

HEART FAILURE

HF: EXECUTIVE SUMMARY OF RECOMMENDATIONS (2017)

Executive Summary of Recommendations

Below are the major recommendations and ratings for the Academy of Nutrition and Dietetics Heart Failure (2017) Evidence-Based Nutrition Practice Guideline. View the Guideline Overview from the Introduction section. More detail (including the evidence analysis supporting these recommendations) is available on this website to Academy members and EAL subscribers under the **Major Recommendations** section.

To see a description of the Academy Recommendation Rating Scheme (Strong, Fair, Weak, Consensus, Insufficient Evidence) visit the EAL.

Screening and Referral

HF: Medical Nutrition Therapy in Heart Failure (NYHA Classes I-IV/AHA Stages B, C and D)

For adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D), the registered dietitian nutritionist (RDN) should provide medical nutrition therapy (MNT) to treat heart failure and contributing comorbidities, such as hypertension, disorders of lipid metabolism, diabetes mellitus and obesity. Every patient with heart failure should have a clear, detailed, and evidence-based plan of care that ensures the achievement of guideline determined medical therapy (GDMT) goals, effective management of comorbid conditions, timely follow-up with the healthcare team, appropriate dietary and physical activities, and compliance with secondary prevention guidelines for cardiovascular disease. Research reports that medical nutrition therapy resulted in a significant decrease in sodium intake and maintenance of body weight.

**Strong
Imperative**

HF: Frequency and Duration of Medical Nutrition Therapy in Heart Failure (NYHA Classes I-IV/AHA Stages B and C)

For adults with heart failure (NYHA Classes I - IV/AHA Stages B and C), the registered dietitian nutritionist (RDN) should provide an initial medical nutrition therapy (MNT) encounter lasting 30-60 minutes, with a follow-up encounter four to six weeks later, and determine if and when additional MNT encounters are needed. Research reports that this frequency and duration of medical nutrition therapy resulted in a significant decrease in sodium intake, as well as maintenance of serum sodium levels and body weight.

**Fair
Conditional**

HF: Frequency and Duration of Medical Nutrition Therapy in Advanced Heart Failure (NYHA Class IV/AHA Stage D)

For adults with advanced heart failure (NYHA Class IV/AHA Stage D), the registered dietitian nutritionist (RDN) should provide an initial medical nutrition therapy (MNT) encounter and additional follow-up encounters as often as every two weeks. Research reports that this frequency and duration of medical nutrition therapy resulted in increased exercise tolerance, higher physical component scores on quality of life measures and decreased anxiety, as well as maintenance of body weight.

**Fair
Conditional**

Nutrition Assessment

HF: Nutrition Assessment in Heart Failure (NYHA Classes I-IV/AHA Stages B, C and D)

The registered dietitian nutritionist (RDN) should assess the following in adults with heart failure (NYHA Classes I-IV/AHA Stages B, C and D), to formulate the nutrition care plan:

- *New York Heart Association (NYHA) functional classification*, which describes the severity of symptoms and exercise intolerance as follows:
 - Class I: No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea (shortness of breath).
 - Class II: Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea (shortness of breath).
 - Class III: Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, or dyspnea.
 - Class IV: Unable to carry on any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increase
- *Biochemical data, medical tests and medication usage:*
 - Lipid profiles
 - Blood pressure and/or Doppler blood pressure
 - Echocardiogram (left ventricular ejection fraction 40% or less)
 - Complete blood count, urinalysis, serum electrolytes (including calcium and magnesium), blood urea nitrogen, serum creatinine, glucose, fasting lipid profile, liver function tests, thyroid-stimulating hormone, brain natriuretic peptide (BNP) or N-terminal pro-B-type natriuretic peptide (NT-proBNP)
 - Use of medications, prescription and other over-the-counter medications, herbal supplements and complementary or alternative medications.
- *Nutrition-focused physical findings:*
 - Height, weight, body mass index (BMI) and waist circumference
 - Edema, congestion and shortness of breath
 - Cachexia and muscle wasting
 - Hand grip strength testing
- *Client history:*
 - General health and demographic information
 - Social history
 - Cultural preferences
 - Health literacy and numeracy
 - Education and occupation
 - Knowledge, beliefs, attitudes, motivation, readiness to change, self-efficacy and willingness and ability to make behavioral changes
 - Physical activity, including activities of daily living
 - Patient or family nutrition-related medical and health history
 - Other medical or surgical treatments
 - Previous nutrition care services and medical nutrition therapy (MNT) recommendations.
- *Food and nutrition-related history:*
 - Food, beverage and nutrient intake including energy intake, serving sizes, meal-snack patterns, carbohydrate, fiber, types and amounts of fat, protein, micronutrient intake and alcohol intake
 - Allergies and food intolerances
 - Early satiety
 - Altered sense of taste (hypogeusia and/or dysgeusia)
 - Dry mouth (xerostomia)
 - Gastrointestinal distress (nausea, vomiting, diarrhea, malabsorption, bloating, etc)
 - Experience with food, previous and current food and nutrition history, eating environment, access to healthy foods and eating out.

Every patient with heart failure should have a clear, detailed, and evidence-based plan of care that ensures the achievement of guideline determined medical therapy (GDMT) goals, effective management of comorbid conditions, timely follow-up with the healthcare team, appropriate dietary and physical activities, and compliance with secondary prevention guidelines for cardiovascular disease.

**Strong
Imperative**

HF: Measure Resting Metabolic Rate (RMR) in Adults with Heart Failure (NYHA Classes I-IV/AHA Stages B, C and D)

If indirect calorimetry is available, the registered dietitian nutritionist (RDN) should use a measured resting metabolic rate (RMR), which is then multiplied by a physical activity factor to estimate total energy needs in adults with heart failure (NYHA Classes I-IV/AHA Stages B, C and D). Measurement of resting metabolic rate using indirect calorimetry is more accurate than estimating resting metabolic rate using predictive equations.

Consensus
Conditional

HF: Estimate Resting Metabolic Rate (RMR) in Adults with Heart Failure (NYHA Classes I - IV/AHA Stages B and C)

If indirect calorimetry is not available, the registered dietitian nutritionist (RDN) should use 22kcal per kg actual body weight (for normally nourished patients) to 24kcal per kg actual body weight (for malnourished patients) to estimate resting metabolic rate (RMR), which is then multiplied by a physical activity factor to estimate total energy needs in adults with heart failure (NYHA Classes I-IV/AHA Stages B and C). In these patients, measured resting metabolic rate (RMR) ranged from 22kcal per kg actual body weight in normally nourished patients to 24kcal per kg actual body weight in malnourished patients.

Fair
Conditional

HF: Estimate Resting Metabolic Rate (RMR) in Adults with Advanced Heart Failure (NYHA Class IV/AHA Stage D)

If indirect calorimetry is not available, the registered dietitian nutritionist (RDN) should use 18kcal per kg actual body weight to estimate resting metabolic rate (RMR), which is then multiplied by a physical activity factor to estimate total energy needs in adults with advanced heart failure (NYHA Class IV/AHA Stage D). In these patients, the average measured resting metabolic rate (RMR) using indirect calorimetry was 1,610kcal per day (17.69kcal per kg actual body weight).

Consensus
Conditional

HF: Estimate Total Energy Needs Using RMR and Activity Factors in Adults with Heart Failure (NYHA Classes I-IV/AHA Stages B, C and D)

The registered dietitian nutritionist (RDN) should multiply the resting metabolic rate (RMR, measured or estimated) by one of the following physical activity factors to estimate total energy needs in adults with heart failure (NYHA Classes I-IV/AHA Stages B, C and D):

- *Sedentary*: 1.0 or more to less than 1.4
- *Low active*: 1.4 or more to less than 1.6
- *Active*: 1.6 or more to less than 1.9
- *Very active*: 1.9 or more to less than 2.5.

The Dietary Reference Intakes (DRI) Physical Activity Levels (PAL) represent the ratio of total energy expenditure to basal energy expenditure and are defined as sedentary, low active, active or very active.

Consensus
Imperative

Nutrition Intervention

HF: Individualize Energy Intake in Heart Failure (NYHA Classes I-IV/AHA Stages B, C and D)

For adults with heart failure (NYHA Classes I-IV/AHA Stages B, C and D), the registered dietitian nutritionist (RDN) should individualize energy intake, meeting total estimated energy needs [resting metabolic rate (RMR, measured or estimated), which is then multiplied by a physical activity factor] for weight maintenance, the prevention of further weight gain or loss, and the prevention of catabolism. Research reports that medical nutrition therapy resulted in maintenance of body weight (one of the goals of medical nutrition therapy for heart failure) along with effective management of comorbid conditions, such as hypertension, disorders of lipid metabolism, diabetes mellitus and obesity.

Strong
Imperative

HF: Intentional Weight Loss in Obesity and Heart Failure (NYHA Classes I-IV/AHA Stages B and C)

For adults with heart failure (NYHA Classes I-IV/AHA Stages B and C) who are also obese, once the patient is considered weight-stable and euvolemic (sodium, fluid and medication adherent), the registered dietitian nutritionist (RDN) may or may not consider intentional weight loss. Purposeful weight loss via healthy dietary intervention or physical activity for improving health-related quality of life or managing comorbidities such as diabetes mellitus, hypertension or sleep apnea may be reasonable in obese patients with heart failure.

Weak

Conditional

HF: Individualize Protein Intake in Heart Failure (NYHA Classes I–IV/AHA Stages B, C and D)

For adults with heart failure (NYHA Classes I–IV/AHA Stages B, C and D), the registered dietitian nutritionist (RDN) should individualize protein intake, prescribing at least 1.1g protein per kg actual body weight to prevent catabolism. Research reports that in patients with heart failure who are either normally nourished or malnourished, reported protein intakes ranging from 1.1g to 1.4g per kg actual body weight per day resulted in positive nitrogen balance, while protein intakes ranging from 1.0g to 1.1g per kg actual body weight per day resulted in negative nitrogen balance.

Fair

Imperative

HF: Individualize Sodium and Fluid Intake in Heart Failure (NYHA Classes I–IV/AHA Stages B, C and D)

For adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D), the registered dietitian nutritionist (RDN) should individualize sodium and fluid intake, within the ranges of 2000 - 3000 mg sodium per day and 1 - 2 L fluid per day. Research reports that a sodium intake of 2000 - 3000 mg per day and fluid intake of 1 - 2 L per day resulted in improvements in quality measures (readmissions rate, length of stay and mortality rate), renal function and clinical laboratory measures (blood urea nitrogen, creatinine, brain natriuretic peptide and serum sodium), symptom burden (shortness of breath, difficulty breathing when lying flat, swelling of legs or ankles, lack of energy, and lack of appetite) and body weight.

Fair

Imperative

HF: Encourage Individualized Physical Activity Plan for Adults with Heart Failure (NYHA Classes I–IV/AHA Stages B, C and D)

Unless medically contraindicated, the registered dietitian nutritionist (RDN) should encourage an individualized physical activity plan for adults with heart failure (NYHA Classes I–IV/AHA Stages B, C and D). Regular physical activity is recommended as safe and effective for patients with heart failure who are able to participate to improve functional status and cardiac rehabilitation can be useful in clinically stable patients with heart failure to improve functional capacity, exercise duration, health-related quality of life and mortality.

Strong

Conditional

HF: Educate on Self-Care for Adults with Heart Failure (NYHA Classes I–IV/AHA Stages B, C and D)

For adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D), the registered dietitian nutritionist (RDN) should educate on self-care, on topics such as, but not limited to:

- Appropriate eating plan based on stage and class of heart failure, as well as other comorbidities
- Energy and protein intake
- Sodium and fluid intake
- Physical activity
- Self-monitoring of weight and symptoms

Adults with heart failure should receive specific education to facilitate heart failure self-care.

Fair

Imperative

HF: Coordination of Care for Adults with Heart Failure (NYHA Classes I–IV/AHA Stages B, C and D)

For adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D), the registered dietitian nutritionist (RDN) should implement medical nutrition therapy (MNT) for heart failure and coordinate care as part of an interdisciplinary health care team. Every patient with heart failure should have a clear, detailed, and evidence-based plan of care that ensures the achievement of guideline determined medical therapy (GDMT) goals, effective management of comorbid conditions, timely follow-up with the healthcare team, appropriate dietary and physical activities, and compliance with secondary prevention guidelines for cardiovascular disease. This plan of care should be updated regularly and made readily available to all members of each patient's healthcare team.

Fair

Imperative

HF: Consult with Interdisciplinary Health Care Team Regarding Vitamin, Mineral and Herbal Supplementation in Heart Failure (NYHA Classes I - IV/AHA Stages B, C and D)

For adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D), the registered dietitian nutritionist (RDN) should consult with others on the interdisciplinary health care team regarding vitamin, mineral and herbal supplementation. Due to the many interactions between various supplements and common medications, it is unclear whether certain supplements, such as omega-3 fatty acids, coenzyme Q10, vitamin D, iron and thiamin, are appropriate for patients with heart failure.

Weak

Imperative

Nutrition Monitoring and Evaluation

HF: Monitor and Evaluate Effectiveness of Medical Nutrition Therapy (MNT) in Heart Failure (NYHA Classes I-IV/AHA Stages B, C and D)

The registered dietitian nutritionist (RDN) should monitor and evaluate the following in adults with heart failure (NYHA Classes I-IV/AHA Stages B, C and D), to determine the effectiveness of medical nutrition therapy (MNT):

- *New York Heart Association (NYHA) functional classification*, which describes the severity of symptoms and exercise intolerance as follows:
 - Class I: No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea (shortness of breath).
 - Class II: Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea (shortness of breath).
 - Class III: Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, or dyspnea.
 - Class IV: Unable to carry on any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increases.
- *Biochemical data, medical tests and medication usage:*
 - Lipid profiles
 - Blood pressure or Doppler blood pressure
 - Echocardiogram (left ventricular ejection fraction 40% or less)
 - Complete blood count, urinalysis, serum electrolytes (including calcium and magnesium), blood urea nitrogen, serum creatinine, glucose, fasting lipid profile, liver function tests, thyroid-stimulating hormone, brain natriuretic peptide (BNP) or N-terminal pro-B-type natriuretic peptide (NT-proBNP)
 - Use of medications, prescription and other over-the-counter medications, herbal supplements and complementary or alternative medications.
- *Nutrition-focused physical findings:*
 - Height, weight, body mass index (BMI) and waist circumference
 - Edema, congestion and shortness of breath
 - Cachexia and muscle wasting
 - Hand grip strength testing
- *Client history:*
 - General health and demographic information
 - Social history
 - Cultural preferences
 - Health literacy and numeracy
 - Education and occupation
 - Knowledge, beliefs, attitudes, motivation, readiness to change, self-efficacy, and willingness and ability to make behavioral changes
 - Physical activity, including activities of daily living
 - Patient or family nutrition-related medical and health history
 - Other medical or surgical treatments
 - Previous nutrition care services and medical nutrition therapy (MNT) recommendations.
- *Food and nutrition-related history:*
 - Food, beverage and nutrient intake including energy intake, serving sizes, meal-snack patterns, carbohydrate, fiber, types and amounts of fat, protein, micronutrient intake and alcohol intake
 - Allergies and food intolerances
 - Early satiety
 - Altered sense of taste (hypogeusia or dysgeusia)
 - Dry mouth (xerostomia)
 - Gastrointestinal distress (nausea, vomiting, diarrhea, malabsorption, bloating, etc.)
 - Experience with food, previous and current food and nutrition history, eating environment, access to healthy foods and eating out.

Every patient with HF should have a clear, detailed and continually updated evidence-based plan of care that ensures the achievement of guideline determined medical therapy (GDMT) goals, effective management of comorbid conditions, timely follow-up with the healthcare team, appropriate dietary and physical activities, and compliance with secondary prevention guidelines for cardiovascular disease.

**Strong
Imperative**