

## Pearls in Dermatology

### Light touch sensation testing using graded monofilaments

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Sensory testing with graded monofilaments is a simple, reliable, reproducible skill which is not excessively time-consuming. Graded monofilaments of different gauges are commercially available, delivering a known fixed amount of pressure. Baseline and serial testing can be done easily and compared.

**Keywords:** Graded monofilaments, sensory testing

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#### Introduction

In the clinical management of leprosy patients, it is important to assess accurately the diagnosis, disability grading, disease progress, severity of reactions (both Type I and II), and also to monitor for any neurological complications arising from the use of thalidomide.<sup>1</sup> Sensory testing with graded monofilaments is a simple, reliable, reproducible skill which is not excessively time-consuming and can be mastered easily.<sup>2,3</sup>

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#### Method

Graded monofilaments of different gauges are commercially available (Figure 1). One end of the filament is applied to the skin at right angle till it begins to bend (Figure 2). The amount of pressure exerted depends on its diameter and is known for each monofilament (Table 1) as supplied by the manufacturer. The finest (smallest caliber) one of the monofilaments is used initially. The patient is asked to close his eyes, and indicate if he can sense the touch of the filament. If he cannot feel the filament, then a filament of the next wider gauge is used until he can feel it. A number of spots on the palms and soles corresponding to innervations by different nerves are tested (Figure 3), and the results can be charted. Baseline and serial testing results can be done easily and compared.

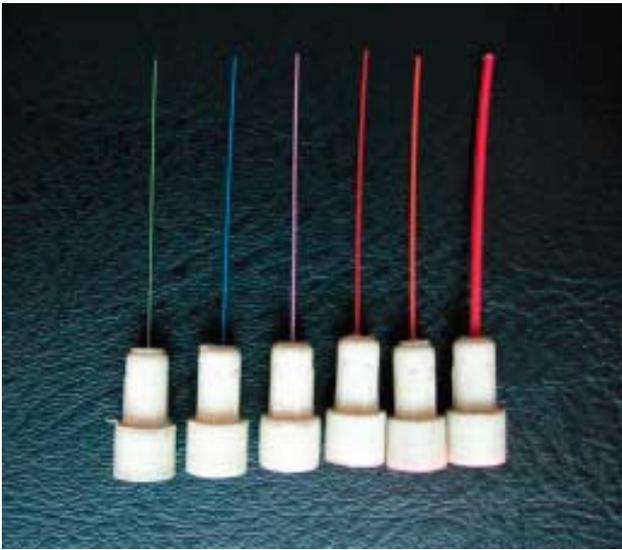


Figure 1. Monofilaments of different gauges.

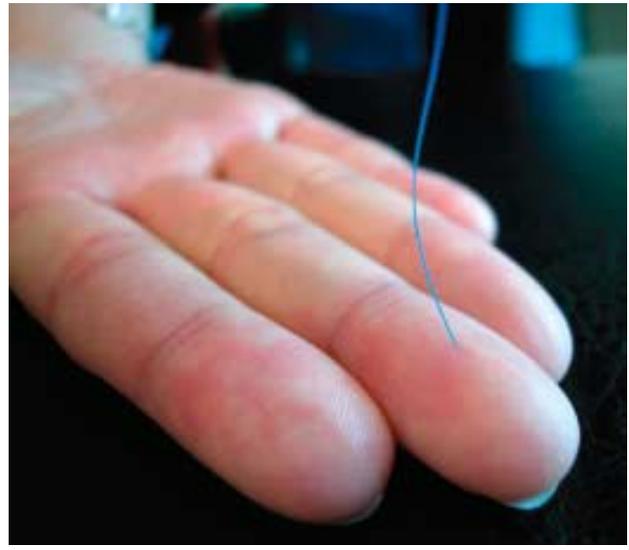


Figure 2. Apply the filament at 90 degree to the skin till it just starts to bend.

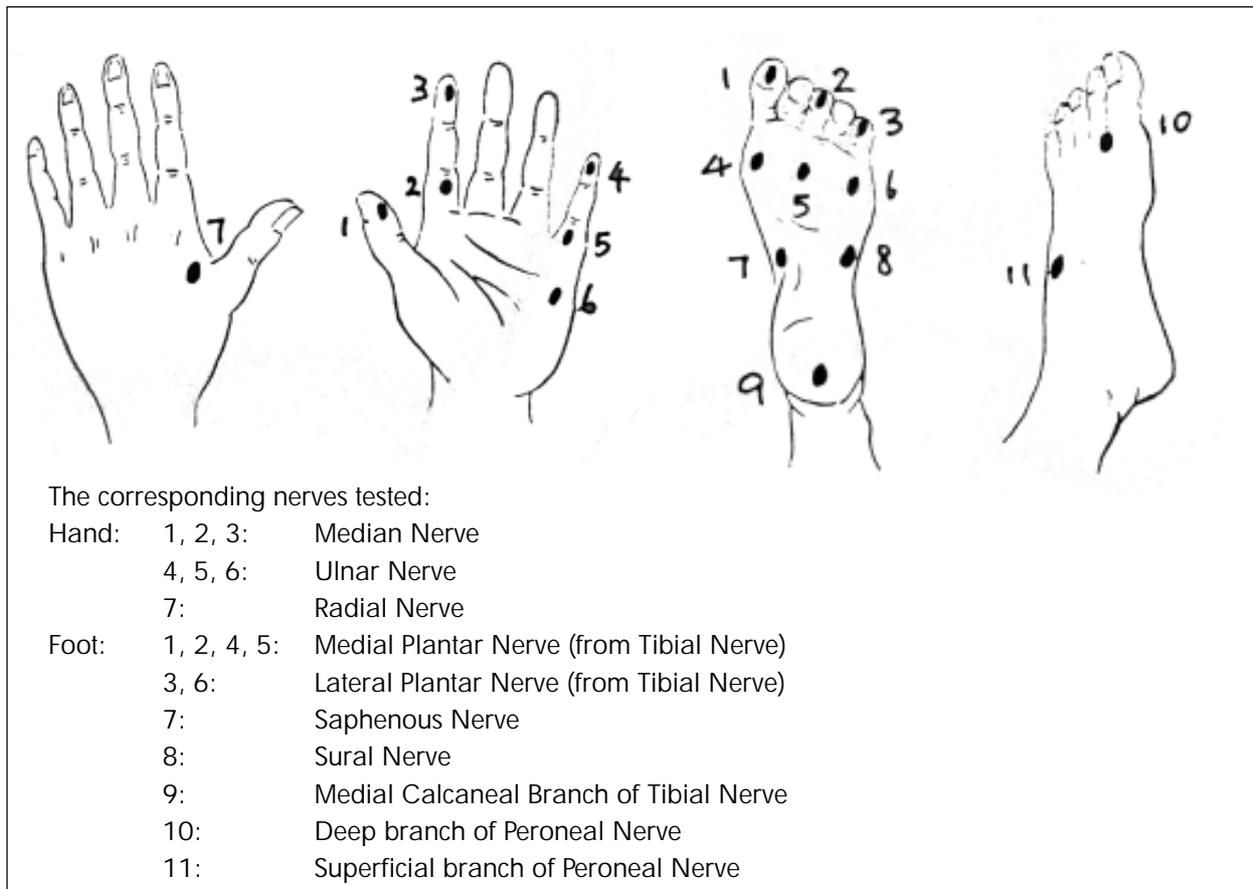


Figure 3. Test sites for the hand and foot.

**Table 1.** Perform the evaluation and document the first filament which gives a positive response.

Filament colour	Approx. force	Interpretation
Green	0.05 gm	Sensation within normal limits for hand and foot.
Blue	0.2 gm	Diminished light touch sensation in the hand with difficulty in fine tactile discrimination. Within normal limits for the foot.
Purple	2.0 gm	Diminished protective sensation in the hand but sufficient to prevent injury. Gross tactile discrimination, shape and temperature discrimination are difficult.
Dark Red	4.0 gm	Loss of protective sensation for the hand. In some cases for the foot. Hands particularly vulnerable to injuries. Usually loss of temperature discrimination.
Orange	10.0 gm	Definite loss of protective sensation for the foot. Continues to feel deep pressure and pain in both hands and feet.
Bright Red	300.0 gm	Able to feel deep pressure and pain.
No response	-	Loss of deep pressure sensation. Usually does not feel pain. Proprioceptive sensation persists.

Various factors may affect the sensation and thus the test results. These include the presence of corn and callosity, preexisting neuropathy such as diabetes mellitus and alcoholism.

### Comment

Sensation testing using graded monofilament is a simple and reliable clinical skill that is easily mastered and is not unduly time-consuming. Since the end of the filament is blunt and the skin is not pierced, risk of infection and disease transmission should be minimal.

### References

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