

Management of Leg Ulcers

Current Recommendations

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Leg Ulcers Classification

VENOUS

80 -90% ? VV's DVT Central Venous HT - OBESITY Gravity *Stasis*

ARTERIAL

20 – 30 % ? AB INDEX < 0.8

TRAUMATIC

MINOR or MAJOR trauma

Breakdown old surgical wounds VVs CABG

Infection – Cellulitis

NON-HEALING skin lesion **biopsy/excision wounds**

MALIGNANT

BCC

SCC

MELANOMA

VASCULITIS

AUTOIMMUNE

Vasculitis

Rheumatoid

Myeloproliferative disorders

Pyoderma gangrenosum

Arteritis

Drug sensitivity

Martorell's

DIABETIC

NEUROPATHIC

Mainly FOOT

Small +/- large vessel arterial disease

INFECTIVE

Tropical Ulcers

Osteomyelitis

TB Mycotic

OLD BURNS / SCAR

Marjolin's Ulcer

Leg Ulcer Patient : **HISTORY**

- How did it begin? Trauma cellulitis VV's DVT # joint Sx prev ulcers & Rx footwear job activities/walking weight old scars Pain level
- Arterial disease PVD Coronary AD CerebroVD
- Skin condition - possibly generalised excema and ? skin malignancies
- Co-morbidities DM autoimmune resp cardiac
- Medications and allergies
- Family history of leg ulcers !!
- Current ulcer duration precipitation previous investigations Rx so far & results
- Home situation dressings compression elevate foot bed ?

Leg Ulcer Patient **INVESTIGATIONS**

- Bloods recent results from other doctors
- Swab C & S current ? Value ? contamination
- Biopsy if malignancy /vasculitis suspected
- **Venous incompetence duplex scan** standing exposing full length of leg - remove dressings
 - SVI DVI Perfs size competence
 - ? Evidence of proximal venous obstn
 - ? Old DVT changes +/- deep vein reflux
- **Arterial assessment** vascular lab ABSI 0.8
- Then make a provisional diagnosis - may be **several contributing factors**

Leg ulcers associated with **VENOUS** disease – part of
the CEAP venous classification “C” clinical

Grade	Description
C 0	No evidence of venous disease
C 1	Superficial spider veins or reticular veins
C 2	Varicose veins
C 3	Ankle / calf oedema of venous origin
C 4a	Skin pigmentation in the gaiter area Varicose eczema
4b	Atrophie blanche Lipodermatosclerosis
C 5	A healed venous ulcer
C 6	An open venous ulcer

CVI Chronic Venous Insufficiency is **C3 to C6** in
the **CEAP** classification

CHRONIC VENOUS INSUFFICIENCY

Persistently high venous pressure FROM WHATEVER
CAUSE **MAY** result in the

SIGNS OF CVI

OEDEMA

PIGMENTATION

VARICOSE ECZEMA

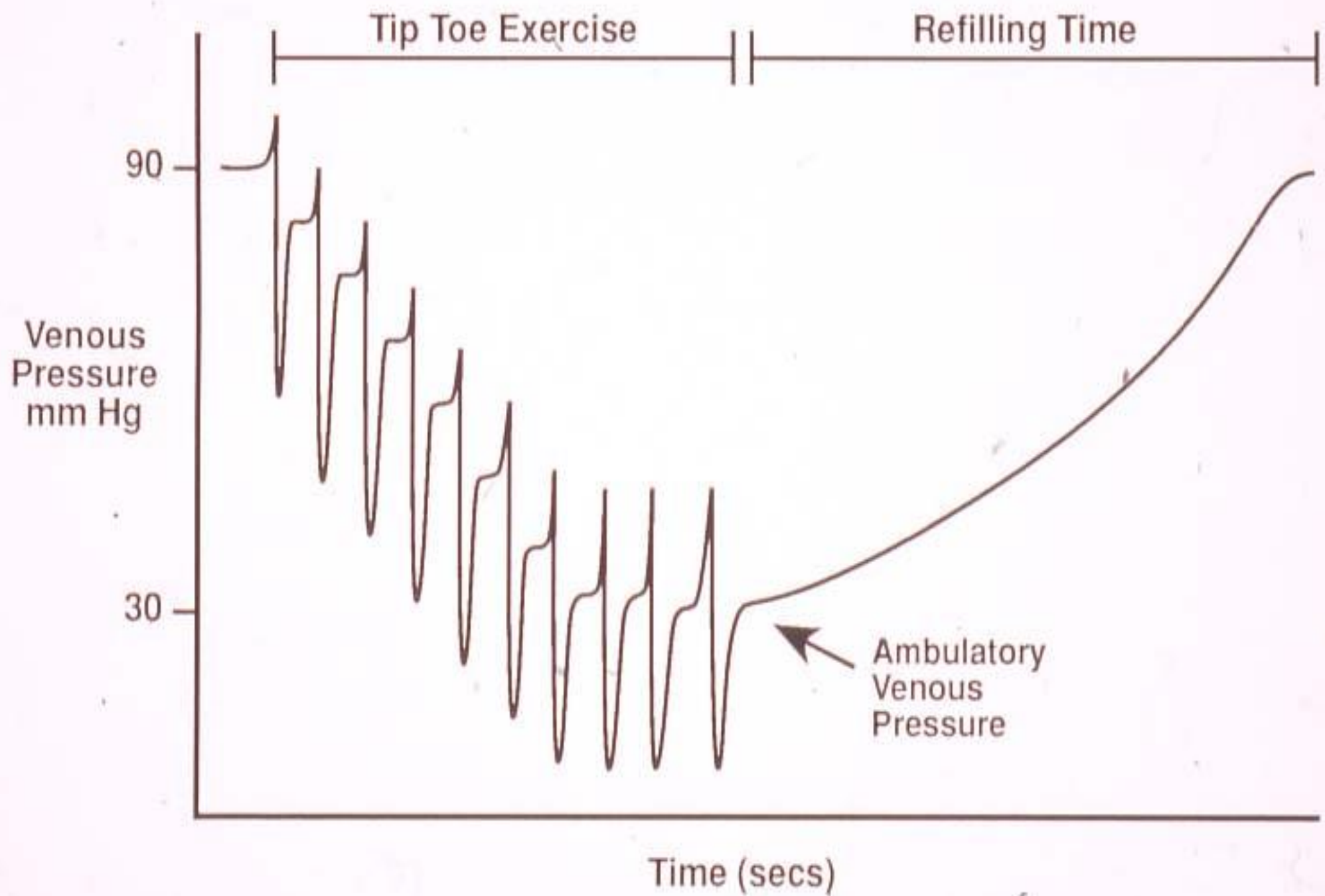
LIPODERMATOSCLEROSIS

ATROPIE BLANCHE

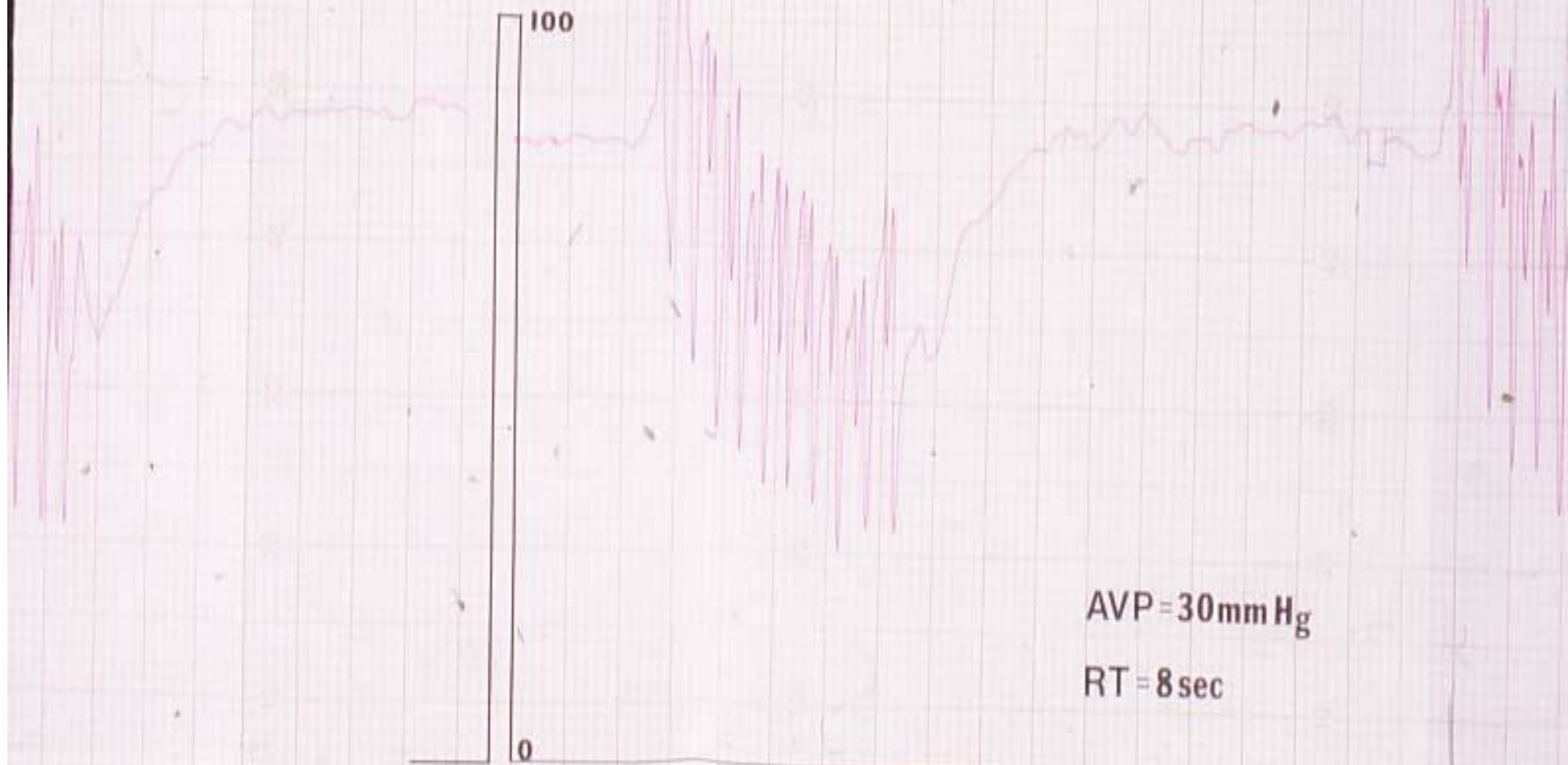
LEG ULCERATION

+/- VISIBLE VARICOSITIES





Ambulatory Venous Pressure (post-op)



How does high venous pressure lead to leg ulceration ?

Early investigators looked at suspected hypoxia from

Stagnation or pooling of blood

Arteriovenous shunting

Peri-capillary fibrin cuff reducing oxygen diffusion

Recent investigators are looking at

Extravasation of RBCs and macromolecules

CYTOKINES signaling molecules cellular communications

Leukocyte activation INFLAMMATION Release of other cytokines and growth factors in the dermis

Fibroblast activity

Remodeling of the dermis , producing fibrosis

CVI Pathophysiology Sequence of Events

High venous **pressure**

Extravasation RBCs and $\alpha 2$ macroglobulins & fibrinogen

Degradation & chemotaxis beginning the inflammatory process

Leukocytes attracted especially mast cells and monocytes

Release of **Transforming GF $\beta 1$** - **TGF 1**

Fibroblast activity is modified by TGF 1

Other **cytokines & growth factors** released (VEGF PDGF)

Extracellular **matrix changes** Soft tissue destruction

Dermal fibrosis and remodeling producing **VENOUS LEG ULCER**

Common causes of persistently high Venous Pressure

- **Leg pathology** Varicose veins
DVT DVI Iliac V obstruction
perforator vein incompetence
vascular malformation
- **Functional** high venous pressure
Obesity immobility dependency
CCF resp renal Sleep in a CHAIR



Aims of Treatment in CVI legs

Reduce the persistently high venous pressure

Treat and eliminate **venous reflux**

Relieve **venous obstruction**

Elevate the foot of the bed to relieve oedema and pressure

Graduated compression stockings

Weight reduction and increased walking

Modify the inflammatory process occurring in the gaiter area of these legs

Block the release or activation of TGF 1

Modify fibroblast activity Reduce leukocyte attraction

C6 patients: Wound care dressings compression
medications to encourage wound healing

Systemic problems / management in Leg Ulcer Patients

- Anaemia
- Diabetes mellitus
- CCF Hypoxia AF
- Sepsis antibiotics oral/iv
- Autoimmune diseases RA complex imm def
- Obese and immobility and gravity/stasis
- Medication to reduce inflammatory process
.....much research into this

Leg factors to improve in Leg Ulcer patients

- **Arterial insufficiency** refer off when significant
- **Varicose veins** superficial venous insufficiency requiring Rx **Sclerotherapy**
Thermal ablation **Open venous surgery**
- **Deep vein disease** DVT DVI Prox obstructn
- **Oedema** is this venous lymphatic capill
- **Cellulitis** sepsis

Leg Ulcers: Fighting the Oedema

GRAVITY

ELEVATE FOOT OF THE BED

LEG UP WHEN SITTING **NOT VERY USEFUL** splinted

COMPRESSION

GOOD QUALITY STRONG COMPRESSION **BANDAGES**

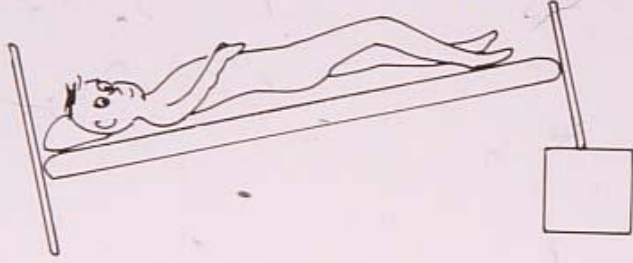
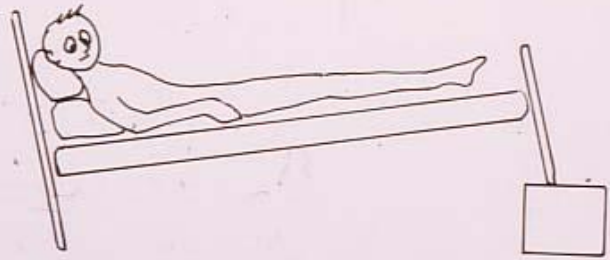
LOW STRETCH (eg. COMPRILAN) vs HIGH STRETCH (eg. BLUELINE SETOPRESS)

WHITE CREPES HOLD DRESSING IN PLACE ONLY, THEY APPLY NO COMPRESSION AT ALL

COHESIVE BANDAGE eg HANDIGRIP COHESIVE

TUBULAR BANDAGE eg TUBIGRIP TENSOGRIP

COMPRESSION **STOCKINGS** WHEN ULCER HEALED



Specific **Wound Management** in Leg Ulcers

- **Base** dry necrotic sloughy biofilm
exudate granulation tissue
- Debridement **autolytic** using moist wound dressings or sharp debridement
- **Edge** angry and enlarging or evidence of epithel ingrowth Zinc paste to adjacent skin
- Primary wound dressing Secondary dressing
- Retention to hold dressing NO TAPE on skin
- THEN ADD **COMPRESSION**

Leg Ulcer Wound Management

- Moist dressings to promote autolytic debridement separation of necrotic tissue
- Sharp surgical debridement quicker extensive
- Hydrogels hydrocolloids enzymatic pastes
- Alginates hydrofibers polyurethane foams
- Anti-bacterials iodine silver topical a/biotics
- Granulation and advancing epithelium expect
- Continuous suction VAC Skin grafting
- Protect surrounding intact skin Oral ABiotics

Graduated Compression for leg ulcers

- With good compression **patient encouraged to walk**
Resting vs Working pressure
- Without compression rest & elevate leg
- Compression **stockings** vs **bandages**
- Low stretch vs high stretch bandages
- Multi layer stiffness = rigid exterior
- Change of dressings - exudate who will do ?
- Ulcer stockings Be aware excellent Rx
- Velcro multi segment compression *Ready Wraps*
- Unna zinc paste “boot”

The role of the GP in leg ulcers

- Initial Dx , associated medical issues contributing - correspondence, routine bloods and swab , elevate foot bed dressing and mild compression
- Refer to leg ulcer clinic with appropriate correspondence and results not.....“ **see & treat**”
- Mx plan enacted by you or your GP nurse or community nurse
- Management of PAIN , antibiotics , general support and various specialists already involved
- Supervise progress or **deterioration** and liaise with the clinic. Are other factors involved? Other specialists may need consultation ID haem

Trends in our Sydney Leg Ulcer Clinic

- Reduction in **purely venous disease** as a cause fewer primary VV's and DVT cases
- Increase in **complex “mixed aetiology”** ulcers
- Co-morbidities Autoimmune/Cardiac/Renal/Respiratory/Malignancy
- **OBESITY** High central venous pressure
- Lympho-venous disease increasing
- Interaction with **Infectious diseases doctors**
Dermatologists Immunologists Cardiologists
- Increase in IV drug users presenting with leg ulcers

Tips with venous leg ulcers

- Elevate the foot of the bed - simple
- Foam **sclerotherapy** in the ulcer clinic helps
- **Thermal ablation & open surgery** help heal the ulcers We can Rx the VV's with an active ulcer
- VV Rx is supposed to reduce ulcer **recurrence** but it also **speeds healing** Cochrane review ?
- Pinch grafting LA speeds healing
- **Lympho-venous oedema** may occur. The lymphatics often stop functioning need help
- Possibility of proximal venous obstruction

Changes in Leg Ulcer patients

- **Venous hypertension** still causes many of the leg ulcers we see , but the venous pathology is rarely VV's , and less frequently DVT. It is **obesity dependence** and **immobility**
- Compression more of a CHALLENGE !
- **Vasculitic** contribution rising
- OBESITY the current curse Lymphovenous prob
- Is **lymphatic drainage** an option Pneumatic comp
- **Co-morbidities** producing ulcers of a more complex nature
- **Arterial disease & V V's** are being addressed earlier

Practical difficulties with leg ulcers

- Massive Obesity Immobility poor gait
- Lympho-venous oedema Low calf muscle activity
- Patients who never go to bed - *recliner*
- Can't stand anything **tight** on legs !! Pain discomfort
- **Contaminated** ulcers smelly leg +/- fungus No air no sun
 SOGGY moist weeping leg and low-grade infection
- **Dermatological** legs basic skin problems
- **CCF** legs Fluid retention basic problem
- Paper **thin skin** legs
- Hypersensitive “**allergic**” to **EVERYTHING**
- Uncontrolled **autoimmune** factors dictating ulcer
- Anaemia Patients on warfarin

Practical Points when using stockings in CVI

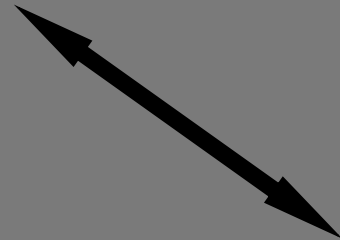
- **Below-knee** almost always
- NOT TED Stockings low pressure badly fitted
- Patient often unable to **apply** or **remove** strong stockings
- Stockings may **aggravate venous eczema** due to heat under stocking
- Two **lower compression stockings** easier to apply than a very strong one
- Fitting and education VITAL Who is fitting

Leg Ulcer Clinic

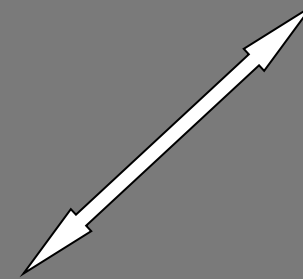
COMMUNITY NURSES



GP



LEG ULCER CLINIC



PATIENT TAKES CLINIC NOTES / CHARTS TO ALL VISITS

ALL CORRESPONDENCE TO ALL PRACTITIONERS, INCLUDING COMMUNITY NURSES

ROTATE COMMUNITY NURSES AND GPs THROUGH THE CLINIC





























Thank you....

