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

### 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. Sensory testing with graded monofilaments is a simple, reliable, reproducible skill which is not excessively time-consuming and can be mastered easily.

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Figure 1. Monofilaments of different gauges.

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

The corresponding nerves tested:

Hand:  
1, 2, 3: Median Nerve  
4, 5, 6: Ulnar Nerve  
7: Radial Nerve

Foot:  
1, 2, 4, 5: Medial Plantar Nerve (from Tibial Nerve)  
3, 6: Lateral Plantar Nerve (from Tibial Nerve)  
7: Saphenous Nerve  
8: Sural Nerve  
9: Medial Calcaneal Branch of Tibial Nerve  
10: Deep branch of Peroneal Nerve  
11: Superficial branch of Peroneal Nerve

Figure 3. Test sites for the hand and foot.
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 undue 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.

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

<table>
<thead>
<tr>
<th>Filament colour</th>
<th>Approx. force</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>0.05 gm</td>
<td>Sensation within normal limits for hand and foot.</td>
</tr>
<tr>
<td>Blue</td>
<td>0.2 gm</td>
<td>Diminished light touch sensation in the hand with difficulty in fine tactile discrimination. Within normal limits for the foot.</td>
</tr>
<tr>
<td>Purple</td>
<td>2.0 gm</td>
<td>Diminished protective sensation in the hand but sufficient to prevent injury. Gross tactile discrimination, shape and temperature discrimination are difficult.</td>
</tr>
<tr>
<td>Dark Red</td>
<td>4.0 gm</td>
<td>Loss of protective sensation for the hand. In some cases for the foot. Hands particularly vulnerable to injuries. Usually loss of temperature discrimination.</td>
</tr>
<tr>
<td>Orange</td>
<td>10.0 gm</td>
<td>Definite loss of protective sensation for the foot. Continues to feel deep pressure and pain in both hands and feet.</td>
</tr>
<tr>
<td>Bright Red</td>
<td>300.0 gm</td>
<td>Able to feel deep pressure and pain.</td>
</tr>
</tbody>
</table>

**References**