

# Definitions and criteria

Several disciplines are involved in the management of diabetic foot disease and having a common vocabulary is essential for clear communication. Thus, based on a review of the literature, the IWGDF has developed a set of definitions for our documents and that we suggest may be used in daily practice.

## General

Foot:	The structure below the malleoli.
Diabetic foot:	Infection, ulceration or destruction of tissues of the foot associated with neuropathy and/or peripheral artery disease in the lower extremity of people with diabetes.
Foot lesion:	Any abnormality associated with damage to the skin, nails or deep tissues of the foot.
Foot ulcer:	Full thickness lesion of the skin of the foot.
A healed ulcer:	Intact skin, meaning complete epithelization of a previously ulcerated site.
Diabetic neuropathy:	The presence of symptoms or signs of peripheral nerve dysfunction in people with diabetes, after exclusion of other causes.
Loss of protective sensation:	Inability to sense light pressure, e.g. as applied with a 10 gram Semmes-Weinstein monofilament.
Neuro-ischemic:	The combination of diabetic neuropathy and peripheral artery disease.

## Vascular

Peripheral artery disease (PAD):	Obstructive atherosclerotic vascular disease with clinical symptoms, signs or abnormalities on non-invasive vascular assessment, resulting in disturbed or impaired circulation in one or more extremities.
Ischemia:	Signs or symptoms of reduced arterial supply, verified by clinical examination, with vascular testing if indicated.
Critical limb ischemia:	Persistent rest pain requiring regular analgesia for more than 2 weeks; ulceration or gangrene attributable to objectively proven peripheral artery disease.
Claudication:	Pain in a foot, thigh or calf that occurs during walking and is relieved by rest, due to peripheral artery disease.



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<p><b>Vascular</b></p>	<p>Rest pain:  Angioplasty:</p>	<p>Severe and persistent pain localized to the foot due to peripheral artery disease, that can, at least partially, be relieved by putting the foot in a dependent position.  The technique to re-establish the patency of an artery by percutaneous transluminal or subintimal procedures.</p>
<p><b>Ulcer</b></p>	<p>Superficial ulcer:  Deep ulcer:</p>	<p>Full thickness lesion of the skin not penetrating any structure deeper than the dermis.  Full thickness lesion of the skin penetrating below the dermis to subcutaneous structures, such as fascia, muscle, tendon or bone.</p>
<p><b>Infection</b></p>	<p>Infection:  Superficial infection:  Deep infection:  Cellulitis:  Osteitis: Osteomyelitis:</p>	<p>A pathological state caused by invasion and multiplication of microorganisms in tissues accompanied by tissue destruction or a host inflammatory response.  An infection of the skin not extending to any structure below the dermis.  An infection that extends deeper than the dermis, that may include evidence of abscess, septic arthritis, osteomyelitis, septic tenosynovitis or necrotizing fasciitis.  An infection of the skin manifested by one or more of the following signs and symptoms: induration, erythema, warmth, pain or tenderness.  Infection of the bone cortex without involvement of bone marrow. Infection of the bone, with involvement of the bone marrow.</p>
<p><b>Amputation</b></p>	<p>Amputation: Disarticulation: Major amputation/ disarticulation:</p>	<p>Resection of a segment of a limb through a bone. Resection of a limb through a joint. Any resection proximal of the ankle.</p>



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## Amputation

Major amputation levels:

TF. transfemoral amputation (frequently referred to as 'above knee amputation'),  
KD. knee disarticulation (frequently referred to as 'through knee amputation'),  
TT. transtibial amputation (frequently referred to as 'below knee amputation').

Minor amputation/ disarticulation:

Any resection through or distal of the articulation of the ankle.

Minor amputation levels:

1. toe amputation
2. toe disarticulation
3. distal transmetatarsal amputation
4. proximal transmetatarsal amputation
5. tarso metatarsal disarticulation
6. midtarsal metatarsal disarticulation
7. ankle disarticulation

Primary amputation/ disarticulation:

The first resection in a sequence until a final outcome (healing or death).

First event amputation:

The primary resection within a certain period, irrespective of side and level of amputation.

Re-amputation/ disarticulation:

Repeated resection in the same limb to correct an unhealed previous resection.

New amputation/ disarticulation:

Resection in a limb with a healed previous resection.

Bilateral amputation/ disarticulation:

Simultaneous resection of both lower limbs, irrespective of level.

Second leg amputation/ disarticulation:

Resection in a patient who had a previous resection of the contralateral limb.

## Classifications

IWGDF Risk classification:

- 0 - no peripheral neuropathy
- 1 - peripheral neuropathy
- 2 - peripheral neuropathy with peripheral arterial disease and/or a foot deformity
- 3 - peripheral neuropathy and a history of foot ulcer or lower-extremity amputation



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## Classifications

IWGDF Infection classification:

### 1 - **Uninfected**

No systemic or local symptoms or signs of infection.

### 2 - **Mild infection**

At least two of the following items are present: local swelling or induration; erythema > 0.5 cm around the wound; local tenderness or pain; local warmth; purulent discharge.

Other causes of an inflammatory response of the skin should be excluded (e.g., trauma, gout, acute Charcot neuro-osteoarthropathy, fracture, thrombosis, venous stasis).

Any erythema present extends < 2 cm\* around the wound.

No systemic signs or symptoms of infection (see below).

### 3 - **Moderate infection**

Infection involving structures deeper than skin and subcutaneous tissues (e.g., bone, joint, tendon, muscle) or erythema extending >2 cm\* from the wound margin.

No systemic signs or symptoms of infection (see below).

### 4 - **Severe infection**

Any foot infection with the systemic inflammatory response syndrome (SIRS), as manifested by  $\geq 2$  of the following: temperature >38 or <36C; Heart rate >90 beats/minute; • Respiratory rate >20 breaths/minute or PaCO<sub>2</sub> < 4.3 kPa (32 mmHg); White blood cell count >12,000 or <4,000/mm<sup>3</sup>, or >10% immature (band) forms.



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PEDIS:

The IWGDF diabetic foot ulcer classification system for research purposes, with the following categories: Perfusion, Extent/size, Depth/tissue loss, Infection, Sensation. For each category a grading system is provided.

## Miscellaneous

Necrosis:  
Gangrene:

Devitalized (dead) tissue.  
Death of tissue in all tissue layers (cutis, tendon, fascia, muscle) due to insufficient blood supply. Without infection this generally results in dry and black tissue, frequently called dry gangrene; when the tissue is infected, with accompanying putrefaction and surround cellulitis, it is often called wet gangrene.

Edema of the lower extremity:  
Erythema:

Swelling of the leg or foot caused by increased interstitial fluid.  
A pink or red discoloration that blanches to some degree on compression.

Callus:  
Debridement:  
Foot deformity:

Hyperkeratosis caused by excessive mechanical loading.  
Removal of callus or dead tissue.  
Structural abnormalities of the foot such as hammer toes, mallet toes, claw-toes, hallux valgus, prominent metatarsal heads, residuals of neuro-osteoarthopathy, amputations or other foot surgery.

Neuro-osteoarthopathy (Charcot-foot):

Non-infectious destruction of bone and joint associated with neuropathy, in the acute phase associated with signs of inflammation.

Total contact cast:

A well-moulded, minimally padded, below-the-knee non-removable fibreglass or plaster cast that maintains total contact with the entire plantar surface and lower leg. The cast is often worn with an attachable sole to facilitate walking.

Non removable cast walker:

Same as removable cast boot/walker but then with a layer(s) of fibreglass cast material circumferentially wrapped around it rendering it irremovable (also known as “instant total contact cast”).



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## Miscellaneous

High risk:

Presence of characteristics indicating a greatly increased probability of developing a specific condition or an event.

Low risk:

A low probability of developing a specific condition or event.

