

MASLD/MASH AND DIABETES: WHAT SHOULD PATIENTS KNOW?

WHAT IS THE CONNECTION BETWEEN MASLD/MASH AND DIABETES?

Type 2 diabetes is strongly linked to MASLD/MASH, which increases the patient's risk of cirrhosis, liver failure, and cancer. However, these conditions can be reversible through lifestyle changes and early intervention. If you have type 2 diabetes, talk to your doctor about proactively managing liver disease to protect your liver's health.

An estimated 1 in 3 adults worldwide have MASLD



An estimated 1 out of every 10 people in the world have diabetes



7 out of 10 people living with type 2 diabetes have MASLD¹



WHAT IS MASLD/MASH?

Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD):

Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) is a condition in which too much fat builds up in the liver. If left untreated, MASLD can lead to serious liver problems.

Metabolic dysfunction-associated steatohepatitis (MASH):

Metabolic dysfunction-associated steatohepatitis (MASH) is caused when that extra fat turns into inflammation (swelling in the liver) and fibrosis (scarring) of the liver. If severe enough, MASH can lead to cirrhosis or liver cancer, potentially requiring a liver transplant. Since liver transplants rely on a donor, the wait time for a liver in the United States can range from less than 30 days to over five years.²

WHAT IS DIABETES?

Diabetes is a chronic disease that occurs when a person's blood glucose (sugar) levels are too high. This happens when insulin, which is secreted by the pancreas, stays in the blood instead of entering cells. There are three main types of diabetes:³

1 Type 1 Diabetes (T1D)

Most commonly diagnosed in children and adolescents, but it can occur at any age. In T1D patients, a person's immune system destroys insulin-producing cells in the pancreas, causing it to produce little to no insulin by itself. Evidence suggests that T1D is an autoimmune disease.

2 Type 2 Diabetes (T2D)

The most common form of diabetes, usually occurring in adults. A person's body with T2D becomes resistant to insulin and cannot produce enough insulin to normalize glucose levels.

3 Gestational Diabetes

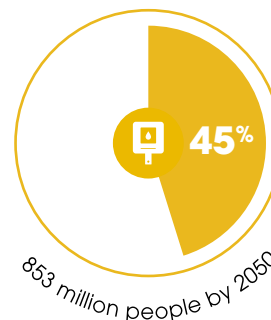
A form of diabetes that develops during pregnancy and usually resolves after birth.

HOW COMMON ARE MASH AND DIABETES?

MASLD is the most common chronic liver disease. Research estimates that about 38% of adults globally (about 1 in 3) have MASLD. This number increases significantly within patients who have type 2 diabetes, with studies showing MASLD found in about 60-70% of these patients. Among these individuals, around 30% have MASH, equating to about 5% of the total global population. MASH is now the leading cause of liver transplantation, especially in developed nations.⁴ Yet, MASLD/MASH are often under-diagnosed due to a lack of disease awareness, symptoms that are difficult to identify, and current screening procedures.

Nearly 1 in 9 adults around the world (589 million people) are now living with diabetes. More than half of the people living with diabetes are unaware about their condition and are not receiving treatment. The prevalence of diabetes over the last few decades have risen dramatically and without any public health interventions, this number is estimated to increase by 45% to 853 million people by 2050.⁵

The prevalence of diabetes is estimated to increase by



WHAT IF I HAVE BOTH MASLD/MASH AND DIABETES?

Early detection, management, and treatment are key for patients who have both MASLD/MASH and diabetes. Patients with both conditions have a higher risk of liver-related and non-liver related illness and premature death than those without liver disease. Fortunately, doctors can use a number of non-invasive diagnostics, including blood tests, to help assess and monitor fibrosis for MASLD/MASH and can also use blood tests to diagnose diabetes.

HOW ARE MASLD/MASH AND DIABETES CONNECTED?

MASLD and diabetes are both connected through metabolic syndromes, which is a group of conditions that includes obesity, high blood pressure/ cholesterol, and insulin resistance. Both conditions often share the same underlying cause and tend to each worsen the other. Through in depth studies, researchers have learned that:

- *MASH is associated with an increased risk of developing T2D*
- *MASLD increases the risk of developing T2D by two to three fold, particularly in people with a more severe liver disease.*
- *People with diabetes are at a higher risk of severe progression of MASLD to MASH, advanced fibrosis, and hepatocellular carcinoma (HCC), even if liver enzymes levels are normal⁶*

Doctors can use non-invasive diagnostics such as blood tests to help assess and monitor your conditions.

WHAT ARE THE TREATMENT OPTIONS FOR MASLD/MASH AND DIABETES?

Treatment for MASLD/MASH and diabetes usually begins around lifestyle modifications such as losing weight, adopting a healthier diet, and increasing exercise.

The FDA has approved two medications to help treat MASH in patients in the United States: Resmetirom and Semaglutide. These drugs are typically for adults and are aimed at reducing liver fat, inflammation, and scarring. Additionally, certain medications used to treat T2D could potentially be useful for managing MASLD or MASH such as pioglitazone and glucagon-like peptide-1 receptor agonists (GLP-1RAs). Another class of agents called sodium-glucose co-transporter-2 (SGLT2) inhibitors are promising, but there is currently less evidence.⁷



Lifestyle modification focuses on diet, exercise, and behavioral therapy. Talk to your doctor about your risk for MASH or diabetes and your options for screening and treatment

WHAT QUESTIONS SHOULD PATIENTS WITH DIABETES ASK THEIR DOCTORS ABOUT MASLD/MASH?

If you have diabetes, consider asking your doctor the following questions about MASLD/MASH:

- 1 **Am I at risk for MASLD or MASH given my diabetes?**
- 2 **How often should my liver be monitored?**
- 3 **Should I be tested for MASLD/MASH and what are my options for non-invasive diagnostic tests?**
- 4 **What is your approach to managing MASLD/MASH and diabetes together?**
- 5 **What resources are available to me to manage or prevent MASLD/MASH?**
- 6 **What lifestyle changes should I make to improve both my blood sugar and liver health?**
- 7 **Are there other doctors with whom I should connect? If so, who will be my main point of contact?**

WHAT QUESTIONS SHOULD PATIENTS WITH MASLD/MASH ASK THEIR DOCTORS ABOUT DIABETES?

If you have MASLD/MASH, consider asking your doctor the following questions about diabetes:

- 1 **Am I at risk for diabetes given my liver condition?**
- 2 **Should I be tested for diabetes, and how often?**
- 3 **What are my options for diagnostic tests?**
- 4 **What is your approach to managing MASLD/MASH and diabetes together?**
- 5 **What treatments and resources are available to me to manage or prevent diabetes?**
- 6 **What lifestyle changes should I make to help prevent diabetes and support my liver health?**
- 7 **Are there other doctors with whom I should connect? If so, who will be my main point of contact?**

Sources:

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