

Diabetes Foot Screen

To refer or not to refer, that is the question.

Why do we refer?



International Working Group on the Diabetic Foot (IWGDF)

- Prevention of foot ulcers in at-risk patients with diabetes (5)
- Footwear and offloading to prevent and heal foot ulcers in diabetes (3)
- Diagnosis, prognosis and management of peripheral artery disease in patients with foot ulcers in diabetes (9)
- Diagnosis and management of foot infections in persons with diabetes (10)
- Interventions to enhance healing of chronic ulcers of the foot in diabetes (7)

www.iwgdf.org/files/2015/website_development.pdf

Clinical Exam

1. Hear

What does the patient tell you?



2. See

Is something abnormal about the appearance of the foot?

3. Feel

What do you/they feel? What don't you/they feel?

Hear

- Do they have a history of/previous diagnosis of:
 - Peripheral neuropathy
 - Peripheral neuropathy with  referral disease and/or a foot deformity
 - Peripheral neuropathy and a history of foot ulcer or lower-extremity amputation  referral

Hear

N=1,666	Ulcer	Amputation	Hospitalization
1.No disease 58.6%	2.0%	0	0
2.PM 5.9%	4.5%	0	1.0%
3.PM 16%	3.0%	0.7%	1.8%
4. 20%	70%	3.7%	90%
5. 2.2%	2.2%	2.2%	2.2%
6. Amp history 3.3%	32.2%	20.7%	50%

See



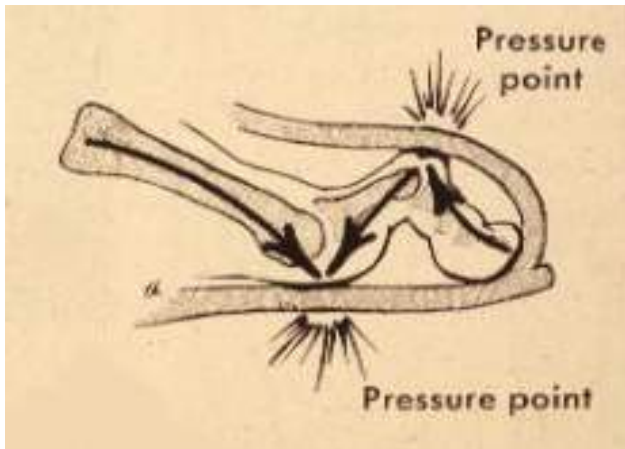
See



See



See



See



See



See

Author	Treatment	% ulcers	Sample size
Edmonds 1986	Custom vs. patient selected	26% vs. 83%	Treat=148 Control=53
Dargis 1999	multispecialty vs. community standard	30% vs. 58%	Treat=56 Control=89
Uccioli 1995	Custom vs. patient selected	28% vs. 58%	Treat=33 Control=36

See

- Toenails?
- Can cause significant risk to adjacent toes and soft tissue
- Increased significance in neuropathy because of inability to feel pain
- Increased significance in peripheral vascular disease because of compromised healing



Feel

Skin temperature

Skin texture

Palpable pedal pulses

Color changes

Hair present on the foot



Feel

A clinically relevant definition of the “at risk” patient with neuropathy:

A level of sensory loss sufficient for a patient to injure themselves without recognizing (feeling) the injury



Feel

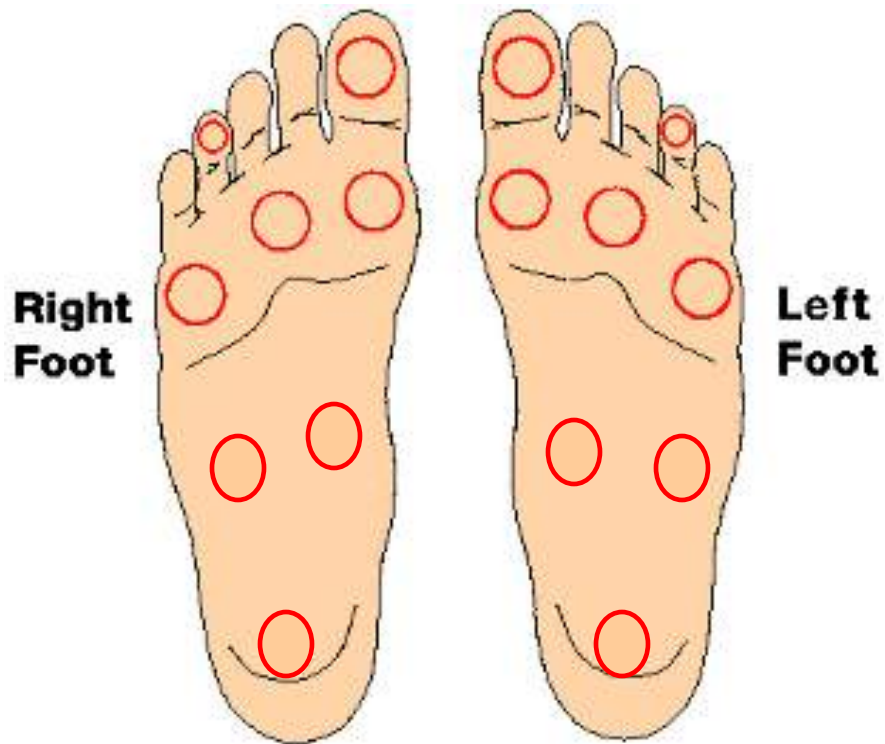
SWM size	Force
4.08	1.0 gram
4.31	2.0 gram
4.56	4.0 gram
4.74	6.0 gram
4.93	8.0 gram
5.07	10.0 gram
5.18	15.0 gram
5.46	26.0 gram
5.88	60.0 gram

Diminished light touch

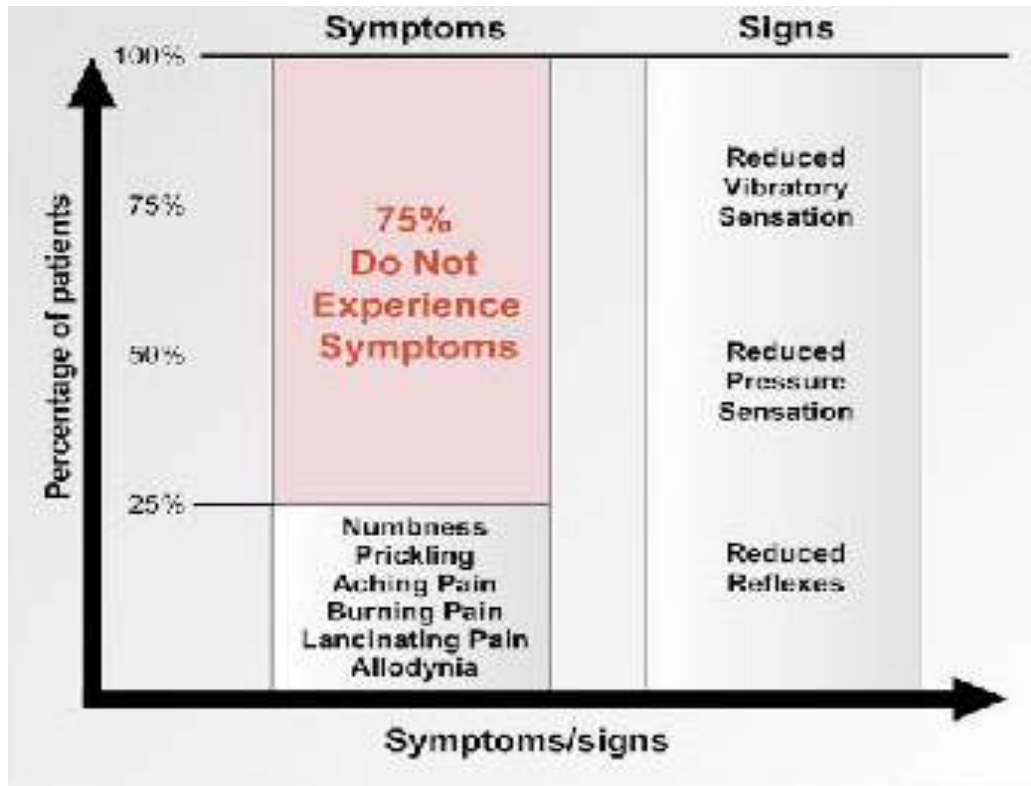
Loss of protective sensation

Feel

10 gram Semmes-Weinstein
Monofilament Testing



Feel



- All patients with diabetes and peripheral neuropathy show one or more of these signs.
- Periodic evaluation is essential for all patients since many are not aware of their

referral

Abbott CA, et al. *Diabetes Care*. 1998; Apfel SC, et al. *J Neurol Sci*. 2001; Armstrong DG, et al. *Arch Intern Med*. 1998; Carrington AL, et al. *Diabetes Care*. 2002; Feldman EL, et al. *Diabetes Care*. 1994; Shearer A, et al. *Diabetes Care*. 2003; Veves A, et al. *Diabet Med*. 1991; Vinik AI. *Am J Med*. 1999.

What Would You Do?



What Would You Do?



Conclusion

	Shoes/Insoles	Other Recommendations
Risk Group 0	Sensible OTC shoes	Yearly foot evaluation (primary care physician/specialist) education
Risk Group 1 Neuropathy	Fit correctly OTC insoles	referral
Risk Group 2 PVD	Accommodative insole OTC vs. custom shoe	referral
Risk Group 3 History of ulcer/amputation	Shoes +/- modifications Custom insole	referral

OTC: Over-the-counter, PVD: Peripheral Vascular Disease

Adapted from Clinical Care of the Diabetic Foot, Armstrong DG, Lavery LA. 2005

References

1. BROWNRIGG JR, HINCHLIFFE RJ, APELQVIST J, et al: Effectiveness of bedside investigations to diagnose peripheral artery disease among people with diabetes mellitus: A systematic review. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 119, 2016.
2. BROWNRIGG JR, HINCHLIFFE RJ, APELQVIST J, et al: Performance of prognostic markers in the prediction of wound healing or amputation among patients with foot ulcers in diabetes: A systematic review. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 128, 2016.
3. BUS SA, ARMSTRONG DG, VAN DEURSEN RW, et al: Iwgdf guidance on footwear and offloading interventions to prevent and heal foot ulcers in patients with diabetes. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 25, 2016.
4. BUS SA, VAN DEURSEN RW, ARMSTRONG DG, et al: Footwear and offloading interventions to prevent and heal foot ulcers and reduce plantar pressure in patients with diabetes: A systematic review. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 99, 2016.
5. BUS SA, VAN NETTEN JJ, LAVERY LA, et al: Iwgdf guidance on the prevention of foot ulcers in at-risk patients with diabetes. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 16, 2016.
6. GAME FL, APELQVIST J, ATTINGER C, et al: Effectiveness of interventions to enhance healing of chronic ulcers of the foot in diabetes: A systematic review. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 154, 2016.
7. GAME FL, ATTINGER C, HARTEMANN A, et al: Iwgdf guidance on use of interventions to enhance the healing of chronic ulcers of the foot in diabetes. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 75, 2016.
8. HINCHLIFFE RJ, BROWNRIGG JR, ANDROS G, et al: Effectiveness of revascularization of the ulcerated foot in patients with diabetes and peripheral artery disease: A systematic review. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 136, 2016.
9. HINCHLIFFE RJ, BROWNRIGG JR, APELQVIST J, et al: Iwgdf guidance on the diagnosis, prognosis and management of peripheral artery disease in patients with foot ulcers in diabetes. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 37, 2016.
10. LIPSKY BA, ARAGON-SANCHEZ J, DIGGLE M, et al: Iwgdf guidance on the diagnosis and management of foot infections in persons with diabetes. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 45, 2016.
11. PETERS EJ, LIPSKY BA, ARAGON-SANCHEZ J, et al: Interventions in the management of infection in the foot in diabetes: A systematic review. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 145, 2016.
12. SCHAPER NC, VAN NETTEN JJ, APELQVIST J, et al: Prevention and management of foot problems in diabetes: A summary guidance for daily practice 2015, based on the iwgdg guidance documents. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 7, 2016.
13. VAN NETTEN JJ, PRICE PE, LAVERY LA, et al: Prevention of foot ulcers in the at-risk patient with diabetes: A systematic review. *Diabetes/metabolism research and reviews* **32 Suppl 1**: 84, 2016.
14. http://www.iwgdf.org/files/2015/website_development.pdf