

# Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)

## What is MASLD?

MASLD (formally called Non-Alcoholic Fatty Liver Disease- NAFLD) is when there is too much fat on the liver and it affects about 25% of the Canadian population.

Our liver breaks down fats and sugars from the foods we eat. Our liver stores extra fat when we consume more than the body needs.

MASLD is primarily caused by consuming more calories than we require and leading an inactive lifestyle.

Risk factors for developing MASLD include metabolic and cardiovascular abnormalities such as obesity, diabetes, high blood pressure and high cholesterol.

A combination of factors such as lifestyle, environment, rapid weight loss, protein malnutrition, certain prescription drugs, genetics and family history of MASLD can also increase one's risk.

MASLD can be reversible through early diagnosis, management and lifestyle changes.

Left untreated, the liver can form scar tissue (fibrosis) over time and progress to further liver disease called cirrhosis.

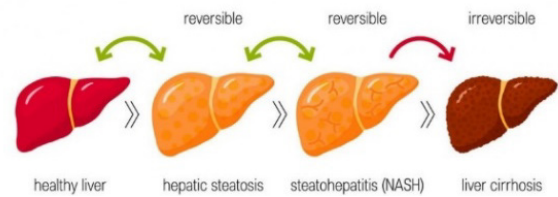
## What is MASH?

A more serious form of MASLD, is MASH (Metabolic Associated Steatohepatitis), formally called Non-Alcoholic Steatohepatitis (NASH).

With MASH, the high buildup of fat on the liver turns on an immune response triggering **inflammation**. This can progress into severe scarring of the liver.

Further complications include increasing risk of developing liver cirrhosis and liver cancer (hepatocellular carcinoma - HCC). Having obesity or consuming alcohol can also further increase risk of HCC.

## STAGES OF LIVER DAMAGE



## What is a Fibroscan?

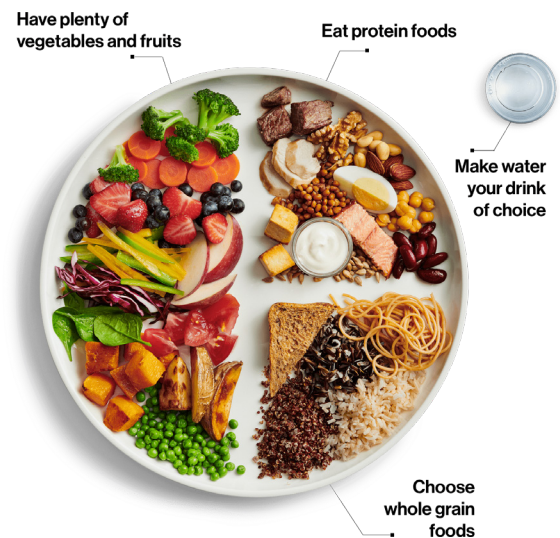
A **Fibroscan** is a special ultrasound technology that measures how stiff your liver is. The stiffer your liver, the more scarring (fibrosis). Your health care provider may order this test alongside bloodwork and other tests to see how much scarring there is on your liver.

## Management

Lifestyle changes are the best way to manage and even reverse MASLD.

### What should I eat?

- Enjoy a Mediterranean dietary pattern of eating
- Reduce intake of the 3 S's – Sugar, Sodium and Saturated fats
- Limit intake of ultra-processed and refined foods. Try to cook at home from scratch more often.
- Increase intake of fibre by including whole grains, fruits, and vegetables daily
- Choose healthier fats such as plant based oils, nuts, seeds, avocado and fatty fish
- Consider coffee; several studies show drinking 2-3 cups of black coffee a day may be beneficial to liver health.



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## Practice Mindful eating

- Eat away from distractions
- Pay attention to your hunger and satiety cues
- Take the time to enjoy food

Refer to Cambridge Hospital Liver Health Centre website or scan the QR code below to watch our dietitian video on Nutrition for a Healthy Liver.



## Healthy Weight Management

- Your best weight is a weight that you can achieve and maintain while living the healthiest and happiest you.
- Focus on positive health outcomes rather than weight loss alone. Develop healthy habits on how you sleep, eat, and exercise.
- Gradual and sustainable weight loss of 7-10% over 1-2 years can reduce fat and reverse inflammation in the liver.

## Physical Activity

- Increase your physical activity. Physical activity is effective in moving fat out of the liver, as well as benefiting one's physical and mental health.
- Make the most of your whole day by reducing sedentary behavior and adding in different types of movements and exercises.
- Aim for 20+ minutes of moderate exercise daily or at least 150 minutes per week including a combination of aerobic and strength exercises.

## Alcohol and the Liver

- Research shows that no amount of alcohol is good for your health
- If you drink, it is best to drink less
- Having 1-2 standard alcoholic drinks per week is considered lower risk of developing alcohol-related consequences
- Alcohol should be avoided completely with MASH and cirrhosis.

## Healthy snacks ideas:

- Handful of unsalted nuts
- Canned tuna wrapped in lettuce leaves
- Baby carrots with hummus
- 1 cup of mixed berries
- Whole grain crackers with nut butter
- Greek yogurt
- Hard-boiled egg
- Apple slices with almond butter
- Sliced bell peppers with guacamole
- Low fat cottage cheese with fresh fruit
- Chia seed pudding
- Air popped popcorn with olive oil and garlic powder

## Examples of Liver Friendly Grocery Shopping:

Vegetables	Carrots, onions, broccoli, spinach, kale, garlic, zucchini, mushrooms, Frozen Peas, carrots, mixed vegetables etc.
Starchy Vegetables	Sweet potatoes, yams, squash
Fruits	Berries, apples, bananas, oranges, grapes, melons, peaches, pears etc.
Grains	Whole grain bread, whole grain pasta, quinoa, brown rice, oats etc.
Legumes	Lentils, chickpeas, black beans, kidney beans etc.
Unsalted Nuts	Almonds, walnuts, cashews, pistachios, macadamia etc.
Unsalted Seeds	Sunflower seeds, pumpkin seeds, chia seeds, hemp seeds
Condiments/Herbs	Pepper, garlic, ginger, turmeric, cinnamon, cayenne pepper, oregano etc.
Seafood	Salmon, trout, shrimp, mussels, cod, tilapia etc.
Dairy products & Plant based alternatives	Greek yogurt, yogurt, milk, Plant based fortified (soy, oat, almond etc.)
Poultry	Chicken, duck, turkey
Eggs	chicken, quail, and duck eggs
Healthy Fats	Extra virgin olive oil, olives, avocados, avocado oil

Resources and Information adapted from:  
 Alberta Health Services NAFLD pathway – Albertahealthservices.ca  
 Canadian Liver Foundation - Liver.ca  
 Canada's Guidance on Alcohol and Health - ccsa.ca  
 EASL NAFLD-NASH guidelines - easl.eu  
 Obesity Canada – obesitycanada.ca  
 Toronto Centre for Liver Disease – Francis Family Liver Clinic - UHN.ca  
 24-Hour Movement Guidelines - csepguidelines.ca