



# Nutrition Considerations in Lymphedema

## The benefits of a balanced diet

Nutrition and health typically go hand in hand. This article is an overview of how to maintain good health and how diet can impact lymphedema.

By Hillary Sachs

As an oncology dietitian, I often see how a cancer diagnosis leaves people with a lost sense of control. The risk, development and progression of lymphedema can also leave those afflicted feeling helpless. The good news is that there are several researched dietary factors that may modify the risk and progression of lymphedema, such as fluid, protein and sodium intake, anti-inflammatory dietary patterns, immune boosting foods, weight history and current body mass index (BMI).

### How does lymphedema manifest?

Lymphedema manifests in many ways that can affect a person's nutrition and overall health. Some symptoms of lymphedema may impact one's ability to carry out tasks related to food preparation. For example, pain may limit the ability to independently shop for groceries or carry and unpack bulky food items. Leg lymphedema may be made worse by standing in one place for long periods of time to chop and prepare food or upper extremity compression garments such as gloves or gauntlets may interfere with food preparation.

### Nutritional interventions: sodium

Surprisingly, there is not much research that directly links sodium to lymphedema. However, we do know that in the human body,

water tends to follow salt. Thus, excess salt intake can cause water to be drawn into blood vessels increasing pressure on arterial walls, worsening swelling. In addition, high sodium foods are generally more processed, devoid of nutrients and less healthy.

### Sodium requirements

#### How much salt should we be eating?

Assuming we are not losing excess salt through sweating, vomiting, diarrhea, etc.?

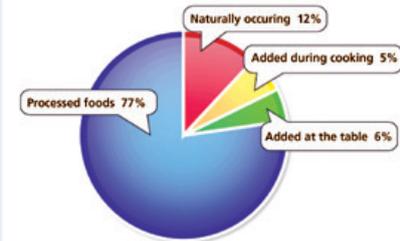
- 1 In milligrams?
- 2 In tablespoons?
- 3 In teaspoons?

**ANSWER:** Health Canada recommends eating between 1500 and 2300mg of salt daily. Canadians eat an estimated 3400mg daily. Sodium intake above 2300 mg per day is likely to pose a health risk. 1500 mg salt is  $\frac{3}{4}$  teaspoon and 2300 is 1 teaspoon. Studies show that most sodium intake is through the salt in processed foods as opposed to added table salt.

Source: <http://hc-sc.gc.ca/fn-an/nutrition/sodium/index-eng.php>

### Sodium Detector

Learn how much sodium is in the foods we eat.



Source: <http://www.healthycanadians.gc.ca/eating-nutrition/healthy-eating-saine-alimentation/sodium/detector-depisteur-eng.php>

### Pick the foods that are naturally high in sodium (choose all that apply):

- Cottage cheese
- Bread
- Baking soda
- Shellfish
- Deli meat
- BBQ sauce
- Cheese

**ANSWER:** all of the above!

### Strategies to decreasing sodium intake

Dramatically cutting out salt in the diet will generally result in less palatable foods. However, taste buds adapt to the taste of less salt over time. To increase compliance, it is recommended to reduce total daily salt intake by  $\frac{1}{4}$  tsp or 600mg at a time until optimal daily intake levels are reached.



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## Strategies to help reduce sodium intake

- ✓ Eat more fresh, single ingredient foods
- ✓ Eat more homemade foods
- ✓ Buy fresh/frozen meat with no added sodium
- ✓ Buy whole grain rice/pasta without seasonings; add your own
- ✓ Make your own soups; use onion, carrots and celery for flavor
- ✓ Replace salt in recipes with other herbs and spices
- ✓ Rinse canned foods



## Nutritional interventions: protein intake

Lymph fluid contains a large amount of protein in the form of albumin so it is not surprising that people assume that REDUCING protein intake may DECREASE lymph fluid. However, this is NOT the case. In fact, optimal protein intake is necessary to help repair skin and keep connective tissue strong. Moreover, it is important to replenish protein stores since some protein is lost in the fluid.

### Protein needs in lymphedema

Protein requirements for the average, healthy person with lymphedema are generally:

- 100 lb person needs about 45-55 grams of protein per day
- 125 lb person needs about 57-68 grams
- 150 lb person needs 68-82 grams
- 175 lb person needs about 80-95 grams

### Protein needs increase with:

- increased activity level from moderate to vigorous
- increased age
- muscle wasting
- open sores/pressure ulcers
- wound healing
- during active treatment

## Nutritional interventions: fluid intake

There is no direct correlation between fluid intake and fluid retention. However, adequate fluid intake is critical for overall health and wellness. Fluids play a role in detoxification, both in helping with bowel movements, urination, maintaining temperature via perspiration, etc.

## Fluid needs and frequently asked questions

### Do caffeinated beverages count towards my fluid needs?

Drinking caffeine has a mild diuretic effect (may cause the need to urinate), but studies show that caffeine does NOT cause excessive fluid losses or dehydration. Nevertheless, it is important to balance caffeinated and non-caffeinated drinks throughout the day.

### What are my fluid needs?

In general, fluid requirements are based upon a person's weight. Assuming that a person is not losing excess fluids (through sweat, vomiting, diarrhea, etc.), fluid needs can be calculated as such:

- The National Cancer Institute suggests consuming 8-12, 8 oz cups of fluids per day.
- Divide a person's pound weight in half: that is how many ounces per day they

### Protein content of foods

Food	Serving Size	Grams of Protein
Hemp seed	2 tbsp	5
Quinoa	½ cup cooked	4
Nuts	¼ cup	7
Eggs	1 egg	7
Beans, cooked	½ cup	7
Spirulina	2 tbsp	8
Poultry/Beef	1 oz	7
Fish	1 oz	7
Tofu Firm	½ cup	10
Glass of milk	8 oz	8
Greek yogurt	6 oz	17

should be consuming (EXAMPLE – a 120 pound woman would need 60 ounces (7.5 glasses) of water per day

- Provide 1 mL of fluid for every calorie taken in
- Provide 25mL of water for every kg of body weight

## What counts as fluids?

Food Item	Water Percent
Apple	84
Banana	74
Blueberries	85
Cantaloupe	90
Grapes	81
Orange	87
Peach	88
Pineapple	87
Plum	85
Strawberries	92
Watermelon	92
Fruit Ice	86
Jell-O	93
Broccoli	91
Cabbage	93
Celery	95
Cucumber	96
Eggplant	92
Lettuce (Iceberg)	96
Carrots	87
Mushrooms	86
Peppers	92
Tomato	94
Broth	85
Yogurt	85

Photos: CanStockPhoto

## Nutritional interventions: dietary fats

One function of the lymph system is to circulate dietary fat. Some studies show that limiting calories from fat to 15-20% of our overall intake (rather than the typical 25-35%), may improve lymphedema symptoms. In addition, certain kinds of fats are not primarily transported through the lymph system. These fats are called medium chain triglycerides (MCTs). Studies have shown that consuming these kinds of fats may decrease lymphedema symptoms. Coconut oil is one example of a fat that contains a large percentage of MCTs.

## Obesity and lymphedema

Most studies show there is a direct relationship between people who are overweight or obese and incidence of lymphedema. While the exact mechanism is not fully understood, excess weight creates more work for the lymphatic system. The additional fat deposition creates deeper separations in the lymphatic channels.

- Researchers have learned that adipose (fat) tissue is not inactive. It is constantly secreting hormones and markers of inflammation. This inflammation can worsen lymphedema symptoms.
- In addition, excess weight leads to decreased mobility, likely decreasing the ability to exercise.

There are several strategies for weight management. Focusing on less processed whole foods with simple and recognizable ingredient lists is a healthy way to approach

weight loss. This approach helps to maintain the emphasis on nutrient rich, anti-inflammatory dietary patterns. Working with a registered dietitian can also help efforts.

## Future directions

### Anti-inflammatory foods, immune boosting foods, dietary supplements

Currently there are no direct studies linking specific dietary patterns to lymphedema. However, with the understanding that there is a relationship between lymphedema, the immune system and inflammation, future studies may find that key foods will help patients to decrease edema volume, reduce abnormal blood vessel growth and improve immunity (see chart for a list of foods). It is essential to evaluate patients for adequate intakes of key nutrients, especially those that promote tissue healing like zinc and vitamin C.

### Immune boosting foods

- Mushrooms
- Fermented foods (yoghurt, kefir, etc.)
- Zinc rich foods (wheat germ, spinach)
- Selenium rich foods (sunflower seeds, brazil nuts)
- Ginger, garlic, onions
- Vitamin D
- Broad spectrum of phytonutrients from fruits and vegetables

## Summary

Overall, most evidence supports the following nutritional recommendations:

- having no more than 2300 mg salt daily
- consuming appropriate intake of macronutrients, approximately:
  - 15-20% fat
  - 30-35% protein
  - 45-55% carbohydrate

Striving towards and/or maintaining a normal body weight by following Canada's Food Guide and eating a broad spectrum of fruits and vegetables will benefit not only people living with lymphedema, but everyone. [LP](#)

References are available at [www.lymphedemapathways.ca](http://www.lymphedemapathways.ca).

### Anti-inflammatory foods/spices

- |                                   |                                           |                                         |                                                                    |
|-----------------------------------|-------------------------------------------|-----------------------------------------|--------------------------------------------------------------------|
| <input type="checkbox"/> Walnuts  | <input type="checkbox"/> Red grapes       | <input type="checkbox"/> Seaweed        | <input type="checkbox"/> Parsley                                   |
| <input type="checkbox"/> Curcumin | <input type="checkbox"/> Lemon            | <input type="checkbox"/> Beets          | <input type="checkbox"/> Omega 3 rich fish like wild caught salmon |
| <input type="checkbox"/> Saffron  | <input type="checkbox"/> Wild blueberries | <input type="checkbox"/> Cacao          |                                                                    |
| <input type="checkbox"/> Ginger   | <input type="checkbox"/> Green tea        | <input type="checkbox"/> Black currants |                                                                    |

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Abstract  
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