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HEART FAILURE

HF: INTRODUCTION (2017)

Guideline Overview

Guideline Title

Heart Failure (2017) Evidence-Based Nutrition Practice Guideline

Guideline Narrative Overview

The focus of this guideline is on the treatment of adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D).

Guideline Development and Contributors

This guideline outlines the most current information on heart failure. The recommendations developed in this guideline were based upon a systematic review of the literature in multiple practice areas, the American College of Cardiology / American Heart Association Task Force 2013 and 2016 Guidelines, and the European Society of Cardiology 2016 Guidelines.

A summary of the evidence analysis is below. Topics include:

- Medical Nutrition Therapy
- Energy
- Protein
- Sodium and Fluid
- Nutrient Intake and Supplementation (Coenzyme Q10, Iron, Omega-3 Fatty Acids, Thiamin and Vitamin D)

The number of supporting documents for these topics is below:

- **Recommendations:** 17
- **Conclusion Statements:** 46
- **Evidence Summaries:** 20
- **Article worksheets:** 17

Additional conclusion statements and evidence summaries supporting the recommendations are located in the American College of Cardiology / American Heart Association Task Force 2013 and 2016 Guidelines, and the European Society of Cardiology 2016 Guidelines.

To view the guideline development and review process, click here.

Contributors

Expand the **Project Team** to see the list of expert workgroup members, analysts and contributors for this project.

Revision

Academy guidelines are revisited every five years. An expert workgroup will be convened by the Evidence-based Practice Committee to determine the need for new and revised recommendations based on the available science. The process includes:

- Literature searches to identify new research published since the previous searches were completed. Updated inclusion/exclusion criteria and search terms may be warranted.
- Review to determine if the update will include modification to all, some or no recommendations compared to the earlier version(s) of the guideline, or development of new recommendations.
- Creation of a table comparing the new guideline and the older version of the guideline. The document will indicate which recommendations remained unchanged; updated; new; or not reviewed.

Using the Academy's EAL Methodology, an unbiased and transparent systematic review will be completed and the updated guidelines published on the EAL.

Medical Nutrition Therapy and Heart Failure

The registered dietitian nutritionist (RDN) plays an integral role in the interdisciplinary healthcare team by designing the optimal nutrition prescription that complements drug therapy, physical activity, and behavioral therapy. Based on the client's treatment plan and comorbid conditions, other nutrition practice guidelines may be needed in order to provide optimal treatment.

Populations to Whom This Guideline May Apply

This guideline applies to adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D).

Comparison of ACCF/AHA Stages of Heart Failure (HF) and New York Heart Association (NYHA) Functional Classifications

ACCF/AHA Stage		**NYHA Functional Classification**	
Stage A	At high risk for HF but without structural heart disease or symptoms of HF	None	
Stage B	Structural heart disease but without signs or symptoms of HF	Class I	No limitation of physical activity. Ordinary physical activity does not cause symptoms of HF.
Stage C	Structural heart disease with prior or current symptoms of HF	Class I	No limitation of physical activity. Ordinary physical activity does not cause symptoms of HF.
		Class II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in symptoms of HF.
		Class III	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes symptoms of HF.
		Class IV	Unable to carry on any physical activity without symptoms of HF, or symptoms of HF at rest.
Stage D	Refractory HF requiring specialized interventions	Class IV	Unable to carry on any physical activity without symptoms of HF, or symptoms of HF at rest.

HF: SCOPE OF GUIDELINE (2017)

Guideline Scope Characteristics

Below you will find a list of characteristics that describe the Scope of this Guideline.

Guideline Scope Characteristics

Below you will find a list of characteristics that describe the Scope of this Guideline.

Disease/Condition(s)
Guideline Scope Characteristics

Below, you will find a list of characteristics that describe the scope of this guideline.

The purpose of this guideline is to provide an evidence-based summary of effective practice in the nutrition management of adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D). Recommendations have been formulated within the context of the nutrition care process. The focus of this guideline is on dietary and physical activity interventions for heart failure.

This guideline is primarily intended for use by registered dietitian nutritionists (RDNs) involved in the management and treatment of adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D). Clinical judgment should be used when evaluating patients with co-morbid conditions. It may also be a valuable resource for other health care professionals involved in the care and treatment of heart failure. In addition, other stakeholders (e.g., public health and nutrition program and policy planners, and hospital and community outreach workers) may find the information in this guideline helpful to assess effective practice in the nutrition management of heart failure in adults or for consumer education purposes.

The scope of this guideline is not intended for the following:

- Interventions typically within the scope of practice of a certified exercise physiologist or other professional, for which, adequate training in physical activity interventions and other therapies is necessary.
- Prevention of heart failure
- Children and teens.

The information in this guideline should be used to provide individualized nutrition care with practical nutrition recommendations that are based on the most current evidence to treat heart failure.

Guideline Category
Management, Treatment

Clinical Specialty
Cardiology, Emergency Medicine, Nephrology, Nursing, Nutrition, Pharmacology, Physical Medicine and Rehabilitation

Intended Users
Registered Dietitians, Advanced Practice Nurses, Allied Health Personnel, Health Care Providers, Nurses, Pharmacists, Physical Therapists, Physician Assistants, Physicians

Guideline Objective(s)
Overall Objective

To provide Medical Nutrition Therapy (MNT) guidelines for adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D).

Specific Objectives

- To define evidence-based recommendations for RDNs that are carried out in collaboration with other healthcare providers
- To guide practice decisions that integrate medical and lifestyle interventions (nutrition, physical activity and behavioral elements)
- To reduce variations in practice among RDNs

- To promote self-management strategies that empower the patient to take responsibility for day-to-day management and to provide the RDN with data to make recommendations to adjust MNT or recommend other therapies to achieve clinical outcomes
- To enhance the quality of life for the patient, utilizing customized strategies based on the individual's preferences, lifestyle and goals
- To develop content for intervention that can be tested for impact on clinical outcomes
- To define the highest quality of care within cost constraints of the current healthcare environment.

Target Population
Adult (19 to 44 years), Middle Age (45 to 64 years), Aged (65 to 79 years), Advanced Aged (80 years and over), Male, Female

Target Population Description
Adults with heart failure (NYHA Classes I - IV/AHA Stages B, C and D).

Comparison of ACCF/AHA Stages of Heart Failure (HF) and New York Heart Association (NYHA) Functional Classifications

ACCF/AHA Stage		**NYHA Functional Classification**	
Stage A	At high risk for HF but without structural heart disease or symptoms of HF	None	
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		Class II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in symptoms of HF.
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Stage D	Refractory HF requiring specialized interventions	Class IV	Unable to carry on any physical activity without symptoms of HF, or symptoms of HF at rest.

Interventions and Practices Considered
The Heart Failure Evidence-Based Guideline is based on the Academy of Nutrition and Dietetics' Nutrition Care Process and Model, which involves the following steps. Terms relevant to the treatment of adults with heart failure come from the International Dietetics & Nutrition Terminology (IDNT) Reference Manual: Standardized Language for the Nutrition Care Process. Fourth Edition.

- Nutrition Assessment
- Nutrition Diagnosis
- Nutrition Intervention
- Nutrition Monitoring and Evaluation.

This guideline addresses topics that correspond to the following areas of the Nutrition Care Process.

I. Referral to a Registered Dietitian Nutritionist
II. Medical Nutrition Therapy.

HF: STATEMENT OF INTENT (2017)

Heart Failure Statement of Intent

Evidence-based nutrition practice guidelines are developed to help Registered Dietitians, practitioners, patients, families, and consumers make shared decisions about health care choices in specific clinical circumstances. If properly developed, communicated, and implemented, guidelines can improve care.

While the evidence-based nutrition practice guideline represents a statement of promising practice based on the latest available evidence at the time of publication, the guideline is not intended to overrule professional judgment. Rather, it may be viewed as a relative constraint on individual clinician discretion in a particular clinical circumstance. The independent skill and judgment of the health care provider must always dictate treatment decisions. These nutrition practice guidelines are provided with the express understanding that they do not establish or specify particular standards of care, whether legal, medical or other.

The Role of Patient and Family Preference

This guideline recognizes the role of patient and family preferences for possible outcomes of care, when the appropriateness of a clinical intervention involves a substantial element of personal choice or values. With regard to types of evidence that are associated with particular outcomes, Shaughnessy and Slawson (1-3) describe two major classes. Patient-oriented evidence that matters (POEM) deals with outcomes of importance to patients, such as changes in morbidity, mortality, or quality of life. Disease-oriented evidence (DOE) deals with surrogate end-points, such as changes in laboratory values or other measures of response. Although the results of DOE sometimes parallel the results of POEM, they do not always correspond.

When possible, the Academy of Nutrition and Dietetics recommends using POEM-type evidence rather than DOE. When DOE is the only guidance available, the guideline indicates that key clinical recommendations lack the support of outcomes evidence.

References

1. Slawson DC, Shaughnessy AF. Becoming an information master: using POEMs to change practice with confidence. Patient-Oriented Evidence that Matters. *J Fam Pract*. 2000 Jan;49(1):63-7. Erratum in: *J Fam Pract* 2000 Mar;49(3):276.
2. Slawson DC, Shaughnessy AF, Ebell MH, Barry HC. Mastering medical information and the role of POEMs--Patient-Oriented Evidence that Matters. *J Fam Pract*. 1997 Sep;45(3):195-6.
3. Shaughnessy AF, Slawson DC. POEMs: patient-oriented evidence that matters. *Ann Intern Med*. 1997 Apr 15;126(8):667.

HF: GUIDELINE METHODS (2017)

General and Specific Methods for Heart Failure (2017) Guideline

Below are links to both the general methods that Academy has put in place for evidence analysis and creating the guidelines, as well as the specific search methods and criteria for each question.

General Methods

Click here to view a description of the Academy's process of evidence analysis and guideline creation.

Methods for Specific Topics

Select Specific Topics Search Methods from the Introduction section to view descriptions of search criteria and findings for each topic covered in this guideline.

History of the Development of This Guideline

This guideline is the second publication of the Academy of Nutrition and Dietetics Heart Failure (2017) Evidence-Based Nutrition Practice Guideline.

HF: SPECIFIC METHODS (2017)

Search Criteria and Results for Specific Topics

Each evidence analysis topic has a link to supporting evidence, including the **Search Plan and Results.** The Search Plan and Results includes when the search plan was performed, inclusion and exclusion criteria, search terms, databases that were searched and the excluded articles.

Below is a list of the recommendations and the related evidence analysis questions, with the link to each search plan (log into the EAL to view). Some recommendations are supported by multiple conclusion statements and therefore have multiple search plans listed.

Consensus-rated recommendations were not developed using the Academy's evidence analysis process, but based on consensus documents. Therefore, these recommendations do not have links to *Search Plans.*

Medical Nutrition Therapy

HF: Medical Nutrition Therapy

HF: Medical Nutrition Therapy Search Plan and Results

Nutrition Assessment

HF: Nutrition Assessment

None.

HF: Assessment of Energy Needs

HF: Energy Search Plan and Results

Nutrition Intervention

HF: Energy and Protein Intake

HF: Medical Nutrition Therapy Search Plan and Results

HF: Energy Search Plan and Results

HF: Protein Search Plan and Results

HF: Sodium and Fluid Intake

HF: Sodium and Fluid Search Plan and Results

HF: Physical Activity

None.

HF: Educate on Self-Care

None.

HF: Coordination of Care

HF: Supplements Search Plan and Results

Nutrition Monitoring and Evaluation

HF: Monitor and Evaluate Effectiveness of Medical Nutrition Therapy

None.

HF: IMPLEMENTATION OF THE GUIDELINE (2017)

This publication of this guideline is an integral part of the plans for getting the Academy MNT evidence-based recommendations on medical nutrition therapy for heart failure to all dietetics practitioners engaged in, teaching about or researching the topic. National implementation workshops at various sites around the country and during the Academy Food Nutrition Conference & Expo (FNCE) are planned. Additionally, there are recommended dissemination and adoption strategies for local use of the *Academy of Nutrition and Dietetics Heart Failure (2017) Evidence-Based Nutrition Practice Guideline.*

The guideline development team recommended multi-faceted strategies to disseminate the guideline and encourage its implementation. Management support and learning through social influence are likely to be effective in implementing guidelines in dietetic practice. However, additional interventions may be needed to achieve real change in practice routines.

Implementation of the guideline will be achieved by announcement at professional events, presentations and training. Some strategies include:

- **National and local events:** State dietetic association meetings and media coverage will help launch the guideline
- **Local feedback adaptation:** Presentation by members of the work group at peer review meetings and opportunities for CEUs for courses completed
- **Education initiatives:** The guideline and supplementary resources will be freely available for use in the education and training of dietetic interns and students in approved Commission on Accreditation of Dietetics Education (CADE) programs
- **Champions:** Local champions will be identified and expert members of the guideline team will prepare articles for publications. Resources will be provided that include PowerPoint presentations, full guidelines and pre-prepared case studies.
- **Practical tools:** Some of the tools that will be developed to help implement the guideline include specially-designed resources such as clinical algorithms, slide presentations, training and toolkits.

Specific distribution strategies include:

Publication in full: The guideline is available electronically at the Academy Evidence Analysis Library website and announced to all Academy Dietetic Practice Groups.

HF: BENEFITS AND RISKS/HARMS OF IMPLEMENTATION (2017)

When using these recommendations, please consider the following general benefits:

- A primary goal of implementing these recommendations includes improving a person's ability to achieve optimal nutrition through healthful food choices and physically active lifestyle.
- Although costs of MNT sessions and reimbursement vary, MNT is essential for improved outcomes.
- MNT education can be considered cost-effective when considering the benefits of nutrition interventions on the onset and progression of comorbidities vs. the cost of the intervention.

When using these recommendations, in light of potential risks and harms, consider the following:

- Patient's age, socio-economic status, cultural issues, psychosocial and mental health status, health history and other individual and health conditions.
- Use clinical judgment in applying the guidelines.

HF: BACKGROUND INFORMATION (2017)

Identifying Information and Availability

See **Project Team** on the home page for a list of team members and any disclosures of potential conflicts of interest of workgroup members.

Bibliographic Source

Academy of Nutrition and Dietetics. Academy of Nutrition and Dietetics Heart Failure (2017) Evidence-Based Nutrition Practice Guideline, Chicago (IL): Academy of Nutrition and Dietetics, 2017.

Date Released

2017

Guideline Developer

Academy of Nutrition and Dietetics

Guideline Status

This is the first update (second publication) of the Heart Failure (2017) Evidence-Based Nutrition Practice Guideline.

Guideline Availability

The Heart Failure (2017) Evidence-Based Nutrition Practice Guideline in its entirely is available online to Academy of Nutrition and Dietetics members and Evidence Analysis Library (EAL) subscribers. The Guideline Introduction and Executive Summary of Recommendations are available to the public.

Copyright Statement

HF: REFERENCES (2017)

References used in this guideline are listed within each recommendation, see the Major Recommendations section.
To view references included and excluded from this evidence analysis, view the Criteria and Results for Specific Topics.

Heart Failure (2017) Major Recommendation References

Medical Nutrition Therapy

HF: Medical Nutrition Therapy

Arcand JL, Brazel S, Joliffe C, et al, Education by a dietitian in patients with heart failure results in improved adherence with a sodium-restricted diet: A randomized trial. *Am Heart J.* 2005; 150: 716e1-716e5.

Donner Alves F, Correa Souza G, Brunetto S, Schweigert Perry ID, Biolo A. Nutritional orientation, knowledge and quality of diet in heart failure: randomized clinical trial. *Nutr Hosp.* 2012; 27 (2): 441-448.

Kugler C, Malehsa D, Schrader E, Tegtbur U, Guetzlaff E, Haverich A, Strueber M. A multi-modal intervention in management of left ventricular assist device outpatients: dietary counselling, controlled exercise and psychosocial support. *Eur J Cardiothorac Surg.* 2012; 42 (6): 1,026-1,032.

References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

Yancy CW, Jessup M, Bozkurt B, Butler J, Casey DE Jr, Drazner MH, Fonarow GC, Geraci SA, Horwich T, Januzzi JL, Johnson MR, Kasper EK, Levy WC, Masoudi FA, McBride PE, McMurray JJV, Mitchell JE, Peterson PN, Riegel B, Sam F, Stevenson LW, Tang WHW, Tsai EJ, Wilkoff BL. 2013 ACCF/AHA guideline for the management of heart

failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation.* 2013;128:e240–e327.

Nutrition Assessment

HF: Nutrition Assessment

None.

References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

Yancy CW, Jessup M, Bozkurt B, Butler J, Casey DE Jr, Drazner MH, Fonarow GC, Geraci SA, Horwich T, Januzzi JL, Johnson MR, Kasper EK, Levy WC, Masoudi FA, McBride PE, McMurray JJV, Mitchell JE, Peterson PN, Riegel B, Sam F, Stevenson LW, Tang WHW, Tsai EJ, Wilkoff BL. 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation.* 2013;128:e240–e327.

HF: Assessment of Energy Needs

Aquilani R, Opasich C, Verri M, Boschi F, Febo O, Pasini E, Pastoris O. Is Nutritional Intake Adequate in Chronic Heart Failure Patients? *J Am Coll Cardiol.* 2003, 42 (7): 1,218-1,223.

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Otten JJ, Hellwig JP, Meyers LD, editors. Institute of Medicine/National Academy of Sciences. *Dietary DRI Reference Intakes: The Essential Guide to Nutrient Requirements, 2006.* Accessed at http://www.nal.usda.gov/fnic/DRI/Essential_Guide/DRIEssentialGuideNutReq.pdf.

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Yost G, Gregory M, Bhat G. Nutrition assessment with indirect calorimetry in patients evaluated for left ventricular assist device implantation. *Nutr Clin Pract* 2015;30(5):690-7.

Nutrition Intervention

HF: Energy and Protein Intake

Aquilani R, Opasich C, Gualco A, Verri M, Testa A, Pasini E, Viglio S, Iadarola P, Pastoris O, Dossena M, Boschi F. Adequate energy-protein intake is not enough to improve nutritional and metabolic status in muscle-depleted patients with chronic heart failure. *Eur J Heart Fail* 2008;10(11):1127-35.

Aquilani R, Opasich C, Verri M, Boschi F, Febo O, Pasini E, Pastoris O. Is Nutritional Intake Adequate in Chronic Heart Failure Patients? *J Am Coll Cardiol.* 2003, 42 (7): 1,218-1,223.

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References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

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HF: Sodium and Fluid Intake

Arcand J, Ivanov J, Sasson A, Floras V, Al-Hesayen A, Azevedo ER, Mak S, Allard JP, Newton GE. A high-sodium diet is associated with acute decompensated heart failure in ambulatory heart failure patients: a prospective follow-up study. *Am J Clin Nutr.* 2011; 93 (2): 332-337.

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HF: Physical Activity

None.

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failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation.* 2013;128:e240–e327.

HF: Educate on Self-Care

None.

References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

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HF: Coordination of Care

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Nutrition Monitoring and Evaluation

HF: Monitor and Evaluate Effectiveness of Medical Nutrition Therapy

None.

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