Summary: Nerve decompression in the diabetic foot has almost two decades of successful application, but has failed to achieve widespread acceptance or use. Basic science, indications and reported outcomes are reviewed. Studies needed to test its validity are delineated.

Abstract: Nerve decompression of the peroneal (fibular) and posterior tibial nerves has been reported by Dellon and many others to be successful in relieving the pain of diabetic neuropathy to a degree greater than any pharmacologic agent. It effectively restores protective sensation and balance while reportedly minimizing ulceration, reulceration risk, hospitalization for foot complications, and by inference the risk of progression to infection and amputation. Yet academic diabetologists and other non-surgical specialists usually caring for diabetic patients almost never consider this option for prevention or treatment of foot complications. The reasons for this skepticism may include factors such as: a misunderstanding of the justification for surgery, lack of appreciation of the link between compression and pain, the close similarities to nerve entrapments in Hansen's Disease or leprosy, the hypothesis that both metabolic and compressive factors in combination can explain the presence and patterns of symmetric diabetic peripheral polyneuropathy, the challenging of the regnant "length dependent axonopathy" etiologic hypothesis, the lack of prospective randomized trial reports, the confounding of placebo effect when relying on such subjective outcome measures as pain and sensation, and other factors.

In counterpoise are the multiple reports, mostly retrospective, of pain relief, balance and sensation recovery, the prospective animal basic science studies, ulcer recurrence risk reduction, and even rapid reversal of the Charcot process with nerve decompression. Opportunities to test the value of nerve decompression in these very common and severe foot complications are enumerated and discussed. Several differing approaches are likely to soon give us reliable evidence whether this procedure should be added to the commonly accepted armamentarium for diabetes foot complications, or not.