



Semaglutide for Fatty Liver Treatment

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Why in News?

A new study found that **semaglutide** (used in **weight-loss and diabetes drugs** like **Ozempic and Wegovy**) is also effective in treating **fatty liver disease**, also known as **Metabolic Dysfunction Associated Steatohepatitis (MASH)**.

What is Semaglutide?

- **About:** Semaglutide is a **glucagon-like peptide-1 (GLP-1) receptor agonist**. It is primarily used to manage type 2 diabetes and obesity.
 - Semaglutide mimics the action of **GLP-1**, a hormone that helps **lower blood sugar levels** by increasing **insulin secretion** in response to meals, **inhibiting glucagon release**, and **delaying gastric emptying**.
- **Side Effects:** Semaglutide is associated with **common side effects** such as **nausea, vomiting, diarrhea, constipation, and abdominal discomfort**.
 - It is **contraindicated (not medically advised)** for individuals with a **personal or family history of medullary thyroid cancer** or **Multiple Endocrine Neoplasia type 2**.

What is Non-Alcoholic Fatty Liver Disease?

- **About Fatty Liver Disease:** Fatty liver disease (hepatic steatosis) is the buildup of **excess fat in liver cells**.
 - It becomes **unhealthy when fat exceeds 5% of liver cells (hepatocytes)**, affecting liver function and metabolism.
 - It is of 2 types- **NAFLD (Non-Alcoholic Fatty Liver Disease) & Alcoholic Fatty Liver Disease (AFLD)**.
- **Non-Alcoholic Fatty Liver Disease (NAFLD) or Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD):** [Metabolic Dysfunction-Associated Steatotic Liver Disease \(MASLD\)](#) (earlier known as [NAFLD \(Non-Alcoholic Fatty Liver Disease\)](#)) is a condition where fat accumulates in the liver **without excessive alcohol intake** and may cause serious liver damage over time.
 - Its prevalence in India is estimated at **9-32%**.
 - **4 Stages of MASLD:**
 - **Non-Alcoholic Fatty Liver (NAFL):** Fat builds up in the liver **without causing damage or inflammation**, usually leading to **mild discomfort from an enlarged liver**.
 - **Non-Alcoholic Steatohepatitis (NASH) or Metabolic Dysfunction-Associated Steatohepatitis (MASH):** A **more serious** form with **liver inflammation, scarring, and links to heart and kidney issues**. Around **25%** may **progress to cirrhosis or liver cancer**.
 - **Fibrosis:** **Long-term inflammation** creates scar tissue in the liver, which affects its ability to function.
 - **Cirrhosis:** The **most severe stage** with **permanent liver scarring, shrinking,**

and possible liver failure or cancer.

Types of Fatty Liver



The types of fatty liver disease can be categorised as follows:

① Non-alcoholic Fatty Liver Disease (NAFLD)



② Alcoholic Fatty Liver Disease (AFLD)



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- **Alcoholic Fatty Liver Disease (AFLD):** AFLD, or **alcoholic steatohepatitis**, is caused by **excessive alcohol intake** ($\geq 40\text{g/day}$ in males, $\geq 20\text{g/day}$ in females), leading to **fat accumulation in the liver**.
 - Alcohol metabolism in the liver generates **toxic compounds** that damage liver cells, trigger **inflammation**, and impair natural defences.
- **Treatment for Fatty Liver Disease:** The primary treatment is **weight loss** through **diet, exercise, or medication**.
 - **GLP-1 Receptor Agonists:** These medications **aid in weight loss by regulating gut hormones** that control appetite and fat storage.
 - **Resmetirom:** A **thyroid hormone-based drug** that specifically **targets liver fat, though it is costly**.
 - **FGF21 Drugs:** These drugs focus on **adipose tissue to reduce fat accumulation** and enhance metabolic health.
 - **Tirzepatide:** A **dual-action medication** that promotes **weight loss, assists in diabetes management**, and shows **potential benefits in treating sleep apnea**.

What are India's Key Initiatives to Promote Healthy Lifestyle?

- [Eat Right Mela](#)
- [Fit India Movement](#)
- [Eat Right Station Certification](#)
- [Mission Poshan 2.0](#)
- [Poshan Vatikas](#)

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims:

Q. Which one of the following statements is not correct? (2019)

- (a) Hepatitis B virus is transmitted much like HIV.
- (b) Hepatitis B unlike Hepatitis C, does not have a vaccine.
- (c) Globally, the number of people infected with Hepatitis B and C viruses are several times more than those infected with HIV.
- (d) Some of those infected with Hepatitis B and C viruses do not show the symptoms for many years.

Ans: (b)

Q. Which of the following diseases can be transmitted from one person to another through tattooing? (2013)

- 1. Chikungunya
- 2. Hepatitis B
- 3. HIV-AIDS

Select the correct answer using the codes given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (b)