Episode 03

Lymphedema Podcast

The Role of Compression in Lymphedema Management

This is episode 3 of Lymphedema Podcast:

Last week I discussed CLTs, that is Certified Lymphedema Therapists. Who are they and how could you find one in your area. This week I want to shift gears a little and talk more about compression and its role in managing your lymphedema. Talking about compression is as easy as saying “wear it because without compression the fluid will continue to accumulate until it affects your ability to do daily tasks. Eventually resulting in you being confined to your home” For some that answer is enough, for others there is still a why? I am the “why” girl. So we are going to dig into the more detailed Why of compression.

Since we already know that the lymphatic system and the circulatory system work closely together we will start there. In the circulatory system there are arteries, arterioles, capillaries, venules, and veins that transport the oxygen rich blood through the body and return the unoxygenated blood back to the heart to repeat the cycle of oxygenation. Blood pressure is what makes this function possible. Without the pressure within the walls of the circulatory system there is no circulation of our blood. The farther the vessels distance from the heart the lower the pressure. For example the arteries pressure is greater than capillaries.

Capillaries are sometimes forgotten about but there is a lot going down at the capillary site. Diffusion, osmosis, filtration, and reabsorption are involved in capillary exchange. This constant exchange of fluids, gases, nutrients and other substances is the nitty gritty of lymphedema.

I am going to skip the extremely detailed break down of colloid osmotic pressure, colloid osmosis, hydrostatic pressure, oncotic pressure, net filtration and reabsorption pressures. If you want to further look into any of these terms….be my guest….they kinda make my eyes cross and roll to the back of the head. I hope you enjoy your 5 hour date with Tabers Medical Dictionary.

Any who. What I will do is discuss the general terms of capillary exchange so you will have a better understanding of why it is so important. First up is diffusion: when areas of a higher and lower concentration are connected the area of higher concentration diffuse across to the lower concentration until they become even. This is called diffusional equilibrium, and at this point there is no more diffusion between the areas of concentration unless other factors disrupt the balance. These external factors can be temperature, change in gradient, molecule size, surface area and distance of diffusion.

Osmosis is the process of water crossing a semipermeable membrane from a lower area of concentration to a higher area of concentration. Semipermeable meaning it is only penetrable by certain molecules. In this example we are talking about water
and protein molecules. Colloid osmotic pressure is the force of protein molecules pulling water into the circulatory system, this is the opposite of hydrostatic pressure. Hydrostatic pressure is the force generated by the fluid either inside or outside the capillary walls. Those are a lot of words to say: osmosis is water molecules moving from a lower to higher area of concentration by the pressure caused by the protein particles in the blood's plasma. In addition to diffusion and osmosis there are two other functions occurring during the capillary exchange. During Filtration fluid leaves the arterial side of the capillaries due to the hydrostatic pressure. At the same time Reabsorption is occurring by fluid being returned to the venous capillaries. Because of the breakdown in lymph drainage there is a collection of protein rich fluid in the interstitial space of the tissues, the colloid-osmotic pressure rises and filtration is increased.

Compressing in an external force that raises the interstitial pressure. Bandaging with short stretch bandages provides many benefits. A few being resting pressure, high working pressure and a pressure gradient. Resting pressure the low restoring force when the muscle is at rest. Working pressure is the high force exerted when the muscle activates during exercise or walking. The pressure is greatest distally, meaning the hand or the foot, and decreases proximally. Compression garments are good options as well but not all can be worn day or night. We will discuss that further on another episode.

Let’s have a quick review: Blood pressure keeps the cardiac system functioning, the source of that pressure being the heart. The arteries and veins meet at the capillaries. At the capillary bed there is an exchange of molecules. When the pressure is altered and the lymphatic system is overloaded with protein rich fluid the build up of lymph occurs. By applying an external pressure the fluid can be reabsorbed and filtered out of the affected limb. Compression using short stretch bandages provides resting pressure, working pressure and a compression gradient that promotes the elimination of the fluid.

Compression is essential to the treatment of lymphedema. Without it your efforts are for not. Within an hour (or less) of removing compression the fluid will begin to return to the affected limb. Any progress you and your therapist have made is lost. Not lost for good but you definitely just took a step back from your goal. Please do not hear this as you will never be able to be out of compression, that is not exactly what I mean. I do mean that if you feel you need a rest from the bandaging it will come with a consequence.

Here is an example. A lymphedema patient spent months of treatment focused on a goal of attending a family members wedding without wearing his bandage. We worked for months on this great goal, he was so determined and had great results. Before the wedding we ordered him a compression garment to wear under his slacks. Two things here: he was wearing an off the shelf garment and he was able to wear unaltered slacks! The wedding came and went. Two months later he is not able to wear the garments and is struggling to get the increased size of his leg under control. After he achieved his goal he wasn’t as compliant with his compression schedule and would sometimes go a day or two without wearing it. Eventually we had to start all over from the beginning because his leg was as big as when he first started treatment.
This story breaks my heart. The mental, physical and emotional struggles he faced were starting all over again because he thought he had beat the lymphedema. It might have even crossed his mind that he had it under control. Without the daily compliance of compression the feeling of having it under control can quickly slip from your hands. Compression is the foundation of your success.

Mother Teresa says “Loneliness and the feeling of being unwanted it the most terrible poverty” This podcast is here for you to find friendship and a community for your journey with Lymphedema.

I hope you enjoyed learning more about the role of compression in lymphedema management. Email me with your story if you would like to share. Lymphedemapodcast@gmail.com or visit the website lymphedemapodcast.com to submit a topic for another episode.