

Preface

This is a structuralist viewpoint and effort to explain the cause and effects of Trigeminal Neuralgia by backtracking from its symptomatology and asking questions as we go. For some, it will be absolutely eye-opening; enough so, to see that there is hope and to gain incentive/strength to take action steps. For others, hesitant to change what they're doing for fear of loss of already accomplished gain, or steeped in medical tradition, not so much so. As a note, you do not have to relinquish your present treatment to follow structuralist care. They neither impede nor inhibit one another. They can safely be utilized concomitantly.

Also note that, in this author's opinion, it is absolutely mandatory that you see your neurologist for testing to ensure there are no nefarious pathological causes such as tumors, masses, aneurysms, arterial or venous compressions, neurological diseases, etc.

Traditional thought in the healing arts is to first treat from the least invasive avenue and progress to the more invasive avenues only as needed. This probably resulted from the Hippocratic Corpus which contains "do no harm" which was later changed to "First, do no harm".

Although we try to minimize the difficult subjects (i.e. anatomy, physiology, etc.) for those "science-challenged", there is a necessary minimum. The section on the Divisions (V_1 , V_2 and V_3) and their symptomatology, can get a little difficult, but only because we attempt to relate the symptomatology to the Division innervation immediately on the spot rather than explaining them separately. Illustrations relate to explanations. Explanations relate to illustrations. If you find your mind wandering and/or your eyes "glossing/glazing over", either take a break (for this is long) or pass over it. It will all come together in the end, regardless. If you wish, read it a second time. It's OK. It would necessitate a hundred 2" thick textbooks to do justice to all the topics and their potential backgrounds in, and associated with, this article. That's not an option. It is generalized and substantially buffered. We will skip across *the surface of the surface of the surface*...If you struggle, just get the concepts. They are more important than the details.

Most of this article is anatomy-and-logical-conclusion-based with many metaphors and analogies to ease the learning curve...backed by 30+ years of structuralist experience. Occasionally, there is an author's opinion which could raise some differing professional viewpoints, but such is the risk of writing articles and opinions. It's worth the risk to help TN'ers in any way possible, for your burden is much too high.

Enjoy...

Be well,

Dr. JK



Trigeminal Neuralgia

Trigeminal Neuralgia. That term looks innocent enough. It doesn't appear to be a threat to life like heart problems or cancer...and only one in about 15,000-20,000 have it...so, "What's the big deal?" "I've never heard of it." "What is it?" Ask those questions to a Trigeminal Neuralgia sufferer (hereafter called a TN'er) and you may want to have ample time to listen...and pay close attention because the stories you could hear might forever change you. Pain and suffering, vibrant zesty lives ruined or damaged almost beyond recognition, family members and spouses that don't understand, marriages that suffer wounds or untimely demises, families that develop deaf ears to them/you...and the list goes on. Pain! Pain that can drop some/you to their/your knees...relentless electrical shocks like being continuously zapped by bolts of lightning...Pain that cannot be avoided, escaped, delayed or wished away...and is often poorly controlled with cocktails of medication that would disable most of us from functioning at all...Pain so disabling that fear of the next episodic flare-up becomes life altering itself.

TN'ers know. ***You suffer***. There aren't enough words to express the pain, frustration, anguish and fear you live with daily. Most of you rely on medication. If, and when, that doesn't work, surgery can become a welcome alternative. Some go through 4-5 failed surgeries. Where does it end? Where's the hope? Is there potential for getting your life back when all you see is more of the same with an "unscalable" 3000' granite wall in front of you?

I think there IS...

I believe there ***IS hope and potential*** for your return to a reasonable facsimile of your former life. I think there ***IS hope and potential*** for resolution of your pain and suffering. I think there ***IS hope and potential*** for you to not have to fear the return of the "Beast", as you often call it. I think there ***IS*** a way around the 3000' granite wall...I've seen it happen.

In order to have this be in your realm of possibility/probability, you need to take a break, step back, clear out the old ("present system") thoughts, reassess where your focus has been, "reboot your brain", ask new questions, be truthful and investigatory with your answers, go back to basic anatomy, redirect your focus, creatively search with new eyes and visions, and be unconventional and innovatively creative with your new understanding (to come)...because if thinking about the cause remains the same, results will remain the same.

What makes a perfectly well-functioning Trigeminal Nerve suddenly go bad?

What determines which of the three Trigeminal Nerve divisions becomes affected?

Why electrical shocks? Why just the Trigeminal Nerve and none of the others in the immediate area?

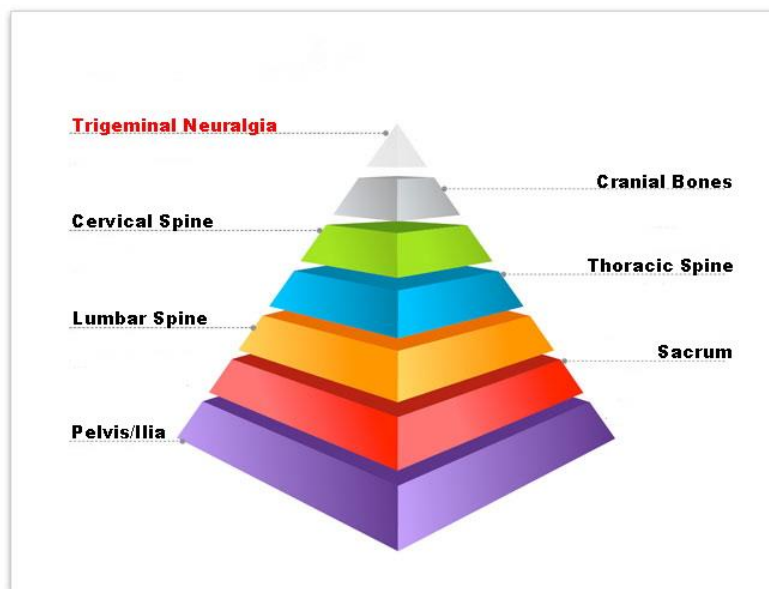
We need to understand there are **pathological** causes and **structural/functional** causes.

Pathological causes could be tumors, masses, aneurysms, cysts, infections, scar tissues, MS, vascular compressions or any other nefarious pathologies. These are medical issues. Some have the potential to be life threatening, so **it is always imperative to see a neurologist** for further examination and work up. We must eliminate the possibility/probability of any severely deleterious causes. This is medicine's forté. What if this is not the case? What if medical treatment outcome is/was not the most positive? Perhaps it is/was not a medical problem. Rather, it is/was a **structural** problem.

Trigeminal Neuralgia **structural** causation has been overlooked. To get new perspective of possible causes of dysfunction, we must combine our knowledge of cranial movement, dural function, CSF flow, blood vascular flow, and lymphatic flow function (Yes, they have now found very small lymphatic “vessels” in the brain...). We must, in an unconventional way, observe, investigate and research using logical and reasonable methods.

Decades of being a “Function is related to structure.” practitioner, this author has uncovered a direct connection between structure and function as it relates to Trigeminal Neuralgia. This is the premise upon which we proceed.

As per the pyramid below, we will start at the very top and stay mostly in the top three segments. In trying to explain the **most painful** human disorder (TN), in the **most complex** part of the body (brain), of the **most complicated** earthly being (human), we’ll need to discuss a little about anatomy, physiology, and nerves, in general. Later, we will need that information to tie everything together. We’ll keep this as simple as possible, but please understand, we are dealing with an extremely difficult area...and there are certain foundational basics we need to know.



Before we get started, let’s see a little interesting data. There are about 37 trillion cells in the human body. There are 60,000 miles of blood vessels in a child and 100,000 miles in an adult. The human **brain**, alone, consists of about 100 billion neurons (nerve cells). If these neurons were lined up end to end, it would be 600 miles long. Although the brain makes up only 2% of our total body weight, it demands 20% of the body’s oxygen and calories. We have 45 miles of nerves just in our skin. Nerve impulses can travel up to 250 miles per hour. It’s been estimated that a cell never has more than three fellow cells between itself and a nerve ending.

We give you this data to give a brief insight to the complexity of your body. Every cell in your body requires nutrition and oxygen to function. Metabolizing these entities leaves byproducts (exhaust) which

require disposal (detoxification). Your blood supply (arteries and veins) and lymphatic system, along with certain organs, fulfill this task (and others). Your brain and nervous system regulate and control every aspect of your body's function by direct or indirect (i.e. hormonal) neural function. Your body is a symphony of master instrumentalists orchestrated by a "maestro extraordinaire".

Let's talk about nerves, in general, before we get into the specifics of Trigeminal Neuralgia. Nerves are extremely sensitive. We want them to be sensitive and informing because they are our great internal (as well as external) moderator. We communicate with, and adapt to, our environment via our nervous system. Touch a hot burner and witness how fast you reflexively withdraw. Nerves do not like to be ***bumped or bruised***. Hit your "crazy bone" (the ulnar nerve as it passes through the elbow) and see how that feels. Nerves do not like ***compression or entrapment***. Herniate a low back disc and have it compress a spinal nerve that leads to, and becomes part of, the sciatic nerve...not pleasant. Nerves ***abhor being stretched***...and will notify you of such in ***a most egregious*** way. Witness a football player getting hit in the neck or shoulder area and experiencing a "zinger". It feels like ***electric shocks/jolts, hot poker or burning*** (Did we get your attention?) going into their arm. And, of course, witness a "pure" Trigeminal Neuralgia with ***electric shocks, paresthesia (altered feeling i.e. tingling, hypersensitivity, hyposensitivity, etc.), burning, stabbing, pinching, tooth pain, etc.*** You TN'ers can list them all too well...

Since we need a little anatomy, let's start from the outside and work inward...

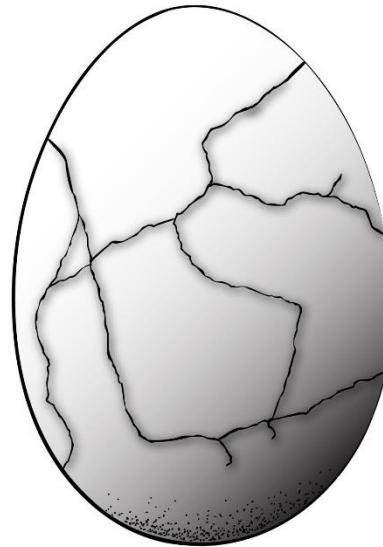
The Cranial Bones

The skull is made of eight bones...the face, fourteen. All of these bones, globally, move (science is finally able to demonstrate, quantify and verify) in a slow, rhythmic, wave-like motion (as does the spine and pelvis). Individually, each of these Cranial bones moves in a natural predetermined direction and contributes to the total global motion. With experienced and adept hands, this motion can be readily palpated.

For a moment, let's metaphorically look at this. Let's liken the skull and its individual Cranial bones to our earth and its tectonic plates. See below.



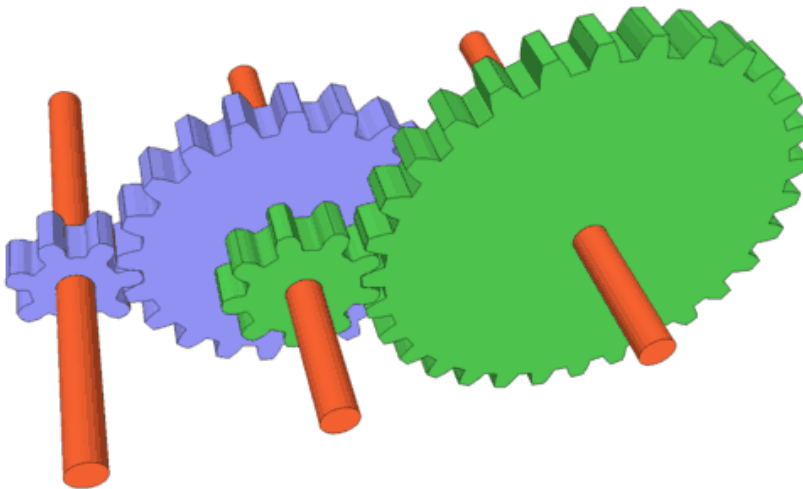
The Earth's crust is made of tectonic plates. These plates are adjoined with each other at joints/faults. Occasionally, these plates jam into each other and lock/fixate/bind. They build pressure. When they



release, we feel them as earthquakes. Note that the egg shell to the left, when solid in its normal state, wouldn't have much motion capabilities. Now that it has been "cracked", these "plates" can move. The cranial bones are analogous to the tectonic plates.

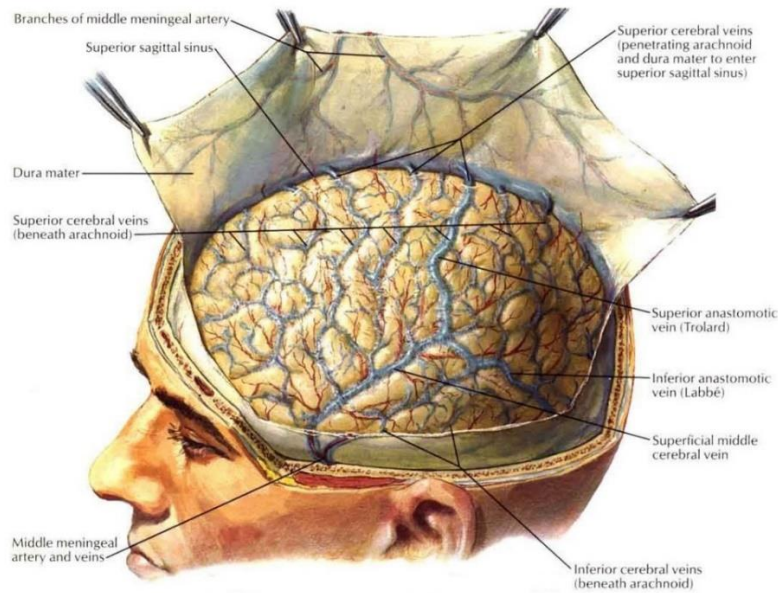
They move with their neighboring plates in a slow rhythmic motion, contribute to normal brain/body health and are susceptible, and often prone to, fixation (jamming/binding) for they are great equalizers/adapters/compensators.

Think of some gears...

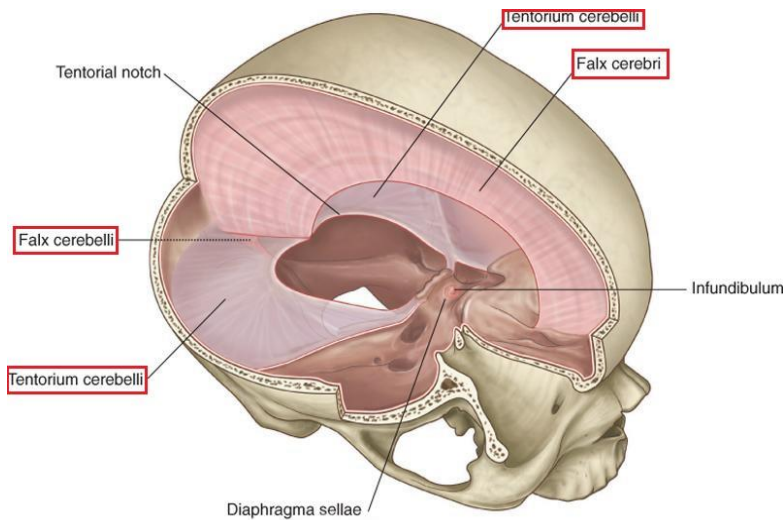


If one gear moves, all of the remaining gears move. They each respond to, and adapt to, each other. They operate as a system...each fulfilling its own responsibility and contributing to the whole. Metaphorically, each gear is a Cranial bone moving "in sync" with its neighbors.

The Meninges



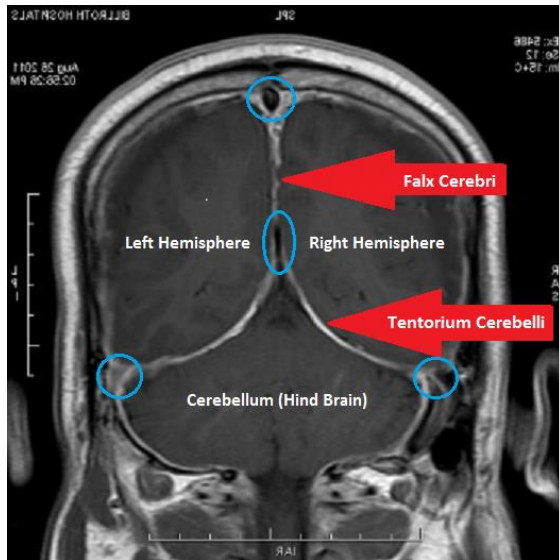
Meninges are “brain coverings”. There are three layers, but for this discussion we’ll speak mostly of the very outer layer called the “Dura Mater” (“Dura” in future discussion). The Dura (laid back here), for all practical purposes, with its undersurface, attaches to, and completely covers, the brain. Its outer surface attaches to the entire inside of the Cranial vault. It *divides* the brain into left and right hemispheres (not completely) AND separates the Cerebellum (hindbrain) from the Cerebrum (*not completely*). See below.



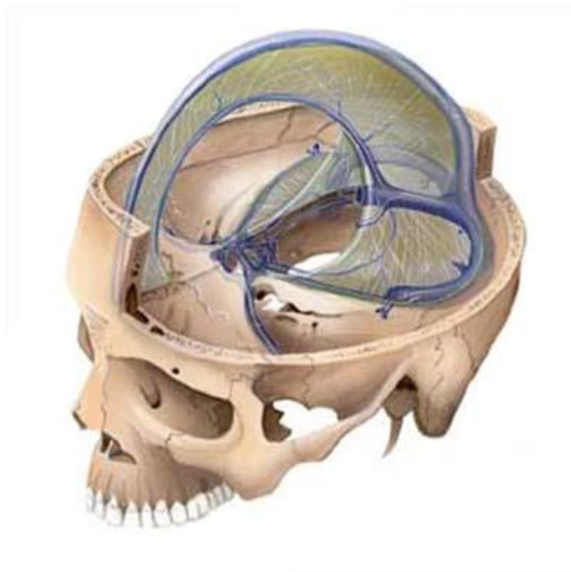
Don't let this illustration intimidate you. Look at the red labels only. The **Falx Cerebri** (pink) is the “VERTICAL” Dura that *divides* the brain into left and right hemispheres. The **Tentorium Cerebelli** (left and right) (purple) is the “HORIZONTAL” Dura that separates/*divides* the Cerebellum (hind brain) from the Cerebrum (“big brain”). Just know that these Dural “dividers” attach to the inside of the Cranium (skull) and Cranial bones pertinent to our discussion, and separate the “brain(s)”. Now that you see them

separately, KNOW that they really ARE NOT separable. **They are one contiguous membrane/“sheath”** composed of three layers.

If you view the Dura on an MRI, from the front or back, and at the correct coronal level, it looks like the picture below.



Note the **Falx Cerebri** (vertical divider) and **Tentorium Cerebelli** (horizontal divider) **RED ARROWS**. Also note the left and right hemispheres of the brain and the **Cerebellum** (Hind Brain). The **BLUE CIRCLES** are large veins (called sinuses) that collect blood (after it has delivered its nutrients and oxygen, and collected the cellular waste byproducts) to return it to the heart and lungs for “recycling”. Additionally, as we will see shortly, the Cerebrospinal Fluid (CSF) will assist with eliminating cellular byproducts.



This is an illustration depicting the Dural “sheaths” (dividers). We will use this term, “sheaths”, and the term “Dural Tension” in the future. The large blue vessels are the “Venous Sinuses” for collecting CSF and venous blood for return to the lower body.



Think of a spider web. You cannot move one of these branches in any manner, without affecting the tension of all the individual strands, and globally, the web “system”. The spider intentionally builds this design with an internal tension because it produces strength AND sensitivity. You move one part, you affect it all. Metaphorically, the web is the meningeal/Dural system. You alter one attachment of the dura and you affect the entire dural system.



These are interlocking “inner tubes”. On a beautiful day on a lake can you imagine mild rolling waves affecting each of these tubes individually...and all of them globally? Now lay a “roped” hammock over the top of this global system and imagine how IT is affected...both individually (per tube) and globally. The tubes represent Cranial Bones. The roped hammock, lying on top, represents the meninges/Dura.

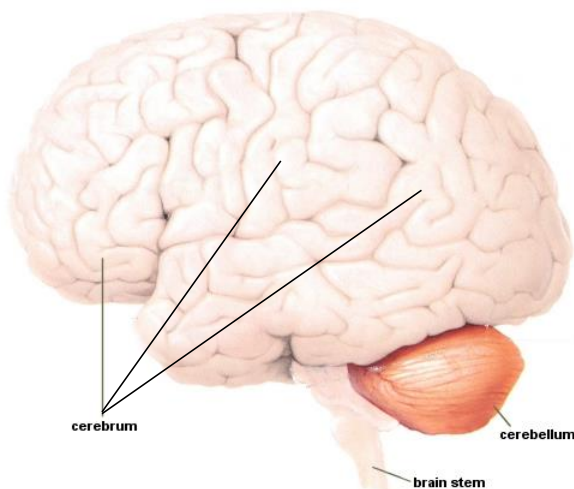
Finally, think of a trampoline...



Step on this trampoline and you change the tension in every “fiber” of its system...The springs pull on the steel ring with differing tension depending on whether you’re just standing, standing off center, or jumping. If the steel ring, to which all the springs are attached, had “give”, as do the Cranial bones, it could alter the trampoline’s shape. In fact, your skull DOES CHANGE SHAPE when your Cranial bones are misaligned and malfunctioning.

Horizontally, this “trampoline tension” metaphorically represents the tension of the **Tentorium Cerebelli** (Remember?) If you tip this vertically, it metaphorically represents tension in the **Falx Cerebri** (Remember this?).

The Brain

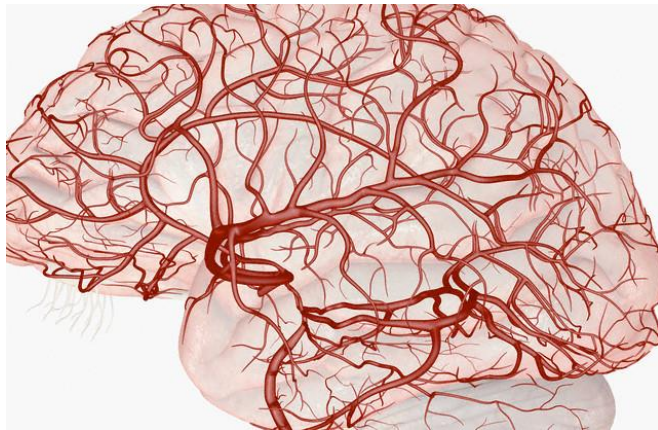


Inside the colored skull and meninges above, sits the brain. The **Cerebrum** (What we think of when we hear the term “brain”) is the “Maestro Extraordinaire”. It sends and receives signals to and from the entire body. It is the Master Controller. It gets help from the **Cerebellum** (sometimes called the “little brain” or “hind brain” because it is small and in the back [hind] part of the head) which helps “fine tune” our posture, balance, coordination and speech. The **Brainstem** is the conduit that carries the “communication cables” to/from the body through the spinal cord which exits the Foramen Magnum (large exit) in the occiput bone (one of the Cranial bones). See illustration later.

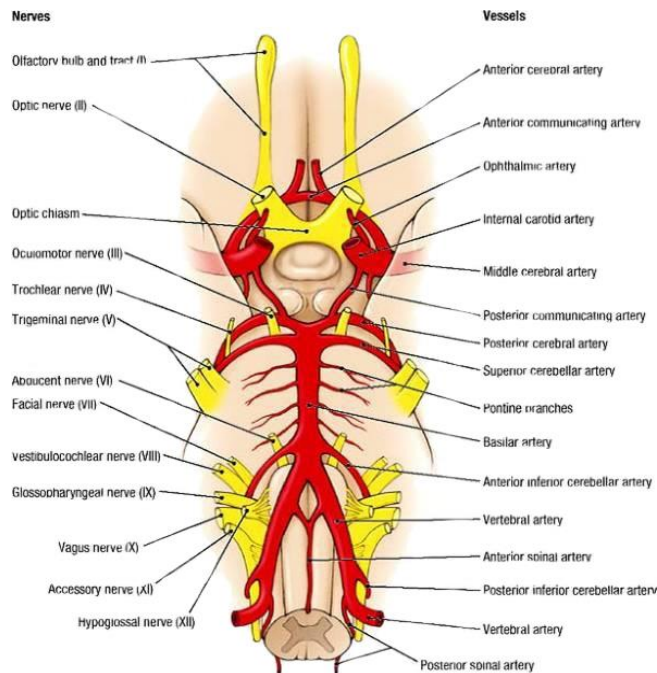
The Blood-Vascular System of the Brain

We all know the brain needs a blood supply to provide nutrition, oxygen, and removal of cellular waste byproducts. The arterial and venous vasculature is dense and complex. Arteries and veins (and their complexes, sinuses, etc.) can aberrantly form compressions of the Trigeminal Nerve (and others) and may require neurosurgical decompression.

Below are a couple of blood supply-related illustrations.



This is a general view of some of the arteries.



This is an inferior view of the cranial/brain neurovascular relationship. The names of the **Blood Vessels** are on the right side of this illustration. **You do not need to know them.**

The Names of the **Cranial Nerves** are on the left side of this illustration. **You do not need to know them** although you may want to note the Trigeminal Nerve.

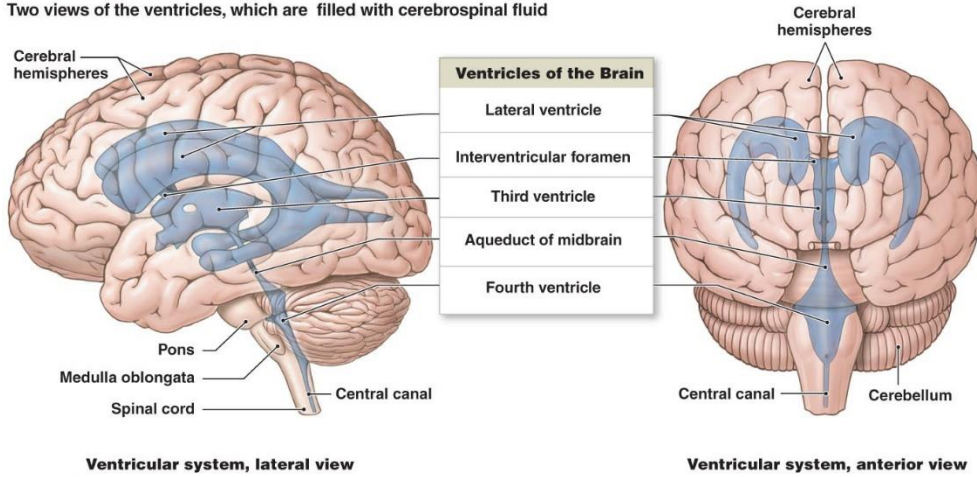
This is only diagrammatic...with little detail. It works fine for our present discussion.

Although CN I (Olfactory), CN II (Optic) and CN XI (Spinal Accessory) do not exit from the Brainstem, for practical purposes of this discussion, know that the area is complex and that all other Cranial Nerves exit from it.

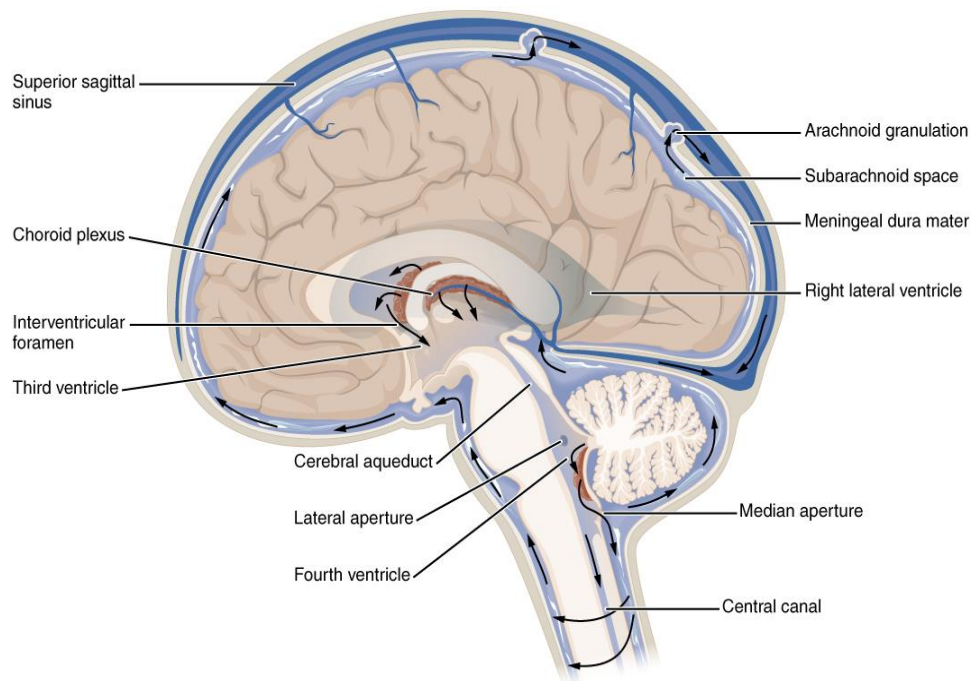
The Cerebrospinal Fluid (CSF)

CSF is a fluid that is both produced and absorbed in different areas of the brain. It slowly flows (circulates) through a predetermined pattern within the brain and skull. It also flows (albeit slowly) **up and down your spine within the meninges surrounding your spinal cord. Yes, the meninges are not only in the skull, they extend down to your sacrum (low back).** ***Just as we've explained that the meninges envelop the brain, so too, do they envelop the spinal cord.*** When you hear of a "spinal tap", this is the fluid withdrawn. This fluid flows in normal, slow, rhythmic "hydraulic waves" or "impulses".

Two views of the ventricles, which are filled with cerebrospinal fluid



This illustration is only for you to know that there IS a CSF system with ventricles.



Note the black arrows which represent the CSF flow around and through the brain.

Now that you're becoming anatomy "gurus", note a few things about the above illustration:

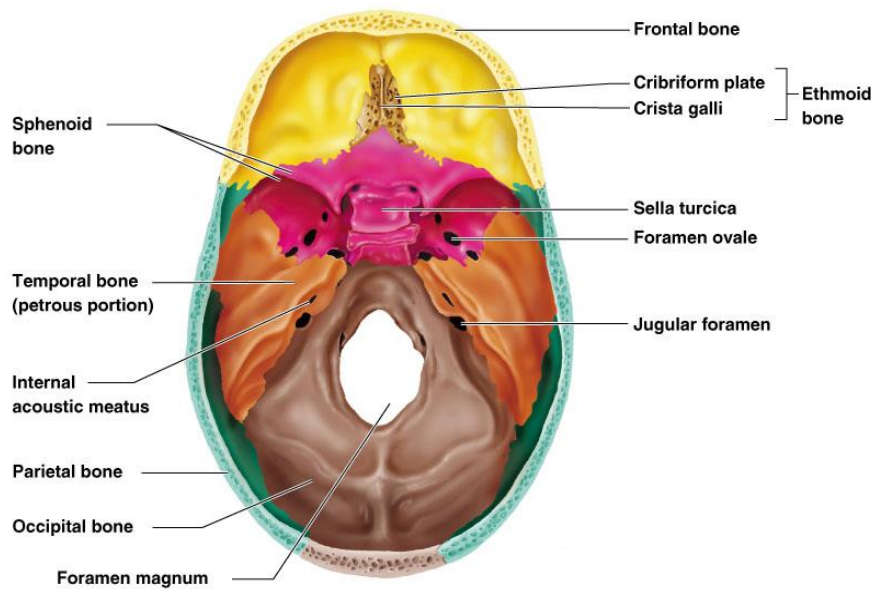
- 1) All the tan color is the Brain (Cerebrum/"big brain").
- 2) That little "cauliflower sprig" under the brain on the right side is the Cerebellum.
- 3) The "grayish" color is the Dura Mater.
- 4) The BLACK arrows are the direction of CSF flow.
- 5) You don't need to know any detail of the CSF system. When it is mentioned, just know it exists.

At this point we want to know that:

- 1) The skull and face are made of moveable bones...**Cranials**.
- 2) The skull houses the **Brain**, but has a layer of **Meninges** between it and the brain. These meninges attach the brain to the skull, envelop the brain, partition the brain, and extend down to the sacrum.
- 3) **Blood** Supply is complex.
- 4) **CSF** "flows", aids in cellular waste disposal, helps form a "cushioning"/protective layer around the brain, and reaches as far down as the lower portion of the sacrum.

...And it all works synchronously together!

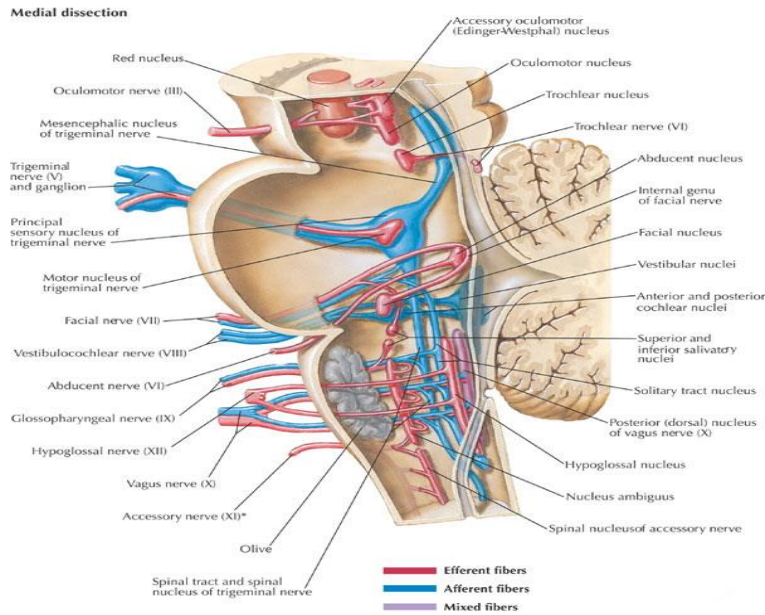
The Cranial Floor is where all the action is as it relates to TN and Structure.



This is the Cranial floor. For now, just know that we'll be talking about the fuchsia-colored **SPHENOID**, the two camel-colored **TEMPORALS** and the sandy rock-colored **OCCIPUT**. These four bones are critical in Trigeminal Neuralgia from a "Structuralist" viewpoint... especially the **SPHENOID**. Additionally, we want to see there are small foramina (exits) in the **SPHENOID**, **TEMPORALS**, **OCCIPITOTEMPORAL** suture (joint) (Jugular Foramen),

and a much larger foramen called the Foramen Magnum in the **OCCIPUT**.

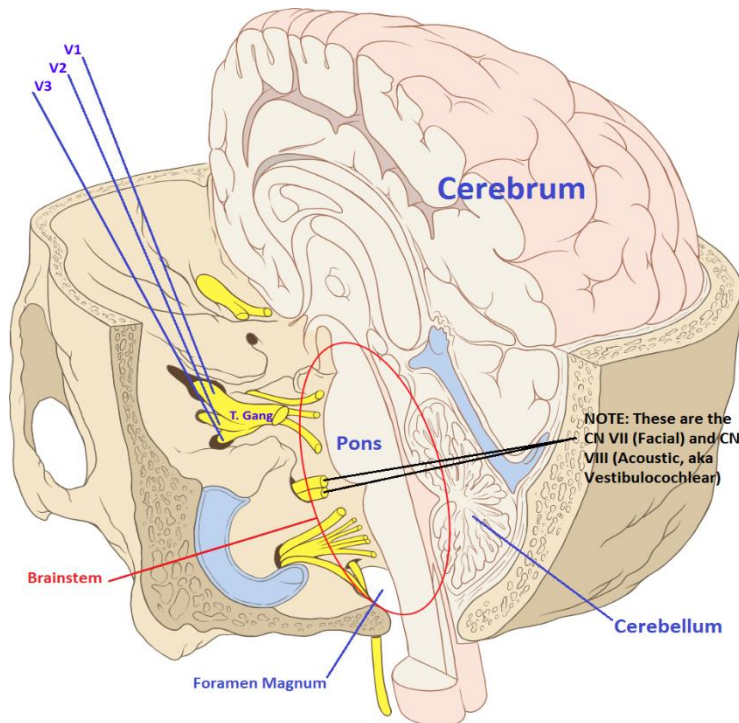
Cranial Nerve Nuclei in Brainstem: Schema



This is a sagittal view of the **Brainstem**.

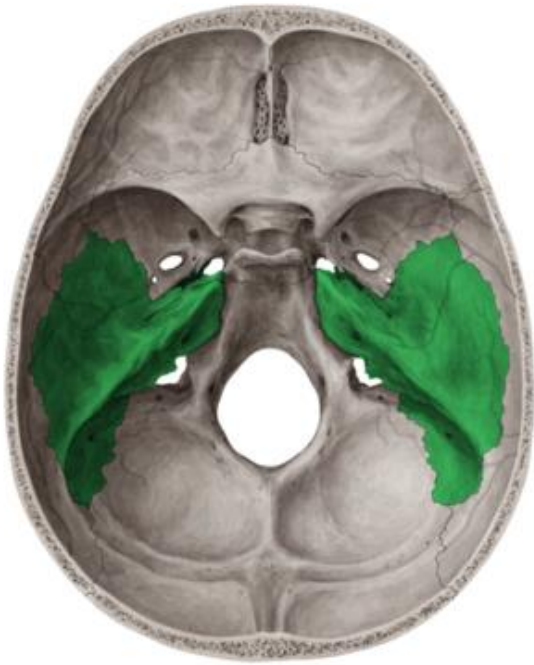
Don't let it intimidate you. All you need to see and know is that it is the **master switchboard** for directing nerve signals to and from the brain. Also know that:

- 1) The **bottom 1/4 of this Brainstem fits into the foramen magnum** and continues down to become the spinal cord
- 2) The larger blue (in THIS diagram) structure that exits out of the "pregnant-belly" structure (the Pons) is the **Trigeminal Ganglion**.
- 3) Anatomically, the "pregnant belly" Pons faces forward.



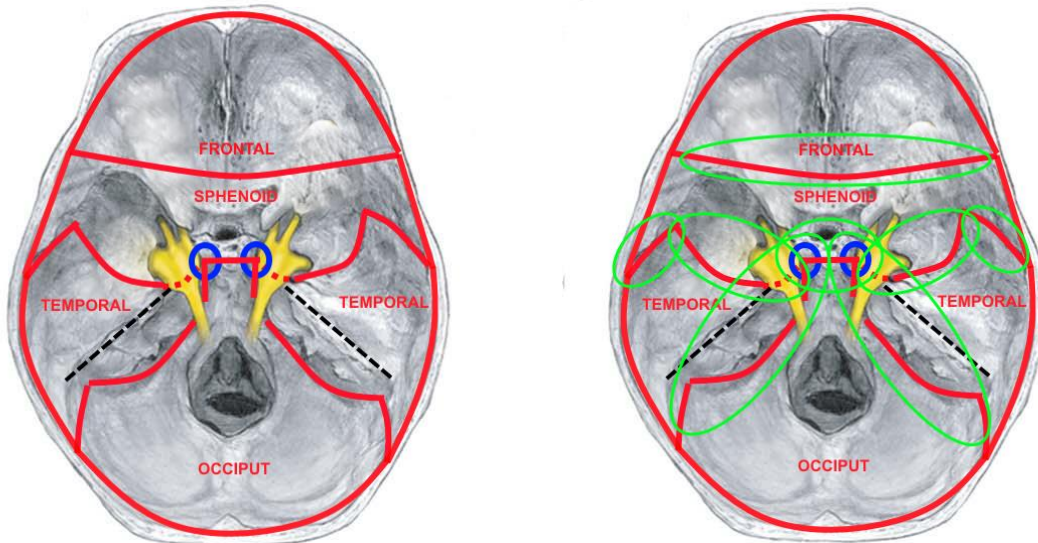
If you fit the bottom ¼ of the Brainstem, in the illustration above, into the Foramen Magnum of the Occiput bone, this illustration is what you see.

As indicated above, the Trigeminal Nerve exits from the middle portion of the Pons and travels/courses anteriorly and slightly laterally before climbing up over the medial portion of the petrous ridge of the **Temporal bone**. (See below) [This will be important later]



These two “green” bones are the left and right Temporal bones. On the left one, notice the long “mountainous” ridge that runs from southwest to northeast. On the right one, it runs from southeast to northwest. Remember, the bone directly in front of these Temporal bones is the Sphenoid, **through which all three Trigeminal Divisions pass...** BUT ONLY AFTER THE TRIGEMINAL NERVE CLIMBS UP OVER THIS RIDGE AND FORMS THE TRIGEMINAL GANGLION. THIS RIDGE, AS YOU WILL SEE LATER, IS GOING TO BECOME A MAJOR PROBLEM...AND CONTRIBUTE TO TRIGEMINAL NEURALGIA.

Although “busy”, DO NOT LET THESE ILLUSTRATIONS INTIMIDATE YOU! FOLLOW THE DISCUSSION OF COLORS BELOW.



These are illustrations of the cranial floor. You are looking down from the top as if you were looking at your floor at home.

RED LINES outline cranial bones.

The above two illustrations show the **YELLOW** Trigeminal Nerve, Trigeminal Ganglion and the three Trigeminal Divisions (at their exit points). Pay close attention to the Yellow Trigeminals and their EXIT points. Note that they originate from the Brainstem (not shown), pass over the Petrous Ridge of the Temporal Bone, form the “Ganglia” which rest upon, and cross, sutures (Cranial bone joints) before exiting down through their individual exit foramina. These sutures allow **necessary** motion. Areas of motion (joints), anywhere in the body, are areas of potential vulnerability/instability by the very nature of joint motion itself. Think of knees as an example. This is also true for Cranial sutures.

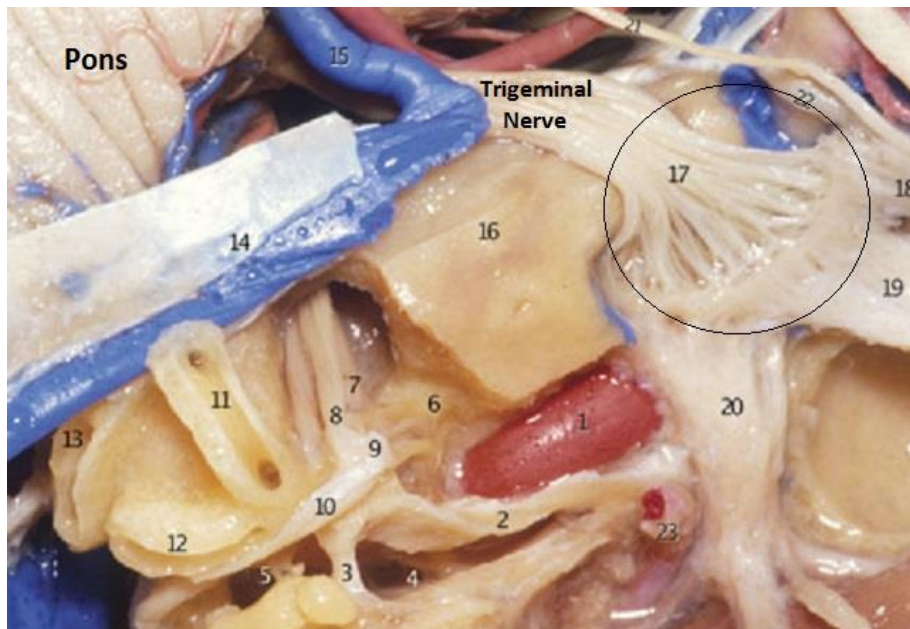
The **BLACK DOTTED LINES** are simply running along the tops of the petrous ridges of the Temporal Bones. It also represents the anterior attachment of the **Tentorium Cerebelli**.

IMPORTANT: The Trigeminal Nerve continues to lie upon the floor of the cranium from initial contact on.

MORE IMPORTANT: The **BLUE CIRCLES** indicate areas where **THREE** Cranial Bones adjoin/meet to form sutures with each other...the Sphenoid, Temporal (on each side) and Occiput.

MOST IMPORTANT: The **GREEN CIRCLES** indicate areas of motion (joints) between two adjoining Cranial Bones.

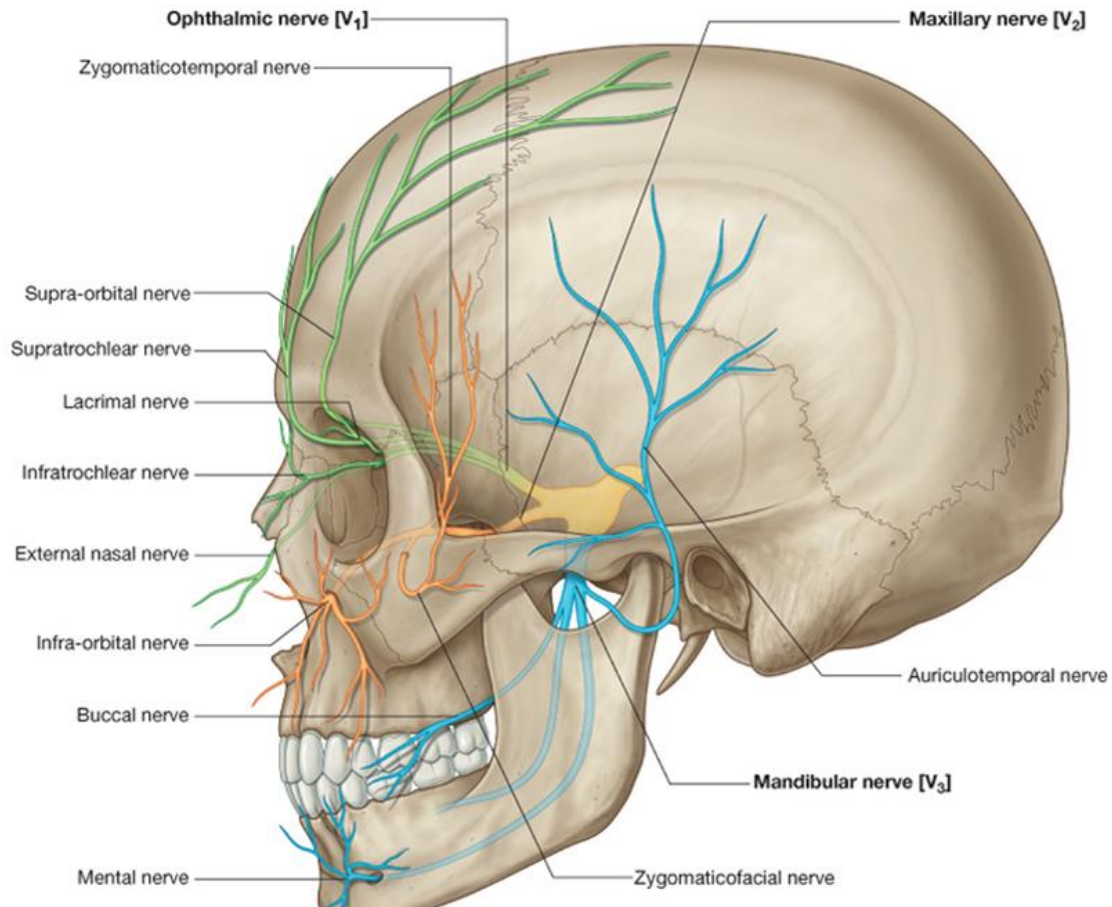
This is an anatomical depiction of the area of interest.



NOTE: Once the Trigeminal Nerve exits the Pons (part of the brainstem) it travels anterior and slightly laterally as shown. It makes contact with, and lies upon, the cranial floor as it approaches the Petrous Ridge (16); rests upon a little groove on the crest of this ridge; and continues to lie upon the floor as it descends down the anterior side of the ridge where it forms the

Trigeminal Ganglion (17), off of which, run the three divisions) (18=V₁, 19=V₂, 20=V₃) to their exit foramina.

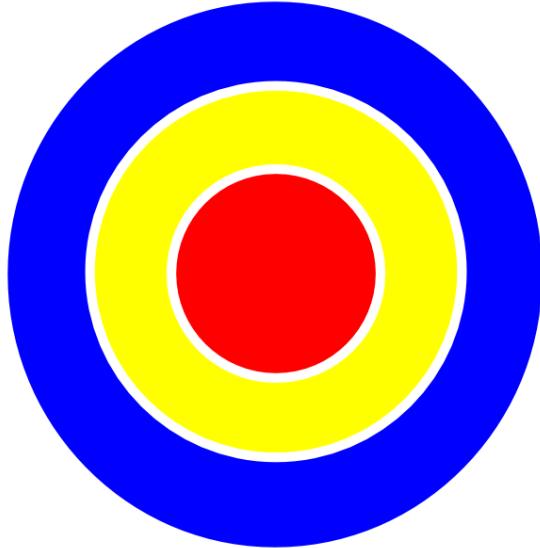
Once these Divisions exit their foramina, they follow the distribution seen in the common illustrations of the Trigeminal Nerve, such as below.



Important things to know about/inside the skull:

- 1) There are 14 facial bones and 8 Cranial bones. They all move.
- 2) The cranial floor consists of four bones: Sphenoid, two Temporals and an Occiput.
- 3) The Trigeminal Nerve exits from the Pons of the Brainstem, contacts and climbs up over the Petrous Ridge, stays in contact with the Cranial Floor, forms the Ganglion which separates into three divisions which exit out the Cranial floor via foramina.
- 4) The Trigeminal Nerve and Ganglion lie upon, and pass over, Cranial bone sutures (joints).
- 5) The Cranial bones and sutures, when functioning normally, closely “waltz” in a slow rhythmic motion.
- 6) Where there are joints and motion, there is potential for dysfunction. It’s a “susceptible” area.

A Metaphorical Discussion on Nerve Function



The job of nerves is “to do their job”!

A metaphor. Plant 10 sunflowers in the red, 30 in the yellow, and 90 in the blue. Set up a separate system for each of the three colors so all sunflowers receive adequate water and liquid fertilizer.

Now, decrease the flow of water and fertilizer solution by 3% per day TO THE RED ONLY and continue to allow the remainder to receive their normal quota.

Over time, you will notice the “red” flowers slowly begin to look a little unhealthy...wilt...and worsen as you continue. Eventually they would succumb. When something interferes with the water/fertilizer supply, the plants become unhealthy.

Metaphorically, body tissues are similar. They need all the proper ingredients to survive. In order to function properly, they also need “direction” or instruction. There needs to be communication. This is the responsibility of the nervous system...of nerves under the control and direction of the “Maestro-Extraordinaire” ...the brain.

Another metaphor. You are the parent (brain). You communicate with your child (body tissue) via text. You text them to pick up some milk on their way home. They communicate back and advise they will do so. This is a successful communication loop. Message out-message in. What if the text to your child was “garbled”...or not received at all? Or the text you received back was “garbled”...or not received at all? You have a communication dysfunction or total loss. The “brain” and the “body tissue” are not communicating properly.

Sensory nerves, in a sense, act as a sentry or watch guard. They assess the status of everything within their “tissues of responsibility” and have a continuously streaming communication/update with the brain.

The brain assesses that data and responds with continuously streaming instructions/updates in return. These instructions are delivered by **Motor nerves**.

Nerves that experience interference, will typically, in one way or another, give indication of such.

{{We are totally ignoring a very vital portion of the nervous system called the “Autonomic Nervous System” which automatically controls heart, lungs, diaphragm and our entire digestive system (plus more). We may briefly mention it later as it relates to CN X, the tenth Cranial Nerve.}}

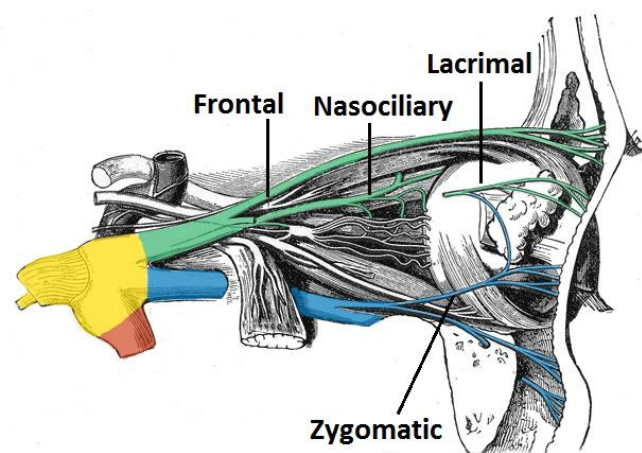
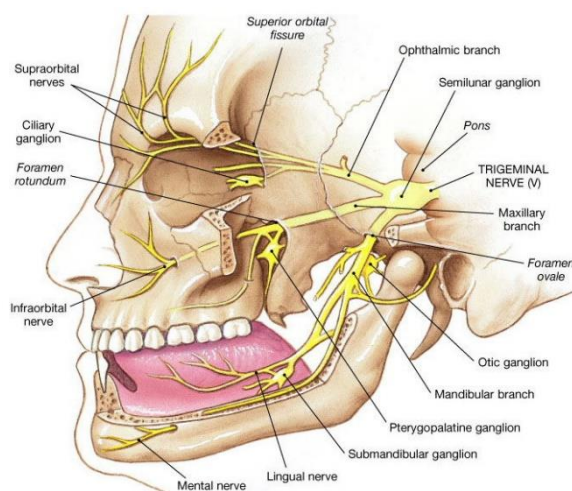
**Remember the tectonic plates? Remember the Gears?
Remember that there is motion...and meninges (allow for flexibility and yet add stability)...as well as Blood Supply and CSF flow?**

The Trigeminal Nerve rides up over the petrous ridge, lies on the cranial floor, forms the Trigeminal Ganglion, off of which, form the three Divisions.

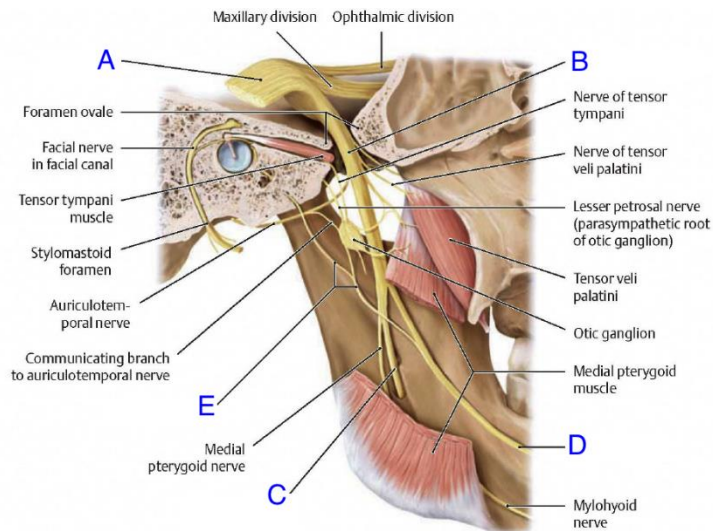
The Three Divisions

Post-ganglionic, the three Trigeminal Nerve Divisions exit out their respective foramina and proceed on their predetermined and individual courses. The Ophthalmic Division (V_1) exits through the **Superior Orbital Fissure** of the Sphenoid bone to enter the posterior-superior aspect of the orbit (eye “socket”). The Maxillary Division (V_2) exits through the **Foramen Rotundum** of the Sphenoid bone. The Mandibular Division (V_3) exits through the **Foramen Ovale** of the Sphenoid bone. **All three exit the cranial vault through foramina in the Sphenoid bone.** This will prove to be VERY important.

We’ve all seen variations of the pictures below so we will discuss this only briefly and move on.



V_1 and V_2



Above left shows a general scheme of all three divisions.

Above right shows a little more detailed V₁ and V₂. These two divisions have sensory fibers only.

Immediately left is V₃. This is the largest of the divisions and has both motor and sensory fibers.

Below, we will address each of the divisions briefly because they will become important when it comes to cause and effect.

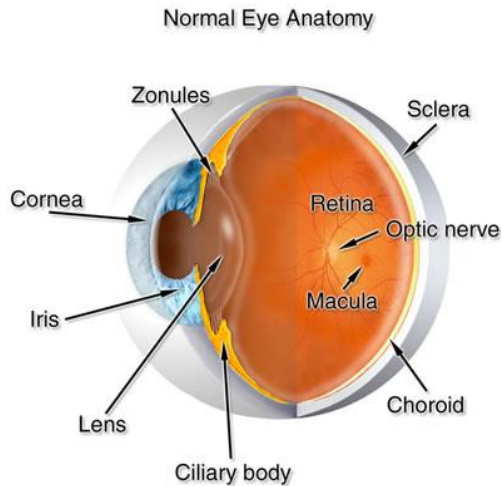
*** Please Note: After explaining the innervation of the three Divisions, we will mention some of the most common symptomatology you may encounter. BLUE will be for direct Division-related nerves only. ORANGE will be for Meningeal and Dural-related symptomatology, GREEN will be for Muscular-related symptomatology, and RED will be for Cranial/Mechanical symptomatology.**

Ophthalmic Division (V₁):

The **Ophthalmic Division** carries Sensory fibers only. That means touch, pain, temperature, and proprioceptive (positional) information. It does not deliver motor control to the same areas.

Two important things to know:

- 1) Some of the proprioceptive axons from the extra ocular muscles travel with CN III (Oculomotor), CN IV (Trochlear) and CN VI (Abducens). These three cranial nerves regulate and control eye-movement. Certain Ophthalmic Division dysfunctions could be accompanied by eye-movement dysfunctions because they all pass through the same “structure” - the **Superior Orbital Fissure** (in the Sphenoid).
- 2) The Optic Nerve (CN II) also lies upon the Sphenoid and exits its **Optic Foramen** before entering into the posterior orbit and attaching to the very posterior of the “eyeball”. It carries nerve impulses from the retina to the brain where the impulses are interpreted. Could the Optic Nerve be entrapped in retinal damage and macular degeneration? Interesting thought.

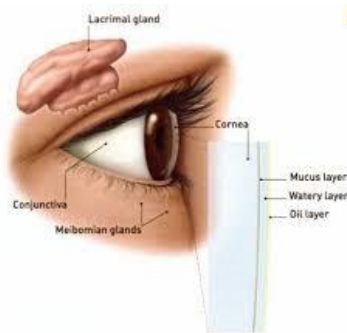


V₁ supplies sensory branches TO the brain FROM the:

1) Ciliary Body (accommodates the lens for focus and vision, and produces Aqueous Humor (fluid in anterior of eye.) Dysfunction here can produce focus and vision problems. You may need “stronger” glasses to compensate for your visual degradation. It may also decrease Aqueous Humor. Increased Aqueous Humor, or slowing of its removal, may contribute to glaucoma. Since the Sclera is continuous with the Cornea and Dura, this can produce eye, “behind-the-eyeball”, or orbit pain...Also, headaches behind your eyes.

2) Cornea (refracts [bends/focuses] light and contributes to eye protection). It has no blood supply, so it gets nutrients from Aqueous Humor and tears produced by the Lacrimal Gland. Dysfunction may inhibit proper focus due to improper bending/focusing of light entering the eye and impede reception of nutrients from Aqueous Humor (and tears). It is continuous with the Sclera and Dura. Dural Tension can “pull” at the eye and make it uncomfortable to move your eyes.

3) Iris (controls amount of light entering the eye through the pupil by contracting or relaxing its muscle components). Dysfunction of these muscles inhibits proper pupillary accommodation for adjusting to light. You may notice light(s) seem too bright...or not bright enough.

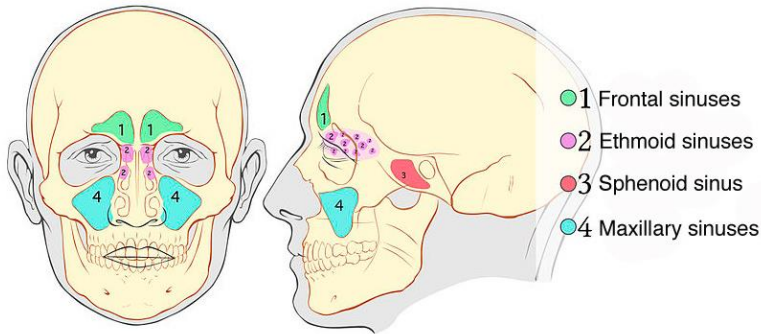


4) Lacrimal Gland (produces tears) and Conjunctiva (lines the eyeball and continues onto the entire undersurface of the UPPER eyelids). Dysfunction interferes with tear production. Excessive production could produce “watery” eyes. Diminished production would make your eyes feel “dry”, “scratchy” or as if you have a foreign body in your eye.



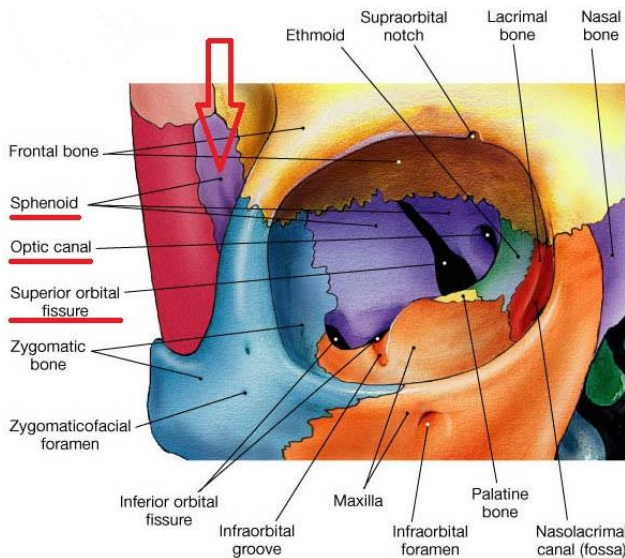
Your eyes may often be “red”.

5) Mucous membranes of Sinuses (portions to Frontal Sinus, Ethmoidal Sinus and Sphenoidal Sinus).

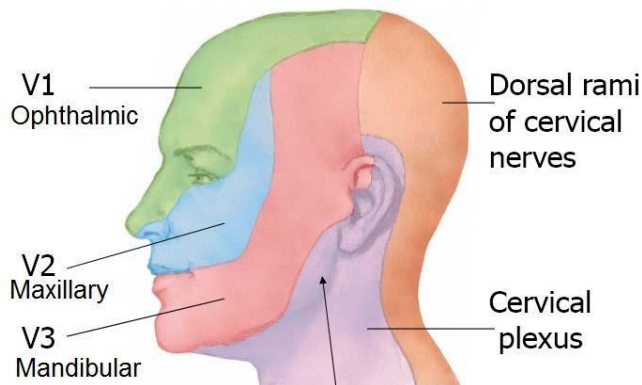


[The Maxillary Division (V₂) innervates the Maxillary Sinuses (below)]. Dysfunction can produce any of what we would consider “sinus problems” (stuffiness, “runny”, pressure, deep ache, “behind-the-eye pressure” or pain, etc.) Cranial/mechanical dysfunction can also produce the “pressure” or “behind-the-eye” pain directly

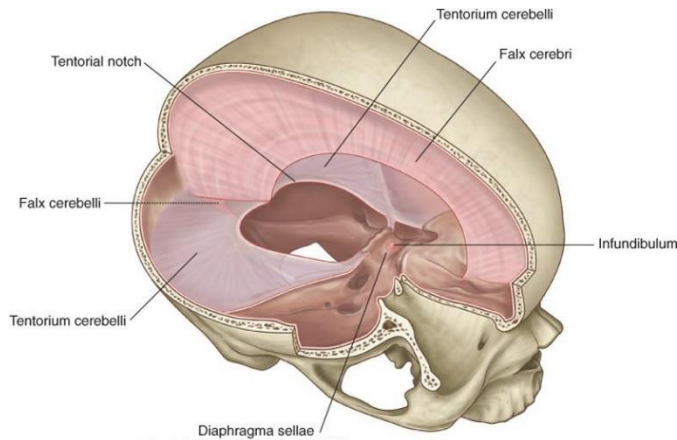
because the Sphenoid (Remember that bone that has all three Divisions passing through it?) makes up about half of the posterior wall of the orbit (see below)...and Division V₁ passes directly through the **Superior Orbital Fissure** INTO the back of the orbit. **Additionally, Sphenoid misalignment and dysfunction can upset the delicate balance of the meninges/Dural Tension and produce headaches.**



The **purple** bone **is the Sphenoid**. Notice it makes up about half of the back of the orbit. Also notice it has a portion that makes up the “temple” area (red arrow). Note the Superior Orbital Fissure, through which pass Trigeminal Nerve Division V₁, CN’s III, IV and VI, and the Optic Canal, through which passes the Optic Nerve. Also note that **the orbit is made of portions of 7 Cranial Bones**. (Remember, if one of the cranial bones is misaligned, compensatively, the others misalign. This can explain all the **neurological, mechanical and meningeal eye troubles** TN’ers can get.)

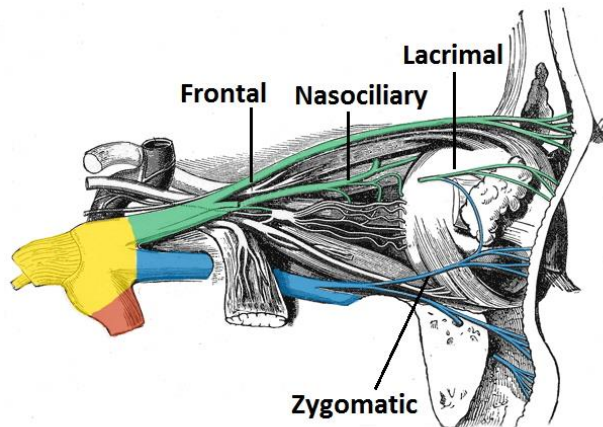


6) The skin of the eyebrow, upper eyelids, forehead, and nose. It also regulates the blood vessels in the same areas. **The skin of these areas may be VERY sensitive** and feel various paresthesiae such as numbness, “prickliness”, “tingles”, hot “burning”/warmth, and can produce the red “flush” so often experienced.” (This is why cold or warm WINDS on your face can precipitate a TN flare up.). You might also notice upper eyelid “twitching”.



7) The Tentorium Cerebelli, Dura Mater and posterior area of the Falx Cerebri (Remember THIS illustration?). Since V_1 sends a branch directly back to these meninges, they are VERY SENSITIVE (especially to stretch) and can produce **deep** headache (including frontal, migraines, cluster, etc.), **loss of cranial structural integrity**, and blood flow and CSF anomalies. This, adaptively, has the potential of disrupting the musculature of the upper and lower cervical and upper thoracic spines.

Maxillary Division (V_2):



The **Maxillary Division**, like the Ophthalmic Division, is **Sensory only**. Sensory information passes **TO the brain FROM the**:

1) Maxilla (cheek bone), its overlying skin, and the maxillary sinus. Dysfunction can produce any of what we would consider “sinus problems” (stiffness, “runny”, pressure, deep ache, bone tenderness, “behind-the-eye pressure” or pain, etc.) The skin may feel the paresthesiae mentioned above such as numbness, “prickliness”, “tingles”, hot/”burning”/warmth, and sensitivity. Again,

this is why cold or warm WINDS can precipitate a TN flare up and produce the red “flush” so often experienced.

2) LOWER eyelid and its conjunctiva. Dysfunction can produce dry, scratchy, and red eyes; pain, and feeling like there’s “something in your eye”. You might also notice lower eyelid “twitching”.

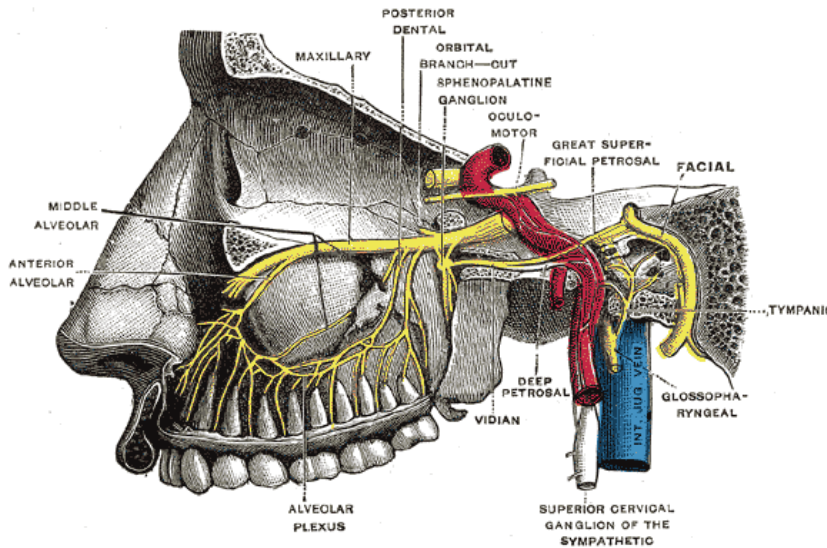
3) The nasal cavity and lateral nose.

4) The superior palate (roof of your mouth) and nasopharynx. Dysfunction could create paresthesiae, numbness, soreness and pain. Your tongue might seek out the paresthetic area as it would a newly broken tooth. The nasopharynx could be achy as if you had a sore throat.

5) Upper lip, upper teeth (molar, incisor and canine) and associated gingiva.

Dysfunction here is common and can be rather severe. All the typical paresthetic symptoms previously

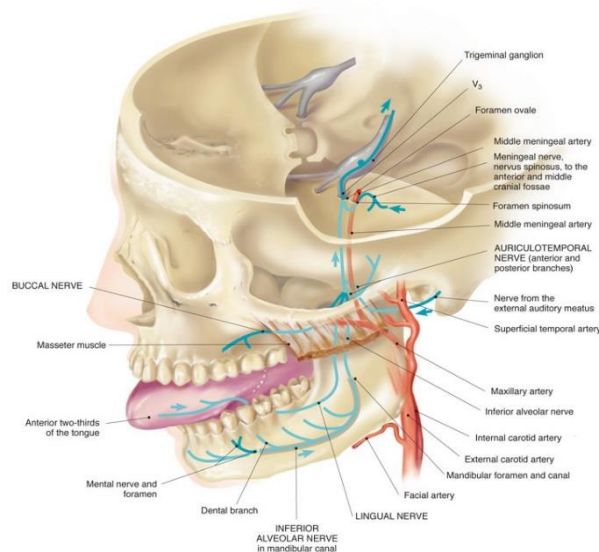
mentioned can be evidenced in the upper lip area. The tooth/teeth pain can be unbearable. The illustration left is a good visual of the innervation of the upper teeth and gums. This discomfort can be mild, moderate or SEVERE...sharp/ache. Discomforts can involve only one tooth, multiple or all teeth, and the gums. This is what often sends you to the Dentist. Tooth and gum problems often



increase because the tissue is unhealthy at the underlying cellular level.

6) The skin over the temporal area. Dysfunction often produces the normal paresthetic symptomatology, pain, sensitivity to touch, etc. mentioned above. You probably feel some very sore trigger points in your temple and the side of your head, but they are most often resultant from V₃.

7) The meninges of the anterior and middle cranial fossae. V₂ sends a branch back to the meninges and Dura. This can be very contributive to frontal, migraine, cluster and deep throbbing headache. It can also lead to loss of cranial structural integrity and resultant upper cervical muscular dysfunction and imbalance.



Mandibular Division (V₃):

As mentioned previously, the **Mandibular Division** is the largest and has both Motor AND Sensory fibers.

Sensory fibers come **FROM:**

1) The mucous membranes of the mouth and lower gum, the lower teeth, the anterior 2/3 of the tongue (sensation, not taste), the chin and lower lip. Dysfunction here relatively duplicates the discomforts produced by V₂ in distribution to ITS correlative tissues: Gum swelling and discomforts, tooth/teeth ache/pain and chin and lip sensitivity,

numbness, pain, etc. often send you to your Dentist. General oral health (teeth, membranes, gums, etc.) degrades/weakens. Wind can affect these tissues as it did the other divisions. Additionally, you can experience paresthesia or discomforts on/in the anterior 2/3 of the tongue. See #5 below for more about Dental visits and “flares”.

2) The side of the head (temporal area) and scalp. Dysfunction can again produce sensitivity, various paresthesiae, and discomforts. Note, as discussed later, the motor nerves affect this area as well. Many hypertonic trigger points are usually found here...and can create a negative feedback loop.

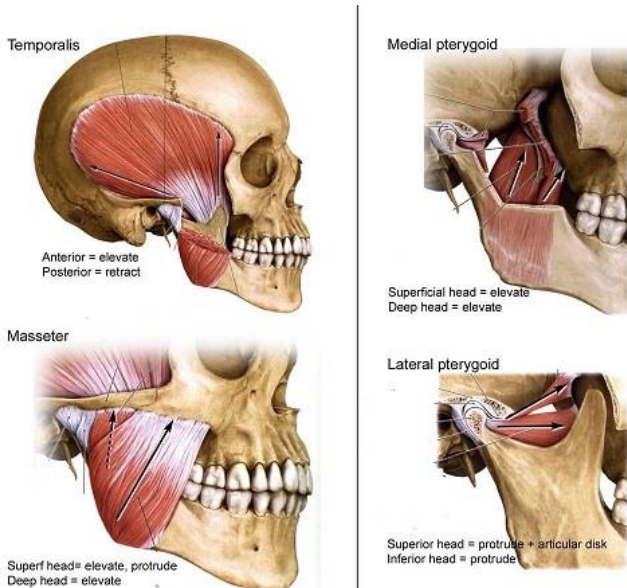
3) The external auditory meatus (outer ear canal), the auricular area (ear lobe), and the external surface of the anterior portion of the tympanic membrane (eardrum) [As a side note, CN IX and X are also involved with the eardrum]. Dysfunction here is fairly common. Complaints of ear itchiness or ache, ear fullness, popping/cracking, deep ear pain, sharp ear “ice pick” stabs, as well as “flushed ears” are reported. Note that “pain behind or under the ear” can often be related to Cranial misalignment, especially the occiput, and/or upper cervical problems. Also, Meniere’s, dizziness, loss of balance, hearing problems, etc. can be related to Meningeal/Dural tension or Temporal bone dysfunctions which can relate to CN VIII (Acoustic, or Vestibulocochlear Nerve) and/or UC problems. If CN VII (Facial Nerve) is affected, some facial muscle dysfunction (Perhaps even Bell’s palsy symptoms) may be present, as well. Many inter-related causes and effects can overlap when V₃ is involved.

4) The meninges/Dura. V₃ also sends a recurrent sensory branch back to the Meninges/Dura. Dysfunction here, as in the previous Meningeal/Dural instances, relates to headaches and Cranial/Upper Cervical dysfunctions.

5) The temporomandibular joint/area. True TMJ can result from dysfunction of the MOTOR portion and its innervation of the muscles of mastication (below). More commonly, however, because the mandible hinges on the Temporal bones which often misalign with the sphenoid, the muscles of mastication become “super-hypertonic”. When your jaw is held wide open (dental visit), this strains the muscles which incredibly stresses and further exacerbates the Cranial binding/fixation/“jamming”. This will often initiate a flare up.

Motor fibers GO TO:

1) All muscles of mastication (Masseters, Pterygoids and Temporalis muscles).



The left side of this illustration is the outer layer of muscles. They include the Temporalis and the Masseters (Deep and Superficial). These are MAJOR in TN. The right side of this illustration is the inner layer of muscles (more easily accessed by providers through the mouth). They include the Medial and Lateral Pterygoids...which have attachments to the SPHENOID. (Once again, here is the importance of the Sphenoid bone!) All of these muscles are innervated by the Mandibular Division.

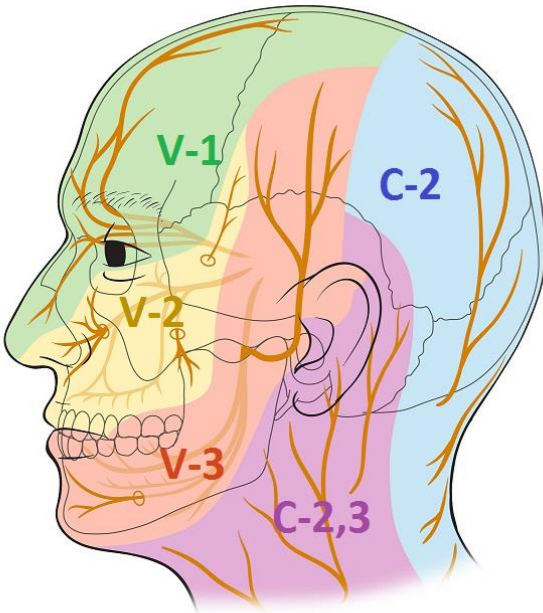
The importance of these muscles cannot be overemphasized.

These muscles directly impact Cranial bone function...and Cranial bone function directly impacts these muscles. The Trigeminal Nerve is involved in all. Imbalances in these muscles, due to motor and/or sensory nerve interference, can cause improper bite, bruxism, clenching (usually on TN side), etc. and often create a negative feedback loop which keeps reactivating the entire V₃ symptomatic picture. These muscles (jaw, mouth, temple, side of head) are often hypertonic with many trigger points, which after cranial correction, must be eliminated.

2) Tensor Tympani (a muscle within the ear whose function is to dampen noises). Dysfunction of this portion of the Mandibular Division can cause sensitivity to loud sounds or noises. Also, ear fullness.

3) The Tensor Veli Palatini (a small muscle that tenses the soft palate [roof of mouth] and prevents food from entering our nasopharynx when swallowing). Dysfunction in this portion of the Mandibular Division can be noticed as a tendency for food to “not go down well” when swallowing. It feels as if it wants to pass into our nasopharynx rather into our esophagus (and thus into our stomach).

4) The Mylohyoid Muscle and the anterior belly of the Digastricus Muscle...small muscles under the jaw.



Just as a reminder, here are the Division innervation “tissues of responsibility”. In addition to the V₁, V₂ and V₃, note the C-2 and C-2,3 innervation.



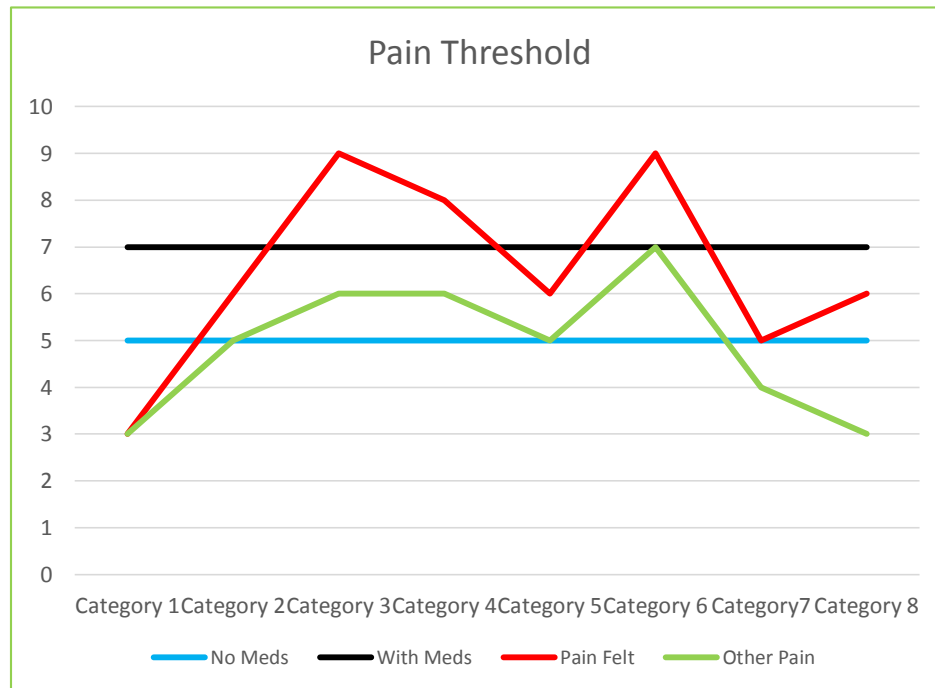
Although there are only three major divisions, they subdivide/branch into other divisions, which subdivide further...and further...and further...and further...and further. These nerves and their “tributaries” **DEEPLY AND FIRMLY INTEGRATE, LODGE AND ANCHOR INTO THEIR “TISSUE OF RESPONSIBILITY”**. Look at the root structure of this tree. Metaphorically, it is a great representation of the Trigeminal Nerve, its divisions and subdivisions.

“Pure” Trigeminal Neuralgia

Look at the traditional Trigeminal Nerve Division distribution illustrations above. These are the classic “true” TN symptoms. The affected division(s) has/have unhealthy tissues at the cellular level. If cells are unhealthy, tissue is unhealthy. If tissues are unhealthy, organs are unhealthy. Eyes, Ears, Nose, and Throat, because of Trigeminal Nerve innervation dysfunction, can all become unhealthy. There’s a medical specialty called EENT that is dedicated to these areas.

So, pure TN could produce **unhealthy tissues** and symptoms from as little as a minimal paresthesia, to a low grade “ache”, to a high “ache”, to pain, to full blown “electric shocks”, eye and sinus problems, mouth and teeth problems, and many more....**but only in the Division “tissues of responsibility”.**

Trigeminal Neuralgia symptomatology is what initiates necessity for medical visit/diagnosis. Often there are/were non-TN-related symptoms that may be/have been “on your radar”, as well. Medication, once commenced, may cause these non-TN-related symptoms to disappear “under your radar” because the meds may “dampen down” the symptoms by raising your pain threshold. What’s important here is that **the “dampened down”, “under the radar”, symptoms can be *pathognomonic* (characteristic of a specific condition/disease) of the true causative factors that pre-existed, contributed to the onset of TN, and are still covertly present.** So, these concomitant conditions/symptoms are often linked to TN proper, but are, in fact, NOT. They may be clear, independent indicators of the pre-existing paradigm that is/was causative in the first place. Until you correct these pre-existing paradigm components, your battle is likely to continue.



It is a high probability that you have much more than simple, straight forward, single or multi Trigeminal Nerve Division symptomatology because other Cranial Nerve, spinal nerve, muscular, Meningeal, circulatory, and CSF flow dysfunctions often accompany Trigeminal Neuralgia. TN symptoms can be very overwhelming in comparison to the others (...not always, however).

The straight **BLUE** line is your normal pain threshold (“on your radar”) WITHOUT medication. The straight **BLACK** line is your pain threshold (“on your radar”) WITH medication. Medication raises your pain threshold (from blue to black), which lowers your “radar” sensitivity. The **RED** line is dysfunction

and pain...but *you don't feel discomfort/pain until it crosses above* ("on your radar") either the black line (If you are medicated.) or the blue line (If you are NOT medicated). The **GREEN** line represents other potentially pathognomonic dysfunctions with other causes (Cranial Nerve, spinal, muscular, referral pain, etc.).

What accounts for all the OTHER symptomatology that is often present?

What accounts for the pain behind, and deep to, the ear? What accounts for all the suboccipital discomforts that many call Occipital Neuralgia (ON)? Why is the Geniculate Ganglion [(Of the CN VII (Facial Nerve))] often involved? What accounts for all the pain down the side of the neck that runs into your collar bone area? What accounts for all the neck pain that runs down to your shoulder? What accounts for the pain in between your shoulder blades especially on the TN side? What accounts for the various headaches? What accounts for the Meniere's, dizziness, instability, balance problems, degradation of hearing, foggy thinking, changes in eye control, changes in smell, loss of some aspects of facial control, noticeable swallowing changes, nausea, light-headedness, heart-lung-digestion changes, mild speech/tongue changes...and a host of others too numerous to mention? These CANNOT be accounted for solely by TN.

As mentioned earlier, these concomitant symptoms may be pathognomonic of underlying causes.

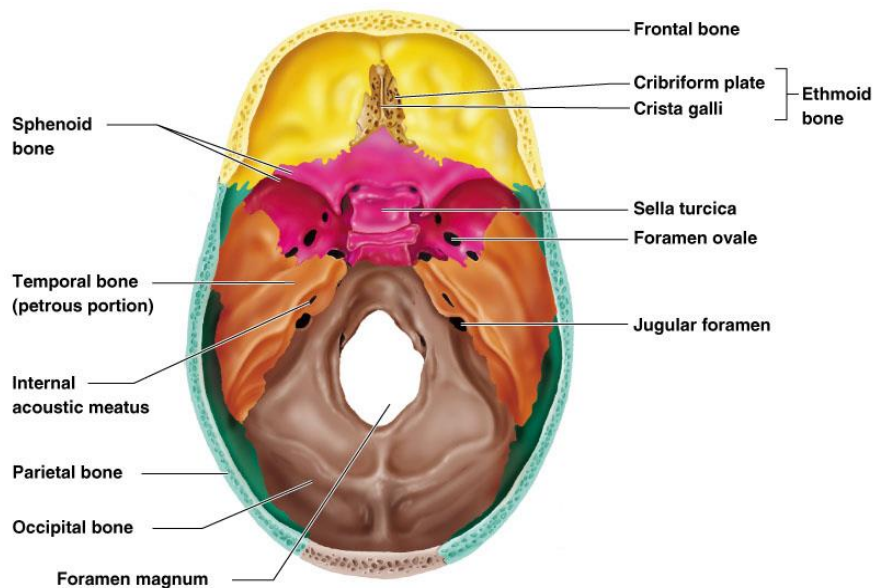
Trigeminal Neuralgia: A Structuralist View Point

The challenge for the remainder of this article is to relate, and differentiate, the TN-associated symptoms with/from the original (and other) causes. Remember, this author believes **most TN is the end result of a host of previous structural adaptations/compensations that result in neurological symptomatology by direct or indirect entrapment/stretch of the Trigeminal Nerve.** TN may be on the top of our pyramid above, but it has a great base. Dismantle this base and TN has no structural support...and it collapses.

TN₁, TN₂, ATN, ON, GN.....Ciliary Ganglion, Sphenopalatine Ganglion, Submandibular Ganglion..... Left side, right side, bilateral.....V₁, V₂, V₃ or any combo.....It really doesn't matter which one or combinations are included in your diagnosis because if they're structurally caused, correct the structure, return the function, and you're on your way to marked improvement at the minimum...and perhaps even full recovery. Division, other ganglia, Left-right...as you will see, is all dependent upon the primary misalignment of the Sphenoid (and Occiput) and secondary misalignment of all the other Cranial and Facial bones.

Remember, **everything lies upon the cranial floor...**

The Cranial Floor is where all the action is as it relates to TN and Structure.



This is the cranial floor. We will now talk about the fuchsia-colored **SPHENOID**, the two camel-colored **TEMPORALS** and the sandy rock-colored **OCCIPUT**. These four bones are critical in Trigeminal Neuralgia from a “Structuralist” viewpoint... especially the **SPHENOID**. We want to see there are small foramina (exits) in the **SPHENOID**, **TEMPORALS**, **OCCIPITOTEMPORAL** suture (joint) (Jugular Foramen), and a much larger foramen called the Foramen Magnum

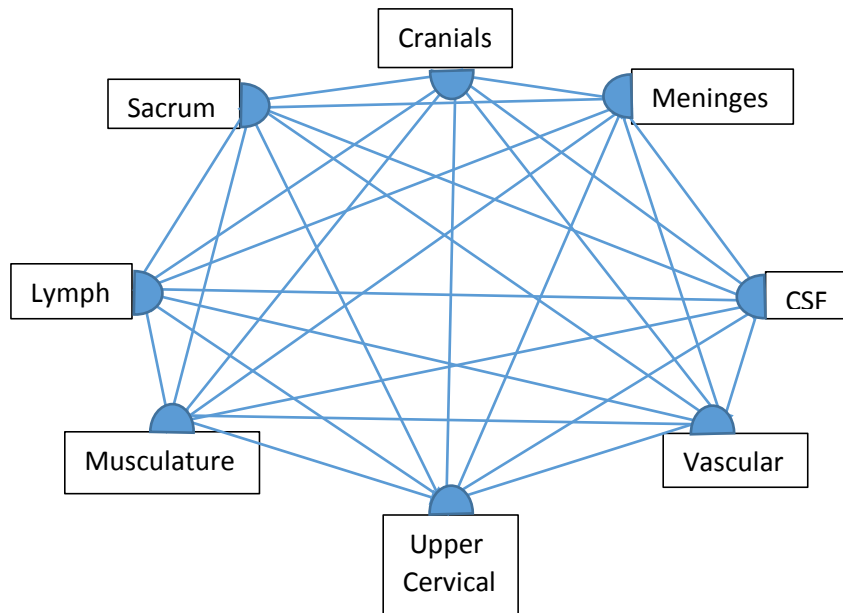
in the **OCCIPUT**.

SIX of the twelve Cranial Nerves either lie upon, cross over, or exit from, the **Sphenoid** Bone. **TWO** lie within, or exit, the **Temporal** Bone(s). **THREE** exit the **Jugular Foramen** which lies between the **Temporal** and **Occiput** bones. **ONE** exits the **Occiput** bone.

All Cranial Nerves lie upon, within, or exit from, the four bones of the Cranial Floor. Since the Cranial bones quickly adapt to, change their motion with, and compensate to/for their neighbors, misaligning one usually negatively impacts the others (“Encroaching Neighbor Syndrome”). This creates the potential for other Cranial Nerve dysfunctions as well...like Bell’s Palsy (CN VII), Eye-movement synchrony problems (VN III, IV and/or VI), or CN X which innervates heart, lungs, and all organs below the diaphragm (digestion), etc.

When the Cranial Floor is dysfunctional, the entire “globe” adapts in compensation. Changes in Cranial and Facial bone position, due to adaptation/compensation or direct blow, **often changes the shape of the face and/or cranium**. This is very evident to experienced eyes and hands. [Look in the mirror and observe.] Dural Tensions, CSF flow and vascularity can change, as well.

Mechanically, muscular balance and tonicity change...which changes musculoskeletal relationships. This alters the correct continuity of the spinal column.



It's all related. "Everything Affects Everything"

...And without knowing it, insidiously, we don't have pure Trigeminal Neuralgia anymore. Rather, **we have a compendium of underlying symptomatology that is overpowered by TN PAIN.**

Remember what nerves dislike?

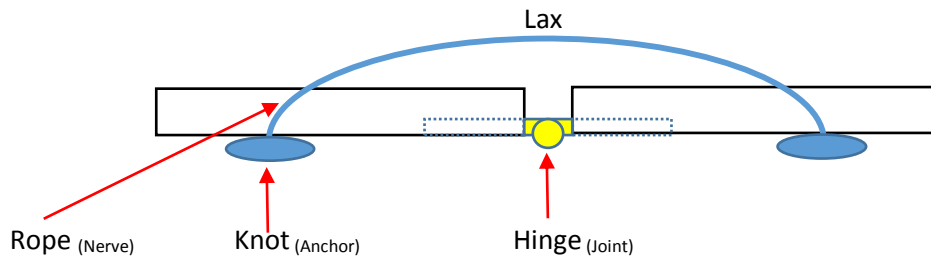
...Bumps, bruises, contusions, compressions, twists (torques), etc. They especially despise entrapments...and **absolutely abhor stretch**. Metaphorically, they are narcissistic, yet "introvert-ish". They "Want what they want when they want it." Otherwise, they want to be left alone. They will give notice when they are stressed, distressed, or stretched...from as little as mild paresthesia to as much as full blown "lightning strikes" depending upon degree.

The question becomes, "**What can cause the Trigeminal Nerve Division(s) such stretch/distress?**"

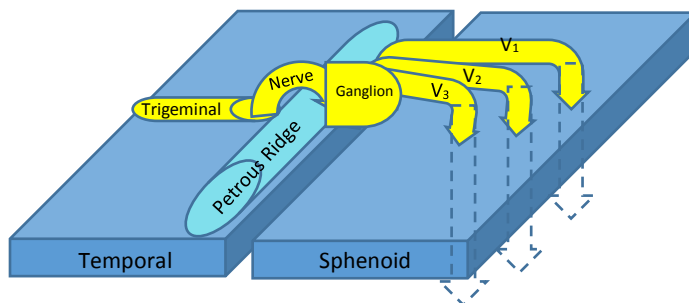
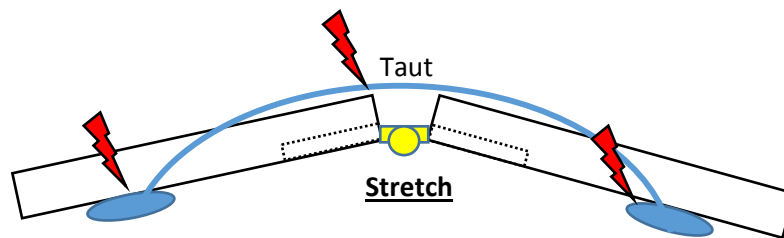
Starting back at the exit from the Pons and following its course, there are **five** areas for possible entrapment, compression and/or stretch. They are:

- 1) The Trigeminal Nerve passing over the Petrous Ridge of the Temporal bone.
- 2) The ganglion sitting upon the anterior portion of the Foramen Lacerum and near/on the "point of conversion" of three Cranial bones.
- 3) V₁ (Ophthalmic Division) passing through its exit foramen (Superior Orbital Fissure).
- 4) V₂ (Maxillary Division) turning down and passing through its exit foramen (Foramen Rotundum).
- 5) V₃ (Mandibular Division) turning down and passing through its exit foramen (Foramen Ovale).

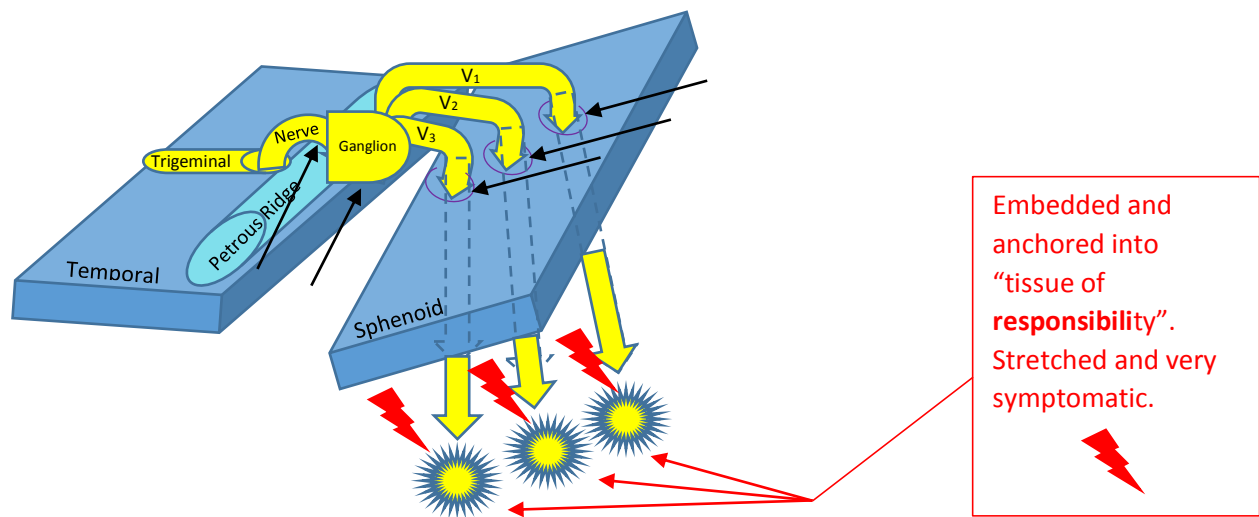
Below is a rope stretched over two pieces of wood with a hinge in between them. The top rope has some slack and laxity in it. It is not straining the knots or mid-length areas.



Below is a rope which has been tightened up by flexing the hinge. Notice the rope is no longer lax; rather, it is, indeed, taut. The rope (represented to be nerves) is stretched. The knots (represented to be tissue anchors) have tightened. This stretched rope, and its taut fibers, would be creating much stretch if it were a Trigeminal Nerve or any of its Divisions.



This represents the Cranial bones (darker blue), Trigeminal Nerve, Ganglion, and Divisions (yellow) and the Petrous Ridge (light blue). Remember, all three Divisions exit through foramina in the Sphenoid bone.

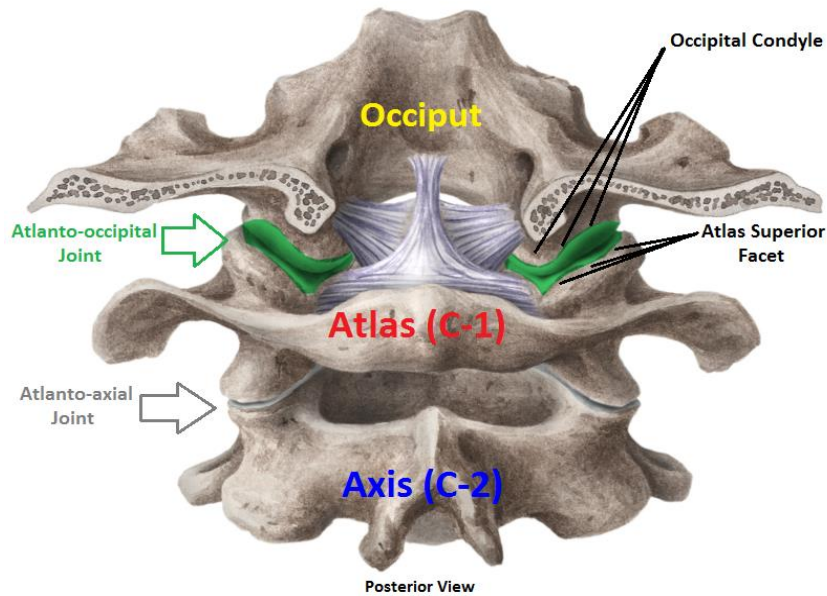


The illustration represents misaligned Cranial bones (darker blue), Trigeminal Nerve, Ganglion and Divisions (yellow) exiting through their foramina, and the Petrous Ridge (light blue). Just get the concept that Cranial bone misalignment **entrap(s) the Division(s)** and can “compress” them at the exits or “stretch” them at their anchors (“tissues of responsibility”)...or both. The **black arrows** are points of potential entrapment and/or stretch-strain. The **red arrows** are points of stretch/strain due to nerve endings being embedded deeply into the tissues.

From a functionality standpoint, this can create GREAT **mechanical and neurological** disharmony.

At the same time that the Cranials are adapting and compensating for/to each other, the upper cervical spine is adapting TO THE CRANIALS.

Let’s make this very clear. Cranials adapt to themselves AND upper cervical misalignment/dysfunction. Upper cervicals adapt to themselves AND Cranial misalignment/dysfunction. So “A” creates “B”...and “B” creates “A”. **Cranials create upper cervicals...upper cervicals create Cranials.** This is another example of “everything relates to everything” ...a negative feedback loop. In treatment, a provider must correct BOTH “A” AND “B”...BOTH CRANIALS AND UPPER CERVICALS. If a provider corrects only the upper cervicals, the uncorrected Cranials, not being freed and still mechanically fixed and wedged, will drive the upper cervicals to re-adapt to their original misaligned state. If a provider corrects only the Cranials, the uncorrected upper cervicals, not being freed and still mechanically fixed and wedged, will drive the cranials to re-adapt to their original misaligned state. **THE PROVIDER MUST CORRECT THEM BOTH! NOT MAYBE...NOT “I THINK WE CAN GET IT.” MUST! THERE IS NO ROOM FOR ERROR ON THIS POINT...THERE IS NO GIVE...MUST MEANS MUST!**



This is a posterior view of the Upper Cervical Spine. The Occiput sits upon the Atlas. Notice the "slant" of the green joints. They are metaphorically like two mortar and pestles. The Pestle (Occipital condyle) glides within the mortar (Atlas Superior Facet). More on this later. Looking from the posterior as we are, the two Temporal bones are attached to the left and right portions of the occiput a little further anterior

from this illustration. Anterior of the Temporals and Occiput is the Sphenoid. So, in a sense, if you can use your imagination a little, you are looking at the entire area that pertains to, and can wreak havoc with, the Trigeminal Nerve.

Impact to the Head/Neck

You are playing 2-on-2 basketball in your driveway with your neighbors. The game is tied. The next basket wins. You drive for the basket. As you are shooting, you get an elbow to your face which knocks you to the ground. As you hit the ground, you hit your head. Your “bell is rung” a little, but you seem to be okay. You made the basket. You won the game! Everybody “high fives” and you all go your separate ways.

Later that evening you notice a little dizziness and headache in the back of your head. Your left neck and shoulder muscles seem to be a little tight...even a little left shoulder blade discomfort. You sluff it off and think it’ll be better in the morning.

It’s a little better in the morning, but over the next few months you start to notice more suboccipital headaches, pressure behind your eyes and a little soreness on the left side of your head. Even a little deep ear “tickle” or pain is starting to show up.

You see your doctor.

Stress

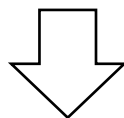
You have a toddler, new twins and find you’re pregnant. Babysitting bills are high. You’re going to have to move due to the expanding family. Finances are not the best, your marital relationship could be better, a sibling is very ill and a parent in failing health. Your cars have high mileage and need new tires, shocks and brakes. You’re stressed “to the wall”. Life is starting to weigh on you fairly heavily. “What’s the answer?”

The stress, seemingly relentless, begins to take its toll. Over time, you notice your shoulders are getting tight (...left more than right), you’re starting to get headaches, you’re not sleeping well, your jaw is tight/sore on the left side and your headaches are worse in the morning.

Some days are better than others, but you notice that exceptionally stressful times really exacerbate your symptoms. You start to get a discomfort behind and deep to your ear. You are slowly feeling worse. You’re starting to get a little “short”...What’s wrong with me?

You see your doctor.

Let’s bring these together because ultimately they are going to run parallel courses.



Whether an impact to the head/neck/face (accidents, falls, etc.), a sudden and heavy immediate stress (notification of sudden passing of a friend, spouse, child, etc.), a low grade, longer term, relentless and accumulating stress (marital, children, finances, etc.), or whatever other causes you have experienced or can imagine, can take you down the path of TN.

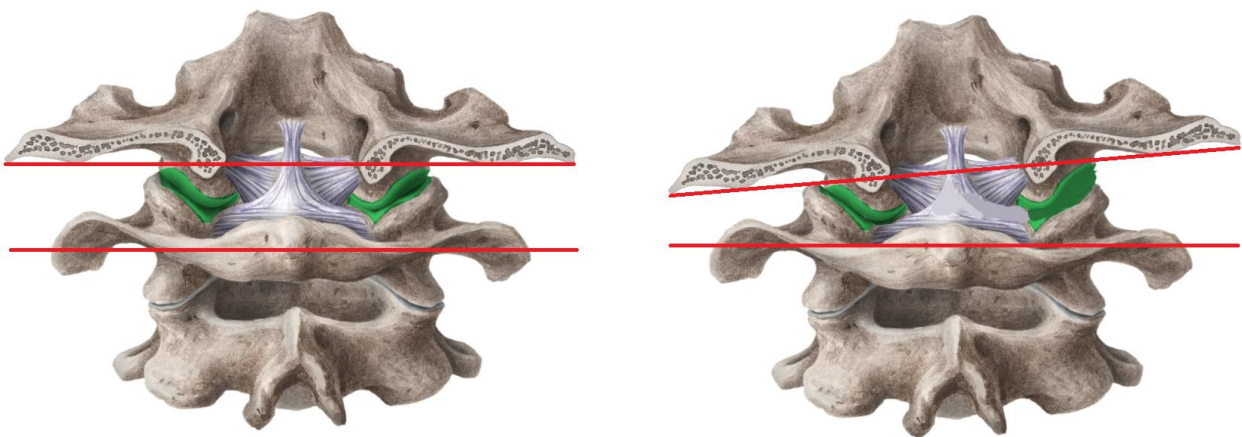
What has happened?

The impact to the head/neck **directly** misaligned the Cranial bones and/or upper cervical spine which compensatively changed the musculoskeletal structure...and thus the beginning of the symptomatic picture. **Cranials came first...musculoskeletal adaptation and neurological symptoms came later.**

The stress paradigm recruited a host of adaptive and compensatory musculoskeletal changes which led to a **very common** finding in TN...an inferiorly misaligned occiput on the TN (left, in our discussion) side. In this case, the **musculoskeletal symptoms came first...Cranial adaptation and neurological symptoms came later.**

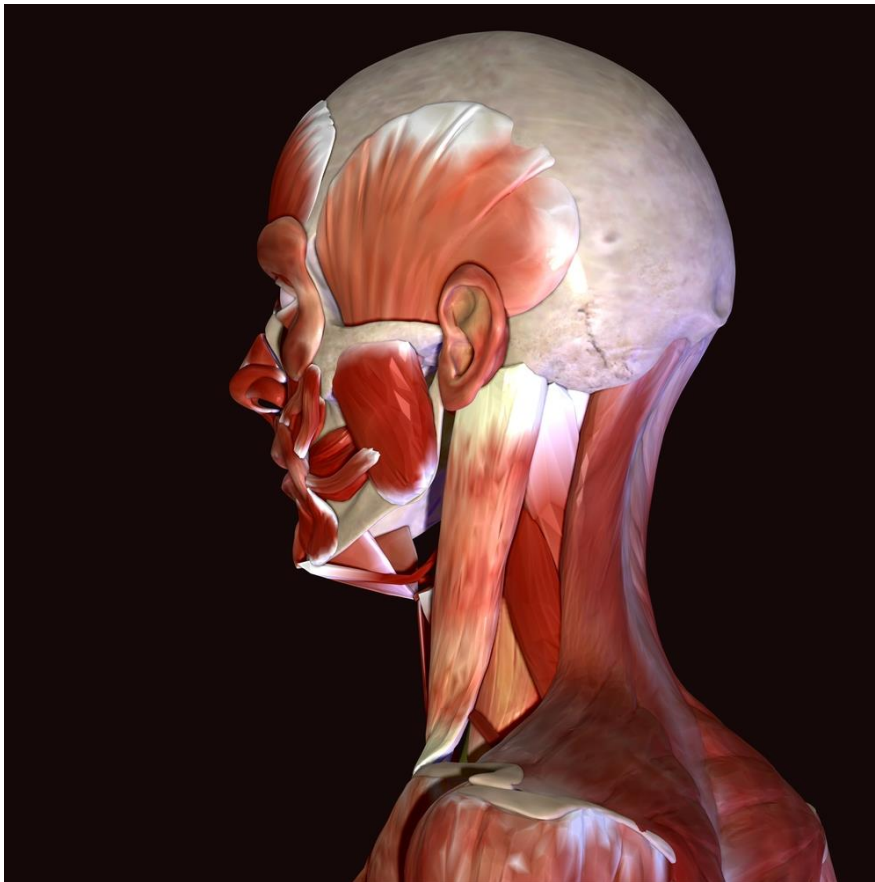
Which came first, the chicken or the egg? It doesn't matter. You must correct BOTH the chicken AND the egg. Again, NOT MAYBE...THIS IS A MUST! This ensures everything is back in balance...and neither can negatively impact the other.

The left illustration below is normal (parallel lines). The right illustration shows the top (occiput) line slanting heavily left. The occiput is no longer sitting level on the atlas (C-1). Musculoskeletally and neurologically, this seriously compromises and undermines the integrity of your health.



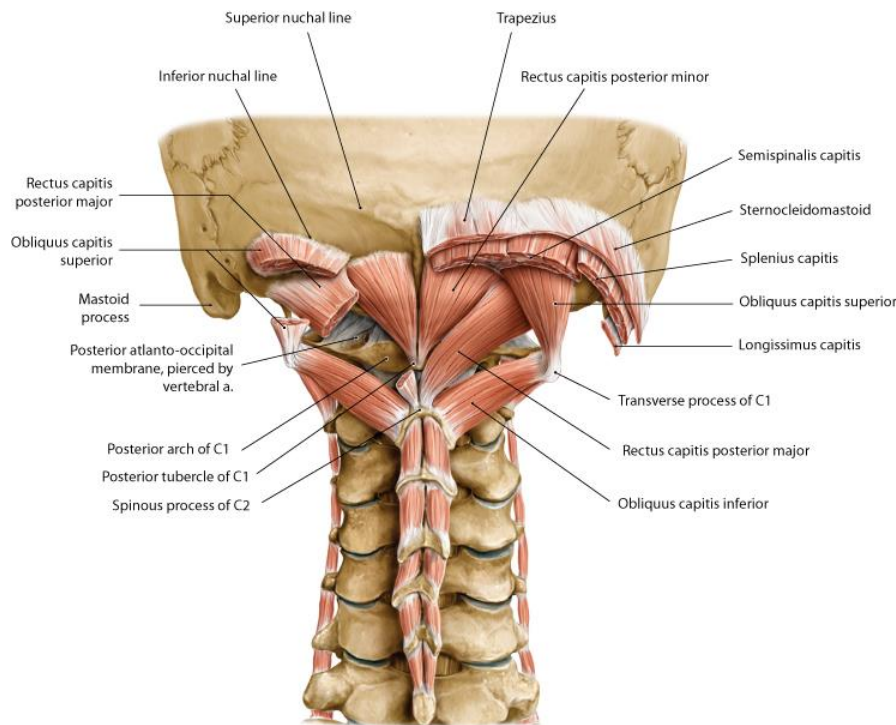
This results from what we humans do when we're under stress. Without knowing it, we drive our stress into our traps, shrug our neck and shoulders (usually one side more than the other...which often becomes the TN side...left in this case), which tightens our neck musculature, which pulls our occiput inferior and forces the upper cervical spine and other Cranials to compensate. Misalignment is quite consequential since the occiput and upper cervicals can directly affect the meninges (torque or compression) and/or the spinal cord (compression)....which affects blood supply, CSF flow, etc. Marked complaints of this misalignment are **fatigue**, **"foggy"** thinking/mind/brain, dizziness, and suboccipital pain/headaches. Also, this is often responsible for that "deep, behind-the-ear" discomfort.

An important side-note: It is often asked, “Why does stress seem to initiate a flare-up?” The illustration below, coupled with understanding of the misaligned Occiput above, help to explain. A misaligned occiput is usually quite symptomatic, initially. Over time, as the upper cervical musculature, spine and Cranials attempt to adapt to, and relieve, the suboccipital stress, this symptomatology can lessen...and you maintain functionality. When under stress, and you tighten your traps and suboccipital musculature, you pull the Occiput inferior further still, forcing the upper cervical spine and cranials to adapt beyond their capability. This further misaligns an already misaligned cranial floor...which further stretches/stresses an already stretched/stressed Trigeminal Nerve/Division(s) [Remember the taut ropes, above?...]...and you end up with a full blown flare-up. Once the stress settles a little, you relax your traps and suboccipital musculature...but returning it only to its “pre-stress” “misaligned state”. You’re back where you started, which, was an already compromised state...just waiting for it to happen again.



These are the superficial muscles. There are deeper layers of muscles under these which also tighten when we’re stressed. In this illustration, you can visualize the muscles that attach to the back of the skull tightening and pulling the shoulder up...and the skull (occiput) down.

After prolonged time, this Occipital misalignment “sets”.



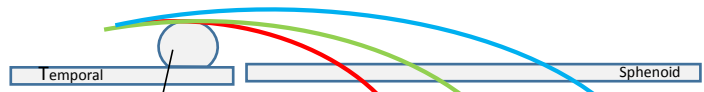
These are some (There's more.) of the "deeper muscles of the upper cervical spine. You don't need to know any of them. Just know that it's a little more complicated than it looks on the outside.

So, we have the cervical musculature and spine, and the Cranials, all trying to compensate and adapt to keep us functional. With more time, more compensation and adaptation, more seemingly non-TN-related symptoms, and continuing to feel worse, we slowly slip into the realm of TN.

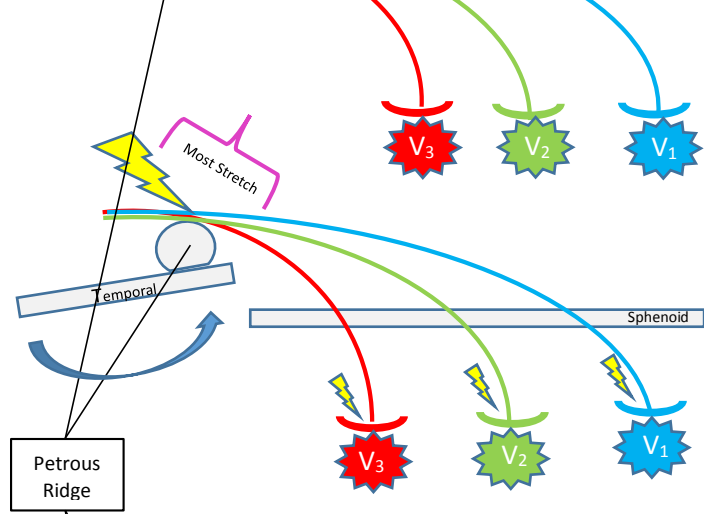
Of course the TN symptoms we get are dependent upon which of the three Division(s) is/are impaired. The non-TN-related symptoms, which, as mentioned earlier, are often "overpowered" by the actual TN symptoms, can involve other Cranial Nerves, cervical nerves, the musculoskeletal system, CSF flow, and/or other meningeal mechanisms.

The drawings below will give "the concept" of anchored nerve tissues being stretched and a few ideas as to how this can happen. In reality, there are many Cranial misalignments that can entrap and/or stretch the Trigeminal Divisions to make them become very symptomatic.

Normal Tension.



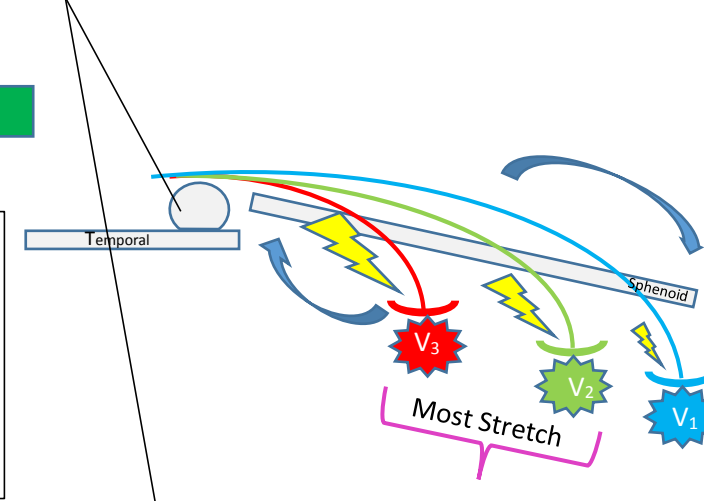
Temporal and Petrous Ridge raised. Much stretch of T. Nerve. Mild Stretch of all three Divisions.



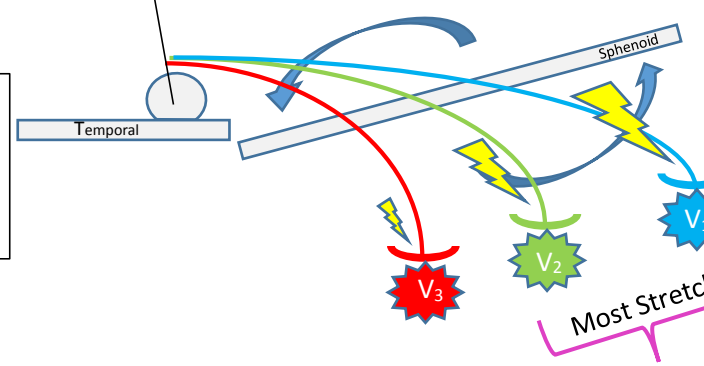
Posterior

Anterior

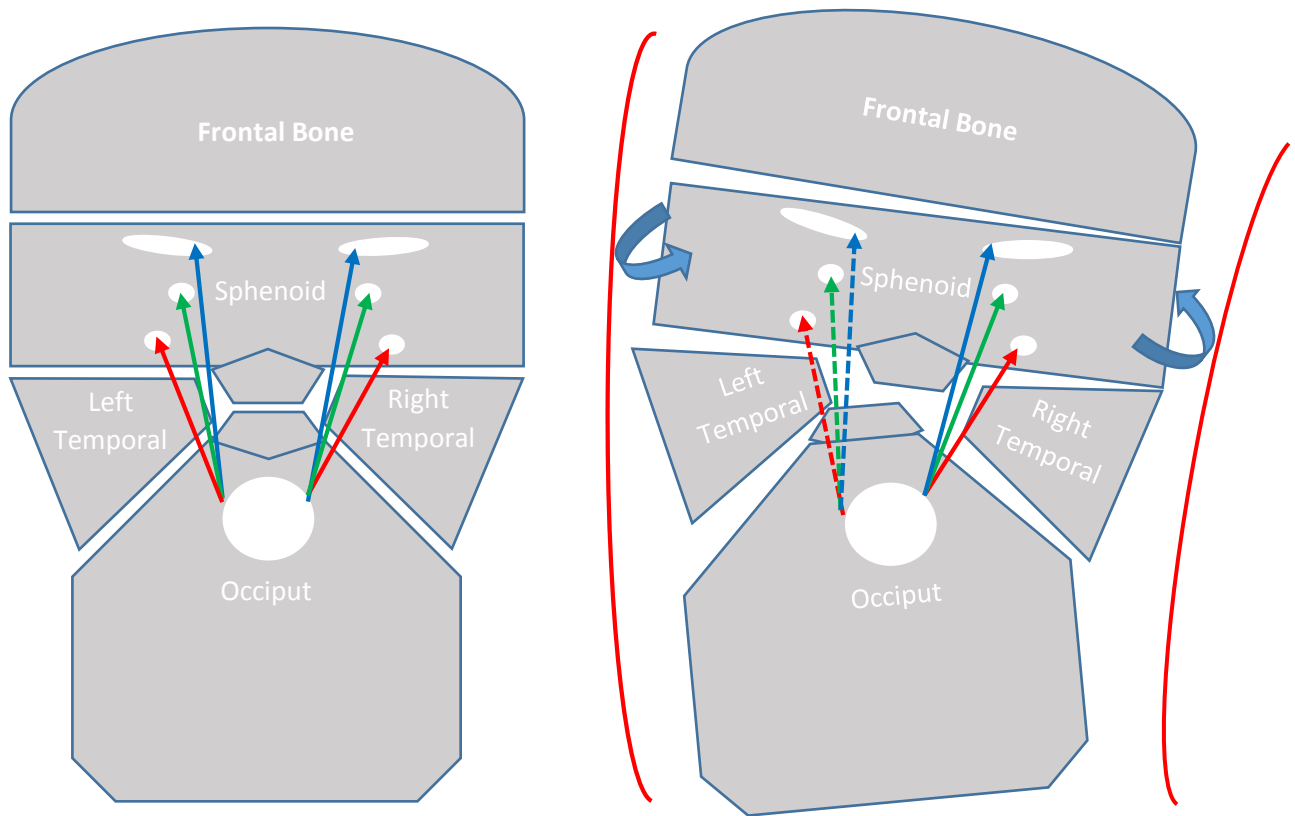
High Stress of V₃ because left end of Sphenoid is tipped up, stretching the V₃ fibers. V₂ not as much, but still some.



V₁ has most stretch because right end of Sphenoid is raised. V₂, not as much.



These are lateral views to show vertical misalignment of cranial bones and "stretch" of nerve divisions.



These are superior views. Left is normal. Right is with misaligned Cranials and stretched nerve divisions (dotted lines). Notice the misshapen skull (curved red lines). Misshapen “patterns” of the skull are dependent upon which of many combinations of Cranial bone misalignments are present. There is one pattern that is dominate in TN. Regardless the pattern, correcting the faults and releasing the “stretch” of the Division(s) is key. You are looking at the end result of an adaptive “train reaction”.

So, we looked at the earth’s surface (topography). We saw that it’s made of tectonic plates. We know when these tectonic plates slip/shift, the earth’s topography changes...oftentimes with devastating results (earthquakes). Power is lost. Gas and oil lines are fractured. Roads, highways and bridges split/divide/fall. Disruption! So, too, our skull. When these Cranial bones (tectonic plates) slip/shift/fix, the cranial floor’s topography changes...upsetting normal alignment, motion and function...oftentimes with devastating results. Disruption! Trigeminal Neuralgia!

“What now? What do I do? Where do I go?”

“Oh great!” “So the very foundation, upon which rests my brain, is defective and unstable!” “And because it can’t be reached, other than by surgery, I’m done.” “I might just as well walk into the sunset...ne’er to be seen again!”

Whoa! Whoa! Whoa!

On the contrary, there is much that can be done.

Remember that 3000’ “unscalable” wall? 99.9999% of us look at it and see no “grips”, “grasps”, indents, outcrops, cracks, bumps or “handles” to use as tools/aids to scale to the top. An experienced climber, however, can easily recognize and use things we can’t even imagine as effective instruments to lift themselves to the next height. Experience enhances their “toolbox”.

An experienced structural provider, has knowledge of, understands, and utilizes the relevant anatomy and functionality as components of his/her technical armamentarium. Experience enhances their “toolbox”, as well.

Your anatomy, and its functionality, do, indeed, offer an array of contacts, levers, hydraulics, assists and “tools” to impact, not only the outer, reachable, palpable cranials, but the cranial base, and its components, as well.

All that “messed up” topography we mentioned earlier **can be restored to normal alignment and functionality**; thus releasing the entrapped Trigeminal Nerve and its Divisions. Indeed, this author does not want you to “walk into the sunset...ne’er to be seen again”. Help IS available.

Note: CAUSE is key. If the actual CAUSE is a mass, tumor, aneurysm, arterial or venous compression, or other pathological entity, only correct treatment(s) will resolve. These are medical issues and usually invasive. If the actual CAUSE is structural stretch/compression, only correct treatment(s) will resolve. These are structural issues and are usually noninvasive and painless. A structuralist approach will not correct a medical cause. A medical approach will not correct a structural cause. Both approaches have their place in the TN arena.

Experience has shown that **structural (Cranial...and upper cervical) CORRECTION of a structural (Cranial...and upper cervical) CAUSE produces very fast, effective and predictable steps of progression.** Although a provider might use aids (colored skull, video clips, illustrations, anatomy software, etc.) to educate, it is imperative that they instruct the patient about their responsibilities, for although structural fault was the initial offender, they have adapted to their symptomatology in such a way as to create negative feedback loops which keep the entire mechanism “re-firing”. This is especially true with V₃ patients. Once the “offense” is removed, you need to eliminate the old dysfunctional muscular and neural patterns and replace them with new healthy patterns. Sometimes this requires a little extra effort on the patient’s part. Over your “TN years” you’ve avoided certain movements and adopted new ways of accomplishing things because of your FEAR of triggering a flare-up. Learning to trust that those movements won’t trigger a flare-up anymore, and teaching your body the new patterns, may take a little effort. Learning about, and eliminating, stress factors is important as well.

Where do I find a “structuralist”? Where do I find someone who can “unlock” and rebalance the Cranial floor...**and** correct the upper cervical spine as well? Can I find a structuralist that understands, not only my pain, but the anatomical and dysfunctional mechanics of TN? Successfully treated TN?

Structuralists are common: Osteopathy, Chiropractic, and Physical Therapy are a few well-known professions that direct their energies to the musculoskeletal (and neural) system. Finding a “Cranial-qualified” provider is a challenge. Cranial competency requires a very thorough understanding of Cranial anatomy and function, an astute assessment of cranial motion, proper determination of fixation location, and a sensitive touch to direct and accompany the progressional path of correction. It is developed and refined with time and experience.

Although Osteopathy is slowly turning to follow the Medical model, Osteopathic Manipulation (OM) doctors are still available. Osteopathy’s **core curriculum** includes upper cervical **and** Cranial education (as well as the rest of the musculoskeletal system, of course). Craniosacral Therapy, developed in the late 70’s-early 80’s, was born of an Osteopath (John Upledger, D.O.). It has been taught, via seminars, to anyone who has interest. This author is not particularly fond of Craniosacral Therapy. Although it can be beneficial, it seems to lack depth and “follow-through” in Cranial floor release and, depending on the practitioner, can become a little too ethereal for some of the scientific community. Some Osteopaths have focused on Cranial (often called Craniopaths) and have this author’s full support.

Chiropractic, generally speaking, is focused on Chiropractic Manipulation (CM). Chiropractic’s core curriculum includes upper cervical education (as well as the rest of the musculoskeletal system, of course), but, to date, **does not include Cranial education**. All doctors of Chiropractic know how to provide competent upper cervical treatment at graduation. There is a very minority segment that has taken post-graduate techniques/education to further or change their upper cervical understanding. Although, not always, these techniques are often light force and/or instrument-delivered, which can be helpful, but, at times, like in Osteopathy, can be too light to accomplish good occipital and/or upper cervical release (Again, author’s opinion.) There is also a very miniscule segment that has ventured into Cranial care associated with, but tethered to, collateral techniques. It is rare to find a truly independent Cranial practitioner. Cranial, as taught by this author, can be an incredible independent adjunct and asset to UC Chiropractors. It teaches them how to reach “above” their present limits...and definitively release the Cranial fixations.

The Physical Therapy paradigm is fairly well known. Although they may have some manipulation therapy and/or craniosacral education, typically this is not their forté. Rehab is there powerful and effective niche.

This author got interested in Cranial in the mid-80’s as a result of Dr. Upledger’s work and books. This author’s technique was founded, developed, modified, and refined using the best of what both Osteopathy AND Chiropractic have to offer. It’s a finely-tuned directional hybrid.

In trying to locate competent Cranial assistance for “traveling” patients and other TN’ers across the country, it is evident that this can be a challenge. The qualifications are strict. Craniopaths are great, but, indeed, because of numbers, are difficult to locate. You must closely peruse web pages, yellow pages, etc. for the terms “Cranial” or “Craniopath” ...**not to be confused with** Craniosacral, Cranio Sacral, Cranial Sacral or Craniosacral Therapy. Chiropractors may claim UC specialty, but often don’t have the knowledge or technical finesse to be able to release the Cranial floor and other offending cranials.

If you know of good, experienced “Craniopaths” or “Cranial” doctors (Osteopaths or Chiropractors) in your area, or if your doctor would like to learn more about becoming a CranioPractice provider, please so advise. TN’ers world-wide would be most appreciative.

So there you have it. Congratulations for getting through this! It was a tremendous challenge to take such a difficult topic and repeatedly break it down into relatively “digestible” chunks. It’s one thing to have it in our minds...another to get it down on paper in a succinct and orderly manner. I hope that was accomplished...

Structure affects function...structure affects function...structure affects function. Correcting offending structure restores function substantially most of the time. This author frequently finds offending structure in TN patients as per this article. If you seem to be “stuck”, going around in circles or not making progress, you might owe it to yourself to add structural care.

Trigeminal Neuralgia is an outright, profoundly tragic, torture regardless of cause...

Be well...



Dr. James Kolmer