

## PT Classroom - Effects of Neural Manipulation in the Body by Jean-Pierre Barral, DO, MRO(F), RPT



Jean-Pierre Barral is a registered physical therapist and diplomate of osteopathy who serves as director and faculty of the Department of Osteopathic Manipulation at the University of Paris School of Medicine in Paris, France. He earned his diploma in osteopathic medicine in 1974 from the European School of Osteopathy in Maidstone, England, and went on to teach spinal biomechanics at the institution from 1975–1982. As the developer of Visceral Manipulation, he was named by TIME magazine as one of the Top Healing Innovators to watch in the new millennium. He developed Neural Manipulation in collaboration with Alain Croibier, D.O., based on their ongoing clinical research. Barral is the author of 12 books, including Visceral Manipulation, Manual Therapy for the Peripheral Nerves, and Manual Therapy for the Cranial Nerves.

### Effects of Neural Manipulation in the Body



Nerves are the body's great communicators, conveying vital information between the brain and all other structures. If a person is feeling pain, it is because the nerves are reporting this information to the brain. The slightest mechanical interference, however, can lead to a compression that impedes intraneural circulation and electromagnetic conductivity.

Neural Manipulation is a precise manual therapy used to identify and release local nerve restrictions, enabling them to move freely in their surroundings—that is, in relation to adjacent muscles, fascia, narrow passages in the aponeurosis, organs and bones. At the same time, the technique examines the effect of these local fixations on the rest of the body to resolve more comprehensive dysfunctional patterns.

A whole-body effect is achieved as the precise body part where the structure and function are disturbed is treated. A general mobilization of the knee, for example, will not facilitate a whole-body effect, even if it is repeated hundreds of times. Conversely, if a precise stretch is applied to a restricted joint capsule or to a fixation of the saphenous nerve, the treatment can trigger a self-correcting reaction throughout the organism. Our purpose with Neural Manipulation is to facilitate the body's ability to self-correct.

### The neural response to dysfunction

Nerves require sufficient intraneural pressure to function optimally. Too little intraneural pressure and they will be compressed; too much, and the nerve fibers and axonal transport are in danger of being compressed and/or disturbed. Freedom of movement of the nerve is essential for optimal blood and nerve supply to the nerve. It also is important for transmitting nerve impulses.

When a nerve is fixed, it typically loses its ability to glide and/or stretch in length. This means that the pressure within and next to the nerve increases dramatically. At the same time, the nervous tissues may change in consistency. This can lead to functional disturbances in the nerve rather like an electric wire exposed to water during a storm.

There is a neural effect referred to in physiology/neurology as “cross talk.” This occurs when dysfunction from viscera or other tissues refers to other sites on the skin or superficial tissue. In this scenario, an excess of afferent or sensory signals are sent via the nerve root to the spinal cord. This induces adjacent sensory nerves/neurons at that nerve root level to fire and send signals up the spinal cord. At this point, the higher centers in the brain are receiving multiple signals from seemingly multiple sources. An example is the classic referral pattern into the neck, jaw, and/or left arm and hand due to a heart in distress.

Consider too a micro-injury of muscles or tendons. This type of injury will involve peripheral nerves either directly or indirectly through the nearby connective tissue. With such an injury, a patient can develop symptoms during the course of treatment. In this case it is essential to look more globally for a lesion line.

For example, with an ankle sprain, it is clear that the ankle is not the only part affected, and other body areas must be explored. In addition to the crucial ligament, the small sensory nerve plexuses may well be ruptured or overstretched. They play a key role within proprioception. Treatment of peripheral leg nerves can therefore promote the healing process of the ankle and rapidly improve proprioception.

In all of these cases, Neural Manipulation aims to gently create movement and freedom within the central and peripheral nervous system by finding the points that are restricting the nerves, with consideration for their effects either on the other parts of that nerve or on the rest of the body. The technique helps to adjust the intraneural pressure and thus harmonize the entire length of the nerve. A well-balanced pressure ratio promotes the functioning of the supply vessels, lymph flow and electromagnetic conductivity.

### **Precise, gentle touch is required**

The nerve is a special tissue requiring much care and delicacy when treated manually. Manipulation that is too forceful or too insistent can provoke significant and long-lasting pain. Minimal compression should be used—just enough to stimulate the *nervi nervorum* (the intrinsic innervation of the nerve sheaths) without activating the nociceptive impulses.

On palpation, dysfunctional nerves feel harder than healthy nerves. There are two possible explanations:

- An increase in intraneural pressure that enlarges the volume of the nerve and its pressure resistance.
- A hardening and/or fibrosis of the connective tissue. In this case the nerve would feel harder but not larger, somewhat like a taut and totally inelastic tendon.

Since nerves are composed of connective tissue or fascia, the same fascial techniques that can address adhesions, restrictions and pain in other areas also can relieve these problems in and around the nerves. Neural Manipulation techniques are focused on allowing space around the neural and vascular structures that permits normal blood flow to the tissues; it is this blood flow that allows nutrients and oxygen to reach the cells and waste products to be removed.

Treatment to the nerves can be either on a nerve itself or on its surrounding structures in order to free up its movement. To treat the nerves, precisely applied pressure is required. Nerves also respond well to gentle elongation when they are restricted. The nerve branches that supply areas of skin can be addressed through such techniques as skin-rolling (*bindegewebs massage*). Treatment of the surrounding structures involves the tissues that the nerve supplies, such as an organ, fascia, blood vessel or joint. Furthermore, as the nerve leaves the central nervous system through the foramina, it may be compressed by the disc, vertebral fractures, or foraminal stenosis. Such elements would also need to be addressed.

Neural Manipulation can positively affect the functioning of nerve roots. The tension of the perineurium and all the other neural connective tissues is transmitted down to the root sheaths. Therefore, the microcirculation in the periradicular vessels (arteries, veins and lymph vessels) can be improved by pressure and release techniques.

To adjust to far-reaching body movements, the nerve roots need a certain margin of accommodation or extensibility. This “length reserve” is restored with precise manual treatment. In lateral trunk bending with the spine rotated, the margin for the most stressed nerve roots must be at least 1cm. According to Professor Pierre Rabischong (1989), it could be that the intermediate layer of the spinal cord (*dura mater* and *pia mater*) continues along the entire length of the epineurium. Such a space would not only promote the transfer of mechanical forces but would be able to diffuse any fluid into the nerve sheaths.

Due to the extreme reactivity of nerves, the slightest stimulus to them will immediately send pieces of information shooting toward the central nervous system. At this point the brain will respond locally or generally. Therefore, it is important to release the compression gradually while maintaining a light hold until the nerve regains its normal volume. For both cranial and peripheral nerves, treatment always is

carried out through stretching them distally.

### **Indications and contraindications**

Neural Manipulation is appropriate for a variety of disorders affecting different systems of the body. Among these are neuralgia, neuritis, paralysis and mechanically caused neuropathy, tunnel or bottleneck syndrome (e.g., carpal tunnel syndrome), Morton's syndrome, post-zoster pain, conditions of the central and sensory nervous system, dura mater tension, sutural and diploic fixations, otitis, facial paralysis, and hemiplegia. Additional indications might include those of the osteoarticular system, such as limited mobility, inflammation of capsules (e.g., synovitis and capsulitis), tendinitis, rheumatic pain, sprains and traumatic lesions, joint facets, muscle shortening, whiplash injury, migraines, vertigo, sinusitis, birth injuries, dental prostheses and orthodontics. The techniques also may be useful following trauma or surgery.

The major contraindications for Neural Manipulation are intracranial hypertension, severe arterial hypertension (decompensated or malignant), the after-effects of intracranial hemorrhage, severe diabetes, and intracranial aneurysm.

The ability of the human body to move freely is requisite on the unrestricted glide and slide of its tissues on top of and against one another. To be fully functional, bones and cartilage must be in an environment in which the continuous pressure tension and tractive forces on the connective tissue are transferred harmoniously to them. To maintain this optimal condition there needs to be proper circulation (arteriovenous) to the cartilage and bone tissue. This is controlled by our peripheral and autonomic nervous system. Through my many years of practice, I have found that it is therefore necessary to influence these systems if I am to speed up and/or promote the healing of an injury. Neural Manipulation is my method of choice to release restrictions and restore function. Used in your own practice, I believe you too will discover this to be a method that facilitates whole-body healing in your clients.

For more information regarding Neural Manipulation, how it can benefit your patients, and training seminars, please go to [Barralinstitute.com](http://Barralinstitute.com).

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<http://www.cyberpt.com/neuralmanipulationeffects.asp>