


Lymphedema 20/20

Lymphedema and Lipedema Treatment Updates


Guenter Klose, CLT-LANA
MLD/CDT Cert. Instructor
Jobst Dinner Presentation
Pittsburgh, PA January 29, 2020

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What's ahead

1. Starling's law, its revision and the glycocalyx;
A new look at the fluid dynamics on the capillary wall.
2. All edemas are NOT lymphedema!
3. Modern MLD or No MLD; time to change old practice?
4. Taking a new look at lipedema.
5. Teaching Risk Reduction Practices.
6. Best Practice for lymphedema.



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Revised Starling / Glycocalyx

Print Friendly

Endothelial Glycocalyx and the Revised Starling Principle. E. Crockett. Pulmonary Vascular Research Institute Chronicle, 1(2): 41-46. 2014.

Like a Slippery Fish, a Little Slime is a Good Thing: The Glycocalyx Revealed. C. Biddle. AANA Journal, 81(6): 473-480. 2013.

Microvascular Fluid Exchange and the Revised Starling Principle. J. Levick and C. Michel. Cardiovascular Research, 87: 198-210. 2010.

All Edema are NOT Lymphedema

A New Paradigm for Diagnosis and Treatment of Edemas H. Hettrick and R. Bjork. Research Perspective, 10. Winter 2019/20.

The Lymphedema Chaos: A Lancet. M. Foldi. Plastic Surgery, 22: 505. 1989.

Taking a New Look at Lipedema

Lipoedema - myths and facts Part 1. T. Bertsch and G. Erbacher. Phlebologie, 47: 84-92. 2018.

Lipoedema - myths and facts Part 2.

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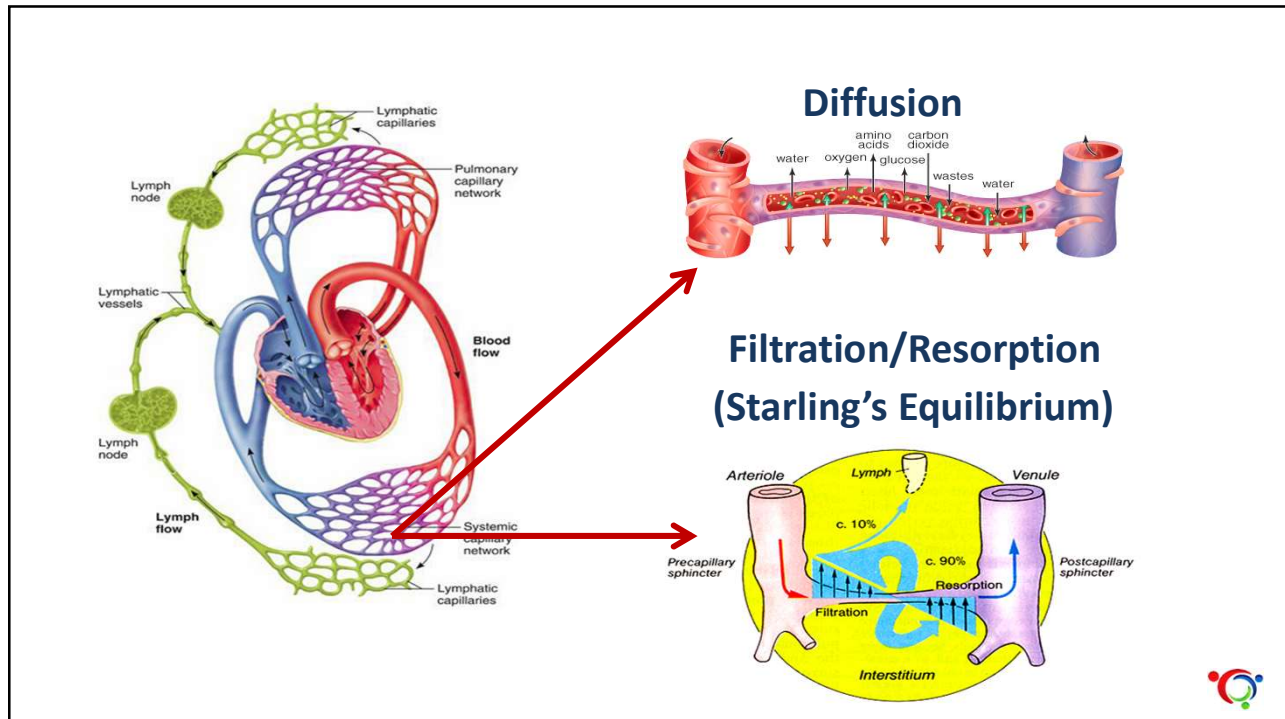
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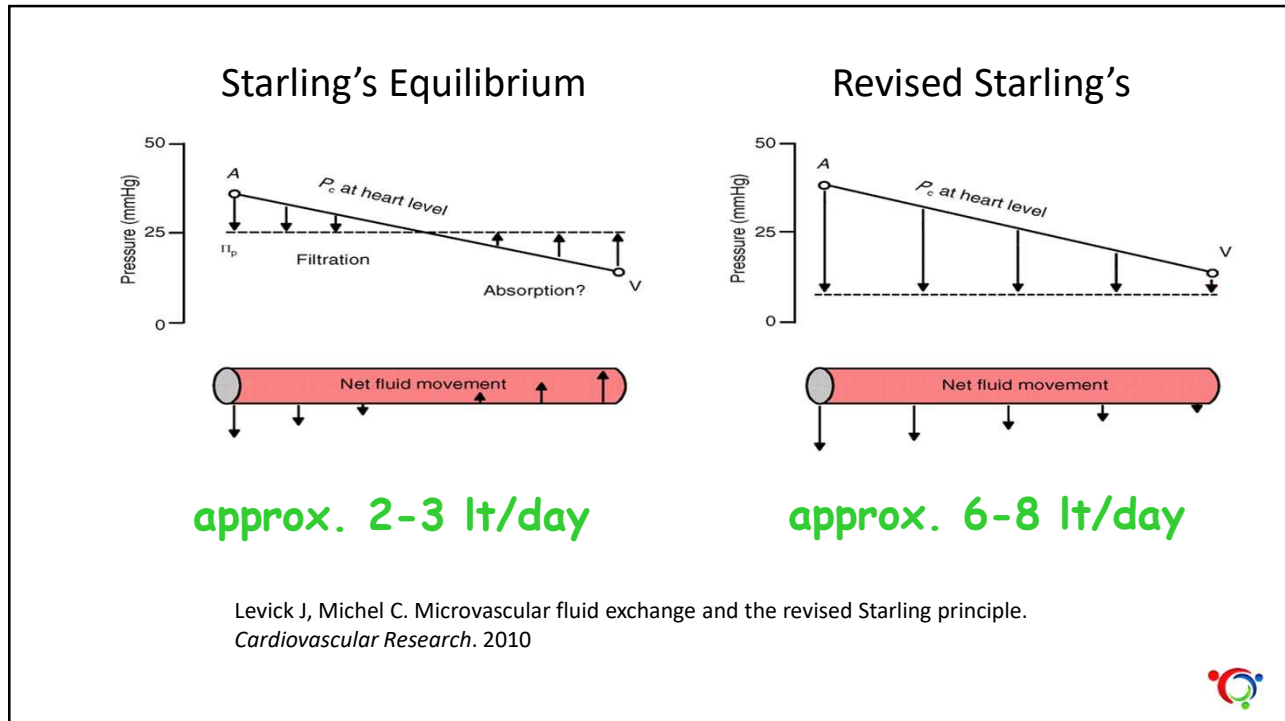
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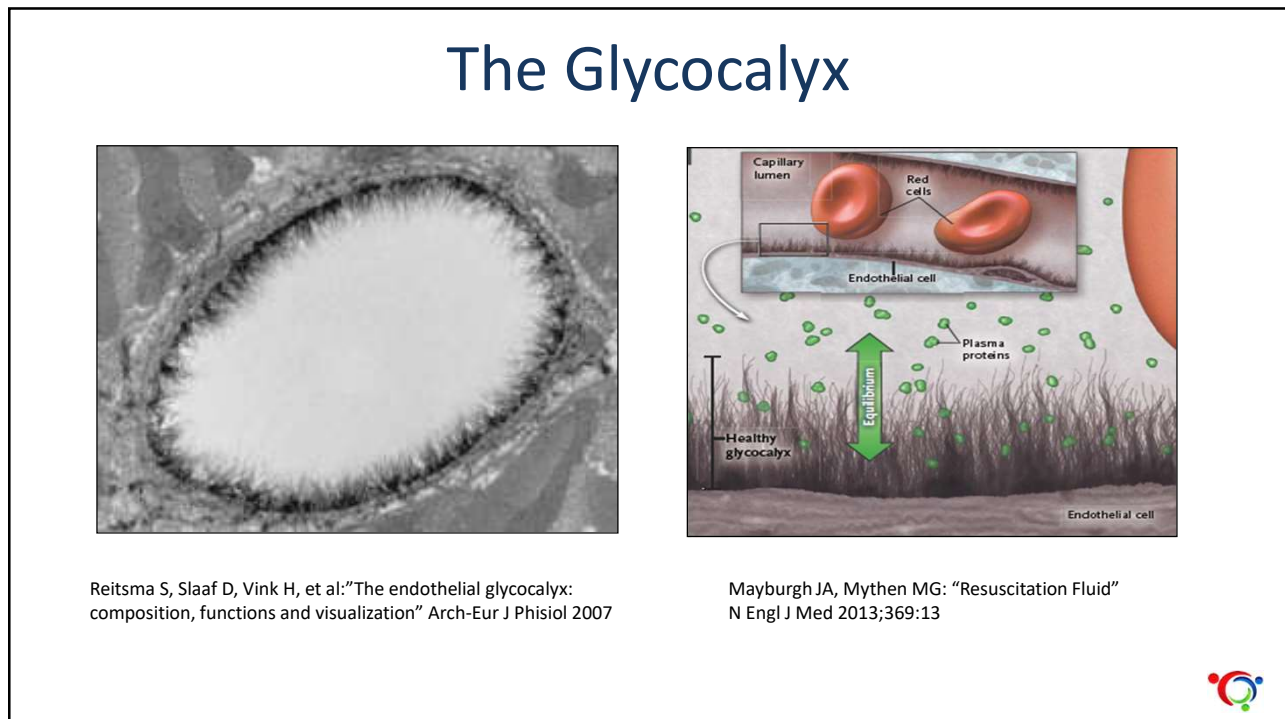
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**Watch Dr. Baltazar's Glycocalyx presentation at:
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A new paradigm for diagnosis and treatment of edemas
The endothelial glycocalyx layer
Advancements in the link between swelling and the lymphatic system

By Heather Heltick and Robyn Bork

Introduction
Although edema can result from a variety of conditions, medications or other contributing factors, it is now understood that all edema is lymphedema through a spectrum of lymphatic insufficiency. This article will highlight the latest evidence supporting this paradigm shift by looking at the new understanding of hemodynamics at the Endothelial Glycocalyx Layer, and the associated links between the lymphatic and integumentary systems. Further, it will explain how this information is relevant to clinical practice to help you differentially diagnose and manage lower extremity edema.

New lymphedema paradigm
One of the most significant recent changes regarding lymphedema is a more refined explanation of fluid hemodynamics impacting our historical understanding of Starling's Law. Previously, it was thought that 90% of fluid moving from the blood to the interstitium was reabsorbed back into the venous end of the capillary, yet the lymphatic system was only responsible for managing 10% of the fluid load. The new paradigm of the Endothelial Glycocalyx Layer (EGL) as the gatekeeper of fluid filtration from blood capillaries explains how there is only diminishing net fluid filtration across the blood capillary bed and no reabsorption at the venous end; 100% of all interstitial fluid is reabsorbed by the lymphatic capillaries alone during homeostasis.^{1,2}

Acting as a complex molecular sieve, the EGL precisely regulates fluid and protein movement through the capillary wall into the tissues.^{3,4} Conversely, the EGL also prevents movement of proteins and fluid back into the venous side of the capillaries, even when interstitial hydrostatic pressure is increased, or tissue oncotic pressures remains higher within the blood capillaries. Thus, all fluid and proteins exiting the blood capillaries must be removed from the interstitium by the lymphatic capillaries alone. This has led to the new understanding that all edemas are on a lymphedema continuum and represent relative lymphatic insufficiency or failure.^{5,6} The system is either temporarily overwhelmed (transient lymphedema/dynamic insufficiency) or the system is abnormally developed, damaged or permanently impaired leading to the disease of chronic lymphedema (mechanical lymphatic failure).

Lymphedema pathophysiology
The lymphatic system is analogous to the body's sewer or recycling system. It is responsible for maintaining fluid homeostasis by managing interstitial fluid and mobilizing waste products (proteins, senescent cells, macromolecules, etc.). The lymphatic system is also tasked with the absorption and transportation of lipids and fatty acids to the circulatory system, and transporting antigens, antigen-presenting cells and other immune cells to the lymph nodes where adaptive immunity is stimulated. Collectively, all components within the fluid transported by the lymphatic system are called the "lymphatic load".⁷

Pathophysiologically, chronic lymphatic dysfunction or failure presents unique changes affecting the integumentary system, which the lymphatic load is not adequately processed by the lymphatic system from the interstitial tissues, a pathophysiological state of chronic edema.^{8,9} Free radicals trapped in the interstitium damage proteins and oxidize cell membranes attracting macrophages to the area that differentiate into macrophages. These macrophages take in proteins through pinocytosis, which activates the macrophages to release cytokines. This, in turn, activates fibroblasts, which are stimulated to produce excess collagen^{10,11}. Excess collagen formation causes connective tissue proliferation and fibrosis resulting in the thickened, fibrotic skin and visible projections (lipodermatosclerosis and venous) commonly seen with chronic lymphedema¹². Additionally, other fibroblasts differentiate into adipocytes¹³. Treatment is not implemented, the chronic inflammatory process persists and the clinical presentation eventually can result in enlargement of the body part, thickened and fibrotic, dorsal and subcutaneous tissues, and other significant integumentary changes.¹⁴

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Robyn Bork, MPT, CWS, CLT-LANA, CLWT is Founder and President of the International Lymphedema & Wound Training Institute. She is a Physical Therapist who holds multiple board certifications in wound and edema/lymphedema management. Bork is a featured speaker at national & international conferences and is dedicated to the advancement of Lymphatic & Integumentary Rehabilitation.

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within the blood capillaries. Thus, all fluid and proteins exiting the blood capillaries must be removed from the interstitium by the lymphatic capillaries alone. **This has led to the new understanding that all edemas are on a lymphedema continuum** and represent relative lymphatic insufficiency or failure^{1,7}. The system is either temporarily overwhelmed (transient lymphedema/dynamic insufficiency) or the system is abnormally developed, damaged or permanently impaired leading to the disease of chronic lymphedema (mechanical lymphatic failure).

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Michael Földi



**The Lymphedema Chaos:
A Lancet**

Etel Földi, M.D.*
Michael Földi, M.D.*
Leo Clodius, M.D.†

Pathophysiology of lymphedema is not an enigma. It is caused by a low-output failure of the lymph vascular system in combination with an inadequate scavenging of stagnating plasma protein by macrophages. Axillary venous diseases alone never cause chronic postmastectomy edema. In the diagnosis of lymphedema, invasive methods (i.e., direct lymphography and venography) are not only unnecessary but are potentially harmful and do not give any information of therapeutic relevance. Lymphedema of the limbs without reflux of lymph or chyle is not a surgical disease. It can be treated successfully by the skillful application of specific physiotherapeutic measures free of any side effect. The results of this therapy can be maintained if the patient's compliance is good.

Földi E, Földi M, Clodius L: The lymphedema chaos: a lancet. Ann Plast Surg 22:105, 1989

1989


All edemas are on
the lymphatic
continuum!

In this article we discuss some recently published conflicting opinions concerning the pathophysiology and therapy of lymphedema and present a plea for the conservative treatment of this "perplexing and poorly understood clinical entity" [21].


Physiology and Pathophysiology of the Lymph Vascular System

To understand lymphedema, the concept of the insufficiency of the lymph vascular system [13] has to be defined. The lymph vascular system is insufficient if its transport capacity is lower than the lymphatic load. The expression "transport capacity" is defined by the highest possible lymph flow per unit of time. We have proposed to distinguish three forms of lymph vascular insufficiency. Not conceiving or misunderstanding these three forms is a prime source of lymphedema chaos.


One form of lymph vascular insufficiency is called dynamic insufficiency. It arises if the lymphatic load exceeds the lymphatic transport capacity. In this case, the lymphatics are anatomically and functionally normal but overwhelmed. The main propulsive force of the lymph is generated by the contractions of the lymphangions (segments of lymphatics bordered by a




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**Patient with
CHF edema**




**Same patient before
and after
diuretic treatment**



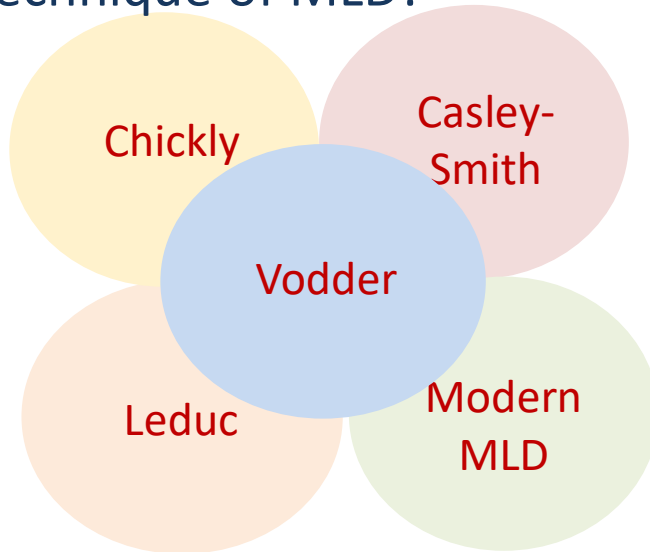
**Patient with edema
from hypoproteinemia**

Not all edemas are lymphedema!



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There is no universal agreement about the correct technique of MLD!



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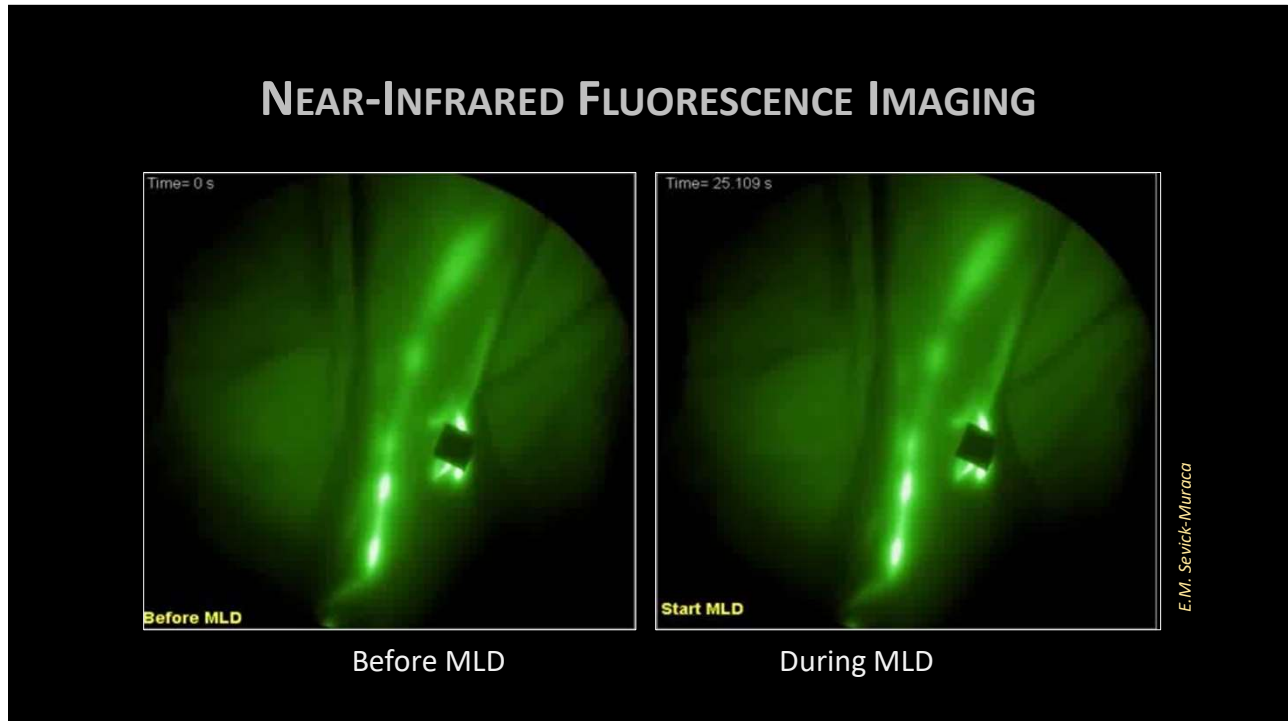
The quality of MLD varies a great deal from one practitioner to the next:



- Training received
- Therapist passion/enthusiasm
- Time constraints
- Reimbursement issues
- Productivity pressure
- Scheduling issues



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Deep Techniques



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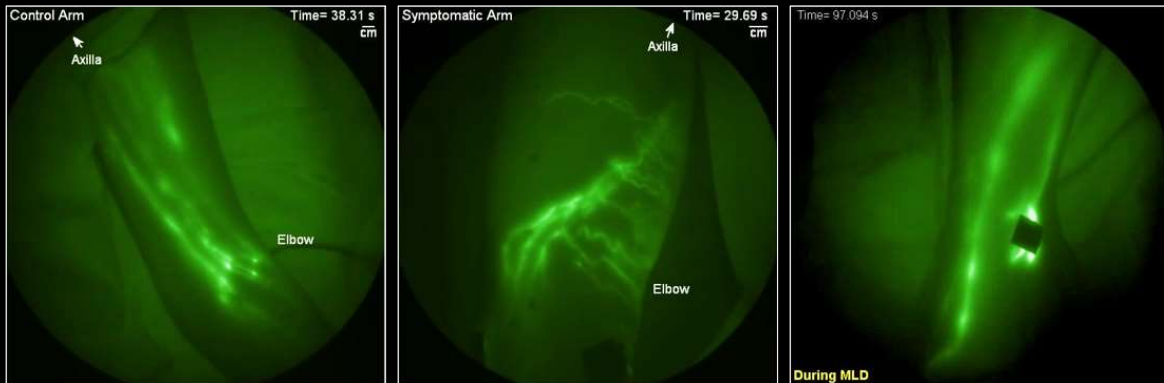
The composite image contains four distinct visual elements:

- Diagram 1 (Left):** A line drawing of a human torso and arms. Red arrows indicate massage directions: horizontal across the chest, vertical down the arms, and circular around the neck. Three green circles are placed on the neck, chest, and lower back.
- Diagram 2 (Middle):** A line drawing of a human torso and arm. Red arrows indicate massage directions: horizontal across the chest, vertical down the arm, and circular around the elbow.
- Photograph (Top Right):** A photograph of a person's arm being massaged. The hands are positioned on the forearm, applying pressure.
- Photograph (Bottom Right):** A photograph of a person's back being massaged. The hands are positioned on the lower back, applying pressure.

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The Role of ICG Fluorescence Lymphography in MLD



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TECHNICAL ADVANCE **Open Access**

A new indocyanine green fluorescence lymphography protocol for identification of the lymphatic drainage pathway for patients with breast cancer-related lymphoedema


Hiroo Suami^{1*}, Asha Heydon-White¹, Helen Mackie^{1,2}, Sharon Czerniec¹, Louise Koelmeyer¹ and John Boyages¹

Check for updates

Comparison of ICG lymphography, tracing photo and lymphoscintigraphy in the same patient

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Patterns of drainage pathways in ICG lymphography images (left) and tracing photos (right): A: ipsilateral axilla, B: clavicular, C: parasternal, and D: contralateral axilla



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Development of ICG Lymphography Staging


Indocyanine green lymphography staging scale



Stage	0	1	2	3	4	5
Patent lymphatic vessels	++++	+++	++	+	0	0
Dermal backflow	0	+	++	+++	++++ finger/toe palm/sole signs	0
Lymphatic vessel contractility	++++	+++	++	+	0	0

THE UNIVERSITY OF TEXAS
MD Anderson
Cancer Center

Chang DW, Suami H, Skoracki R. *Plast. Reconstructive Surgery*, 2013
Nguyen AT, Suami H, et al. *Journal of Surgical Oncology*, 2016




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The Role of IGL to Guide Therapy - Hiroo Suami, MD - Harvard LE Symposium 2018

Breast cancer (N=103)

LYMPHATIC DRAINAGE REGIONS



MDA stage	No.	ICG drainage regions				
		Ipsilateral axilla	Clavicular	Parasternal	Contralateral axilla	Ipsilateral Inguinal
1	19	95%	21%	5%	0%	0%
2	46	61%	52%	7%	2%	0%
3	20	70%	55%	5%	5%	0%
4	18	50%	17%	17%	17%	0%
Total	103	67%	41%	8%	5%	0%

❖ Unspecified: 2 cases in stage 4

Hiroo Suami, MD – Harvard Symposium 2018

ALERT - AUSTRALIAN LYMPHOEDEMA EDUCATION, RESEARCH AND TREATMENT 12:12 / 20:16


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ICG Fluorescence Lymphography in Guiding Therapy - Hiroo Suami, MD - Harvard Symposium

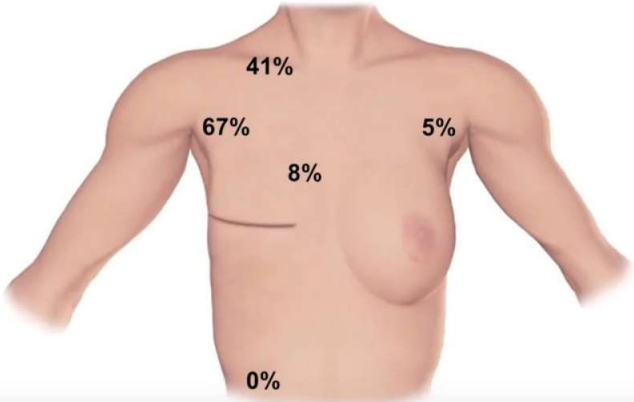
Breast cancer (N=103)

LYMPHATIC DRAINAGE REGIONS



Axillary surgery:

- Axillary dissection: 99
- Sentinel node biopsy: 2
- Unknown: 2



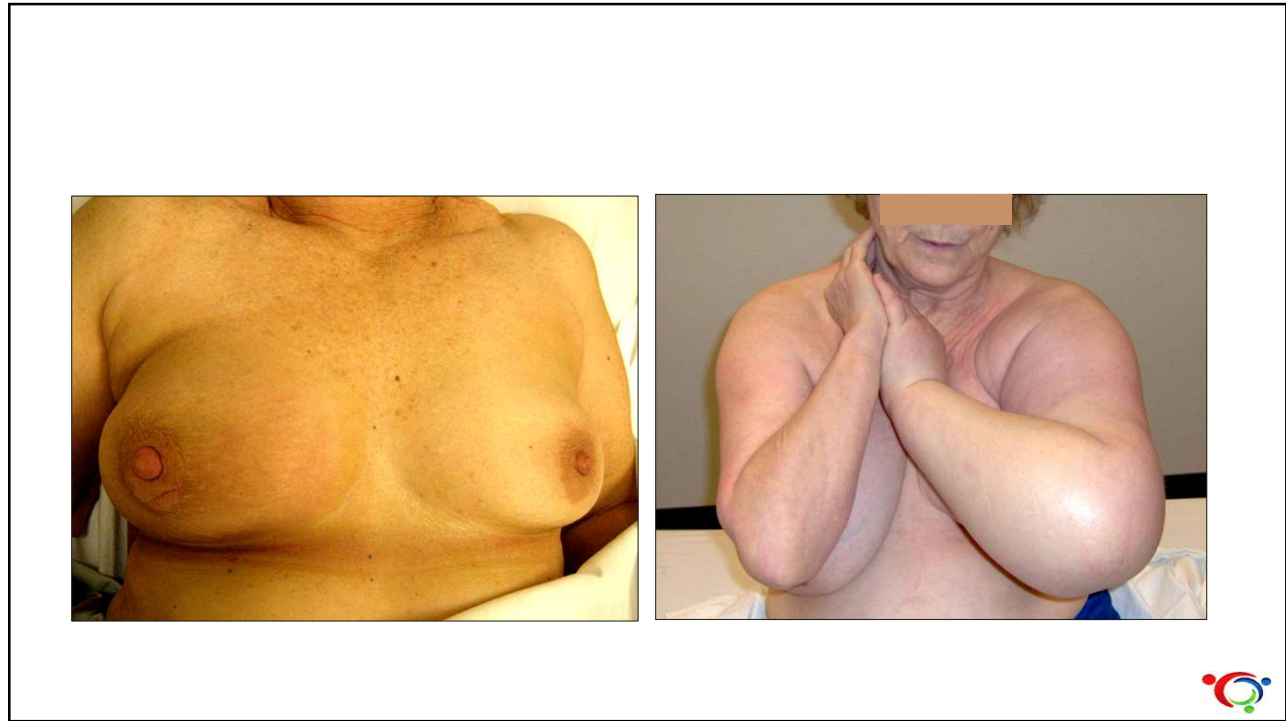
Hiroo Suami, MD
Harvard Symposium 2018

ALERT - AUSTRALIAN LYMPHOEDEMA EDUCATION, RESEARCH AND TREATMENT 11:52 / 20:16

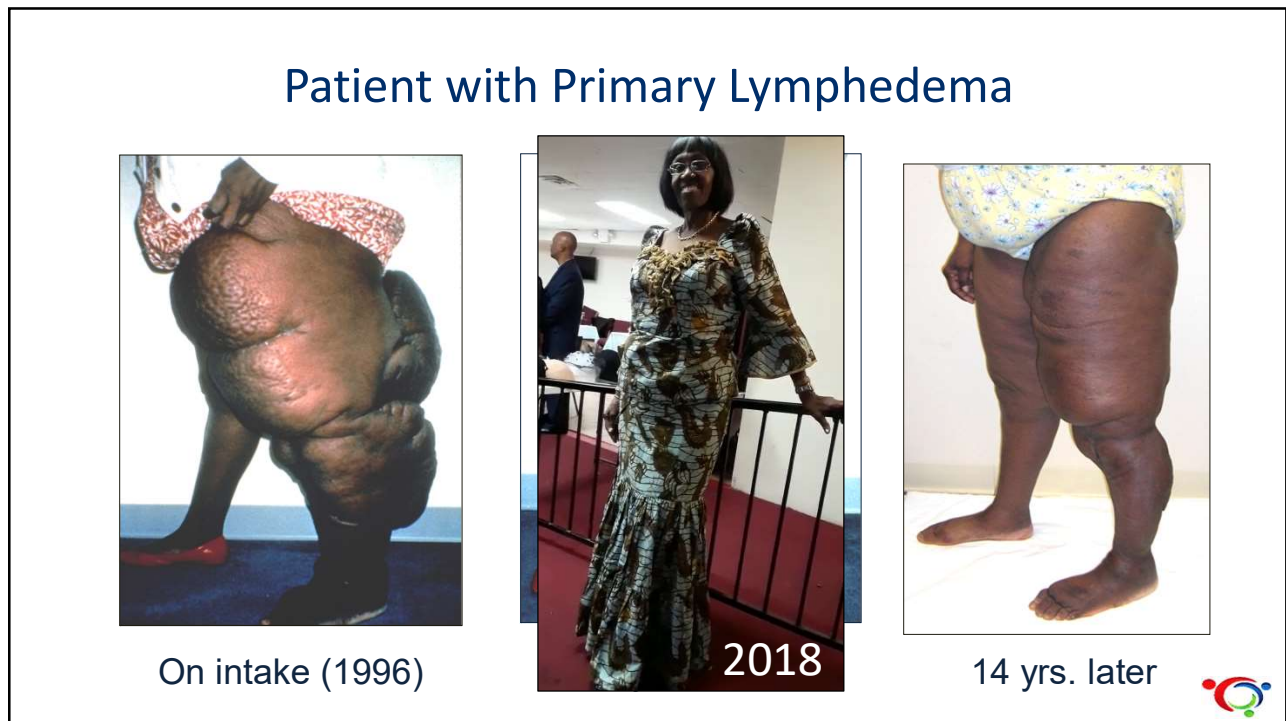
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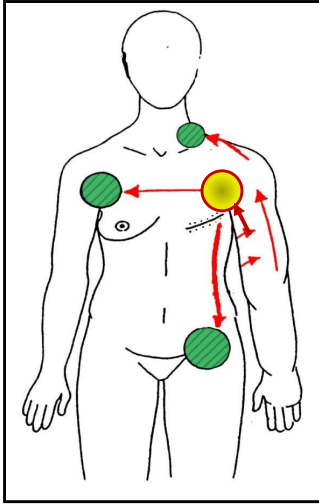


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ICG-guided MLD



Data presented at the 2019 KLC, Denver

- 67% of women after axillary dissection still drain to the ipsilateral axilla.
- In MDA stage 2-4 UE patients with hand edema, the dorsum may drain through the palm.
- MLD may be performed more gently and faster in case of patent lymph vessels/drainage.
- MLD should be performed more firmly and slower in areas of dermal backflow.

Louise Koelmeyer, BAppSc (OT)
ALA Accredited Practitioner



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BJC
British Journal of Cancer

www.nature.com/bjc

ARTICLE
Clinical Study

Manual lymphatic drainage adds no further volume reduction to Complete Decongestive Therapy on breast cancer-related lymphoedema: a multicentre, randomised, single-blind trial

Mette Tambour¹, Marianne Holt², Anette Speyer³, Robin Christensen^{4,5} and Bibi Gram⁶

BACKGROUND: We investigated the comparability of Complete Decongestive Therapy (CDT) with Manual Lymphatic Drainage (MLD) vs. without MLD in the management of arm lymphoedema.

METHODS: Patients randomised into either treatment group received CDT with or without MLD 2x weekly for 4 weeks. The primary outcome was volume reduction. The secondary outcomes were volume reduction after heaviness and tension, and health status.

RESULTS: Despite difficulties enrolling the planned number of patients, both groups completed the trial. In both groups, the volume reduction was similar (1.0% [95% CI, -4.3;2.3%]); the precision in the mean (SE) changes at month 7 were -6.8%(1.2) and -5.8%(1.2) respectively. There were no significant differences with respect to any of the secondary outcomes. The results were robust to various alternative assumptions or analytic approaches.

CONCLUSION: Manual lymphatic drainage adds no further volume reduction to CDT in the management of arm lymphoedema.

British Journal of Cancer (2018) 119:1215–1222; <https://doi.org/10.1038/s41416-018-0000-0>

INTERNATIONAL CONSENSUS

BEST PRACTICE FOR THE MANAGEMENT OF LYMPHOEDEMA

...there is no doubt that they (MLD & SLD) are of immense value in providing psychological and symptomatic benefits.

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Classic description of Lipedema



- Symmetrical swelling of both legs
- Affects mainly women
- Hypersensitivity of the increased subcutaneous tissue
- Develops hematoma very easily
- Adipose tissue is resistant to diet and exercise
- Knee pain is a feature of lipedema
- Orthostatic edema
- May turn into lipo-lymphedema
- Onset during puberty, sometimes after pregnancy



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Stages of Lipedema

Stage I	Skin surface normal, nodular (small) fatty tissue structure	
Stage II	Skin surface uneven (peau d'orange), nodular (big) fatty tissue structure	
Stage III	Lobular deformation due to increase fatty tissue	(Child 2010)



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Part 5
 Available
 February 2020

<p>84 Original Article</p> <h3>Lipedema – myths and facts Part 1</h3> <p>T. Bertsch¹, G. Erbacher^{1,2} <small>¹Höflich Klinik Hinterzarten – Europäischen Zentrum für Lymphologie, ²Dipl. Psychologin, Psychologische Psychotherapeuten, Superviseurin (Bd)</small></p> <p>Keywords Lipedema, progression, obesity, mental illness, scientific evidence</p> <p>Summary Lipedema is far more than just fatter and painful legs! As a disorder, Lipedema is encumbered with many myths. In the first part of this review, we cast a critical glance at two popular statements about Lipedema: statements that found their way into scientific publications decades ago and which have been repeated uncritically and continuously ever since; statements that have since become conventional wisdom for Lipedema patients and, in particular, for Lipedema self-help groups. In our portrayal of the myths surrounding Lipedema, we focus in this article on two aspects in particular that are closely associated with Lipedema: obesity and the psychological situation of Lipedema patients, which, again, is closely linked to the obesity. We examine two frequently published statements for their scientific evidence: 1. "Lipedema is a progressive disorder"; 2. "Lipedema causes mental illness". Both statements largely contradict our many years of daily clinical experience with this specific patient population. At the same time, during our extensive searches of the scientific literature, we also determined that there is no evidence for these claims, which have now become part of the everyday "Lipedema language". In fact, Lipedema is not usually a progressive disorder.</p> <p>Correspondence: Dr. med. Dr. Tobias Bertsch Höflich Klinik 78634 Hinterzarten Tel. +49 76 7954 1000 Fax: +49 76 7954 1001 E-Mail: tobias.bertsch@hoflich.de</p> <p>Phlebologie 2020;18</p>	<p>120 Original Article</p> <h3>Lipedema – myths and facts Part 2</h3> <p>T. Bertsch¹, G. Erbacher^{1,2} <small>¹Höflich Klinik Hinterzarten – Europäischen Zentrum für Lymphologie, ²Dipl. Psychologin, Psychologische Psychotherapeuten, Superviseurin (Bd)</small></p> <p>Keywords Lipedema, edema, manual lymph drainage, scientific evidence</p> <p>Summary Lipedema as a disease is associated with numerous myths. In this small overview of the myths surrounding Lipedema, we throw a critical eye on popular statements regarding the disease. We have found that statements made in scientific publications decades ago and which have been repeated over and over again without criticism. These statements have become part of the general knowledge for Lipedema patients and Lipedema self-help groups. In the first part of our presentation we focused on critically reviewing two popular myths about Lipedema. We found that there were no scientific evidence for the following statements: "Lipedema is a progressive disease", and "Lipedema negatively affects mental health". In this our second contribution we will examine the following statements: "Lipedema is primarily an edema problem" and "Lipedema is a progressive disease".</p>	<p>188 Original Article</p> <h3>Lipedema – myths and facts Part 3</h3> <p>T. Bertsch¹, G. Erbacher^{1,2} <small>¹Höflich Klinik Hinterzarten – Europäischen Zentrum für Lymphologie, ²Dipl. Psychologin, Psychologische Psychotherapeuten, Superviseurin (Bd)</small></p> <p>Keywords Lipedema, obesity, weight loss, scientific evidence</p> <p>Summary Lipedema is associated with numerous myths. In this short series we offer an overview of the myths of Lipedema, and we throw a critical eye over popular statements concerning the disease; statements that found their way into scientific publications decades ago and which have been accepted and repeated without criticism; statements which have become widely accepted by Lipedema patients, and particularly by Lipedema self-help groups. In the first part of this series we took a critical look at two myths about Lipedema. We found that there is no scientific evidence for neither "Lipedema is a progressive disease", nor "Lipedema causes mental illness". In the second article about the myths of Lipedema we focused on the edema aspect, on the "edema in Lipedema" and the subsequent therapeutic consequences – manual lymph drainage. We were also able to show that there is no scientific evidence for the popular statement: "Lipedema is primarily an edema problem".</p>	<p>Original Article</p> <h3>Lipedema – Myths and Facts Part 4</h3> <h4>Lipödem – Mythen und Fakten Teil 4</h4> <p>Authors Tobias Bertsch¹, Gabriele Erbacher¹, Nestor Torio-Padrón²</p> <p>Affiliations 1 Höflich Klinik Hinterzarten, Europäischen Zentrum für Lymphologie 2 Praxisklinik für Plastische Chirurgie Freiburg</p> <p>Key words Lipedema, liposuction, scientific evidence, obesity</p> <p>Schlüsselwörter Lipödem, Liposuktion, wissenschaftliche Evidenz, Adipositas</p> <p>received 05.08.2018 accepted 09.08.2018</p> <p>Bibliography DOI: https://doi.org/10.1055/s-0005-5497 Phlebologie 2019; 48: 47-56 © Georg Thieme Verlag KG Stuttgart · New York</p> <p>ZUSAMMENFASSUNG Um das Lipödem rennen sich zahlreiche Mythen! In diesem vierten Beitrag unserer Artikelserie setzen wir uns mit dem Stellenwert der Liposuktion beim Lipödem auseinander. Wir dis-</p>
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Consensus

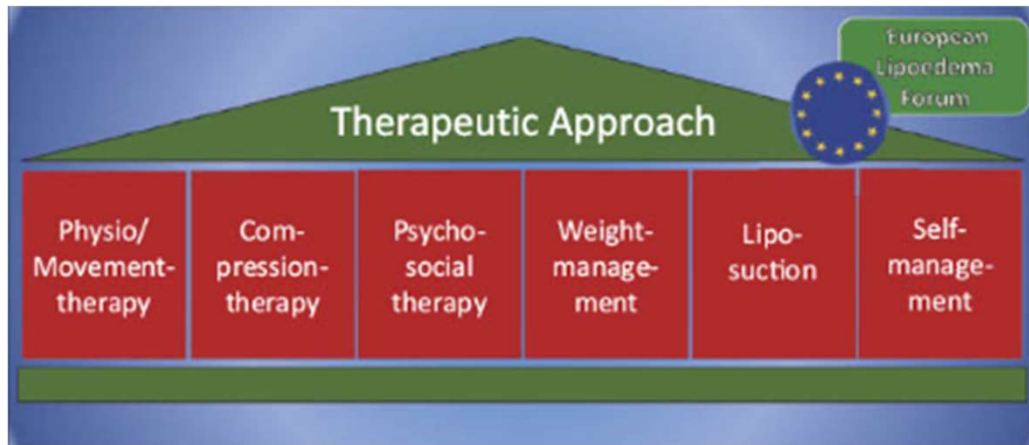
European Lipedema Forum (2019)

The term *Lipedema* is misleading and incorrect!

There is no scientific evidence:

- that Lipedema is an “edema problem”
- that MLD is reducing the patients’ complaints due to its drainage effects
- that Lipedema is a progressive disease
- that weight loss is not effective
- that Lipedema is the cause of Lymphedema
- that 11% of the female population suffer from Lipedema
- that onset of Lipedema is during puberty

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Main pillars of the therapeutic concept for the treatment of lipedema
(European Lipedema Forum 2019)



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Lipedema is not an “edema problem”



Patient with lymphedema of the distal lower leg and forefoot and lipedema restricted to the thigh and proximal lower leg



Proximal thigh of the patient with typical ultrasound image of lipedema with unremarkable dermis, thickened subcutaneous tissue, and **no evidence of fluid in the soft tissues**

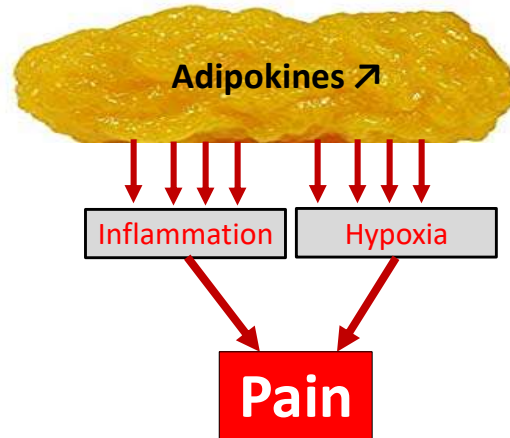


Distal right leg of same patient with typical ultrasound image of **stage 2 lymphedema with partial separation of soft tissues, thickened subcutaneous tissue and fluid in the tissues** (small arrows)



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Causes of the Lipedema Pain



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MLD or no MLD?

Reduce edema – No

Improve subjective complaints – Yes

How about compression therapy?

Reduce edema – No

Decrease inflammation – Yes

Improve microcirculation (hypoxia) – Yes

Decrease subcutaneous pain – Yes

Night compression – No



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“Compression therapy has always been and still is an important element of Best Practice in the treatment of patients with lipedema!”



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MLD or no MLD?

Reduce **lymph**edema – Yes

Improve tissue health – Yes

How about compression therapy?

Reduce **lymph**edema – Yes

decrease inflammation – Yes

Improve microcirculation (hypoxia) – Yes

Decrease subcutaneous pain – Yes

Night compression – lower leg to knee



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Figure 6.
STAGE III LIPEDEMA WITH LARGE DEFORMING FAT
DEPOSITS; NOTE SIZE DIFFERENCE BETWEEN UPPER
AND LOWER BODY



How about MLD and Compression?

Reduce lymphedema

Improve tissue health

Yes, but in the context of
a multimodal
(multidisciplinary)
approach

Five night compression

n
pain

YES



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Consensus Regarding Obesity and Lipedema

- *Being overweight or obese is an aggravating factor of lipedema*
- *The majority of lipedema patients are obese (80-88%)^{REF}*
- *Lipedema patients usually suffer from their weight gain*
- *Majority of patients try "diet and exercise" and experience a yo-yo effect*
- *Weight gain can impair lipedema*
- *Obese lipedema patients often experience a lack of fitness and mobility*
- **Conclusion:** *Obesity/weight gain must be focused on*



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Weight loss is effective!



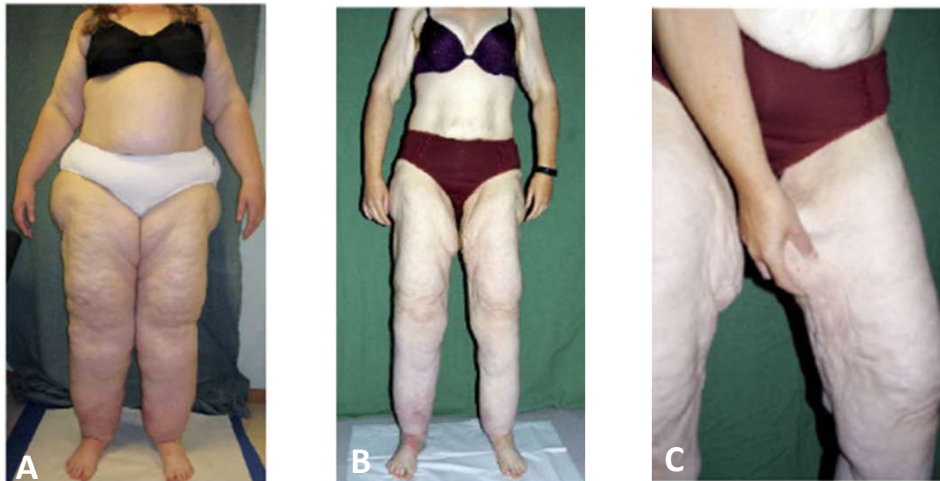
Lipedema patient (122 kg, 168 cm, BMI 43) before sleeve gastrectomy.

Same patient 11 months after bariatric surgery. Weight now 74 kg, BMI 26.



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Weight loss is effective.



A: Patient with lipedema and predominately distal leg edema.

B: Same patient 1 year later, after a gastric bypass.
C: Excess skin with subcutaneous fat.



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“Lipedema is not usually a progressive disorder! Instead, patients with lipedema experience weight gain (obesity) which can lead to exacerbation of the lipedema.”

“The majority of our (Földi Clinic) lipedema patients are also obese. Very frequently, patients with lipedema experience weight increase that occurs due to regular “dieting” and the subsequent “yo-yo effect”.”



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*“With lipedema, the advice to lose weight conventionally is particularly pernicious. **95%** of all people who lose weight with the usual commercial and non-commercial diets regain the weight within 3 years.”^{REF}*

“Studies at the University of Hohenheim have shown that women (in contrast to men) regain a disproportionate amount of weight in the lower body after weight loss.^{REF} In other words: every medical recommendation to a lipedema patient to lose weight increases the risk of exacerbating the lipedema.”



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Weight Management

- *Short term diets must be avoided by all means.*
- *The concept of energy balance has to be accepted.*
- *Patients must be educated about the pro- and anti-inflammatory effects of their dietary habits and food choices.*
- *For long-term weight stabilization support and coaching are mandatory.*

For additional consideration refer to Lipedema – Myths and Facts, Part 5



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Bariatric surgical approach

- *Recommended for patients with lipedema and a BMI of ≥ 40*
- *May be considered for patients with lipedema and a BMI of 35-40*

Note: In any case, the bariatric procedure must be part of a multimodal treatment concept.



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Stabilize and Exercise



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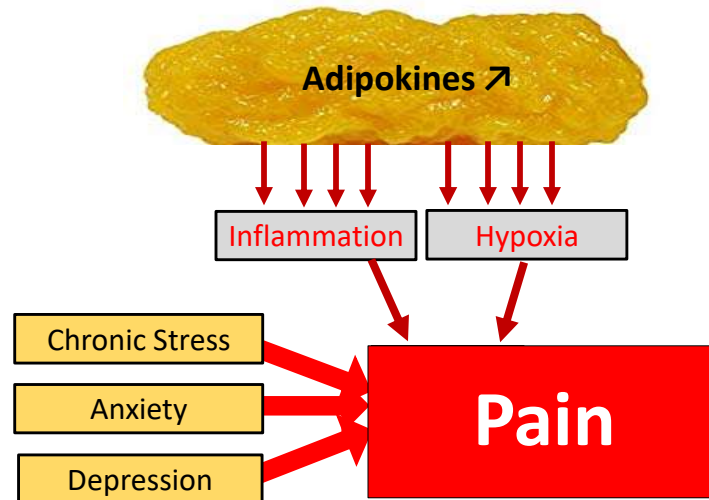
Consensus Regarding Psychology

- *Psychological issues are an additional aspect of lipedema*
- *The impact of psychological stress is underestimated*
- *Psychological vulnerability contributes to the amount of pain perception*
- *Eating disorders are often present and need to be treated*
- *Lack of self-acceptance because of current beauty ideal*
- ***Conclusion: Psychological assessment is a must!***



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Causes of the Lipedema Pain



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Liposuction

Not every patient with lipedema will benefit from liposuction!

Liposuction may be considered if:

- *Symptoms persist despite at least 12 month of conservative treatment as presented above*
- *The patient has considerable functional disability*
- *The patient's weight has been stable for at least 12 month*
- *A preoperative psychological assessment is available*

For additional consideration refer to Lipedema – Myths and Facts, Part 5



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Self-management

The “Math of Motivation”

Motivation is an essential ingredient for changing behavior.

The Motivational Matrix:

$$\text{Motivation} = \text{importance}^1 \times \text{self-efficacy}^2$$

Any amount of knowledge multiplied by zero motivation will not change a thing!

¹ Importance of the goal

² The belief in one's own ability to achieve the goal



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LYMPHEDEMA PRECAUTIONS



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LYMPHEDEMA PRECAUTIONS

VOLUME 33 • NUMBER 3 • MARCH 1, 2015
JOURNAL OF CLINICAL ONCOLOGY ORIGINAL REPORT

Impact of Ipsilateral Blood Draws, Injections, Blood Pressure Measurements, and Air Travel on the Risk of Lymphedema for Patients Treated for Breast Cancer

Chen M, Dwyer, Motta, K, Swamy, D, et al. *J Clin Oncol* 33:1045-1051 (2015). doi:10.1200/JCO.2014.28.1045. See accompanying article on page 1050.

ABSTRACT

Purpose The goal of this study was to investigate the association between ipsilateral blood draws, injections, blood pressure measurements, and air travel on the risk of lymphedema for patients treated for breast cancer.

Patients and Methods Between 2009 and 2011, patients undergoing breast cancer treatment were prospectively followed for 12 months. Ipsilateral blood draws, injections, blood pressure measurements, and air travel were recorded. The number of ipsilateral blood draws, injections, blood pressure measurements, and air travel were compared between patients who developed lymphedema and those who did not.

Results Ipsilateral blood draws, injections, blood pressure measurements, and air travel were significantly associated with the development of lymphedema. The risk of lymphedema was significantly higher in patients who had ipsilateral blood draws, injections, blood pressure measurements, and air travel compared with those who did not.

Conclusion Ipsilateral blood draws, injections, blood pressure measurements, and air travel are associated with the development of lymphedema. These findings suggest that patients should be counseled about these activities and encouraged to avoid them when possible.

VOLUME 33 • NUMBER 3 • MARCH 1, 2015
JOURNAL OF CLINICAL ONCOLOGY ONCOLOGY GRAND ROUNDS

Lymphedema Precautions: Time to Abandon Old Practices?

Siegel, Arin and Tina, D. *Annals of the New York Academy of Sciences* 1257:1-10 (2015). doi:10.1111/nyas.12571. See accompanying article on page 1050.

The history of lymphedema precautions is a long and complex one. It is a condition that has been studied for over a century, and the management of it has evolved over time. The goal of this article is to review the current evidence on lymphedema precautions and to discuss the need to abandon old practices.

Challenges in Assessment and Management

Upper extremity lymphedema is a generally debilitating condition that affects approximately 10% of breast cancer survivors. However, lymphedema only services with risk factors for breast cancer survivors. However, the use of blood phlebotomy, injections, physical activity and lead to evidence of "avoidance" and the possibility of developing lymphedema can be a source of great anxiety for some patients. Over the years, a variety of management practices, with varying degrees of success, have been adopted to prevent lymphedema. However, few data support the effectiveness of these attempts.

There have been several studies that have shown that the use of blood phlebotomy, injections, physical activity and lead to evidence of "avoidance" and the possibility of developing lymphedema can be a source of great anxiety for some patients. Over the years, a variety of management practices, with varying degrees of success, have been adopted to prevent lymphedema. However, few data support the effectiveness of these attempts.

Myths Associated with Lymphedema

Arin K. Greene, MD
 Lymphedema: Presentation, Diagnosis and Treatment
 Springer 2015

Preventing Lymphedema: Separating Fact From Fiction

Babak Mehrara, MD
 LE&RN Channel
 on YouTube

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National Lymphedema Network Conference Boston, October 2019

Saturday, October 26, 2019		
7:00	Registration	Grand Ballroom
Pre-conference Sessions		
	Private Practice - The Essentials for Success	Room
	S.T.R.I.D.E.™, Professional Guide to Compression Garment Selection in Clinical Practice	Presenter
	Lymphedema Therapy in the Home Setting	Douglass Kathie HOZ
	Head & Neck Lymphedema Management: Be at the Top of Your Practice	John Beckwith
	Advanced Scar Tissue Technique Lab: Enhance Lymph Drainage	Faneut Rodney Ejbek
	Differential Diagnosis of Vascular Impairments and Associated Edema Management	Carlton Bryan Grolauk
	Wound Care in Nutshell	Lewis Christine Porsche
	Integrating Elastic Taping - A Comprehensive Lab	Burroughs Karen Ashforth
11:00	medi sponsored welcome reception	Marina I Jan Weiss
		Christina Hawkins
		Marina II Robert Goldman
		John North
		Marina III Vietz Anng
General Assembly		
12:45	Welcome	Presenter
1:15	Precautionary Measures for Lymphedema	Jeannette Zucker
1:15	Presenting the Evidence	Jeannette Zucker
1:15	Round Table with Panel of Experts	Alphonse Taghian
1:15	Full Conference Engagement	
3:15	Tactile Sponsored Break in Exhibit Hall	Grand Ballroom
General Assembly		
3:45	Lymphedema Diagnosis & Definition	Presenter
4:00	The Language of Lymphedema	Alisa Enslin
4:00	Multi-Causal Lymphedema	Kathleen Francis
4:20	Universal Agreement on Definition & Diagnosis of Lymphedema	Cheryl Brunelle
4:40	Lymphedema Screening Tools - Full Conference Engagement	Jeannette Zucker
4:55	Q & A	Jeannette Zucker
5:00	Reverent & Exercise for Lymphedema	


Sunday, 1:15
 Precautionary Measures for Lymphedema
 Presenting the Evidence
 Round Table with Panel of Experts

Jeannette Zucker, DPT
Alphonse Taghian, MD

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Painful lymphedema afflicts millions of patients after cancer surgery

By Ranit Mishori
Special to The Washington Post
Monday, November 8, 2010, 2:40 PM



Special garments ease an agonizing ailment for women. But insurance may not pay.


By Carmen Heredia Rodriguez

The Washington Post
Democracy Dies in Darkness

Yes, breast cancer survivors, you can lift weights, get manicures and garden

By Susan Berger
July 6, 2019 at 10:30 a.m. MDT

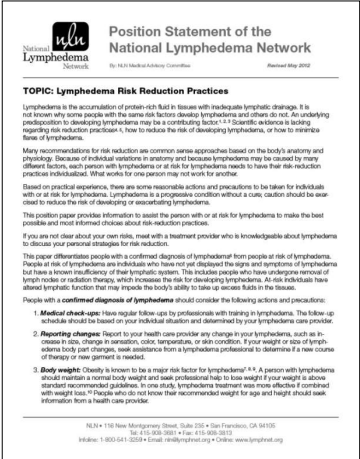
For more than 25 years, many breast cancer survivors were given a lifelong, life-changing warning: Do not lift anything over five pounds, avoid getting manicures, taking saunas or even gardening since it might lead to a painful complication called lymphedema, which can cause irreversible swelling in the arm and often hardening of skin.



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LYMPHEDEMA PRECAUTIONS

lymphnet.org/position-papers



Position Statement of the National Lymphedema Network
By the National Lymphedema Network
Revised May 2012

TOPIC: Lymphedema Risk Reduction Practices

Lymphedema is the accumulation of protein-rich fluid in tissues with inadequate lymphatic drainage. It is not known why some people with the same risk factors develop lymphedema and others do not. An underlying predisposition to developing lymphedema may be a contributing factor.†† Scientific evidence is lacking regarding risk reduction practices.†, †† To reduce the risk of developing lymphedema, or how to minimize the risk of lymphedema.

Many recommendations for risk reduction are common sense approaches based on the body's anatomy and physiology. Because of individual variations in anatomy and because lymphedema may be caused by many different factors, each person with lymphedema or at risk for lymphedema needs to have their risk reduction practices individualized. What works for one person may not work for another.

Based on practical experience, there are some reasonable actions and precautions to be taken for individuals with at risk for lymphedema. Lymphedema is a progressive condition without a cure, caution should be used to avoid to reduce the risk of developing or worsening lymphedema.

This position paper provides information to assist the person with or at risk for lymphedema to make the best possible and most informed choices about risk reduction practices.

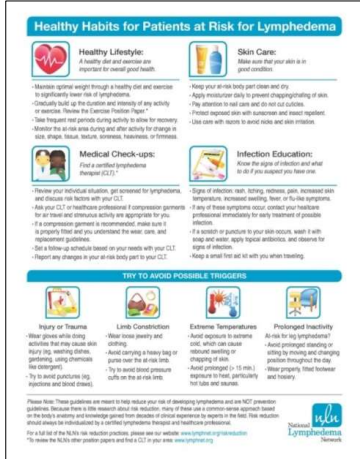
If you are not clear about your own risks, meet with a treatment provider who is knowledgeable about lymphedema to discuss your personal strategies for risk reduction.

This paper differentiates people with a confirmed diagnosis of lymphedema† from people at risk of lymphedema. People at risk of lymphedema are individuals who have not yet developed the signs and symptoms of lymphedema but have a known insufficiency of their lymphatic system. This includes people who have undergone removal of lymph nodes or radiation therapy, which increases the risk for developing lymphedema. At-risk individuals have altered lymphatic function that may impact the body's ability to take up excess fluids in the tissue.

People with a **confirmed diagnosis of lymphedema** should consider the following actions and precautions:

- Medical check-ups:** Have regular follow-ups by professionals with training in lymphedema. This follow-up schedule should be based on your individual situation and determined by your lymphedema care provider.
- Reporting changes:** Report to your health care provider any change in your lymphedema, such as an increase in size, change in sensation, color, temperature, or skin condition. If your weight or size of lymphedema body part changes, seek assistance from a lymphedema professional to determine if a new course of therapy or new garment is needed.
- Body weight:** Obesity is known to be a major risk factor for lymphedema.†† A person with lymphedema should maintain a normal body weight and seek professional help to lose weight if your weight is above standard recommended guidelines. In one study, lymphedema treatment was more effective if combined with weight loss.†† People who do not follow their recommended weight for age and height should seek information from a health care provider.

†NLN = 1102 New Montgomery Street, Suite 200 • San Francisco, CA 94108
Tel: 415-555-2881 • Fax: 415-555-3012
Email: 1-800-541-2222 • Email: info@lymphnet.org • Online: www.lymphnet.org



Healthy Habits for Patients at Risk for Lymphedema

- Healthy Lifestyle:**
 - Maintain optimal weight through a healthy diet and exercise to significantly lower risk of lymphedema.
 - Consistently build up the duration and intensity of any activity or exercise. "Think the Garmin™ Tracker Pages."
 - Stop frequent use of garments during activity to allow for recovery.
 - Monitor the at-risk area during and after activity for change in size, shape, texture, sensation, temperature, or firmness.
- Skin Care:**
 - Keep your at-risk body part clean and dry.
 - Apply moisturizer daily to prevent chapping/drying of skin.
 - Only use gentle soap and avoid hot water.
 - Protect exposed skin with sunscreen and insect repellent.
 - Use care with soaps to avoid acids and skin irritation.
- Medical Check-ups:**
 - Visit a certified lymphedema therapist (CLT).†
 - Review your individual situation, get assessed for lymphedema, and discuss risk factors with your CLT.
 - Ask your CLT or healthcare professional if compression garments for the hand and forearm activity are appropriate for you.
 - If a compression garment is recommended, make sure it is properly fitted and you understand the wear, care, and replacement guidelines.
 - Get a follow-up schedule based on your needs with your CLT.
 - Report any changes in your at-risk body part to your CLT.
- Infection Education:**
 - Know the signs of infection and what to do if you suspect you have one.
 - Signs of infection such as itching, redness, pain, increased skin temperature, increased swelling, heat or flu-like symptoms.
 - If any of these symptoms occur, contact your healthcare professional immediately for early treatment of possible infection.
 - If a scratch or puncture in your skin occurs, wash it with soap and water, apply topical antibiotics, and observe for signs of infection.
 - Keep a small first aid kit with you when traveling.

TRY TO AVOID POSSIBLE TRIGGERS

- Injury or Trauma:**
 - Avoid areas while doing activities that could cause injury (eg, weight lifting, gardening, using tools, etc.)
 - Try to avoid gardening (eg, pesticides and blood clots).
- Limit Constriction:**
 - Avoid loose jewelry and clothing.
 - Avoid carrying a heavy bag or purse on the at-risk side.
 - Try to avoid blood pressure cuffs on the at-risk arm.
- Extreme Temperature:**
 - Avoid exposure to extreme cold, which can lead to reduced swelling or chapping of skin.
 - Avoid prolonged (≥ 15 min) exposure to heat, including hot tubs and saunas.
- Postoperative Reactivity:**
 - Avoid prolonged standing or sitting to minimize and changing posture throughout the day.
 - Wear properly fitted bra and underwear.

Please Note: These guidelines are meant to help reduce your risk of developing lymphedema and are NOT prevention guidelines. Research in this area is limited. Many of these risk reduction practices are common sense based on the body's anatomy and knowledge from decades of clinical experience to reports in the field. Risk reduction should always be individualized to a patient's lymphedema history and healthcare professional.

For a full list of the NLN's risk reduction practices, please see our website: www.lymphnet.org/prevention.
†† See the NLN's other position papers and find a CLT at www.lymphnet.org.

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NLN's Risk Reduction Practices

NLN's Healthy Habits chart


Effective CDT Phase 1 Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	⊗	⊗	⊗	⊗	⊗	
	⊗	⊗	⊗	⊗	⊗	
	⊗		⊗		⊗	
	⊗		⊗			

Ineffective CDT Phase 1 Schedule


Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	⊗			⊗		
	⊗			⊗		
	⊗			⊗		
	⊗			⊗		
	⊗			⊗		
	⊗			⊗		
	⊗			⊗		
	⊗			⊗		
	⊗			⊗		
	⊗			⊗		


THIS IS NOT WORKING



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	Lymphedema Clinic	Hospital
Number of visits per week	5	2
Average total number of visits	13	17
Overall reduction and adherence	+++	+





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Watch Linda's keynote presentation at:
klosetraining.com/jobstlecturepit



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