

The Vascular Center : A model to improve patient care

Taken into account multidisciplinary aspect of  
Vascular Compression

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# Compression Therapy is an efficient treatment for the management of Chronic Venous Insufficiency Story

- Jews , greeks and Romans used compression for the treatment of leg ulcers
- Hippocrate used canvas bandaging for the treatment of leg ulcers
- In 1885 Paul UNNA use the Unna Boot with zinc oxyde
- In 1910 Heinrich FISCHER use compression + walking for the treatment of deep venous thrombosis



# HAS 2010

- Compression is the basic treatment of chronic venous insufficiency
- Bandaging must be used for a short time
- Elastic stocking and panties are used for a long term treatment
- Patient education is necessary to wear compression therapy



## PHYSIOLOGICAL ASPECTS OF ELASTIC AND NON INTERNATIONAL CONSENSUS CONFERENCE PARIS 2002

- Application of pressure to produce a clinical effect :
  - Decrease deep veins diameter in lying position
  - Decrease superficial veins diameter
  - Increase blood flux

# PHYSIOLOGICAL ASPECTS OF ELASTIC AND NON ELASTIC COMPRESSION

INTERNATIONAL CONSENSUS CONFERENCE PARIS 2002

- Effects on sub-cutaneous tissues :
  - Reduce edema
  - Increase clearance of  $\text{Na}^{24}$

# Different devices for compression

- Bandaging
- Elastic stocking



# Different type of bandaging

- Permanent bandage
  - Adhésif permanent bandage
  - Cohesif permanent bandage
  - Unna Boot
- No permanent Bandage
  - Non elastic bandaging (coton)
  - Short stretch
  - Long stretch
- Multilayer bandage
- Multitype bandage



# Different type of hosery

- Elastic stocking
- Panty

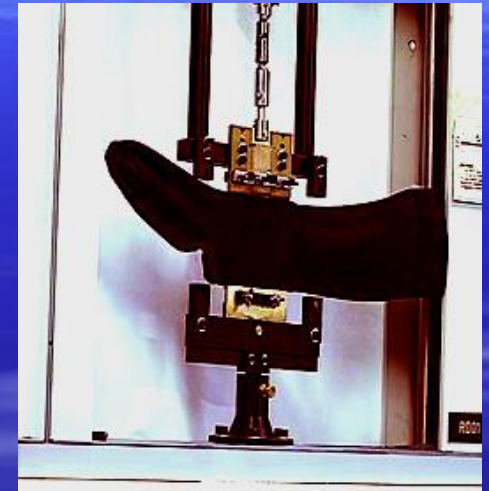




# Classes of compression

- Stretching > 140%

CLASSE	Pressure
1	10-15 mm Hg
2	15-20 mm Hg
3	20-36 mm Hg
4	Over 36 mm Hg



# Place of compression in a Vascular Center

- Chronic venous insufficiency
- Venous surgery
- Trophic troubles :
  - Leg ulcers
  - Lipodermatosclerosis
  - Varicose vein bleeding
- Superficial and deep venous thrombosis
- Lymphedema

# Indication I

## Chronic venous insufficiency

### CEAP Classification

- CEAP 0 S and 1 S : Elastic stocking Classe 1 or 2  
15-20 or 20-36 mmHg
- CEAP 2 S or 2 AS : Elastic stocking
- Classe 2 20-36 mmHg
  
- CEAP 3 S or 3 AS : Elastic stocking classe 3 20-36 mmHg



## Indication II

### Lipodermatosclerosis C4b

- Permanent non elastic compression + pad + walking
- Dressing once a week until softing skin
- Elastic stocking Classe 3 (20-36 mmHg ) on day to prevent recurrence
- Elastic stocking Classe 1 + Classe 2

# Indication III

## Leg ulcer C6

2006 HAS recommend to use multilayer compression for the treatment of venous leg ulcers ( $P > 30$  mmHg).

- Cochrane review Meta-analyse in 2009 give advantage for four layer bandaging



# Multitype bandaging

- Multilayer (4 layer) bandaging : Profore<sup>R</sup>
- Multitype bandaging (2 layer)
  - UrgoK<sub>2</sub><sup>R</sup>
  - Coban 2<sup>R</sup>



# Indication IV

## Venous surgery

- The beneficial effect of compression after surgery include prevention of SVT and DVT
- Reduce hemorrhagic complications
- Reduction in pain, ecchymoses, and hematomas
- Acceleration of the return to socio-professionl activities
- Experts recommend that bandages be used immediately after surgery : Low pressure(15mmHg) stocking during 1 week

# Indication V

## Superficial venous thrombosis

Preventive anticoagulation 4 to 6 weeks

+

Permanent non elastic compression bandaging night and day 10 days

- Thrombectomie D + 10 and elastic stocking to prevent recurrences





# Indication VI

## Deep venous thrombosis

### AFSSAPS and CHEST recommendations

- Anticoagulation par UFH ,LMWH or Fondaparinux + AVK day 1
- Rivaroxaban
- *AFSSAPS 2099* : Anticoagulation + elastic stocking 30-40 mmHg recommended as soon as possible (Grade A) with deambulation (grade B)
- *CHEST* : anticoagulation + elastic compression stocking (30-40 mmHg) 2 years Grade 1A + deambulation



# Indication VII

## Prevention DVT

- *AFFSAPS 2009* :
  - LMWH or Fondaparinux
  - + Elastic compression stocking (15-20 mmHg)
- International consensus conference 2004 :
  - Graduated compression stocking reduce the risk of DVT in moderate risk surgical interventions ( Grade A)

# Indication VIII

## Lymphoedema

- Compression increases the displacement of fluids in the limb toward the trunks via the lymphatic vessel
- Reduction of limb volume
- Reduction in the size of of the subcutaneous compartment
- During initial phase : non elastic bandaging with several layer
- During maintenance : elastic high level compression (36-40 mmHg)



# Conclusion

- Compression is an efficient treatment for chronic venous insufficiency , trophic troubles , leg ulcers and venous surgery
- The mechanical effet decrease the size of superfial veins and reduce edema with improvement of the micro capillary circulation
- Compression is the best treatment without side effects