



Implementing Changing Treatment Protocols for Greater Success in Oedema Management

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Introduction: Lymphoedema Management has continued the same linear path for several decades, with little change from traditional treatment programmes of Complex Decongestive therapy (CDT) or Decongestive Lymphatic Therapy (DLT). Despite this there have been advances in understandings of cellular and biological pathology and inflammation; the introduction of ICG imaging has informed lymphatic pathways and drainage routes; and there have been advancements in compression garments.

Traditional lymphoedema management is commonly considered in a two-phase approach;

Phase 1- DLT; Reduction phase; consists of intensive therapy using multi-layer compression bandaging (MCB) with or without adjunct treatment such as manual lymphatic drainage, daily for 2-3 weeks (or longer as required) (International Society of Lymphology, 2024). This requires patients having 24-hour bandaging daily, or reduced to 2-3 times per week. Daily clinic appointments increases the burden for the patient, leading to disruption to their daily lives (Wigg et al. 2024).

Phase 2- Maintenance treatment; to maintain the outcomes of phase 1 with compression instead of bandaging.

Increased understanding of the impact of cellular physiology on the extra cellular matrix and the lymphatic glycocalyx produces oedema formation and has informed how treatment can be altered for improved outcomes. The link between the extra cellular matrix, cellular health, cell signalling and its impact on the lymphatic system is increasing our knowledge and understanding of how existing oedema management exacerbates the condition over time (Belgrado, 2023). Many specialist services offer minimal treatment citing poor resources (anecdotally), leaving patients who require intensive treatment with only maintenance treatment (phase 2) option and reducing the possibility of improved outcomes.

Our protocols: include lifestyle and dietary advice, including, assisting gut microbiome, reducing inflammation. These changed treatment protocols, respecting science and including innovation to improve outcomes, reduce the number of appointments required, the materials needed, and the burden on the patient without compromising treatment aims.

Method: 6 case studies were completed over 2 sites (UK and South Africa). New treatment protocols were applied (carried out previously on 50+ patients). Outcomes evaluated include limb volume, tissue change, limb circumference, skin thickening and photography.

All patients were assessed for suitability offering alternative treatment protocol, delivered over a shorter period to expedite results of the treatment.

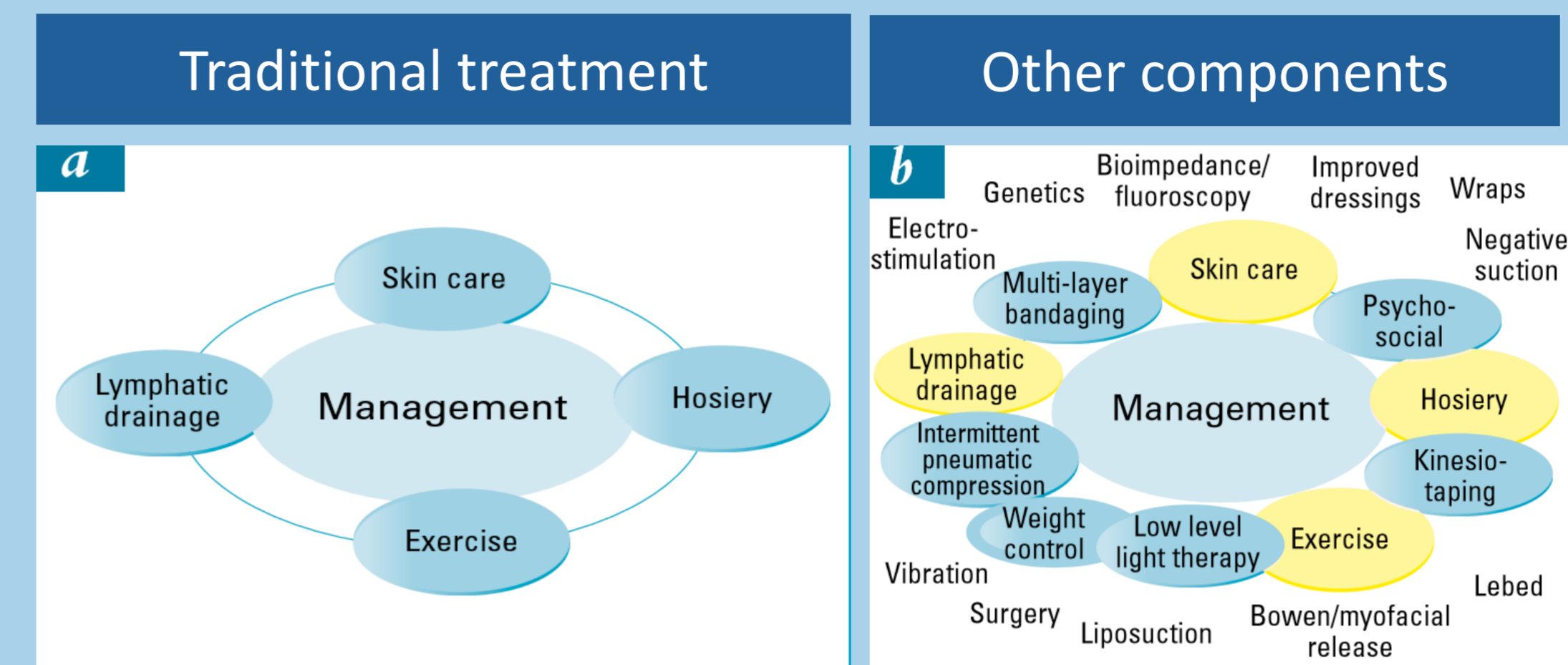
Predominant protocol changes are; application of high pressure, short stretch bandage; exercise, MLD carried out to the root of the limb only, apply top reinforced bandage, exercise, remove and apply wrap (for self adjusting) and repeat.

Results: All 6 patients had a reduction of limb circumference or volume and improvement in shape. Evaluation, demonstrate optimised treatment protocols reduce and maintain lymphoedema. MCB carried out over 3-5 days, maintaining compression, induces anoikis. The number of treatment days is reduced with faster volume reduction and improved wellbeing were observed.

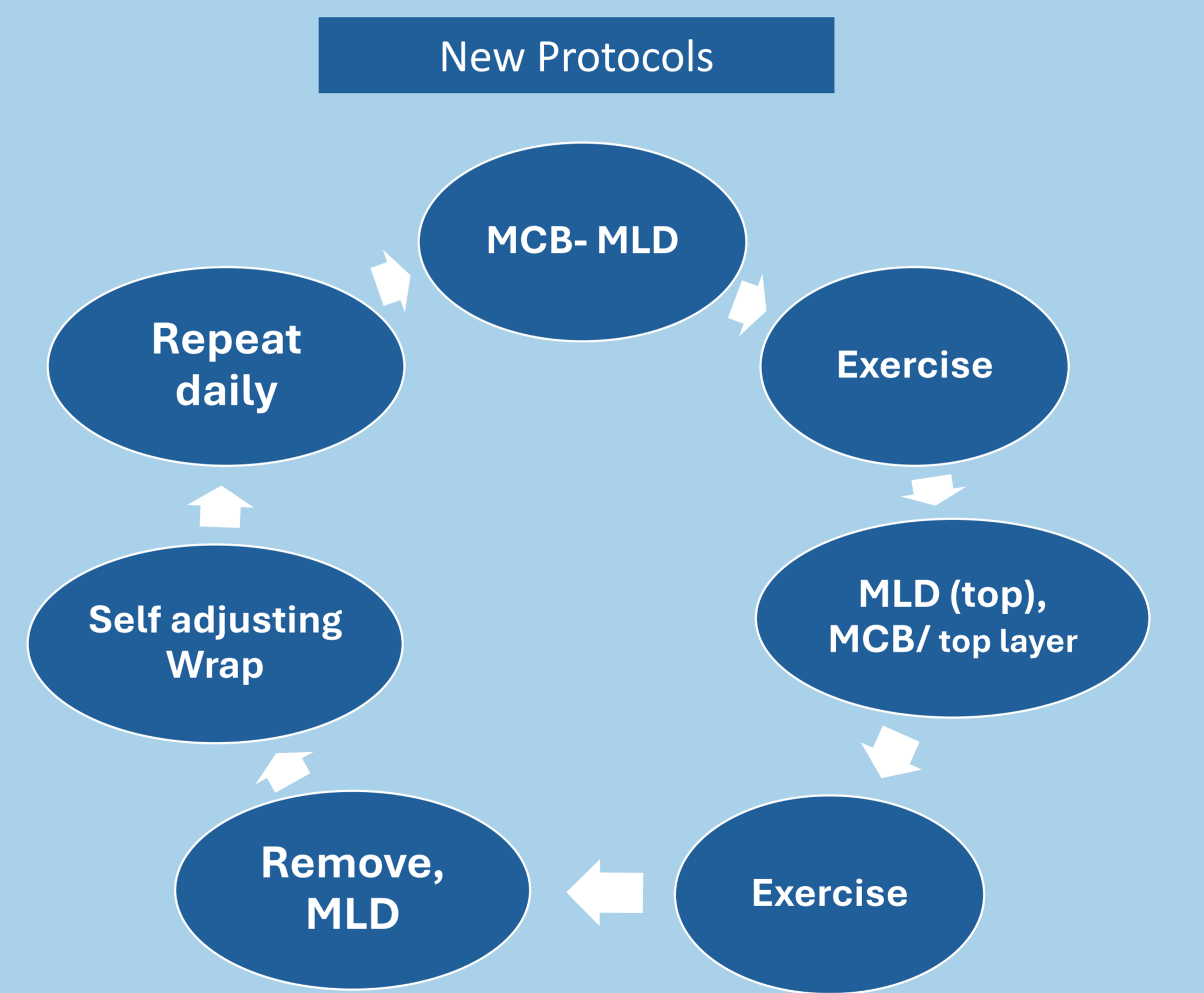
Discussion: New treatment protocols challenge the current standard practice for intensive reduction treatment in oedema management.

Clinical Implications; To ensure cost effect treatment, change is warranted embedded by improved understanding of physics and biology. This understanding has reduced the number of treatment days required to obtain reduction with DLT.

Conclusion: These case studies have provided evidence that oedema reduces in a shorter time, thus reducing the burden for the patient and the cost and resources to the clinician, clinic or organisation.



(Wigg and Lee, Redefining Essential Care, Chronic Oedema, 2013)



“Thank You’...
You and Jane saved my sanity and helped me out of a desperate situation”

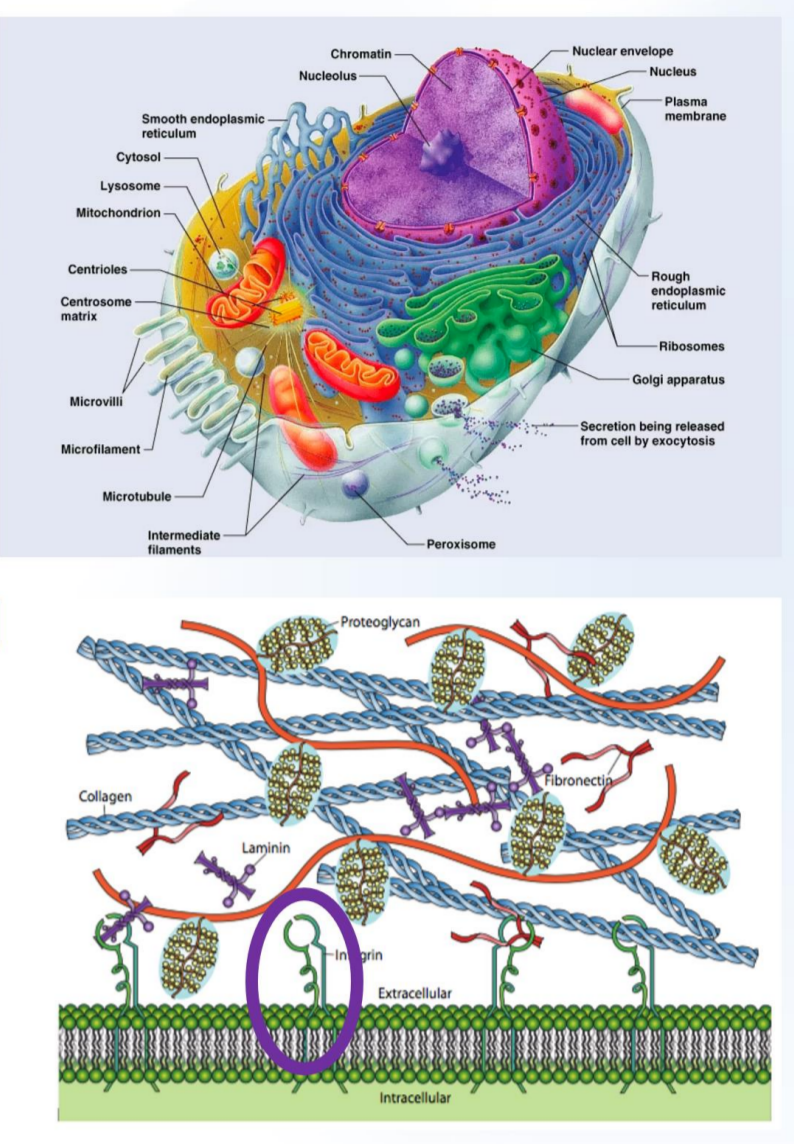


Why change

How does oedema start?

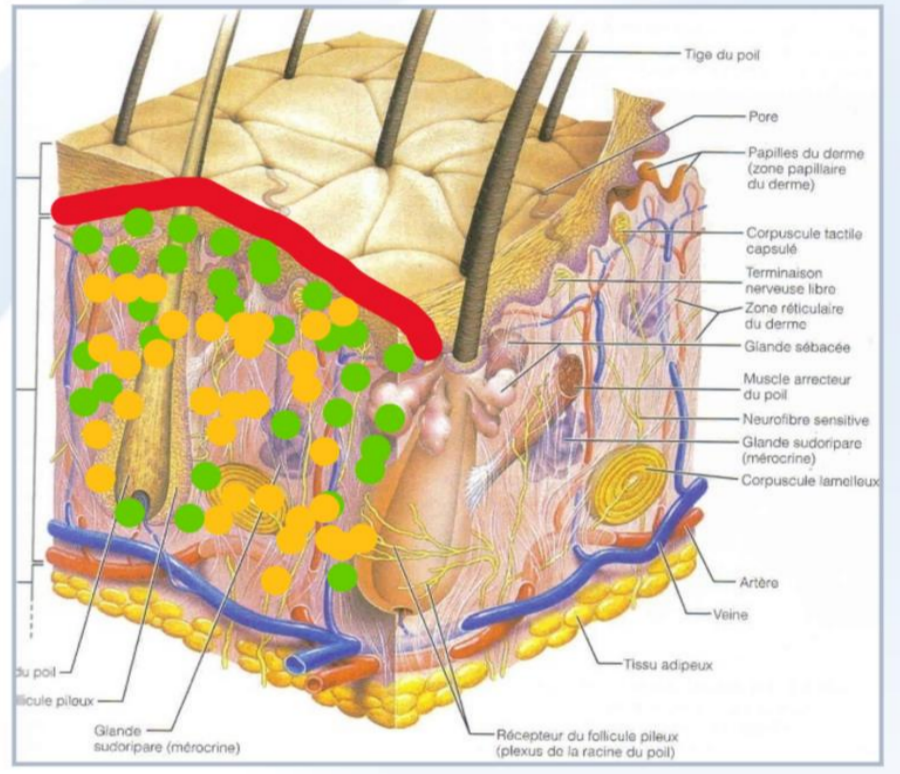
- ✓ Inflammation
- ✓ Cell signaling
- ✓ Integrin had Beta and Alpha
- ✓ Alpha connects to the cytoskeleton of the cell (mechanical)
- ✓ Beta (Chemical)
- ✓ Reach homeostasis- or not!

• (adipocytes and fibrocytes- Lymphoedema consists of fat and gelly!)



The problem with chronic swelling

- Change of shape of the skin
- Low pressure forces in skin reducing physics
- We treat the extracellular matrix
- With MLD we drain the interstitium



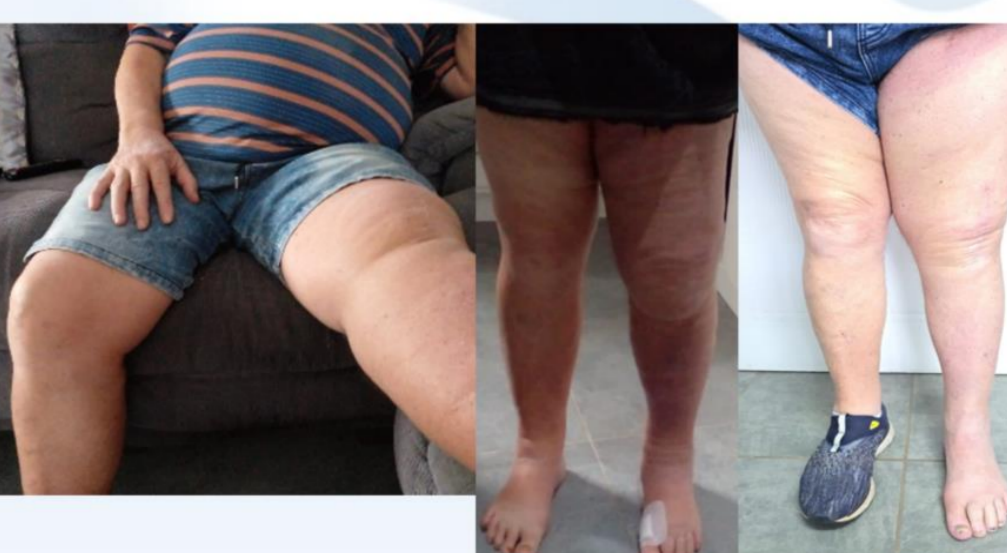
Inducing Anoikis

- When bandaging (Maintaining pressure), the cell signaling changes
- When the cell does not receive information, it loses its need and dies
- We need to maintain the pressure to ensure that the cell signaling does not send incorrect message and product more inflammation
- This is Anoikis and turns off the trigger switch.
- It changes the physics

(Anoikis plays a fundamental role in preventing inappropriate translocation and attachment of cells, which can lead to abnormal growth in an ectopic environment)



Patient 1



	Day 1	Day 3	Day 5	
	Left	Right	Left	left
Distal	3007	2681	2416	2240
Proximal	11599	8659	9119	9054
Total	14607	11341	11540	11295
Excess	3266	326	199	46
% excess		29%	2%	0%
Distal mls		326	261	441
Distal%		12%	11%	20%
Prox mls		2940	460	394
Prox %		34%	5%	5%

Able to resume bowling and golf!

Total reduction 3289mls