Working with Disc Herniations & Nerve Impingements

- What are disc herniations & nerve impingements?
- What are some common impingement conditions?
- What types of treatments are effective?
- Guest Client Intake & Outtake
- Treatment Demonstration
- Giving Client Homework & Follow Up Plans

Note: these reference slides will be available in the course after the webinar

Working with Disc Herniations & Nerve Impingements

- What are disc herniations & nerve impingements?

Let’s start with some basic definitions

- **The terms “herniated disc,” “slipped disc,” “ruptured disc,” “nerve impingement” and others often get used interchangeably in ways that aren’t always accurate**

- **For this course, we’ll use them in the same way that orthopedic surgeons use and define them so that we can be sure that we are looking at specific cases and how treatment might (or might not) need to be altered**

Defining Terms in Stages

- **Nerve Impingement - This is the most broad of any of the terms we'll use and refers to *any* symptoms (pain, tingling, numbness, or weakness) generated by excess pressure on a nerve that is abnormal from *any* other surrounding tissues and structures (not just from vertebral discs)**

- **Pinched Nerve - This is synonymous with "nerve impingement" and the two terms can be used interchangeable to mean the same thing**

Defining Terms in Vertebral Disc Issues

Stage 1 - Degenerative Disc

- **This is a disc that is degraded in form (usually flattening), and become more brittle through wear and tear.**
- **It will be asymptomatic at first, but eventually leads to a bulging disc.**

Defining Terms in Vertebral Disc Issues

Stage 2 - Bulging Disc

- **This is a disc that has been pushed outside it's normal shape by squeezing pressure on the surrounding vertebra.**
- **The bulge may or may not be compressing a nerve and causing symptoms at first, but left unattended will likely do so in the future.**
- **In general, tightness on one side of the vertebra causes the bulge to push off to the other side into the nerve root - ie, while the symptoms might appear on one side, it's often the opposite side that needs to be "opened" and released to provide relief!**

Defining Terms in Vertebral Disc Issues

Stage 3 - Herniated Disc

- **This term is synonymous to “slipped” and “ruptured” discs.**
- **This is a disc that through pressure, time, and potentially impact injury has bulged beyond its ability to just deform and has split in the lamina allowing the inner gel to escape the disc.**
- **This can compress nearby nerves causing symptoms and will also lead to osteoarthritis in the surround vertebral bones due to the disc no longer being able to provide adequate cushioning between the bones.**
- **If left untreated, the disc herniation will eventually fully rupture, causing the cushioning gel inside the disc to leak out leading to a thinning disc, essentially destroying the disc’s ability to provide adequate cushioning between the vertebrae**

Defining Terms in Vertebral Disc Issues

Stage 4 - Thinning Disc

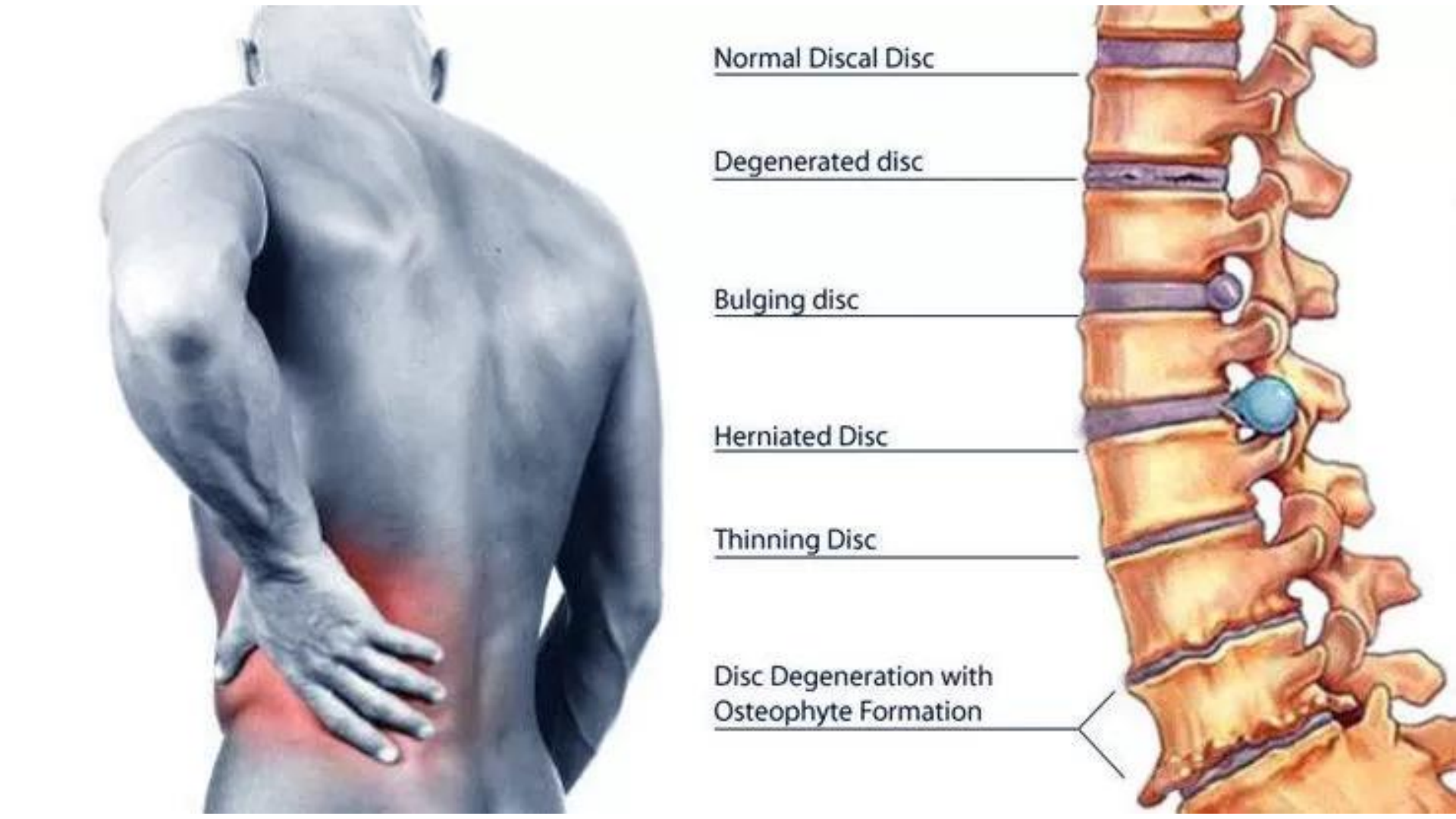
- **Eventually the gel inside of the herniated disc is completely squeezed out, depleting the disc's ability to provide cushioning between the vertebrae causing the surrounding muscular pressure and weight of tissues above the disc to flatten or "thin" the disc**

- **This will lead to osteoarthritis of the vertebrae bones themselves causing additional pain**

Defining Terms in Vertebral Disc Issues

Stage 5 - Osteophyte Formation

- **When the disc can longer keep the vertebrae from grinding against each other in movement the cartilage coating on the bone (the periosteum) wears down until the bones are now “bone on bone” requiring the body to try to continually repair the bones with osteophytes, the formation of which can be seen on medical imaging**


Normal Discal Disc
Degenerated disc
Bulging disc
Herniated Disc
Thinning Disc
Disc Degeneration with
Osteophyte Formation

Not All Disc Deformations are Symptomatic

- **In general, disc bulges and herniations are only symptomatic when the protruding parts of the disc contact and/or compress nerves**
- **This may mean that a disc deformation is totally non-symptomatic, or only intermittently symptomatic with certain movements if the direction of the deformation isn't directly compressing nerves**
- **However, if the trendline of the deformation is left untreated, eventually the structure will break down enough that nerve compression is likely**
- **Studies of dissections of cadavers in medical and chiropractic schools often show disc "problems," however, in many cases the person had not reported symptoms associated with the structural "problem"**

Symptoms arise when nerves get compressed and/or when local muscles get overworked

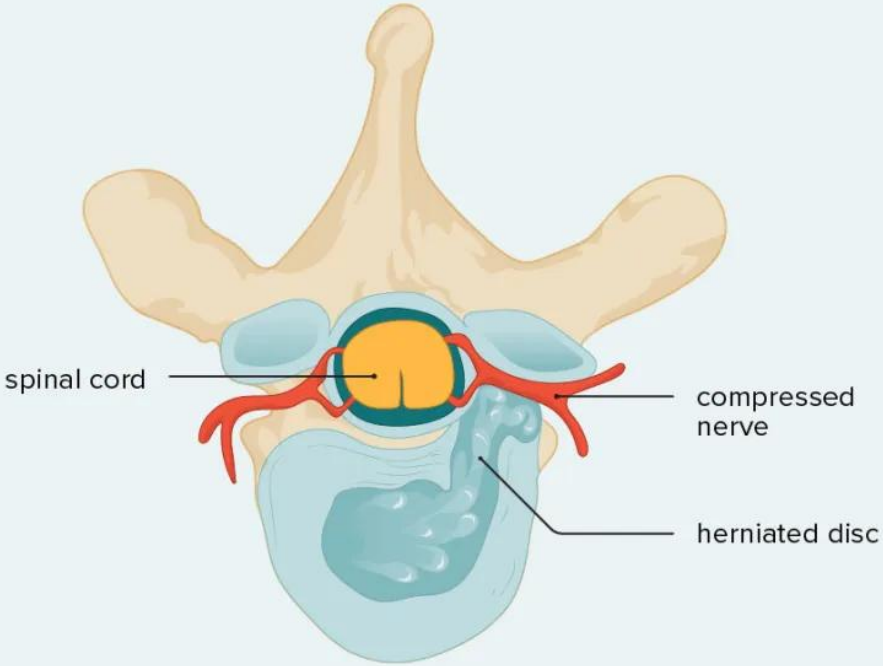
- **The discs themselves do not generally have pain associated with them as they are very poorly innervated**
- **Symptoms are caused either by local nerve compression or by local muscles being overworked and themselves signaling pain**
- **Pain, tingling, and numbness are all possible**
- **Usually symptoms start intermittently and progress to constant**
- **Symptoms can also move around to different areas and tissues if movement causes deformations to contact different nerves depending on the position**

Symptoms arise when nerves get compressed and/or when local muscles get overworked

- **Symptoms can stay more localized if smaller local nerves get compressed, or can travel quite distally if larger nerves get compressed at the nerve root**

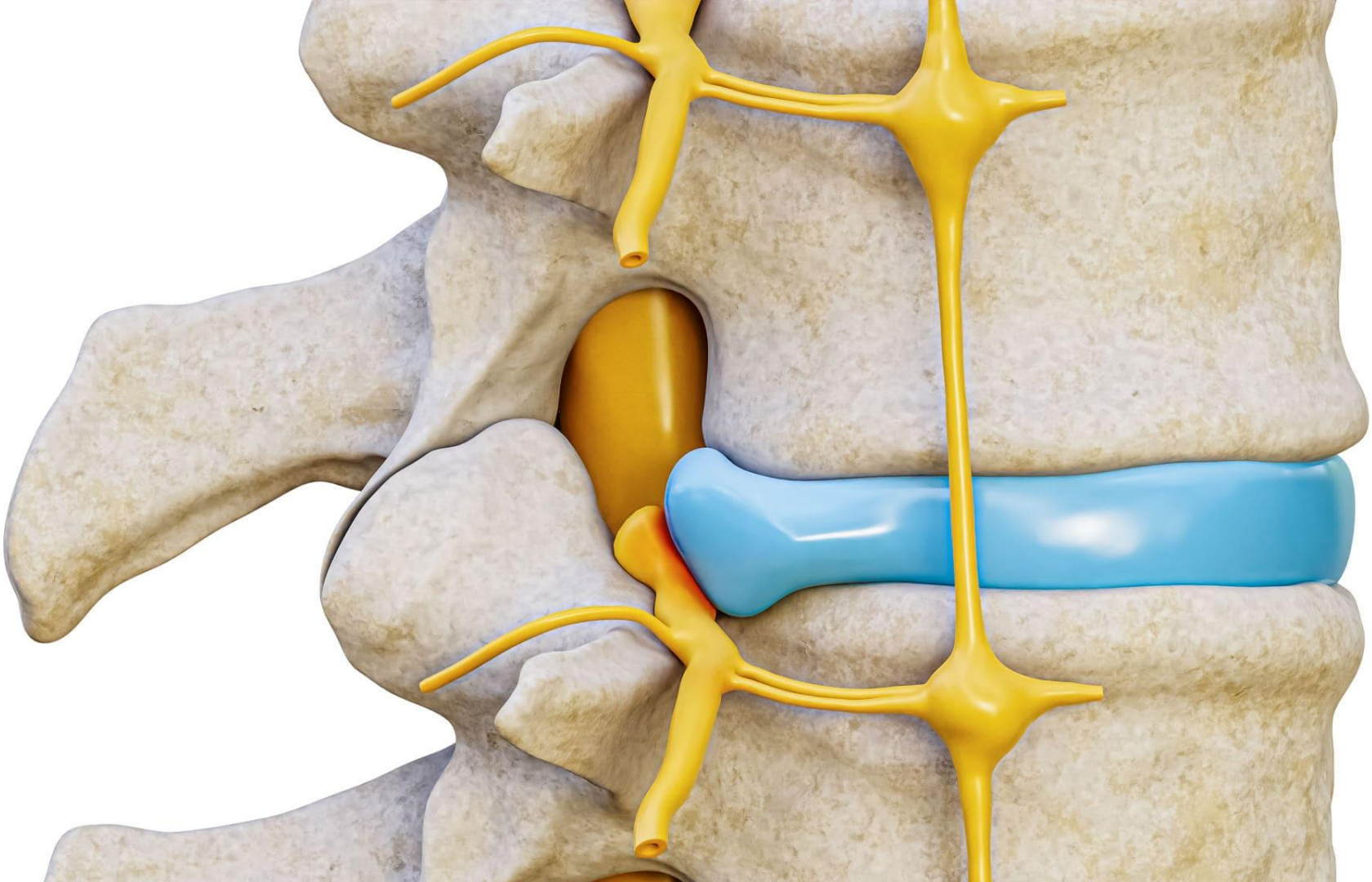
- **In the following images, we can get a better sense of how disc deformations can compress nerves in varying ways leading to different symptoms**

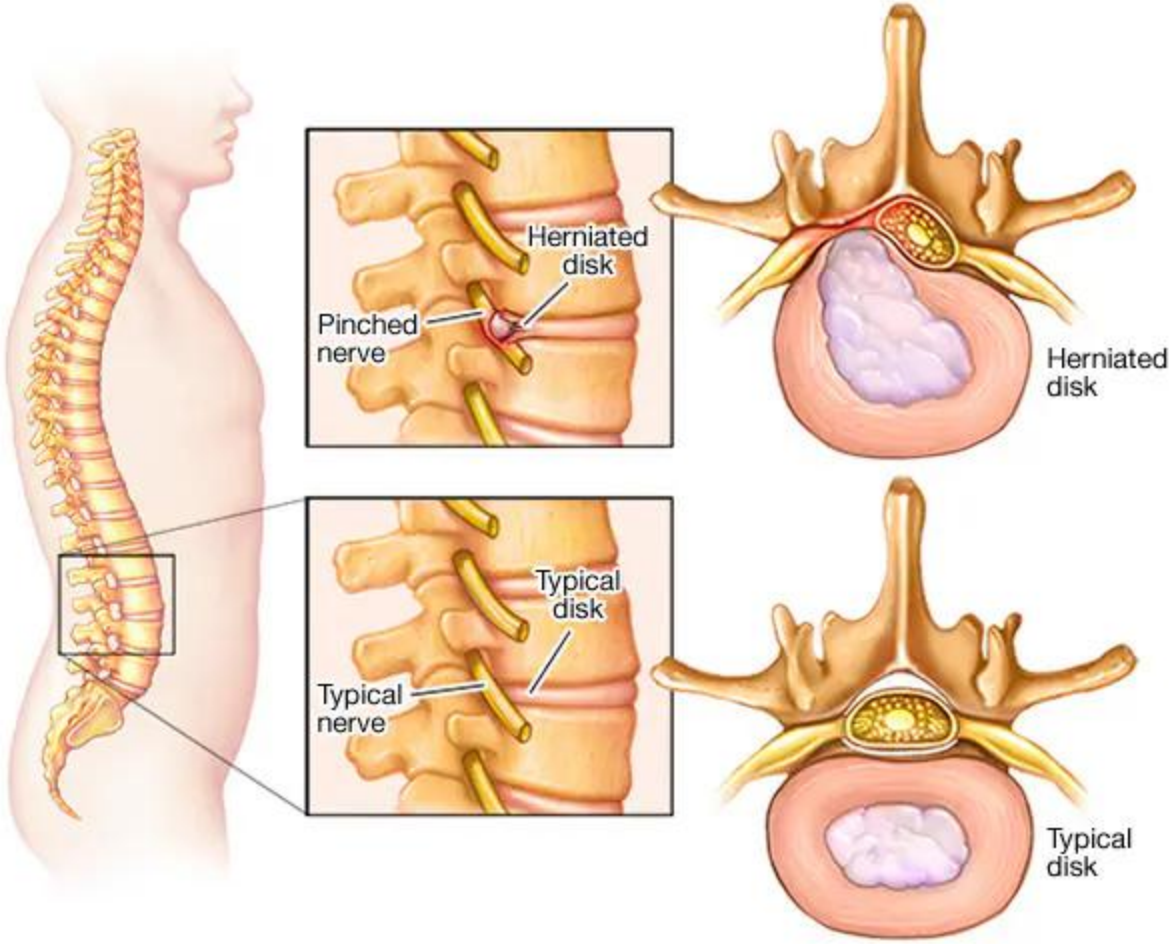
Pinched Nerve in Lower Back

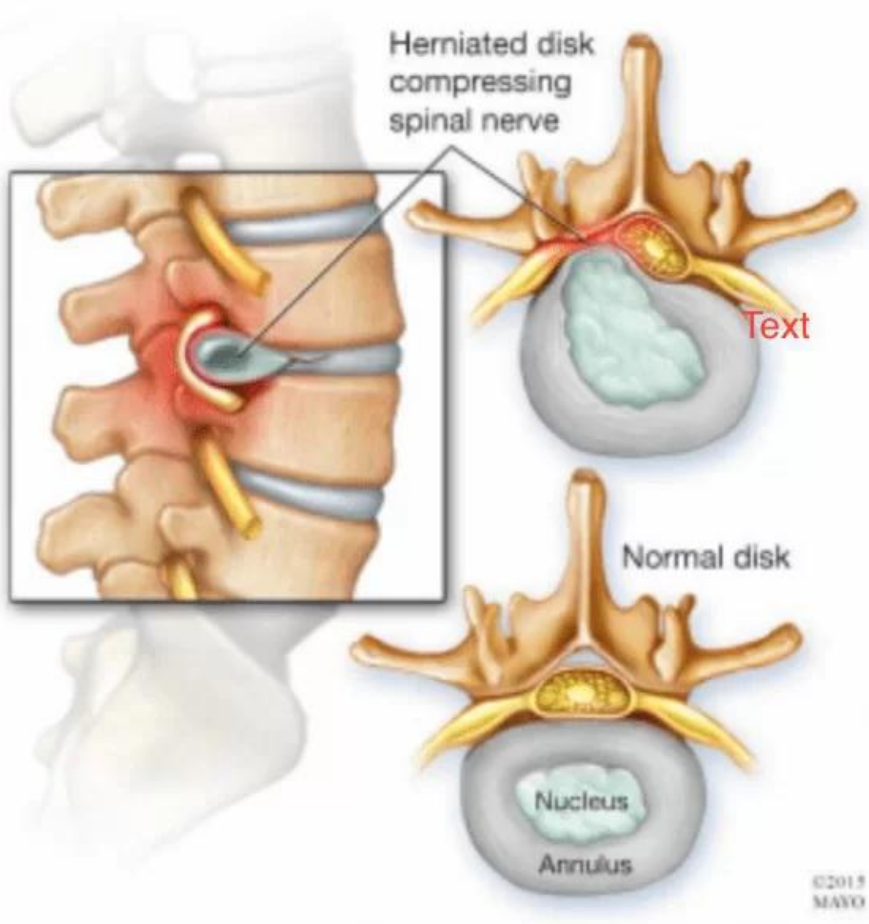


A pinched nerve occurs when a nerve is compressed in the spine at the cervical, thoracic, or lumbar level. This causes pain, numbness, tingling, and weakness to the affected body part.

healthline






Herniated disk
compressing
spinal nerve
Text
Normal disk
Nucleus
Annulus
©2015
MAYO

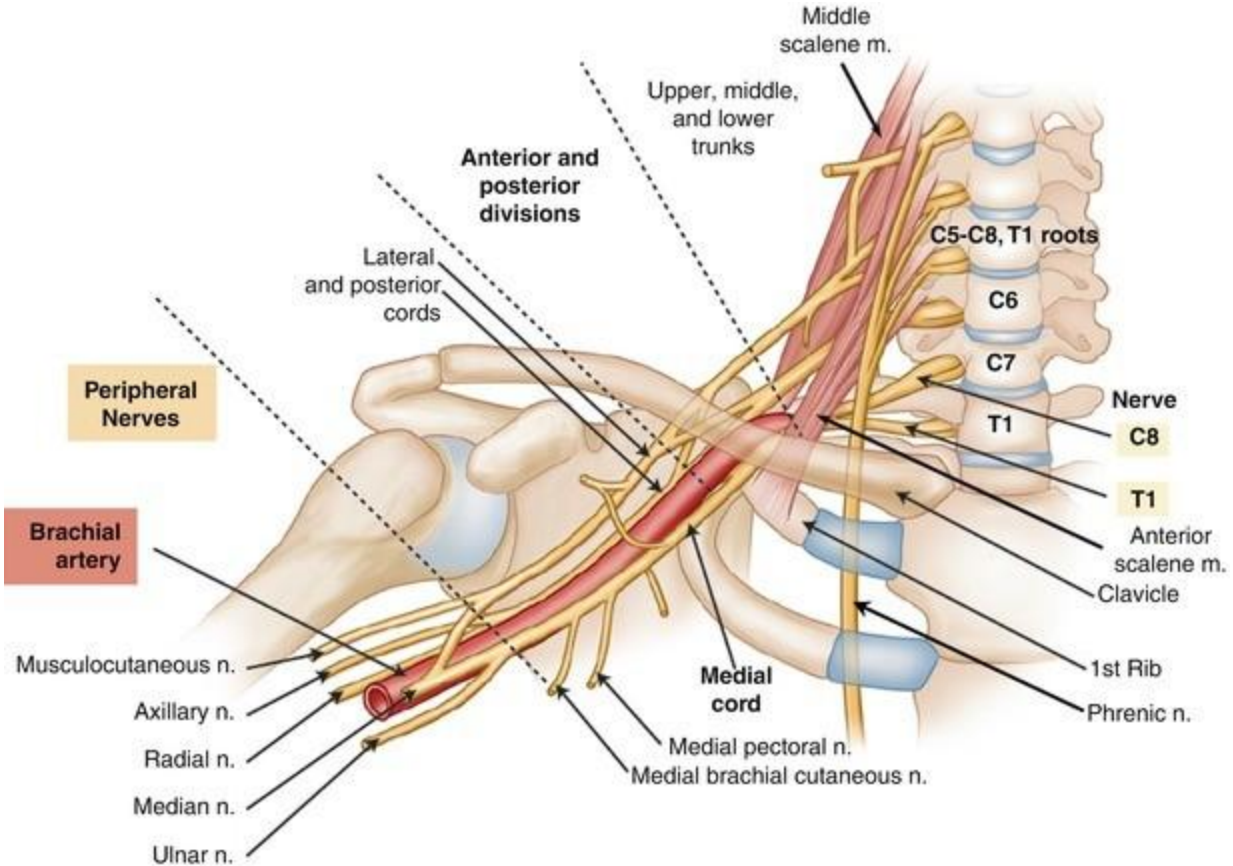

Sciatic nerve
Posterior femoral
cutaneous nerve
From posterior femoral
cutaneous nerve
Common fibular
Medial sural
cutaneous nerve
Superficial fibular
nerve
Tibial nerve
From sciatic
nerve

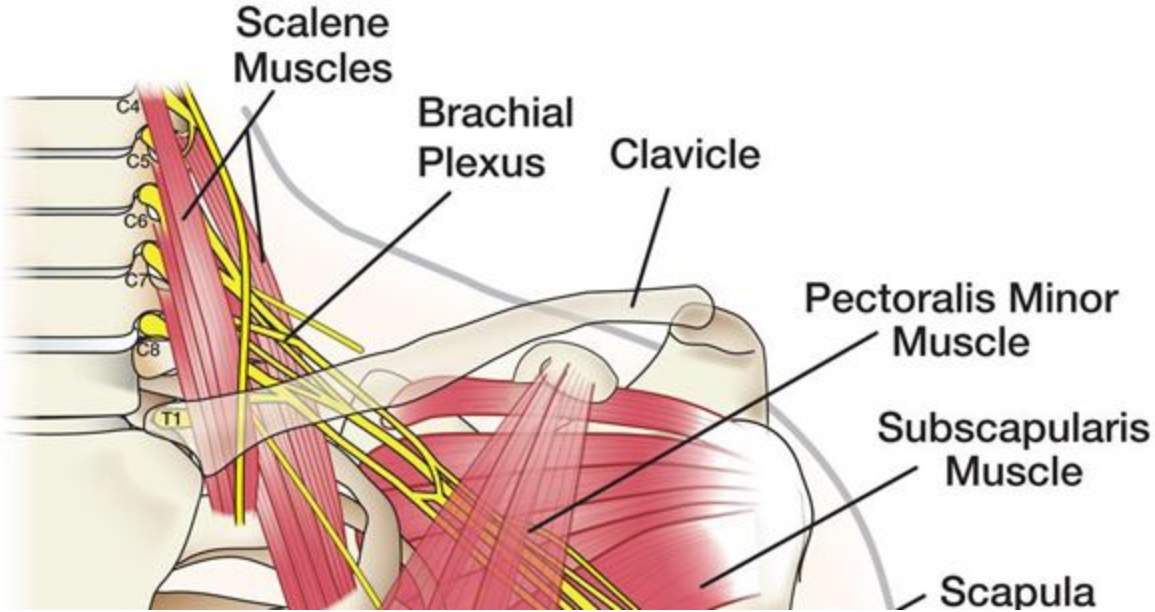
Nerves can also become impinged along their pathways away from the spine

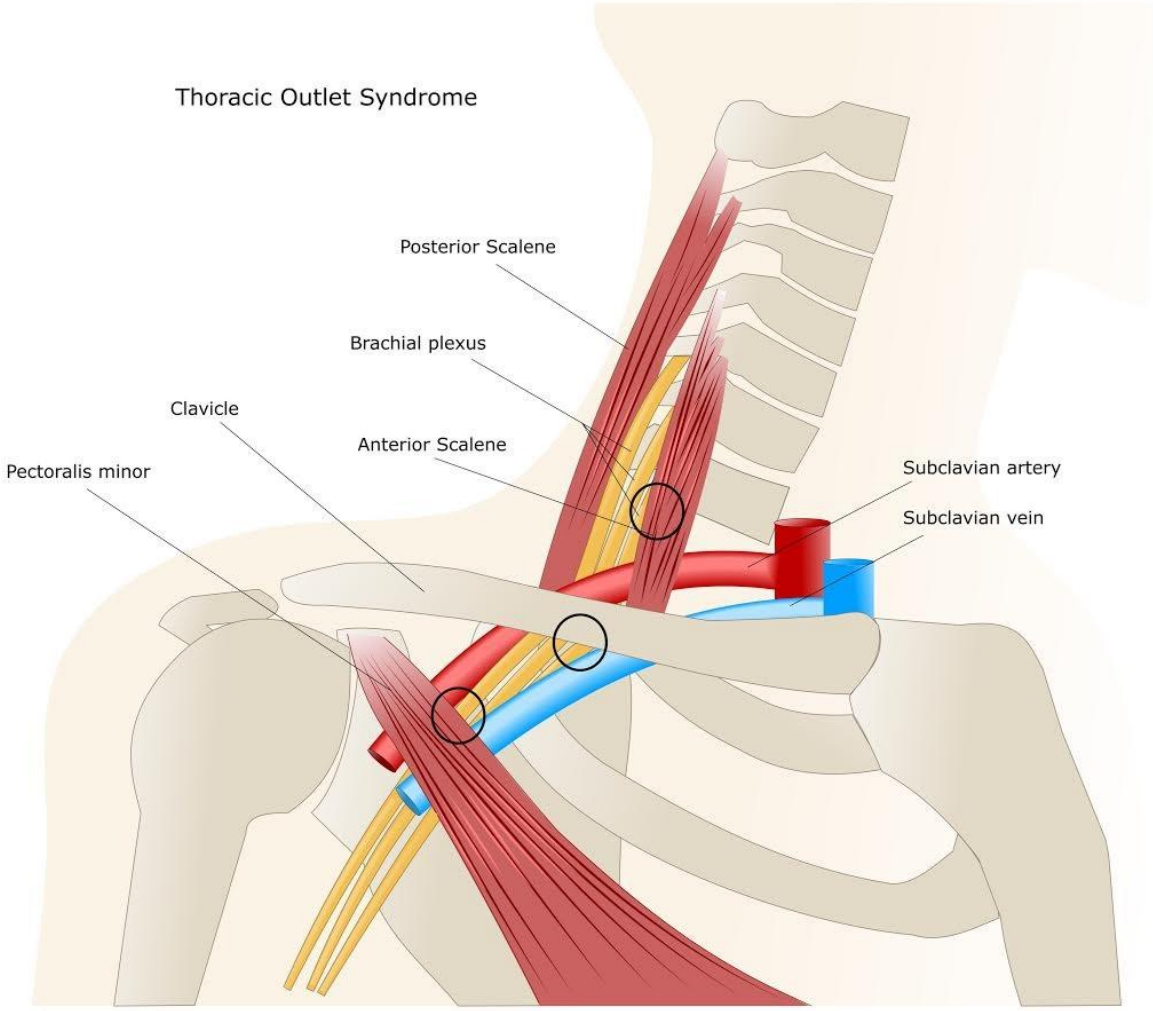
- **Not all nerve symptoms have their source at the discs and vertebrae**
- **Nerves can become trapped and impinged by overly tight muscles, inflamed tendons, scar tissue from surgery, bone spurs, and more**
- **Sometimes symptoms will seem to correlate to a disc malformation but actually be sourced further down the nerve pathway, making potential surgical solutions at the disc itself ineffective and potentially making it more likely that the disc will cause problems later (in the case of a laminectomy for instance)**

Nerves can also become impinged along their pathways away from the spine

- **For instance, in the case of symptoms in the fingers, including pain, tingling, and numbness, nerve compression may be occurring in the cervical spine between C4-C7**
- **However, the brachial plexus then travels through the scalenes, and under pec minor, where it starts to split into 5 “sub” nerves including the musculocutaneus, axillary, ulnar, median, and radial nerves**
- **The nerves move along the lateral edge of the scapula, passing around the elbow, through the forearm, then through the carpal tunnel**
- **Compression may be happening *anywhere* along this pathway, and likely in multiple places**


Middle scalene m.
Upper, middle, and lower trunks
Anterior and posterior divisions
Lateral and posterior cords
C5-C8, T1 roots
C6
C7
T1
Nerve
C8
T1
Anterior scalene m.
Clavicle
1st Rib
Phrenic n.
Peripheral Nerves
Brachial artery
Musculocutaneous n.
Axillary n.
Radial n.
Median n.
Ulnar n.
Medial cord
Medial pectoral n.
Medial brachial cutaneous n.


Scalene Muscles
Brachial Plexus
Clavicle
Pectoralis Minor Muscle
Subscapularis Muscle
Scapula
C4
C5
C6
C7
C8
T1


Thoracic Outlet Syndrome
Posterior Scalene
Brachial plexus
Clavicle
Anterior Scalene
Pectoralis minor
Subclavian artery
Subclavian vein

Working with Disc Herniations & Nerve Impingements

- What are some common impingement conditions?

A not at all complete list…

- **Since the body has over 20 discs, and thousands of nerves passing by multiple places where they can become compressed, cataloging *all* nerve impingements is basically impossible**

- **However, there are several very common conditions that you are likely to run into in your career as a massage therapist, where, with the right treatments, you can really make a difference in clients symptoms**

- **We'll cover several of those, as well as some general strategies for massage therapy that apply to most nerve impingement issues**

Cervical Nerve Compression Issues

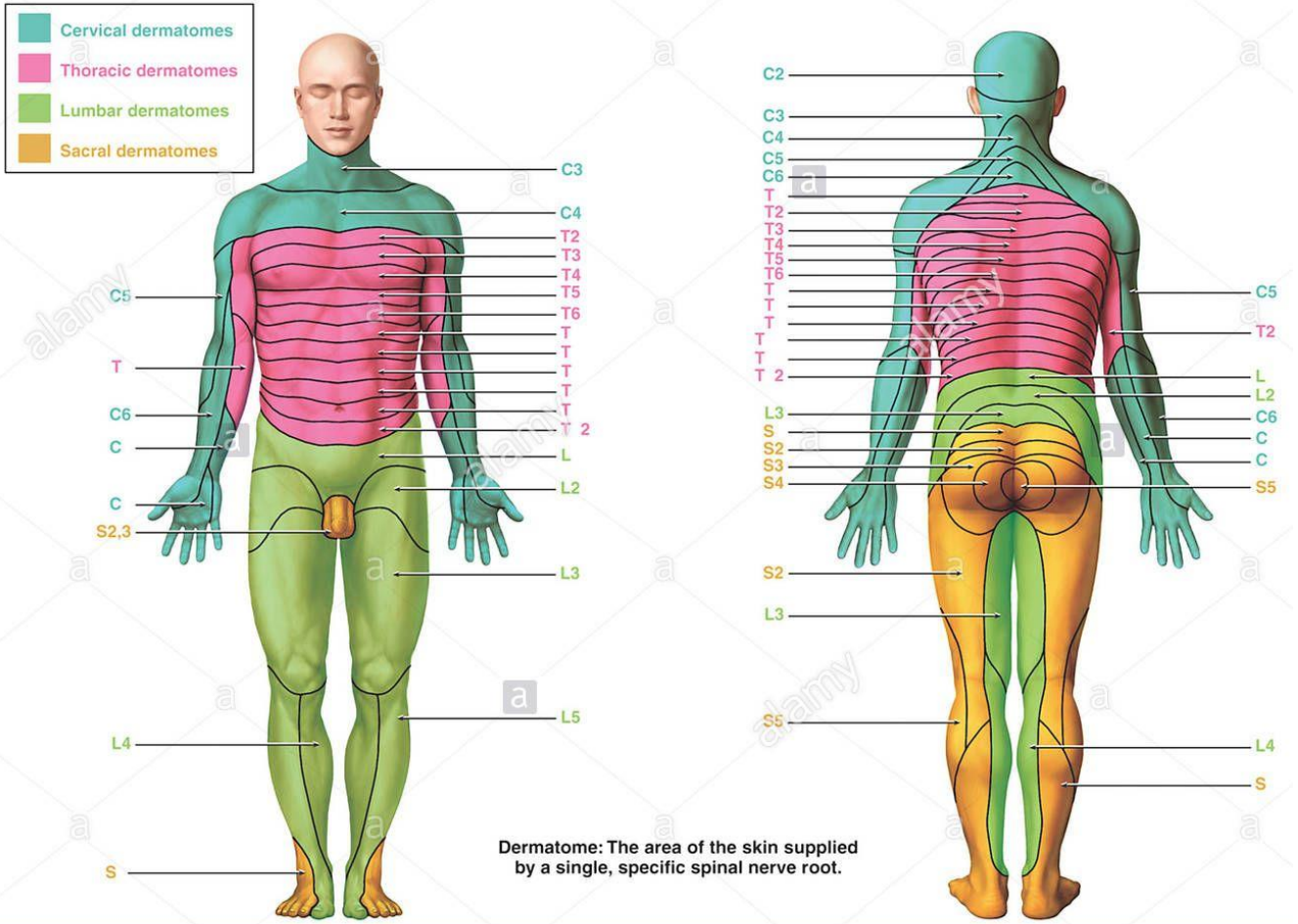
- **Chronic neck pain**
- **Shoulder pain**
- **That dang “spot” between the scapula and spine around T3 (generally comes from compression at C5)**
- **Any symptoms along the brachial plexus pathway all the way to the fingers may start with cervical compression, leading to muscles in the neck, shoulder, and arm that become hypertonic, leading the other issues such as TOC, and/or compression at the elbow, forearm, and wrist causes symptoms in multiple places in the arm and hand**

Thoracic Nerve Compression Issues

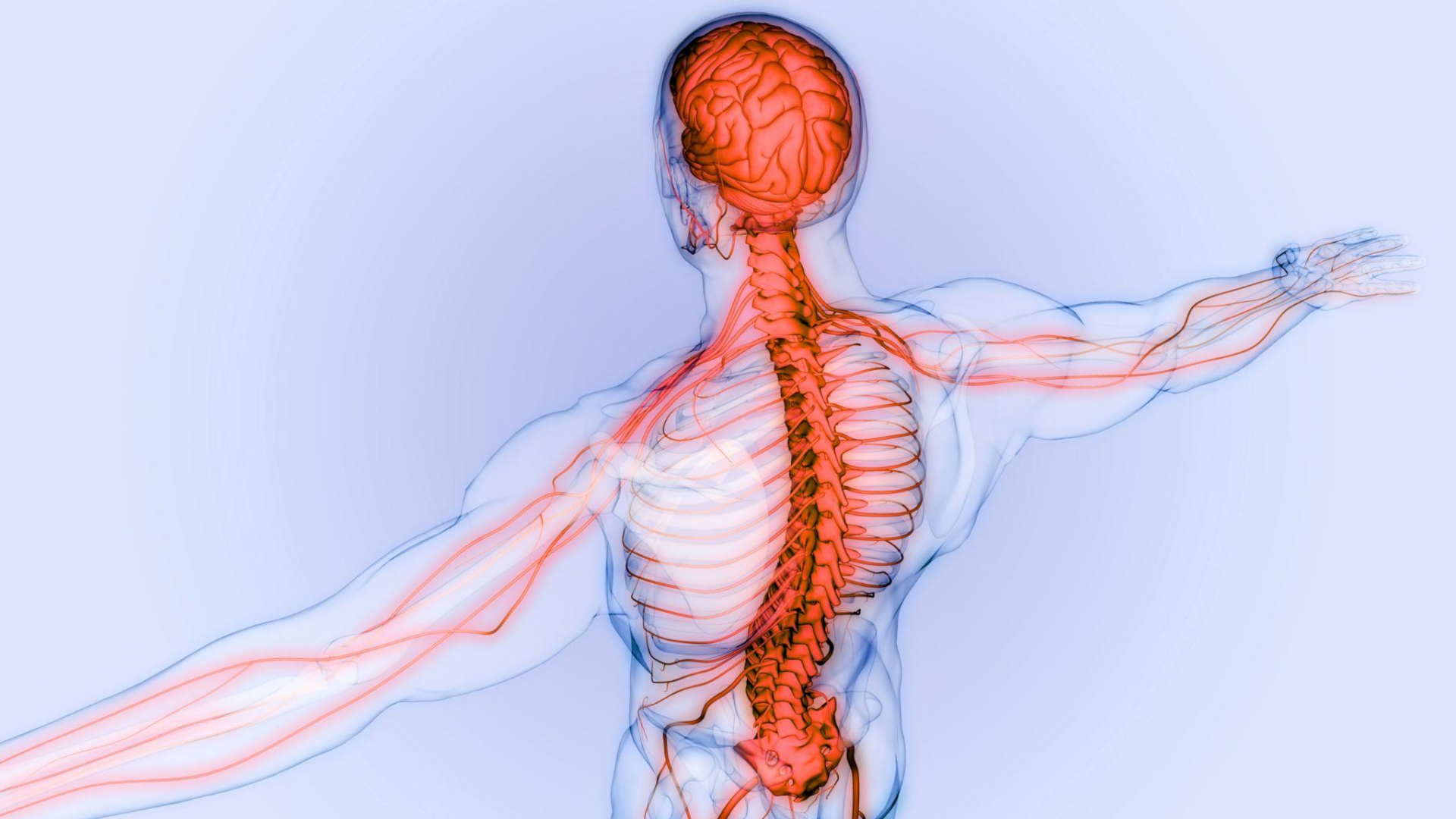
- **Thoracic nerves supply local areas in the torso (see following images for approximate correlations of dermatomes).**
- **Thoracic disc herniations are much more rare as compared to cervical and lumbar issues, and account for only 1% of disc herniations.**
- **Thoracic disc issues are much more likely to be due to an impact injury, whereas, cervical and lumbar disc compression can be due to long term muscular imbalances and wear and tear.**
- **Potential symptoms can include any of the following:**
  - **Shoulder pain, especially between the shoulders**
  - **Difficulty breathing**
  - **Bowel issues**

Lumbar Nerve Compression Issues

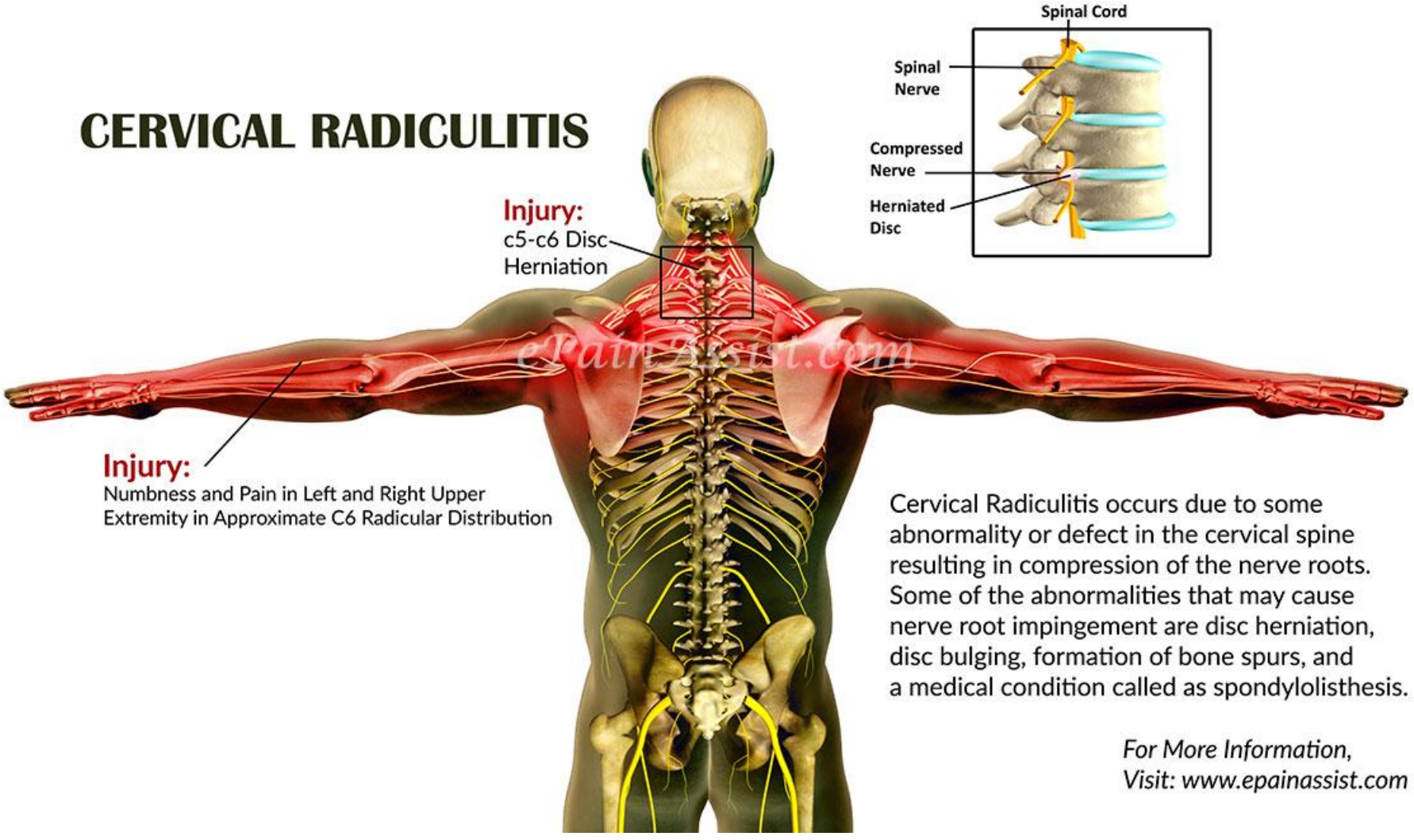
- **Low back pain**
- **Hip pain**
- **Sciatica**
- **Drop Foot**
- **Any pain, weakness, neuropathy or other symptoms in the legs (see following images for approximate correlations of dermatomes)**



Dermatome: The area of the skin supplied by a single, specific spinal nerve root.

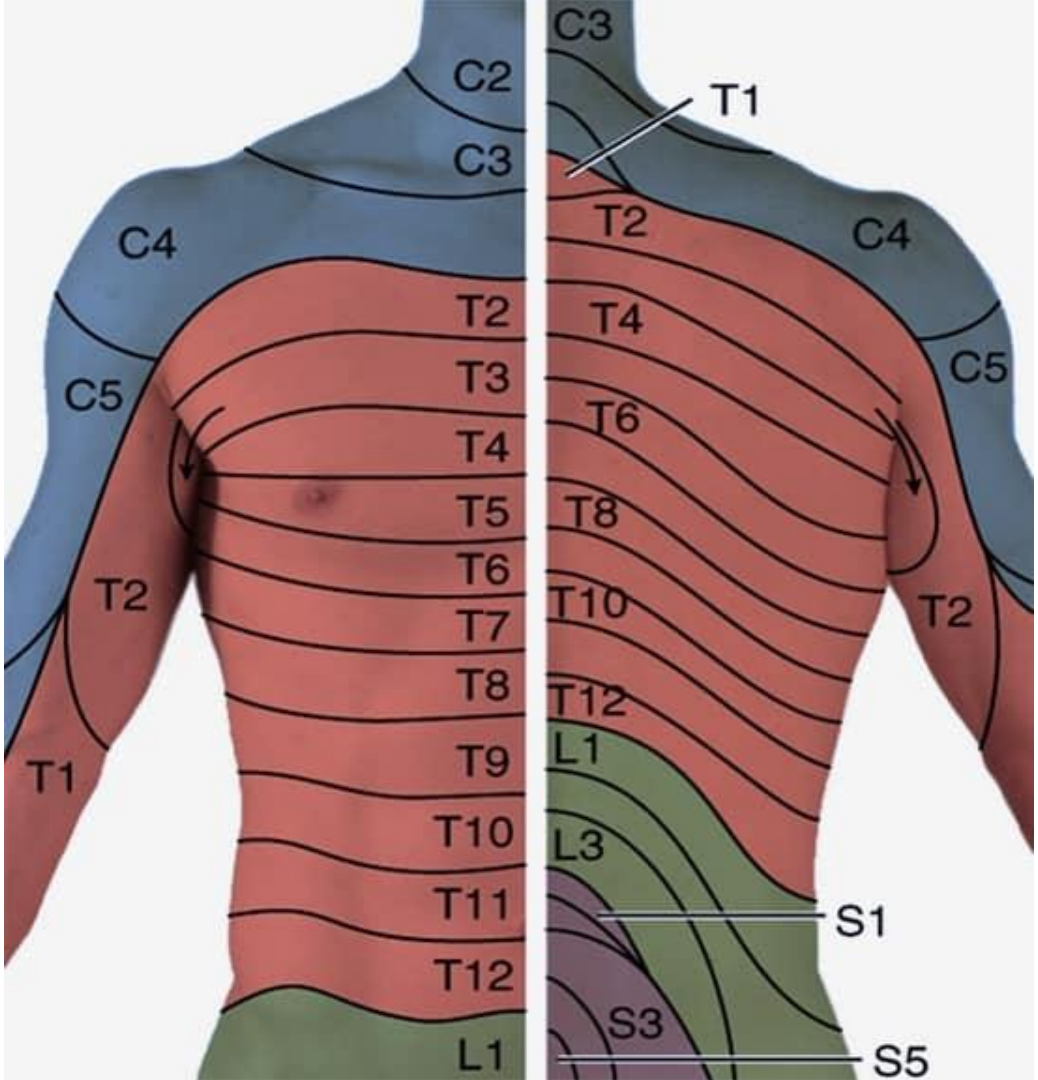


CERVICAL RADICULITIS



Cervical Radiculitis occurs due to some abnormality or defect in the cervical spine resulting in compression of the nerve roots. Some of the abnormalities that may cause nerve root impingement are disc herniation, disc bulging, formation of bone spurs, and a medical condition called as spondylolisthesis.

For More Information,
Visit: www.epainassist.com


C2
C3
C4
C5
T2
T1
T2
T3
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T11
T12
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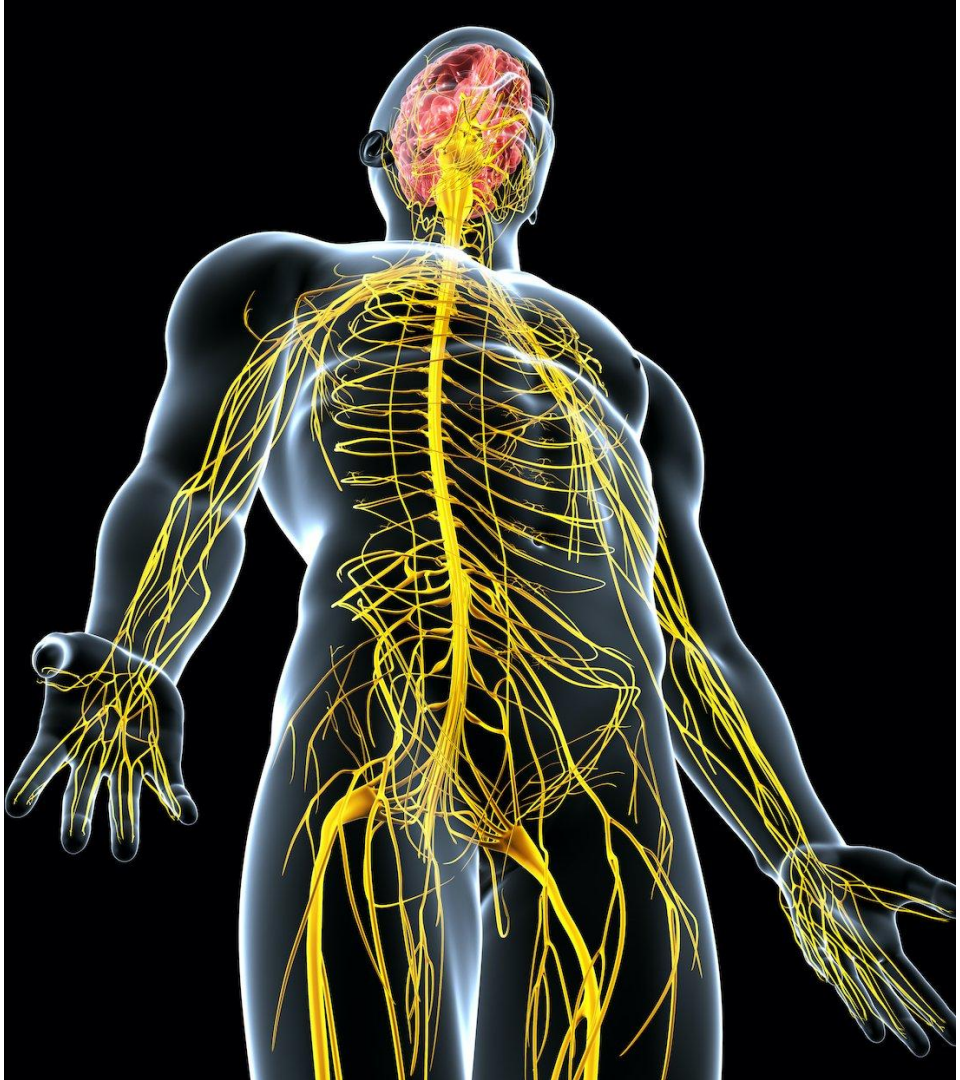
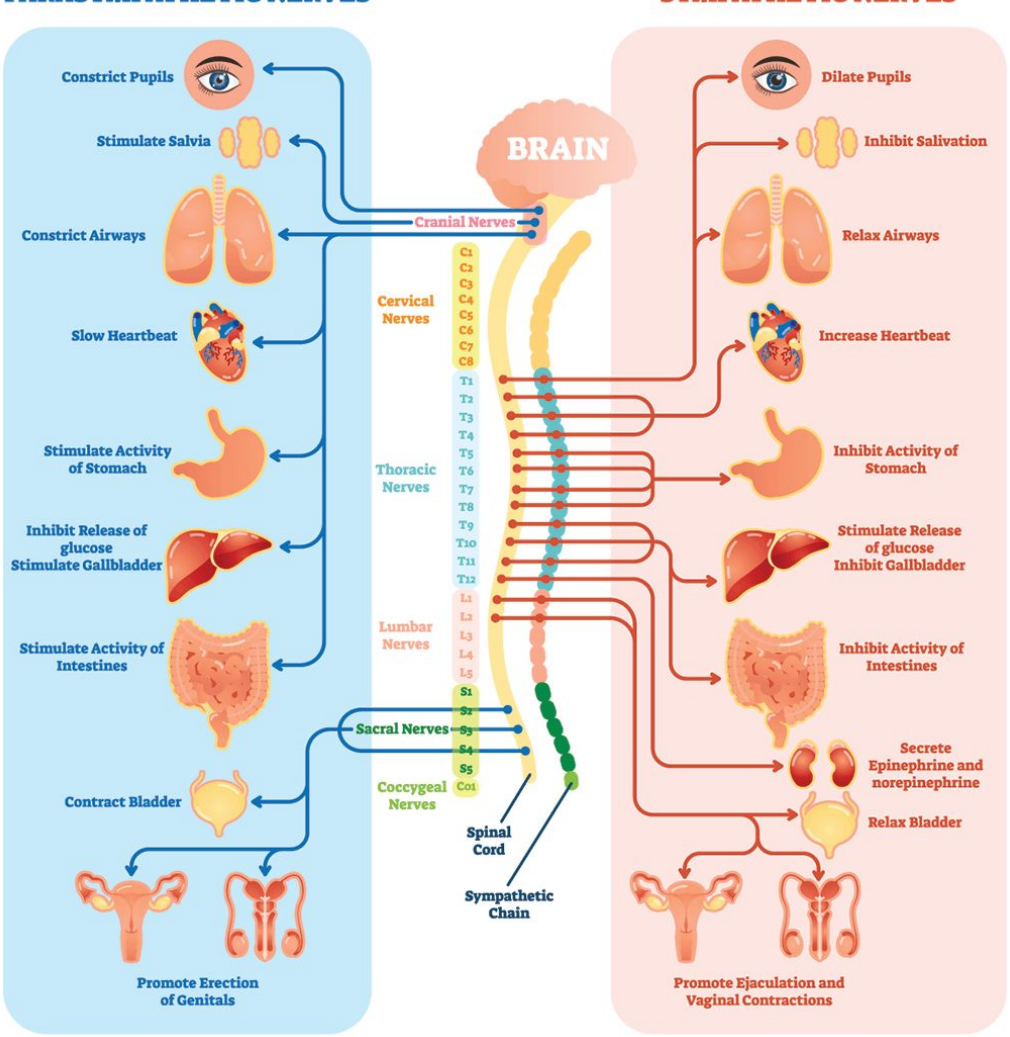


The internal organs are a special case and have 2 sets of nerves leading to them from very different places

- **The parasympathetic nerves leading to the organs mostly originate directly in brain and bypass the spinal cord, the exceptions being the bladder and sexual organs which originate from the sacrum after passing through the spinal cord**
- **The sympathetic nerves leading to the organs mostly originate from the thoracic vertebrae after passing through the spinal cord**
- **While compression of the parasympathetic nerves is possible they are quite protected and compression of these is generally rare**
- **Compression of the sympathetic nerves is slightly more possible but these take a different pathway away from the vertebra and are far less likely to get compressed by disc bulges as compared to motor and sensory nerves**


PARASYMPATHETIC NERVES
SYMPATHETIC NERVES
BRAIN
Constrict Pupils
Stimulate Salvia
Constrict Airways
Slow Heartbeat
Stimulate Activity of Stomach
Inhibit Release of glucose
Stimulate Gallbladder
Stimulate Activity of Intestines
Contract Bladder
Promote Erection of Genitals
Cranial Nerves
Cervical Nerves
C1
C2
C3
C4
C5
C6
C7
C8
Thoracic Nerves
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
Lumbar Nerves
L1
L2
L3
L4
L5
Sacral Nerves
S1
S2
S3
S4
S5
Coccygeal Nerves
Co1
Spinal Cord
Sympathetic Chain
Dilate Pupils
Inhibit Salivation
Relax Airways
Increase Heartbeat
Inhibit Activity of Stomach
Stimulate Release of glucose
Inhibit Gallbladder
Inhibit Activity of Intestines
Secrete Epinephrine and norepinephrine
Relax Bladder
Promote Ejaculation and Vaginal Contractions

Working with Disc Herniations & Nerve Impingements

- What types of treatments are effective?

First, Let's Discuss What Massage *Cannot* Do

- **Massage can't fix a ruptured/thinned disc**
- **Massage also can't fix vertebrae that have reached the stage where the cartilage has been worn down**
- **Massage also cannot fix nerves that have been compressed long enough to get damaged**
- **In all of these cases, physical therapy is needed if the client hopes to prevent surgical approaches - massage can help but the body needs to get blood flow in and out of the area over and over to have any chance of either healing damaged tissues, or replacing them with enough scar tissue to give enough structural support to prevent further damage**
- **In some of these cases, physical therapy alone is not enough and the structural damage may require surgical intervention if the client is experiencing debilitating symptoms**

For Structural Disc Issues in Stages 3-5 Surgery May be Needed to Prevent Further Damage

- **The goal of any surgical approach to disc nerve compression is to create space around the nerve and take away tissues that are compressing it.**
- **This can be achieved with any of the following:**
  - **Laminectomy: shaving down the lamina on a bulging disc to stop it from compressing the nerve root - this provides immediate relief, but unfortunately makes the lamina wall weaker and more prone to herniation later if the muscular imbalances that caused the bulge are not addressed**
  - **Vertebral Fusion: joining two vertebrae together with hardware to prevent movement and compression on the disc and nerves - this also provides immediate relief, but limits ROM in the area and also does not address the root muscular imbalance putting even more pressure on discs in the surrounding vertebrae**
  - **Arthroplasty: replacing the damaged disc with an artificial one - this is a much newer approach that can have better outcomes than the other approaches but is quite costly in comparison and might not be covered by insurance**

For Other Types of Nerve Compression Surgery May be Available but is often a less helpful approach

- **Surgical approaches to nerves that are being compressed by muscles, tendons, or other soft tissues can often create as many issues as they solve as they introduce scar tissue**

- **Examples are approaches like cutting the flexor retinaculum at the wrist to provide more space to the median nerve inside the carpal tunnel which provides immediate relief for severe carpal tunnel syndrome but the symptoms may return later if the activities inflaming the nerves are not addressed and are allowed to continue**

- **In general, all surgical approaches should be done as a last and final solution after non-invasive approaches fail or if the nerve is in danger of being permanently damaged quickly making a speedy solution the only option vs the slower PT/massage approach**

Next, Let's Discuss What Massage *Can* Do (Best)

- **Intervene in stages 1-3 to prevent them from getting worse and progressing to later stages over time**
- **Work alongside physical therapy to speed the process**
- **Find and treat related misalignments that may be the root cause of the compression**
- **Decompress the areas around the discs and nerves to better allow a client to perform PT exercises with less symptoms**
- **In addition to the more direct effects that massage can have on the impacted tissues and areas, the overall tonifying aspects such as helping the client re-engage their parasympathetic nervous systems are also highly valuable to recovery and are generally not emphasized by other treatments**

Intervene in stages 1-3 to prevent them from getting worse

- **In stages 1-3 (disc degeneration, bulging disc, herniated disc) the structural damages usually haven't progressed to the point of no return**
- **Massage can provide direct relief from local pain symptoms as well as lengthening related fascial planes to allow the disc more freedom to decompress and "shrink" back towards a normal shape**
- **In general, especially in stages 1-2, massage can provide immediate relief from symptoms, and help retrain a client's movement patterns and lifestyle habits to prevent symptoms from returning, usually within 2-5 massage sessions**
- **Sessions are best performed with 2 weeks or less between them to create a cumulative effect between each**
- **As mentioned earlier, massage is an "opening" practice and the tissues that need to be opened to provide relief are often on the opposite side as where the symptoms are**

Work alongside physical therapy to speed the process

- **PT is generally a good idea when a client is experiencing nerve compression as part of the issue will be weakness in some surrounding tissues, while other surrounding tissues will be hypertonic**

- **This asymmetrical firing of surrounding musculature can contribute to disc bulges and herniations by putting excess pressure on one side of the vertebrae while being too open and overstretched on the other side**

- **PT can help target and strengthen the weak side musculature but will also tighten the already hypertonic tissues as well - massage can help greatly by targeting these hypertonic muscles and using “opening” techniques so that the two sides come into better balance more quickly than with just PT alone**

Work alongside physical therapy to speed the process (cont)

- **We tend to think of the recovery process as “injured” and “healed,” however, one thing that actually happens during recovery is that injured tissues are rebuilding with scar tissues to provide stability, then movement tears the tissues back apart again**
- **Throughout recovery the tissues are constantly being torn apart and rebuilt fiber by fiber, which sounds bad, but is actually what’s needed to prevent scar tissue from forming an “immobile” area in the body**
- **PT helps speed this process up so that the tissues stabilize and regain strength**
- **Massage helps speed this process up by challenging the tissues to stretch open and reorganize more quickly in a controlled way**

Work alongside physical therapy to speed the process (cont)

- **And while it's best to be clear with clients that many injuries can cause changes that won't allow the person to get back to 100% of where they were before the issue, there is a range of possible limitations that will arise…the more work they do on recovery the less limitation they will have going forward**

- **A lot of clients complain that PT alone never quite gets them back to feeling as if the injured area isn't continuing to have constant low level symptoms and that a few well placed massage therapy sessions within the recovery process make all the difference**

- **Having a balance of opening and closing modalities that both incorporate long chain movement challenges allows the injured area to heal and re-integrate more quickly, better, and with less likelihood of future re-injury**

Find and treat related misalignments that may be the root cause of the compression

- **Great PTs will not just look at getting strength back to the area of the surgery, but also give exercises to help re-integrate the area with the rest of the musculature**
- **Unfortunately, many PTs don't think this broadly, or are limited by insurance in what they can bill for and can get stuck focusing only on the area of the symptoms**
- **Even when a client is working with a great PT and getting broader integrative exercises, PT is a "closing tissue" practice…older injuries that are causing compensation patterns often simply need additional "opening tissue" techniques which is where we shine as MTs**
- **Giving the body relief and increased ROM in other seemingly unrelated areas increases the resources the body can use to speed up recovery of the nerve compression area**

Decompress the areas around the discs and nerves to better allow a client to perform PT exercises

- **Massage is an “opening” practice and we tend to be more aware of how to decompress and area than PTs are**

- **While nerve compression might seem to be very localized, long chain fascial restrictions from all over the body are usually contributing to the pattern that caused the compression and may need to be addressed before the area is will to “let go” and loosen its grip on the nerves**

Overall Tonifying Benefits of Massage

- **Let's face it, getting injured and being pain is *stressful* - and massage is great at helping lower stress**
- **The body needs to be able to enter parasympathetic mode to heal, but it's been traumatized and may be stuck in fight or flight mode**
- **Many clients are basically stuck in sympathetic fight or flight mode most of the time, which often contributed to their nerve impingement in the first place**
- **We can help restore a more healthy ability for the client to relax, which will speed up recovery times**
- **It's also a benefit that we are uniquely well suited to provide that most clients are *not* getting from traditional medicine**
- **Often clients need an encouraging cheerleading who can help them evaluate that they are actually doing quite well in their recovery when they get "down" that they aren't back to full activities yet**

Working with Disc Herniations & Nerve Impingements

- Making a Treatment Plan for Clients & Treatment Demonstration

How many massage sessions in what frequency?

- **While we can never predict this with 100% accuracy, it's very helpful to give clients a clear outline of how you expect the work to go in addition to how it might integrate with a PT**
- **Keep in mind that their PT is usually covered by insurance and our work often is not, so I try to offer an approach that is most cost effective which is likely going to be more PT sessions than massage sessions**
- **PT sessions can feel like glacial progress to the client but are still vital to helping rebuild strength and stability to the area post to prevent future symptoms and further degeneration of discs and/or nerves**
- **PT timelines will often "flatline" for the client at some point in the process which can get them kicked off of insurance coverage for the PT despite the fact that they aren't fully recovered and still experience symptoms**

How many massage sessions in what frequency?

- **For a low symptom case or a case with disc deformations in stages 1-2, two to four massage sessions might be all that's needed to boost their recovery and get back to 100% with either no PT or minimal PT**

- **For a medium symptom case or one with disc deformations in stages 3-4, five to twelve massage sessions alongside PT 2-3x per week for 3-6 weeks is a good rule of thumb and guideline**

- **For severe symptoms of one with disc deformations that are stage 6, 12+ massage sessions alongside PT 2-3x per week for 7-16 weeks is a good rule of thumb and guideline**

How many massage sessions in what frequency? (cont)

- **If a client is in stages 1-2, they often can find very quick relief with just massage without addition need for PT as long as they are willing to make some adjustments to their habits and practice awareness of posture to prevent future nerve compression**

- **If a client is in stages 3-5, PT is usually needed at a frequency of 2-3x per week. A well timed massage about every 2-3 weeks can jump the client up to a new level of ability in a way that is worth paying out of pocket for as it will decrease the overall number of PT sessions such that the cost of the massage is less than the cost of the additional PT copays the client would need to pay to get the same results**

- **Even if this approach doesn't always save the client $, the noticeably faster recovery is usually well worth it for most clients**

- **In general, my clients report that their PTs notice immediate improvements in their sessions after a massage session with me, and that this improvement "sticks" thus making the PT itself much more effective as the client is now able to do more challenging exercises with better results**

How many massage sessions in what frequency? (cont)

- **As symptoms improve, clients can usually taper off both massage and PT sessions until they reach a point of stability doing normal activities without symptoms**
- **Some clients like to switch to more frequent massage sessions as PT tapers off and they are strong enough to handle really deep work and recover most of their ROM**
- **Eventually both PT and massage will “flatline” and the the injured area will simply need time to fully integrate back into daily life**
- **At this point the client will usually stop massage for a while, or they will enter a maintenance massage cycle with sessions every 2-12 weeks depending on their budget and schedule**

Let’s bring in our guest client!

- **Introduce our client**
- **Have them tell their story briefly with intake questions from DW and also any questions from the chat**
- **Brief overview of the issues**
- **Discussion of impact on client and reasonable recovery expectations**
- **Bodyreading and Analysis by DW**

Techniques we'll be demonstrating in sequence

- **The basic approach of the session will be:**
    - **If possible, provide some quick relief locally, as long as working in the area doesn't increase nerve symptoms**
    - **Then, work identify and work distally on related fascial lines**
    - **Work fascially from distal towards the compressed nerve to provide slack to the area**
    - **Work directly around the compressed nerve area but not directly on it unless you can do so in a way that doesn't trigger nerve symptoms**
    - **Pin and stretch the area while the client moves distal parts away from it to both decompress the fascia and muscle tissues around the nerve and also "glide" the nerves, stretching them within and along their myelin sheaths**
    - **Finish with tonifying work to help the client relax and engage parasympathetic systems**

Working with Disc Herniations & Nerve Impingements

- Communicating a Treatment Plan & Giving Homework Alongside PT

Client Homework Practices

- **Since the client is often already doing a *lot* of daily exercises in PT, I like to offer different forms of homework that work more broadly to integrate the injured area. These might include:**
    - **Movements that assist nerve gliding to be performed in a “light” way**
    - **Relaxation tools such as lying down with feet up on a chair for 5-8 mins to shorten psoas**
    - **Postural awareness exercises such as noticing foot position while standing and walking**
    - **Gait retraining exercises to help the client better integrate the injured area into normal movements like walking**
    - **Stretching techniques such as AI stretching or PNF stretching**
    - **Sleep hygiene exercises to make sure they are resting enough to recovery more quickly**
    - **Integration awareness exercises such as noticing how a different joint is moving less efficiently to avoid moving through the injured area and having the client try to focus on moving efficiently through that so force the body to use the injured area “properly”**

Working with Disc Herniations & Nerve Impingements

- Q & A
- How to download slides, get your certificates, when video will be available