UK Lymphology Clinics - Study Room 6 - Massage World Magazine

Lymph Flow and Hydrostatic Pressure

Great! Summer is here! But crucially this time of year can also bring about misery, discomfort and possibly the start of a long-term health condition for those who suffer from a dysfunctional lymphatic system, particularly if overweight. If you get hot it creates a change of pressure within the blood vessels and capillaries causing them to dilate allowing the blood to keep cool, directly impacting the lymphatic system. If you fly, go cruising or sit still for long periods of time in the heat it seems feet and ankles may take on a new appearance**;** they feel and look like they don`t belong to the same legs anymore. Oedematous, swollen, unsightly and sometimes painful from unusually tight over-stretched skin in a restricted area, cankles appear! What are cankles exactly? How does this happen and what does it mean? Fig 1.

Hydrostatic Pressure

Provided by the pumping activity of the left chamber of the heart and supported by respiration, hydrostatic pressure is the pressure exerted by a liquid; for example, in the capillaries this pressure increases filtration by pushing fluid and solute out of the capillaries, while capillary oncotic pressure (also known as colloid osmotic pressure, fig 2) pulls fluid into the capillaries and/or prevents fluid from leaving.

In relation to the lymphatic system hydrostatic pressure is determined by the interstitial fluid volume and the compliance of the tissue interstitium. This is defined as the change in volume divided by the change in pressure. The more fluid that filters into the interstitium, the greater the volume of the interstitial space and the hydrostatic pressure within that space.

Correct pressure drives fluid out of the capillary (i.e. filtration) and is highest at the arteriolar end of the capillary and lowest at the venular end. The tiny lymphatic capillaries at the venous return are very sensitive to any change in this pressure as they rely on this pressure to initiate the collection of waste fluid from within the interstitium.

This essential pressure balance keeps our fluid levels consistent and is affected by several factors: temperature because this affects the circulatory system; long periods of immobility whether standing or sitting; the collective movement of skin, fascia and muscle and gravity; whether flying or cruising. Think of deep sea diving and the necessity of a decompression chamber. As with any other pressure gradient, fluid will flow from high pressure areas to low pressure areas. Thus, there is less oncotic "pull" of fluid back into the capillaries, and fluid leaks out into the interstitial space, causing one of the main symptoms: oedema.

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Flying and Cruising

These days we are all advised to wear flight socks and keep moving particularly on long haul flights. If you have experienced tighter waistbands and a bloated abdomen this is because gravity greatly effects the hydrostatic pressure which is paramount to intestinal absorption. Bloated abdomens resting on the inguinal nodes at the top of the leg along the crease of the upper thigh as it joins the body, means reduced lymphatic flow of the legs and calves.

Additionally, if you already suffer from swollen ankles you may want to rethink two weeks aboard a ship as going on a cruise also effects hydrostatic pressure because you take away gravity. Moving over the water across the sea has the same effect as flying and we spend much longer cruising than flying. **S**ome cruise ships hold seminars about swollen ankles!

Summary

It is essential to drink more water in the hot weather. We also tend to drink more anyway as we enjoy extra summertime beverages, on holiday, partying weekends socializing at barbeques. This produces extra waste at this time of year which our bodies need to excrete. Daily our lymphatic system filters up to 2.5 litres and our body must maintain the correct hydrostatic pressure to do this. If it is altered in any way it has a consequence on lymphangioactivity, meaning the pressure within the venous return and lymphatic system to pull the fluid away from the ankles**,** which are farthest away from the heart**,** is impaired.

Cankles! If swollen oedematous ankles, do not recede naturally after 48 hours, whether it`s mild or severe, whether you are a woman or a man, it will mean you have less muscle movement and less mobility in your lower leg and ankle therefore the natural ability to remove the fluid will be reduced. Consequently, this effect on your balance and mobility impairs your lymphatic system. Showing visible signs of distress, it is dysfunctional, compromised and not working efficiently. Sadly, most of us do not realise is that if oedema swelling does not reduce, over time this may lead to, if left untreated, longer term problems such as early onset Lymphoedema.

There is one bonus however and that is we should really all have more and offer more lymphatic massage during the summer to help our bodies cope with extra interstitial waste and fluid.

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An example of swollen oedematous ankles. ! Fig:1

Hydrostatic and Colloid Osmotic Pressure Fig:2