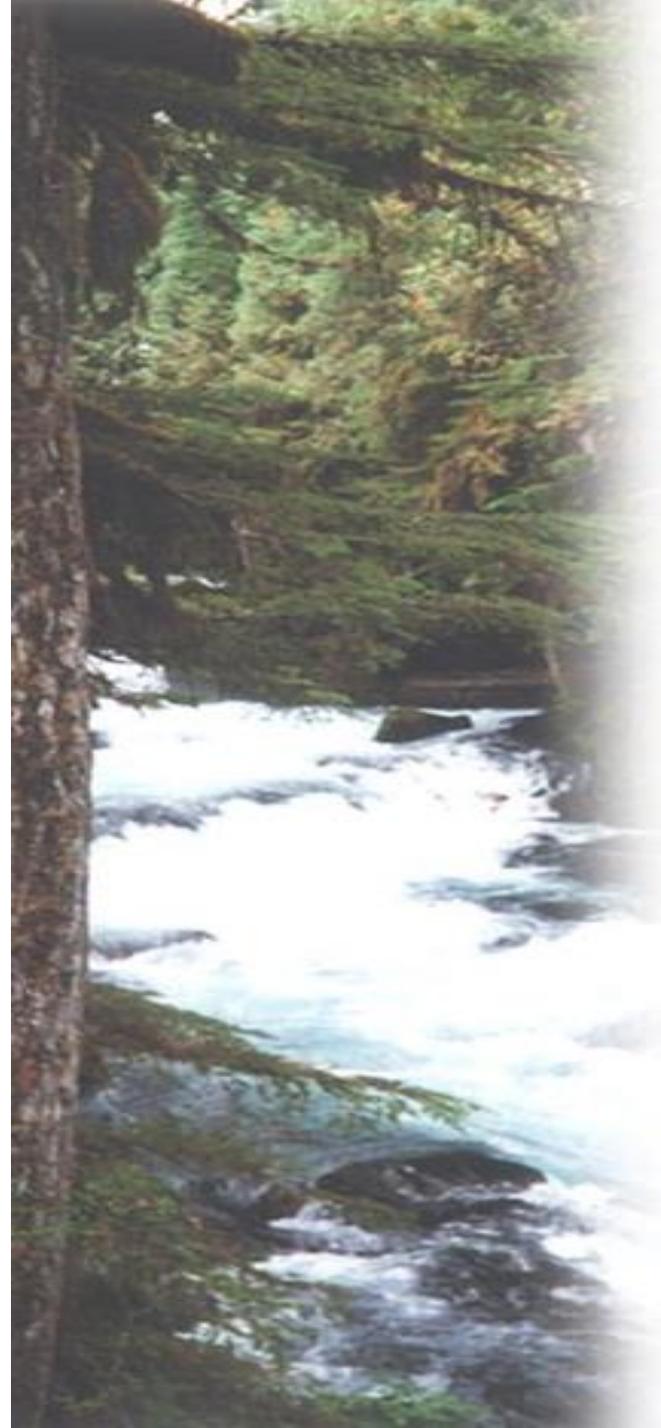


Dr. Lovejoy-Evans'

Swelling Spectrum



EDEMA medical word for SWELLING

- Edema: is abnormal accumulation of fluid within the interstitial spaces of the body
- May be intracellular or extracellular edema
- Edema occurs as a result of:
 - 1) an increase in the arterial capillary filtration rate such as with acute trauma / infection
 - 2) decreased rate of reabsorption of venous and lymphatic fluid from the interstitial spaces into the veins and lymph vessels
 - Can be due to damage to veins or lymphatic vessels (surgery or radiation), lymph nodes, blood vessels, tumor or scar tissue

Edema Spectrum

ACUTE

CHRONIC



ACUTE INJURY

CVI

LYMPHEDEMA

Normal Inflammatory Cascade

Lovejoy-Evans Swelling Spectrum: Severity

Lymphedema UE



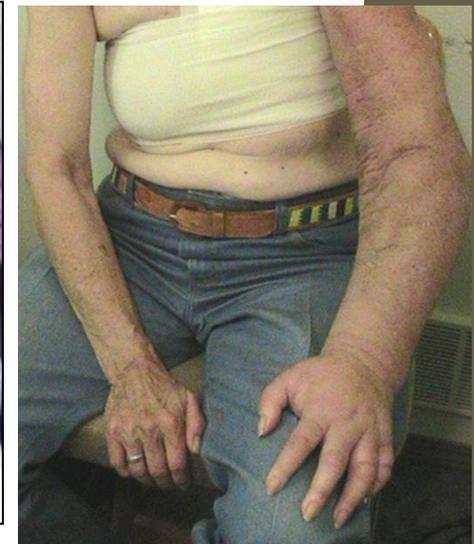
Mild



Moderate



Severe



Lovejoy-Evans Swelling Spectrum: Severity

Phlebolympheidema: CVI + Lymphedema



Mild

Moderate

Mod-Severe

Severe

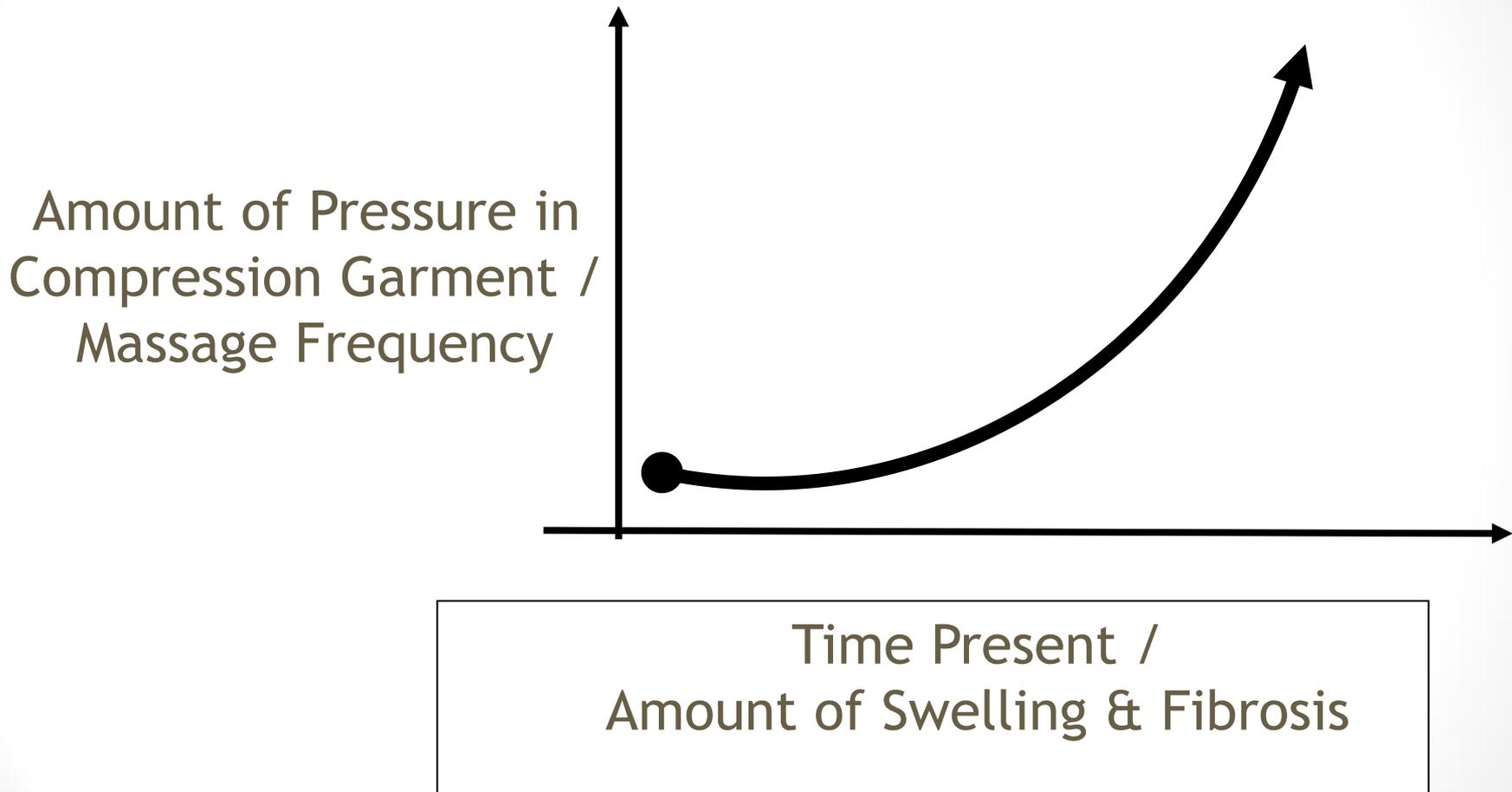


Lovejoy-Evans Swelling Spectrum: Severity Lipedema + CVI + Lymphedema Starts in puberty and worsens without RX

Mild Moderate Mod-Severe Severe



Lovejoy-Evans Swelling Spectrum



Signs of venous and lymphatic failure

Patient complained of numbness, tingling, burning, pain, weakness, loss of motion, loss of endurance, quality of life impairments.

Looking for history of lymphatic system compromise. He had history of orthopedic traumas, sports injuries.

Observing for signs of chronic venous insufficiency (CVI): Swelling, discoloration, loss of hair, indentations from the socks, bones are less obvious due to swelling



Look at both legs: 1 ahead of the curve



Consider the less obvious limb...the obvious limb is ahead of the curve but the other limb is on the same swelling spectrum.

The injury to the venous and lymphatic systems may have been less severe but the right leg then had to compensate for the injured left leg.

By attending to the right leg as well will catch pathology earlier which will require less care



Orthopedic Trauma: Consider underlying lymphatic pathology

When patients fail standard physical therapy protocols: Such as exercise & modalities: ice/heat, ultrasound, and Electrical stimulation

I think about the underlying lymphatic system's capabilities prior to the trauma/surgery.

Patient had knee replacement with subsequent blood clots.

After surgery, she failed standard physical therapy and was sent to me for swelling treatment.



Findings on evaluation and outcomes



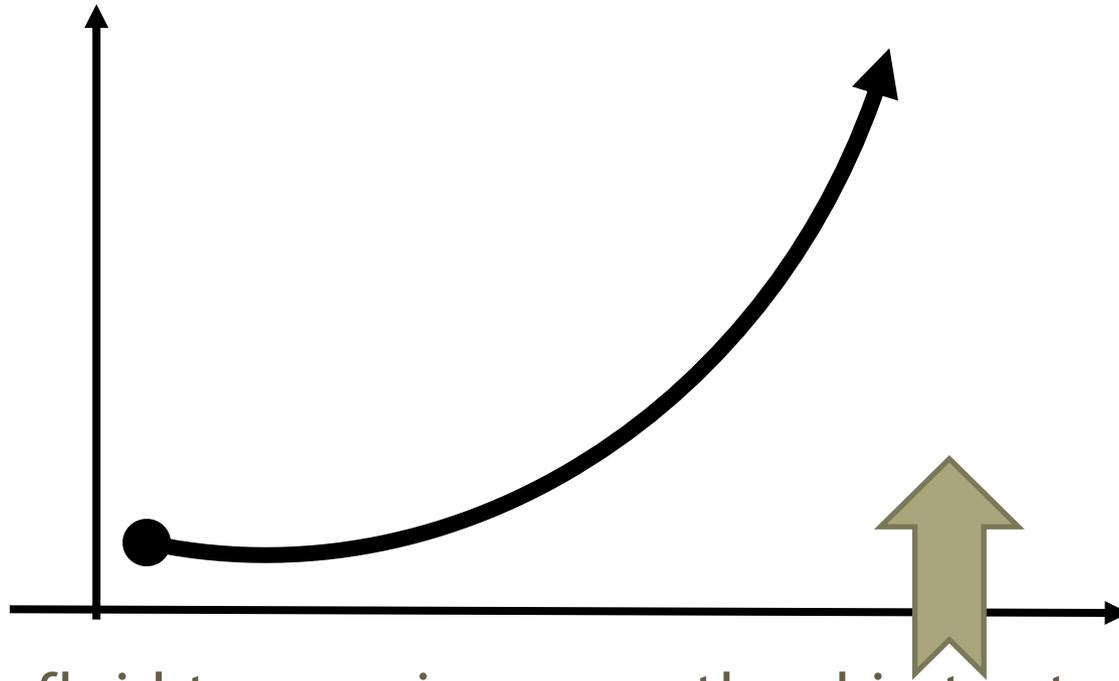
On evaluation I noted the underlying lymphatic system failure :

Chronic venous insufficiency (CVI):
red color lower leg, shine, hair-loss, spider veins,
congestion/fibrosis-loss of skin mobility/hardness

<u>Motion</u>	<u>EVAL</u>	<u>2days bandages +MLD 5 times/day</u>
Knee Bend:	90 degrees	118 degrees
Pain:	4/10	1/10



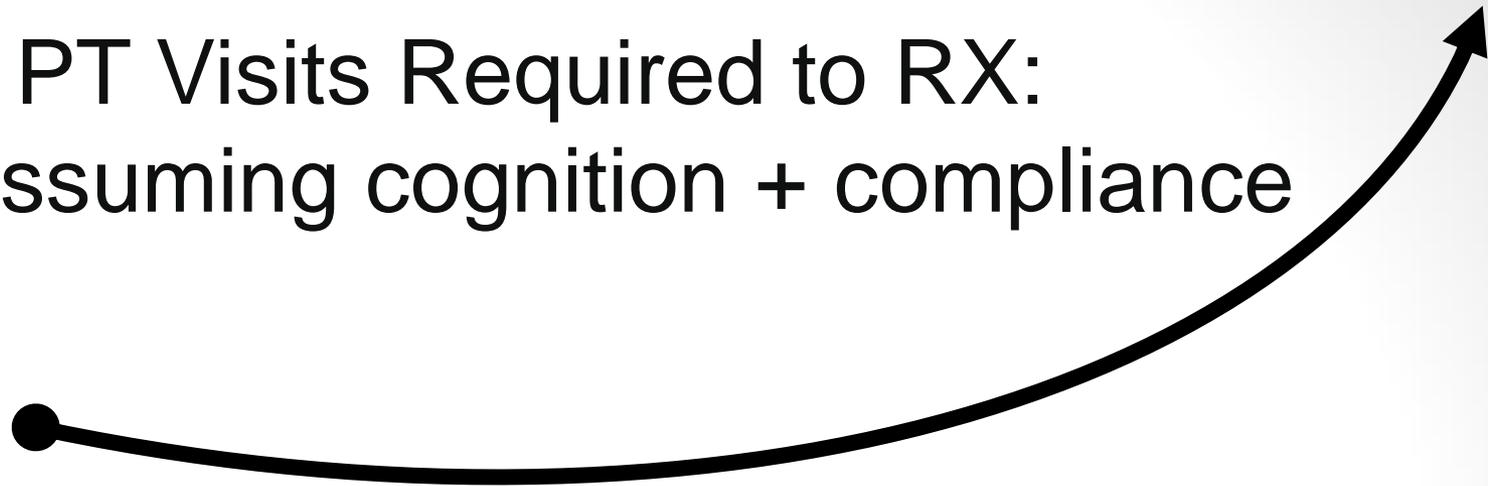
Most treatment needed on the right side of spectrum



Allowing the fluid to remain causes the skin to stretch out, veins to fail and after enough trauma the lymphatics fail.

Eventually lymphedema will develop even in orthopedics

PT Visits Required to RX: Assuming cognition + compliance



2-3



3-5



5-7



10-20



Financial cost: PT Visits ~\$100/hr

2-3=\$300

3-5=\$500

5-7=\$700

10-20=\$2000



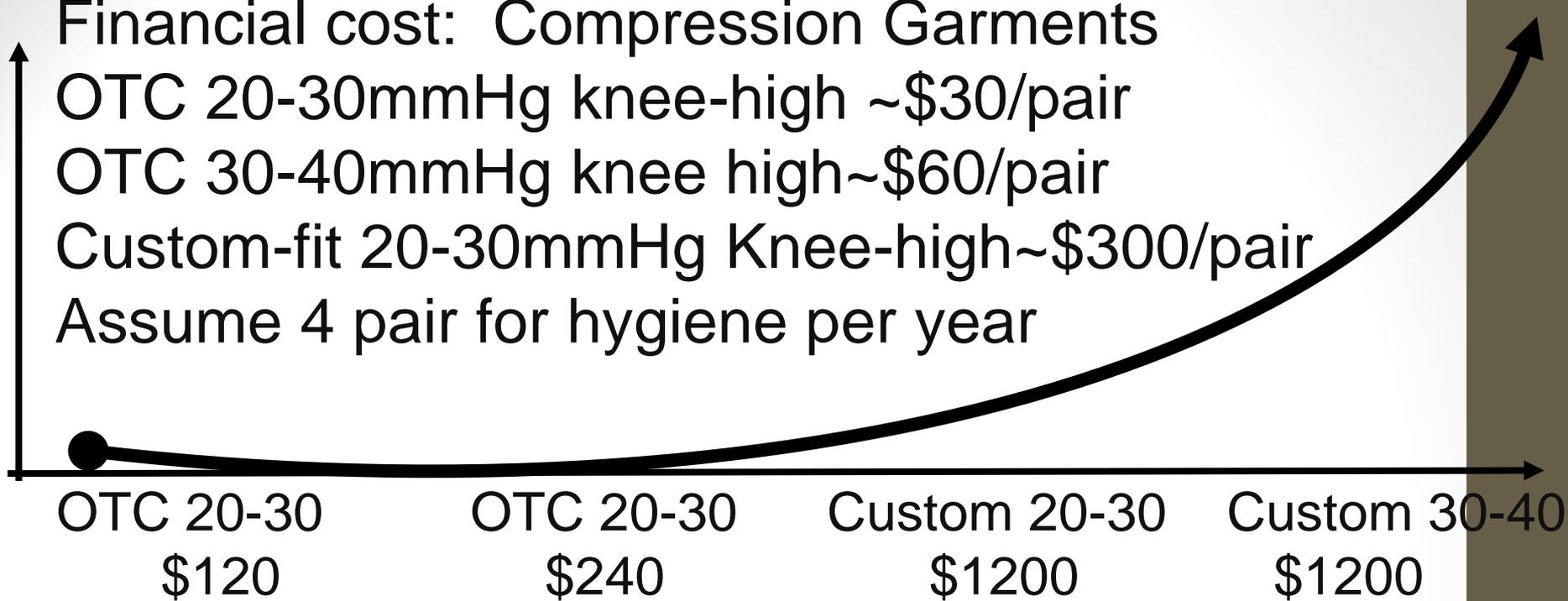
Financial cost: Compression Garments

OTC 20-30mmHg knee-high ~\$30/pair

OTC 30-40mmHg knee high~\$60/pair

Custom-fit 20-30mmHg Knee-high~\$300/pair

Assume 4 pair for hygiene per year



Financial cost: PT visits + Annual Compression
Prevention progressing to Stage III Lymphedema

\$420

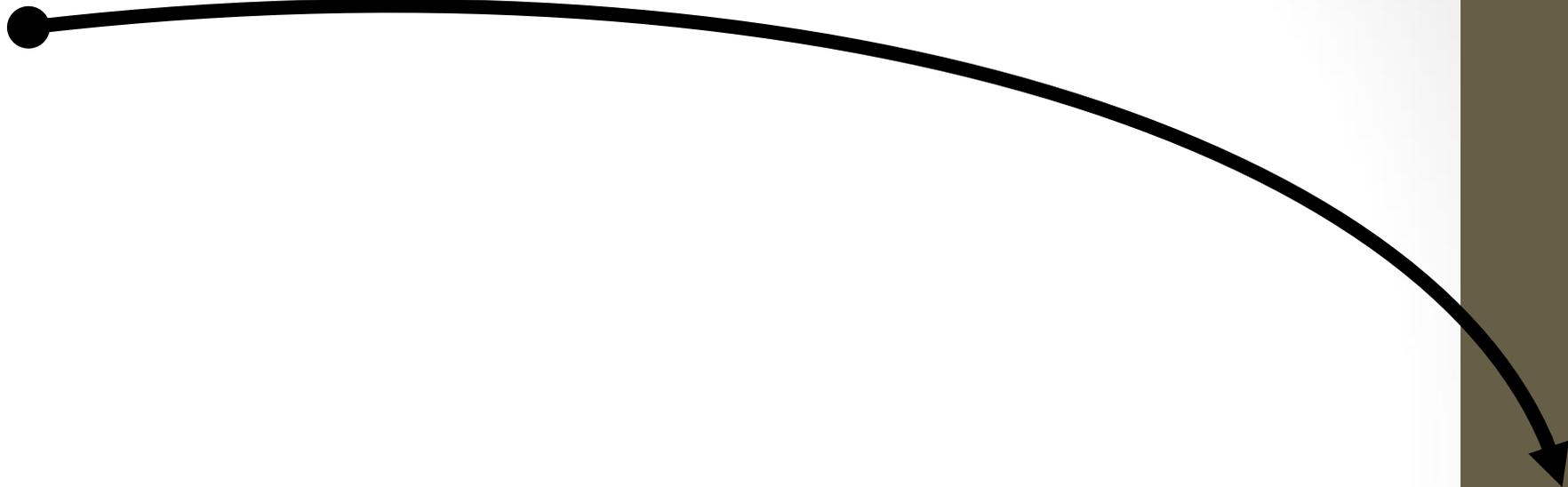
\$740

\$1900

\$3200



Quality of life (QOL): Turns the curve around



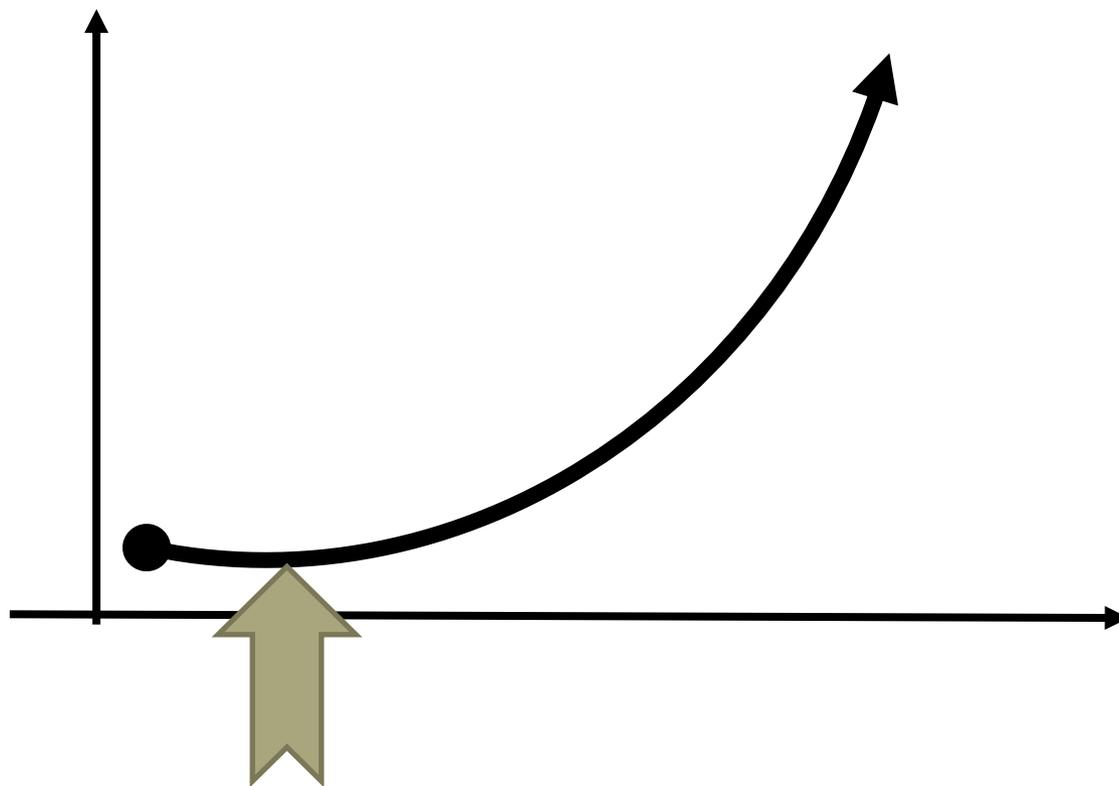
QOL due to: work needed to control lifelong:

Occasionally no sock
Light OTC sock
Easily donned
MLD in shower
No congestion

Daily sock
Stiffer custom sock
Tools or caregiver don
MLD 4 times a day
Fibrosis=Tennis ball



Least /Easiest RX needed-left side of spectrum=Best option prevention



By catching swelling early less RX required=cheaper
Less difficult to manage physically & emotionally
Better QOL