How Low Can You Go?

The ideal location for local anesthetic injection for sciatic nerve blocks is debated. Options include:

- **Extraneural injection**
  - Slower onset
  - Less success
  - Established approach

- **Intraneural injection**
  - Faster onset
  - Greater success
  - Safety in question

5 weeks after a 15 ml extraneural injection, axonal dysfunction is observed with a significant reduction in action potential amplitude. Similarly, 5 weeks after a 15 ml intraneural injection, axonal dysfunction is observed with a significant reduction in action potential amplitude.

Cappelleri et al. determined the minimum intraneural volume to achieve a sciatic nerve block:

ropivacaine 1%

6.6 ml intraneural
(95% CI, 6.4 to 6.7)

19 ± 12 min onset time

Complete sciatic nerve block

Despite the reduced intraneural volume utilized, axonal dysfunction with reduced action potential amplitude was observed at both 5-week and 6-month follow-ups.

While the persistent electrophysiologic changes observed did not have any associated clinical symptoms, additional study of longer-term outcomes for intraneural injections is necessary.