Self management in compression therapy

Conservative therapy

Leg ulcers

Wound management

Compression therapy

Prof. Dr. med. Joachim Dissemond
Department of Dermatology, Venerology und Allergology
University of Essen, Germany
Who will care for us?

Average life expectancy of the Germans

<table>
<thead>
<tr>
<th>Year</th>
<th>M</th>
<th>F</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>75.5</td>
<td>78.5</td>
<td>154.0</td>
</tr>
<tr>
<td>1962</td>
<td>78.9</td>
<td>86.0</td>
<td>164.9</td>
</tr>
</tbody>
</table>

DO-It-YOURSELF (DIY)

The Scientist

The Do-It-Yourself Revolution
The practice of DIY biology and medicine is on the rise

Air Force Base in Texas, still concerned that the poinst of telecommunication technologies in research medical care was limited by times, provided circuit diagrams and parts lists to enable readers to build their own device or experiment devices supplied available at their local Shack (see Fig. 1). In 2010, commercial systems that use $1,900 per set were ready for use.
DO-It-YOURSELF (DIY) Devices

Self management

- Qualified staff …
  - … is missing
  - … causes high costs

- Self management …
  - … saves resources/money
  - … saves time
  - … is psychologically important
  - … improves compliance/adherence
Problems for self management

- Arthrosis/arthritis
- Obesity
- Dementia
- Lack of strength
- Lack of comfort
- Lack of education
- ...

How it should be
Monocentric, prospective clinical study

Inclusion: chronic venous leg ulcers

100 successive patients

Size and number of bandages were freely selectable

Pressure measurement: KIKUHIME

Stoffels-Weindorf et al. Hautarzt in press.
Sex: 57 women, 43 men

Age: ø 70.3 years

Ulcer size: ø 12.7 cm²

- 43 were not able to do applicate any bandages
- Pressure values: 6 - 93 mmHg

94% ineffective/incorrect therapy
Multi-layer bandages

3 different compression systems
- Short-stretch bandages (Pütter, Hartmann)
- Multi-layer bandages (UrgoK2, Urgo)
- Multi-layer bandages (ProGuide, S&N)

3 different groups of probands
- Laity
- Nurses
- Physicians

Study II Essen - Procedure

Study II Essen I - Results

Adaptive bandages

Adaptive bandages

31 patients with venous insufficiency

13 men, 18 women

40-81 years (Ø 65.5)

Short education

Patients should apply adaptive bandages

Self-management, no adjuvant devices

Mostl and Partsch. Vasomed 2017
Adaptive bandages - results


Ulcer stockings

<table>
<thead>
<tr>
<th></th>
<th>day1</th>
<th>day2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>41.00</td>
<td>40.00</td>
</tr>
<tr>
<td>25% Percentile</td>
<td>42.00</td>
<td>44.00</td>
</tr>
<tr>
<td>Median</td>
<td>44.50</td>
<td>46.00</td>
</tr>
<tr>
<td>75% Percentile</td>
<td>48.00</td>
<td>48.25</td>
</tr>
<tr>
<td>Maximum</td>
<td>57.00</td>
<td>57.00</td>
</tr>
<tr>
<td>Mean</td>
<td>45.47</td>
<td>46.87</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>3.857</td>
<td>4.281</td>
</tr>
</tbody>
</table>
Stockings

- 40 patients with venous insufficiency (CEAP: C4-C6)
- Aged >65 years
- Compression therapy with stockings
  - 40 mmHg (CS40), with open and closed toes
  - 20 + 20 mmHg (CS20+20), with open and closed toes
- Test with 8 different donning devices

Donning devices - results

Results

- without donning device → 60% (CS40), 70% (CS20+20)
- with donning device → 88% (CS40), 90% (CS20+20)

- Donning devices significantly improve the ability of elderly patients with CVI to do on compression stockings

- Differences in user-friendliness among the devices
**Donning devices**

A

<table>
<thead>
<tr>
<th>Device</th>
<th>[ % ] 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>No donning device</td>
<td>80</td>
</tr>
<tr>
<td>(A) Easy Slide</td>
<td>40 open p=0.001*</td>
</tr>
<tr>
<td>(B) Veno Glider</td>
<td>40 closed p=0.23</td>
</tr>
<tr>
<td>(C) Foot Slip</td>
<td>40 open p=0.002*</td>
</tr>
<tr>
<td>(D) Easy Slide Caran</td>
<td>40 closed p=0.58</td>
</tr>
<tr>
<td>(E) Venolet Gilder</td>
<td>40 open p=0.63</td>
</tr>
<tr>
<td>(F) Froch, let without handle</td>
<td>40 closed p=1.0</td>
</tr>
<tr>
<td>(G) Socketlet with handle</td>
<td>40 open</td>
</tr>
<tr>
<td>(H) Butler</td>
<td>40 closed</td>
</tr>
</tbody>
</table>


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**Intermittent pneumatic compression**

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**Compression therapy**

- (Short-strech)Bandages
- Multi-layer bandages
- Adaptive compression bandages
- Ulcer stockings
- (Relapse)Prophylaxis: Stockings/MCS
- Intermittent pneumatic compression

For almost every patient there exist a „appropriate“ system

**Self management**

- (Short-strech)Bandages
- Multi-layer bandages
- Adaptive compression bandages
- Ulcer stockings
- (Relapse)Prophylaxis: Stockings
- Intermittent pneumatic compression

plus education and - if necessary - donning devices
Self management will play an increasingly important role in the medicine of the future.

Education and verification of systems improve the therapeutic outcome.

Compression systems must be adapted to the patient's needs and abilities.

If possible → use self management systems (do-it-yourself devices) for compression therapy.

Thank you for your kind attention!