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Diabetic Foot

What is diabetes?

Diabetes [<https://medlineplus.gov/diabetes.html>] is a disease in which your blood glucose, or **blood sugar** [<https://medlineplus.gov/bloodglucose.html>] , levels are too high. Glucose comes from foods you eat. The cells of your body need glucose for energy. A hormone called insulin helps the glucose get into your cells.

With **type 1 diabetes** [<https://medlineplus.gov/diabetestype1.html>] , your body doesn't make insulin. With **type 2 diabetes** [<https://medlineplus.gov/diabetestype2.html>] , your body doesn't make or use insulin well. Without enough insulin, glucose can't get into your cells as quickly as usual. The glucose builds up in your blood and causes high blood sugar levels.

How does diabetes cause foot problems?

Foot problems are common in people with diabetes. They can happen over time when high blood sugar damages the nerves and blood vessels in the feet. The nerve damage, called **diabetic neuropathy** [<https://medlineplus.gov/diabeticnerveproblems.html>] , can cause numbness, tingling, pain, or a loss of feeling in your feet.

If you can't feel pain, you may not know when you have a cut, **blister** [<https://medlineplus.gov/blisters.html>] , or **ulcer** (open sore) on your foot. A wound like that could get infected. The infection may not heal well because the damaged blood vessels can cause poor blood flow in your feet.

Having an infection and poor blood flow can lead to **gangrene** [<https://medlineplus.gov/gangrene.html>] . That means the muscle, skin, and other tissues start to die. If you have gangrene or a foot ulcer that does not get better with treatment, you may need an **amputation** [<https://medlineplus.gov/limbloss.html>] . This is a surgery to cut off your damaged toe, foot, or part of your leg. It may prevent a bad infection from spreading and could save your life.

But there's a lot you can do to prevent a foot wound from becoming a major health problem.

How can I protect my feet if I have diabetes?

The best way to protect your feet is by controlling your blood sugar levels every day. This will help keep nerve and blood vessel damage from getting worse. The next step is to keep the skin of your feet healthy.

Good foot care for people with diabetes includes:

- **Checking your feet every day.** Look for cuts, redness, and other changes in the skin and toenails, including warts or other spots that your shoes could rub. Make sure to check the bottoms of your feet too.
- **Washing your feet every day.** Use warm water and soap. Don't soak your feet because that can dry out your skin. After you dry your feet, you can use talcum powder or cornstarch between your toes. They soak up moisture that can cause infection. If you use lotion, don't apply it between your toes.
- **Asking your doctor how to remove corns and calluses** [<https://medlineplus.gov/cornsandcalluses.html>] **safely.** Thick skin on your feet can rub and lead to sores. But removing it the wrong way could damage your skin. So you don't want to cut the skin or use medicated pads or liquid removers.
- **Trimming your toenails straight across with a clipper.** If it's hard for you to trim your own toenails, or if they're thick or curve into the skin, have a podiatrist (foot doctor) do it for you.

- **Always wearing well-fitting shoes and socks or slippers to protect your feet when walking.** You don't want to walk barefoot, even indoors. And be sure your shoes are smooth inside. A seam or pebble could rub your skin raw.
- **Protecting your feet from heat and cold.** Use sunscreen on exposed skin and don't walk barefoot at the beach. In cold weather, wear warm socks instead of warming your feet near a heater or fireplace.
- **Keeping the blood flowing in your feet.** Put your feet up when you're sitting. Wiggle your toes and circle your feet throughout the day. Don't wear tight socks. And get plenty of activity that's not too hard on the feet, such as walking.
- **Getting your feet checked at your health care visits.** Even if you haven't noticed a problem, it's good to have your health care provider look at your feet.

When should I see my health care provider about diabetic foot problems?


Serious foot problems can develop quickly. See your health care provider right away if you notice:

- A cut, blister, or bruise on your feet that doesn't start to heal in a few days
- Red, warm, or painful skin on your feet
- A callus with dried blood inside
- A foot infection that becomes black and smells bad that could be gangrene


Remember, controlling your blood sugar and caring for your feet every day are the best steps you can take to prevent serious diabetic foot problems.

NIH: National Institute of Diabetes and Digestive and Kidney Diseases

Start Here

- **Diabetes and Foot Problems** [<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/foot-problems>]  **Easy-to-Read** (National Institute of Diabetes and Digestive and Kidney Diseases)
Also in Spanish [<https://www.niddk.nih.gov/health-information/informacion-de-la-salud/diabetes/informacion-general/prevenir-problemas/pies-piel>]
- **Foot Complications** [<https://diabetes.org/about-diabetes/complications/foot-complications>] (American Diabetes Association)
- **Your Feet and Diabetes** [<https://www.cdc.gov/diabetes/diabetes-complications/diabetes-and-your-feet.html>]
(Centers for Disease Control and Prevention)


Learn More

- **Focus on Your Feet! Take Steps to Protect Foot Health** [<https://newsinhealth.nih.gov/2023/03/focus-your-feet>]
 (National Institutes of Health)
Also in Spanish [<https://salud.nih.gov/recursos-de-salud/nih-noticias-de-salud/concentrese-en-sus-pies>]

Living With

- **Amputation and Diabetes: How to Protect Your Feet** [<https://www.mayoclinic.org/diseases-conditions/diabetes/in-depth/amputation-and-diabetes/ART-20048262?p=1>] (Mayo Foundation for Medical Education and Research)
Also in Spanish [<https://www.mayoclinic.org/es/diseases-conditions/diabetes/in-depth/amputation-and-diabetes/art-20048262?p=1>]
- **Diabetes Foot Problems: When to See Your Doctor** [<https://www.cdc.gov/diabetes/communication-resources/diabetes-foot-problems-when-to-see-your-doctor.html>] **Infographic** (Centers for Disease Control and Prevention)
- **Diabetic Complications and Amputation Prevention** [<https://www.foothealthfacts.org/conditions/diabetic-complications-and-amputation-prevention>] (American College of Foot and Ankle Surgeons)
Also in Spanish [<https://www.foothealthfacts.org/conditions/diabetic-complications-and-amputation-prevention?lang=es-MX>]
- **Diabetic Foot and Risk** [<https://www.footcaremd.org/foot-and-ankle-conditions/the-diabetic-foot/the-diabetic-foot-and-risk>]
(American Orthopaedic Foot and Ankle Society)
- **Steps to Prevent or Delay Nerve Damage** [<https://diabetes.org/about-diabetes/complications/neuropathy/steps-prevent-or-delay-nerve-damage>] (American Diabetes Association)


Related Issues

- Charcot Foot [<https://www.foothealthfacts.org/conditions/charcot-foot>] (American College of Foot and Ankle Surgeons)
Also in Spanish [<https://www.foothealthfacts.org/conditions/charcot-foot?lang=es-MX>]
- Cracked Heels [<https://www.foothealthfacts.org/conditions/cracked-heels>] (American College of Foot and Ankle Surgeons)
Also in Spanish [<https://www.foothealthfacts.org/conditions/cracked-heels?lang=es-MX>]
- Nerve Damage (Diabetic Neuropathies) [<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/nerve-damage-diabetic-neuropathies>]  (National Institute of Diabetes and Digestive and Kidney Diseases)
Also in Spanish [<https://www.niddk.nih.gov/health-information/informacion-de-la-salud/diabetes/informacion-general/prevenir-problemas/neuropatias-diabeticas>]

Images

- Diabetic Ulcer (Neurogenic Ulcer) [<https://skinsight.com/skin-conditions/neurogenic-ulcer-diabetic-ulcer/?lmiw9cApl=1>]
(VisualDX)

Clinical Trials



- ClinicalTrials.gov: Diabetic Foot [<https://clinicaltrials.gov/search?cond=%22Diabetic+Foot%22&aggFilters=status:not%20rec>]  (National Institutes of Health)

Journal Articles

References and abstracts from MEDLINE/PubMed (National Library of Medicine)

- Article: Healing wounds with a multimodal botanical hydrogel: a clinical outcomes comparison... [<https://www.ncbi.nlm.nih.gov/pubmed/40632779>]
- Article: Biofilm detection-based wound management in diabetic foot ulcers: a randomised controlled... [<https://www.ncbi.nlm.nih.gov/pubmed/40632065>]
- Article: A discharge planning program to prevent infection among patients with diabetic... [<https://www.ncbi.nlm.nih.gov/pubmed/40280029>]
- Diabetic Foot -- see more articles [<https://pubmed.ncbi.nlm.nih.gov/?term=%22Diabetic+Foot%22%5Bmajr%3Anoexp%5D+AND+humans%5Bmh%5D+AND+english%5Bla%5D+AND+%22last+1+Year%22+%5Bedat%5D+AND+%28patient+education+handout%5Bpt%5D+OR+guideline%5Bpt%5D+OR+clinical+trial%5Bpt%5D%29++NOT+%28letter%5Bpt%5D+OR+case+reports%5Bpt%5D+OR+editorial%5Bpt%5D+OR+comment%5Bpt%5D%29+AND+free+full+text%5Bsb%5D+>]

Find an Expert

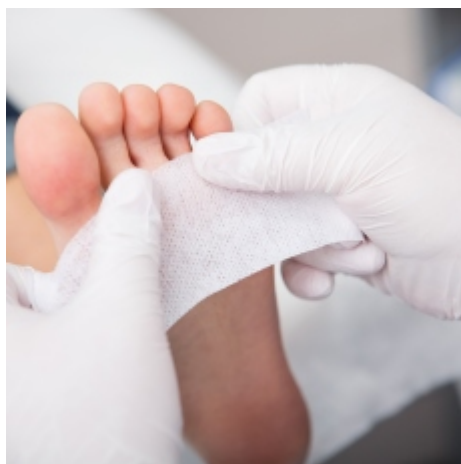
- American Diabetes Association [<https://diabetes.org/>]
- Find a Foot and Ankle Orthopaedic Surgeon [<https://www.aofas.org/find-a-foot-and-ankle-orthopaedic-surgeon>]
(American Orthopaedic Foot and Ankle Society)
- National Institute of Diabetes and Digestive and Kidney Diseases [<https://www.niddk.nih.gov>] 
- NIDDK Information Clearinghouses and Health Information Center [<https://www.niddk.nih.gov/health-information/community-health-outreach/information-clearinghouses>]
 (National Institute of Diabetes and Digestive and Kidney Diseases)

Patient Handouts

- Diabetes - foot ulcers [<https://medlineplus.gov/ency/patientinstructions/000077.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000077.htm>]
- Diabetes - taking care of your feet [<https://medlineplus.gov/ency/patientinstructions/000081.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000081.htm>]
- Foot amputation - discharge [<https://medlineplus.gov/ency/patientinstructions/000013.htm>] (Medical Encyclopedia)

Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000013.htm>]

- Leg or foot amputation - dressing change [<https://medlineplus.gov/ency/patientinstructions/000018.htm>]
(Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000018.htm>]



MEDICAL ENCYCLOPEDIA

Charcot foot [<https://medlineplus.gov/ency/article/007748.htm>]

Diabetes - foot ulcers [<https://medlineplus.gov/ency/patientinstructions/000077.htm>]

Diabetes - taking care of your feet [<https://medlineplus.gov/ency/patientinstructions/000081.htm>]

Foot amputation - discharge [<https://medlineplus.gov/ency/patientinstructions/000013.htm>]

Leg or foot amputation - dressing change [<https://medlineplus.gov/ency/patientinstructions/000018.htm>]

Related Health Topics

Diabetes [<https://medlineplus.gov/diabetes.html>]

Diabetes Complications [<https://medlineplus.gov/diabetescomplications.html>]

Diabetic Nerve Problems [<https://medlineplus.gov/diabeticnerveproblems.html>]

Foot Health [<https://medlineplus.gov/fothealth.html>]

Foot Injuries and Disorders [<https://medlineplus.gov/footinjuriesanddisorders.html>]

National Institutes of Health

The primary NIH organization for research on *Diabetic Foot* is the National Institute of Diabetes and Digestive and Kidney Diseases [<https://www.niddk.nih.gov>]

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