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Screening and Lifestyle Management of Liver Health

Incorporating Liver Health into Diabetes Self-Management Education and Support (DSMES)

1

Meet Today's Speakers

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2

Disclosures

- Neither the **Obesity Association**, a division of the American Diabetes Association®, nor the **speakers** have any conflicts of interest related to this presentation.
- There are no disclosures to declare.

We would like to thank Boehringer Ingelheim for their support and sponsorship of today's event.

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3

Learning Objectives

- Explain the relationship between metabolic dysfunction-associated steatotic liver disease (MASLD)/metabolic dysfunction-associated steatohepatitis (MASH) and diabetes/cardiometabolic disease.
- Identify key risk factors for MASLD/MASH.
- Apply current evidence-based strategies for disease prevention and management.
- Assess how nutritional factors influence MASLD/MASH progression and treatment.
- Implement practical lifestyle interventions to improve liver health and integrate them into DSMES.

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4

4

Decision Cycle for Person-Centered Glycemic Management in Type 2 Diabetes

Key points:

- DSMES goals of care are appropriate for MASLD and MASH management.
- Modifiable lifestyle recommendations for type 2 diabetes and MASLD are consistent.

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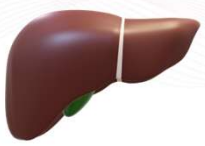
5

Figure 1:
Davies MJ et al. *Diabetes Care*. 2022;45:2753-2786. doi:10.2337/dci22-0034.

5

New Nomenclature for Liver Health Conditions Associated with Cardiometabolic Risk



NAFLD= MASLD

- Metabolic dysfunction-associated steatotic liver disease
- Liver infiltrated with excess (at least 5%) fatty tissue

NASH = MASH

- Metabolic dysfunction-associated steatohepatitis
- A subset of NAFLD/MASLD characterized by inflammation and can lead to hepatic fibrosis, cirrhosis, and hepatocellular cancer

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6

American Association for the Study of Liver Diseases. New MASLD nomenclature. June 2023. https://www.aasld.org/new-masld-nomenclature.

6

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The Role of MASH/MASLD in the Cardiometabolic Continuum

7

The Link Between MASLD and Diabetes

- There is ample evidence to implicate that excess visceral fat and overall adiposity contributes to the pathogenesis of MASLD in those with type 2 diabetes.
- Obesity in the setting of type 2 diabetes worsens insulin resistance and steatohepatitis. Both factors can result in the deterioration of liver disease.
- Prevalence of MASLD among people with type 2 diabetes is ≥70%, with ~50% having the more progressive form with MASH and about one in five with advanced liver fibrosis.

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Lomonaco R, et al. *Diabetes Care*. 2021;44:399-406; Loomba R, et al. *Cell*. 2021;184:2537-2564.

8

Serious Health Implications of MASLD

Table 1—Clinical implications of MASLD in people with prediabetes and diabetes

Adults with prediabetes and type 2 diabetes have the highest risk of developing MASLD	Adults with prediabetes and type 2 diabetes, especially those with obesity, should be risk stratified for having MASLD and liver fibrosis.
Increased risk of severe liver disease	MASLD with clinically significant fibrosis (stage ≥F2) raises the risk of cirrhosis, liver cancer, and overall liver-related mortality.
Leading cause for liver transplantation	Approximately one in five people with type 2 diabetes are at high risk of developing cirrhosis due to MASLD, making it one of the leading reasons for liver transplantation in the U.S.
Higher likelihood of developing a broad spectrum of comorbidities	MASLD increases risk of progression from prediabetes to type 2 diabetes, development of cardiovascular disease, and extrahepatic malignancies.
Negatively impacts quality of life	MASLD significantly impacts health-related quality of life and represents a significant economic burden.
Importance of an early diagnosis	Timely identification and proper management can prevent the progression of fibrosis to cirrhosis in people with MASLD.

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Table 1:
American Diabetes Association. *Diabetes Care*. 2024. doi:10.2337/dci24-0094

9

A Growing Cardiometabolic Comorbidity and Risk Equivalent

- 5% of U.S. adults have **MASH** with projections of 27 million by 2030.
- **MASLD** is part of a metabolic syndrome that affects 25–30% of the global population.
- The risk of developing **MASLD** increases with age and is more common in people with **cardiovascular or metabolic risk factors**.
- **Metabolic syndrome risk factors include:**
  - Overweight (BMI (body mass index) of 25+)
  - High cholesterol
  - High blood pressure
  - High blood glucose
  - Insulin resistance and diabetes

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10

Younossi ZM, et al. *Hepatology*. 2023;77:1335-1347; Estes C, et al. *Hepatology*. 2018;67:123-133.

10

Stages of Liver Disease

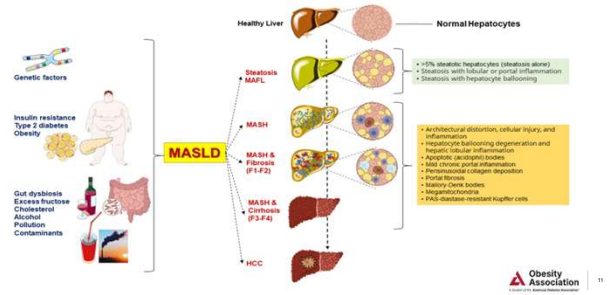

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Figure 2:
Portincasa P, et al. Int J Mol Sci. 2024.

11

11

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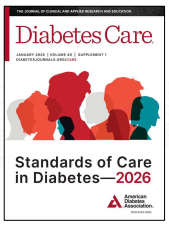
Screening and Management Strategies for MASLD/MASH

12

American Diabetes Association® (ADA) Highlights 2026

The ADA's *Standards of Care in Diabetes—2026* (*Standards of Care*) contains minor changes that clarify recommendations or reflect new evidence.

- **Interprofessional team** for MASLD and MASH management.
- **Obesity/weight management:** Individualized dosing for obesity medications and expanded roles for GLP-1s (and GLP-1/GIPs) in managing liver disease (MASLD/MASH), kidney disease, and heart failure.
- **Diagnostic algorithm updates** for **risk stratification and the prevention** of cirrhosis in individuals MASLD, including MASLD treatment and broader technology integration with CGM.



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American Diabetes Association. *Diabetes Care*. 2026.

13

Screening for Liver Fibrosis

2026 *Standards of Care* recommendations:

- **4.22a** Screen adults with type 2 diabetes or with prediabetes, particularly those with obesity or other cardiometabolic risk factors or established cardiovascular disease, for their risk of having or developing cirrhosis related to metabolic dysfunction–associated steatohepatitis (MASH) using a calculated fibrosis-4 index (FIB-4) (derived from age, ALT, AST, and platelets) even if they have normal liver enzymes. **B**
- **4.22b** Adults with diabetes or prediabetes with persistently elevated plasma aminotransferase levels for >6 months and low FIB-4 should be evaluated for other causes of liver disease. **B**
- **4.23** Adults with type 2 diabetes or prediabetes with a FIB-4 ≥ 1.3 should have additional risk stratification by liver stiffness measurement with transient elastography, or, if unavailable, the enhanced liver fibrosis (ELF) test. **B**

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American Diabetes Association. *Diabetes Care*. 2026.

14

Screening for Liver Fibrosis with FIB-4

Support for screening:
- The ADA's 2026 Consensus Report[1]: Screening and early intervention as well as several other international medical societies.[2]

What is fibrosis-4 (FIB-4)[1-2]?
- It's a non-invasive scoring system to estimate fibrosis (scarring).
- Calculation formula uses: Age, platelet count, AST, and ALT.
- Interpretation: A score of <1.45 suggests low significant fibrosis and >3.25 indicates high risk of advanced fibrosis.

Advantage of using FIB-4[1-2]:
- Non-invasive (not a biopsy).
- Cost effective.
- Beneficial to identify patients who may need further evaluation or treatment for liver disease. It helps in risk stratification.

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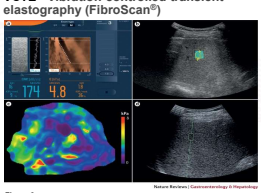
[1]Cusi K, et al. MASLD in People With Diabetes: The Need for Screening and Early Intervention. A Consensus Report of the ADA. *Diabetes Care*. 2025;48(7):1057-1082.
[2]EASL-EASD-EASO Clinical Practice Guidelines on the management of MASLD: Executive Summary. *Diabetologia*. 2024 Nov;67(11):2375-2392.

15

Non-Invasive Liver Stiffness Measurement Methods

TESTING
VCTE= Vibration-controlled transient elastography (FibroScan®)



Nature Reviews | Gastroenterology & Hepatology

Figure 3:
Tapper EB, Loomba R. *Nat Rev Gastroenterol Hepatol*. 2018.

RESULTS
Steatosis Grade (CAP Score)
- S0= healthy liver
- S1= mild stenosis
- S2= moderate stenosis
- S3= severe stenosis

Fibrosis Score
- F0-F1= normal
- F2- = moderate
- F3 = severe
- F4 = cirrhosis

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15

16

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The Role of the Diabetes Care and Education Specialist:

Lifestyle Interventions for the Treatment and Management of MASLD/MASH

17

Lifestyle Interventions and Risk Factor Management

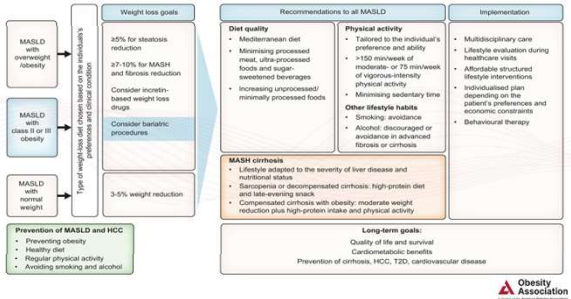

Figure 4:
EASL–EASD–EASO. J Hepatol. 2024. doi:10.1016/j.jhep.2024.00329.

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18

Benefits of Weight Loss

52 weeks of lifestyle intervention

% Weight Loss	Up to 5%	5%–7%	7%–10 %	> 10%
MASH resolution	10%	26%	64%	90%
Fibrosis regression	45%	38%	50%	81%
Steatosis improvement	35%	65%	76%	100%
% patients achieving WL	70%	12%	9%	10%

Table 2:
Romero-Gómez M, Zelber-Sagi S, Trenell M. Treatment of NAFLD with diet, physical activity and exercise. *J Hepatol*. 2017;67(4):829-846. doi:10.1016/j.jhep.2017.05.016.

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19

Progression Monitoring

Predictive tests that track progression:

- **Inflammatory biomarkers:**
  - **Interleukin -6:** Proinflammatory cytokine contributes to insulin resistance and oxidative stress
  - **Tumor necrosis factor -α**: Proinflammatory cytokine role in insulin resistance and lipid metabolism
  - **C-reactive protein**: Acute phase protein associated with cardiovascular disease risk
- **Liver disease assessment:** FIB-4: <1.3 is low risk, >2.6 is high risk
- **Monitor prediabetes:** Track A1C, FBG, insulin resistance
- **Sarcopenia** is a predictor of mortality and morbidity in MASLD, MASH, and cirrhosis

At least one metabolic risk:

- Clinical obesity using BMI and waist circumference
- Type 2 diabetes
- Dyslipidemia
- Hypertension

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Diabetes Care. 2026;49(Suppl 1):S81–S88; *Diabetologia*. 2024;67:2375–2392; *Gastroenterology*. 2010;140:1056–1064; *Metabolism*. 2016;65:1038–1048; *Clin Gastroenterol Hepatol*. 2017;15:1940–1947; *Metabolism*. 2022;133:155223.

20

Impact of Poor Eating Patterns and MASLD

Insulin resistance:
- Can result in prediabetes or type 2 diabetes without diet and lifestyle changes.

Metabolic syndrome:
- HTN: >130/80
- Hyperglycemia: Fasting BG >100 mg/dL
- Dyslipidemia: Fasting TG >150 mg/dL
- Excess body fat around waist:
  - >40" male
  - >35" female
  - Prediabetes: Monitor A1C

Clinical obesity:
- Gut dysbiosis
- Sarcopenia/malnutrition and obesity

Poor food quality: High consumption of ultra-processed foods increases intake of:
- Sodium
- Saturated fat
- Added sugar
- High fructose corn syrup

Low intake of dietary fiber

Inadequate protein intake

Excessive alcohol consumption

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Zeng X, et al. *Diabetes Res Clin Pract*. 2024;205:108716.

21

Lifestyle and Nutrition Recommendations

Evidence based:

- The ADA's *Standards of Care*
- The AHA's Life's Essential 8
- ADCES 7
- KDIGO ad KDOQI
- NIDDK
- American Liver Foundation
- American Kidney Foundation
- American Gastroenterological Association

Message:

- Reduce calorie intake and gradual weight loss (7–10%)
- Daily vegetable and fruit intake
- Increase plant protein intake (1/3 of daily intake)
- Choose high-fiber whole grains
- Choose heart-healthy fats
- Limit saturated and trans fats
- Emphasize whole foods
- Limit sugar-sweetened beverages
- Limit or eliminate alcohol
- Include caffeine from coffee/tea, which can reduce liver fibrosis
- Engage in physical activity
- Obtain adequate sleep

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22

Review of Lifestyle Interventions for MASLD/MASH

KEY POINTS:

11-year review of most frequent recommendations and opportunities

- Weight loss with increased physical activity and healthy eating patterns.
- The role of mental health and social and environmental determinants of health in MASLD are not well established in management guidelines.
- The use of behavioral change techniques and digital health interventions to facilitate behavioral adjustments in MASLD requires substantial further evaluation.

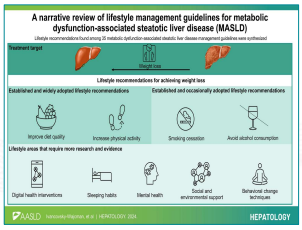

Figure 5:
Zeng X, et al. *Diabetes Res Clin Pract.* 2024;205:108716.

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23

Nutrition Interventions and Strategies Overview

Macronutrients:

- Carbohydrates/sugar-sweetened beverages and fructose
- Fat and protein

Eating patterns:

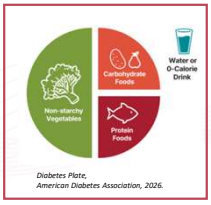
- Mediterranean-style
- Dietary Approaches to Stop Hypertension (DASH)
- Low-carbohydrate
- Plant-based (vegetarian and vegan)
- Intermittent fasting

Alcohol

Supplements

- Vitamin E

Coffee/Caffeine



Diabetes Plate,
American Diabetes Association, 2026.

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24

Macronutrients

- Evidence suggests that no ideal calorie percentage from carbohydrates, proteins, and fats can be broadly recommended for all people with prediabetes or diabetes.[1] *Eating patterns and quality nutrient dense food choices are the focus of nutrition education.*
- Limited research in nutrition therapy has been conducted in people with both MASLD and diabetes.[2]
- Eating pattern recommendations include limiting saturated fat, refined carbohydrates, and added sugar. The Mediterranean-style eating pattern has the best evidence for improving liver and cardiometabolic health.[3]

[1]ADA Nutrition Therapy Consensus Report 2019.
[2]ADA Guide to Nutrition Therapy in Diabetes, 4th edition; In: Nutrition therapy for Metabolic Liver Disease and Diabetes. 2026.
[3]Diabetes Care ADA SOC 2026 pp:S78.

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25

Macronutrients: Carbohydrate

Carbohydrates

Quality carbohydrates are an important energy source and are low in added sugar and high fructose corn syrup.

There is strong evidence to limit high consumption of fructose from sugar and high fructose corn syrup associated with postprandial hypertriglyceridemia, insulin resistance, and higher risk of MASLD or MASH with fibrosis progression in high-risk individuals.

Emphasize minimally processed, quality, high-fiber sources (at least 14 g per 1,000 kcal) of carbs:

- Whole fruits (naturally occurring fructose) and non-starchy vegetables.
  - Contain beneficial compounds such as flavanols, and vitamin C may protect harmful effects of fructose on metabolism.
  - Suggested: 2.5 cups of variety and colorful vegetables and fruit every day
- Whole grains and legumes:
  - Contain high fiber as well as protein
  - Examples include:
    Grains: Farro and quinoa
    Legumes: Beans, lentils, and peas

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Jensen T, et al. *J Hepatol.* 2018;68:1063-1075; Vasdez S, et al. *Mol Cell Biochem.* 2002;24:107-114; Singal AK, et al. *Am J of Gastroenterol* 2025;120: 950-972; Chen H, et al. *Int J Environ Res Public Health.* 2019;16:2192; Cusi K, et al. MASLD Consensus Report of the ADA. *Diabetes Care.* 2025;48(7):1057-1082.

26

Macronutrients: Fat

Fat

The type of fat consumed is more important than the total fat when looking at metabolic goals. Adults with type 2 diabetes and MASLD are at increased risk for cardiovascular disease. Management of cardiovascular risk factors is recommended.[1]

Different types of dietary fats:

- Essential fatty acids (omega 3 and omega 6 fats)
- Unsaturated fats: Liquids at room temperature, includes mono and polyunsaturated fats
- Saturated fats: Solid at room temperature, shown to promote MASLD[2] and liver fibrosis[3]
- Trans fats:[3] Associated with ultra-processed foods

Include in meal plan:

- Fatty fish such as salmon, tuna, sardines provides omega 3 fats (DHA and EPA)
- Nuts and seeds, such as walnuts and flaxseed, provide omega 3 fats (ALA)
- Oils such as avocado and olive provide mono and polyunsaturated fats (MUFA and PUFA)

Reduce/limit intake of:

- Butter, coconut oil, and lard with MUFA and PUFA
- Read labels on packed foods: Trans fats are partially hydrogenated soybean oil

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[1]Diabetes Care ADA SOC 2026 p S78 [2]Rosqvist F, et al. *Front Nutr.* 2021;8:640557; [3]Jia F, et al. *J Clin Endocrinol Metab.* 2019;104:6207;

27

Macronutrients: Protein

Protein

Growing evidence suggests higher *plant* protein (rather than animal protein) is associated with lower risk of all-cause and cardiovascular mortality. Plant-based proteins are lower in saturated fat and higher in fiber.[1]

Key points:

- Protein intake goals should be individualized based on current eating patterns. The general public recommendation is typically 0.8–1.5g/kg body weight/day[1]
- Important for maintaining muscle mass, healing wounds, weight loss, and blood glucose levels[2]
- Monitor for malnutrition and sarcopenia includes adequate protein combined with lifestyle management[3]

Nutrient-dense protein sources[4]:

- Lean fish or meat
- Eggs (egg whites)
- Dairy: Non-fat/low fat with no added sugar
- Plant-based such as legumes/beans, edamame, tofu, and nut butter
- Use the Diabetes Plate as a guide

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[1]Am Diabetes Assoc. *Diabetes Care*. 2026;49(suppl 1):S96, S285;
[2]**ADA Diabetes Food Hub**. https://diabetesfoodhub.org/blog/lets-talk-about-protein-people-diabetes.

28

Emerging Eating Patterns and Approaches for Managing MASLD

Key points:

Benefits across various nutritional approaches seem comparable (to improve steatosis), but benefits for steatohepatitis and fibrosis not adequately studied.

The Mediterranean-style eating pattern has the *best long-term data* on cardiometabolic risk reduction and is endorsed in current MASLD.

Eating Patterns:

- Mediterranean-style
- Dietary Approach to Stopping Hypertension (DASH)
- Low-carbohydrate
- Vegetarian and vegan
- Time-restricted eating (TRE)

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Cusi K, et al. *Diabetes Care*. 2025. doi:10.2337/dc24-0094

29

Mediterranean-Style Eating Pattern

Eating pattern highlights:

- **Plant-Based Foods**
  - Vegetables, Beans, Nuts & Seeds, Fruits, and Whole Grains
  - Severely limit concentrated sugars (includes natural sources such as honey)
- **Proteins:**
  - **Yogurt & Cheese:** low to moderate amounts
  - **Eggs:** Fewer than four/week
  - **Red Meat:** low frequency (<1 serving/week) and amounts
  - **Fish and Other Seafood**
- **Fats:** Olive oil as the main source
- **Wine:** 5 fl oz serving no more than once daily (women) twice daily (men)

- **Emphasizes:** Vegetables, fruits, whole grains, fish, poultry, beans, nuts, seeds, low-fat dairy, and vegetable oils.
- **Endorsed:** In current MASLD guidelines based on long-term data on cardiometabolic risk reduction.

- **Limits:** Saturated fats (fatty meats, full-fat dairy), sweets, sugar-sweetened drinks, sodium, red meat, and tropical oils.
- **Rich in:** Potassium, magnesium, calcium, fiber, and protein.

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Cusi K, et al. *Diabetes Care*. 2025. doi:10.2337/dc24-0094; Chiva-Blanch, G et al. *Nutrients*. 2019 Dec 30;12(1):108. doi:10.3390/nu12010108.

30

Dietary Approaches to Stop Hypertension (DASH) Eating Pattern

Eating pattern highlights:

- Vegetables & Fruits
- Low-fat dairy products
- Whole grains
- Poultry
- Fish
- Nuts
- Reduced saturated fat, red meat, sweets, and sugar-containing beverages
- May also be reduced in sodium (≤ 2,300 mg sodium daily)

- **Emphasizes:** Vegetables, fruits, whole grains, fish, poultry, beans, nuts and seeds, low-fat dairy, and vegetable oils
- **Rich in:** Potassium, magnesium, calcium, fiber, and protein

- **Limits:** Saturated fats (fatty meats, full-fat dairy), sweets, sugar-sweetened drinks, sodium, red meat, and tropical oils

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Nighaz M et al. *Sci Rep.* 2025;15(1):1667.

31

Low-Carbohydrate Eating Pattern

26–45% of Total Calories

Emphasizes:

- **Non-starchy vegetables**
  - Broccoli, kale, lettuce, collard greens, spinach, and onions
- **Lean protein**
  - Poultry, fish, shellfish, eggs, cheese, nuts, and seeds
- **Quality carbohydrates**
  - Starchy vegetables, beans, fruits, and low-fat dairy
- **Healthy fats**
  - Avocado, oils (extra virgin olive and canola), and nuts and seeds

Limits:

- Saturated fats
- Fatty meats and full-fat dairy/dairy products
- Sweets and sugar-sweetened beverages

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Eating for diabetes management. https://diabetes.org/food-nutrition/eating-for-diabetes-management. Accessed Feb 24, 2026.

32

Vegetarian and Vegan Eating Patterns

Eating pattern highlights:

- Plant-based foods
- Excludes **all** animal-based products (vegan)
- Excludes meats, seafood, or poultry but may include eggs and/or dairy products (vegetarian)

Limits:

- Sugar-sweetened sweets and saturated fats

Emphasizes:

- Non-starchy vegetables
- Lean plant proteins
- Quality carbohydrates
  - Starchy vegetables
  - Beans and peas
  - Fruits
  - Low-fat dairy
- Low-fat dairy or eggs (ovo-lacto vegetarian).

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Eating for diabetes management. https://diabetes.org/food-nutrition/eating-for-diabetes-management. Accessed Feb 24, 2026.
Diabetes Care ADA SOC 2026;p S93.

33

Time-Restricted Eating (TRE)

Eating pattern highlights:

- Limits food intake to a set daily window, typically 6–10 hours, followed by fasting.

CHRONO-NAFLD Project

- Study explored efficacy of TRE (10-hour window) and 1,500–2,100 kcal/day
- Mediterranean-style (MD) meal plan: 12-week trial randomized 71 adults with MASLD and overweight/obesity
- 3 groups: Hypocaloric MD, and 2 timeframes for TRE (early and late windows)

+ Indication:

- Reduced weight, body fat, and blood pressure
- Improved insulin resistance and A1C
- Improved VCTE measure and modest decrease in liver stiffness

Needs further study

- Determine metabolic benefit of TRE or hypocaloric Mediterranean-style plan
- Concern for sustainable TRE behavior change

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Tolisou S, et al. *Aliment Pharmacol Ther.* 2025;61:1290-1309. doi:10.1111/apt.70044.

34

Alcohol

- Assess at every visit
- Recommend minimizing alcohol intake with MASLD
- Clinical guidelines recommend:
  - Women: 20 g/day or < 1.4 drinks/day
  - Men: 30 g/day or < 2 drinks/day
- Individuals should abstain if moderate fibrosis is present (≥F2)

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EASL–EASD–EASO. *J Hepatol.* 2016;64:1388-1402.

35

Supplements

2026 *Standards of Care in Diabetes*:

- Specific nutrient supplementation for people with diabetes generally not recommended except if deficiencies or overt malnutrition.
- Specific supplementation is not indicated for individuals with MASLD.
- "Effective for the treatment of MASLD. **Vitamin E** may be beneficial for the treatment of **MASH** in individuals without diabetes. However, in individuals with type 2 diabetes, **vitamin E** monotherapy was found to be ineffective in a small RCT."

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Diabetes Care. 2026;49(Suppl 1):S61-S88. doi:10.2337/dc26-S004.

36

Coffee

- Encourage at least two cups of black coffee per day to support liver health, as recommended by the American College of Gastroenterology[1] and European Association for the Study of the Liver.[2]
- Research has shown improvement in insulin sensitivity and can limit progression to end-stage liver disease.

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[1]Singal AK, et al. *Am J of Gastroenterol* 2025;120: 950-972
[2]EASL-EASD-EASO Clinical Practice Guidelines: *J Hepatol*. 2016;64:1388-1402

37

Smoking Cessation and Sleep

- Poor sleep quality and short sleep duration significantly contributes to the severity and progression of MASLD.
  - Recommended duration is at least 7 hours of quality sleep per night.
- Cigarette smoke can disrupt lipid metabolism, induce inflammation and apoptosis, and stimulate liver fibrosis through multiple signaling pathways that promote the progression of MASLD.
  - Smoking cessation has been shown to improve pathological changes in the liver induced by cigarette smoke, potentially serving as an effective approach to decelerating MASLD development.

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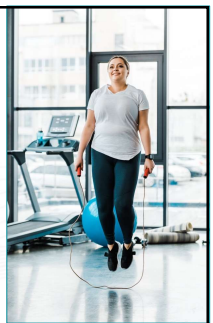
Stryelkina M, et al. *J Sleep Med Disord*. 2026;9(1). doi:10.47739/2379-0822/1145; Xu J, et al. *Cells*. 2025;14(3):221. doi:10.3390/cells14030221.

38

Physical Activity

- Structured exercise has been shown to decrease insulin resistance, plasma aminotransferases, and steatosis in individuals with MASLD.
  - Aerobic activity potentially offers greater benefits.
  - High-intensity aerobic exercise improves MASH and fibrosis.
- Guidelines are *at least*:
  - 150 minutes of moderate activity weekly. Examples: Brisk walking, gardening, raking leaves, stair walking, and biking <10 mph.
  - 75 minutes of high-intensity activity weekly. Examples: Running or jogging, dancing, hiking uphill, snow shoveling, and heavy yard work.
  - Resistance training twice weekly (use bands, household weights, etc.).

Physical activity goals should be individualized based on participants' ability.



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Cusi K, et al. *Diabetes Care*. 2025;48(7):1057-1082.

39

Pharmacotherapy

- Together with lifestyle optimization, pharmacotherapy should always be considered in the management of people with diabetes with overweight or obesity and MASLD.
- Lifestyle modification alone often is unable to achieve or maintain long-term weight loss of the magnitude usually recommended to reverse steatohepatitis and fibrosis (>10%).

40

MASLD Treatment Algorithm

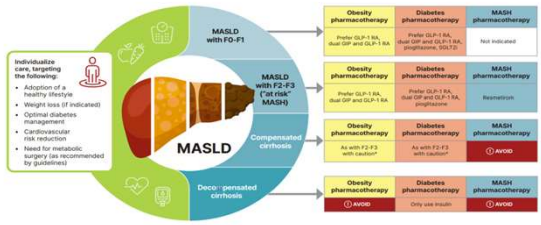

Figure 6.
Cusi K, et al. *Diabetes Care*. 2025;48(7):1057-1082.

41

Pharmacologic Treatment Considerations

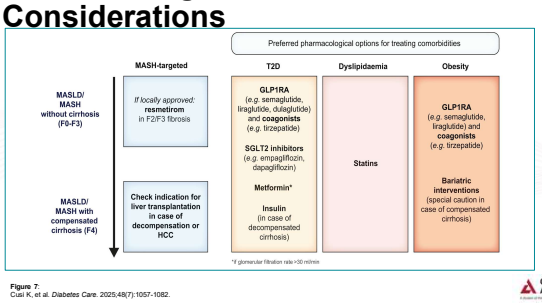

Figure 7.
Cusi K, et al. *Diabetes Care*. 2025;48(7):1057-1082.

42

FDA-Approved Medication for MASH

- March 2024: Resmetirom (brand name Rezdiffra) for adults with non-cirrhotic MASH plus lifestyle therapy.
- August 2025: Semaglutide (brand name Wegovy) For adults with MASH and moderate to advanced liver fibrosis.

FDA. First therapy approved for fatty liver–related fibrosis. 2024. fda.gov/news-events/press-announcements/fda-approves-first-treatment;
FDA. Treatment approved for metabolic dysfunction–associated steatohepatitis (MASH). 2025. fda.gov/drugs/news-events-human-drugs/fda-approves-treatment

43

Call To Action: Integrating MASLD into the DSMES Workflow

1. **Identify** Risk
   - ❑ **Participant awareness:** ensure people with diabetes understand their increased risk for MASLD.
2. **Assess** Early
   - ❑ **Initial assessment (DSMES):** include MASLD risk and history on initial assessment forms
3. **Educate** Consistently
   - ❑ **Curriculum integration:** embed MASLD education across appropriate domains, such as healthy eating, medications, and physical activity.
4. **Stratify & Refer**
   - ❑ **FIB-4 and Fibrosis follow-up:** support awareness of FIB-4 scores and next-step fibrosis evaluation

44

Additional Resources


45

Conclusion

- Liver health is a critical component of cardiometabolic disease and metabolic syndrome. MASH/MASLD is a significant risk factor with type 2 diabetes, prediabetes, and CVD.
- Implementing a diagnosis algorithm for risk stratification and prevention of disease, such as FIB-4 testing, is an important early screening tool for those living with prediabetes, diabetes, and/or obesity.
- An interprofessional team is necessary to manage MASLD/MASH. Modifiable lifestyle recommendations, including weight management, meal patterns, and physical activity, for type 2 diabetes and MASLD are consistent and an important cornerstone with the pharmacological algorithm.

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46

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47

Thank you for joining us.

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48