Utilizing Culinary Medicine to Strengthen Medical Nutrition Therapy to Reduce Complication in Cirrhosis

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BACKGROUND

Cirrhosis is the advanced stage of chronic liver injury marked by progressive fibrosis and hepatic dysfunction resulting from alcohol-associated liver disease, chronic viral hepatitis, or metabolic dysfunction. It may ultimately progress to decompensation with complications such as portal hypertension, ascites, variceal bleeding, and hepatic encephalopathy.[1-2] Malnutrition and sarcopenia are highly prevalent (up to 70%) in cirrhosis and are associated with increased hospitalization, infection risk, and mortality.[3] Medical nutrition therapy (MNT) is a cornerstone of cirrhosis management that includes alcohol cessation, adequate energy intake, increased protein intake, sodium restriction, and avoidance of prolonged fasting.[4,5] Despite clear guidelines, adherence is often limited by practical ability to translate clinical recommendations into sustainable daily eating patterns. This case report offers culinary medicine (CM) as a preventative, skill-based intervention to reduce progression from compensated to decompensated cirrhosis by improving nutrition-related behavior change and dietary adherence. Based on established guidelines, three culinary medicine targets are proposed: (1) optimizing protein distribution across meals and snacks to mitigate sarcopenia and reduce catabolic stress, (2) implementing sodium-reduction strategies utilizing herbs and spices to preserve palatability, and (3) supporting alcohol cessation through structured meal timing. By integrating clinical nutrition guidelines with practical culinary skills, these strategies may empower patients and help reduce the risk of cirrhosis-related complications.

NUTRITIONAL CONSIDERATIONS

Translating clinical guidelines into practical food-based strategies remains essential for supporting implementation in clinical and community settings. **Table 1** summarizes evidence-based MNT recommendations alongside related culinary medicine applications for patients who have cirrhosis.

Table 1: Cirrhosis MNT Recommendations with Culinary Medicine Application

Nutritional Considerations	Evidence-Based MNT Recommendation[3, 6-8]	Culinary Medicine Application[9-16]
Energy and Protein Requirements	• Increased metabolic demand • Energy: 30-35 kcal/kg/day • Protein: 1.2-1.5 g/kg/day • Avoid protein restriction unless in severe encephalopathy	• Incorporate protein at each meal and snack to support daily intake distribution • Build balanced meals using affordable and sustainable protein sources
Meal Timing and Fasting Avoidance	• Reduced glycogen stores increase early fasting catabolism • Frequent meals every 3-4 hours • Late-evening snacks (~200 kcals) improves nitrogen balance and limits muscle loss	• Establish structured meal routines throughout the day • Plan evening snacks • Provide simple snack preparation strategies
Sodium Management	• Sodium restriction ≤ 2,000 mg/d for ascites management	• Flavor enhancement using sodium-free herbs and spices • Culinary techniques emphasizing aromatics and acids
Alcohol Cessation and Nutrition Recovery	• Alcohol cessation is essential for disease stabilization • Refer for additional support	• Structured meal timing using behavioral anchors replacing drinking routines • Develop alternative beverage habits

TIMING OF CULINARY MEDICINE INTERVENTION

Compensated Cirrhosis

✓ *Highest opportunity for CM intervention*

Focus:

1. Establish sustainable nutrition behaviors
2. Translate MNT into practical daily routines
3. Support long-term disease management
4. Refer for additional support & counseling

Patients are physically and cognitively able to engage in behavior change and skill development

Early Decompensation

✓ *CM intervention remains feasible*

Focus:

1. Maintain energy and protein intake
2. Simplify meal preparation to reduce burden of change
3. Reinforce structured meal & snack timing

Barriers begin to arise that include fatigue, early satiety, low motivation, decreased appetite, and increased symptoms

Decompensated Cirrhosis

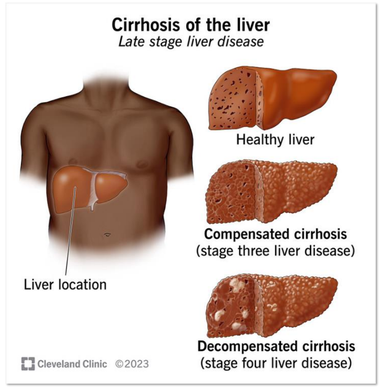
X *Not appropriate for CM intervention*

Focus:

1. Life-sustaining medical and nutrition support

Why CM is Not Appropriate:

1. Unable to participate in education
2. Cognitive impairment
3. Acute instability
4. Limited or absent oral intake (NPO, EN, or TPN)



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CULINARY MEDICINE STRATEGIES WITH CIRRHOSIS

Target 1: Protein Distribution and Snack Timing to Reduce Catabolic Stress[9-11]

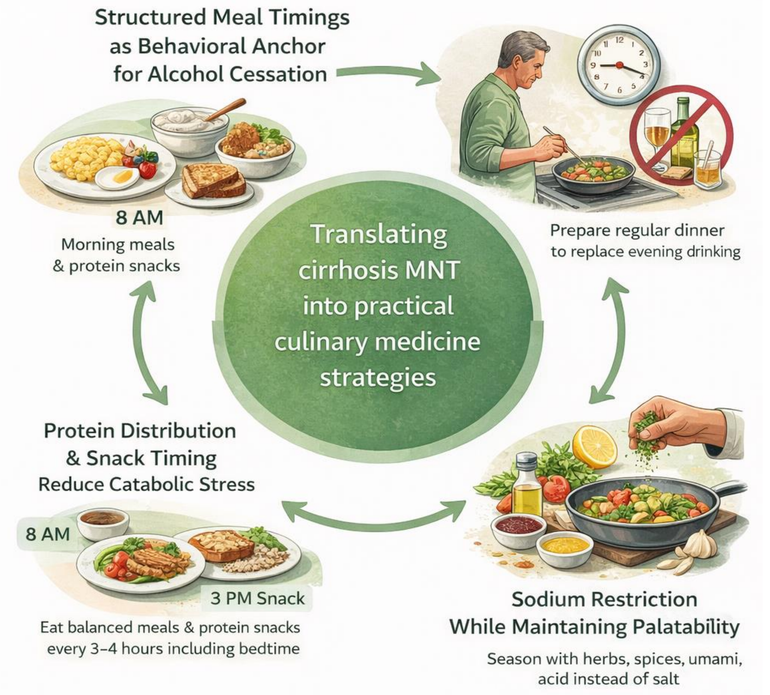
- Even distribution of protein intake across meals supports greater daily muscle protein synthesis
- Minimizing prolonged fasting through planned snacks, particularly late-evening intake to reduce overnight catabolic stress observed in cirrhosis populations
- Structured protein timing represents a feasible nutrition strategy to sustain overnight amino acid availability and stimulate protein synthesis and mitigate sarcopenia risk in chronic liver disease

Target 2: Sodium Restriction While Maintaining Palatability[12,13]

- Flavor-enhancement strategies using sodium-free herbs and spices to maintain food acceptability and overall meal satisfaction leading to long-term dietary adherence
- Providing CM education classes that translate sodium restriction guidelines into practical cooking behaviors by teaching flavor substitution strategies rather than simply advising patients to reduce salt intake

Target 3: Structured Meal Timing as a Behavioral Anchor to Reduce Alcohol Consumption[14-16]

- Alcohol consumption is consistently associated with poor dietary quality and altered eating behaviors, identifying nutrition patterns as intervention points
- Establishing structured meal timing and replacing alcohol with nutrient-dense alternative beverages may provide stability that supports nutritional adequacy
- Shared meals with family or peers provide social support and promote more consistent eating patterns



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CONCLUSION

Cirrhosis management relies heavily on nutrition strategies that patients must sustain outside of the clinical setting, yet translating MNT into daily eating behaviors remains challenging. This case demonstrates that culinary medicine provides a feasible, skill-based framework for translating structured meal timing, sodium reduction techniques, and strategic protein distribution into sustainable eating practices. The patient's clinical course highlights the challenges patients' face when nutrition recommendations are difficult to translate. Culinary medicine represents a scalable and practical approach for dietitians and healthcare professionals to operationalize nutrition guidelines through everyday food preparation, helping patients consistently apply practical nutrition recommendations in their daily lives.

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