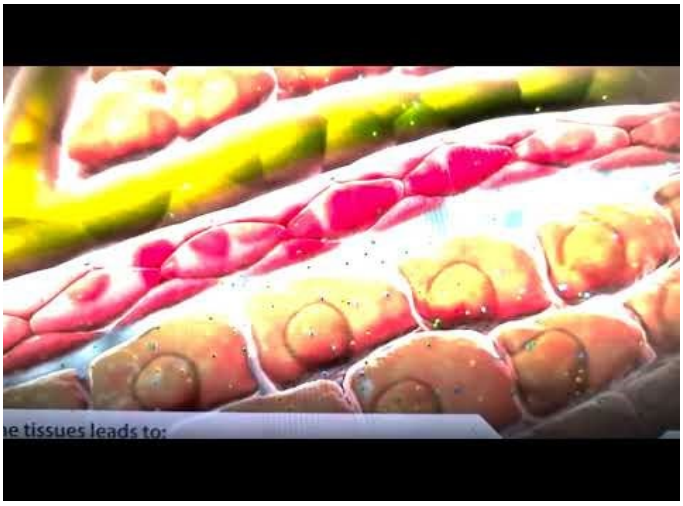
Website: www.Doctorharold.com



https://youtu.be/QA_39xPpFOE

Know your Extracellular fluid and its importance

Transcript: The regulation of body fluids balance is the key to good health and wellbeing.
The body is composed of a skeletal framework, muscles, organs all composed of cells with metabolic activities in them for healthy living.
There is also a component referred to as the extracellular fluid that fills in the spaces in between the cellular component. In short this is the body fluid that is outside the cells. It is in your blood, in lymph, in body cavities lined with an inner lining such as the ventricles in brain, spinal cord and this fluid referred to as the cerebrospinal fluid.
This fluid helps protect the brain and spinal cord by acting like cushion against sudden impact or injury and removes waste products from the brain and helps your central nervous system work properly.
The extracellular fluid that surrounds the body cells, also referred to as interstitial fluid has a high concentration of sodium and low concentration of potassium, while in the intracellular fluid it is just the opposite.
Chloride attached to sodium forms the common salt that is the major contributor to the osmotic pressure gradient between the intracellular and extracellular fluid.
When sodium intake exceeds sodium output by the kidneys, the total body sodium increases extracellular fluid volume. This can lead to accumulation of water and salt in the extracellular component and lead to swelling called edema.
Total body water in healthy adults is about 60% of the total body weight. Extracellular fluid makes up about one third of the body fluid. This fluid that surrounds the body cells is called interstitial fluid.
The blood plasma is the other extracellular fluid in the circulatory system. It is a light amber liquid component of blood that is freed from blood cells but holds proteins and other

constituents of whole blood in suspension. It is the intravascular part of the extracellular fluid outside the cells.
Interstitial fluid is the body fluid between blood vessels and cells, containing nutrients from capillaries and holding waste products discharged out of cells due to metabolism.
The kidneys regulate the extracellular fluid volume by altering sodium excretion maintain adequate volume within the vascular system.
Health is not an unchanging situation but represents a fluid range of physical and emotional well-being continuously subjected to challenges, such as stress, worries, and infections. But the body has mechanisms to maintain a constant internal environment as described by the French scientist Claude Bernard called the milieu interieur. Maintenance of the internal environment is known as a homeostasis.
What is tonicity of this fluid?
This is the ability of the extracellular solution to make water move into or out of a body cell by osmosis - is known as its tonicity. This tonicity could be hypertonic, hypotonic, or isotonic.
When we give saline or glucose intravenously in the form of a drip to patients that liquid is isotonic in its tonicity.
Extracellular fluid volume is the sum of the plasma volume and interstitial fluid volume, including lymphatic fluid in the lymphatic system.

What is the function of the extracellular fluid?
It provides the medium for the exchange of substances between the extracellular fluid and the cells, and this can take place through dissolving, mixing, and transporting in the fluid medium.
What happens because of fluid overload on tissues?
Each hour approximately 3 % of the blood volume leaves the blood vessels and enters the lymphatic system. This lymphatic fluid is then recaptured by the blood circulatory system where the lymphatic fluid enters the circulation through the thoracic duct on the left side of the upper chest cavity.
Any fluid that leaks from the circulatory system at the capillary level is picked up by the lymphatic system. If the lymphatic fluid cannot enter the blood circulatory system through the thoracic duct mentioned earlier, then the fluid accumulates in the lymphatic system referred to as edema.
This is due to tiny blood vessels in your body called capillaries leak fluid. The fluid builds up in the extracellular spaces. You could get mild edema of legs due to sitting or staying in one position for too long as in travel by plane.
Other causes of edema are venous insufficiency. Venous insufficiency is caused by high blood pressure in the leg veins over time due to sitting or standing for lengthy periods as mentioned earlier.
Lack of exercise, smoking and a blood clot in a deep vein, often in the calf or higher can cause edema of the legs.
Why do the feet get swollen when fluid collects in the extracellular tissues?
The major causes of feet edema could be due to low protein levels due to malnutrition, heart failure, kidney disease and liver disease.
Lymphoedema
This is a condition where there is damage to the regional lymph nodes or when removed surgically as in breast cancer with removal of axillary glands the arms can swell.

Chronic venous insufficiency in the legs. Blood travels from the lower limbs through the veins towards the heart. There are one-way valves in the veins to keep it from flowing back down. These valves can get damaged as you get older, or due to blood clots. In this situation your legs and feet can swell with edema.
In heart failure, the heart does not pump blood like it should. If the blood isn't flowing well in the right direction, it can back up in your legs and feet and cause swelling. In such a situation doctors prescribe diuretics to get rid of the fluid through your kidneys and relieve the strain on your lungs and heart.
Swelling of feet and legs could occur in chronic kidney failure, as in diabetes or high blood pressure. In this situation too much sodium can be left in your blood.
Liver disease due to inflammation of the liver, or when drinking alcohol heavily can cause fibrous tissue accumulation in the liver and lead to a condition called cirrhosis. In the situation the veins connected to the liver can get congested and lead to a condition called portal hypertension. Fluid collects in your abdominal cavity referred to as ascites, legs, and feet.
Certain drugs can cause mild swelling of your legs, such as calcium channel blockers given for high blood pressure.
Others are nonsteroid anti-inflammatory drugs, long term usage of cortisone, pioglitazone and rosiglitazone given for diabetics.
Treatment for fluid retention include:
a low-salt diet
Diuretics (water pills)
Treatment for the underlying medical condition: for example, hormone replacement (thyroxine) in the case of hypothyroidism
lifestyle changes in response to the underlying medical condition: for example, avoidance of alcohol if liver disease is the cause
Changes to medication or dosage if drugs are the cause
Dietary adjustments if malnutrition is the cause
Ongoing medical supervision
Aids such as support stockings.
Get medical help if your feet are swollen, and you are short of breath or having chest pain.
We are now emerging from a lockdown period of over 18 months and we need to take stock of the impact that period has had on our physical and mental well-being. Let us march forward slowly until we get that normal rhythm of life, we enjoyed.
Hope this video talk was useful
Stay safe and goodbye for now.