



# The Comprehensive Diabetic Foot Exam

## A Diabetic's Best Defense Against Amputation

By Mitchell R. Waskin, D.P.M., FACFAS

### Diabetic facts:

Fact: *Every day* in this country, there are approximately 230 amputations.

Fact: The five-year mortality rate is 50% after a major amputation.

Fact: Major amputations most often start with an ulcer of the foot.

Fact: Foot ulcers are caused by pressure areas from minor foot deformities.

Fact: One of the best ways to decrease the mortality of the diabetic patient is through the use of an annual comprehensive diabetic foot exam (CDFE).

Not a month goes by that we don't hear about a new treatment or new product for healing a diabetic foot ulcer. A major area of drug research is the development of antibiotics to treat multi-organism infections as seen in diabetic foot infections. With all the emphasis we have placed on *treating* diabetic foot problems, the rate of diabetic foot complications and subsequent amputations continues to spiral upward. At last count, 25% of diabetics will get a foot ulcer during the course of their disease, and 85% of diabetic amputations start with an ulcer.

So, what's the answer? Are we doomed to this trend until a cure is found for diabetes? While there is no perfect solution, this is definitely a case where the best of-fense is a good defense — CDFE.

At the Foot & Ankle Center, located on the Johnston-Willis campus of CJW Medical Center, our goal for 2009 is to have all of our diabetic patients AND the diabetic patients of our referring physicians undergo a CDFE. Unlike the typical exam performed at a podiatric visit, the

CDFE is not only much more detailed, but is also much more quantitative.

Let's look at how a CDFE differs from a typical podiatric foot exam. At our clinic, we focus the exam on the major contributors to diabetic foot complications: sensory neuropathy, peripheral arterial insufficiency and abnormal pedal pressures due to orthopaedic deformities and improper shoe gear. Let's first look at sensory neuropathy, since it is the No. 1 predisposing factor (yes, even greater than PAD) leading to pedal amputations. The current standard in testing for sensory neuropathy is the use of a 128-MHz tuning fork and 10-gram monofilament. Although this may be acceptable as a quick screening tool to detect the presence of sensory neuropathy, it does not provide reasonable quantitative data as to the severity or the progression of the disease. It doesn't provide us with the data to determine how closely we need to follow the patient or how aggressively to proceed with treatment interventions. At the Foot & Ankle Center, we have replaced the tuning fork with a biothesiometer, sometimes called a vibrometer. This simple, pain-free test allows us to quantify the level of sensory deficit. And, since vibration threshold has been shown to be a very sensitive indicator of sensory neuropathy, this device allows for detection of sensory loss in its earliest stages. Also, since the findings of this test are accurately reproducible, we can track the progression of this complication and appropriately modify the level of our treatment intervention.

The typical vascular exam involves

palpating pedal pulses. Again, this is adequate as a quick approximation of arterial sufficiency, but it is not accurately reproducible over time or over providers, and it does not quantify the data. Our CDFE involves the use of doppler ultrasound to obtain blood-flow parameters through the major pedal vessels. We also obtain ankle and toe brachial indices to help quantify the healing potential of the foot.

Another tool we use during our CDFE is computerized plantar pressure analysis. This allows us to identify and quantify excessive plantar pressures that would increase the risk of soft tissue breakdown. We then utilize the services of our in-house certified pedorthist to fabricate off-loading shoe insoles to decrease the areas of high pressure.

The elimination of diabetic foot complications and their associated amputations is unlikely until we eliminate the disease itself. But until we cure the problem, our best chance of decreasing the devastating complications is not by inventing more treatments, but with greater preventative efforts. An annual CDFE, similar to the one performed at the Foot & Ankle Center, is currently the best defense against the devastating lower-extremity complications so common in the diabetic. ■

*For additional information, please contact:*

*Mitchell R. Waskin, D.P.M., FACFAS*

*Medical Director, Foot & Ankle Center*

*1465 Johnston-Willis Dr.*

*Richmond, VA 23235*

*(804) 320-3668*