GP Management of Peripheral Vascular Disease Rotorua GP CME

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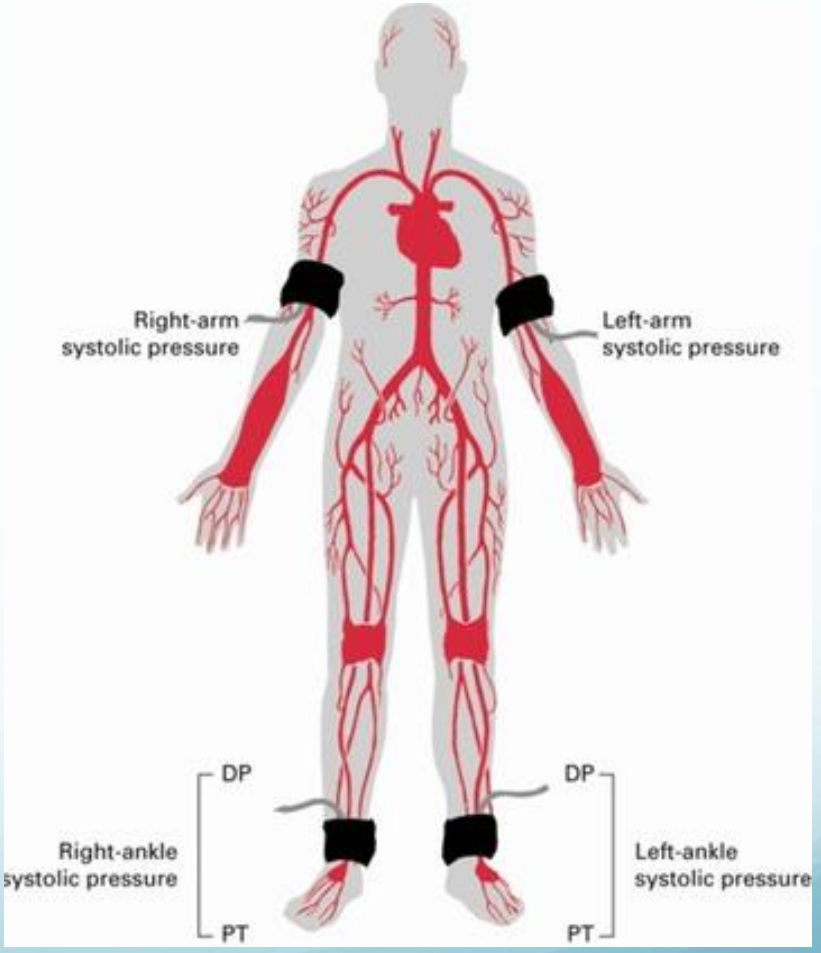
Haemodynamic definition of Peripheral Vascular Disease is ABI < 0.9



Ankle Brachial Index (ABI)

- Systolic Pressure measured at ankle with Pencil Doppler / Standard Brachial Systolic Pressure
- ABI 0.9 – 1.2 normal
- Exercise ABI following walking on treadmill 10% grade at 3kph
- 10 – 15% drop in ABI indicates PVD

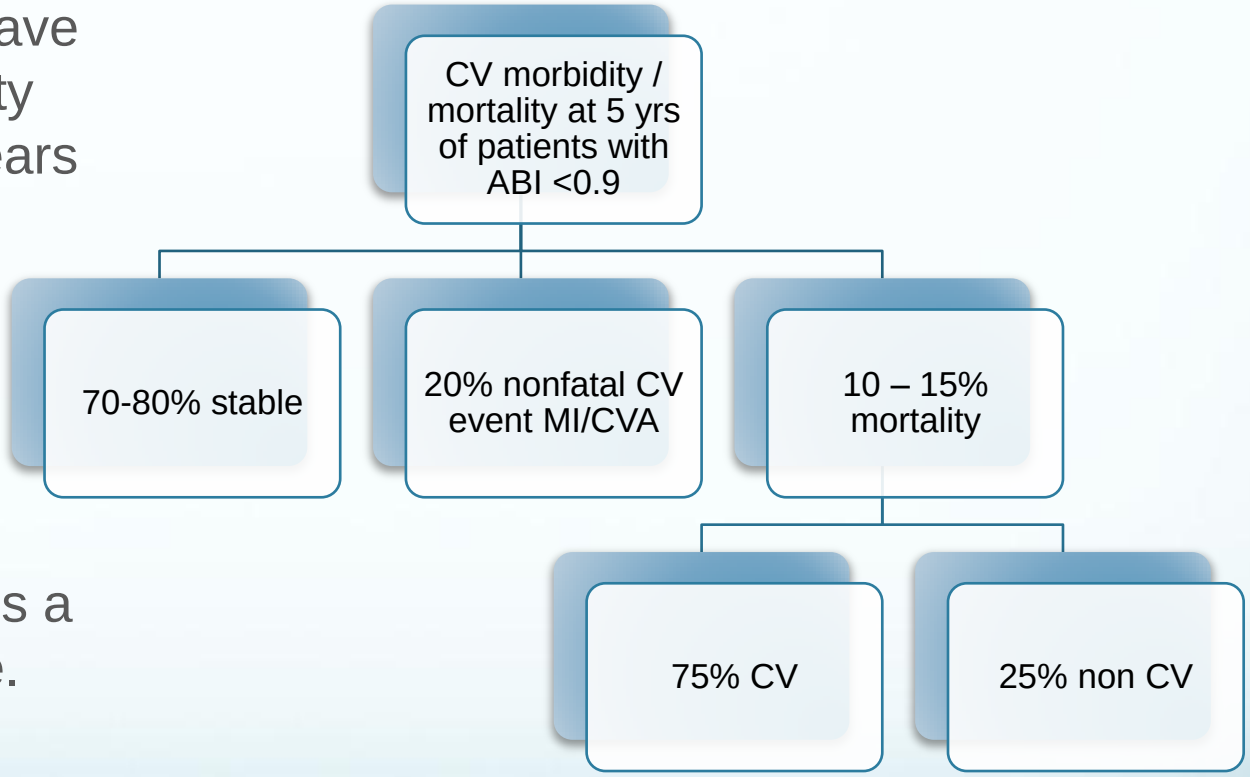
Beware Diabetic

- Calcific crural (calf) disease can make arteries incompressible and lead to falsely elevated ABIs
- As digital arteries are often spared this process Toe PPG measurements are more accurate

Toe PPG

Does Asymptomatic Disease matter? Yes

- These patients have the same mortality outcomes at 5 years as symptomatic patients



- Atherosclerosis is a systemic disease.

  (it is a paediatric disease)

The key role of the GP in the management of PVD is aggressive Risk Factor Management

1. Smoking cessation

- Psychological
- Pharmacological

2. BP control

- Systolic BP < 140
  - <130 in diabetics or renal failure
  - Some evidence of advantage with ACE inhibition beyond it's antihypertensive effect.
  - HOPE trial

Risk Factor Management

3. Diabetic Control

- Hb1Ac < 7.0%

4. Hyperlipaedemia

- LDL < 100 mmol/l
- <70 mmol/l if high risk
- NB expanded role of Statin therapy based on Pleiotropic effects

5. Antiplatelet Medication

Symptomatic PVD
Fontaine Classification

		ABI	Ankle Pressure	Toe Pressure
I.	Asymptomatic	< 0.9		
IIa.	Mild Claudication	0.7		
IIb.	Mod to severe claudication	0.5 – 0.7		
III.	Rest pain		<50 mmHg	< 30 mmHg
IV.	Tissue loss: ulcers/ gangrene		< 70 mmHg	< 50 mmHg

CRITICAL ISCHAEMIA

Increasing symptomatology usually reflects increasing extent of disease

Claudication: Prognosis of Limb

- **In patients with claudication the prognosis of the limb is good**
  - Only 1 – 3.3 % risk of amputation at 5 years
  - Increased risk of amputation if:
    - Low ABI < 0.5
    - Diabetic
    - Ongoing smoking

  - **In these patients non-revascularizing treatment modalities can be considered**

Chronic Subclinical Ischaemia.

- Patients may have low perfusion pressures but be asymptomatic because they are sedentary and diabetic (don’t feel ischaemic rest pain)

- Patients rarely go through all stages of the Fontaine Classification

Critical Ischaemia

- The term Critical Limb Ischaemia should be used for all patients with chronic rest pain / ulcers or gangrene
- Attributable to objectively proven arterial occlusive disease.
- The term implies chronicity and is to be distinguished from acute limb ischaemia

Prognosis for Critical Limb Ischaemia

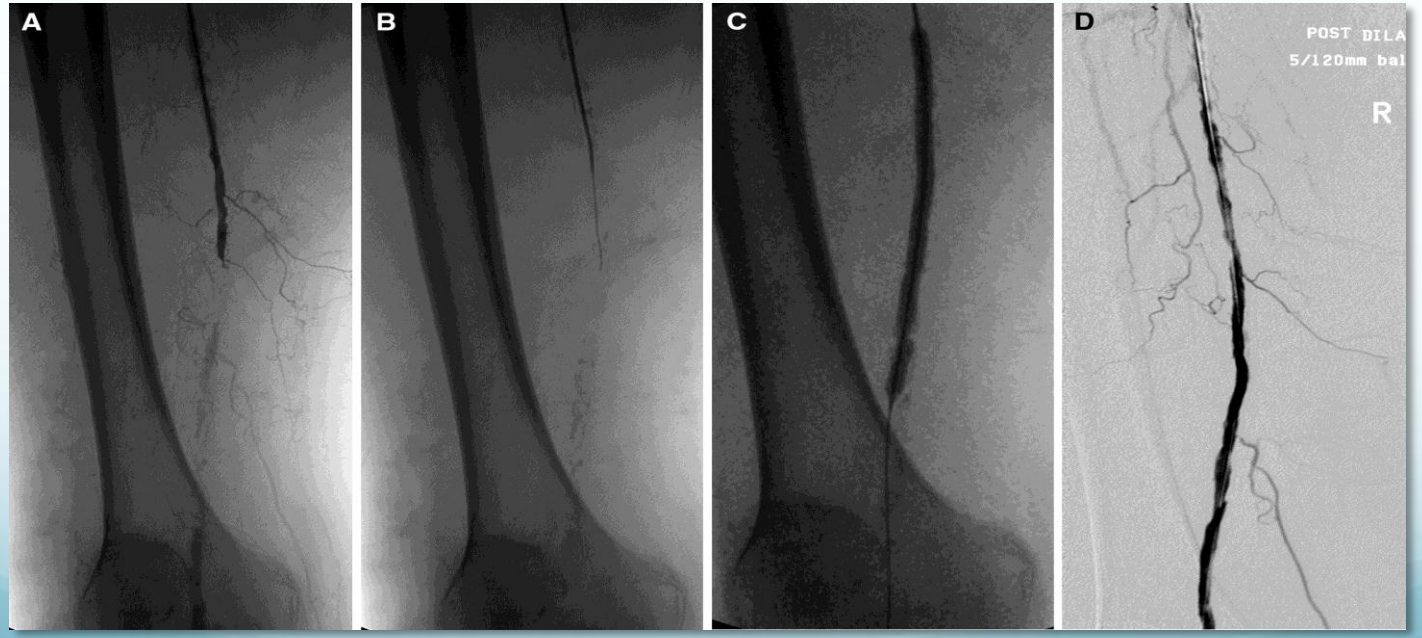
- **In these patients the prognosis for the limb and life is poor**
- Amputation rate:

  40% at 1 yr
- Mortality: 30% at 1 yr

- **All other things being equal these patients need to be revascularised**

Revascularisation: Endovascular

- **Angioplasty +/- Stent**
  - Covered
  - Uncovered



Revascularisation: Open Surgery

Endarterectomy

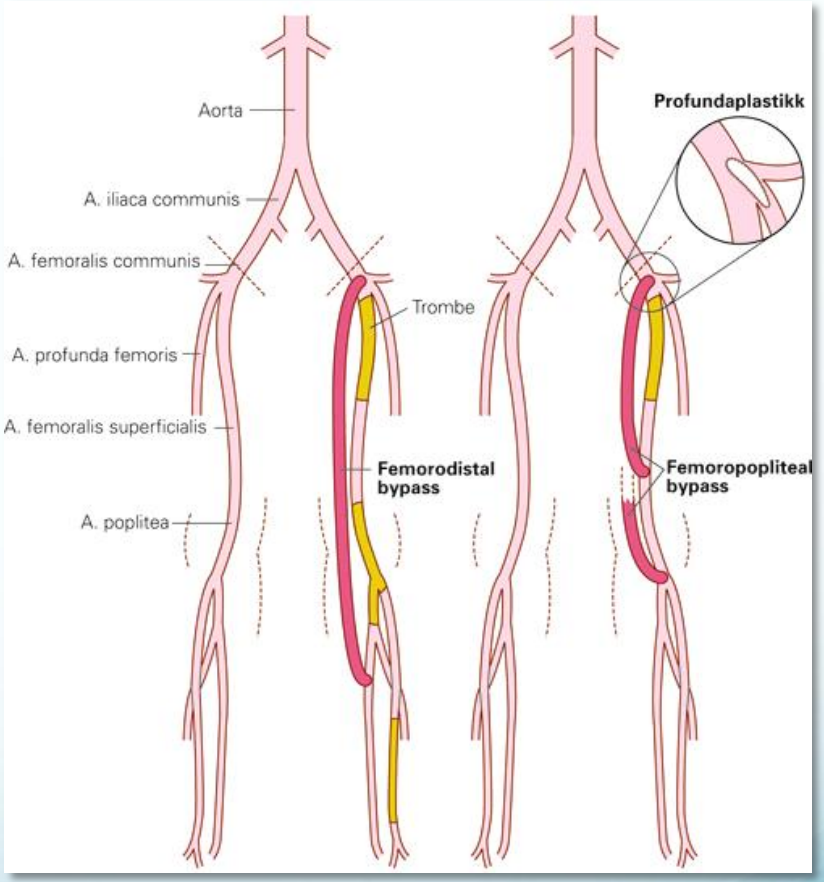
- (CFA Endarterectomy /Profundaplasty)

Bypass grafting

- Anatomic (Fem-Pop)
- Extra-anatomic (Ax- Fem)

Hybrid Procedures

Fully revascularised once there is inline flow to the foot



Symptomatic PVD – Claudication

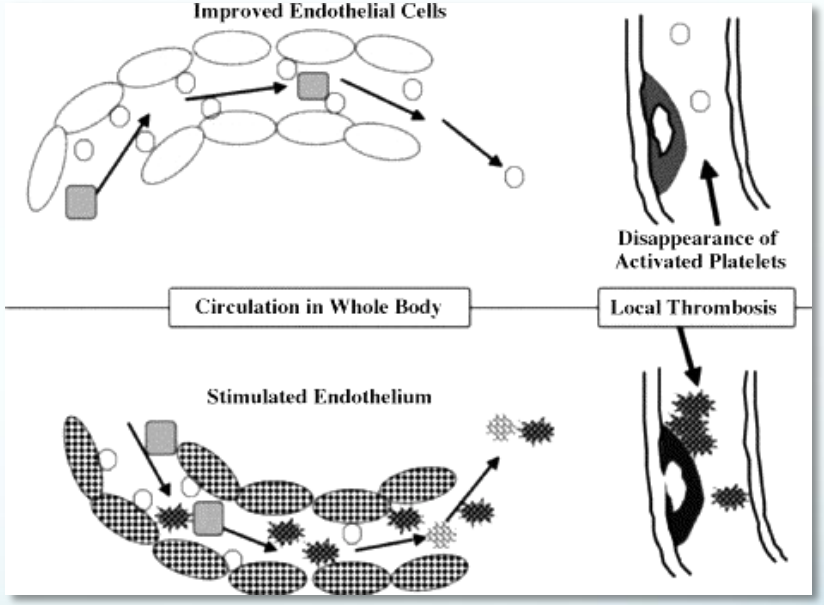
Impedance	Atherosclerotic lesion leading to pressure loss as blood crosses lesion (usually > 70% stenosis)
Disability	Can't walk further then 100 m
Handicap	Can no longer play golf because can't walk 100 m Decreased quality of life

- In these patients their handicap is what will determine the extent of their treatment
- All patients should have Risk Factor Management
- All patients should have Antiplatelet Therapy

Treatments for Intermittent Claudication

Pharmacological – Cilostazol

- Phosphodiesterase III inhibitor with vasodilator, metabolic and anti-platelet activity
- SE – headache, diarrhoea, palpitations
- Contraindications – CHF
- Improves walking distance by 50 – 70 ms



Progressive Exercise Programme

- **30 mins tri weekly increasing to 60 mins 4x /week**
- **This is a training programme**
  - Appropriate footwear (esp diabetics) and clothing
  - Keep record (should be supervised)
  - May be useful to take same route (treadmill is even better) as is easier to see improvement
  - Walk at normal walking pace as far as possible (need to have some feeling of discomfort)
  - Stop, rest and then walk on when able

Exercise programme

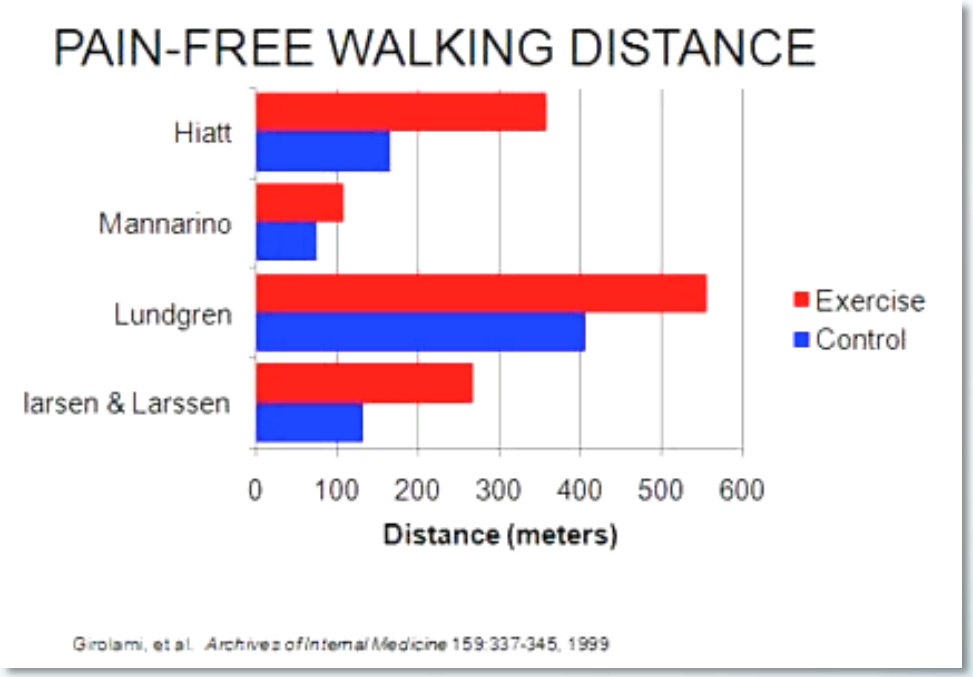
Treadmill is excellent

- Walk at speed that induces claudication at 3 – 5 mins
  - Average PAD speed is 2.4 – 3.2 kph
  - Normal walking speed is 5 kph
- Stop walking when pain is moderate
- Walk on when possible

- **At 3 months will have significant improvement in walking distance**

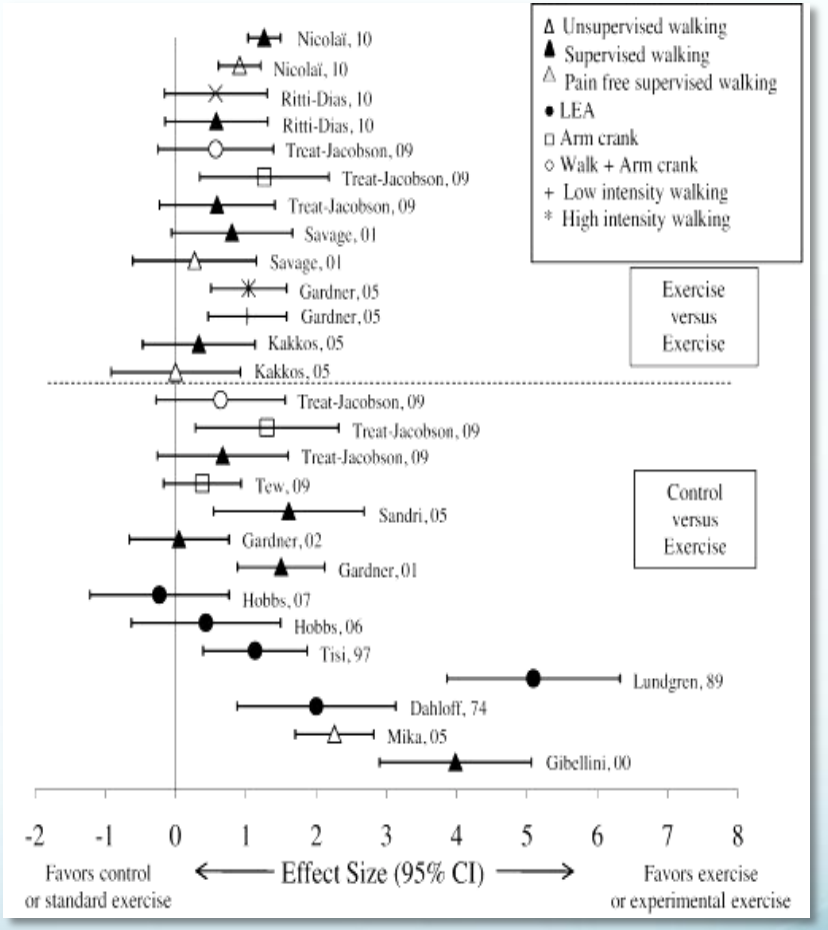
How does it work?

- **Formation of collaterals**
  - Probably not (no increased ABI)
- **Increased efficiency at cellular level of oxygen use (just like any training programme)**
- **Improved endothelial function**
- **Improved walking efficiency**



Is it successful?

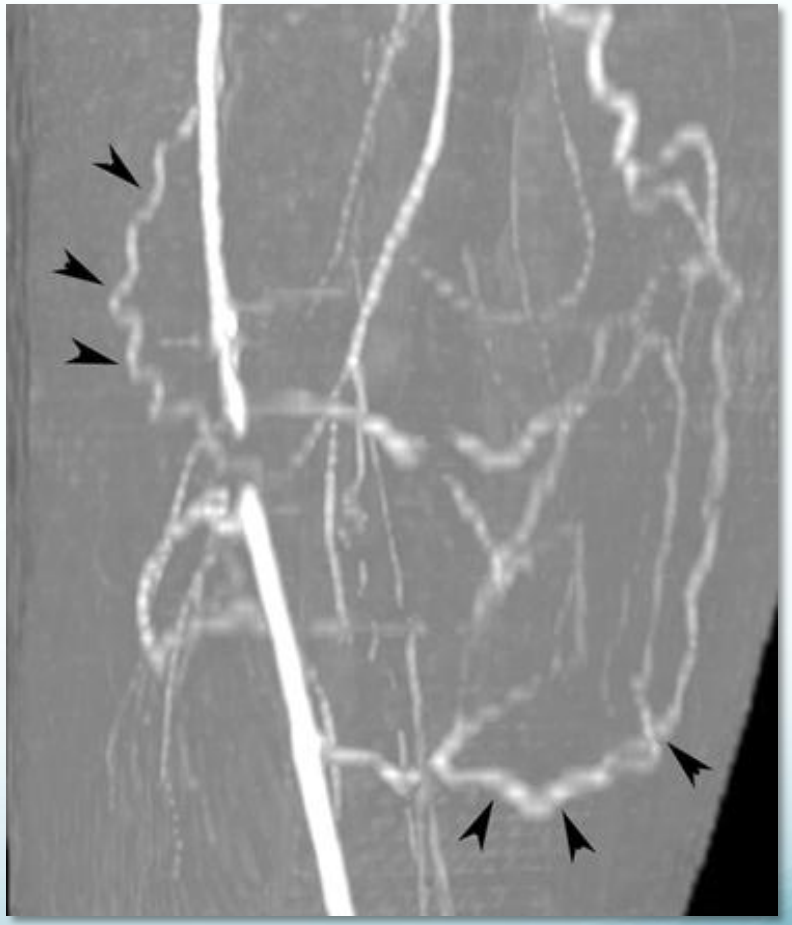
- In prospective studies of supervised exercise conducted for three months or longer there are clear increases in treadmill exercise performance and a lessening of claudication pain severity during exercise
- General unstructured recommendations to exercise by the physician do not result in any clinical benefit.

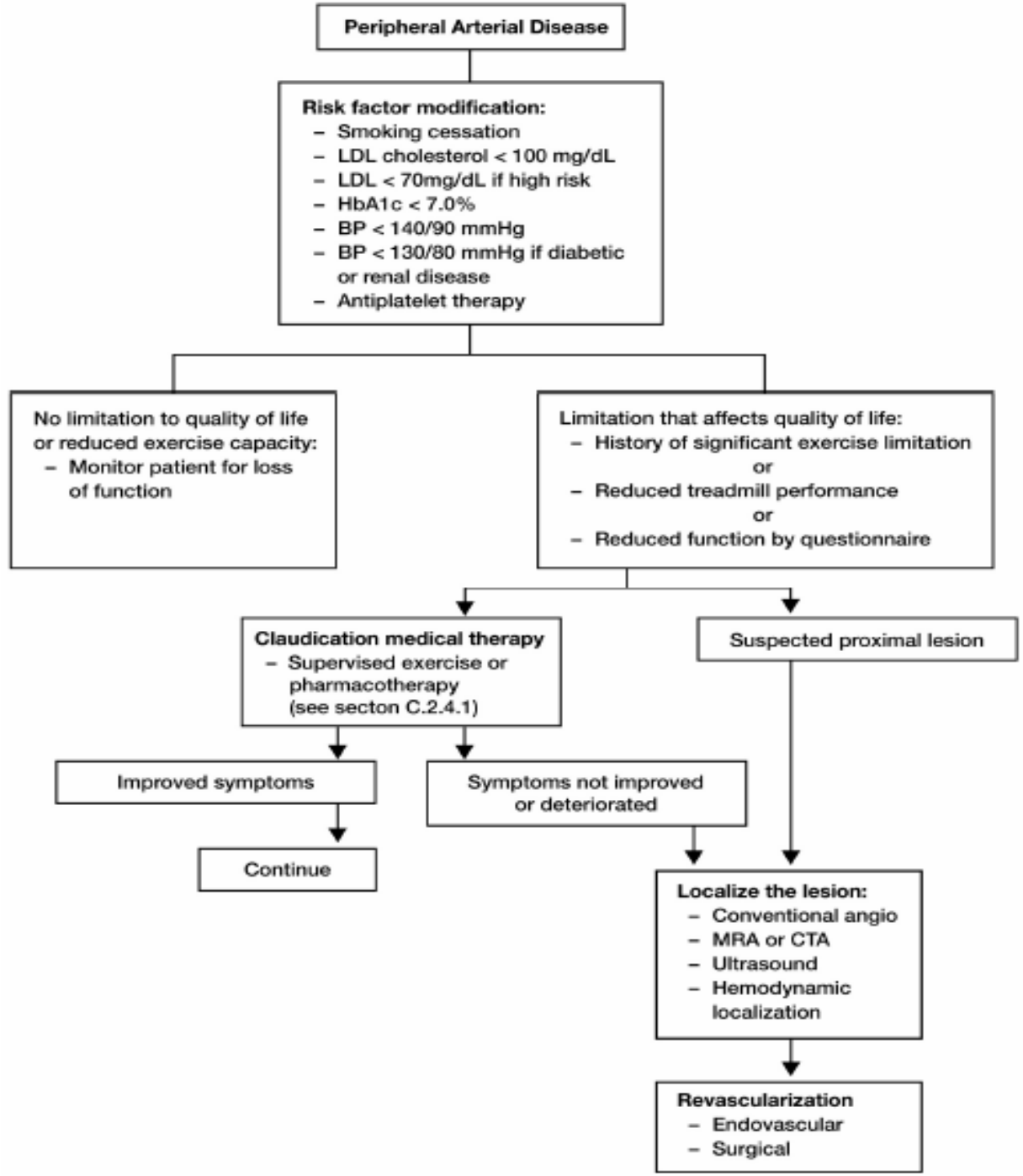


Problems

- Patient motivation
- Delayed results
- Should be supervised
- Co-morbidities

- More likely to be successful in single level limited disease




Peripheral Arterial Disease
Risk factor modification:
– Smoking cessation
– LDL cholesterol < 100 mg/dL
– LDL < 70mg/dL if high risk
– HbA1c < 7.0%
– BP < 140/90 mmHg
– BP < 130/80 mmHg if diabetic or renal disease
– Antiplatelet therapy
No limitation to quality of life or reduced exercise capacity:
– Monitor patient for loss of function
Limitation that affects quality of life:
– History of significant exercise limitation
or
– Reduced treadmill performance
or
– Reduced function by questionnaire
Claudication medical therapy
– Supervised exercise or pharmacotherapy (see secton C.2.4.1)
Suspected proximal lesion
Improved symptoms
Symptoms not improved or deteriorated
Continue
Localize the lesion:
– Conventional angio
– MRA or CTA
– Ultrasound
– Hemodynamic localization
Revascularization
– Endovascular
– Surgical

Role of GP in management of PVD

- Aggressive risk factor management and antiplatelet therapy
- Identify good prognosis claudication patient
- Supervise walking programme
- Identify critical ischaemia and refer for urgent revascularization
- Advice to diabetic patients about meticulous foot care

Which Claudicants do we revascularize?

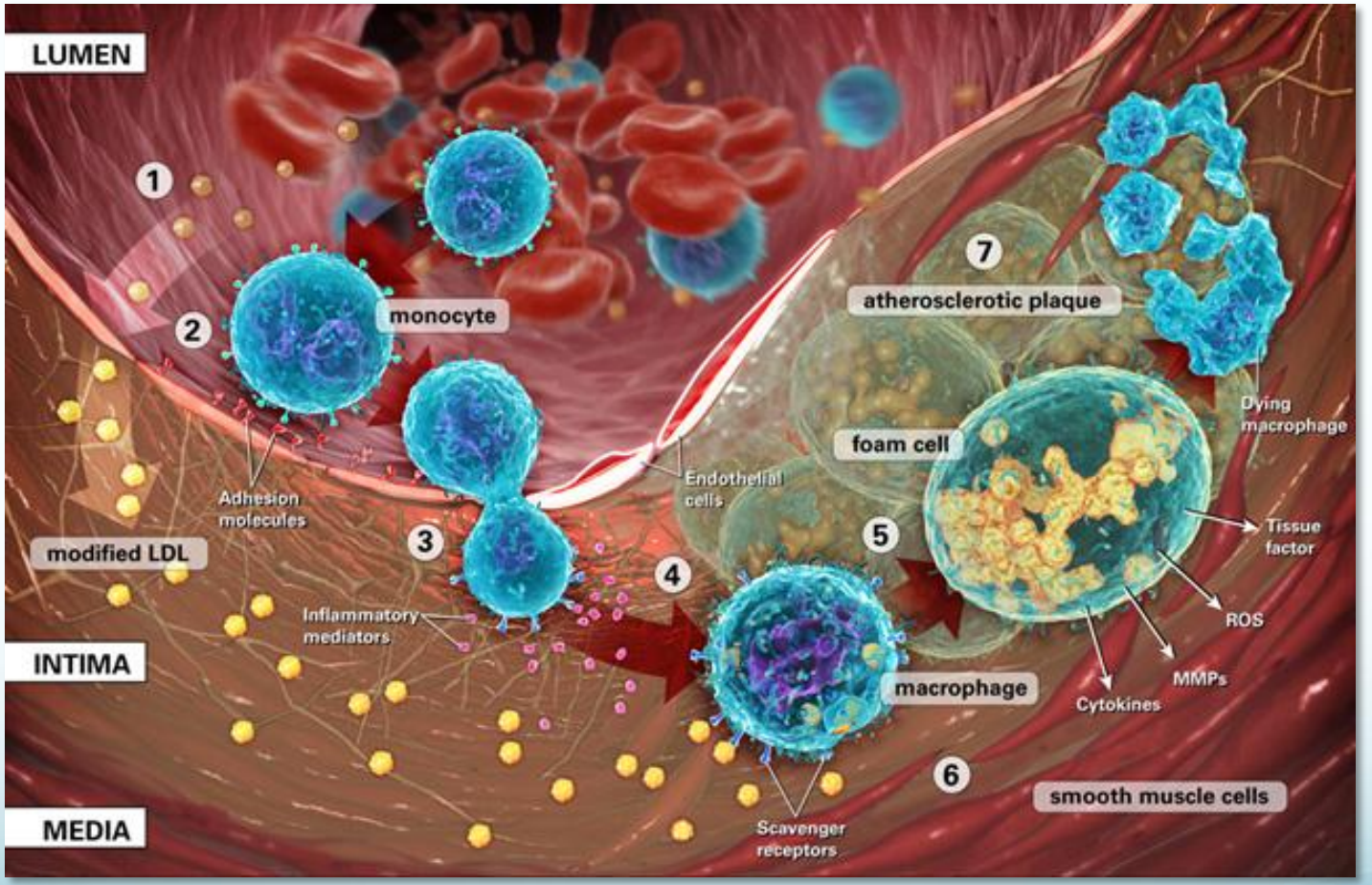
- **Aorto/iliac disease**
  - Larger aortic artery so better long term patency rates following endovascular intervention
- **Isolated Common Femoral Artery / Profunda Femoral Artery disease**
- **If quality of life affected or independence threatened**
- **Failed exercise programme**

Left External Iliac Stenosis

Differential Diagnosis
Classic Vasculogenic Claudication

- **Calf / Buttock / Thigh**
- **Cramping / aching discomfort brought on by exercise quickly relieved by stopping exercise**
- **Risk factor positive**
- **Pulse Exam: Femoral / Pop / DP / PT**
  - DP absent in 5- 10 % patients
  - If isolated iliac disease may have normal pedal pulses. Following exercise the patient often develops a bruit over the femoral artery and the pedal pulses become nonpalpable.

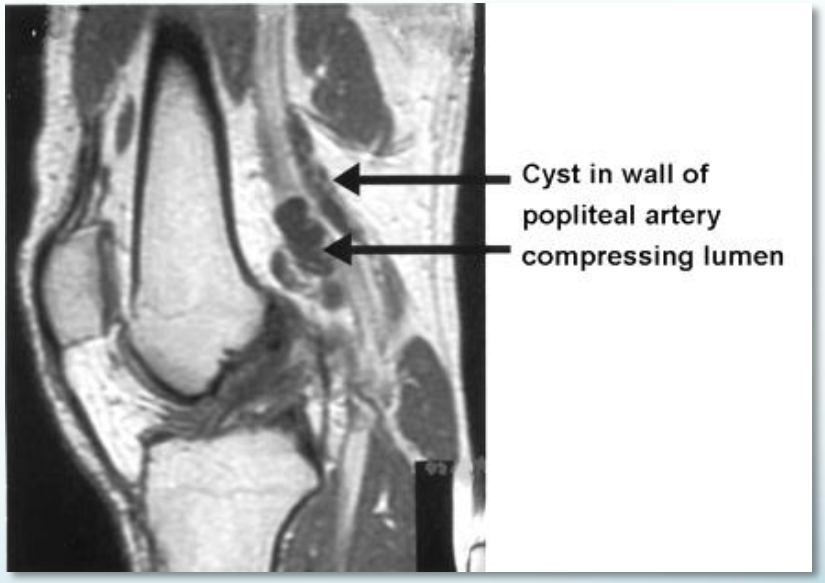
Classic Vasculogenic Claudication is caused by Atherosclerosis



Rare Causes of Claudication:
consider in younger patients without risk factors

- Popliteal aneurysm
- Popliteal entrapment
- Cystic Adventitial Disease of popliteal artery
- Endofibrosis – cyclists
- Radiation treatment

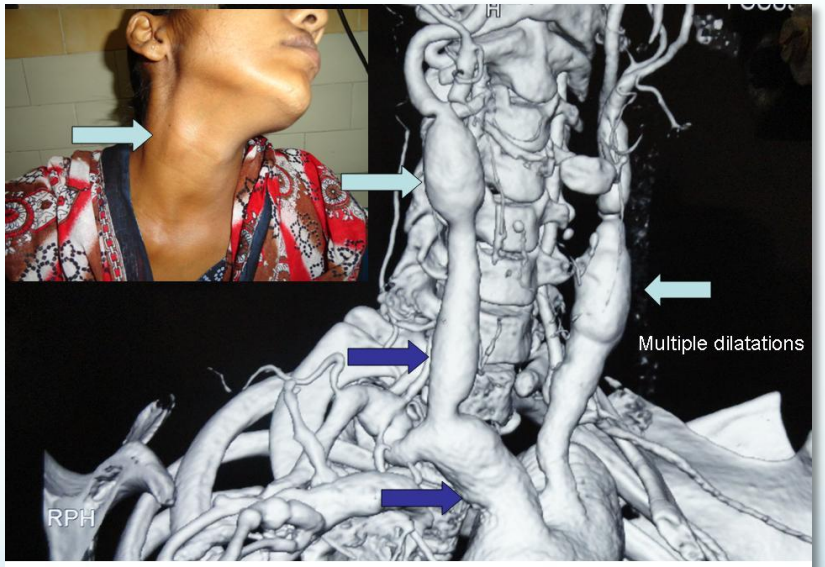
Cystic Adventitial Disease of Popliteal Artery



Rare Causes of Claudication

- Takayasu's disease – young asian females
- Fibrodysplasia – hypertension in young women
- Thromboangiitis obliterans – smoker
- Emboli
- Primary vascular tumours
- Pseudoxanthoma elasticum

Takayasu's Disease



Large Vessel Vasculitis – Multisegmental involvement

Differential Diagnosis

Venous Claudication

- Rare.
- History of Iliofemoral DVT
- Signs of venous hypertension
- Symptoms involve entire leg
- Subsides slowly. Improved by elevation of leg.

Differential Diagnosis

Nerve Root Compression

- Sharp lancinating pain induced by standing / sitting / walking
- Improved by change in position

Arthritis

- Variable degree of exercise brings on pain
- Relieved by not weight bearing

Differential Diagnosis

Spinal Stenosis

- Often bilateral buttock - posterior leg with associated numbness / weakness
- Relief of pain by lumbar spine flexion
- Often needs to lie down rather then just rest

Diabetic Neuropathy vs. Rest Pain

- In some patients diabetic neuropathy can result in a seriously disabling, severe pain in foot.
- Often symmetrical in both feet
- Associated with cutaneous hypersensitivity
- Failure to relieve the pain with dependency
- Decreased vibratory sensation

Other Topics

- Severe PVD in the bed bound / demented patient
- Statin intolerance
- Management post Endovascular Intervention