



# LISG

L y m p h e d e m a I n f o r m a t i o n  
S u p p o r t G r o u p

## Broadening Our Understanding of Lymphatic Disease

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There are an estimated 10 million Americans who are living with lymphedema. The National Institutes of Health (NIH) reports that the incidence of primary lymphedema is from 1 out of 300 to 1 out of 6000 live births. Add to those with secondary lymphedema brought on by cancer treatments, surgery or trauma such as that incurred by our military veterans wounded in combat. Clearly the problem is significant. Then why is lymphedema practically an unknown disease for so many in the U.S.?

Part of the problem is the name “lymphedema”. Almost any disease is know by its acronym: MS, AIDS, TB, ALS, etc. There is no mention of an acronym for lymphedema on the Center for Disease Control (CDC) website other than a reference in their “Diseases & Conditions A-Z Index”. It states the following: “Lymphedema—see Lymphatic Filariasis.” There is no recognition of the 100 million worldwide estimated by the World Health Organization (WHO) to have non-filarial related lymphedema or the recognition of the 10 million Americans who have primary or secondary lymphedema.

One easily understands why the disease lymphedema was given its name. It is a chronic swelling caused by the accumulation of fluid (lymph) when the lymphatic system is damaged. However, this does leave us with a disease name made up of two words that 99% of the world’s population would otherwise never use in their lifetimes (lymph & edema). This is hardly a winning formula if we want to bring attention to a disease that already faces so many obstacles to being recognized. Embracing the acronym, “LE” for lymphedema could help to bring the disease into common discourse.

According to William Repicci, Executive Director of the Lymphatic Education & Research Network (LE&RN), states that a sizable number of those with “LE” in the U.S., and quite possibly the majority, fall into these categories:

1. People who are suffering from LE, but have no idea they have a disease, and are therefore, not seeking treatment.

*More Information  
about Current*

*Lymphatic Research  
can be found at:*

*Lymphatic Education  
& Research Network  
(LE&RN)*

*Stanford Lymphedema  
Clinical Trials -*

*Leslie Roche—*

*650-723-1396*

## Broadening Our Understanding of Lymphatic Disease—2

2. Patients who know they have some ailment but are clueless as to its name and are receiving treatment based on misdiagnosis.

3. Patients who know they have LE but are unable to find knowledgeable medical care as they watch the condition deteriorate. This situation leads to desperate patients looking for help or someone who understands and is willing to listen.

Within the field of lymphatics and LE, physician education in these areas needs improvement. Part of the reason that physicians tend to get frustrated is that LE is not being taught in medical schools and up until now, very few treatments have been offered that doctors generally would dispense for these diseases. The dilemma in connecting the needs of patients with lymphedema to physicians is that there are few treatments for lymphedema at the doctor's disposal.

However, the medical community is beginning to realize how severe the problem really is. The American Board of Venous and Lymphatic Medicine (ABVLM) and LE&RN are focusing on working together to create a physician certification program in lymphedema and lymphatic diseases. Physician education is key and a current lack of it is thwarting progress in meeting the needs of patients who are suffering. We need doctors to be able to diagnose lymphedema and to educate their patients about the implications of the disease. Additionally, we need them to readily dispense the treatments that are available. Patients are already aware of this need but cannot create this shift in the medical community on their own.

Kathy Bates, well-known actor and a lymphedema patient herself, has been a staunch spokesperson for LE&RN for three years. She is playing an active role in changing the image of LE by not only putting her own face to the acronym LE, but also bringing to light the true heroes of the LE community and making their stories known. As a patient battling secondary LE resulting from breast cancer surgery, Kathy is an ambassador and hero to all LE patients. She believes that to make a change, we need a critical mass of people to recognize that something is a priority and then we need to fight for it.

**Ten million Americans suffer from LE.**

**That's more than MS, Muscular Dystrophy, ALS, Parkinson's Disease and AIDS combined.**

## “Hope For First Drug Against Lymphedema”

This article headlined the Chicago Tribune’s Health and Family section on Wednesday, May 24, 2017. The author, Amy Norton, succinctly captures details of recent research in drug therapy for treatment of lymphedema. The entire article follows:

Many cancer patients especially those who’ve undergone breast cancer treatment, experience painful, swollen limbs, a condition called lymphedema.

Researchers now say they’ve found an underlying mechanism that could eventually lead to the first drug therapy for this debilitating condition. The findings come from research in mice and human cells. However, there is a clinical trial underway to see whether these lab discoveries will translate into a new lymphedema treatment.

It is estimated that 10 million Americans have lymphedema, said Dr. Stanley Rockson, one of the senior researchers on the study. “Even though many people might not recognize the term, it’s a very common condition,” said Rockson, a professor at Stanford University School of Medicine in Stanford, CA.

People with lymphedema have excess fluid buildup in parts of the body, usually the arms or legs. Most often, the condition arises after certain cancer treatments damage the lymphatic system, preventing lymph fluids from draining properly.

“At present there is not a drug therapy cure for lymphedema,” Rockson said. “Instead, it is typically managed with measures such as manual lymph drainage, compression garments and pneumatic compression devices.”

Lymphedema is not just a cosmetic issue. It can be uncomfortable, hinder range of motion and make people vulnerable to infections according to the American Cancer Society. “It can severely limit physical and social functioning,” Rockson said.

In the new study, he and his colleagues aim to get a clearer understanding of the molecular mechanism that drive lymphedema. So they’ve turned to a drug called *ketoprofen*. The drug, a painkiller, has been studied as a lymphedema treatment. “The problem,” Rockson said, “is that *ketoprofen* can have side effects for the heart, gastrointestinal tract and kidneys. Safer alternatives are needed.”

To zero in on *ketoprofen*’s good side—its action against lymphedema—the researchers used lab mice induced to have a lymphedema-like condition. The scientists found that the drug prevented tissue injury and fluid buildup by blocking a protein called leukotriene B4 (LTB4). It turned out that the same protein was elevated in cell samples from lymphedema patients. And not only *ketoprofen* battled lymphedema in mice, another drug called *bestatin* worked just as well.

## ***“Hope For First Drug Against Lymphedema”—2***

*Bestatin* is not approved in the United States, but it has been used for years in Japan as a cancer treatment. “The advantage of the drug,” Dr. Rockson said, “is that it has more ‘selective’ action against LTB4 and fewer side effects than *ketoprofen*. Based on the lab findings, a clinical trial testing *bestatin* against lymphedema is underway,” Rockson said.

**Eiger BioPharmaceuticals**, based in Palo Alto, CA, is funding that trial (and acquiring the drug from its Japanese manufacturer). Rockson and a colleague on the study are consultants to the company. “I think patients should feel very encouraged that work is being done,” said Dr. Theresa Gillis, chief of the rehabilitation service at Memorial Sloan Kettering Cancer Center in New York City. “Still, the role of *bestatin*, if any, won’t be clear until the clinical trial results are in,” said Gillis, who wasn’t involved in the research. “The ‘mouse model’ of lymphedema,” she noted, “doesn’t exactly replicate what happens in cancer patients who undergo radiation therapy or surgical removal of the lymph nodes. And treatments that work well in animals don’t always pan out in people,” she said. Gillis agreed that new lymphedema treatments are badly needed.

“Millions of dollars are spent each year in the U.S. on treatment of lymphedema,” Gillis said. “And those millions are often carried by the patients themselves. Beyond costs,” Gillis added, “the current therapies are burdensome. Patients with severe lymphedema wear specialty compression garments daily and may need to use compression bandaging every night or a second specialty night garment,” she said. “Even with optimal efforts by the patient, lymphedema can become progressively worse over time.”

“The new findings offer a clearer understanding of the underlying process in lymphedema,” Gillis said. “Hopefully, this new understanding will lead us toward eventually preventing the condition altogether.”

The *bestatin* trial results are a few years away. But Rockson said he thinks patients can take heart in the fact that the work is happening.

The study was published in May 2017 in the journal *Science Translational Medicine*.

**For further information about the study or to be a participant, phone -  
Leslie Roche at Stanford—650-723-1396**



Butterfly—Symbol for Lymphedema

## What is Lymphedema?

“The Chronic Unknown Disease” can affect any man, woman, or child in any part of the body, children being most severely affected. When lymph nodes or lymph vessels are damaged, destroyed, or missing resulting in an accumulation of wastes and fluids in an affected body part, swelling occurs. This is LYMPHEDEMA.

Lymphedema now affects about 2% of our population and this figure is increasing.

Lymphedema is a condition that results in the breakdown of the body’s ability to remove and filter intercellular fluids. The result is an excessive accumulation of lymph, the fluid that originates in the spaces between body cells. Lymph normally flows into a successively larger series of vessels deeper in the body and is eventually emptied into the venous system. Hundreds of lymph nodes stationed throughout the body filter out proteins, microorganisms, body cell wastes, and other waste particles too large for the veins to transport.

*Continued on next page:*

Most people know very little about lymphedema, how and why it occurs or what can be done about it. This not only includes people affected with lymphedema but also those healthcare professionals who come in contact with them. Patients in the USA who develop lymphedema do so most frequently as a result of prior cancer treatment for breast cancer, melanoma, cervical cancer, removal of lymph nodes, or radiation for tumors. This is **secondary lymphedema**. The most extreme form of secondary lymphedema is **elephantiasis**.

Elephantiasis is characterized by tremendous swelling, the overlying skin is very dark in color, thick and course – resembling an elephant's hide. Elephantiasis can develop after long periods of untreated lymphedema. Still other cases of lymphedema develop as a result of burns, trauma from surgery, accidents, cuts or breaks in the skin or even insect bites. There are also large numbers of people born with this condition – this is **primary lymphedema**.

Very little in the way of therapy has been available to relieve both the physical and emotional distress brought on by this condition. One of the problems of lymphedema is that it does not remain stationary – it continually progresses. Untreated lymphedema can result in grossly swollen body parts containing areas of stagnated lymph leading to fibrosis (hardening of the tissues and loss of skin elasticity). Because this lymph fluid is protein-rich, it is a perfect medium for growth of bacteria, and the area/limb becomes highly susceptible to infection and cellulitis. Any break in the skin can open the way for bacteria to enter. Furthermore, severe swelling and fibrosis leads to immobility due to increased swelling in the joints; chronic infections because of stagnation of wastes in the tissues of the affected part, and irreversible complications.

Untreated lymphedema can result in grossly swollen body parts, immobility, chronic infections, and a cancer known as **lymphangiosarcoma**. And since lymphedema is a chronic disease, it requires proper treatment and maintenance to control swelling, prevent complications, and increase quality of life.

Those most severely affected are children with primary lymphedema. Most of these children have an accompanying congenital disease known as **Klippel-Trenaunay**, which not only affects body tissues, but also blood vessels and bones. The resulting effects are port wine stains with severe varicose veins, swollen bulbous tissues, especially of the feet and toes, and unequal bone growth of the legs. Treatment includes not only combined decongestive therapy and other usual methods but also custom gradient compression garments, and specially made shoes. Since each lymphedema case is different, these children, as well as all lymphedema patients, will have lymphedema the rest of their lives, will always have special needs and must be treated individually and case specific.

### **Signs and Symptoms of Lymphedema**

When lymphedema begins to develop, the signs to watch out for are:

Prickly, burning, or itchy sensations in a suspected area.

A heavy or achy feeling; skin feeling tight and full.

A ring, watch, or bracelet becoming too tight.

A tight sensation in a hand or foot.

Clothes not fitting in a certain area.

Increased swelling in an area that sometimes recedes at night but returns, as the body is vertical for a long period of time.

Persistent swelling & skin that pits with finger pressure

Decreased flexibility, especially in the knee, elbow, ankle, or wrist

### **Stages of Lymphedema:**

**Latent Stage:** a lymphatic or lymphovenous problem exists but there are no visible signs or symptoms.

**Stage 1:** (MILD), "pitting" edema, when tissue is pressed there is a finger impression in the skin that stays. Usually in the morning upon rising the affected area is about normal size and the edema has receded.

**Stage 2:** (MODERATE), "non-pitting" edema, tissue is spongy; the tissue bounces back when pressed without indentation

**Stage 3:** (SEVERE), swelling is irreversible and the limb or area becomes very large. The tissue is hard (fibrotic).

**Treatment for lymphedema includes:** Combined Decongestive Therapy (CDT), gradient compression garments, circumferential measurements of affected body part, intense skin care, a nutritional and fluid intake regimen, specific exercises with compression, water therapy, supportive shoes, manual lymph drainage, gradient sequential pneumatic pumping device, gradient bandaging, directional flow garment, keeping active and a positive enhancing life support.

If lymphedema is left untreated, the limb or area will continue to swell with areas of stagnated lymph that isn't moving. This stagnation leads to fibrosis (an accumulation of stagnated lymph that doesn't move and becomes hardened). Because this fluid is protein-rich, it is a perfect medium for growth of bacteria. Furthermore, severe swelling and fibrosis leads to loss of mobility, other chronic infections and sometimes irreversible complications.

Any break in the skin or invasive therapy can open the way for bacteria to enter the tissues of the body. It is very important to maintain good healthy skin by: keeping it clean, soft and supple, and safeguarding against any cuts, bites, etc.

**PLEASE NOTE** – *if you've had these "3 happenings" – surgery, lymph nodes removed + radiation, you have a 55 – 65% chance of getting lymphedema and it can occur anytime.*

- *if you've had surgery alone, you have a 10 – 15% chance*

- *if you've had surgery + lymph nodes removed, you have 25 - 30% chance*

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**A bona fide Lymphedema Therapist must have/be:**

- 1. A medical professional with solid background in anatomy and physiology of the lymphatic system**
- 2. Completed 140 hrs. of education in the field of lymphedema with -**
- 3. Approximately 2 x's that amount of time in practicum preparation**
- 4. 5 years' experience in the field of lymphedema treatment and care**
- 5. Pass the LANA Test to become a Nationally Qualified Lymphedema Therapist**

**(Ginger-K Center meets all these criteria)**

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For more information contact:

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# New Surgical Treatment for Lymphedema

## *Stanford Healthcare* Lymphedema Surgery

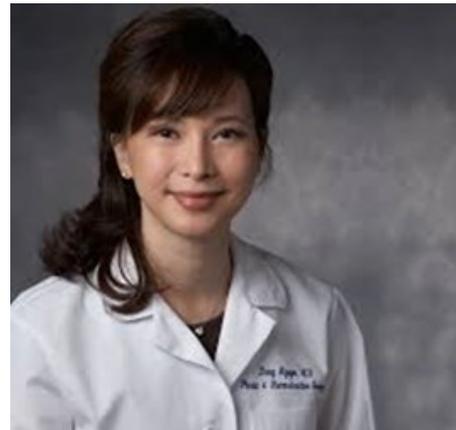
### Emerging Surgical Techniques To A Complex Problem:

Lymphovenous anastomosis (LVA)  
Vascularized lymph node transfer  
Liposuction  
Excisional procedures

Schedule your customized evaluation

Palo Alto, CA Location:  
1000 Welch Road, Suite 100  
Palo Alto, CA. 94304  
650-723-7001

San Jose, CA. Location:  
2589 Samaritan Drive  
San Jose, CA. 95124  
408-426-4900



**Dung Nguyen MD, PharmD**  
**Clinical Associate Professor**  
**Plastic & Reconstructive Surgery**

*Dr. Dung Nguyen* is a plastic and reconstructive surgeon at Stanford University who is a leading expert in surgical treatment of lymphedema. She specializes in all surgical techniques and customizes treatment plan for each patient depending on their disease condition. Dr. Nguyen has research interests in translational and clinical research in lymphedema surgery and is currently conducting a clinical trial to evaluate the efficacy of a bioengineered collagen scaffold in lymphatic regeneration following lymph node transfer. She has clinics in Palo Alto and San Jose.

## Drug Management App In Development – Input Requested

Storyline is a drug management app currently in development that is aimed at cancer patients. It displays all of the user's drugs in an easy to read timeline so the user can see exactly when and what their drug regimen is.

To make drug cataloging easy, users can just snap a picture of their drug label and Storyline will automatically detect and input the drug into the timeline for them.

Storyline also uses the FDA database to provide information about the drugs such as usage, side effects, and even potential interactions with other drugs the user is taking.

Nina Singh, a former intern at the Ginger-K Lymphedema and Cancer Care Center, is a co-founder of the app, and would like to see if there is any interest in the app from the Ginger-K community. She is also extremely interested in hearing your thoughts and feedback about how we can make the app most useful to you.

If interested, please contact her at [ninasing@usc.edu](mailto:ninasing@usc.edu) or (408)607-4091.



# STORYLINE

medication management made easy

