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Hand-Out

- How To Take Care Of Your Swollen Feet-

07/15/14

Swollen feet and lower legs are both painful and “unsightly.”

The swelling also puts your feet and lower legs at risk for poor venous and lymphatic flow and poor exchange of molecules at the cellular level; contributing to infections, wounds, and ulcers.

Knowledge is power and this hand-out gives you tips on how to prevent or reduce swelling of your feet and lower legs.

The hand-out also gives you tips on how to keep your feet and lower legs as safe and comfortable, as possible; if the swelling is inevitable and cannot be reduced.

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What's the reason for the edema:

There's a close connection between your venous system and your lymph system. The serous fluids from your venous blood can easily enter the lymph system and become lymph fluids, and vice versa.

In case you didn't know, the purpose of your venous blood is to return carbon dioxide back to your lungs and various wastes back to the core of your body to be processed by your organs. The purpose of your lymph system is to maintain the internal fluid environment of your body by producing, filtering, and moving lymph and various other elements back to your vascular system.

Edema happens when there's an overload of fluids in your veins and/or in your lymph system. If your venous blood volume builds up, it causes swelling of the veins, either bulging deep veins or bulging superficial veins with weakened walls, seen as varicose veins. The symptoms of varicose veins include dull aches, muscle cramps, pressure, heaviness, and fatigue. ***Please consult an appropriate professional for treatment of your varicose veins.***

If the swelling of your veins is severe enough, some of the serous fluid from your venous blood gets pushed into your lymph system and become lymph fluid. The new lymph fluid likely will occupy the free space between your tissue cells, called the interstitial space.

Excess lymph fluids can also get pushed back into your venous system and become part of the venous blood.

The severity of the edema in the interstitial spaces can be measured as pitting edema. For each second it takes for a finger indentation to disappear, the pitting edema gets a number from 1+ - 4+, or more.



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- **Dependent edema causing swollen feet and swollen lower legs:**

Both veins and lymph vessels have thin walls and depend on “outside” pressure, such as contracting muscles, to move the venous blood or lymph fluids along. Both veins and lymph vessels also have valves that are supposed to close tightly after the venous blood and lymph fluids have passed through, in increments. This prevents the venous blood and the lymph fluids from being pulled downward due to the force of gravity. When the valves are “stenosed” or malfunctioning for other reasons, they don't close tightly any longer.

- Venous blood and lymph fluids accumulate in the feet and the lower legs, causing “dependent edema” due to both lack of muscle contractions in the legs and leaky valves of the veins and lymph vessels.

You'll know that the edema in your feet and lower legs is dependent edema caused by leaky valves and lack of muscle contractions in your legs if it goes away after you lie flat and rest, or after you sit with your legs up.

- **Other body conditions causing generalized edema, edema in the abdomen, edema in one side of the body, or edema in one extremity:**

Various conditions of your body can cause edema. The edema is either generalized, on one side of the body, in one extremity, or in the abdomen; and not necessarily confined to only your feet and lower legs.

These kinds of edema, that are not dependent edema, will not go away unless the body condition, causing them, is cured. Medications can often improve the condition, but some conditions are difficult to cure. Non-dependent edema and dependent edema can happen at the same time.



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- **Congestive heart failure (CHF):** This is failure of your heart to pump enough blood and it results in back-pressure on your vascular system. The edema in the feet and lower legs can become so severe that the tissue no longer can be compressed. The tissue becomes rock hard. Often, small droplets of lymph fluids are forced through the skin due to the extreme back-pressure of the vascular system. The degree of the edema correlates to the severity of the heart failure. ***CHF usually causes shortness of breath with any little activity.*** If you suffer from the above symptoms and do not have a diagnosis yet, please see your primary doctor or a cardiologist immediately.
- **Pulmonary hypertension:** This is excessive back-pressure in the arterial blood supply from the lungs, often caused by emphysema from ***many years of smoking***, as well as surgical removal of the lung, chest injuries, or blood clots in the lungs. It causes back-pressure on your vascular system and the same symptoms as CHF.
- **Kidney or renal failure:** With failing kidneys, you'll void less and less and ***gain more and more weight***. You'll develop generalized edema, also affecting your feet and lower legs. Your electrolytes will build up and be out of balance. It could affect the health of your heart, among many other things. This will need medical management immediately.
- **CVA or stroke causing swelling on one side of the body:** Lack of oxygen to the brain causes the brain cells in the affected area of the brain to die. The nerves from the affected part of the brain are damaged and no longer able to direct the muscles elsewhere in the body, on the opposite side of the stroke, to contract and relax. Without the muscle contraction, the affected body part or entire side of the body, will develop edema.



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- **DVT or deep vein thrombosis causing swelling in one extremity:** A clot in your veins can block the venous flow and cause swelling below the area. The tissue often becomes red, swollen, and warm, but not always. Dorsi-flexion, or pulling your toes up, often causes pain on the backside of the leg with a DVT. Please see your doctor for proper treatment if you suspect a DVT.
- **Cirrhosis of the liver and/or malnutrition with limited protein intake:** Your liver produces albumin from amino acids ingested in the form of protein. If your protein intake is low and/or your liver not functioning well, the lack of albumin will cause plasma to leave your cells and enter the interstitial space in your muscles and organs and cause pitting edema. The edema is not confined to your feet and lower legs, but also affects the abdomen and causes ascites. *A yellow hue of the white of your eyes or your skin will let you know that you are “jaundiced” due to liver failure.* If undiagnosed, please see your doctor.
- **Lymph edema causing swelling in one extremity:** A blockage in the lymph system, due to surgery or damage from chemo therapy or radiation, among other things, will prevent free flow of the lymph fluids and result in swelling of the extremity below the blockage. Lymph edema has its own protocol. Follow your doctor's guidelines.
- **Arthritis causing extra bone growth in a joint:** If your ankle joint or the joint below your great toe are swollen, it's probably not edema from excess fluids but rather extra bone growth caused by osteoarthritis. None of the remedies for edema can reduce this kind of permanent swelling.
- **Extra salt in your diet** will hold on to water in your blood to dilute the salt. This increases your blood volume, including your venous blood.



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How to prevent or reduce dependent edema in the feet and lower legs:

We've already learned that dependent edema is caused by leaky valves in your veins and lymph vessels, by lack of muscle contractions surrounding the veins and lymph vessels, by gravity, by obstruction, and by excess salt. Dependent edema often happens concurrently with edema that is not dependent.

We can look at the reasons for the dependent edema and find ways to prevent it or to correct it; simply by eliminating the reasons that cause it in the first place.

- **Ted hose, compression hose, or compression wrappings:**

If you have leaky valves, the easiest way to prevent dependent edema is to wear ted hose or compression stockings. ***They will only prevent the edema, but not correct it.*** They need to be applied before the edema sets in. Knee-high ted hose or compression stockings are fine for this kind of edema.

Buy two pairs and keep one pair clean and dry for use when the dirty ones are removed. Remove the hose for skin care. It's ideal to remove the hose daily, but if this isn't possible, just remove them as often as it can be done. The ted hose does not necessarily have to be removed at night when you sleep. ***If you're having difficulty applying and removing the hose on your own, the removal, skin care, and re-application can be done anytime during the day when you can get the help needed; you just want to make sure that your feet and legs don't start swelling up before the hose are re-applied.*** Baby powder can be sprinkle into the hose before applying, and a device can be purchased to help with the application. Make sure there are no wrinkles in the hose. Wrinkles will prevent a free flow of fluids. A tight knit needs to be purchased with a prescription, while a looser knit can be purchased O-T-C. The tighter the knit, the more effective the hose.



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You can also wrap your feet and lower legs in elastic bandages. Start from the toes and move up to the knees in an even circular motion and with an even pressure. It's important to not wrap the bandages too loose or too tight.

It's the constant and even pressure from the ted hose, compression hose, or compression wrap that helps propel the blood through your veins and the lymph fluids through your lymph vessels.

- **Overcome gravity:** Try not to stand or sit with your legs down for long periods. Get your feet and lower legs up when you sit in a chair, and sleep flat or with your lower legs raised. You can either use a wedge from the thigh down to your toes, or you can put a board under your entire mattress and tilt it. For the best effect, your feet need to be higher than your heart.
- **Contract your calf, thigh, groin, and buttock muscles:** If you have to stand or sit for a while, remember to contract your muscles on and off. Walking, bicycling, swimming, or doing other sports automatically force you to contract your muscles. Get up frequently and walk around.
- **Prevent obstruction:** Avoid sitting with your legs crossed. Avoid sitting with your knees locked. Don't sit for too long at a time. Try to rotate your ankles in circles and flex and extend your foot up and down. You can also kick your knees out.
- **Cut back on added salt in your diet.** Use herbs and spices instead.
- **Receive a therapeutic massage:** A massage, from the toes and feet up the lower legs to the knees, will help move the excess fluids in the same direction. If the feet and lower legs are elevated at the same time, the result will be even better.



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Why does edema put your feet and lower legs at risk for infections, wounds, and ulcers:

Your arteries bring oxygen, nutrition, infection-fighting white blood cells, and medications out to the cells of your tissues; first through the large arteries and then through the smaller arterioles. The end of the arterioles meet up with the cells of your muscle and organ tissues at the capillaries, a one-cell wall between the arterioles and your tissue cells. The cells of your muscle and organ tissues give up carbon dioxide and waste products through another one-cell capillary wall into the small venules that continue into the larger veins. ***There's supposed to be a tight connection between the cells of your tissues and the capillary walls.***

When the free spaces between the cells of your muscle and organ tissues are full of an overload of interstitial lymph fluids, the arterioles and venules get pushed away from the capillary walls. ***The tight connection gets too loose to allow molecules to move back and forth.*** The exchange of oxygen, nutrition, white blood cells, and medications cannot enter the tissue cells from the arterial circulation, and the tissue cells cannot remove carbon dioxide and waste products into the venous circulation.

Your tissue cells will suffer the consequences of important molecules not moving back and forth between the tissue cells and the circulation. Your tissues increase their risk for developing infections, wounds, and ulcers.

Arterial ulcers happen in places of pressure from walking, such as the metatarsal padding on the bottom of your feet and the tops or tips of your toes. This is not only due to occluded arteries causing limited arterial circulation, but also due to the poor exchange of oxygen and nutrition into your tissues caused by severe interstitial edema, as described above. Arterial ulcers are pink in their base.

Venous ulcers often happen around the ankles or lower legs due to poor venous flow and swelling. Venous ulcers are pale in their base.



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It's sometimes difficult to distinguish between *cellulitis*, an infection in your muscle or organ cells, and *dermatitis*, an infection in your skin. The skin is also one of your organs. The terms cellulitis and dermatitis are often interchangeable.

Stasis dermatitis is the name for a skin infection in chronically swollen lower legs.

Oral or iv antibiotics are often not effective until the swelling goes down and your arterial circulation is able to deliver the medications through the capillaries into the cells of your muscles or organs.

Brownish or red blotches on the skin of your chronically swollen lower legs with venous hypertension are caused by the veins expanding and weakening, and red blood cells escaping into the skin. The hemoglobin breaks down into hemosiderin that creates the brown and red blotches in the skin. The blotches are usually permanent. This is not stasis dermatitis and will not go away with antibiotics.

You'll need to seek a doctor's help for any new infection, wound, or ulcer.

Skin care for swollen feet and lower legs:

With compromised cell health in your swollen muscle and organ tissues, it's important to keep your skin clean, dry, and moisturized.

- Good hygiene of your skin with soap and water will prevent germs from entering your tissues if there's a break in your skin.
- Drying your skin well with a soft towel will prevent fungal skin infections. You can use foot powders to absorb extra moisture.
- Proper moisturizing with lotion will prevent cracks of your skin.



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Socks and shoes for swollen feet and lower legs:

You have learned that the even compression of a ted hose, compression hose, or other wrapping from your toes up to below your knees prevents dependent edema in your feet and lower legs. ***Tightness is good to prevent dependent edema; but, only if the tightness is even and covers the entire area where the swelling could take place. Tightness around your feet and ankles, only, will severely increase the swelling above your feet and ankles and cause severe pain in your feet.***

Make sure that both socks and shoes are loose enough to prevent pressure on your feet and obstruct a free flow of both venous blood and lymph fluids.

- Your socks should be loose enough so that they can easily be applied and removed. Cut a slit in the top edge of your socks if you're unable to find socks that are loose enough to not leave a "ring" around your lower leg.
- Buy shoes that you don't have to squeeze into. Buy shoes of a larger size for the afternoons and evenings for increased swelling as the day goes on.

Extra precautions for diabetics:

If you're diabetic, there's a good chance that you have eye damage. You may not be able to see problems caused by edema.

You may also have severely occluded arteries, causing arterial insufficiency down to your legs and feet and less oxygen and nutrition to the cells of your muscle and organ tissues; even without swelling. Your risk for infections, wounds, and ulcers may be greatly increased, with or without edema.

With nerve damage from diabetes, you may also not feel the pain associated with compressed nerves from edema, or pain from infections, wounds, and ulcers.



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References and links:

- My biggest inspiration to this hand-out is “The Salon Professional's Guide to Foot Care” by Godfrey Mix, DPM, published in the United States in 1999 by Milady/Salon-Ovations Publishing.
- Go to my website, www.HFHF.us and look at other educational hand-outs discussing:
 - Foot care products
 - Foot conditions
 - Foot health
 - Body health.
 - Diet and exercise are discussed under body health, as your feet are an extension of your body.
 - Remember, it's easier to have healthy and happy feet, if you also have a healthy and happy body.