

*Version 2023*

## **Offloading**

Key issues and actions in initial management of acute diabetic foot syndrome and foot ulcer (DFS/DFU)



## 1. Basic premises – All levels of care

- Choose offloading strategy in consultation with patient considering their individual situation to achieve highest possible treatment adherence  
→ e.g. age, stability, balance, vision, dexterity, housing situation, social support, professional activity, mobility
- Choice of the appropriate aid/appliance directly depends on the location of DFU (diabetic foot ulcer) and needs to be evaluated regarding effects on contralateral side (e.g. height compensation)
- Offloading is usually carried out with an interim solution (cast, orthosis, therapeutic footwear) as an immediate first aid action, as long as dressing material is applied in large quantities and/or the foot shape is not stable (e.g. swelling)
- If non-removable devices are used, thrombosis prophylaxis is recommended, taking possible contraindications into account
- As an essential part of secondary prevention, orthopedic shoes are usually provided only after a DFU/Charcot foot has healed.
- The type of device chosen depends directly on the individual's activity level (indoor/outdoor), the location of the previous ulcer/problem as well as insurance coverage considerations

\* for definition refer to [Infection guidance](#)


° for definition refer to [PAD guidance](#)

\*\* consider this therapeutic option – if person is potential patient, refer to Level 2/3 care for implementation

\*\*\* if no or not more than mild infection → for definition refer to [Infection guidance](#)  
without critical ischemia → for definition refer to [PAD guidance](#) or severe deformity

**Referral** to Level 2/3 if no improvement within 4 weeks.

## 2. A) Orthopaedic aids and appliances to offload DFU

Issue	Action	Competency & responsibility
<b>Plantar foot ulcers +/- deformity without uncontrolled infection* or critical ischemia°</b> <i>(excl. ulcers of tip of toes or heel ulcers)</i>	<b>A) Gold standard:</b> total contact cast (TCC), non-removable prefabricated ankle foot orthosis (knee-high) with individualized foot-orthosis interface, if indicated	Level 1** Level 2/3
<div style="text-align: center;">  <p><b>Contraindications and CAVEATS</b> <b>Do not use non-removable devices</b> for heavily exudating ulcers and uncontrolled infections requiring frequent care or inspection and in critically ischaemic limbs</p> </div>		
<b>Alternatives if A) not possible</b> <i>(e.g. patient refuses non-removable device, severe deformity, heavily exudating/uncontrolled infected wound)</i>	<p><b>B) 2<sup>nd</sup> Choice:</b> removable total contact cast or prefabricated ankle foot orthosis (knee-high) with individualized foot-orthosis interface as indicated</p> <p><b>C) 3<sup>rd</sup> Choice:</b> targeted ulcer offloading with interim solution: therapeutic footwear with targeted offloading of problem areas, using prefabricated products +/- individualized modifications as indicated</p> <p><b>Avoid so-called «Forefoot-Offloading Shoes»</b> → risk of mid-foot fractures, difficult height compensation, balance problems</p>	Level 1*** Level 2/3
<b>Supplementary options</b>	<p><b>D)</b> Consider felted foam padded dressings</p> <p><b>E)</b> Consider crutches (ensuring correct usage), wheelchair, etc.</p>	Level 1*** Level 2/3

## 2. A) Orthopaedic aids and appliances to offload DFU

Issue	Action	Competency & responsibility
<b>Heel ulcers</b>	<p><b>1<sup>st</sup> Choice:</b> Heel relief orthosis</p> <p><b>2<sup>nd</sup> Choice:</b> Interim solution                      → therapeutic shoe with targeted offloading of problem areas, using prefabricated products                      +/- individualized modifications as indicated</p>	<p>Level 1*</p> <p>Level 2/3</p>
<b>Tip of toe &amp; interdigital ulcers</b>	<p>Consider</p> <ul style="list-style-type: none"> <li>• Shoe modifications (e.g. shoe broadening, individualized relieving insoles, widening of toe box)</li> <li>• Temporary solutions (e.g. therapeutic shoe with targeted offloading of problem areas, using prefabricated products +/- individualized modifications as indicated)</li> <li>• Orthoses (custom made silicon orthoses as first aid measure depending on type and location of lesion  <b>CAVE :</b> prefabricated silicone orthoses → danger of strangulation, slipping)</li> </ul>	<p>Level 1*</p> <p>Level 2/3</p>
<b>Lesions at atypical locations</b> <i>(non pressurized locations, e.g. dorsal interphalangeal joints, phalanges, dorsum pedis, ankle)</i>	Consider felted foam padded dressings	<p>Level 1*</p> <p>Level 2/3</p>

\* if no or only mild infection (for definition refer to [Infection guidance](#)) without ischemia (for definition refer to [PAD guidance](#)) or severe deformity  
**Referral** to level 2/3 if no improvement within 4 weeks.

## 2. B) Surgical interventions to offload foot ulcers/prevent recurrence

Issue	Action	Competency & responsibility
<b>Indications</b>	<ul style="list-style-type: none"> <li>• Non-treatable deformity («unshoe-able, uncast-able, unbrace-able»)</li> <li>• Unmanageable infection* of the adjacent prominent bone</li> <li>• Lack of healing under maximal conservative management</li> <li>• Recurrent ulcer despite optimal orthopedic shoe or orthosis provision</li> </ul>	<p>Level 2/3</p>




**Contraindications and CAVEATS**

**Prior to surgical intervention, relevant ischemia must be ruled out and the infection treated in according to the indications.**

\* for definition refer to [Infection guidance](#)

## 2. B) Surgical interventions to offload foot ulcers

Issue	Action	Competency & responsibility
<b>Possible measures</b>	<ul style="list-style-type: none"> <li>• Tendon interventions (e.g. digital flexor tenotomy [tip of toe ulcers], Achilles tendon-lengthening [plantar forefoot ulcer], tendon transfers, joint capsule release)</li> <li>• Osteotomies (e.g. dorsiflexion-osteotomy of metatarsal bones, metatarsal head resection in plantar forefoot ulcers)</li> <li>• «Exostosectomy» (e.g. removal of exostoses in rocker bottom deformity)</li> <li>• Correcting arthrodeses</li> <li>• Amputation (as a last resort)</li> </ul>	Level 2/3
 <b>Contraindications and CAVEATS</b> <b>Prior to surgical intervention, relevant ischemia must be ruled out and the infection treated in according to the indications.</b>		

## 3. Orthopaedic shoe supply to prevent ulcer recurrence

Issue	Action	Competency & responsibility
<b>Adequate foot wear</b>	<p>Prescription of orthopedic footwear with documented offloading effect (i.e. -30% compared to ready-made shoes) is usually recommended:</p> <ul style="list-style-type: none"> <li>• <b>No significant deformity</b> → orthopedic footwear with customized, pressure-relieving, whole length insole and individualized modifications as indicated</li> <li>• <b>Severe deformity</b> → individualized, custom made orthopedic shoes</li> <li>• <b>Amputations</b> consider forefoot prosthesis with individualized amputation stump contour bedding, pretibial supporting tongue in case of Lisfranc/Chopart amputation</li> </ul>	Level 1* Level 2/3**
<b>Quality control</b>	<p>Verify proper fit, patient acceptance and satisfaction after adjustment</p> <p>→ All levels in cooperation with the orthopedic shoe maker</p>	
<b>Follow up care</b>	<p>The constant and long-term motivation of the patient, as well as reviewing the compliance and footwear inspection are essential.</p> <p>→ All levels : at least 1x/year</p> <p>→ Orthopedic shoemaker : every 6–12 months</p>	

\* after successful healing of any ulcer without amputation or severe deformity/charcot foot

\*\* severe deformity / Charcot foot

### **Subgroup neuro-osteopathic foot syndromes**

Marc Egli, chair [8] – Thomas Böni [13] – Sandro Fraternali [14] – Mario Malgaroli [2] – Christina Ruob [3] – Katrin Schimke [8] – Philippe Stirnimann [14]

### **Working Group diabetic foot syndrome**

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### **Organizations**

- [1] Swiss Family and Child Doctors
- [2] Swiss Organisation of Podiatry
- [3] pharmaSuisse
- [4] QualiCCare
- [5] Swiss Society of Vascular Surgery
- [6] Swiss Association for Woundcare
- [7] Swiss Society of Angiology
- [8] Swiss Society of Endocrinology and Diabetology
- [9] Swiss Society of Infectiology
- [10] Swiss Society of Vascular and Interventional Radiology
- [11] Swiss Interest Group of Diabetes Nurses
- [12] Swica Insurances
- [13] Swiss orthopaedics
- [14] Foot and Shoe Association



**All QualiCCare member organizations are listed under:**

<https://qualiccare.ch/mitgliedschaft/mitglieder>



**QualiCCare association**

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## **References/Available evidence**

### **Offloading with aids & appliances**

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### **Surgical interventions**

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