

## Chapter 15

# Advances in Understanding the Use of Yoga as Therapy in Lymphedema

**S. R. Narahari**

*Institute of Applied Dermatology, Kasaragod, India*

**Madhur Guruprasad Aggithaya**

*Institute of Applied Dermatology, Kasaragod, India*

**Terence J. Ryan**

*Department of Dermatology, Churchill Hospital, UK*

### **ABSTRACT**

*Lymphedema may be caused by dysfunction of the lymphatic system due to damage, block, hypoplasia due to genetic causes or by lymph overload. Lymphatic Filariasis is most prevalent and among the leading causes of disability. This chapter describes the improvements in three yoga protocols of integrative treatment, for lower limb, upper limb, and genital lymphedema. There are two sessions of yoga in our treatment protocol. Yoga helps to drain lymph through various mechanisms. Asanas focus on the dermal stretch, joint movement, muscle pumps, and muscle stretch and pranayamas on lung expansion. Joint movements and muscle contractions are designed to mimic nodal drainage. The yoga protocol also provides knee strengthening, gait correction, shoulder joint strengthening. Yoga asanas for comorbidities like hypertension, cardiovascular diseases, and arthritis and joint surgeries with movement restrictions are customized in the revised protocol. Yoga is an effective treatment in lymphedema and considerably improves the patient's quality of life.*

## INTRODUCTION

Lymphedema is a disfiguring and disabling, often neglected disease caused by dysfunction of the lymphatic system due to damage/block, hypoplasia due to genetic causes or by lymph overload. Breast Cancer Related Lymphedema (BCRL), elephantiasis due to lymphatic Filariasis (LF) and primary lymphedema of various genetic aberrations are the most prevalent world over. There are two standard yoga protocols for lower limb and upper limb lymphedema described by us previously (Narahari et al., 2007; Narahari et al., 2013). This chapter describes the changes done in yoga protocols incorporating lymphedema patients' feedback and expert discussions.

Commonly seen mild oedema of over three months duration, which pits when compressed with relatively light pressure represents lymphatic overload could be the result of a failing heart or other systemic illness unrelated to lymphatic block. Some people develop persistent oedema which becomes organized, brawny and non-pitting at least in certain parts of affected area termed lymphedema or elephantiasis, usually found in the tropics. It is acquired following mosquito bites in childhood, transmitting the parasites, *Wucheraria bancrofti*, *Brugia malayi* or *Brugia timori*. Also, it appears some years after therapies for cancer such as surgical removal of lymph nodes with supporting fat pads in adults or following radiotherapy. Several genetic disorders are accounting for rarer presentations, especially but not inevitably in childhood. Lymphedema occurs when lymph vessel function gets impaired due to blockade, gross dilatation or loss. Accumulation of protein-rich interstitial fluid (lymph) stimulating tissue overgrowth and swollen limbs is the hallmark of failure of lymph drainage. There is also the phenomenon of lymphatic overload due to an excess of fluid flow from the capillary bed of the upper dermis as a result of inflammation by cytokines and other inflammatory mediators from the epidermis, dermal mast cells and macrophages. A primary underlying mechanism is the failure epidermal barrier function, which also loads the dermis with inflammatory mediators such as cytokines and growth factors (Ryan, 2016) in an attempt to repair itself. Lymphedema caused by impaired lymphatic flow and the effects of dermal inflammation much worse if there is also venous overload due to the gravitational impacts of an immobile and dependent limb. The role of an overloaded venous system in aggravating lymphatic overload is alleviated by anti-gravitational interventions such as elevation, and ankle movements activating the calf muscle contractions and compressing the calf veins.

There are many causes for the failure of lymph drainage and all lead to lymphedema. But in India, the major cause of lymphedema, and indeed throughout the tropics is LF. It is a neglected disease of the poor, prevalent in 78 countries. In India, there are at least 20 million people with signs and symptoms of LF. The mosquito inoculates the filarial parasites as a microscopic worm. After a prolonged circulation in the bloodstream, the parasite resides as a much more giant 'worm' in the lymphatic collecting ducts near their lymph node termination causing dilatation of the vessel (Young et al., 1976) and failure of flow (Witte et al., 1993). Three drugs given once yearly over five years to remove this cause circulating in the blood and consequent transmission. They are albendazole, ivermectin and diethyl carbamazine.

Once the elephantiasis has developed, there is little to no reduction in lymphedema in response to these drugs alone. Similarly, another common cause especially identified in Ethiopia in Africa is Podoconiosis (Davey et al., 2007) due to not wearing footwear in an irritant soil. WHO has classified both diseases as Neglected Tropical Diseases (NTD) of the poor because until recently, there are no specific treatments everywhere available for their morbidity control. Surgical treatments for lymphedema have advanced to include repair of lymphatic function by anastomoses to small veins and other technologies, but these interventions are expensive. Also, sometimes very useful, failure cannot be guaranteed, and

18 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:  
[www.igi-global.com/chapter/advances-in-understanding-the-use-of-yoga-as-therapy-in-lymphedema/261155](http://www.igi-global.com/chapter/advances-in-understanding-the-use-of-yoga-as-therapy-in-lymphedema/261155)

## Related Content

---

### Cognitive Remediation Therapy in Chronic Schizophrenia

Susmita Halder and Akash Mahato (2021). *Research Anthology on Rehabilitation Practices and Therapy* (pp. 1337-1353).

[www.irma-international.org/chapter/cognitive-remediation-therapy-in-chronic-schizophrenia/261405](http://www.irma-international.org/chapter/cognitive-remediation-therapy-in-chronic-schizophrenia/261405)

### Stroke Rehabilitation and Parkinson's Disease Tremor Reduction Using BCIs Combined With FES

Sophie V. Adama and Martin Bogdan (2021). *Research Anthology on Rehabilitation Practices and Therapy* (pp. 679-697).

[www.irma-international.org/chapter/stroke-rehabilitation-and-parkinsons-disease-tremor-reduction-using-bcis-combined-with-fes/261370](http://www.irma-international.org/chapter/stroke-rehabilitation-and-parkinsons-disease-tremor-reduction-using-bcis-combined-with-fes/261370)

### An Internet-Based Quantum Biofeedback and Neurotechnology Cybertherapy System for the Support of Transpersonal Psychology

Raul Valverde (2021). *Research Anthology on Rehabilitation Practices and Therapy* (pp. 940-976).

[www.irma-international.org/chapter/an-internet-based-quantum-biofeedback-and-neurotechnology-cybertherapy-system-for-the-support-of-transpersonal-psychology/261383](http://www.irma-international.org/chapter/an-internet-based-quantum-biofeedback-and-neurotechnology-cybertherapy-system-for-the-support-of-transpersonal-psychology/261383)

### Preemployment Psychological Screening of Police Officer Applicants: Basic Considerations and Recent Advances

Cary L. Mitchell (2021). *Research Anthology on Rehabilitation Practices and Therapy* (pp. 579-601).

[www.irma-international.org/chapter/preemployment-psychological-screening-of-police-officer-applicants/261366](http://www.irma-international.org/chapter/preemployment-psychological-screening-of-police-officer-applicants/261366)

### Prison Education in Nigeria

Gbolagade Adekanmbi and Ukoha Ezikpe (2021). *Research Anthology on Rehabilitation Practices and Therapy* (pp. 1723-1736).

[www.irma-international.org/chapter/prison-education-in-nigeria/261426](http://www.irma-international.org/chapter/prison-education-in-nigeria/261426)