

# Ketogenic Way of Eating for Health and Weight Management: Implications for Lymphatic and Fat Disorders

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## Disclosures

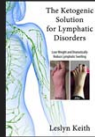
**Program**

*Lymphatic Lifestyle Solutions: A Weight Management Program*



**Book**

*The Ketogenic Solution for Lymphatic Disorders: Lose Weight and Dramatically Reduce Lymphatic Swelling*



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## Ketogenic Way of Eating



- ✓ Real Food Diet
- ✓ Carbohydrate Restriction
- ✓ Healthy Fats
- ✓ Moderate Protein

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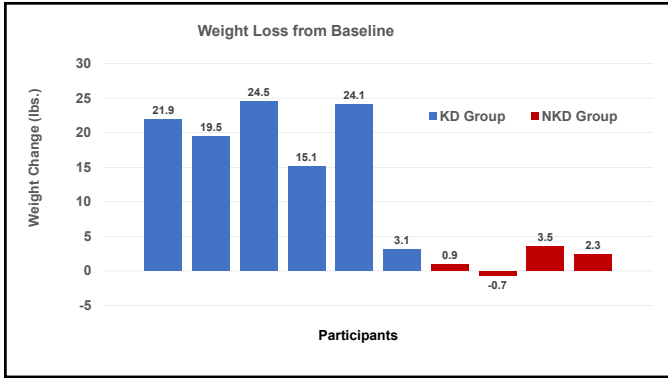
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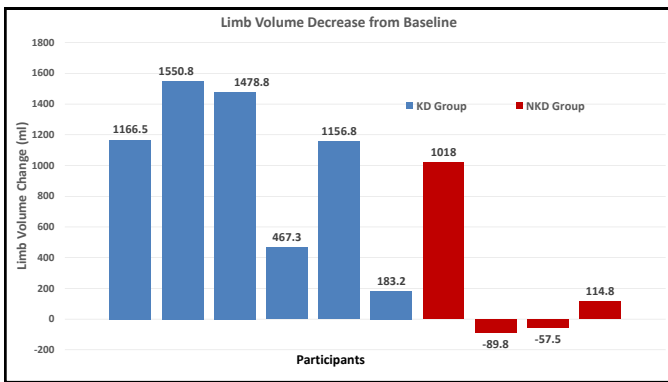
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### Carbohydrates are Inflammatory

Control Diet

High-fructose Diet

*Impairments in the intrinsic contractility of mesenteric collecting lymphatics in a rat model of metabolic syndrome. Zawieja, SD et al. (2012). Am J Physiol Heart Circ Physiol 302, H643- H653.*

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## WISER Randomized Clinical Trial

Control Group  
Compression Sleeve

Weight Loss Group  
Compression Sleeve

Exercise Group  
Compression Sleeve

Weight Loss & Exercise Group  
Compression Sleeve



**No correlation between weight loss and limb volume reduction**

*Effect of Home-Based Exercise and Weight Loss Programs on Breast Cancer-Related Lymphedema Outcomes Among Overweight Breast Cancer Survivors: The WISER Survivor Randomized Clinical Trial. Schmitz et al. (2019), JAMA Oncology, E1-E9.*

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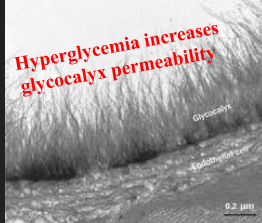
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## Carbohydrates are Inflammatory



*Short-term hyperglycemia increases endothelial glycocalyx permeability and acutely decreases lineal density of capillaries with flowing red blood cells. Zurbier, CJ et al. (2005), J Appl Physiol, 99, 1471-1476.*

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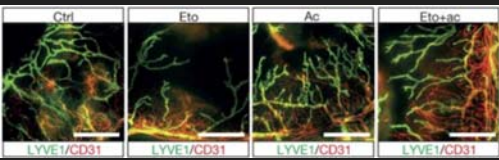
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## Lymphatic System Runs on Fat



*The role of fatty acid  $\beta$ -oxidation in lymphangiogenesis. Wong, BW, et al. (2017), Nature, 542(7639), 49-54.*

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## Lymphatic System Runs on Fat

**MCTs found in lymph!**

Table 3. Fatty Acid Composition of Chyle Triglyceride

Fatty acids	Low fat*		MCT*		TPN*	
	μmol/ml	Rel %	μmol/l	Rel %	μmol/ml	Rel %
8:0 (Octanoic)	0.000	0.00	0.126	5.89	0.000	0.00
10:0 (Decanoic)	0.000	0.00	0.344	14.7	0.000	0.00

*Dietary Modification of Chyle Composition in Chylolymph.*  
Jensen et al. (1989), *Gastroenterology* 97:761-5.

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## Lymphatic System Runs on Fat



**Obesity, not a high fat diet, impairs lymphatic function and aggravates lymphedema.** (Gousopoulos et al 2017; Garcia Nores et al 2016)

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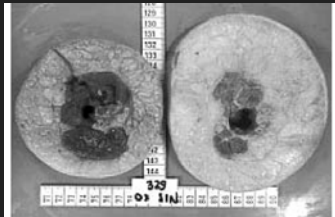
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**Acute inflammation causes fat break down**  
**Chronic inflammation results in increased fat storage**

(Harvey, 2008; Harvey & Gordon, 2012)




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### KETOLYMPH Study

Randomized trial  
100 participants with lymphedema  
48 weeks (24 strict keto, 24 modified Atkins)

<https://clinicaltrials.gov/ct2/show/NCT03991897>



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### Kelly Bell

51-year-old male  
Military career  
Triathlete

2005 - Treated for misdiagnosed reflux with injection of polymer which infiltrated thoracic duct

Symptoms:

- Weight gain
- Swelling to legs, arms, trunk, R side of face/neck
- Difficulty breathing – CPAP, O<sub>2</sub>
- Severe pain
- GI issues
- Suicidal ideation

Suggested treatment –  
Low fat, low caloric diet  
Exercise



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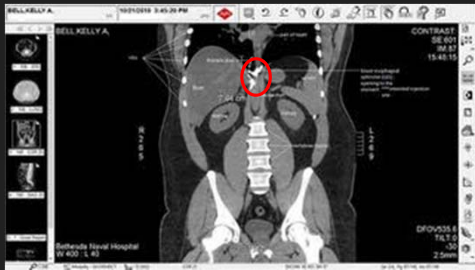
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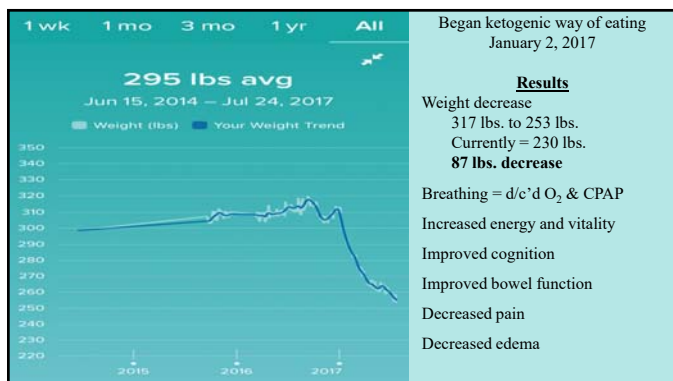
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### Improved Lipid Profile

	3/15/2016	3/1/2017	5/29/2019
Total Cholesterol	<b>187</b>	181	<b>212</b>
Triglycerides	<b>208</b>	111	<b>107</b>
HDL Cholesterol	<b>28</b>	35	<b>40</b>
LDL Cholesterol	<b>117</b>	124	<b>150</b>
HbA1c	<b>5.8</b>		<b>5.3</b>
Tg/HDL ratio	<b>7.49</b>	3.17	<b>2.67</b>

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### Can Keto Work for Lipedema?

- ✓ Disproportionate deposition of fat to lower half of body
- ✓ Hypersensitivity/pain
- ✓ Easy bruising
- ✓ Widely believed to be resistant to diet and exercise



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**Ketogenic Solution for Lipedema**

- Fat loss on lower body
- Decreased or resolved pain
- Increased energy
- Decreased brain fog
- Edema reduction or resolution
- Absence of hunger

181 lbs in less than 2 years \*No surgery, no exercise, just [ketogenic] food.\*

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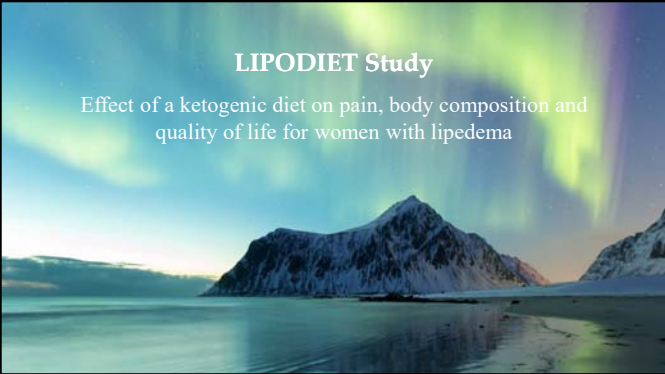
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### LIPODIET Study

Effect of a ketogenic diet on pain, body composition and quality of life for women with lipedema



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## LipoDiet Study

### Participants/Methods

9 women diagnosed with lipedema  
 Average age 47 years  
 Average weight 225 lbs

7 weeks ketogenic diet  
 6 weeks standard Norwegian fare

### Results

- Weight loss at week 7 (9.5 lbs), maintained at week 13
- Significant decrease in hip measurements at week 7, no decrease at week 13
- ↓ triglycerides at week 7  
 ↑ at week 13
- ↓ pain at week 7, return of pain to prior levels at week 13 **despite maintenance of weight loss**

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**Mende Staggs**  
 46-year-old female  
 Highest non-pregnant weight:  
**265 lbs.**

BMI: 41.5  
 Waist Measure: 35"  
 Hip Measure: 53"  
 Migraines 20 days/month  
 Unmanaged PCOS  
 Hypercholesterolemia  
 Borderline hypertension  
 Lymphedema  
 Lipedema

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**Loss of Faith in Medical Community**  
**Powerless to Make Change**  
**Self-Blame for Failure of Multiple Diets**  
**Hopelessness**  
**Mixed Emotions with Lipedema Diagnosis**




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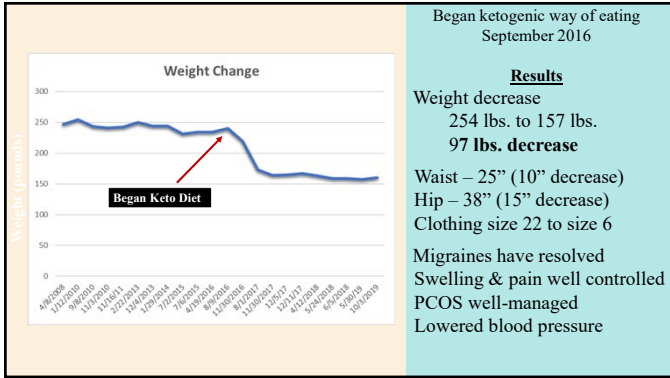
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**Improved Lipid Profile**

	11/30/2016	10/26/2018	5/3/2019
Total Cholesterol	<b>206</b>	185	<b>178</b>
Triglycerides	<b>105</b>	53	<b>80</b>
HDL Cholesterol	<b>52</b>	72	<b>54</b>
LDL Cholesterol	<b>133</b>	102	<b>108</b>
Tg/HDL ratio	<b>2.01</b>	0.73	<b>1.48</b>

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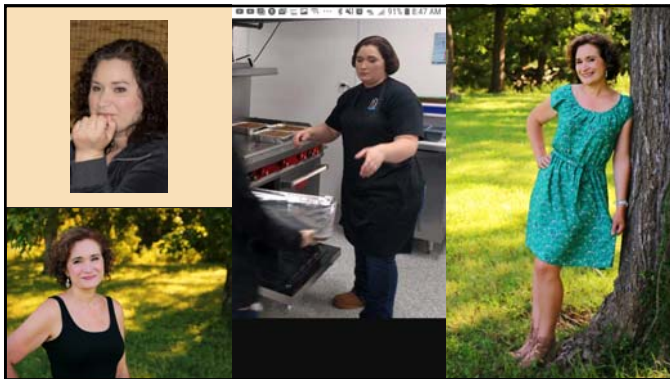
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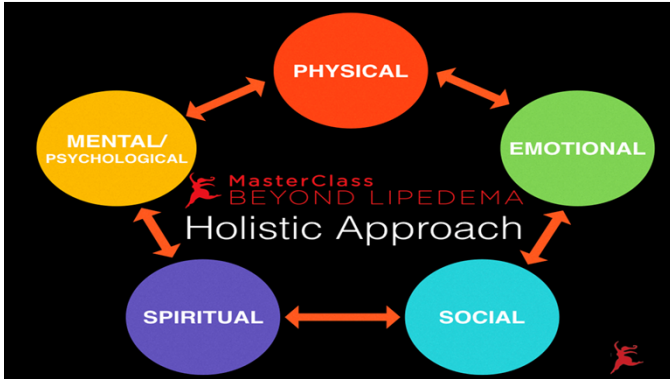
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**Ketogenic Solution for Lymphatic/Fat Disorders Conference**  
 November 6-8, 2020  
 Charlotte NC USA

*The most current research and information in keto way of eating for lipedema, lymphedema, and lymphatic/fat disorders.*

*"I started Keto because the pain in my legs was unbearable. Extra strength Tylenol was not touching it at all. In three days, my level of pain has dropped from 9 to a 1 or less. Keto for Lipedema has given me hope." -Theresa D, TX, USA*

**EARLY BIRD SPECIAL:** <https://lipedema-simplified.org/ketolymphcon2020/>

lipedema-simplified IT'S NOT OUR FAULT      the lipedema project THE DISEASE THEY CALL FAT

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**Resources**

- <https://www.leslynkeith.com/>
- Lymphatic Education & Resource Network (LE&RN) Symposium Series (Dr. Eric Westman, Dr. Leslyn Keith) <https://lymphaticnetwork.org/>
- Lipedema Simplified (keto for lipedema page) <https://lipedema-simplified.org/keto/>
- Facebook groups:  
 Keto and Fasting for Lymphedema  
 Keto WOE for Lipedema

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Thank you!



[leslynkeith@gmail.com](mailto:leslynkeith@gmail.com)  
<https://www.leslynkeith.com/>

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