**Lymphapress research round table *NOTES* June 3, 2024.**

**Saverio Cinti MD, Professor (electron microscope morphologist) guest speaker**

Dr. Cinti has been using electron microscopy to further understanding of the cells/tissue.

He has found that capillaries of adipose tissue in women with lipedema:

* have thicker membrane surrounding the epithelial cell
* accumulation of calcium crystals-which blocks lipolysis process
* hypodense areas of unknown origin in basilar membrane
* hypodense plasma membrane
* altered endothelial attachment to the basilar membrane
* dilated intercellular space
* limited quantity of crown-like structures which are responsible for lipolysis (crown-like structures are common in obesity and diabetes)

These structural changes lead him to theorize that:

* lipedema develops as a result of alterations in the plasma membranes of the endothelial cells
* future blood tests could diagnose lipedema by looking for endothelial cell markers

Discussion followed on the role of progesterone. It was noted that a persistence of progesterone activity leads to abnormal/dysfunctional endothelial cells.

There were no observed signs of lymphatic alterations in the tissue of women with lipedema. This leads to the conclusion that lymphedema is a separate/secondary and independent condition in some persons who have lipedema.

INTERESTING FACTS!

* Endothelial cells can convert into alternative cells because they are a widely differentiated cell
  + Adipocytes in mammary glands converts to glans that produce milk (reprogramming the genome to convert to alternate cells)
  + White adipose tissue can convert to brown (the browning effect) (described as endothelial cell ->pericyte (outside the capillary)->to altered cell

What this all means for treatment of lipedema:

Effluence/removal of fluid is responsibility of endothelial cells so a pump and/or compression keeps the interstitial space a little “dryer” and brings the capillary closer to the adipocyte for improved health of the cell.