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Hand-Out **-How to Take Care of Your Diabetic Feet at Home-** *07/15/14*

Knowledge is power, and this hand-out offers you tips on diet, assessment skills, and prevention to keep your diabetic feet (and body) as healthy as possible!

Diabetes is our most complex chronic disease. It affects the diabetic with vascular, neurological, and metabolic complications, and our society with the costly care.

It's a disease where most of the safety mechanisms of the body become unreliable:

- Can you rely on your pancreas to release the proper amounts of insulin?
- Can you rely on your arterial circulation to bring oxygen, nutrition, infection-fighting white blood cells, or medications out to all your tissues?
- Can you rely on your nervous system to keep the structure of your feet intact; to keep you skin intact; to signal pain; or to keep your gait steady?
- Can you rely on your eyes to see what your nerves won't tell you?
- Can you rely on your kidneys to keep your electrolyte balance healthy?
- ***Can you rely on yourself to keep your feet and body healthy and safe?***

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1-Introduction to diabetes:

Diabetes used to be primarily juvenile insulin-dependent diabetes type-1 caused by a virus that resulted in an auto-immune attack on the pancreas, making the cells of Langerhans unable to produce insulin any longer.

Until the invention of insulin injections came along in the mid 1900's, juvenile diabetes type-1 was usually a "death-sentence." However, you'll learn that too much insulin also puts your health at risk. Too much insulin gives you cardiovascular diseases that can lead to premature death.

Today, Americans are actually affected more by the increasing prevalence of obesity, resistance to insulin, and pre-diabetes, leading to non-insulin dependent diabetes type-2. Americans, now as young as pre-schoolers, become pre-diabetic with resistance to insulin, develop diabetes type-2, and may go on to develop insulin-dependent diabetes type-1, if their pancreas conks out along the way.

Diabetes type-1 caused by a virus is not preventable at the current time; however, diabetes type-2 caused by obesity and resistance to insulin, often in conjunction with a body-wide inflammation that intensifies the insulin-resistance, is preventable with life-style changes.

However, no matter the reason you've become diabetic with type-1 or type-2, be aware that both the high levels of glucose in your blood and the high levels of insulin that are needed to metabolize the glucose, put your health at risk:

- ***the high levels of glucose damage your small vessels, leading to cataracts and blindness, kidney disease, and nerve damage; but, equally important,***
- ***the high levels of insulin, needed to metabolize the high levels of glucose, contribute to cardiovascular diseases.***

This hand-out talks about ways you can minimize both your blood glucose and your need for insulin for better body health, starting on page 4; then it talks about ways you can keep your feet safe, starting on page 6. It'll explain some of the anatomy and physiology that's not required education in our public schools.

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2-How to find out if you have pre-diabetes, or diabetes type-1 or type-2:

You'll know pretty quickly if you develop **juvenile diabetes type-1** with acute damage to your pancreas, leaving it unable to produce any more insulin. There will be no insulin to help your blood sugar go into the cells of your brain, nerves, or muscles to be used for energy. Your blood sugar will continue to rise and you'll develop **hyperglycemia** with "fruity" breath, while you experience confusion, increased urination, intense thirst, labored breathing, nausea, and vomiting.

There will be a trip to the emergency room, likely with a hospital admission where you'll be on an insulin drip. You'll receive lots of teaching on the patho-physiology of diabetes, on diet, on exercise, and on the insulin injections that you'll need to take for the rest of your life. You'll probably be **overwhelmed with information**.

During your life-time as a diabetic with juvenile diabetes type-1, you'll probably experience some episodes of **hypoglycemia** where you become dizzy and weak and experience double vision, nervousness, shallow breathing, and sweating. You'll make more trips to the emergency room.

But, how do you know if you have **resistance to insulin**, if you are **pre-diabetic**, or if you have a diagnosis of **diabetes type-2?** The following quote from "The Blood Sugar Solution" (February 2012) by Dr. Mark Hyman, sadly emphasizes that **many, many people simply do not know their health status**: "In 2010 there were 27 million Americans with diabetes (25% of whom were not diagnosed) and 67 million with pre-diabetes (90% of whom were not diagnosed)."

Our current medical system informs you if your fasting blood glucose goes above 125 mg/dl (as of 2014) and gives you an official diagnosis of diabetes type-2. Diet changes and increased exercise are suggested; but, if you're not successful, you'll be started on oral glycemic pills to bring your blood sugar down. However, your cardiovascular diseases are well underway before this official diagnosis. Diet changes and increased exercise should have started long before your diagnosis of diabetes type-2. This is one of the many changes we need to make in our society.

Diabetes type-2 is a preventable disease; but, juvenile diabetes type-1 is not!

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3- How diet and exercise can prevent diabetes type-2 and treat diabetes type 1 and 2:

It's important to control your blood sugar when you're diabetic. **A high blood sugar causes small vessel damage, leading to blindness, cataracts, kidney damage, and nerve damage**.

However, focusing on your blood sugar alone and bringing it down below 125 mg/dl with the help of oral glycemic pills and/or insulin is not the only way to treat your diabetes. You may control your blood sugar with medications, however, the insulin that's needed to bring your blood sugar down causes a lot of metabolic imbalances and cardiovascular diseases. If your cells become resistant to the insulin and increased amounts of the insulin are needed, the problems intensity.

There are many triggers from a poor diet, environmental factor, and body imbalances that can cause a **body-wide inflammation** to start. A body-wide inflammation is often one of the signs of being "pre-diabetic." High blood glucose levels is one of the triggers. The body-wide inflammation causes your insulin to become ineffective, increasing your production of insulin and your **resistance to the insulin**. The insulin also increases the inflammation. It's a vicious cycle!

Insulin is a fat-storing hormone and it affects your fat-metabolism. The metabolism of a diabetic (and a pre-diabetic) causes increased body fat in your belly and around your internal organs. It decreases your muscle mass; it increases LDL cholesterol; it increases total cholesterol; and it increases triglycerides. And, you'll be dealing with a body-wide inflammation that intensifies your imbalances.

Insulin increases your risks for high blood pressure, heart attacks, strokes, poor arterial circulation, depression, dementia, etc.

To prevent damage to both your small blood vessels, nerve vessels, and large blood vessels, you need to learn how to decrease your blood glucose through diet, exercise, and avoiding certain environmental factors that can contribute to a body-wide inflammation, rather than with high doses of insulin; irregardless of whether the insulin comes from your pancreas or from a syringe!

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How do you control the amounts of glucose and insulin in your bloodstream? How do you prevent a body-wide inflammation from starting? And, how do you ensure that your metabolism, as a diabetic, is as effective as possible?

- You need to eat a plant-based diet with small amounts of complex carbohydrates that are spread evenly over the whole entire day to control the amount of glucose in your bloodstream and the amount of insulin that is needed to metabolize the glucose. Avoid simple carbohydrates completely.
- You need to avoid industrialized foods and drinks that leave you over-nourished with calories from lots of simple carbohydrates, unhealthy fats, high amounts of salt, as well as chemicals, toxins, and preservatives. These industrialized foods also leave you under-nourished of important nutrients.
- You need to get important vitamins, minerals, phytonutrients, antioxidants, and fiber; as well as healthy complex carbohydrates; healthy plant-based proteins and animal-based proteins in small amounts (unless you have liver and/or kidney disease and/or you are vegetarian); and healthy fats and oils.
- You need to go organic, as much as you can possibly afford, to avoid chemicals, toxins, pesticides, antibiotics, and steroids.
- You need to exercise for cardiovascular health, to speed up your metabolism, and to prevent or reduce a body-wide inflammation.

The hand-out, "Health, Well-being, and Happiness," from my website, describes how the above interventions can be done in a lot more detail. It's important for both overweight people with diabetes type-2 and skinny, low-muscle people with diabetes type-1 to eat enough fruits and vegetables for vitamins, minerals, phytonutrients, fiber, and antioxidants. People with diabetes type-1 will likely need to eat increased amounts of healthy fats and oils for their energy needs.

If you depend on oral glycemic pills and/or insulin, you'll need to be careful not to become hypoglycemic if you decide to make "life-style" changes, as suggested above. Work with your doctor, dietician, or endocrinologist for your specific needs.

4-How does diabetes put your feet at risk:

As mentioned in the previous section, high blood glucose levels cause small vessel damage, leading to blindness, cataracts, kidney damage, and nerve damage. The previous section also mentioned that high insulin levels affect your fat-metabolism adversely and promote a variety of cardiovascular diseases.

All of the above, caused by glucose and insulin, put your diabetic feet at risk!

- **Poor eye sight** will make it difficult for you to inspect your feet for cuts, scrapes, blisters, infections, pressure points, and beginning ulcers.
- **Kidney damage**, possible **dialysis**, and possible **kidney transplants** will increase your likelihood of developing new infections and decrease your ability to fight off existing infections.
- **Nerve damage** will affect you in three different ways:
  - Damaged ***sensory nerves*** will diminish your ability to have protective sensation and feel pain from pressure, trauma, infections, ulcers, gangrene, and extreme temperatures.
  - Damaged ***motor nerves*** will increase your likelihood of developing bunions, hammertoes, and a collapsed foot, also known as a charcot foot. This increases your likelihood of developing corns, calluses, and ulcers.
  - Damaged ***autonomic nerves*** will prevent your sweat glands from working, causing your skin to become dry and brittle and crack easily. You will also experience a rush of blood to your feet, giving you strong pedal pulses, warm feet, and very visible veins. You'll have a false sense of security thinking that your feet are not at risk for infections or ulcers due to the good blood flow. However, you may forget that your sensory nerves are also damaged and not warning you of pain from any problems.

    Lack of protective sensation, broken skin, and protruding bones are all risk factors for infections and ulcers, just like limited circulation is.

- Finally, your **occluded arteries** will bring limited blood flow to your feet. Both your **macro and micro circulation** can be affected. There will be a lack of oxygen, nutrition, infection-fighting white blood cells, medications, and antibiotics, if needed, to the tissues of your feet.
    - If your **blood sugar** is elevated, this sugar provides "important" nutrition for any germs, making it very difficult to combat an infection in your feet or lower legs; actually anywhere in your body.
    - Lack of **oxygen** is an important factor in the development of **pressure ulcers**, where pressure from an inside bone against an outside barrier, such as your shoe or the ground, prevents an adequate flow of arterial blood, and subsequent delivery of necessary oxygen to the affected tissue. The **oxygen-deprived tissues** eventually die, if the pressure is not relieved, and they start decomposing, turning into gangrene. Lack of oxygen also happens from **arteries severely occluded by plaque**.
    - A **wound** has difficulty healing without a continuous flow of blood to provide oxygen, nutrition, infection-fighting white blood cells, and antibiotics. The wound also needs to get rid of waste products and carbon dioxide to be able to heal effectively.
    - Although a **primarily plant-based diet has the ability to remove some the plague from occluded arteries**, it's a slow process and cannot be used for emergent restoration of arterial blood flow. When part of a limb is at risk due to lack of oxygen, it's often necessary to **restore the arterial circulation through surgery.**
    - Sometimes, **critical decisions** have to be made about the acuity of various simultaneous problems: Should the arterial circulation be restored first, or should a life-threatening infection be treated first?
    - Your medical team often faces many important decisions in trying to **prevent an amputation of your toes, foot, or lower leg**.

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5-Why a diabetic does better with a support system of family or friends, who are willing and able to support and help:

Let's reflect on the beginning of this hand-out: Diabetes causes damage to so many functions and systems of your body that you ordinarily rely on to stay healthy.

What you used to take for granted before your diabetes may suddenly be gone. Instead, you may now have various problems in your body, including numbness of your feet and possibly lower legs, crippled feet with hammer toes and bunions with new pressure points, limited arterial circulation, as well as limited eye sight.

How are you going to take "ownership" of your feet that you can't see or feel?

What motivates you to do the best proactive and preventive job possible?

- Will you be motivated **because you've been told** by your health-care team that you need to be both proactive, preventive, and responsible? Or,
- Will you be motivated **because you perceive** that your feet might be at risk and you want to avoid amputations?

A lot of diabetics end up with amputations. Could some have been prevented?

Your vascular system and nervous system may be so damaged that amputations are inevitable; however, **there are usually some interventions that can be done to prevent the amputations or, at least, delay them for a while.**

Diabetics are forced to take responsibility for their own preventive care outside of the medical offices; however, with the high number of amputations that are are performed, it's obvious that some diabetic need more mentoring and/or actual help.

I recommend that you develop a good support system with your family or friends, who are willing and able to help you stay on track! I also suggest that you share this hand-out with your support system!

Hopefully, our "future" community-based health-care will make provisions that enable all brittle diabetics to get help inspecting their feet on a regular basis.

6-How to do a preventive inspection of your diabetic feet at home:

This preventive foot inspection at home can probably be done by some people with limited medical knowledge. It's not "foul-proof," but it's better than no inspection at all. You want to know your **"level of risk"** before the actual inspection of your diabetic feet. If you're **low-risk**, you can probably take the "wait-and-see approach" if there's a little cut or scrape; however, if you're **high- risk**, you'll need to inform your medical team of any new finding that could put your feet at risk.

- ***Your medical team should have already informed you about the status of your nerves, circulation, and structural changes of your feet.***
- ***You should realize what problems you might expect to find according to your risk level.***
- ***If your eye sight is limited, your flexibility is poor, and you can't feel pain, having an extra set of eyes and an extra pair of hands are extremely important for a good inspection of your diabetic feet.***
- ***Share your circulatory status, your nerve status, and your risk level with the person who's helping you with the inspection of your feet and lower legs.***
- ***Ask your helper to share findings with you that are new, so that you can take proper precautions and let your medical team know.***
- The **foot inspection** should be done in a location with **good lighting**. If you have a helper, it's ideal if you sit in a chair that has a leg rest that comes up to support your lower legs and allows your feet to dangle over the edge. You can also sit in a chair and rest your legs on an office chair with a hydraulic lift to adjust the height, and the back support removed. Your helper can stand or sit on a similar office chair in front of you and inspect your feet. The height of the helper's chair can also be adjusted with the hydraulic lift.
- Use **mirrors** to visualize areas that cannot be seen otherwise.

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Let's first review what the skin of your feet and lower legs tells us about your health. Your skin tells us a lot about your circulation, your nerve status, and your nutritional status. We'll focus on your circulation and nerve status:

The below findings are all signs of good arterial circulation:

- The skin is soft, smooth, and strong.
- Hair grows in places where hair is expected to grow, such as on the lower legs and top of the toes.
- The skin is pink on the sole of the foot with the leg raised above the heart.
- The foot and toes are warm and dry.
    - For a diabetic, these are very good findings. The arterial circulation appears to be good and able to bring oxygen, nutrition, infection-fighting white blood cells, and medications out to the tissues of the foot and leg.

The below findings are all signs of good venous circulation:

- The veins are visible, but not profoundly raised.
- The veins are mostly straight.
- The skin is free of reddish or brownish blotches.
- The underlying tissue is free of swelling.
    - For a diabetic, these are very good findings. The venous circulation appears to able to bring carbon-dioxide and waste products from the tissues of the foot and leg back to the core of the body.

You can expect that a diabetic, with both good arterial circulation and good venous circulation, to heal easily after a small cut or scrape, if the blood sugar is under good control. This diabetic is not likely to develop open wounds, ulcers, or infections, unless major accidental trauma happens.

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The below are signs of poor arterial circulation:

- The skin is thin and shiny.
- There's a lack of hair growth on the lower leg and top of toes.
- The skin gets easily torn or bruised.
- The skin is cool to touch.
- The sole of the foot turns pale if it's lifted up above the heart.

You can expect a diabetic with poor arterial circulation to be at risk for:

- Developing **arterial pressure ulcers** in areas of high pressure, such as the top of the toes, the end of the toes, the sides of the toes, and on the "palm" of the bottom of the foot.
  - *Are there areas on the skin with calluses and/or corns.*
  - *Are there areas warmer and redder than the surrounding skin?*
  - *Does the unbroken skin in these pressure areas have a different color?*
  - *Is the skin broken, and does the wound have a pink base?*
  - ***Let the diabetic know of your findings. It has to be evaluated by a professional. Modifications will have to be done to the diabetic's shoes and/or inserts to decrease the pressure. Cushioning can be applied to the skin surrounding the area of pressure to re-distribute the pressure.***
- Developing **infections** easily from a cut, scrape, blister, or ingrown nail.
  - *Is the skin red, warm, puffy, and/or pale with a puss-pocket below?*
  - ***The above findings are signs of an infection. Let the diabetic know of the findings. An ingrown nail will have to be cut away by a professional. The doctor may want to order antibiotics. The blood sugar needs to be controlled for the area to heal.***

- Developing **plaque** that blocks the arterial circulation to the toes or foot.
    - If the toes or entire foot become cold and blue, there's a complete blockage of the arterial circulation. This is a medical emergency.
- Developing **nerve damage** from both limited oxygen due to limited arterial circulation and from a high blood sugar.
    - **Damaged sensory nerves** may leave the diabetic unable to feel the pain that would ordinarily be felt from pressure points, infections, and ulcers. *Limited protective sensation and poor arterial circulation with limited oxygen are the two biggest reasons for diabetic ulcers and amputations.*
    - **Damaged autonomic nerves** may cause your skin to be unable to sweat. Your skin will become dry and brittle and crack easily.
    - **Damaged motor nerves** may cause structural deformities, such as bunions, hammertoes, and a collapsed charcot foot, creating new pressure points.

The below are signs of a poor venous circulation:

- Varicose veins.
- Swelling or edema of your toes, feet, and lower legs.
- Large blotches of little brown or red dots on your skin.

You can expect a diabetic with poor venous circulation to be at risk for:

- Venous ulcers (wounds with a pale base) on the ankles and lower legs.
- Wounds that are difficult to heal.
- ***Ulcers with a pale base around the ankles and lower legs and other wounds need to be seen by a professional. Let the diabetic know.***

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The diabetic needs to find out if the swelling of the feet and lower legs, associated with poor venous flow and lymph flow, is "dependent" edema or "non-dependent" edema:

- If the swelling is *"***dependent edema,"** it is caused by leaky valves of the veins and/or lymph vessels in the legs. It will go away when the feet and legs are raised at the level of or above the heart, for some time, and gravity allows the fluids to return to the core of the body.
- To prevent dependent edema, **compression hose** can be applied before the person gets up and moves around and the swelling sets in.
    - If the diabetic uses compression hose to prevent swelling, it would be ideal if the person, who helps with the foot inspection, could also help clean and dry the feet and lower legs, apply lotion, and re-apply the compression hose afterward. The compression hose needs to be re-applied before the swelling returns.
- To correct dependent edema, **walking** and contracting the calf, thigh, and buttock muscles will help squeeze the excess fluids back to the core of the body.
- The swelling could also be **"non-dependent" edema** and due to **liver, kidney, or heart problems,** as well as **blockage of a lymph vessel.**
- The swelling will not go away unless the underlying cause gets fixed. That may not be possible.
- Compression hose are usually not effective for this swelling, but are often used, as dependent and non-dependent edema can happen concurrently.

Why does the swelling increase your risk for infections and ulcers?

- Persistent swelling separates the ends of the arterial circulation and beginning of the venous circulation from the cells of the muscles, skin, and other organs, at the capillary level. It makes it very difficult for the arterial

circulation to provide oxygen, nutrition, infection-fighting white blood cells, or antibiotics and other medications to the tissues, and for the tissues to get rid of carbon-dioxide and waste products.

- Even if you have good arterial circulation, swelling in your interstitial spaces from poor venous circulation, organ damage, or lymph damage can prevent your arterial circulation from reaching the cells of your tissues, putting you at risk for wounds, ulcers, and infections. Your ability to heal is also poor.

It's important for the health of your feet and lower legs to get the severe edema under control. If it's not possible, you have to take other precautions.

***Let's consider pressure points from a new shoe, orthotic, or foot brace*:**

- Be especially careful inspecting the skin if new shoes, inserts, or other appliances are being used. If the fit is not 100% perfect, areas at risk for pressure, due to an underlying bone or due to excessive swelling, should be carefully inspected. If there's new signs of redness, broken skin, or a blister, let the diabetic know immediately. The trauma needs to be evaluated, and the shoe, insert, or appliance will need to be modified.
- The diabetic needs to find out if the shoe, insert, or appliance should not be used until the modification has been done, and if weight-bearing should be limited until the modification has been done.

How about redness on the skin, not associated with any breaks in the skin or any underlying bone that would cause pressure and the redness:

- The red or brown skin discoloration found on the skin of chronically swollen lower legs could be **hemosiderin deposits**. This is permanent, but harmless. Let the diabetic know of your findings.
- If the redness is associated with red, flaky, sometimes moist skin that burns, it's probably **athletes foot**. See chapter 8 for prevention and treatment. It's usually not anything that needs to be brought to the doctor's attention, unless

the skin breaks open and allows germs to enter the tissues of the diabetic. Let the diabetic know of the findings.

- The redness could also be **cellulitis**, which is an infection of your underlying tissue or **dermatitis**, which is an infection of the skin. This is more likely to happen in skin and muscle tissue that's affected by swelling, but can also happen without swelling. ***Let the doctor know if this is a new finding.***
- The redness could be a **rash**. It shouldn't hurt to try a little hydro- cortisone cream to see if it goes away. ***See a dermatologist if you need further help.***
- The redness could be due to **trauma**, such as a burn, and the skin would likely be broken and showing signs of trauma. ***It'll need a doctor's attention***. Let the diabetic know of your findings.
- Lastly, the redness could be from a **bug-bite**. There could be little tiny puncture holes in the middle. This could be serious. It can **spread rapidly** and cause **very severe cellulitis** in anybody, diabetic or not, and put the limb at **risk for amputation**. ***This is a medical emergency!***

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7-How to inspect your diabetic shoes and socks:

You've just learned in the previous section that pressure is a major factor in the development of pressure ulcers.

Avoiding undue pressure is the biggest factor when it comes to your shoes:

You want a shoe that's big enough at the top and the sides to not put any undue pressure on your feet, including your toes. If you have hammertoes and/or bunions, you'll need a shoe that has a **large toe-box**, while being **narrow in the heel** so that it won't slip off. Several shoe stores sell these without a prescription.

You want a shoe that provides a **proper arch** for your foot. In many instances, a good tennis shoe or athletic shoe will accommodate this.

If you feet **swell**, you'll need a **"diabetic shoe"** that's just big all the way around. Generalized pressure, surrounding your swollen foot due to a shoe that's too tight, will cause severe pain, if you can feel it, but also inability of both your arterial, venous, and lymph circulations to flow freely.

Shake out your shoes and inspect the inside of the shoe with your hands and your eyes for any **debris that you could be stepping on.** A little rock or other object can do a lot of damage if you walk on it all day long; maybe even for several days.

You'll need **custom-made orthotics** if you need to correct your gait or if you need to correct your arch in order to redistribute the pressure that's exerted into your foot when walking. A properly made orthotics **may be able to cut down on your risk for developing corns, calluses, and ulcers by off-loading the critical areas.**

Socks for diabetics should be white. Not because the dye hurts your skin, but because **it's easier to see blood and/or puss on a white sock.**

Socks for diabetics do not have to be 100% cotton. A **cotton-blend that wicks away moisture from the skin is preferred.**

The sock should be loose enough so that it **doesn't leave marks on the skin.** A sock with a seam can be turned inside-out to remove the pressure from a the seam.

8-How to prevent skin damage, infections, ulcers, and amputations:

You'll have to combine the information you learned in chapter 6 about inspection of your diabetic feet and the information from chapter 7 about your diabetic shoes and your diabetic socks with this chapter about prevention, to be able to do the absolutely best preventive and proactive job to keep your diabetic feet as healthy and safe as possible.

- You have to wear **socks that are not too tight**. The material should be a **cotton-blend that wicks away moisture** from your skin to keep it dry. Buy **seam-less**, or turn the sock inside-out to prevent pressure from the seam.
- You have to wear **shoes that give you enough room** on the sides and the top to **avoid undue pressure** on areas with protruding bones, such as bunions and hammertoes.
- As for **hammertoes**, you have three pressure points to be concerned about: the top of the toe that points up into your shoe, the end of the toe that points down into your shoe, and the metatarsal joints that protrude down at the bottom of your foot and into your shoe. The pressure points can not only cause **painful calluses or corns**, but also **painful underlying ulcers**.
- You can purchase a **"hammertoe crest"** which is a crescent-shaped "filler" that fits under you toes and lifts them up. This keeps the tip of the hammertoe from pointing into your shoe.
- You can also purchase **gel sleeves that are enclosed at the end** to protect your hammertoe, both at the top and at the tip. The gel sleeves will have to be cut in length to fit properly.
- You can purchase **gel sleeves, foam sleeves, or toe dividers** to prevent **calluses** or **corns** from developing on the side of a toe due to the bony structure of the toe joint, rubbing against an adjacent toe. You can also use **cotton balls or lambs wool** to cushion.

- You can purchase **soft shoe inserts** to give you a little cushioning if the **bottom of your foot is bony**.
- You can purchase **custom-made orthotics** if you need to have your **gait corrected**, or have **pressure points re-distributed** or **off-loaded**.
- You need to keep your skin clean by **washing with water and soap**, and **drying carefully**, especially between the toes. You can also use a **non-rinse foam**, but you still need to dry afterward. The strong, soft paper towels that you can buy for your kitchen may be softer to use than an actual towel. You can allow the paper towels to dry and use them several times.
- Use a **good moisturizer** to keep your skin soft and intact and free from cracks. **Intact skin** is the best barrier to keep germs away from your tissues.
- Use **compression hose** to prevent **dependent edema**. The hose will have to be applied immediately after you have lied down and reduced your swelling. The hose will not correct the swelling, only prevent it. **Baby powder** can be sprinkled inside the hose to ease the application. An **application devise** can also be purchased to ease the application. You need to remove the hose daily, or as often as you can, for skin care, but it doesn't have to be at night. You can sleep with the compression hose and have it removed and reapplied during the day when your feet and legs get inspected and cleaned. You may have to lie down for a little while to reduce the swelling before the hose is reapplied. You may have to choose a time to do this when help is available.
- To prevent **athletes foot**, keep your skin **clean and dry**. **Change socks** as often as needed to keep moisture away from your skin. Use **baby powder**; you can shake it into your socks before applying. Check with your pharmacist about which **OTC anti-fungal cream** you should use.
- **Clip your toe nails straight across and round the corners with a file**, if you're able to do so without damaging your skin or cuticles. Your risk level will determine the extend of your injury, if you cause a cut in your skin.

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Hand-Out **-How to Take Care of Your Diabetic Feet at Home-** *07/15/14*

- ***If you have lack of sensation in your feet and cannot feel pain, the following is a "must" for your safety and possible prevention of amputations:***

(Print pages 19-20 and hang on your refrigerator door for daily reminders)

  - Do **not walk barefoot** on hot or cold surfaces. Just because you can't feel the pain, doesn't mean that the hot asphalt or the cold snow won't give your feet heat burns or freezer burns.
  - Don't walk barefoot, at all. The **shoe** is supposed to protect your feet from injury. A proper-fitting **sock** will also cushion your skin.
  - Don't use a **heating blanket** on your feet and legs. Being diabetic with poor circulation and no sensation, you're much more likely to develop a heat-related injury than someone who's not diabetic.
  - You must **inspect** your feet daily, and more often if you're wearing new shoes and/or new orthotics with new pressure points to worry about.
    - Remember, that nerve damage with lack of protective sensation is just one of the many things that can go wrong. Nerve damage often happens along with poor circulation.
    - A brittle diabetic is at **much higher risk** for injuring his or her feet, in general, than other people.

- **Cut your own toe nails only if you're "low-risk"** and you can see and feel what you're doing; and you're able to do the job without doing damage to your skin. **If you have numbness in your feet, you are "high-risk" and should not attempt to cut your own toe nails.**
  - If you do get a small cut or scrape, keep the area clean and dry. If you don't heal as easily as expected, this will be a lesson that you need to stop cutting your own toe nails. Your risk is higher than you had anticipated. For a brittle diabetic, this could be the beginning cause of an amputation.

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Hand-Out ***-How to Take Care of Your Diabetic Feet at Home-*** *07/15/14*

- Please have a **podiatrist** or a **foot care nurse** clip your nails if you're **"moderate" to "high-risk"** or if you can't do the job yourself, no matter the level of risk. The professional will also assess your skin, your circulation, your nerve status, and areas of pressure; and inform you of your risk level.
- You can safely work on flat areas of callus with an **emery board**; however, if you risk cutting into your skin with the side of the emery board, leave the job to a **podiatrist** or a **foot care nurse**. I do not recommend that anybody use the **"egg"** with the razor blades due to the poor visibility it provides.
- Do not try to remove a **corn** with a **razor blade**. Leave this up to a **podiatrist** or a **foot care nurse** with the proper credentials.
- Do not try to use a **medicated corn pad** to remove a corn. The medication is an acid that will not only eat away at the corn, but also the surrounding skin and fat and muscle tissue.
- Finally, **if in doubt**, please ask your **podiatrist** or your **foot care nurse** for advice.
- ***Don't forget the diet and exercise advice from chapter 3, with a reference to my other hand-out on "Health, Well-being, and Happiness" from my website.*** Your feet are an extension of your body. The health of your feet depends on the health of your whole body. Proper diet and exercise are the foundations of good health.

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9-Know where to go for nail and skin care, shoes, and orthotics:

My website shows the medicare-covered services for diabetics in reference to their routine diabetic foot care and keeping their feet safe, as of 2011, on the page with "diabetic foot care." ***The coverage will likely continue to change as time goes on.***

As of 2011, medicare pays for you to see a podiatrist for an evaluation of your diabetic feet for orthotics and diabetic shoes. If you qualify for the shoes and/or inserts, medicare will cover them. Your podiatrist can give you more detail. A certified orthothist can also make high-quality custom-made orthotics.

As of 2011, medicare also covers a visit to the podiatrist two or more times a year, if you qualify, for your routine diabetic foot care, including nail trimming. The qualifying criteria has to do with your risk factors and your prior history of ulcers.

However, medicare may not cover all your necessary nail clippings to be done by a podiatrist. In that case, a board-certified foot care nurse is a nice alternative.

A board-certified foot care nurse has undergone extensive training on anatomy and physiology; and, as for myself, I've been in business doing this kind of work independently since 2000, and prior to this as an employee at a local hospital in the late 1990's where a clinic was set up for diabetics to come in and receive their routine foot care and foot evaluations by nurses and support staff.

A foot care nurse, who is not a nurse practitioner, is not able to contract with medicare or other insurance, as the provider must have a doctor's level of education to be able to contract; however, the foot care nurse may charge fees that are no higher than a co-pay when insurance is involved.

A podiatrist, neurologist, wound specialist, and other medical providers are able to perform non-invasive tests with expensive equipment, and are also able to order expensive invasive tests to determine the status of circulation, nerves, bones, tissue, and wounds. Medical insurance usually covers these tests and procedures.

A board-certified foot care nurse and a podiatrist can complement each other nicely in reference to the routine nail and skin care of diabetics.

10-What do you do if you don't have medical insurance:

- If you have only medicaid coverage for low-income and indigent people, it may not cover podiatry services in all 50 states of the USA.
- If you do have medicaid coverage, however, you can always be seen for wounds on your feet, even if podiatry services are not covered.
- Check with medical clinics for low-income and indigent people in your area. They may have foot care services available at low or no cost.
- Check if your area has foot care nurses available. Since foot care nurses are not contracted with medical insurance, they may not appear in lists of doctors; however, you can look up the service in a computer on the search line. Foot care nurses may have fees low enough for you to afford.
- Shelters and other places may have shoes, socks, and other foot care supplies available for you, free of cost.
- If your feet are swollen and you can't get protective shoes that are big enough to prevent squeezing your feet, a big slipper with firm rubber soles and a soft inside cushioning, such as lamb's wool or memory foam cut to size, may be your safest and most inexpensive choice of foot-wear.
- Be preventive by keeping your feet clean and dry.
- Be preventive by eating as many fresh fruits and vegetables as possible, and go for whole grains and beans, instead of the processed grains. Drink water instead of soda.
- Don't smoke; it constricts your capillaries and prevents a good arterial blood flow out to your tissues.
- Don't abuse alcohol; it ruins your liver and causes severe edema in your feet.
- Don't use illicit drugs; they ruin your liver and raise your blood pressure.

11-Inspirations and links:

The following three books are loaded with information on diet, metabolism, exercise, and care of the diabetic and non-diabetic foot. They have all been a great inspiration to me in preparing this hand-out:

- "Clinical Care of the Diabetic Foot," Second edition, Armstrong, DPM, MD, PhD, David, and Lavery, DPM, MPH, Lawrence; American Diabetes Association, 2010.
- "The Blood Sugar Solution," Mark Hyman, MD; Little, Brown, and Company, 2012.
- "The Salon Professional's Guide to Foot Care," Godfrey Mix, DPM; Milady SalonOvations, 1999.

Please visit my website, www.HFHF, and review other educational pdf hand-outs on body health, healthy recipes, healthy exercise, as well as foot health and care and prevention of various foot conditions, including information on vendors on socks, shoes, and supplies.