

DR. BERNSTEIN'S

# DIABETES SOLUTION

A COMPLETE GUIDE TO ACHIEVING NORMAL BLOOD SUGARS

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## ***Appendix E: Foot Care for Diabetics***

Although it is not directly related to the normalization of blood sugars, I have included this short but important section on foot care because of the constant danger diabetes poses.

The incidence of limb-threatening ulcerations in diabetics is very high, affecting about one in seven patients. Nonhealing "diabetic" ulcerations are the major cause of leg, foot, and toe amputations in this country, after traumatic injuries such as motor vehicle accidents. These ulcerations do not occur spontaneously; they are always preceded by gradual or sudden injury to the skin by some external factor. Preventing such injuries can prevent their sad consequences.

Virtually all diabetics who have experienced ongoing higher-than-normal blood sugars for more than five years suffer some loss of sensitivity to pain, pressure, and temperature in their feet. This is because elevated blood sugars injure and can eventually destroy all sensory nerves in the feet. Furthermore, the nerves that control the shape of the foot are likewise injured, with a resultant deformity that includes "claw" or "hammer" toes, high arch, and prominent bones at the bases of the toes on the underside of the foot. The nerves that stimulate perspiration in the feet are also affected. This results in the classic dry, often cracked skin that we see on diabetic feet. Dry skin is both more easily damaged and slower to heal than is normal moist skin, and cracks permit entry of infectious bacteria.

Elevated blood sugar also causes impairment of circulation in the arteries of the legs, as well as in the arteries and small capillary blood vessels that supply the skin of the feet. In order to heal, injured skin can require fifty times the blood flow of normal skin. If this increase in flow is unavailable, the injury will deteriorate, becoming gangrenous, and facilitate an infection that spreads up the leg. This infection may not respond to antibiotics.

Blood circulation to the normal foot can readily increase one hundredfold, if necessary, in order to conduct the heat of warm objects away from the skin. Impaired circulation may make this impossible, and the resultant burn may not even cause pain.

A deformed foot with bony prominences (knuckles of toes, tips of toes, heels, and bases of toes at soles) may be continually rubbed or pressed by shoes. This foot is frequently unable to perceive the extent of such pressure and may not heal readily if injured. It can be burned at relatively low temperatures.

The following guidelines are therefore essential for all diabetics, to prevent foot injury and the potentially grave consequences that may ensue:

- Never walk barefoot, either indoors or out.
- Purchase shoes or sneakers late in the day, when foot size is the greatest. Shoes must be comfortable at the first wearing and should not require breaking in. Request shoes with deep toe boxes. Pointed-toe shoes should not be worn, even if the tips are blunted (as in many men's styles). Suitable, very comfortable shoes are manufactured by Rockport. A variety of appropriate, dressy styles can be purchased at Eneslo in New York City. A number of currently available brands of athletic shoes and walking shoes are especially accommodating and even have removable insoles so that orthotics (see below) will fit, without making the shoe too tight. If necessary, I prescribe orthopedic or custom oxfords for certain of my patients.
- Inspect the insides of your shoes daily for foreign objects, torn lining, protruding nails, or bumps. Have them repaired if you find any of these.
- Don't wear sandals with thongs.
- Try to change to a different pair of shoes each day of the week.
- Ideally, your feet should be examined daily for possible injury or signs of excessive pressure from shoes—blisters, cracks or other openings in the skin, pink spots, or calluses. Be sure to check between your toes. Use a mirror or have another person inspect your soles, if necessary. Contact your physician immediately if any of these signs are found.
- If the skin of your feet is dry, lubricate the entire foot. Suitable lubricants include mink oil, olive oil, any vegetable oil, vitamin E oil, and emulsified lanolin. Do not use petroleum jelly (Vaseline), mineral oil, or baby oil, as they are not absorbed by the skin.
- Do not smoke cigarettes. Nicotine causes closure of the valves that permit blood to enter the small vessels that nourish the skin.
- Keep feet away from heat. Therefore no heating pads, hot water bottles, or electric blankets. Do not place feet near sources of warmth such as radiators or fireplaces. Baths and showers should feel cool—not even lukewarm. Temperature should be estimated with your hand or a bath thermometer, not with your feet. Water temperature should be less than 92°F, as even this temperature can cause burns when circulation is impaired. A bath thermometer is suggested.
- Do not soak your feet in water, even if so instructed by a physician. This causes macerated skin, which breaks down more easily and doesn't heal well. When bathing or showering, get in, get washed, and get out. Don't soak. Beware of rain, swimming pools, and any environment that may wet your feet or your shoes.
- Do not put adhesive tape or other adhesive products like corn plasters in contact with your feet. Fragile skin might be peeled off when the tape is removed.

- Do not put any medications in contact with your skin that are not prescribed by your physician. Many over-the-counter medications, such as iodine, salicylic acid, and corn-removal agents, are dangerous.
- If the skin of your feet is dry, your cardiologist should try to avoid medicines called beta blockers for hypertension or heart disease, as these can inhibit perspiration that moistens the feet.
- Do not attempt to file down, remove, or shave calluses or corns. This is dangerous. Do not permit podiatrists, pedicurists, or anyone else to do so. If calluses are present, show them to your physician. Ask him or her to arrange for your shoes to be stretched, prescribe new shoes, or supply you with appropriate orthotic inserts. Your physician may instruct you in the use of a shoe stretcher or "ball and ring" to modify ill-fitting footwear.
- Do not trim your toenails if you cannot see them clearly. Ask a friend or relative, podiatrist, or your physician to do this for you. If the corners of your nails are pointed, you can file them with an emery board or have someone else trim them.
- If you have thickened toenails, ask your physician to have clippings tested for fungus infection. If infection is present, he should prescribe tincture of fungoid. This solution must be applied twice daily to the nails to be effective. It must be used for about twelve months to effect a cure.
- Don't wear stockings or socks with tight elastic bands. Don't use garters. Don't wear socks with holes or that have been darned.
- Phone your physician immediately if you experience any injury to your foot. I consider even a minor injury to be an emergency. Procrastination can be disastrous.