PULSE EXPERIENTIAL TEAM ASSIGNMENT

Team #: 11

1. Title of your PULSE experiential assignment. *Provide a creative and informative title.*
Trumpeting news on elephantiasis and edema: How Lymphatic Obstruction Creates Elephant-Sized Limbs
2. Please summarize your PULSE experiential assignment (max 300 words). *Provide a non-technical (lay) summary of your PULSE assignment. Prompts to think about: What is the topic? What is the format? Why did you choose this topic and format? The summary for lay audience is a brief and accessible summary of the assignment that is used to explain complex ideas, technical writing and scientific terms to people who do not have prior knowledge of the subject (e.g., high school science level). This summary should include the importance, impact, and content of your assignment to a broader audience.* *[Team 23 is an example of an informative lay summary.]*
Elephantiasis (lymphatic filariasis) is an infectious disease caused by parasitic worms that are transmitted through mosquito bites. These parasites cause blockages in the lymphatic system, which normally helps maintain fluid balance and supports immune function. As a result, fluid builds up in the tissues, leading to thickening of the skin and tissues, swelling (lymphedema), and local inflammation. Although elephantiasis has a low mortality rate, it is second most prevalent vector-borne disease and can have significant physical and social consequences. Many individuals affected by the disease face social stigma and discrimination, which can discourage them from seeking treatment. Current treatments for elephantiasis include combination anti-parasitic therapies, lymphatic decongestive therapy, and surgical interventions. Treatment is most effective in the early stages of infection; without timely care, the disease can progress to irreversible tissue damage and severe disability. This project is an interactive newsletter designed to teach the pathophysiological concepts underlying elephantiasis and edema in a manner that is engaging and easy to understand. Readers can explore the topic through comics, quizzes, crossword puzzles, and games, making the content memorable and accessible. The newsletter begins with a fictional news article (based on a real-life case) to capture the audience's attention and introduce the topic in a relatable way. The goal of our newsletter is to connect course concepts taught in Pathology 3500, such as edema, to a real-world disease that affects millions of people globally. By using a visually pleasing and interactive format, the newsletter aims to raise awareness and provide a clear, easy-to-understand overview of elephantiasis for a general audience.
3. Provide up to 6 keywords relevant to your PULSE experiential assignment. *3-6 keywords are ideal.*

Elephantiasis, Lymphatic Filariasis, Edema, Inflammation, Parasitic Infection, Lymphatic System

4. Identify the course topic with which your PULSE assignment most aligns.
Refer to the various topics outlined under 'Course content and Schedule' in the syllabus (e.g. Inflammation).

Hemodynamic Disorders, Thromboembolism and Shock

5. What are the learning outcomes?
There should be a minimum of 2 learning outcomes for your assignments. For further information on learning outcomes, the Centre for Teaching and Learning offers information: https://teaching.uwo.ca/curriculum/coursedesign/learning-outcomes.html

After reading our newsletter assignment, students should be able to:

- Define elephantiasis and edema
- Recognize and differentiate between the symptoms of elephantiasis and edema
- Explain how elephantiasis leads to edema
- Define the importance of the lymphatic system in preventing interstitial fluid accumulation
- Understand the major treatment options for elephantiasis including current treatments, novel therapies, and medical innovations
- Recognize the consequences of leaving elephantiasis untreated

6. Why did the team select the chosen topic and the medium? How will the topic and medium of choice help learners?

The team selected Elephantiasis as our topic because it is a neglected tropical disease that lacks sufficient public awareness despite the severe physical and social burden it places on individuals. It remains a critical health issue in various regions across Asia, Africa, South America, and the West Pacific. We felt it was necessary to develop a reliable resource that clarifies the pathology of the condition while remaining accessible and easy to navigate for a general audience.

We chose a newsletter medium because it allows us to organize complex medical information into clear, topic-focused sections. This format makes the information much more approachable, as it balances technical details with intentional visuals that prevent the reader from feeling overwhelmed. By using a newsletter, we can present the data in a structured yet engaging way, ensuring that the most important public health messages are highlighted effectively.

7. Did the team use an artificial intelligence (AI) technology tool? If so, which AI technology tool(s) did the team use? What other technology tools did the team use? Is the technology tool novel? Is the team using this technology tool in a novel fashion? If the team did not use technology tool, why did the team decide against using the technology tool(s)?
Please include details (e.g., for what purpose was the tool used for? Why was the tool the best tool to use for your assignment? Are there alternative tools that were considered?)

The team used Perplexity AI to generate educational comics found on the newsletter. In addition, the team used Gemini to generate the newsletter logo (Trunk'it Times) seen on the front page. The technology tools used are relatively novel and were used in a creative fashion to present our content in a visually informative manner. ChatGPT (OpenAI) was considered for making the comics; however, it could not produce any that made sense and had valid information that fit with our newsletter design.

8. How is your PULSE experiential assignment innovative and/or novel?
Describe what about the PULSE assignment is innovative/novel. Is there a particular component or content that is innovative/novel? How is it different from other content that already exists?

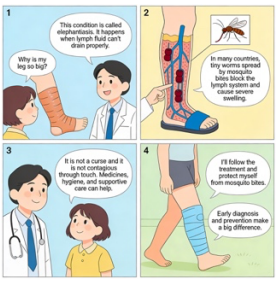
Our PULSE experiential assignment is innovative and distinct from pre-existing content as our group chose to explore a new topic, Elephantiasis, that was previously not researched by any other group from previous cohorts under the Hemodynamic Disorders, Thromboembolism and Shock course topic. In addition, we used various elements and icons such as stickers that would not be included in a formal academic journal. Through the addition of dynamic graphics, the team was able to make the newsletter visually engaging and appealing for the audience, as opposed to a wall of text and figures. We also used AI to create fun and engaging comics to help the audience remember the content presented, which is a novel way AI had not been used before.

9. If you used an AI tool, please copy and paste the prompt(s)/question(s) used along with the output(s)/answer(s) from the AI tool.
The response here is to allow others to replicate the team's work. If the prompts/outputs are lengthy (over 1 page), please attach it as a separate document and note below [Please see attached document].

Prompt: newspaper style logo (old style) in blue, white background (like mono but in blue) and name is Trunk'it Times
Output:

prompt: create a comic about elephantiasis

output:



Prompt: create a funny comic about elephantiasis

Output:

10. If you did not use an AI tool, please attach a copy of the team's notes to the assignment.

The response here is to allow others to observe the 'behind the scenes' team's work.

N/A

11. How did the team ensure the veracity of the information presented in the PULSE assignment?

The response should highlight how the team has ensured that the information presented in the assignment is evidence-based and not spreading misinformation. You should specifically mention which databases (if any) or textbook materials you used, and how you kept track of the sources/references for each claim. If AI provided you with false information, please describe how the team has fact-checked the AI response and the legitimate (scientific) sources you used. A reference document should be provided in the reference section (15. References) below. Please ensure to include in-text citations in your assignment where applicable.

Our team prioritized information veracity by sourcing data from peer-reviewed journals or from reliable research databases, such as PubMed and Google Scholar. By cross-referencing our research across multiple sources, we reduced the risk of providing misinformation. Public health information was gathered from reliable sources such as the WHO and recognized clinical websites.

Furthermore, our team decided to use AI only for visual aid. We intentionally excluded AI from our research and drafting stages to avoid false AI-generated information from being incorporated and ensure that all scientific content remained strictly evidence-based. Our team made sure to refer back to our research to fact check that the comics that were generated by AI presented information that was accurate.

12. Write a meaningful team reflection about the PULSE session (max 250 words).

Prompts to help your team write the reflection: Were there any team/individual biases that surfaced when creating content for the assignment? Did the team implement any practices to ensure the content was equitable, diverse, and/or inclusive? How has the PULSE assignment helped with the team's learning? If the team had to estimate, how long did the assignment take? What worked well for your team? What would the team do differently next time? What were the opportunities and challenges with creating the PULSE assignment to help others' learning? Were there any barriers or limitations?

In the textbook, elephantiasis was only mentioned briefly as an example of how edema can occur, with no further explanations. Through this assignment, the team was able to explore elephantiasis in greater depth, examining it as an extension on the topic of edema and understanding the close connection between the two.

The assignment took around a month to complete alongside other coursework and examinations. Setting internal deadlines was helpful to the team as we were able to plan ahead and maintain a steady workflow instead of having to rush the assignment at the last minute. We planned regular meetings, online or in-person, to check in with each other and communicate any issues or difficulties that we may have come across. During meetings, we would listen to everyone's ideas and gather input from all team members to ensure inclusivity regarding research and the design of the assignment. The team also split the sections for the written portion and the Canva pages, which allowed for clear division of work. It also sets well-defined expectations for the work completed by each team member. We also made sure to leave at least a week before the due date to account for sudden changes in the team members' schedules that might make it difficult for a meeting to be planned. The team could have improved communication in terms of keeping each other accountable as the completion time for the assignment was longer than we had originally planned it to be.

13. Write the contributions of individual team members using unique initials.
Example: All team members contributed to the design of the prompts used in the technology tool, ChatGPT (GPT-3.5). T.K and T.K2 fact checked the information presented by ChatGPT using published literature on PubMed (PMID 29211319, 32477271). Y.Z finalized and formatted the final infographic and compiled the prompts and outputs. P.E was involved in…

S.R contributed to the background section of the newsletter including the definitions, symptoms, and demographics surrounding elephantiasis and edema.

N.K contributed to the etiology of elephantiasis as they researched the types of elephantiasis, the progression of lymphedema into elephantiasis, the staging of lymphedema, and the progression of elephantiasis. N.K also generated the word search and crossword puzzles after gathering the words from team members who provided a few words each, from their respective sections. N.K also used Perplexity AI to generate the two comics presented in the newsletter. N.K also checked over the citations generated by Zotero to ensure the citations were correct.

E.K. was responsible for researching the treatments of elephantiasis, including current treatment protocols, novel therapies, and recent medical innovations. E.K. also investigated the long-term consequences of leaving the condition untreated. In addition to research, E.K. initiated the design theme, conceptualizing the overall visual theme and color palette across the newsletter. E.K. also designed the project's official logo using Gemini (AI tool).

A.B. researched and wrote about the physiological functions of the lymphatic system, including the mechanisms of lymphatic pumping, lymphatic drainage, and the Starling forces involved in fluid balance. A.B. additionally contributed to creating the general design of the newsletter, as well as formatting the citations into Vancouver style using Zotero. A.B. also checked the citations to ensure that Zotero had formatted them correctly.

All team members contributed to designing and editing the final newsletter. All team members also contributed to re-checking citations and ensuring they were correctly placed and used.

15. References

Please provide a numbered reference list with Nature citation style. [Please feel free to use citation management software (i.e., free citation manager, e.g., Zotero and Mendeley)]

1. Ledwani A, Karnan A. A case of chronic elephantiasis. Pan Afr Med J. 2024 Feb 20; 47:74. doi:10.11604/pamj.2024.47.74.41427

2. Lamula SQ, Aladejana EB, Aladejana EA, Buwa-Komoreng LV. Prevalence of elephantiasis, an overlooked disease in Southern Africa: a comprehensive review. J Venom Anim Toxins Trop Dis. 2024 Oct 14; 30: e20240007. doi:10.1590/1678-9199-JVATITD-2024-0007

3. World Health Organization. Podoconiosis (non-filarial lymphoedema) [Internet]. WHO; 2023 May 1 [cited 2026 Apr 1]. Available from: https://www.who.int/news-room/fact-sheets/detail/podoconiosis-(non-filarial-lymphoedema)

4. Eisai Co., Ltd. Lymphatic Filariasis [Internet]. Eisai Co., Ltd.; 2022 Dec [cited 2026 Apr 1]. Available from: https://www.eisai.com/sustainability/people/globalhealth/diseases/lymphaticfilariasis.html

5. World Health Organization. Lymphatic filariasis [Internet]. WHO; 2024 Nov 21 [cited 2026 Apr 1]. Available from: https://www.who.int/news-room/fact-sheets/detail/lymphatic-filariasis

6. Cleveland Clinic. Edema. [Internet]. Cleveland Clinic; 2026 Feb 4 [cited 2026 Apr 2]. Available from: https://my.clevelandclinic.org/health/diseases/12564-edema

7. American Kidney Fund. Edema symptoms, causes and treatment [Internet]. AKF; 2025 May 21 [cited 2026 Apr 2]. Available from: https://www.kidneyfund.org/all-about-kidneys/signs-and-symptoms/edema

8. Alyea G. Lymphatic Filariasis [Internet]. NORD; 2025 Sept 25 [cited 2026 Apr 2]. Available from: https://rarediseases.org/rare-diseases/elephantiasis/

9. Yartsev A. Starling forces and fluid exchange in the microcirculation. In: Deranged Physiology [Internet]. Alex Yartsev; 2025 Nov 1 [cited 2026 Mar 25]. Available from: https://derangedphysiology.com/main/cicm-primary-exam/cardiovascular-system/Chapter-471/starling-forces-and-fluid-exchange-microcirculation

10. Human Physiology Students from University of Guelph. Fluid Flux & The Lymphatic System. In: Murrant, C, Ritchie K, Tishinsky J, Versluis A, editors. Human Physiology

[Internet]. Human Physiology Students from University of Guelph; [cited 2026 Mar 25]. Available from: https://books.lib.uoguelph.ca/human-physiology/chapter/capillaries-fluid-flux/

11. Mikhael M, Khan YS. Anatomy, Abdomen and Pelvis: Lymphatic Drainage. In: Stat Pearls [Internet]. Treasure Island (FL): Stat Pearls Publishing; 2023 July 24 [cited 2026 Mar 9]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK557720/

12. von der Weid PY. Lymphatic Vessel Pumping. In: Hashitani H, Lang RJ, editors. Smooth Muscle Spontaneous Activity: Physiological and Pathological Modulation [Internet]. Singapore: Springer; 2019 [cited 2026 Mar 23]. p. 357–77. doi:10.1007/978-981-13-5895-1_15

13. Scallan JP, Zawieja SD, Castorena-Gonzalez JA, Davis MJ. Lymphatic pumping: mechanics, mechanisms and malfunction. J Physiol. 2016 Oct 15;594(20):5749–68. doi:10.1113/JP272088

14. Cleveland Clinic. Lymphatic System [Internet]. Cleveland Clinic; 2023 July 31 [cited 2026 Mar 9]. Available from: https://my.clevelandclinic.org/health/body/21199-lymphatic-system

15. Mukherjee A, Hooks J, Dixon JB. Physiology: Lymph Flow. In: Lee BB, Rockson SG, Bergan J, editors. Lymphedema: A Concise Compendium of Theory and Practice [Internet]. Cham: Springer International Publishing; 2017 June 9 [cited 2026 Apr 5]. p. 91–111 doi:10.1007/978-3-319-52423-8_8

16. Chakraborty S, Gurusamy M, Zawieja DC, Muthuchamy M. Lymphatic filariasis: Perspectives on lymphatic remodeling and contractile dysfunction in filarial disease pathogenesis. Microcirculation. 2013 Jul;20(5):349–64. doi:10.1111/micc.12031

17. Healthdirect . Elephantiasis [Internet]. Healthdirect Australia Ltd; 2025 [cited 2026 Apr 2]. Available from: https://www.healthdirect.gov.au/elephantiasis

18. Cleveland Clinic. Elephantiasis (Lymphatic Filariasis) [Internet]. Cleveland Clinic; 2024 July 23 [cited 2026 Apr 2]. Available from: https://my.clevelandclinic.org/health/diseases/elephantiasis

19. Greene AK, Goss JA. Diagnosis and Staging of Lymphedema. Semin Plast Surg. 2018 Feb;32(1):12–16. doi:10.1055/s-0038-1635117

20. Pereira de Godoy JM, Pereira de Godoy HJ, Pereira de Godoy AC, Guerreiro Godoy M de F. Lymphedema and Elephantiasis of the Lower Limbs: Normalization or Nearly Normalization. Cureus. 2023 Apr 13; 15(4):e37519. doi:10.7759/cureus.37519

21. Dangare M, Fating T. Journey to an Improved Quality of Life: Filarial Lymphoedema and Physiotherapy Rehabilitation. Cureus. 2023 Nov 6; 15(11):e48403. doi:10.7759/cureus.48403

22. Singh S, Shukla RK, Singh A, Acharya S. Chronic Cellulitis in Elephantiasis: A Rare Debilitating Phenomenon. Cureus. 2024 Jul 31; 16(7):e65855. doi:10.7759/cureus.65855

16. Annotated Bibliography

An annotated bibliography is a list of sources (books, articles, websites, etc.) that you used for your project. Each entry has two parts:

1. *Citation – written in the required citation style (same formatting and order as the Nature citation style in your list of references).*
2. *Annotation – a short paragraph that summarizes, evaluates, and explains how the source is useful for your assignment.*

Why do this?

- *Helps you keep track of your research.*
- *Shows your instructor you read and understood your sources.*
- *Develops critical thinking by requiring you to evaluate the quality and relevance of each source.*

Write the annotation (about 150–200 words each)

- *Summary: Briefly describe the main argument or purpose of the source.*
- *Evaluation: Comment on the credibility, strengths, or weaknesses of the source.*
- *Relevance: Explain how you will use this source in your assignment.*

1. Ledwani A, Karnan A. A case of chronic elephantiasis. Pan Afr Med J. 2024 Feb 20; 47:74. doi:10.11604/pamj.2024.47.74.41427

This article is used to explain a clinical case of a 72-year-old man with a long history of lymphedema who developed non-filarial elephantiasis. It takes the audience through the diagnosis, history, symptoms, and treatment of the patient. This article was published in the Pan African Medical Journal, a credible and peer-reviewed journal that aims to make research done in Africa available to researchers worldwide. A strength of this journal is that it covers a wide scope of factors that affect the health of populations in Africa. However, the research in this article may not be applicable to broader populations outside of Africa since it was very focused on one isolated case. This source was used as an inspiration for the news article at the beginning of our project, and an image of the patient's left lower limb was used to help the audience visualize what elephantiasis can look like in real life.

2. Lamula SQ, Aladejana EB, Aladejana EA, Buwa-Komoreng LV. Prevalence of elephantiasis, an overlooked disease in Southern Africa: a comprehensive review. J Venom Anim Toxins Trop Dis. 2024 Oct 14; 30: e20240007. doi:10.1590/1678-9199-JVATITD-2024-0007

This review aims to explore the prevalence of elephantiasis in the Southern African Development Community (SADC), as the researchers recognized uneven incidences of elephantiasis across the region. The researchers found that SADC countries like Angola, Mozambique, Zambia, and Zimbabwe were still facing active transmission due to the

lack of mass drug administration (MDA), while three of the 16 SADC countries are under post-intervention surveillance after MDA. The review also explores elephantiasis, providing the demographics affected by the condition and the etiology of the different types of elephantiasis. The review is a credible source as it uses 54 peer-reviewed articles from reputable databases like PubMed and Google Scholar. The selection of the articles was also done through a thorough, systematic search and screening, which further emphasizes the reliability of the source. This review was used in the demographics section as the team described the populations most at risk or those who are the most affected by elephantiasis. Additionally, the review was referenced in the etiology section, specifically for the causes of non-filarial elephantiasis.

3. World Health Organization. Podoconiosis (non-filarial lymphoedema) [Internet]. WHO; 2023 May 1 [cited 2026 Apr 1]. Available from: https://www.who.int/news-room/fact-sheets/detail/podoconiosis-(non-filarial-lymphoedema)

The World Health Organization is the United Nations specialized agency for health that actively promotes global health, safety, and equity. It is an organization that works with many countries to prevent communicable diseases and address non-communicable diseases. (WHO) On the website, WHO provides information on podoconiosis via a fact sheet, as it explores the most vulnerable demographics, the etiology, prevention tactics, some forms of treatment, the challenges surrounding the condition, and the global impact of podoconiosis. This source is credible as the WHO is an active participant in the prevention of conditions like podoconiosis and is well versed in health conditions. Additionally, the WHO has access to a wealth of data as the organization works with 194 countries to monitor global health trends and prevent crises. The fact sheet was used to provide further explanations on the etiology of podoconiosis as it delves deeper into the potential causative agents in irritant soils, suggesting it may be smectite clays or zirconium, aluminum and beryllium.

4. Eisai Co., Ltd. Lymphatic Filariasis [Internet]. Eisai Co., Ltd.; 2022 Dec [cited 2026 Apr 1]. Available from: https://www.eisai.com/sustainability/people/globalhealth/diseases/lymphaticfilariasis.html

The main purpose of the source was to inform audiences about various neglected tropical diseases, including lymphatic filariasis, also known as elephantiasis. The source claims its main objective is to increase the patient benefits in healthcare and to meet diverse healthcare needs globally. For this assignment specifically, this source explores the symptoms, causes of infection, and the diagnosis and treatment of lymphatic filariasis (elephantiasis). This source, “Eisai Co” is a Japanese research-based pharmaceutical company that is focused on researching and developing prescription medications related to cancer, dementia, and Alzheimer's. This is both a credible and strong resource as it has

contributed to developing highly effective medications such as “Leqembi” for early Alzheimer’s disease and Lenvima, which is an oral prescription for treating various cancers such as thyroid cancers and hepatocellular carcinoma. Both prescription medications are FDA-approved, proving this site to be credible regarding its information on diseases. In our PULSE assignment, this source was used to identify the symptoms of elephantiasis in the earlier stages of the disease. This includes facts such as in the earlier stages of the disease, individuals may experience symptoms such as colds, chills, and fevers.

5. World Health Organization. Lymphatic filariasis [Internet]. WHO; 2024 Nov 21 [cited 2026 Apr 1]. Available from: https://www.who.int/news-room/fact-sheets/detail/lymphatic-filariasis

This source by the WHO outlines the global public health strategy for eliminating lymphatic filariasis, primarily through Mass Drug Administration (MDA). It explains the transmission process by microfilariae and mosquito vectors, emphasizing the goal of interrupting the spread of infection in endemic regions. The document also highlights the importance of morbidity management and disability prevention to improve the quality of life for those already affected. The WHO is the definitive source for epidemiological data and global health policy. A major strength of this source is the focus on large-scale data and the socioeconomic context of the disease in Asia and Africa. The information reflects the most current international consensus on disease eradication. This source was used to provide the necessary context for the global impact and treatment sections, specifically regarding how MDA programs are implemented to protect populations across diverse geographic regions. It was essential for explaining the intersection between public health infrastructure and parasitic control in a global health context.

6. Cleveland Clinic. Edema. [Internet]. Cleveland Clinic; 2026 Feb 4 [cited 2026 Apr 2]. Available from: https://my.clevelandclinic.org/health/diseases/12564-edema

Cleveland Clinic is a nonprofit medical center that is aimed at providing clinical care and research, which is presented in the articles published online. Cleveland Clinic is a highly credible and strong resource as it provides peer-reviewed information written by medical professionals themselves on various topics such as diseases and health conditions. This specific article was focused on edema and covered topics such as the possible causes, specific forms, common causes, and forms of treatment. This source is also ranked to be in the top 3 non-profit academic sources for medical information worldwide. In addition, this source is strong and highly credible as it is also updated frequently, ensuring that all the information provided within articles is up to date and accurate. In our PULSE assignment, this source was used for two purposes. It was used to define and explain what edema is, so that our audience could better understand and make the connection between

elephantiasis and edema. In addition, the source was used to further explore different forms of edema, such as localized and generalized.

7. American Kidney Fund. Edema symptoms, causes and treatment [Internet]. AKF; 2025 May 21 [cited 2026 Apr 2]. Available from: https://www.kidneyfund.org/all-about-kidneys/signs-and-symptoms/edema

The American Kidney Fund is a non-profit organization that is dedicated to helping those with kidney diseases through methods of prevention, financial assistance, research and education. In addition, the American Kidney Fund is a recognized charity that provides medically reviewed research articles. These articles are also frequently updated, so they are kept up to date, which ensures that accurate information is being provided to audiences, making it both a credible and strong resource. Although this source is focused on kidney disease, edema is heavily mentioned within this resource, as it is also a common symptom of kidney disease, hence it makes this resource reliable. In our pulse assignment, this source was used for researching the demographics in which edema is most prevalent and more likely to impact, such as pregnant women and individuals on various forms of medications. In addition, this source was used to research the symptoms of edema.

8. Alyea G. Lymphatic Filariasis [Internet]. NORD; 2025 Sept 25 [cited 2026 Apr 2]. Available from: https://rarediseases.org/rare-diseases/elephantiasis/

NORD, also known as the National Organization for Rare Disorders, is a non-profit organization based in the United States. Its main purpose is to improve the health and well-being of individuals with rare diseases through healthcare, research, and policy making. This resource is highly credible as it is widely recognized for promoting research related to patient care and global health issues. In addition, this source includes reports written by healthcare professionals, which are also peer-reviewed, helping to prove the resource's credibility. The resource also frequently updates its reports to ensure up-to-date information is provided, making it a strong resource overall. As an example, the article used for our pulse assignment is on lymphatic filariasis and has been updated several times from 1990 to 2025. Further, in our pulse assignment, this resource was used to research the demographics that are most susceptible to elephantiasis. This included faces such as adults who develop elephantiasis in their 30s and 40s are more prone to developing more serious complications compared to if an individual were to develop this disease at any other time in their life.

9. Yartsev A. Starling forces and fluid exchange in the microcirculation. In: Deranged Physiology [Internet]. Alex Yartsev; 2025 Nov 1 [cited 2026 Mar 25]. Available from: https://derangedphysiology.com/main/cicm-primary-exam/cardiovascular-system/Chapter-471/starling-forces-and-fluid-exchange-microcirculation

This chapter explains the foundations of the Starling principle and covers a brief history behind how it was developed. It explicitly states the Starling equation and defines all the variables involved. It also includes a summary at the top of the chapter to assist with identifying the main takeaways. This source was written as a part of a book that helps students prepare for the CICM exam, which assesses knowledge in intensive care medicine for trainees in Australia and Aotearoa New Zealand. Because the book was written for students, it does a good job at explaining concepts in an easy-to-understand manner. However, it was only written and edited by one author, which may impact its credibility. This source was used in our project to research how Starling forces affect fluid balance in the body and how fluid transport occurs in a physiological context. It was used in parallel with other sources to ensure that the information being presented is accurate.

10. Human Physiology Students from University of Guelph. Fluid Flux & The Lymphatic System. In: Murrant, C, Ritchie K, Tishinsky J, Versluis A, editors. Human Physiology [Internet]. Human Physiology Students from University of Guelph; [cited 2026 Mar 25]. Available from: https://books.lib.uoguelph.ca/human-physiology/chapter/capillaries-fluid-flux/

This chapter covers the role of Starling forces in fluid flux and capillary exchange. It also talks about how these concepts relate to lymphatic drainage and edema. This source is a book co-authored by a large group of upper year students from the University of Guelph, designed to help incoming students with struggle points in their human physiology courses. Because this book was written by students, with editing assistance from a few professors, it is a very useful teaching aid for helping even those with a lower baseline of knowledge to understand these advanced topics. It is very structured because it follows the flow of courses taught at the University of Guelph and even includes several explanation videos to help students who have an auditory learning style enhance their understanding of the material. This source was used to research the principles behind Starling forces and lymphatic drainage and cross-check with information that we found from other sources.

11. Mikhael M, Khan YS. Anatomy, Abdomen and Pelvis: Lymphatic Drainage. In: Stat Pearls [Internet]. Treasure Island (FL): Stat Pearls Publishing; 2023 July 24 [cited 2026 Mar 9]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK557720/

This chapter, published in the National Library of Medicine, covers the anatomy and physiology of the lymphatic system. It also outlines the embryology of lymphatic system development, lymphatic drainage, and etiologies of lymphatic obstruction. The National Library of Medicine is the world's largest biomedical library and a reputable resource for finding peer-reviewed papers, articles, and books. Additionally, the authors of this chapter included disclosures stating that there were no financial conflicts of interest. This

source is therefore very credible and up-to-date, especially since this chapter was published relatively recently (only three years ago) and used many reliable primary literature sources. This source was used in our project to define the lymphatic system and its functions, as well as explain the process of lymphatic drainage. It was additionally used to research the structure and specific function of various lymphatic organs and tissues, including lymph nodes, lymphatic vessels and capillaries, and lymphatic ducts.

12. von der Weid PY. Lymphatic Vessel Pumping. In: Hashitani H, Lang RJ, editors. Smooth Muscle Spontaneous Activity: Physiological and Pathological Modulation [Internet]. Singapore: Springer; 2019 [cited 2026 Mar 23]. p. 357–77. doi:10.1007/978-981-13-5895-1_15

This source is a chapter published in Springer Nature that extensively explains lymphatic vessel pumping and spontaneous contractions, the structural and functional organization of the lymphatic system, electrophysiological properties of lymphatic cells (comparing them to cells in the sinoatrial node of the heart), and pathological conditions of the lymphatics. Springer Nature is one of the most prestigious and reputable academic journals in the world, making this chapter a credible source. Although this chapter only has one author, it had two additional editors, and all the people working on this book are well-established in academia. Moreover, the book was published as a part of the series, Advances in Experimental Medicine and Biology, which provides a platform for significant scientific contributions to be highlighted. This source was used to research the scope of where the lymphatic system extends in the body, lymphatic cell spontaneity, as well as the process and regulation of lymphatic smooth muscle contraction in lymphatic vessels.

13. Scallan JP, Zawieja SD, Castorena-Gonzalez JA, Davis MJ. Lymphatic pumping: mechanics, mechanisms and malfunction. J Physiol. 2016 Oct 15;594(20):5749–68. doi:10.1113/JP272088

This paper focuses on the mechanisms that are involved in the active process of lymph transport through intrinsic contractions of lymphatic muscle cells. It also briefly mentions the extrinsic forces that contribute to lymph flow. It is a primary literature source that provides brightfield and fluorescence microscopy images of the lymphangion, which is the elementary contraction unit of a lymphatic collecting vessel between two intraluminal valves. This paper was published in the Journal of Physiology and can be found in the National Library of Medicine. The Journal of Physiology is the leading journal of its discipline and is peer reviewed semi-monthly, making the paper a credible source. This paper was used in our project to help elucidate the structure of a lymphangion, explain the process of active lymphatic pumping through smooth muscle contractions, and cover the regulation of this process by myosin light chain kinase and myosin light chain phosphatase.

14. Cleveland Clinic. Lymphatic System [Internet]. Cleveland Clinic; 2023 July 31 [cited 2026 Mar 9]. Available from: https://my.clevelandclinic.org/health/body/21199-lymphatic-system

This source provides a general overview of the lymphatic system, including its structure, function, and the conditions and disorders that can affect it. The source is Cleveland Clinic, which is an American non-profit academic medical center that provides health information through its website, as well as clinical and hospital care. This source is much more accessible to the general public than scientific journal articles, since it uses lay terms and only presents the crucial facts without explaining the research and statistics behind them. While it is still a credible source, omitting the research behind the findings stated can leave scientific and academic audiences questioning the reliability of the data. Additionally, the authors and editors of this article are not explicitly stated. Hence, it is difficult to trace the findings back to specific people if the audience has any questions or contentions. This source was used in our project to help highlight the functions of the lymphatic system, along with lymphatic structures, and the general process of lymph flow.

15. Mukherjee A, Hooks J, Dixon JB. Physiology: Lymph Flow. In: Lee BB, Rockson SG, Bergan J, editors. Lymphedema: A Concise Compendium of Theory and Practice [Internet]. Cham: Springer International Publishing; 2017 June 9 [cited 2026 Apr 5]. p. 91–111 doi:10.1007/978-3-319-52423-8_8

This source is a chapter in a book/compendium that takes a comprehensive look at the principles and background behind lymph flow, including composition of the interstitium, physics of interstitial fluid formation, lymphatic structure and function, intrinsic contractility, and details of lymphatic collecting vessels and lymph nodes. It especially provides depth when explaining the different layers and structures of the initial lymphatics while relating them to their function. This chapter was published in Springer Nature, a prestigious and reputable academic journal, by authors from well known institutions, including the Stanford University School of Medicine and George Washington University. This chapter was used as a source for a labelled diagram of a lymphangion that we included in our project to help our audience visualize its structure. The diagram includes lymphatic endothelial cells, the basement membrane composed of elastin and collagen, which are differentially coloured, and lymphatic muscle cells. The colours of the diagram were slightly changed to match the design of our newsletter.

16. Chakraborty S, Gurusamy M, Zawieja DC, Muthuchamy M. Lymphatic filariasis: Perspectives on lymphatic remodeling and contractile dysfunction in filarial disease pathogenesis. Microcirculation. 2013 Jul;20(5):349–64. doi:10.1111/micc.12031

The main purpose of the review is to closely examine the contractile mechanisms of the lymphatics, the altered functions and remodelling that occur during an inflammatory state, and how they relate to the severe pathogenesis of lymphatic filariasis. The review provides an extensive focus on the development of filariasis and its clinical manifestations. It also explores the methods used to diagnose and detect lymphatic filariasis and the drugs used to treat the condition. The source is credible as it references several peer-reviewed articles to compile an extensive review of lymphatic filariasis. Additionally, it was published in Microcirculation, which is a highly reputable vascular biology journal that contributes new findings in vascular and lymphatic microcirculation. The source was used in the etiology section of the newsletter to provide further explanations on the clinical manifestations of lymphatic filariasis, as it lists the effects on lymphatic vessels based on lymphatic filariasis staging and the status of the causative agents (microfilariae and adult worms). In addition, the development of filariasis explored by the source was used in the etiology section to delve into a more detailed explanation of the progression of the initial mosquito bite into a debilitating disease like elephantiasis.

17. Healthdirect . Elephantiasis [Internet]. Healthdirect Australia Ltd; 2025 [cited 2026 Apr 2]. Available from: https://www.healthdirect.gov.au/elephantiasis

The main purpose of the source is to inform individuals about elephantiasis, as Health Direct outlines what elephantiasis is, the symptoms of elephantiasis, the causes of elephantiasis, when the condition is worth a doctor visit, how elephantiasis is diagnosed, treatment methods, prevention methods, and potential complications of elephantiasis. Health Direct is a credible source of information as it references data from organizations like the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), MSD Manual, and the Australian Physiotherapy Association. Additionally, the information is reviewed regularly to ensure the information is still relevant and correct. The source was used to enhance the etiology section of the newsletters, as it described how the frequency of mosquito bites and the prevalence of the disease in the area are crucial in determining if a person will become infected. It also informs of the life span of the adult worms that damage the lymphatic system.

18. Cleveland Clinic. Elephantiasis (Lymphatic Filariasis) [Internet]. Cleveland Clinic; 2024 July 23 [cited 2026 Apr 2]. Available from: https://my.clevelandclinic.org/health/diseases/elephantiasis

Cleveland Clinic provides information on a wide range of diseases for both clinicians and the public. This specific resource focuses on providing a foundational understanding of elephantiasis by focusing on its etiology. It explains the primary treatment of elephantiasis, including the use of antiparasitic agents like ivermectin, diethylcarbamazine, and albendazole. It also mentions surgical processes for severe cases

involving the scrotum or extreme limb enlargement. As the source provider is an academic medical center, the credibility is high. The information is structured in a way that non-medical professionals can understand easily while remaining medically accurate. Although the article prioritizes clinical overview over deep biology, the content remains highly reliable for professional research. This source was used to explain the current treatments section of the newsletter. It was particularly helpful for identifying specific pharmaceutical names and establishing the standard medical protocols used in clinical settings to manage elephantiasis. The clarity of the descriptions helped in translating complex medical jargon into accessible content for the final project.

19. Greene AK, Goss JA. Diagnosis and Staging of Lymphedema. Semin Plast Surg. 2018 Feb;32(1):12–16. doi:10.1055/s-0038-1635117

The article provides a focus on the diagnosis and staging of lymphedema, which is relevant to the topic of elephantiasis, as the progression of lymphedema can result in conditions like elephantiasis and hydrocele. The article differentiates primary and secondary lymphedema, providing demographical data alongside potential risk factors and causes of lymphedema. The article also focuses on the staging of lymphedema and the methods to diagnose the condition such as lymphoscintigraphy. The source is highly credible since it is a peer-reviewed article that also makes use of other peer-reviewed articles to compile the information presented. It is also a strong source, as the article references patient data, such as patient history and physical examinations to identify associations with lymphedema. The source was used in the etiology section of the newsletter to explain the pathophysiology of lymphedema, determine the state of the body in each stage of lymphedema, and to better explain the connection between lymphedema and elephantiasis.

20. Pereira de Godoy JM, Pereira de Godoy HJ, Pereira de Godoy AC, Guerreiro Godoy M de F. Lymphedema and Elephantiasis of the Lower Limbs: Normalization or Nearly Normalization. Cureus. 2023 Apr 13; 15(4):e37519. doi:10.7759/cureus.37519

This peer-reviewed article explains the efficacy of intensive decongestive therapy and the Godoy & Godoy method to reduce limb volume in patients with stage III lymphedema. The study reports that specialized manual lymphatic therapy, when combined with mechanical compression, can reduce limb volume by approximately 50% in just one week. This is a highly reliable scientific source that provides quantitative evidence for novel therapeutic approaches. Its focus on rehabilitation rather than just pharmaceutical intervention provides a broader view of patient care. The methodology offers a more optimistic outlook for chronic cases than traditional literature typically suggests. This article was used to explain the novel therapies section of elephantiasis treatment. It allowed the research to move beyond basic drug treatments while including how the treatment approach to elephantiasis patients is currently changing. The source was

instrumental in showing that physical rehabilitation can produce significant clinical results even in advanced stages of the disorder.

21. Dangare M, Fating T. Journey to an Improved Quality of Life: Filarial Lymphoedema and Physiotherapy Rehabilitation. Cureus. 2023 Nov 6; 15(11):e48403. doi:10.7759/cureus.48403

This paper explores advanced surgical innovations for treating lymphatic obstruction through vascularized lymph node transfer (VLNT), lymphatic system transplantation, and specialized liposuction techniques. It explains how microsurgery can restore lymphatic flow. The article also describes how removing fibrotic tissue through these methods can improve the efficacy of conservative management in patients with chronic obstruction. This source is highly technically detailed, as it is published in a specialized surgical journal. It provides an in-depth exploration into the anatomical and physiological considerations of reconstructive surgery. Its only limitation is that these high-tech interventions are often unavailable in the low socioeconomic regions where elephantiasis is most prevalent. This was an essential resource to explain the novel therapies as part of the treatment. It was helpful to explain how the management is shifting toward physiological surgical repairs. It provides a sophisticated contrast to the more traditional debulking surgeries usually mentioned in general medical overviews.

22. Singh S, Shukla RK, Singh A, Acharya S. Chronic Cellulitis in Elephantiasis: A Rare Debilitating Phenomenon. Cureus. 2024 Jul 31; 16(7):e65855. doi:10.7759/cureus.65855

This article details the physiological progression of untreated elephantiasis. It explains how persistent lymphatic obstruction leads to irreversible tissue changes, including skin thickening and severe fibrosis. A major focus is on the secondary complications, such as the increased risk of recurrent cellulitis and bacterial infections due to the compromised immune response in the affected limb. This is a strong clinical resource that clearly connects the primary pathology to secondary comorbidities. It is peer-reviewed and provides a comprehensive look at the worst-case scenarios of the disease. The data is logically organized and emphasizes the long-term morbidity associated with late-stage diagnosis. This source was used to write about the consequences of leaving elephantiasis untreated. It provides the scientific basis for describing how edema turns into permanent fibrosis and why these patients are so susceptible to frequent, painful skin infections. This information was vital for highlighting the urgent need for early medical intervention and consistent hygiene practices.