clarifies potential cause of weight changes

NUTRITION FOCUSED PHYSICAL EXAMINATION (NFPE)

- Muscle or grip strength
  Phase angle (measured by bioelectrical impedance analysis) or handgrip strength allow assessment of mortality risk
- Appearance and feeling of different body parts, including the arms, legs, chest, back and face
- Signs of fluid retention or dehydration*
- Scalp, hair, mouth, skin and nail health

*The accurate quantitative measurement of nutritional status is difficult in chronic liver disease patients with fluid overload and/or impaired hepatic protein synthesis

FOOD FOR HEALTHY LIVER

- Choose fresh, local and seasonal vegetables and fruits.
- Whole grains preferred to refined and processed cereals.
- Lean meat, poultry without skin and fresh water fish preferred to red meat and organ meats.
- Avoid full fat milk.
- Prefer fish containing omega-3 fatty acids (e.g. salmon, trout and herring).
- Replace saturated fat and trans fats with monounsaturated and polyunsaturated fats.
- Reduce trans fats (baked foods, fried foods) by avoiding foods with partially hydrogenated vegetable oils.
- Avoid excessive use of condiments and spices.
- Avoid or restrict the intake of beverages and foods with added sugars.

CARE FOR YOUR LIVER

- Eat a healthy diet and get regular exercise to keep your weight under control and to prevent Non Alcoholic Fatty Liver Disease (NAFLD). NAFLD often leads to cirrhosis.
- Avoid alcohol. Alcohol damages liver cells and leads to scarring that becomes cirrhosis. Cirrhosis can be deadly.
- Avoid over the counter drugs without prescription.

INTERESTING LIVER FACTS

- Liver, a complex chemical factory of the body works 24 hours a day. It weighs a little over one kilogram.
- It is the largest gland in the body and does the most complex functions. The liver with at least 25% of the healthy liver cells can regenerate itself and can become whole again.
- A healthy liver contains 300 billion specialized cells and filters about 1.7 litres of blood every minute.
- A healthy liver can produce as much as one litre of bile every day.
- The liver increases in size and weight during pregnancy. This is to accommodate the changing metabolic demands and hormonal balance of the mother.
- The first successful whole human liver transplant occurred in 1967, after a first attempt in 1963. Later, in 1989, a portion of a living adult’s liver was transplanted into a child, and the results showed that both donor and recipient had normal liver function. Since that time, adult-to-adult living donations have occurred with a portion of the donor’s liver replacing the entire liver of the recipient. Over the time, both the livers grow into complete organs. This procedure though amazing carries some risks.
- Alcohol consumption and cigarette smoking are equally bad for liver health.


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