

Heart Failure

Applicable to: Nurses, Physicians and Other Health Professionals

Recommendations

Dietary and lifestyle modifications can help improve severity and symptoms of heart failure (HF). The recommended interventions for HF include managing underlying conditions such as treating hypertension, dyslipidemia, and metabolic syndrome, encouraging regular physical activity and discouraging smoking and use of illicit drugs.

- Most Canadians are consuming excess sodium, therefore supporting patients to reduce sodium intake is recommended. Assess dietary intake of sodium based on frequency of eating out, consuming packaged or processed foods, and choosing higher sodium containing food products. Educate patients to label read and eat smaller portions of higher sodium foods and provide tips for eating out.
- Sodium restrictions may help with fluid retention which is a primary goal of HF management. Excess dietary sodium is associated with increased risk of hypertension, left ventricular hypertrophy (thickening of the heart walls) and cardiovascular disease.
 - Most people with HF will benefit from a sodium intake between 2000 and 3000 mg/day
 - Consider 2000 mg of sodium or less daily if fluid retention (hypervolemia) is present.
 - Further sodium reduction to <2000 mg/day may be required in moderate to severe HF.
- Following a physical assessment by the healthcare team, a fluid restriction may be required. Consider a fluid restriction <8 cups (<2.0 L/day) when serum sodium levels are low (hyponatremia).
- Encourage patients to measure their weight each morning. Changes in weight can indicate changes in sodium and fluid status. Sudden weight gain is often a sign of hypervolemia and an indicator of worsening HF severity.
- Long chain omega-3 fats (marine based) are associated with lower HF incidence in older adults. Support patients to consume at least two servings of fish each week. Fish oil supplements are not part of the HF guidelines at this time.
- Alcohol recommendations are based on the severity of HF and on individual assessment. Light to moderate alcohol intake may lower risk of all-cause mortality in some people with HF. People with alcoholic cardiomyopathy should abstain from alcohol to improve HF symptoms or outcomes.
- People with nutritional deficiencies, malabsorption, or excess excretion of nutrients leading to cardiac cachexia should be seen by a dietitian for close monitoring and intensive nutritional support.
- Close monitoring of blood electrolytes and kidney function is recommended for patients on HF medications as they can lead to nutritional implications such as high and low serum potassium levels (hyperkalemia and hypokalemia respectively).
- Other than adjusting for nutrient deficiencies, the use of vitamin and mineral supplements, and natural health products does not benefit HF management.
- Encourage patients to keep their intake of vitamin K rich foods consistent when they are taking warfarin and other pharmacological anticoagulants.

A person with heart failure (HF) may work with multiple different healthcare professionals including the primary care or family physician, cardiologist, nephrologist, surgeons, registered nurse or nurse practitioners, physical and occupational therapists, registered dietitians, mental health professionals, social workers and pharmacists. This guideline provides nutrition interventions to help manage the symptoms of HF and improve quality of life and outcomes.

Nutrition Guideline Cardiovascular Care

For Professional Reference Only

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Health Benefits

Following the recommendations in this guideline can help prevent:¹

- symptoms and signs of HF
- acute decompensated HF events and hospitalization

Patient Resources are available to support patient care following the recommendations within these guidelines.

Key Questions

Definition

- What is heart failure?
- How are the stages of heart failure classified?
- What are the risk factors for the development of heart failure?
- What is the primary nutrition concern for individuals with heart failure?
- What are the nutrition recommendations for the prevention of heart failure?

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Supplements and Drug-Nutrient Interactions

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- Are there any handouts on heart failure I can use with my patients?

Heart Failure

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Definition

What is heart failure?

Heart failure (HF) is a condition that occurs when the heart is unable to pump (fill or eject) enough blood to meet the metabolic demands of the body.² This occurs from impaired contraction (systolic dysfunction) or relaxation (diastolic dysfunction) of the heart muscle.² Ejection fraction (EF) is the amount of blood that is getting pumped out of the heart. People with HF can have two different types of EF:

1. Preserved ejection fraction (HFpEF): Also considered normal EF or diastolic HF. When the heart is relaxed and is filling with blood the ventricles do not relax like they should.
2. Reduced ejection fraction (HFrEF): Also considered systolic HF. The muscles of the heart do not contract effectively and therefore less oxygen-rich blood is pumped out into the body.

HF is a clinical diagnosis; therefore, it is based on the presence of symptoms. These symptoms include shortness of breath, impaired exercise tolerance, and edema in the lungs or periphery.² The following are signs and symptoms of HF:

- Dyspnea (shortness of breath [SOB])
- Orthopnea (SOB when laying down)
- Paroxysmal nocturnal dyspnea (SOB at night)
- Fatigue
- Abdominal distention
- Limited exercise tolerance
- Impaired left ventricular function
- Fluid retention (hypervolemia)
 - Pulmonary congestion
 - Splanchnic congestion
 - Peripheral edema
- Weight gain (due to fluid retention)

HF is the end-stage of several cardiovascular diseases (CVD) and other chronic conditions. Refer to the *Nutrition Guidelines: Hypertension and Heart Health* for details on nutrition recommendations for elevated blood pressure, dyslipidemia and heart health prevention and treatment.

How are the stages of heart failure classified?

Classification of HF is according to the severity of symptoms experienced. The New York Heart Association (NYHA) and American Heart Association (AHA) and American College of Cardiology (ACC) provided a tool (Table 1) to determine the severity of symptoms in people with HF and those at risk for HF. It is based on the patient's tolerance to physical activity, objective assessment measures and early identification of HF categorized into stages.^{3,4} Early identification of people at risk for HF allows for the introduction of therapeutic interventions before left ventricular dysfunction occurs.⁴ Stages A and B are not considered HF and symptoms of HF are not present, however risk for the development of HF is high.

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Table 1. ACC/AHA and NYHA Classification of Heart Failure^{3,4}

ACC/AHA Stages of Heart Failure		NYHF Functional Capacity Classes		Objective**
A	At high risk for HF but without structural heart disease or symptoms of HF	None		None
B	Structural heart disease but without signs or symptoms of HF	I	No limitation of physical activity. Ordinary physical activity does not cause symptoms of HF.*	No objective evidence of CVD
C	Structural heart disease with prior or current symptoms of HF	I	No limitation of physical activity. Ordinary physical activity does not cause symptoms of HF.*	No objective evidence of CVD
		II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in symptoms of HF.*	Objective evidence of minimal CVD
		III	Noticeable limitation of physical activity. Comfortable at rest, but less than ordinary activity causes symptoms of HF.	Objective evidence of moderately severe CVD
		IV	Symptoms of HF at rest, or unable to carry on any physical activity without symptoms of HF	Objective evidence of severe CVD
D	Refractory HF requiring specialized intervention	IV	Symptoms of HF at rest, or unable to carry on any physical activity without symptoms of HF	Objective evidence of severe CVD

*Symptoms may include fatigue, palpitation, dyspnea or angina pain

**Objective evidence is measured with electrocardiograms, stress tests, x-rays, echocardiograms and radiological images

What are the risk factors for the development of heart failure?

Several comorbid conditions can lead to structural heart disease, therefore treatment and management of the comorbid conditions can help to delay the onset of HF. The major clinical risk factors include hypertension, myocardial infarction, diabetes mellitus, cardiovascular disease, valvular heart disease, obesity and excess alcohol.⁵

What is the primary nutrition concern for individuals with heart failure?

People with HF should be managed in a multidisciplinary outpatient education program that is comprehensive, as this is shown to improve outcomes for people with HF, including lowering rates of all-cause mortality, all-cause hospitalization and HF hospitalization.⁶ Nutrition education should be focused on the management of sodium and fluid intake, along with promoting euvoemia (healthy body fluid status).⁶ The goal of nutrition therapy is to reduce the symptom severity through sodium restriction and sometimes fluid restriction.² Non-adherence to sodium restriction is associated with worsening HF status.⁷

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What are the nutrition recommendations for the prevention and management of heart failure?

People at high risk for HF (Stages A and B including people with heart disease, hypertension, or diabetes) can make lifestyle and dietary changes to help reduce the risk for developing HF.⁴ Table 2 can help to determine what the best lifestyle interventions are for each stage in the prevention and management of HF.

Table 2. Recommended therapeutic lifestyle and nutrition goals based on stage of heart failure⁴

Stage	NYHF Class	Lifestyle and Nutrition Therapy Goals
A		Treat hypertension, dyslipidemia and metabolic syndrome, encourage smoking cessation, encourage regular physical activity and discourage alcohol intake and illicit drug use
B	NYHF I	All stage A therapies should be addressed.
C	NYHF I-IV	All stage A therapies should be addressed. Dietary sodium restriction. Fluid restriction (may be using diuretics)
D	NYHF IV	All stage A therapies should be addressed. Dietary sodium restriction. Fluid restriction (may be using diuretics) Decisions on appropriate measures above are based on level of care required Optional compassionate end of life care/hospice

The following recommendations are part of a heart healthy eating plan:

- Consume a variety of vegetables and fruits.
- Choose fish at least twice weekly.
- Increase soluble fibre such as psyllium, oat bran, barley and legumes.
- Choose high fibre foods such as whole grain breads, cereals and pastas, vegetables, legumes and nuts.
- Reduce saturated fat to less than 7% of total calories (about 12 – 16 g/day), mainly found in animal products like meat, poultry skin, cheese and high fat dairy products.
- Avoid foods containing trans-fats or hydrogenated oils like some margarines and baked foods.
- Choose healthy unsaturated fats like nuts, seeds, avocados, olives, and vegetable oils made from olives, canola, safflower, sunflower and sesame seeds.
- Replace animal meats with plant sources of protein like soy proteins (tofu and edamame beans), legumes (beans, lentils and peas), and nuts/seeds.
- Choose and prepare foods with little or no salt.
- Minimize intake of beverages and foods with added sugar. Aim for less than 5 to 10% daily, which is about 15 – 30 grams for someone who consumes a smaller diet and 24 – 50 grams for someone consuming a larger diet.

Sodium Restriction

Why is dietary sodium a concern in people with heart failure?

Sodium has osmotic properties and can regulate fluid balance including blood volumes.⁸ People with HF typically have some degree of sodium imbalance, which can lead to vasoconstriction and sodium/water retention by the kidneys.⁸ Over time this leads to excess sodium and hypervolemia along with myocardial damage leading to the presence of HF symptoms.

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What is the recommended amount of dietary sodium for people with heart failure?

Evidence to support a sodium restriction in people with HF is limited due to co-interventions for HF management and defined clinical outcomes based on sodium restriction alone. The main goal for sodium restriction is to reduce the amount of sodium retention and to improve HF symptoms.

Table 3. Dietary Sodium Restriction Based on HF Stage

Stage	NYHF Class	Sodium restriction guide
A		Consider recommending ≤ 2000 mg/day if volume overloaded. ^{4,9}
B	NYHF I	May restrict sodium as low as the adequate intake of 1500 mg/day. ^{4,9}
C	NYHF I-IV	Most people with HF will benefit from a sodium intake between 2000 to 3000 mg/day to improve symptoms. ^{10,11,12}
D	NYHF IV	Most people with HF will benefit from a sodium intake between 2000 to 3000 mg/day to improve symptoms. ^{10,11,12} Further reduction to <2000 mg/day of sodium may be required for moderate to severe HF. ^{11,12}

How can people assess their sodium intake?

Most Canadians are consuming in excess of 3400 mg of sodium daily,¹³ therefore dietary instructions on sodium restriction are recommended in all people with HF.¹² People with HF plus diabetes, dyslipidemia or obesity should get specific dietary instructions.¹²

The majority of dietary sodium comes from processed foods (77%); some from naturally occurring in food (12%), some added at the table or used in cooking (11%).¹² The top five food group sources of sodium in Canada are mixed dishes (macaroni and cheese, lasagna, beef stew), baked goods (bread, buns, muffins, biscuits), processed meats (deli meat, hotdogs, seasoned meat), soups and cheese.¹⁴

To assess dietary sodium intake, a detailed food history will be required.¹⁵ For an estimation of dietary sodium intake, use the Canadian based dietary sodium calculator, available from:

<http://www.projectbiglife.ca/sodium> Tips to lower sodium intake:¹⁴

Grocery Shopping and Label Reading

- Read the Nutrition Facts table. Choose foods with <15% of the Daily Value for sodium.
- Choose unsalted or low-sodium foods.
- Eat fresh or frozen vegetables.
- Choose low sodium breads, cereal and baked goods.
- Choose grains such as brown rice, barley, quinoa which are sodium-free.
- Choose unsalted nuts and natural nut butters.
- Look for lower sodium milk, fortified soy beverages and yogurt.
- Use Greek yogurt rather than cottage cheese.
- Buy unseasoned meat, poultry, fish, seafood and tofu.
- Use low sodium canned beans, peas and lentils, or try dried beans, peas and lentils.
- Limit or avoid adding salt when cooking.
- Limit processed foods and condiments. Make soups, salads and salad dressing.
- Avoid salty snack foods.
- Eat smaller portion sizes of foods with salt.

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Eating away from home:

- Limit restaurant meals and fast foods.
- Remove the salt shaker from the table.
- Ask for your meal to be made without salt or monosodium glutamate (MSG).
- Limit condiments high in sodium such as barbecue sauce, soy sauce, ketchup, mustard, relish, pickles, hoisin sauce, fish sauce and oyster sauce.
- Ask for dressings, sauces or gravy on the side.

Fluid Restriction

What are the recommended fluid restrictions for people with acute heart failure?

Individuals with HF should discuss fluid recommendations with their healthcare team, as management depends on their current physical assessment.⁹ People with HF should be advised to not use fluids to treat or prevent thirst.⁶ It is also not recommended to increase fluids or water intake to help increase diuresis and release excess fluid retention.

Depending on the stage or severity of HF, fluid requirements may vary. Note that low serum sodium (hyponatremia) is considered a serum sodium level <130 mmol/L.

Acute decompensated HF		limit fluid to <8 cups (<2.0 L daily) when hyponatremia is present. ⁶
Ambulatory people with HF	Renal dysfunction, advanced refractory HF (unresponsive to medical therapies) or stage D (NYHF class IV), hyponatremia	limit fluid intake to 6 – 8 cups (1.5 – 2.0 L) per day.
Hospitalized patients with HF	Not resistant to diuretics or have significant hyponatremia	limit fluids to <8 cups (<2.0 L daily)

Weight Measurements

How often should a person with heart failure weigh themselves?

People with HF should be encouraged to measure their weight each morning. Weight should be measured empty bladder and in the same clothing each day. Suggest the patient record their weight. Short term changes in body weight are a good indication of changes in sodium and fluid status.²

What should a person with heart failure do if they see changes in their weight?

Sudden weight gain is likely due to hypervolemia. In people with HF, hypervolemia is a common risk factor for hospitalization and an indicator that immediate treatment is required for the worsening HF.^{5,9} If a person has gained or lost more than three pounds in one to two days or five pounds in one week, they should seek medical attention.⁹ When a weight change like this occurs, dietitians will often encourage the patient to record what they consumed (all food and beverages) the previous day to identify and educate patients on the effects of dietary intake on fluid and sodium retention. For patients requiring closer monitoring, a referral to a heart function clinic team is warranted.

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Omega-3 Fatty Acids

Do omega-3 fatty acid supplements have an effect on heart failure outcomes?

There are two types of omega-3 fatty acid; short-chain plant derived α -linolenic acid (ALA) and long-chain marine derived eicosapentaenoic acid (EPA) and docosahexanoic acid (DHA). ALA is found in ground flaxseed, walnuts and walnut oil, and non-hydrogenated margarines made from canola, linseed and soybean oils. ALA is converted to EPA and DHA, however in very small amounts, therefore the omega-3 recommendations for cardiovascular outcomes is focused on EPA/DHA.¹⁶

Consuming long-chain EPA/DHA is associated with a lower incidence of HF in older adults. The risk and incidence of HF is higher in older adult.^{2,17} The following recommendation can be made to help patients increase their intake of EPA/DHA:

- Consume two or more servings of fish each week. One serving of fish is about 3.5 oz (100 grams).² Attaining two or more servings of fatty fish weekly will provide an average of 200 – 500 mg/day of EPA/DHA. 200 to 500 mg of EPA/DHA daily is the recommended intake to lower risk of cardiovascular disease risk markers.²

Studies have shown that healthy adults who consume marine sources of omega-3 fats (EPA/DHA) have improved cardiovascular risk markers such as:^{16,17}

- reducing serum triglycerides
- reducing blood pressure
- improving arterial stiffness
- improving endothelial function
- inhibiting inflammatory process
- associated with the lowest risk of coronary events such as heart disease mortality, primary cardiac arrests and ischemic heart disease

Are omega-3 EPA/DHA supplements recommended for people with heart failure?

Although supplementation of fish oil is not currently part of the guidelines for heart failure, it is safe to recommend up to 1000 mg of EPA/DHA if dietary fish intake is low. Consult with physician if patient is considering supplementation.² The consensus is unclear for supplementation of EPA/DHA in people with HF. Most studies have been completed on patients irrespective of left ventricular ejection fraction.²

Note that people who have angina or an implantable cardioverter defibrillator (ICD) should know that supplementing EPA/DHA may be contraindicated.¹⁸

Alcohol

What is the recommended limit for alcohol intake for people with heart failure?

The recommendations for alcohol use should be individualized and based on severity of HF, co- morbidities, and medications. Consult with the multidisciplinary team to discuss safety of alcohol use.

Some studies have found that light to moderate alcohol intake (one to 14 drinks per week) reduces the risk for all-cause mortality in people with HF and underlying ischemic cardiomyopathy or coronary artery disease.⁶

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People with HF should limit alcohol intake to ≤ 2 drinks/day for men and ≤ 1 drink/day for women.^{6,10} One standard drink of alcohol is:¹⁹

Liquor	Wine	Beer
43mL /1.5 fl. oz. (40% alcohol content)	142mL /5 fl. oz. (12% alcohol content)	341mL /12 fl. oz. (5% alcohol content)

What is the recommended limit for alcohol intake for people with alcoholic cardiomyopathy?

Alcoholic cardiomyopathy is associated with an alcohol intake of five or more alcoholic beverages daily.^{20,21} Duration of exposure and genetic susceptibility play an important role in the pathogenesis of alcoholic cardiomyopathy.¹⁰ People with alcohol cardiomyopathy should completely abstain from alcohol intake. Signs and symptoms of HF improve after abstinence.¹⁰

Cardiac Cachexia

What is cardiac cachexia?

A serious complication of HF that is associated with poor prognosis is cardiac cachexia. Cachexia is known as body wasting.^{22,23} Cardiac cachexia may occur in 10-15% of people with HF, especially with reduced ventricular ejection fraction.²² Due to the loss of fat tissue, lean body mass and bone tissue, people with cardiac cachexia are typically weaker and fatigued.²³ There are thought to be three mechanisms, which are all nutritionally focused, leading to cardiac cachexia in people with HF:^{22,23}

1. Malabsorption and metabolic dysfunction (impaired calorie and protein balance)
2. Dietary deficiency (macro and micronutrients)
3. Loss of nutrients through urine or stool

To be diagnosed with cardiac cachexia, a weight loss of $>5\%$ in 12 months or less is required, plus three of the following additional criteria (*Note that weight loss should be corrected for fluctuations in fluid status*):²⁴

- Decreased muscle strength
- Fatigue
- Anorexia
- Low fat free mass index
- Abnormal biochemistry:
 - Increased inflammatory markers (CRP, IL-6)
 - Anemia (hemoglobin <120 g/L)
 - Low serum albumin (<32 g/L)

How should cardiac cachexia be nutritionally managed?

Individuals with cardiac cachexia require referral to a Registered Dietitian for close monitoring and intensive nutritional intervention.²⁵ The use of calorie dense meal replacement beverages or bars, small frequent meals, and snacks that are high in protein and calories is recommended to help improve dry body weight, body composition and quality of life, along with improving endurance.²⁶ A multivitamin and mineral supplement may be recommended for people with deficiencies following a thorough nutritional assessment.²⁷

Supplements and Drug-Nutrient Interactions

What are the drug-nutrient interactions of concern in patients with heart failure?

Often, people with HF are treated with medications that may have nutritional implications.²⁸ These may include:

- Medications like angiotensin-converting enzyme (ACE) inhibitors, angiotensin-receptor blockers (ARBs) and aldosterone receptor antagonists used in the management of HF can retain serum potassium leading to hyperkalemia.
- Medications that eliminate fluid and sodium like loop diuretics and thiazide diuretics can also eliminate potassium which can lead to hypokalemia.^{29,30}

Close monitoring of blood electrolytes and kidney function is needed depending on the medications used. Some individuals may need to restrict or increase potassium intake based on laboratory levels. If changes to dietary potassium intake is required, a consultation with a dietitian, nurse practitioner, and/or doctor is advised.³¹

Some classes of calcium channel blockers, statins and anti-arrhythmic medications have decreased metabolism and excretion when grapefruit (furanocoumarines) juice is consumed. This leads to an increased serum concentration of the medications which can become toxic. Encourage patients to not consume grapefruit juice when taking these medications.^{32,33}

Are there any supplements people with heart failure should be taking?

Individuals with HF may become deficient in micronutrients due to reduced dietary intake, impaired gastrointestinal absorption, and increased micronutrient losses due to diuretic medications.

Other than adjusting for nutrient deficiencies, the use of vitamin and mineral supplements, and natural health products does not benefit the treatment of HF.^{29,34} Patients should consult with a dietitian and/or doctor before taking any vitamins, minerals or natural health products. A multivitamin and mineral supplement may be recommended for people with deficiencies following a thorough nutritional assessment.²⁷

What are the nutrition recommendations for people taking warfarin?

Warfarin (Coumadin®) is a common anticoagulant used in the prevention and management of atrial fibrillation, artificial heart valves, thrombosis and pulmonary embolism.³⁵ Warfarin leads to a deficiency in vitamin K.³⁶ Vitamin K plays an important role in blood clotting, therefore the function of warfarin as an anticoagulation medication is affected by the intake of vitamin K rich foods.

Encourage patients to keep the intake of Vitamin K rich foods consistent when taking warfarin (Coumadin®) and other anticoagulants.³⁷ Avoiding vitamin K rich foods is not suggested, if consistency in diet is possible.

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Vitamin K2 is in very small amounts (1 – 20 mg per serving) therefore has minimal contribution to total vitamin K intake compared to vitamin K1 (100 – 600 mg per serving). Food sources of vitamin K include:

Phylloquinones (K1):	green leafy vegetables: Kale, spinach, mustard greens, collard greens, beet greens, dandelion greens, Swiss chard, turnip greens, broccoli raab, broccoli, beets, Brussels sprouts, watercress and asparagus
Menaquinones (K2):	natto (fermented soybeans), soy yogurt, hard and soft cheese, egg yolk, butter, chicken/pork/beef liver, salami, chicken breast and ground beef.

Multivitamins and mineral supplements (and other supplements) often contain vitamin K1 which may affect the anticoagulation effect of warfarin (Coumadin®). Assessing supplementation and ensuring consistency of intake is important to ensure medication dosing is accurate.

How is high serum potassium levels (hyperkalemia) nutritionally managed?

Hyperkalemia is elevated serum potassium levels. People taking Angiotensin converting enzyme (ACE) inhibitors or Angiotensin receptor blockers (ARBs) or aldosterone receptor antagonist may see elevated potassium levels.³⁴ This is due to the medication causing potassium to be retained in the blood.²⁹ High serum potassium can lead to feelings of discomfort, heart palpitations (irregular heart beat or cardiac arrhythmia), and muscle weakness. Having extremely high serum potassium is a medical emergency due to the risk for fatal cardiac arrhythmias.

For patients who have hyperkalemia, medications (prescription and over-the-counter) and supplements (vitamins, minerals and natural health products) should be assessed by the healthcare team. Lowering or stopping potassium supplements may be required.²⁹ Multivitamins may contain potassium, and patients may be advised to discontinue, especially if unnecessary. A dietitian referral is suggested if persistent elevated potassium levels are observed following medical management.

Assessment of diet and blood work is recommended. The DRI for healthy adults for is 4700 mg/day of potassium. People with HF may need to restrict to 2000 – 4000 mg/day. Foods high in potassium may need to be restricted. Foods high in potassium typically contain >200 mg per serving.

Common foods that are high in potassium include:

- Avocado, banana, cantaloupe, oranges (raw and juice), Brussel sprouts, baked potato, French fries, potato chips, sweet potato and tomato (sauce, paste, juice)
- Salt substitutes and check the food label on low sodium products, as they often use salt substitutes (potassium chloride)

Equivalence calculation for potassium: 1 mmol of potassium = 39 mg of potassium

How is low serum potassium levels (hypokalemia) nutritionally managed?

Hypokalemia is low serum potassium levels. People who are on diuretics, increased amounts of fluid is eliminated from the body along with potassium, sodium, magnesium and zinc.²⁹ Low serum potassium can increase the risk of arrhythmias, muscle cramps, weakness, and constipation.

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Initial attempts through diet should be made to increase potassium levels. If dietary intake is insufficient, or serum potassium levels are critically low and dietary intake is likely not enough to elevate levels, then potassium supplementation may be warranted. Dosing of the potassium supplement should be managed by the physician, nurse practitioner and some pharmacists.²⁴

Note: If a person is taking an ACE inhibitor and a diuretic, as well as getting adequate dietary potassium, then consider other causes of hypokalemia such as hyper-aldosteronism.²⁴

Can an individual with heart failure use a salt substitute?

Some salt substitutes such as No-Salt® or Half-Salt® are potassium-based (potassium-chloride rather than sodium-chloride) and therefore, can be dangerous for patients who have high serum potassium levels. Salt substitutes are used commercially in products labelled “low sodium” such as canned soup, popcorn or ketchup. It is important to check on the ingredient list and nutrition facts table.

Blood Pressure

Are there nutrition recommendations when people with heart failure have low blood pressure?

A low sodium diet is often not the primary cause for hypotension (low blood pressure) and therefore medical therapies should be considered before dietary changes are made.² A thorough assessment by the physician or nurse practitioner should be completed to determine the cause for hypotension.⁶

Patient Resources

Are there handouts on heart failure that I can use with my patients?

Refer to approved provincial Alberta Health Services cardiology nutrition handouts to support patient education. For more information, contact Nutrition.Resources@albertahealthservices.ca

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