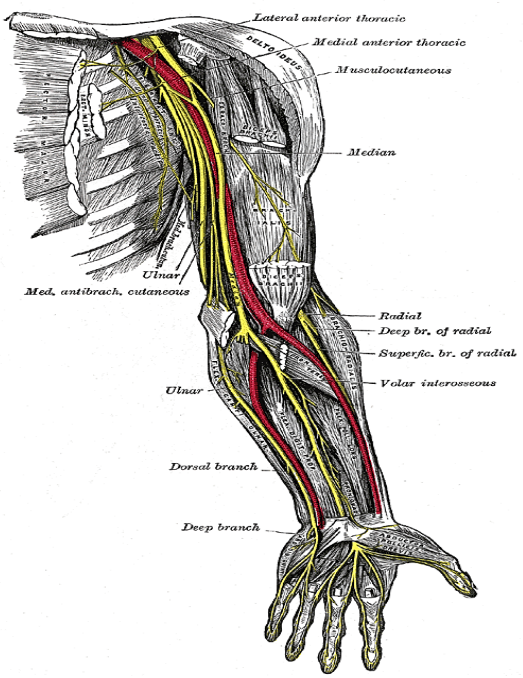
Peripheral Nerve Entrapments



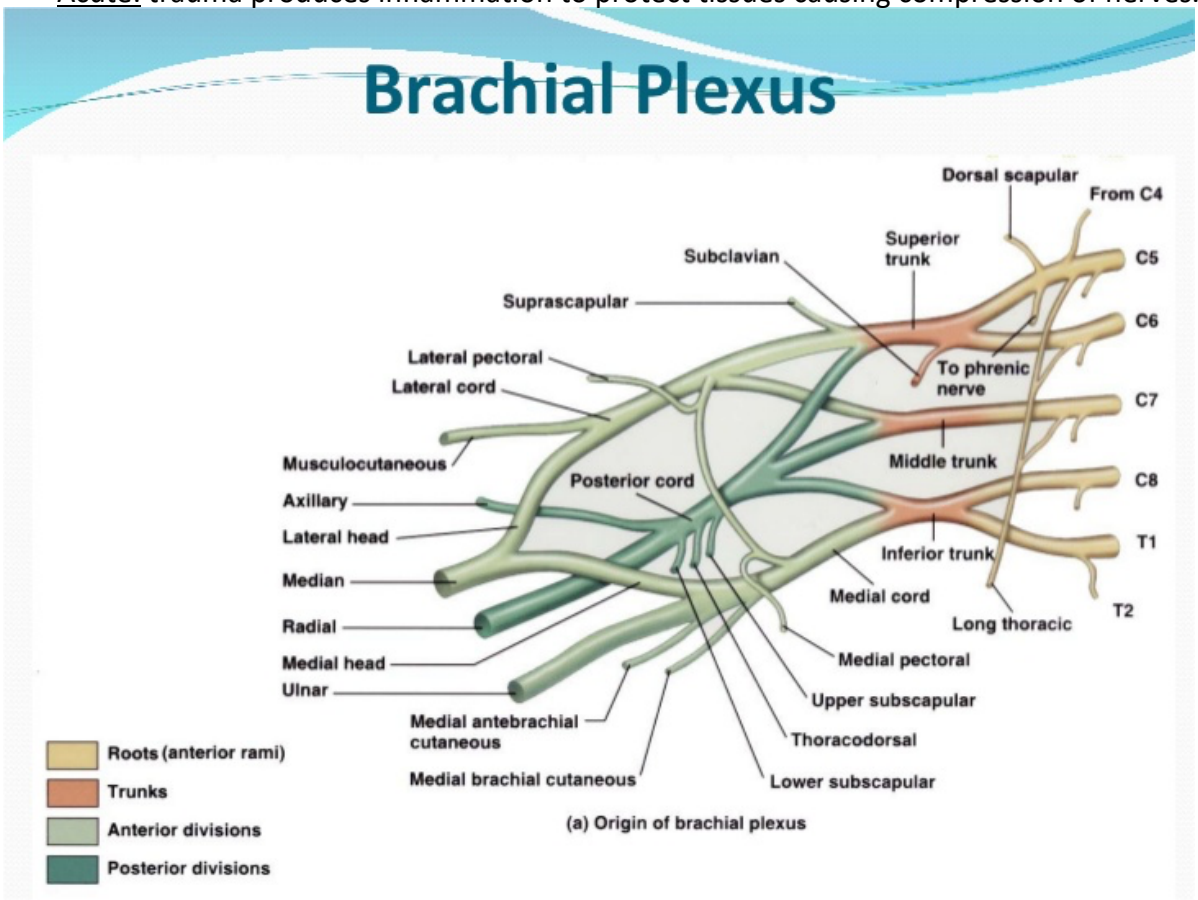
Definition: Any nerve outside of the spine is known as a peripheral nerve. As the Peripheral nerves pass through fascia or around bones and hard connective tissue they can become entrapped. Inflammation can also lead to nerve compression which may lead to neurogenic pain syndromes affecting the patients motor and sensory control. Acute and chronic cases do exist. The most common location of peripheral nerve entrapment is at the carpal tunnel where the median nerve passes through but is often misdiagnosed.

: compare a peripheral nerve to a garden hose. If you pinch the hose or put a kink in the hose you water flow will decrease.

Causes:

Chronic: Peripheral nerve entrapments are often caused by repetitive faulty movement patterns. The nerve entrapment is often associated with a certain job. For example, overhead workers are likely to entrap the brachial plexus (nerves in the shoulder) as it passed under pec minor or over the coracoid process (a bony prominence in the shoulder). People who sit and are on computers for a living are more likely to get carpal tunnel syndrome. Those who wear large heavy belts are likely to have entrapment of the lateral femoral cutaneous nerve under the inguinal ligament.

Acute: trauma produces inflammation to protect tissues causing compression of nerves.



Symptoms: most will present with a slight or moderate loss of motor or sensory function because of the entrapped nerve. Patients often experience tingling, numbness, or a slight loss of muscle function. The area of pain may not be the same area which is causing the entrapped nerve.

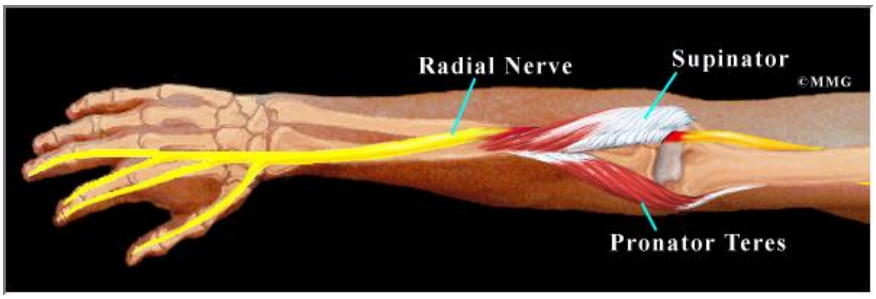
Treatment:

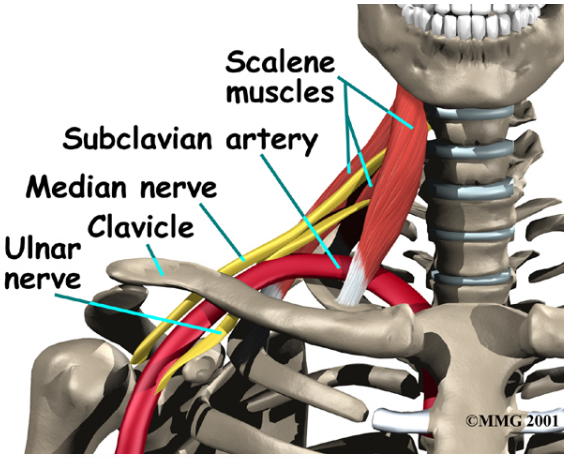
- **Chiropractic Care**
  - Lifestyle Modifications: this may involve correcting a faulty movement pattern or long term posture. This is done by using neuromuscular reeducation to retrain the small muscles in certain regions of your body.
  - Flossing: using proven manual therapy techniques to pull the affected nerve through the entrapped space back and forth until there is more space for the nerve to travel through.
  - Stretching: hypertonic muscles may be compressing the affected nerve. Stretching specific muscles can relieve compression upon the nerve.
  - Connective Tissue Release: involves the use of manual or instrument assisted soft-tissue to force the adhesions and knots out of the affected region. (ligaments and tendons) which can cause nerve entrapment. Connective tissue release also forces fresh blood into the region allowing for enhanced and quicker healing.

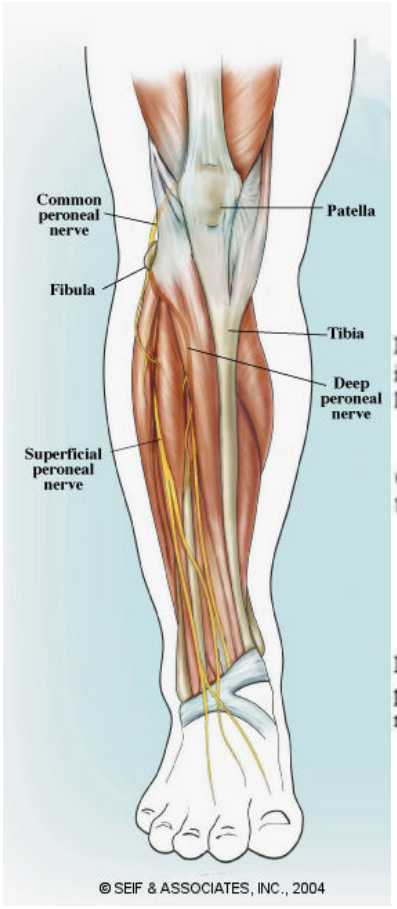
  - Modalities: The use of cold laser, ultrasound, and electric muscle stimulation have all been proven in the treatment of peripheral nerve entrapment.
  - **Adjustments:** NYCC professionally trains its students in safely adjusting the extremities to aid in the relief of peripheral nerve entrapment. This includes hips, knees, ankles, elbows, and wrists
  - Nutrition: Muscle testing or lab testing can provide insight in vitamin deficiencies. **B6, B12** are specifically correlated in treating peripheral nerve entrapment. General anti-inflammatory like **Ginger** and **Turmeric** may help.

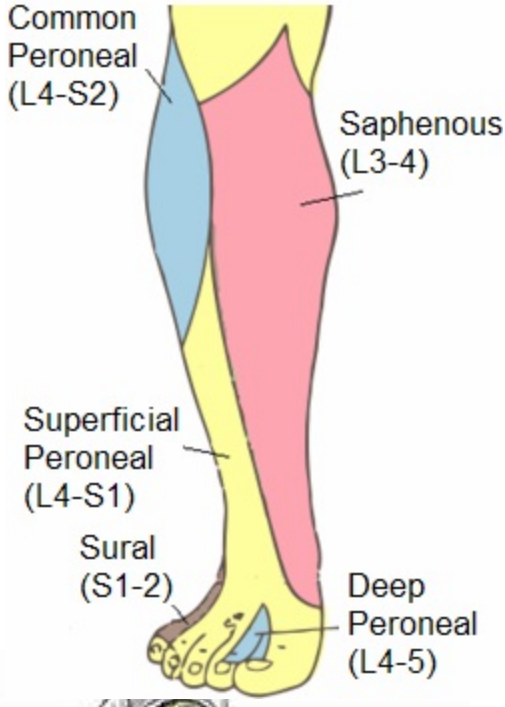
Conservative treatment is always recommended first!

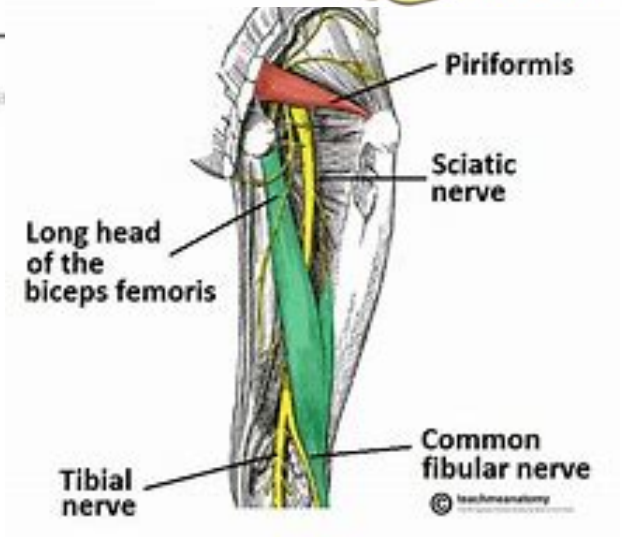
Nerve	Location of Entrapment	Presentation and Effects
Median	Brachial plexus, Scalene Triangle, Pronator Teres, Carpel Tunnel	Numbness and tingling in the thumb, pointer finger, and middle finger. Can make gripping difficult
Radial	Brachial Plexus, Spiral groove of Humerus, Supinator	Numbness and tingling on the back of the arm and forearm.
Ulnar	Brachial plexus, Cubital Tunnel, Tunnel of Guyon	Numbness and tingling in the ring and pinky finger. Squeezing the hand may become difficult
Lateral Femoral Cutaneous	Inguinal ligament, Hip Flexor Muscles	Lateral thigh burning, numbness, made worse with hip extension or lying on stomach. (tight belts)
Sciatic Nerve	Sciatic Notch, Piriformis, Long head of biceps femoris	Pain, numbness, and achy feelings of the buttock and posterior thigh region.
Genitofemoral	Psoas Major	Pain may increase with internal or external rotation of the foot. Numbness in the genital or inner thigh area.
Femoral	Inguinal ligament, Hip flexor Muscles	Numbness or achy pain on the inside or front part of the thigh, patient may experience trouble walking or knee buckling
Saphenous	Medial femoral condyle	Deep thigh ache, numbness directly below the knee, pain worsens with knee flexion or knee braces
Obturator	Inguinal Ligament. Obturator Foramen	Walking may be affected, jumping may be affected in athletes, Pain in medial part of leg to the knee
Posterior Tibial	Directly under medial malleolus,	Burning, tingling or numbness in the plantar aspect of the foot. (Medial and underside of foot), recent ankle sprains, pain when first weight bearing
Common Peroneal	Fibular head	Patients also notice weakness with their ankle flexors. Habitual leg crossing
Deep Peroneal	Extensor Retinaculum	Vague burning pain over the dorsum (top) of the patient's foot and especially near the first and second digits. Foot drop and commonly tripping over objects is reported
Superficial Peroneal	Fibular head. Tibialis Anterior	Numbness and tingling to the anterior lateral part of the leg
Interdigital neuritis	Flexor Retinaculum	Numbness and tingling on the underside of the foot. Pain with walking or weight bearing activities.











Other Possible Causes:

- Genetic: Guillian barre, Charcot-Marie Tooth Disease
- Metabolic: **Diabetes Mellitus,** Hypothyroidism
- Vascular:
- Toxins: Lead poisoning,
- Trauma/ Surgery
- Infection:
- Degenerative Diseases: Rheumatoid Arthritis
- Autoimmune: Lupus, Shingles
- Drugs: Chemotherapy Drugs, HIV Medication, Anti-depressant medication (Dilantin, Amiodarone, Thalidomide, Cipro, Levaquin, Isoniazid, Dapsone, Cisplatin)