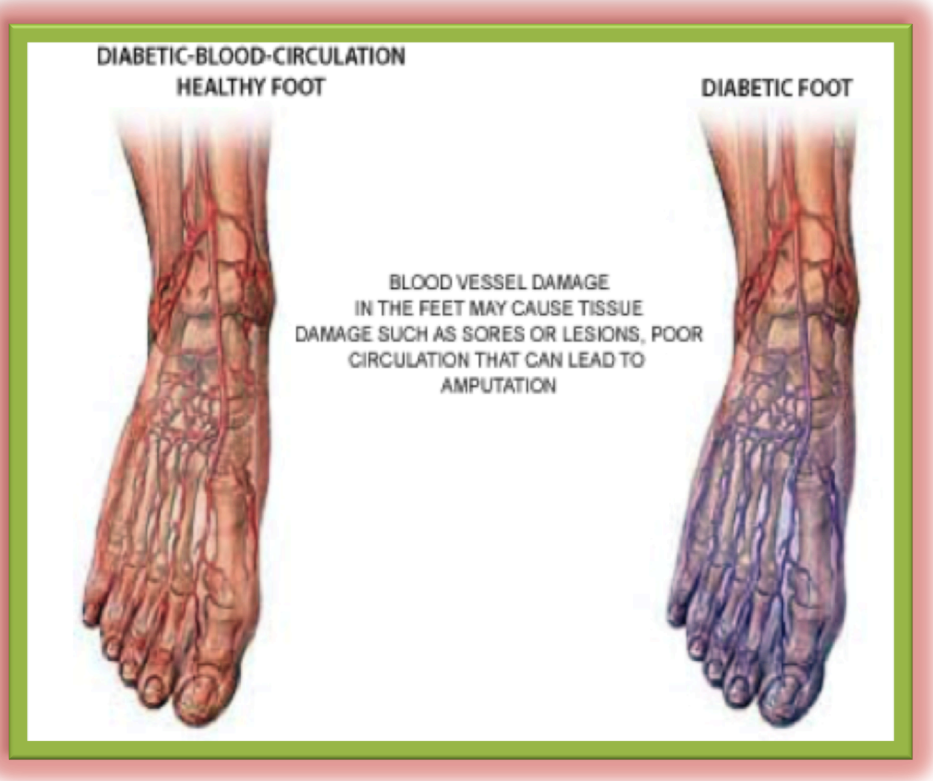
NOVEMBER 2016

National Diabetes Month

Diabetes-Related Neuropathy



- Long-term buildup of glucose in the blood can lead to nerve damage (neuropathy).
- Diabetes- related neuropathy is one of the most common complications of diabetes. **However, it can be prevented!**
- It can impact any organ system in the body.
- People who have had diabetes for at least 25 years are likely to have some form of neuropathy.

Did you know?

60-70% of individuals with diabetes have some form of nerve damage

Having your blood glucose between 80-130 mg/dl prior to a meal can help prevent neuropathy

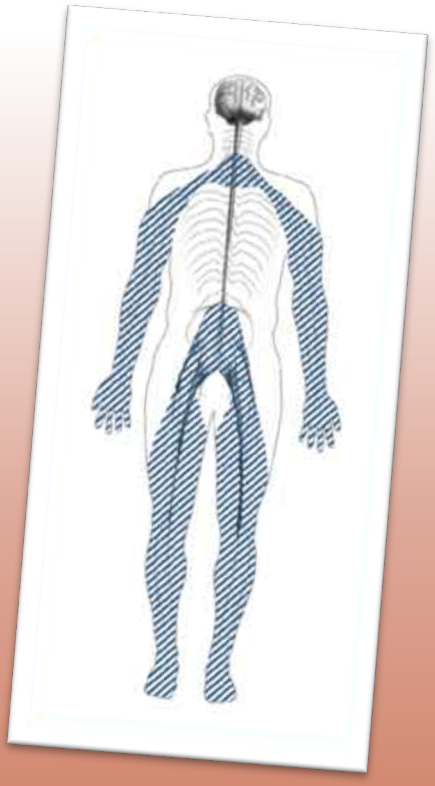
Aiming for 7% on your A1c test can reduce complications associated with diabetes

Types of Neuropathy

(1) Peripheral Neuropathy

Peripheral Neuropathy Affects:
Hands
Arms
Feet
Legs

- Peripheral Neuropathy is also called distal symmetric neuropathy or sensorimotor neuropathy. It is the most common type of neuropathy.
- Even though there are other types of neuropathy that are associated with other symptoms, people often think of peripheral neuropathy when discussing neuropathy.
- The feet and legs are usually affected prior to the hands and arms, these are the symptoms that people often associated with neuropathy.
- The symptoms of peripheral neuropathy are often worse at night.
- Changes in the way a person walks may occur as peripheral neuropathy may cause muscle weakness in the ankle.
- Because of the numbness in the feet, blisters and sores may occur as injuries go unnoticed.
- If injuries go unnoticed, they may get infected, then infect the bone, and then lead to an amputation.
- Checking your feet regularly can help you prevent an amputation. Follow the "Care for your Feet" steps listed below.

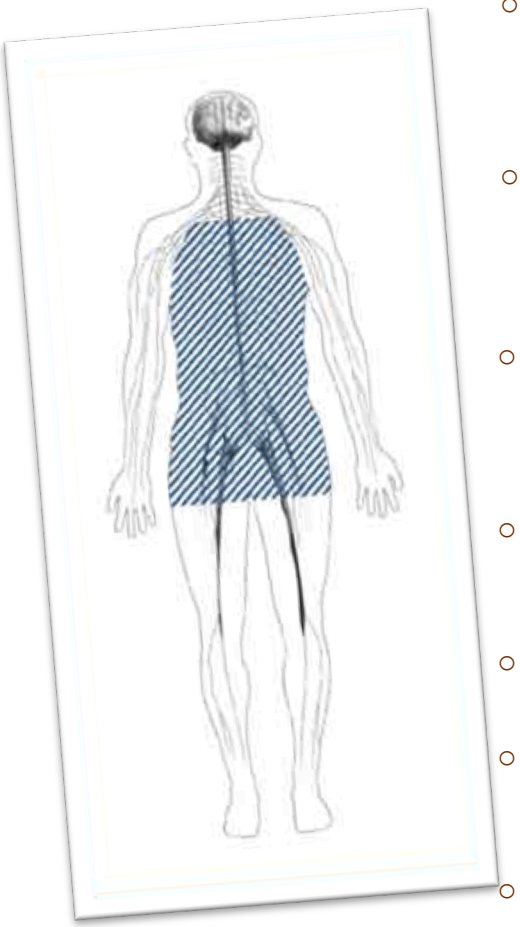


- **Symptoms:**
- Numbness or insensitivity to pain or temperature
- Tingling, burning, or prickling sensation
- Sharp pains or cramps
- Extreme sensitivity to touch
- Loss of balance or coordination

Types of Neuropathy

(2) Autonomic Neuropathy

Autonomic Neuropathy Affects:
Heart and blood vessels
Digestive system
Urinary tract
Sex organs
Sweat glands
Eyes
Lungs



- Autonomic neuropathy affects internal organs and so can cause a wide variety of symptoms.
- This type of neuropathy can hide the symptoms of hypoglycemia (low blood sugar or glucose).
- Autonomic neuropathy can damage the nerves of the blood vessels and heart. One may feel light-headed or faint after sitting or standing up. This damage can also cause the heart rate to remain high.
- The damage to the digestive system causes constipation, gastroparesis (the slow emptying of the stomach), and difficulty swallowing.
- Nerve damage in the bladder can prevent it from emptying causing urinary tract infections (UTIs). Urinary incontinence may also occur.
- Nerve damage to the sex organs can cause women to have difficulty with lubrication, and orgasm, and men to be unable to have erections.
- Autonomic neuropathy can prevent the sweat glands from working properly thus causing the body to improperly regulate temperature.

(3) Focal Neuropathy

- Focal neuropathy affects older adults in the head, torso, or leg areas.
- While it is very painful, it does not cause long-term damage.
- It may cause the following symptoms:
  - Double vision
  - Inability to focus eyes
  - Pain in the back of one eye,
  - Severe pain in the lower back or pelvis
  - Pain in the front of the thigh
  - Pain in the chest, stomach, side, outside of the shin, and inside of the foot,
  - Paralysis on one side of the face
  - Abdominal pain that may be mistaken for a heart attack.

(4) Proximal Neuropathy

- Proximal neuropathy often starts on one side of the lower body (thigh, hip, buttocks, or legs).
- It is more common in people with type 2 diabetes and older adults.
- Individuals with proximal neuropathy often have difficulties going from a sitting position to a standing position.

To Prevent Diabetes-Related Neuropathy:

1. Properly plan your meals
2. Exercise regularly
3. Take your medications on time, if prescribed
4. Regularly get an A1c test according to when the doctor orders
5. Check your feet regularly (for peripheral neuropathy)
6. Regularly monitor your blood glucose at home
7. Speak to your doctor if you experience any of the listed symptoms

Peripheral Neuropathy: Care for your Feet:

1. Check your feet regularly
2. Wash your feet with warm and not hot water
3. Wear shoes that fit well—not too tight or too loose
4. Wear close toed shoes to prevent injuries to your feet
5. Talk to your doctor if you have any symptoms and if you notice blisters, or sores.
6. Moisturize your feet to prevent cracking which allows bacteria to enter and cause infections
7. Try exercises that are low-impact
8. Speak to your doctor if you have bunions, hammertoe, or corns.
9. Ask your doctor about customized shoes or shoe inserts.
10. Manage your blood sugar!

Eat a Balanced Diet

Lean Protein

- Focus on lean protein such as chicken, beans, and lentils.
- Try to reduce your consumption of red meats, processed meats, and deli meats.
- Consume 2-3 servings of fish per week. Choose fish that are low in mercury but high in omega-3 fatty acids, such as: anchovies, salmon, herring, rainbow trout, canned light tuna, and sardines.

Whole Grains

- Substitute refined breads with whole grains; you can do this with buns, toast, tortillas, pita breads, and more.
- Introduce brown pasta and rice (whole grains) instead of white pasta and rice. As a start, you can use ½ white and ½ brown. Adding wild rice is also a good way to get in some beneficial nutrients.
- Different grain options are whole-grain couscous, quinoa, popcorn (unsalted and without butter), bulgur, and others.

Fruits and Vegetables

- Color is key. Eat different colored vegetables and fruit to get all the different nutrients they supply.
- Be sure to get at least one serving of vegetables at each meal.
- Fill half your plate filled with veggies.
- If you crave something sweet, have a piece of fruit.

Dairy

- When choosing milk, it's best to go fat-free or low fat since they're lower in saturated fats.
- On the other hand, when choosing yogurt, choose plain (not flavored), and full fat. Plain yogurt doesn't have the added sugars that flavored yogurts do, and you can add some fresh fruit. Full fat yogurt has less sugar than low fat, since the removal of fat from whole milk yogurt leads to the addition of extra carbohydrates for texture.

Substitute these → with these

Fat-free flavored yogurt has lots of added sugar. Try full fat plain yogurt with stevia sugar and fresh fruit. The removal of fat in the low fat options leads to the addition of unnecessary sugars.

Skip the fat-free dressings since they have added carbohydrates for texture to make up for the fat loss, and substitute it with oil and vinegar or lemon with oil.

Condiments such as Ketchup and BBQ sauce are packed with hidden sugars--try spices, herbs, lemon juice, or mustard instead.

If you're craving a sparkling beverage, make your own--use natural sparkling water, fresh lemon juice, and stevia sweetener.

Diabetes-Friendly Recipes for Two

Buffalo Chicken Wrap

2, 8-inch whole grain tortilla wraps

8 oz. shredded chicken

¼ cup buffalo sauce

2 tbsp. bleu cheese crumbles

1 large carrot

1 cup shredded lettuce

1 cup spinach

2 large tomatoes

Nutrition Facts	Serving Size 2
Calories	420
Carboydrates	34
Fiber	5.5
Fat	12.5
Protein	41

* Nutrition facts for tortilla wraps may vary by brand.

Boil chicken breast until cooked, then shred. Add buffalo sauce to the shredded chicken and toss until coated. Thinly slice carrots and tomatoes. Layer chicken, lettuce, spinach, tomatoes, carrots, and bleu cheese crumbles in whole grain tortilla wrap. Roll and serve.

Diabetes-Friendly Recipes for Two

Shrimp Jambalaya Pasta

8 oz. shrimp

2 cloves garlic

¼ large onion

½ cup bell peppers

4 oz. whole grain fettuccine pasta

1 tbsp. Cajun seasoning

1 can diced tomatoes

2 tsp. olive oil

Nutrition Facts	Serving Size 2
Calories	370
Carboydrates	53.5
Fiber	8.0
Fat	6.0
Protein	37

Boil pasta until cooked. Thinly slice onions and bell peppers, then sauté in olive oil for 5 minutes. Mince garlic and add to vegetables mixture to sauté for another 3 minutes. Add shrimp and sauté till cooked. Add canned diced tomatoes and Cajun seasoning, and let cook for another 3 minutes. Toss fettuccine pasta and serve.

References

"Checking Your Blood Glucose." *American Diabetes Association*. American Diabetes Association, 4 Aug. 2016. http://www.diabetes.org/living-with-diabetes/treatment-and-care/blood-glucose-control/checking-your-blood-glucose.html?referrer=https://www.google.com/

"Nerve Damage (Diabetic Neuropathies) | NIDDK." *U.S National Library of Medicine*. U.S. National Library of Medicine, Nov. 2013. https://www.niddk.nih.gov/health-information/diabetes/preventing-diabetes-problems/nerve-damage-diabetic-neuropathies

"MyPlate." *ChooseMyPlate*. USDA, 07 Jan. 2016. https://www.choosemyplate.gov/MyPlate

"National Diabetes Fact Sheet 2011." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 2011. https://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf

Dansinger, Michael. "Diabetes Foot Care: Foot Pain, Dryness, Calluses, and More." *WebMD*. WebMD, 22 Oct. 2014. http://www.webmd.com/diabetes/tips-foot-care?page=3

Created by: Anfal Marafie, MS
Dietetic Intern

Patient Food and Nutrition Services
300 N. Ingalls Street
NIB NI8E20
Ann Arbor, MI 48109-5407
734-936-5197

ADULT DIABETES EDUCATION PROGRAM
UNIVERSITY OF MICHIGAN HEALTH SYSTEM

HOSPITALS & HEALTH CENTERS
UNIVERSITY OF MICHIGAN HEALTH SYSTEM