



Lymphedema: Nutrition Considerations

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Lymphedema: Nutrition Considerations

Disclaimer:

- All information gathered has been literature researched.
- Majority of sources were originally published within 2000-2019, and focused on breast cancer-related lymphedema.
- An occasional reference was retrieved prior to 2000.
- Jean LaMantia, RD is responsible for developing the Lymphedema Diet and publishing the book: The Complete Lymphedema Management and Nutrition Guide.
- This presentation is largely based on her efforts and includes additional resources.

Objectives

- Discuss research surrounding nutrition and lymphedema
- Potential goals or considerations
 - Healthy Body Weight/Weight loss
 - Low salt intake
 - Anti-inflammatory Diet
 - Protein Intake
- Take away messages





Is there a lymphedema diet?

There is not yet specified nutrition guidelines for managing lymphedema.

Research has been completed in a few studies with limited participants, the outcomes have been positive but more widespread and robust research is needed to develop nutrition guidelines.



Prevention of Lymphedema with Weight Loss

- The majority of the research in the area of lymphedema risk reduction is done on women with breast cancer, the results are likely applicable to others who may be at risk from other types of cancer treatment, other surgeries and injuries and possibly even those at risk of primary lymphedema.
- Many don't know they are at risk until lymphedema develops.



Prevention of Lymphedema with Weight Loss

- It's important to remember that some risk factors are within your control and some are not, specifically some cancer treatment options may increase risk (ie radiation).
- Of the research reviewed, the results were mostly consistent – with the majority showing that being overweight increases risk for developing lymphedema.



Prevention of Lymphedema with Weight Loss

Aiming for a healthy body weight is encouraged to decrease risk of developing lymphedema.

- Balanced intake of appropriate portions of nutrients.
- Increase exercise as able.



Weight Loss as a Treatment of Lymphedema

- What if you already have lymphedema? Will weight loss help you as well?



Weight Loss as Treatment for Lymphedema

Lymphedema Weight Loss Diet Study #1.

N =21 breast cancer survivors

50% received a “general healthy eating”
booklet (control group)

50% received dietary advice for weight
loss (~1000-1200kcal intake)

- After 12 weeks, the control group did not lose weight but the women in the weight loss group lost an average of 3.3 kg (7.3 lbs)
- Did the weight loss help the lymphedema?
- The group that received the low calorie, weight loss diet (and lost the weight) lost significantly more ‘excess arm volume’ compared to the women who were not on the low calorie diet.
- The women in the weight loss group lost 229 ml (7.6 oz.) of volume from their lymphedema arm compared to their healthy arm.
- The women in the control group gained 4 ml (1 tsp) excess arm volume.

(Shaw et al. Oct. 2007)



Weight Loss as Treatment for Lymphedema

Lymphedema Weight Loss Diet Study #2.

N= 9 (control group)

N = 18 low fat diet without calorie
restriction

N = 13 low calorie diet

- After 24 weeks there was a reduction in 'excess arm volume'. But the difference in arm volume didn't depend on which diet group the women were in, but it did depend on whether the women lost weight or not.
- There was a statistically significant difference in reduction of excess arm volume based on whether there was weight loss and this didn't matter what diet was used for the weight loss.
- The bottom line here is diet can make a difference in lymphedema if it can be used to help with weight loss.



Weight Loss as Treatment for Lymphedema

Lymphedema Weight Loss Diet Study #3.

N = 251 women with breast cancer related lymphedema

Randomized into 1 of 4 treatment groups:

1. Control group- facility-based exercise and weight loss program (no home-based program)
2. Home-based exercise program
3. Home-based nutrition program (a meal replacement called Nutrasystem for 20 weeks and attended weekly group nutrition counselling sessions with the dietitian.
4. Home-based exercise plus nutrition program (a meal replacement called Nutrasystem for 20 weeks and attended weekly group nutrition counselling sessions with the dietitian.

- Women in both of the nutrition groups (on its own and combined diet and exercise) lost the most weight at 8% of body weight. The women in the exercise groups got stronger as did the women in the diet group compared to the controls.
- But, the big surprise in this study is that the weight loss did not improve lymphedema.

(Schmitz et al, 2019)



Summary for Body Weight and Lymphedema

“maintenance of ideal weight should be encouraged. Obesity is a contributing factor for the development of lymphedema and may limit the effectiveness of compression pumps or sleeves”

- Recommendations from Breast Cancer Clinical Practice Guidelines (2019)



Low Fat Diet for Lymphedema

Why Does Fat
Matter for
Lymphedema Diet?

The lymphatic
system is needed for
the absorption and
transportation of
fats and oils in the
diet.

After we swallow our food, our body
begins to digest it.

Carbohydrate → simple sugars

Protein → amino acids

Fat/oils → fatty acids



Low Fat Diet for Lymphedema

Why Does Fat Matter for Lymphedema Diet?

Fat/oils → fatty acids

Saturated

Unsaturated

Polyunsaturated

- A medium chain fatty acid is often called a “medium chain triglyceride” or “MCT” for short.
- Once the body breaks down the fats and oils into their fatty acids, the short and medium chain fatty acids are absorbed directly from the upper part of the small intestines into the blood stream.
- The long chain fatty acids continue to travel down the intestines and are put into a fat transported sphere called a chylomicron and this chylomicron is absorbed through the lining of the small intestines into the lymphatic system.
- The long chain fatty acids inside their chylomicrons then travel up the thoracic ducts and enter the blood stream at the left subclavian vein in your neck.



Low Fat Diet for Lymphedema

Low Fat Diet for Lymphedema Case Study

N = 2 women with primary lymphedema in their right leg

Patient A: was put on a weight loss, low fat diet plus MCT oil.

Patient B was put on a low fat diet plus MCT oil without any calorie restriction (i.e. NOT a weight loss diet).

- For the diet they avoided:
 - Fatty meat
 - Cheese
 - Fatty fish
 - Butter
 - Oils (except for 1 tsp of sunflower oil per day)
 - Other foods containing a significant amounts of long chain fatty acids
- They were also advised to take a multivitamin-mineral every day. They were allowed to use MCT oil.



Low Fat Diet for Lymphedema

Here are the results
after 4 months on
the low fat diet:

- Patient A:
 - Weight loss: lost 22 lbs (11 kg)
 - Reduction in the circumference of the leg without lymphedema: 2 inches (5 cm)
 - Reduction in the leg with lymphedema: 2.75 inches (7 cm)
- Patient B
 - Weight loss: none
 - Reduction in the circumference of the leg without lymphedema: 0 inches
 - Reduction in the leg with lymphedema: 1 inch (3 cm)
- Bottom Line from Low Fat Diet Case Study: Patient A lost weight and size in the healthy leg plus lost additional size in the lymphedema leg- considered this to be loss of lymphedema fluid. Patient B lost size in her lymphedema leg after 4 months on the low fat diet plus MCT oil despite no weight loss.

(Soria et al. 1994)



Low Fat Diet for Lymphedema

Low Fat Diet for Lymphedema Study

N = 10 women with upper arm lymphedema following breast cancer surgery plus radiation and chemotherapy were included

5 = diet group, instructed to use MCT oil as their main oil

5 = control group, instructed to use corn oil as their main oil

Both groups received the same treatment from a physiotherapist three times a week for four weeks.

- The most dramatic difference at the end of the trial was in the volume of the lymphedema arm. The women who used the MCT oil lost 200 ml of arm volume, whereas the corn oil group actually gained 75 ml of volume.
- Note: the five women who were assigned to the group that received the MCT oil, all began the study with greater circumference measurements than the five women in the control group.



Low Fat Diet for Lymphedema

Why Did the MCT
oil Group Lose Arm
Volume and the
Corn Oil Group
Gained?

- The most obvious answer to this is that the corn oil is 100% long chain fatty acid and MCT oil is 100% medium chain fatty acids.
- The corn oil would need the lymphatic system for transport and absorption into the blood stream and therefore would increase lymphatic congestion through the trunk, while the MCT oil can bypass the lymphatic system and be absorbed directly into the blood stream from the small intestines.
- Bottom Line for Clinical Trial of MCT oil Versus Corn Oil
 - This is a very small study, but there was a decrease in lymphedema with the MCT oil and there was an increase in lymphedema with corn oil. It's important to be aware that increasing MCT oil in your diet can have GI side-effects.



Fluid Restriction

While this is established nutrition protocol for edema due to cardiac insufficiency, this is not the current standard of care for lymphedema management and not recommended.



Low Sodium Intake

Limited research to support a low sodium diet for lymphedema treatment.

There are always benefits of following a low sodium diet.

- We need small amounts of sodium, but eating too much can increase the risk of high blood pressure and heart disease.
- Most adults only need 1500 mg of sodium per day. Many Canadians eat much more than this.
- To decrease the risk of chronic disease, limit your intake to below 2300mg.



Anti-Inflammatory Diet

In a 2019 review, authors explain inflammation is a basic process of lymphedema, and refer to it as a “low-grade chronic cellular inflammation”.

Their solution is an anti-inflammatory diet – high in fibre, omega-3 fatty acids, fruits and vegetables

(Cavezzi, et al. 2019)



Anti-Inflammatory Diet

The Mediterranean Diet

- This diet is high in plant foods like vegetables, fruits, whole grains, nuts and seeds, olive oil and legumes (beans, peas and lentils). Fish, seafood, eggs and low fat milk and milk products are eaten in moderate amounts. Meat and meat products and sweet foods are eaten occasionally.
- Following a Mediterranean-style diet may help to:
 - reduce your risk of developing heart disease, stroke and type 2 diabetes
 - improve blood glucose (sugar) control for individuals with type 2 diabetes
 - delay development of cognitive disorders such as dementia and Alzheimer's disease.



Protein Intake

To restrict or not to restrict?

It is not advised to restrict.

- By restricting protein intake, your body will lose muscle, those breakdown products of the muscle must be transported by the lymphatic system, therefore increasing the work load and drawing in more fluid
- Additionally, the other health comorbidities may require increased protein needs for management.

Protein Intake

How much protein do we need daily?



- Healthy adults with minimal physical activity require 0.8g/kg
- Stress factors (comorbidities) may require an increase to >1.0g/kg



What's Next?

If you find yourself inspired to try to include some of the interventions discussed today:

- It is recommended that you implement each of these gradually and monitor your lymphedema. This will allow you to get to know how your lymphedema responds to various aspects of your diet.
- Plan to follow nutrition related guidelines for management of co-existing conditions.



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