One pair must last a lifetime

Foot care in diabetes

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This article is the sixth and final in this series examining issues in foot care. This month the authors focus on footcare in diabetes that will help make feet 'last a lifetime'.

Irene's story

Irene is 74 and has had type 2 diabetes for 25 years. A foot assessment shows she has no foot pulses, the feet are cold and the skin dry, cracked and atrophic. Sensation to sharpness and light touch is reduced to the midcalf and absent below the ankle. There are areas of callus on the left first metatarsal head and on the medial aspect of the right great toe with a corn on the second proximal interphalangeal joint associated with clawing of the toes.

Table 1. Traffic lights

1 Neurological	2 Vascular	3 Structural	4 Self care	5 Past ulcer	Risk level
●	●	○	●	○	danger
○	○	●	○	○	caution
○	○	○	○	●	healthy

Foot care

Foot care in diabetes is inexpensive, underrated and highly effective. Approximately 50% of admissions related to foot problems which would have been preventable if the patient and health professionals involved had better knowledge about and access to appropriate foot care.[1]

Irene has several risk factors for foot problems:

- peripheral vascular disease,
- peripheral neuropathy, and
- inadequate foot care (Table 1).[2]

She is at very high risk of repeating the history of her mother who had a chronic foot ulcer, requiring an amputation, which was followed by her death shortly thereafter.

Although Irene had managed her diabetes very well for 25 years and her mother's experience had made her very aware of the risk of foot problems, neither she nor her health care team had established a foot care program involving Irene (and/or her carer) and health professionals. Foot assessment is recommended by the RACGP[3] and a three minute check can be incorporated

Table 2. Indicators of inadequate foot care

- Dirty feet
- Inadequate or inappropriate foot wear
- Dry/cracked skin
- Thickened skin (corn, callus)
- Long/deformed/thick/ingrowing nails
- 'Garter' effect (causing vascular obstruction)

Foot care

1. Tinea is a common entry point for infections which can spread through the web space into the foot (Figure 1a).
2. Scalds and burns are not uncommon in people with neuropathy who do not feel pain with mechanical, thermal or chemical damage (Figure 1b).
3. 'Corn cures' can remove normal as well as thickened skin and result in deep ulcers (especially if neuropathy is present) (Figure 1c).
4. These are some of the items found in the shoes of patients attending a podiatrist (Figure 1d).

Nail care

Nails should be cut straight across level with the top of the toe. The edges should be rounded using a nail file or emery board (and not cut since sharp edges may cause damage and infection to the nail fold) (Figure 1e).

Footwear

Footwear should have a firm heel counter and lacing or velcro to hold the shoe firmly on the foot. There should be ample toe room and a shock absorbing sole. Shoe fabrics should ensure adequate ventilation (Figure 1f).

Potential nail problems

Excessively long nails (Figure 1g) can damage adjacent toes and/or result in footwear causing pressure on the nail bed which can ulcerate (Figure 1h).

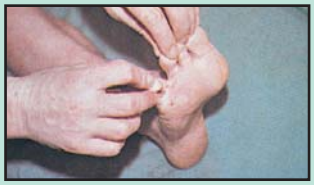
Figure 1a

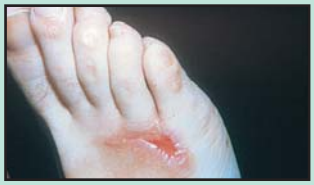
Figure 1b

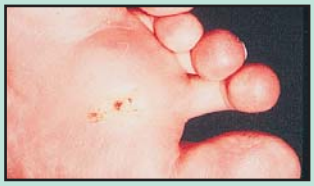
Figure 1c


Figure 1d

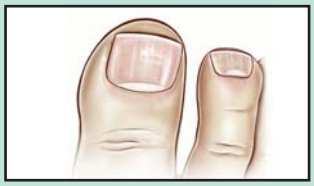
Figure 1e


Figure 1f

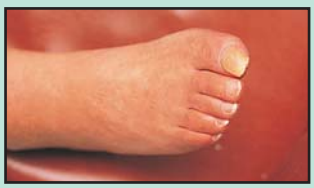
Figure 1g

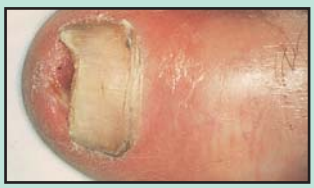
Figure 1h

into the annual diabetes review. Sometimes the programs are developed but not practised and patients present with a painless wound, unkempt nails or inappropriate footwear. The feet may tell a story that differs from that told by their owner (Table 2).

If they don't know the necessary practice or are unable or unwilling to practise it, it is unlikely that problems will be prevented (Figure 1a-1h). This article focuses on the foot care that will make 'one pair last a lifetime'.

As it happened Irene's assessment triggered the development of a self and professional care program. Irene may be unable or unwilling to look after her feet. The first step is to assess 'who cares' (Table 3). If Irene can't reach her feet because of musculoskeletal problems or overweight, a relative or carer may be able to help. The presence of abnormal nails or peripheral vascular disease signals the need to involve a podiatrist.

The day to day carer should appreciate the importance of regular foot maintenance and be committed to and

Table 3. Who cares — a guide to nail management

Self care	Relatives/supporters	Podiatrist
Can see	Can't see	Can/can't see
Can reach	Can't reach	Can/can't reach
Normal nails	Normal nails	Abnormal nails*
No PVD	No PVD	PVD

* Thick — gryphotic. Crumbly — mycotic. Ingrown — ± infection

Table 4. Foot factors for foot ulcers

- Vascular disease
  - reduced healing
  - increased risk of infection
- Neuropathy
  - damage becomes painless
  - dry skin cracks
- Mechanical dysfunction
  - high pressure areas
  - special footwear required
- Foot care*
  - inadequate or inappropriate footwear
  - poor skin and nail care
  - lack of monitoring schedule, action plan or access to health professionals

* Patients may not be able to see, reach or feel their feet

Table 5. Self care priorities

Risk factor	Hygiene	Inspection	Protection
Vascular	++++	+	++++
Neuropathy	++	+++	++++
Structural	+	+	++++
Self care	++++	+	+

Table 6. Action plan examples

Warning	Cause	Action
Cut or abrasion	Damage	Simple first aid* If worsens, becomes inflamed or discharges or if not healing in 48 hours — see the doctor
Pressure areas – recurrent local – transient redness – blisters – skin/nail thickening	Excess pressure	See the podiatrist for footwear advice
Nails – crumbly brittle nails – moist or macerated skin between toes	Fungal infection	See the doctor or podiatrist
Inflammation – redness – warmth – swelling	Infection	See the doctor or podiatrist

* Clean the area with soap and warm water, cover with a clean dressing and protect from pressure.

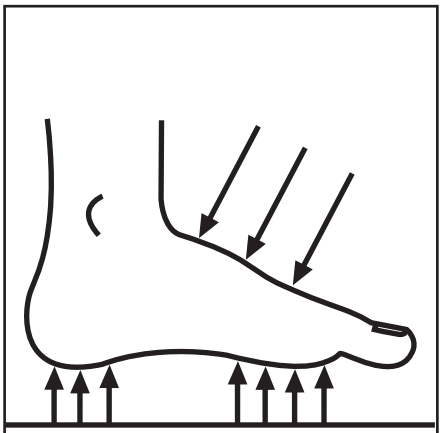

Figure 2a. The high arched foot will typically show areas of high pressure beneath the heel and metatarsal heads. Shoe pressure may be excessive over the dorsium and may require special design and fitting.

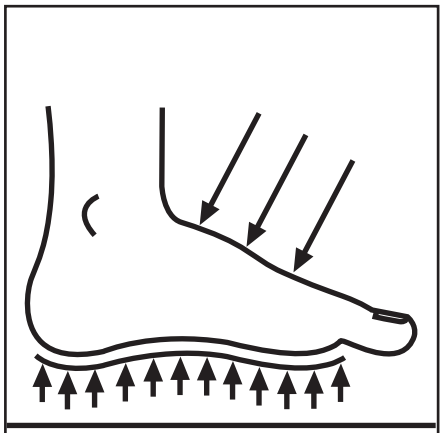

Figure 2b. The use of a well designed orthotic device can redistribute loads across the plantar surface of the foot. This reduces potential ulcerative loads under the forefoot. Shoe fitting may still be an issue to avoid dorsal pressure.

capable of performing the daily routines (see Patient education sheet).

Irene has three of the four foot risk factors (Table 4) and is at considerable risk of developing foot problems. Special foot health measures are needed which specifically address the special priorities of foot care for each risk factor (Table 5).

- Irene's vascular disease makes hygiene and foot protection high priorities;
- Irene's neuropathy reinforces the need for protection and adds inspection to pick up problems early; and
- Misshaped feet may need special footwear or orthoses for support, protection and to distribute load.

The podiatrist can do a detailed assessment, provide any necessary education and monitor future progress. If Irene's footwear is inappropriate, her podiatrist can design and prepare footwear and/or orthoses for her. An individualised action plan can be developed with Irene (and/or her relative or friend) that specifies the warning signs and the appropriate action (Table 6). In that way, minor problems might not lead to major disasters. A comprehensive program for foot care and footwear gives Irene her best chance to make 'one pair last a lifetime'.

Often nail care for people with diabetes has been dealt with harshly. People are told never to cut their own nails again which understandably frightens and frustrates people who have just been diagnosed with diabetes. While the advice might be sound for people with peripheral vascular disease, poor vision or abnormal nails, it won't apply to everyone. We have added some logic to nail care for people with diabetes (Table 3).

The key components for Irene were regular use of an emollient to moisturise her skin and maintain its integrity and visits to the podiatrist. The podiatrist arranged for appropriate footwear and orthoses to distribute weight bearing load to protect her feet (Figure 2a,b); removed thickened skin and cut her

thickened toenails without damaging surrounding tissues. Irene also checks the inside of her footwear and her feet visually and by touch because she knows 'the feeling is gone'.

References

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3. Holmwood C, et al. Diabetes Management in General Practice. Royal Australian College of General Practitioners and Diabetes Australia. Canberra: National Capital Printing, 2001.
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