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Assessing footwear in patients with diabetes

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Each issue, *Apple Bites* brings you a tool you can apply in your daily practice. This issue, we focus on footwear for patients with diabetes.

Inappropriate footwear is the most common source of trauma in patients with diabetes. Frequent and proper assessment of appropriate footwear is essential for protecting the diabetic foot from ulceration.

Here is a step-by-step process for evaluating footwear. Be sure to evaluate footwear with the patient walking, standing, and sitting.

Observe wear patterns for areas of high pressure or abnormalities

- Check the inside of shoe, upper area, and soles.
- Check that pressure under the sole of the shoe is even, so no one part wears out excessively.
- Assess wear. Normal wear should occur at the lateral heel and medial central forefoot; there also may be slight curvature on the undersurface of the sole at the toe area.

Inspect inside of the shoes

- Observe and feel for wrinkled lining, protruding rough seams, and foreign objects.
- Observe for drainage on the insole or socks.
- Check that soles are sufficiently thick to prevent puncture wounds.
- Ensure that shoes have supportive, cushioned soles, with nonslip liners to absorb shock and reduce pressure under the feet.

Observe for correct fit

- Check for sizing. In general, there should be about a thumbnail (approximately ½ to ¾ inch) distance between the end of your longest toe and the tip of the shoe.
- Check heel-to-ball length:
  - Measure the distance from the patient's heel to the first and fifth metatarsal heads.
  - Bend the shoe to determine toe break and repeat the measurement on the other shoe.
  - The two measurements should be close to the same.
- Check width. The sides of the shoe should not compress the sides of the foot, with the shoe fitting snugly but not tightly. The widest part of foot should be in the widest part of shoe. The correct width allows the

Tips for buying shoes for patients with diabetes

1. When buying shoes, make sure they are comfortable from the start and have enough room for your toes.
2. Don't buy shoes with pointed toes or high heels. They put too much pressure on your toes. The heel should be no more than ¾ inch high.
3. Have your foot measured each time you buy shoes. Stand during the measurement.
4. Shop late in the day, when your feet are largest.
5. Know that size varies depending on the manufacturer. Always try more than one size to find the best fit.
6. Try on both shoes and walk around to check comfort. Base fit on the larger foot.
7. Allow at least a thumbnail (about ½ to ¾ inch) of space at the end of your longest toe in the shoes you select. Make sure you can wiggle your toes.
8. Try the shoes on with the type of socks you will wear.
9. Choose leather uppers, a stiff heel, inside cushioning, and flexibility for the ball of the foot.
10. Select the best material. The outer sole should be made of soft material with laces or Velcro tabs.
11. For serious foot problems, buy a shoe that is specially molded to your foot.

It's always a good idea to have a healthcare professional check the fit of your shoes.

toes to rest flat on the insole without being compressed.

- Verify that there is no rubbing of the feet or slipping in the shoe and that the heel cup fits snugly.
- Be sure the shoe follows the natural outline of the foot.
- Observe for a secure fastening mechanism, which should be adjustable with laces, Velcro, or buckles.

Observe that socks are being worn with shoes to reduce friction

- Check that socks meet the following criteria:
  - Socks are nonconstricting with no tight band around ankle or calf.
  - Socks with prominent seams are worn turned inside-out.
  - Socks are made of absorbent materials, such as cotton.
  - Lighter-colored or white socks are worn when there is an open wound to help alert wearers with compromised sensation to a draining wound.
- Check that socks meet individual patient needs:
  - Patients with a partial foot require a sock that will conform to the shape without distal prominent seams or excess material at the distal end.
  - For active patients, socks can be obtained with silicone over high-stress areas to prevent shear for full or partial feet.

Inspect shoes to determine if they meet the characteristics for the ideal diabetic foot shoe

- The shoe is foot-shaped and has a soft heel counter to keep the foot in place.
- The shoe upper is made of leather or other breathable material.
- The leather over the forefoot is as soft as possible.
- The inside lining of the shoes is smooth and free from seams and/or wrinkles.

continued on page 30

managed through weight control, as additional weight gain through adipose tissue tends to deposit in the legs. For patients with concomitant lymphedema (lipolymphedema), modified CDT helps reduce and manage lymphatic compromise. To address excess fat deposition, newer "wet" liposuction techniques have proven beneficial. These techniques gently detach adipose cells from the tissue, helping to preserve connective tissue and lymphatic vessels.

Know what to look for

In both lymphedema and lipedema, early identification and proper diagnosis are key. (See *Differentiating lymphedema and lipedema*.) A thorough history and physical exam will likely lead to an accurate diagnosis, if clinicians know what to look for. Proper diagnosis and treatment can prevent expensive and ineffective interventions, which can negatively affect both the patient's condition and psychological well-being. ■

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continued from page 24

- The shoe has a heel height that is not excessive (under 5 cm).

Note: A number of studies have shown that wearing athletic shoes can reduce plantar pressure and lead to fewer calluses. The simplest intervention for a patient who is at risk for ulceration would be a good-fitting, well-cushioned pair of athletic shoes if the patient's foot fits well in the upper area.

Provide patient education

Patient education about the importance of appropriate footwear choices is critical for the prevention of diabetic foot ulceration and possible amputation. In addition to the points already discussed, patients should be advised to:

- change their shoes twice daily
- ensure shoes are in a good state of repair
- check shoes for foreign objects before putting them on.

Provide patients with guidance on how to buy new shoes. (See *Tips for buying shoes for patients with diabetes*.) ■

Nancy Morgan, cofounder of the Wound Care Education Institute, combines her expertise as a Certified Wound Care Nurse with an extensive background in wound care education and program development as a nurse entrepreneur.

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