

# NRT

## NRT Pre-Reading

Thank you for registering for the NeuroRelease Treatment (NRT) Course. We have compiled this course preparation for you to maximize your learning experience. In the following you will find a general summary of the NRT concept and course outline. We have also included references to review, pertinent anatomy and nervous system concepts including dermatomes, myotomes and scleratomes. We will cover everything you need in the weekend course but this review will help you get the most out of your in-course time. We look forward to exploring pain science, manual therapy, and treatment theory to continue to improve your patient's treatment experience.

*We highly recommend doing the following as a pre-seminar study guide:*

- Watch our Introduction to NRT Video to get a quick summary of what to expect during the course weekend.
- Read our short introduction paper on the NRT model.
- Review the Homeostatic nerve locations.
- Learn the nerve chart in the pre-reading; review the dermatomes, the names of the peripheral nerves, and their sensory distribution.
- Review the NRT Cheat Sheet. Start to become comfortable with the nerve sensory distributions. We will review this in much more detail throughout the weekend.

Neuro-Release Treatment (NRT) is an educational training course designed to provide our students with a deeper understanding of how to improve movement and human performance through manual therapy that targets the neurogenic inflammation with the use of the IDN local, segmental, and systemic treatment approach.

We will explore the therapeutic effects of Instrument Assisted Soft Tissue Massage (IASTM), Percussion/Vibration Massage, and Cupping on musculoskeletal, neuropathic, and radiculopathic pain syndromes. We will discuss the negative effects that peripheral nerve inflammation has on muscle function and how IASTM, Percussion/Vibration Massage, and Cupping can assist in maximizing human (athletic) performance.

The examination and management of peripheral nerve inflammation/sensitization, neuromuscular dysfunction and biomechanical imbalance of the musculoskeletal system will be

presented. Integration of Manual Therapy and other treatment options will be included that will complement the efficacy of treatment. A considerable amount of lab time will focus on assuring safe and effective advanced manual therapy skills with an emphasis on clinical decision-making.

### **Learning Objectives:**

1. Independently integrate IASTM, Percussion/Vibration Massage, and Cupping into a treatment plan for a patient with a given neuromuscular condition based on three physiological mechanisms.
2. Independently evaluate peripheral nerve (soft tissue) dysfunctions relating to a patient with a given musculoskeletal condition and pain.
3. Develop a strategy for the prevention and management of adverse responses to IASTM, Percussion/Vibration Massage, and Cupping for a patient with acute, sub-acute or chronic musculoskeletal pain.
4. Independently choose the correct neuro-trigger point treatment sites for safe application of cupping and IASTM for patients with acute, sub-acute or chronic musculoskeletal pain.
5. Independently identify a minimum of three peripheral neuro-trigger points for a given case study.
6. Correctly defend the 720° Integrative approach for treatment of musculoskeletal pain based on the unique neurology and physiology of neuro-trigger points.
7. By the end of the course, the participant will be able to correctly integrate the clinical, legislative, policy/procedure, and billing requirements for IASTM, Percussion/Vibration Massage, and Cupping for treating patients with musculoskeletal pain in a physical therapy practice.

**NeuroRelease Treatment (NRT)** is a system of assessing and treating pain and movement dysfunction using manual therapy tools including cupping, instrument assisted soft tissue massage (IASTM), and percussion massage devices.

### **Systemic Assessment**

When treating pain, we must consider the structural, chemical, central, and emotional components involved and how that may affect our treatment. Before beginning any manual therapy session, we will assess the state of the nervous system. In combination with a medical history, we will use our Quantitative Sensory Testing (QST) protocol to help us make decisions on prognosis and treatment tolerance. We will cover QST in depth in our [QST Lecture](#).

### **Staging of Pain for Treatment.**

After establishing the baseline status of the systemic system through QST, we must consider the state of the injury / pain presentation as acute, sub-acute, chronic. Manual therapy at

some level is a stressor. The amount of stress or stimulus that is needed to create change is directly related to the stage of the injury. Someone in an acute stage already has plenty of sensory input to the nervous and immune systems. Our manual therapy will be used to encourage a healthy environment for healing and may include inhibitory sensory techniques. In a chronic stage of injury however, we may need more structural stress to create a response to the immune system. This will be important in making decisions on aggressiveness of treatment. The ultimate deciding factor will be patient feedback. We will use a simple numeric pain grading scale in order to guide the intensity of treatment. We will cover this in detail in [Lecture 1 and Safety Lecture](#).

### **Applying the 720° Model**

When a treatment region has been established we will apply techniques based on our 720° nervous system assessment and treatment model. We will identify the person's chief pain complaint, identify the nerve involved, and then assess and/or treat anywhere along that nerve's pathway that could be potentially irritating. [See cheat sheet 1 for examples](#). The involved nerve may be irritated from a local injury to the surrounding tissues, an entrapment along the peripheral nerve segment, or systemically from whole body inflammation that may be a result from overtraining or an autoimmune or inflammatory condition. This sets the foundation for our Local, Segmental, Systemic approach to treating. To apply the 720° approach, we will also consider the opposite muscle as a potential irritant (glute inhibition due to overactive hip flexors), regional influences (cross patterns), as well as tracing back to the segmental involvement as treatment options. We will build support and understanding of this model through the weekend. [We will cover this in detail in lecture 2](#) to understand our local, segmental, and homeostatic points.

### **Deciding Between Tools**

We have 3 tools available for treatment options: Instrument massage tools, cupping, and percussion/vibration. Which tool you choose will be based on nerve sensitivity and patient feedback. For example, some people will respond negatively to compression, if they don't like the feeling of compression in a tool or massager, cupping should be utilized. If Cupping or distraction is uncomfortable, switch to the tool or massager. We want to select what makes our client's system feel safe and relaxed in order to decrease sympathetic stress around the painful or dysfunctional area. We will discuss the physiology locally and centrally of each tool and proposed mechanisms of treatment in the [Physiology of Techniques](#) lecture.

### **Exercise and Movement**

Our objective is to use manual therapy via the NeuroRelease Treatment model to improve the environment for healing and relax the nervous system. If we can reduce pain and normalize central and peripheral nerve activity, we can take advantage of this for our exercise strength and neuromuscular re-education techniques. This does not replace exercise and movement, but allows it to be optimized.

## **Peripheral Nervous System References**

The peripheral nervous system is divided into somatic and autonomic control. Somatic is voluntary motor and sensory nervous system control which we will reference by looking at dermatome and sensory nerve charts. We have minimal? voluntary control of the autonomic nervous system which is responsible for sympathetic (fight and flight) activities and parasympathetic (rest and digest) functions.

## **Dermatome Maps**

Dermatome maps give us a quick reference to the sensory distribution of each spinal root level. If a patient has an injury or inflammation at the spinal root level, it may be represented by pain in the associated dermatomal pattern. While this is not an evaluation course of what is causing the pain along each of these patterns, it is, however, relevant for us to know where to look when a patient describes pain along said pain pathway. Below is an excellent link to review the basics of dermatomes.

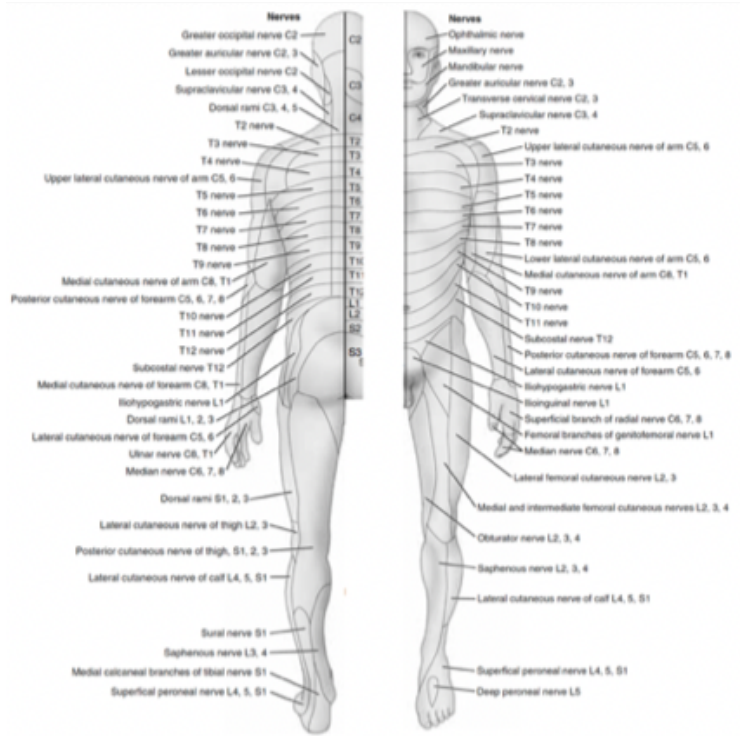
<https://teachmeanatomy.info/the-basics/embryology/dermatomes/>

## **Sensory Nerve Maps**

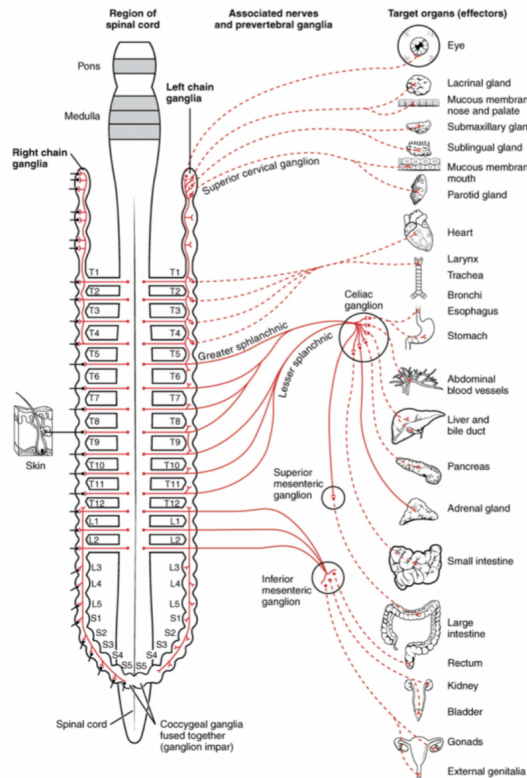
In addition to knowing which spinal root is involved, we also want to be able to assess each sensory nerve for any peripheral nerve entrapment points that may be responsible for their pain.

## **Autonomic Nervous System**

We cannot directly treat the autonomic nervous system but we can provide input in the levels of sympathetic chain ganglia running from T1-L2 referenced below. Some of our clients live in high stress lives and we will notice tone and muscles guarding at these levels that will benefit from increased blood flow and stimulus provided by cupping and instrument assisted massage. There may be value to adding mechanical treatment at the levels of the sympathetic trunk below to destress the nervous system.



# Sympathetic Nervous System



## Basic Cupping and Instrument Assisted Massage Safety Information

### Contraindication/Precautions

- Patient Unwillingness to Undergo Cupping or Instrument Assisted Soft Tissue Massage (IASTM)
- Must be able to give consent to treat.
- Local or systemic infections
- Skin lesions or complications of any type- (Infections, lesions, rashes, eczema, acne )
- Malignancy
- Superficial edema
- Hemophilia
- If a patient is taking anticoagulant and antiplatelet therapies, cupping or IASTM should be applied with an awareness of patient conditions; the cupping process should be carefully observed
- Cupping and IASTM performed on intact skin classified as non-critical reusable medical device.

\*Clean with soap and water and then disinfected in an appropriate level disinfectant.

### The 3 I's and S's of the Neuro-Release 720<sup>0</sup> Integrative Approach

The 3 I's describe the "problem" with musculoskeletal pain and dysfunction, **Inflammation, Irritation, and Inhibition**. The 3 I's do not occur in isolation, they are coupled with one another in an injurious situation. Each of the I's occur locally (**Symptomatic**), **Segmentally and Systemically**. If pain and dysfunction are treated solely at the site of the symptoms "*you may get to the point but will miss the system,*" as we like to say. The human body works as an integrated organism and must be viewed and treated in this way. The human body shares neurology and circulation and to believe that an injury remains local to the site, absent an effect on the rest of the body, is limiting your treatment effect. This reminds me of the "guru" based treatment models of the 1980's and 90's. Clinicians would utilize a specific manual therapy paradigm and would become cult-like in their treatment approach and if it failed the patient was labeled "not-fixable". Since that time, the PT profession has become more eclectic in viewing the body as greater than the sum of its parts. This eclectic view is in perfect alignment with the IDN system of dry needling. The days of focusing on a point as the source of pain and dysfunction are numbered and it is time that we begin to move toward a more reliable and global assessment and comprehensive treatment. The global thinking of the 3 I's and the 3 S's is the model that sums up both the injury of the system and a comprehensive treatment. The dilemma lies in the fact that we do not fully understand the experience of pain, dysfunction or the physiological mechanisms of dry needling. This is today's reality and if we can embrace it, we can continue to move our thinking forward.

The more you read about **Inflammation** the more it becomes apparent it is centered at the root of pain and dysfunction in the human body. This creates **Irritation** of peripheral nerves that can

create the sensory experience of pain and the motor effects that drive neuromuscular ***Inhibition***. If inflammation could be managed more effectively we may be better able to mitigate its effect on both pain and motor dysfunction. This is not a revelation but a basic fact of treating most musculoskeletal conditions. Following injury, the inflammation may reside in local tissue acutely, however as time goes on and the body is unable to clear the inflammation, it can become more widespread and involve more of the nervous system, such as in chronic conditions. Neurogenic inflammation results from bioactive chemicals activating sensory neurons, which in turn activates the release of sensitizing chemicals from peripheral nerve terminals. (Irritation) This bidirectional process from local peripheral tissue to the CNS causes a more widespread inflammatory process.

The Inflammation that produces pain and dysfunction can be local, segmental and or systemic, which is what creates the challenge. This may explain why the modern continuing education seminars now focus on assessing and treating the body as a whole and less focused on identifying the specific tissue that is at fault. The tissue specific diagnoses that to aim identify the “involved” structure is faulty reasoning and should be reconsidered. Sizer et al.’s paper on sound clinical reasoning outlines the need for a multifactorial construct in encouraging innovative practice. Acknowledging the lack of diagnostic accuracy in clinical testing, palpation and even patient report makes treatment design challenging to say the least. That may have led some to attempt to create a cookbook style of treatment where it is assumed that a common grouping of signs and symptoms will all respond to a specific treatment regimen. We all know how that worked out and essentially lead back to the “not fixable” conclusions for patients that did not fit or respond favorably to the treatment mold they were put into.

IDN’s 3 S’s concept of treatment provides no preconceived notions of the source of the 3 I’s instead provides a foundation upon which to build a treatment plan.

Symptomatic (local)- This is certainly the most obvious type of pain and dysfunction to treat as the patient tells you it hurts “here”. This is usually an acute to sub-acute injury and the area may be swollen with a loss of motion.

Segmental- Manual therapy clinicians understand that when treating musculoskeletal pain and dysfunction the spinal component cannot be ignored. They have been trained to first “clear” the spine to reduce the likelihood of missing a segmental problem based on a peripheral complaint. The segmental effects of needling help to reduce the symptoms of the Local (symptomatic) points.

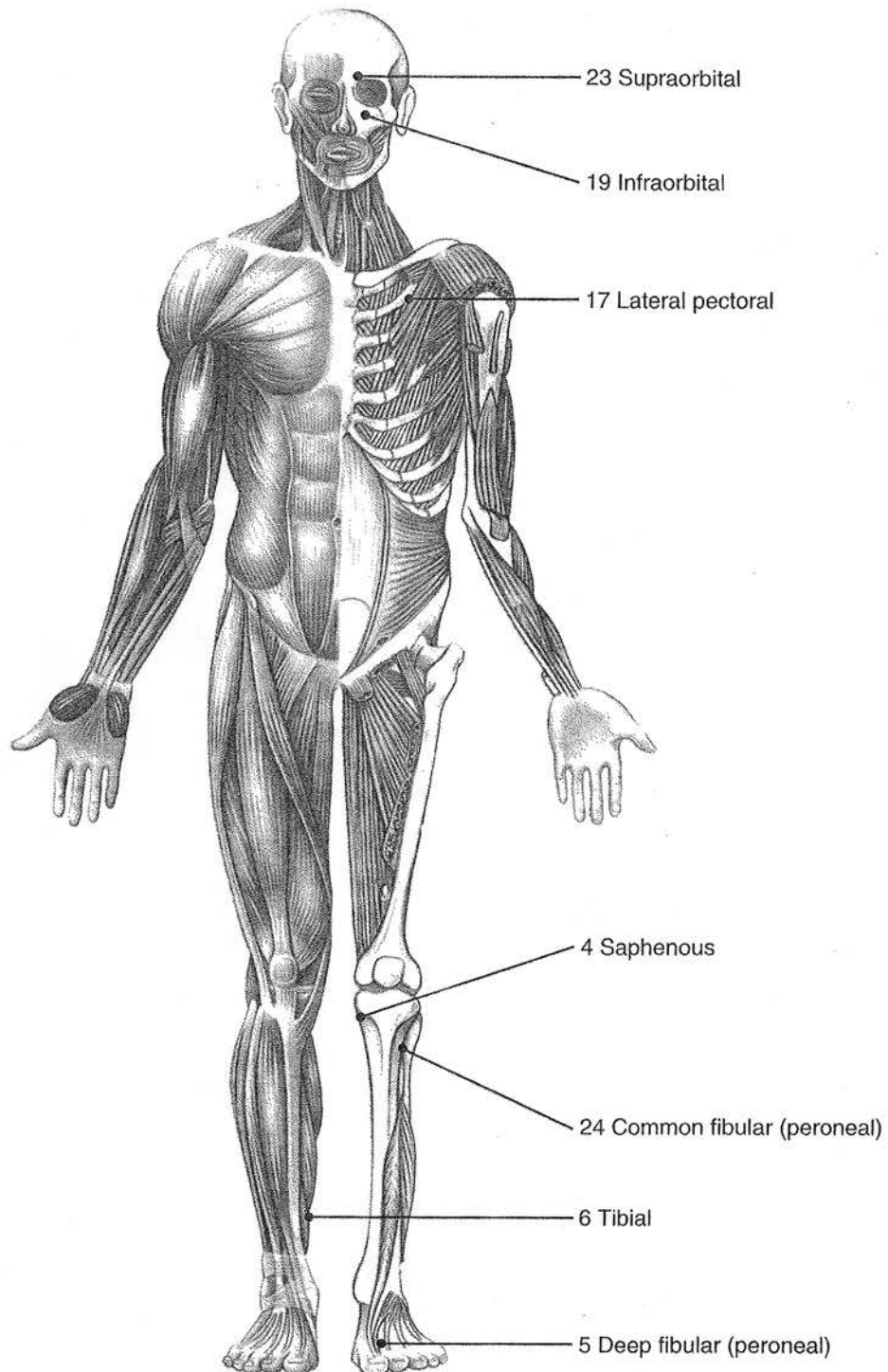
Systemic- This is where the most confusion and even misunderstanding of mechanism is experienced. In the human body there is shared neurology, circulation and physiology that we cannot separate into pieces or parts. We base our systemic treatment on homeostatic points that are key neurological areas in the body that have stronger therapeutic signaling to the CNS and are present in reproducible locations and patterns. The innervation zones of homeostatic points are extensions of major peripheral nerves that are present in consistent locations around

the body based on the predictable anatomy of the peripheral nervous system. This is in stark contrast to locating the highly variable myofascial trigger points.

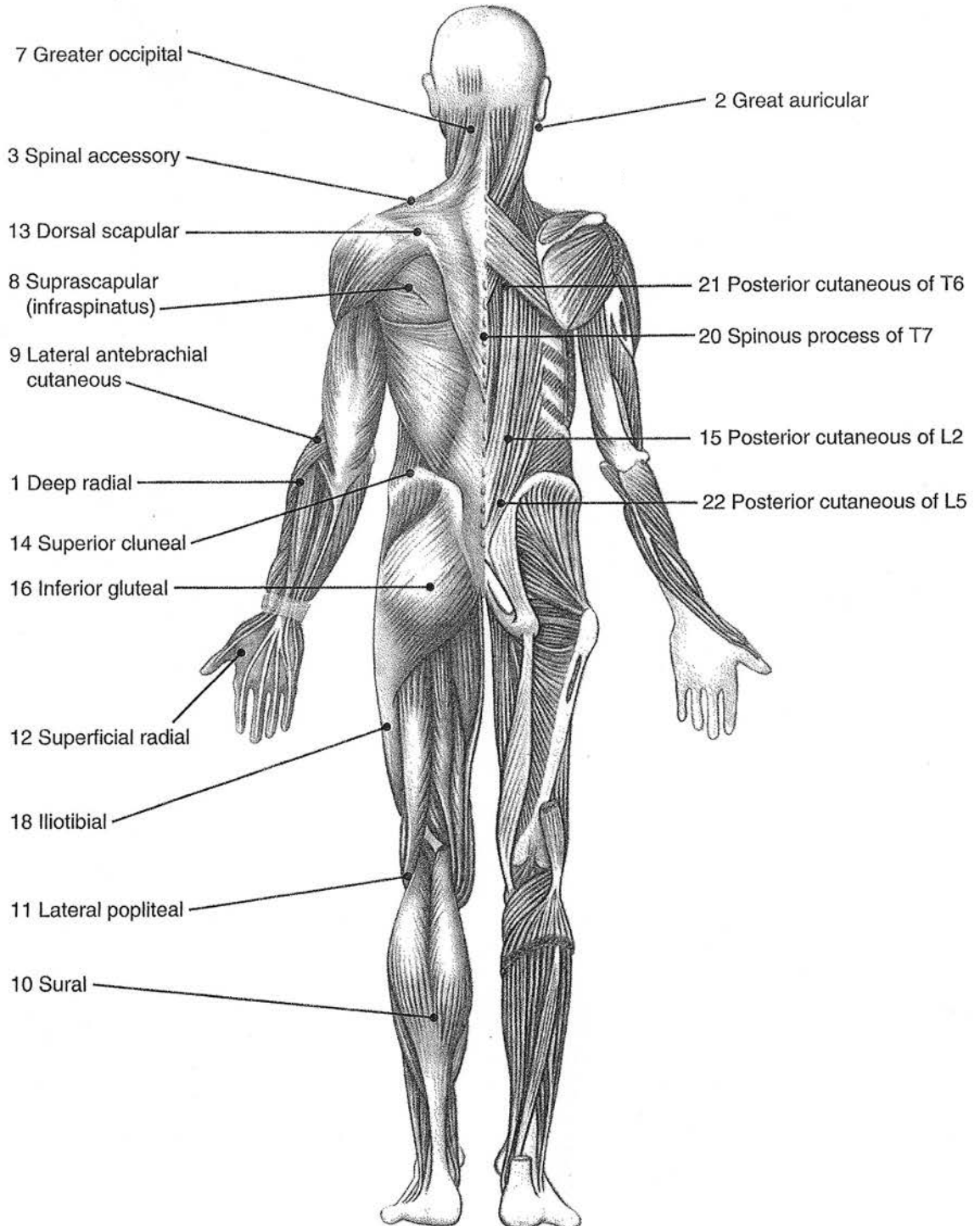
In some patient presentations (acute symptoms) treating just symptomatic points (local) may be all that is needed to get the desired effect. As you move from the acute patient to the sub-acute and into the chronic, the need to expand the treatment methods becomes empirically evident by the reduced clinical results. Assessment tools, such as quantitative sensory testing, may be used to identify the possible central mechanism driving the symptoms. We believe it is relevant to address the 3 S's together, because clinically this approach has a better chance to address the 3 I's of pain and dysfunction.



# Homeostatic Neuro-Trigger Points



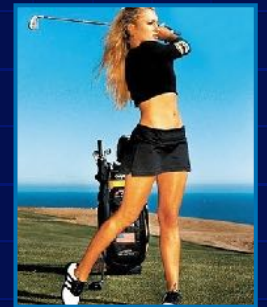
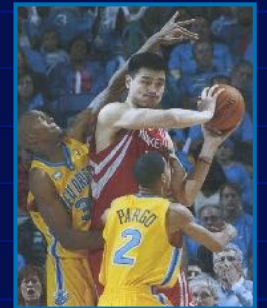
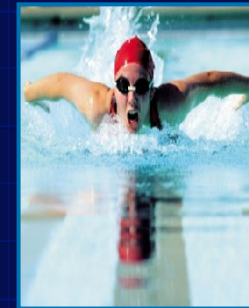
# Homeostatic Neuro-Trigger Points



# NRT Pre-Reading Material

Last Updated: 9.12.20

# NRT



# NRT Cheat Sheet

Use this for quick reference to the different body regions and treatment areas to assess.  
Full Pictures are linked to references in appendix

## Key

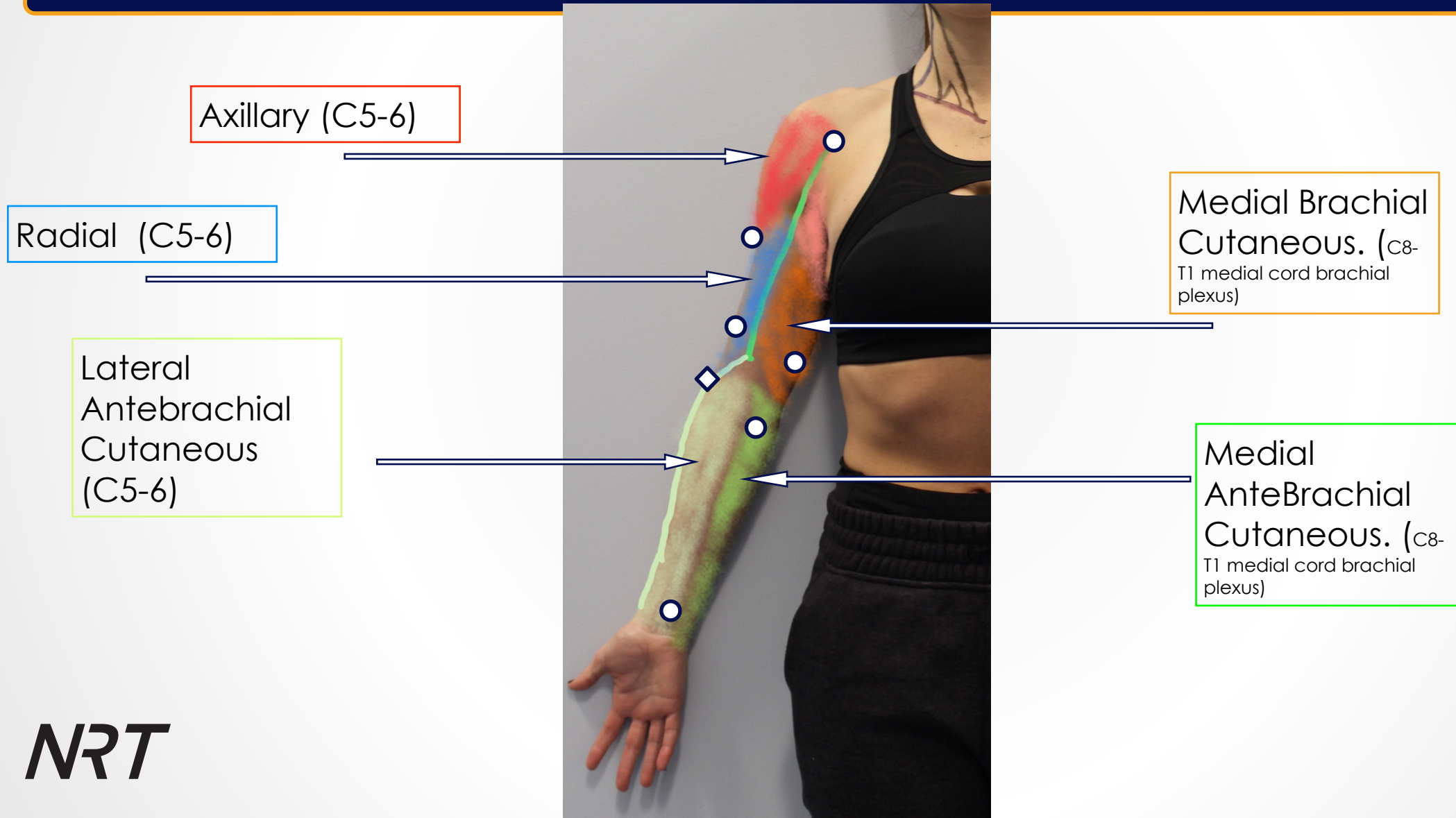
◇ = Homeostatic Point

○ = Common Treatment  
areas

# Anterior Shoulder Pain

| Body Area Involved                        | Local   | Segmental Relationship | Systemic (HA's in the area)   | Check Opposite     | Check Regional: proximal/ distal   |
|---|---|------------------------|---|--------------------|--|
| Anterior Shoulder<br><a href="#">Pain</a> | Axillary n,<br><br>Musculo-cutaneous n.<br><br>Deltoid, biceps, supraspinatus, coracobrachialis, pec minor, subscapularis | C4 – C5                | Dorsal Scapular n.<br><br>Lateral Pectoral n.<br><br>Lateral Antebrachial Cutaneus,<br><br>Deep Radial. | Posterior shoulder | Thoracic mobility<br><br>Cervical spine<br><br>Latissimus dorsi<br><br>Grip strength |

# Anterior Shoulder Pain.



# Posterior Shoulder Pain

| Body Area Involved      | Local   | Segmental Relationship | Systemic (HA's in the area)                                    | Check Opposite  | Check Regional: proximal/ distal  |
|-------------------------|---|------------------------|--|---|---|
| Posterior Shoulder Pain | <p>Axillary n.<br/>thoracodorsal n.<br/>radial n. Dorsal Scapular</p> <p>Deltoid,<br/>Supraspinatus,<br/>Teres major/minor,<br/>Latissimus,</p> | C4 – C5 –<br>C6- C7    | <p>Dorsal scapular</p> <p>Suprascapular</p> <p>Deep radial</p> | <p>Lateral pectoral n</p> <p>Coracobrachialis</p> <p>Pec minor</p> <p>Subscapularis</p> | <p>Thoracic mobility</p> <p>Cervical spine</p> <p>Latissimus dorsi</p> <p>Grip strength</p> |

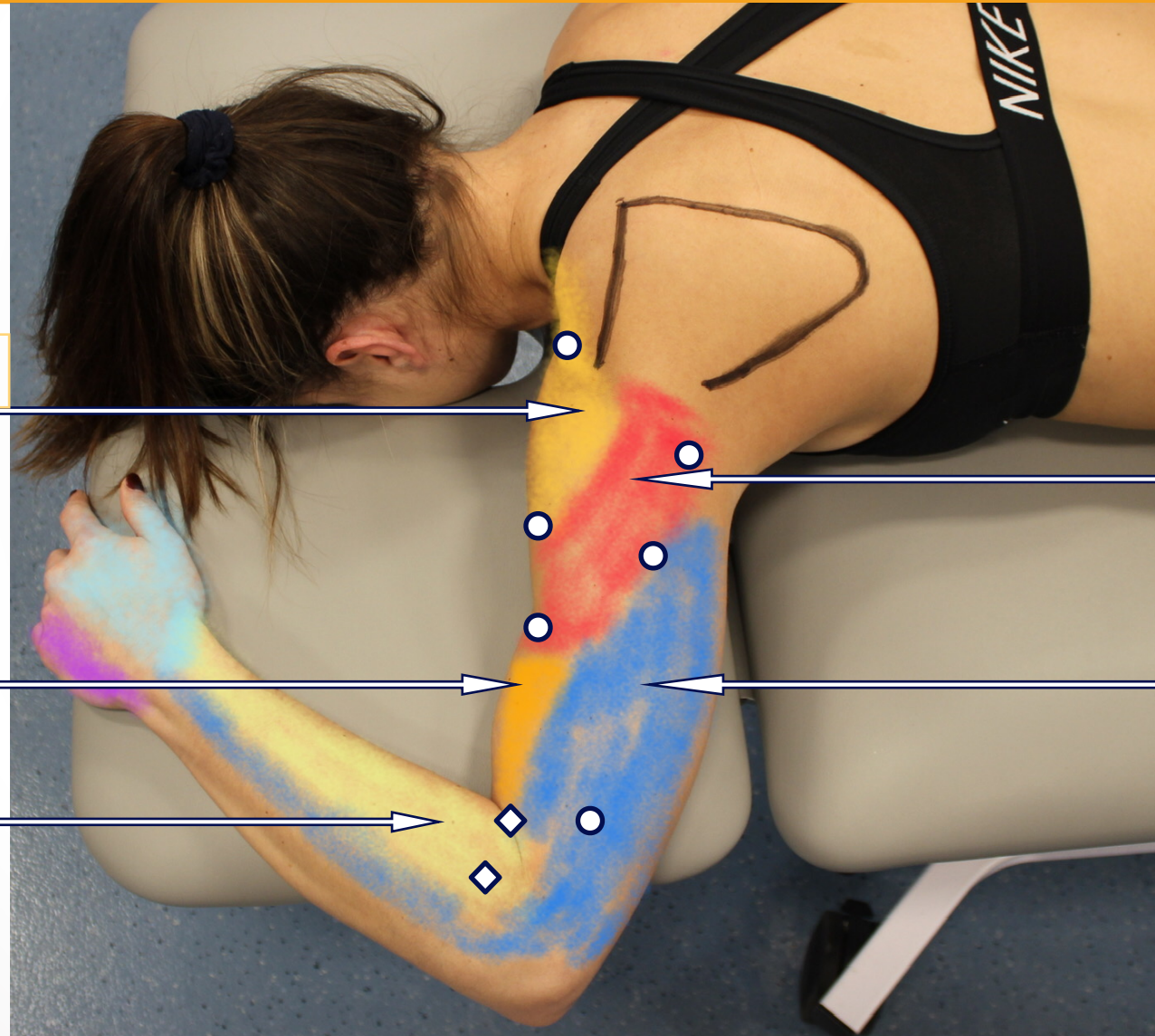
# Posterior Shoulder Pain.

Supraclavicular. (C3-C4)

Medial Brachial  
Cutaneous. (C8-  
T1 medial cord brachial  
plexus)

Lateral  
Antebrachial  
Cutaneous  
(C5-6)

**NRT**



Axillary (C5-6)

Radial (C5-6)



# Lateral Elbow Pain

| Body Area Involved | Local  | Segmental Relationship | Systemic (HA's in the area)  | Check Opposite  | Check Regional: proximal/ distal  |
|--------------------|--|------------------------|--|---|---|
| Lateral Elbow Pain | Radial n.<br><br>Lateral antebrachial cutaneous n.<br><br>Extensor Bulk m.<br><br>Supinator m. | C5-C6-C7               | Deep Radial,<br>Superficial Radial,<br>Lateral Antebrachial Cutaneous,<br>Suprascapular. | Median, Ulnar n.<br><br>Flexor Bulk, Biceps tendon insertion,<br><br>Pronator teres.<br><br>Glenohumeral internal/external rotators | Thoracic mobility<br><br>Cervical spine<br><br>Grip strength<br><br>Shoulder IR/ER strength |

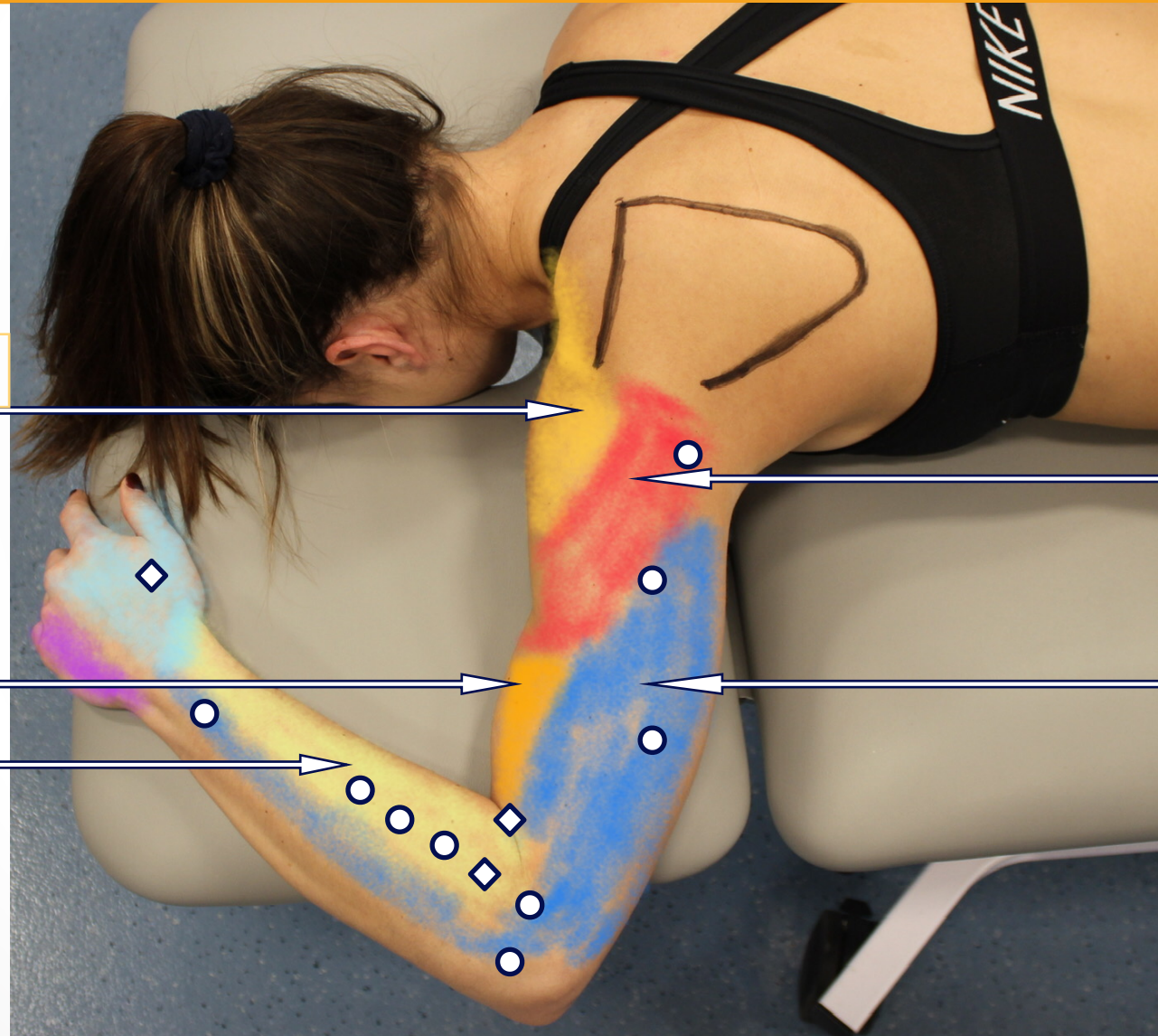
# Lateral Elbow Pain

Supraclavicular. (C3-C4)

Medial Brachial  
Cutaneous. (C8-  
T1 medial cord brachial  
plexus)

Lateral  
Antebrachial  
Cutaneous  
(C5-6)

**NRT**



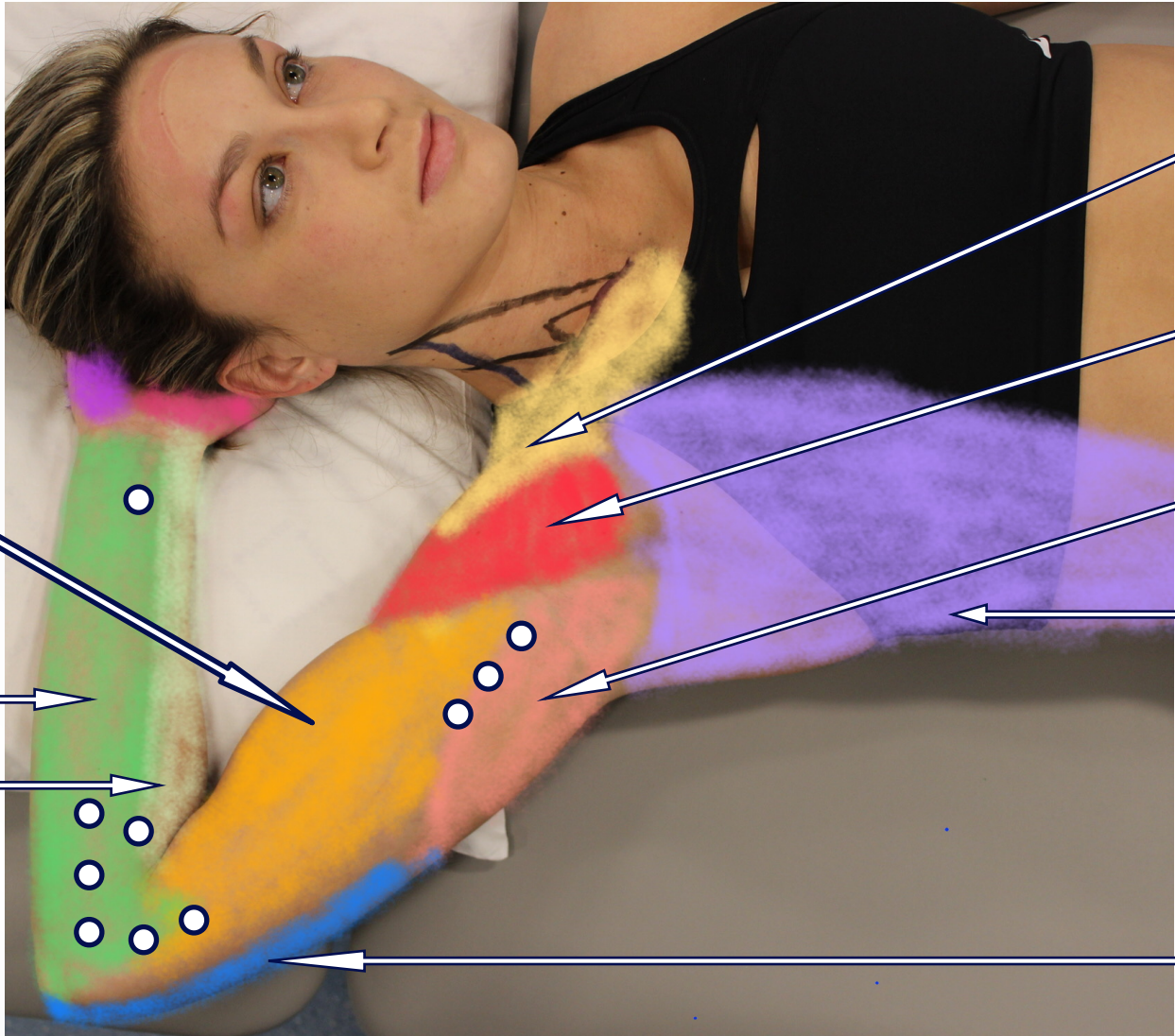
Axillary (C5-6)

Radial (C5-6)

# Medial Elbow Pain

| Body Area Involved | Local  | Segmental Relationship | Systemic (HA's in the area)             | Check Opposite  | Check Regional: proximal/ distal   |
|--------------------|--|------------------------|---|---|--|
| Medial Elbow Pain  | Median n.<br>Ulnar n.<br>Medial antebrachial cutaneous<br>Flexor bulk,<br>Pronator Teres | C5-T1                  | Deep radial n.<br>Superficial radial n. | Radial nerve<br>Lateral elbow<br>Glenohumeral ext.rotators<br>Subscapularis | Thoracic mobility<br>TOS<br>Cervical spine<br>Grip strength<br>Shoulder IR/ER strength |

# Medial Elbow Pain



Medial Brachial Cutaneous. (C8-T1 medial cord brachial plexus)

Medial Antebrachial Cutaneous (C8-T1)

Lateral Antebrachial Cutaneous (C5-6)

Supraclavicular. (C3-C4)

Axillary (C5-6)

Intercostobrachial

Lateral branches Posterior Cutaneous Thoracic spinal level.

Radial (C5-6)

# Thumb, Carpal Tunnel.

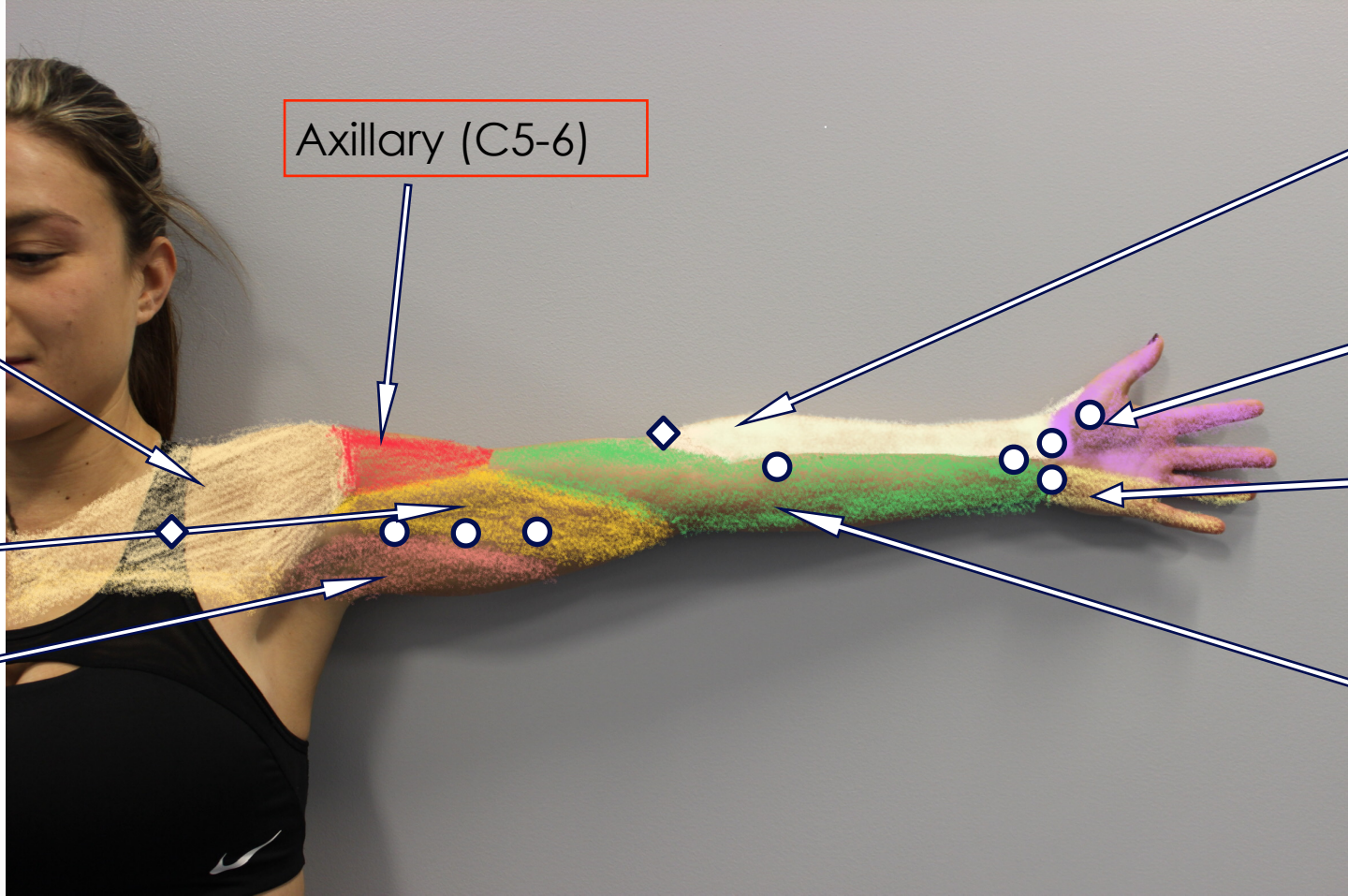
| Body Area Involved         | Local  | Segmental Relationship | Systemic (HA's in the area) | Check Opposite                   | Check Regional: proximal/ distal   |
|----------------------------|--|------------------------|-----------------------------|----------------------------------|--|
| Thumb<br><br>Carpal tunnel | Median n.<br><br>Flexor bulk mm<br><br>Pronator teres,<br><br>Medial wrist<br><br>Digital m. bulk. | C5-C6                  | Superficial radial n.       | Radial n.<br><br>Wrist extensors | Thoracic mobility<br>TOS<br>Cervical spine<br><br>Grip strength<br><br>Shoulder IR/ER strength |

# Thumb / Carpal Tunnel Pain

Supraclavicular.  
(C3-C4)

Medial Brachial  
Cutaneous. (C8-  
T1 medial cord brachial  
plexus)

Intercostobrachial  
(T2)



Lateral  
Antebrachial  
Cutaneous  
(C5-6)

Median (C5-6)

Ulnar (C8-T1)

Medial  
Antebrachial  
Cutaneous  
(C8-T1)

# Cervical Pain

| Body Area Involved | Local   | Segmental Relationship | Systemic (HA's in the area)   | Check Opposite  | Check Regional: proximal/ distal |
|--------------------|---|------------------------|---|---|----------------------------------|
| Cervical Pain      | Cervical Paraspinals- (posterior primary rami)<br><br>Suboccipital m. | C0-C7                  | Greater occipital n.<br><br>Greater auricular n.<br>Spinal accessory n.<br>Dorsal scapular n. | Anterior cervical<br><br>Pectorals<br><br>Latissimus<br><br>Subscapularis | Thoracic mobility<br><br>TOS     |

# Posterior Neck Pain.

Greater Occipital Nerve (C2)

Cervical Posterior Primary Rami

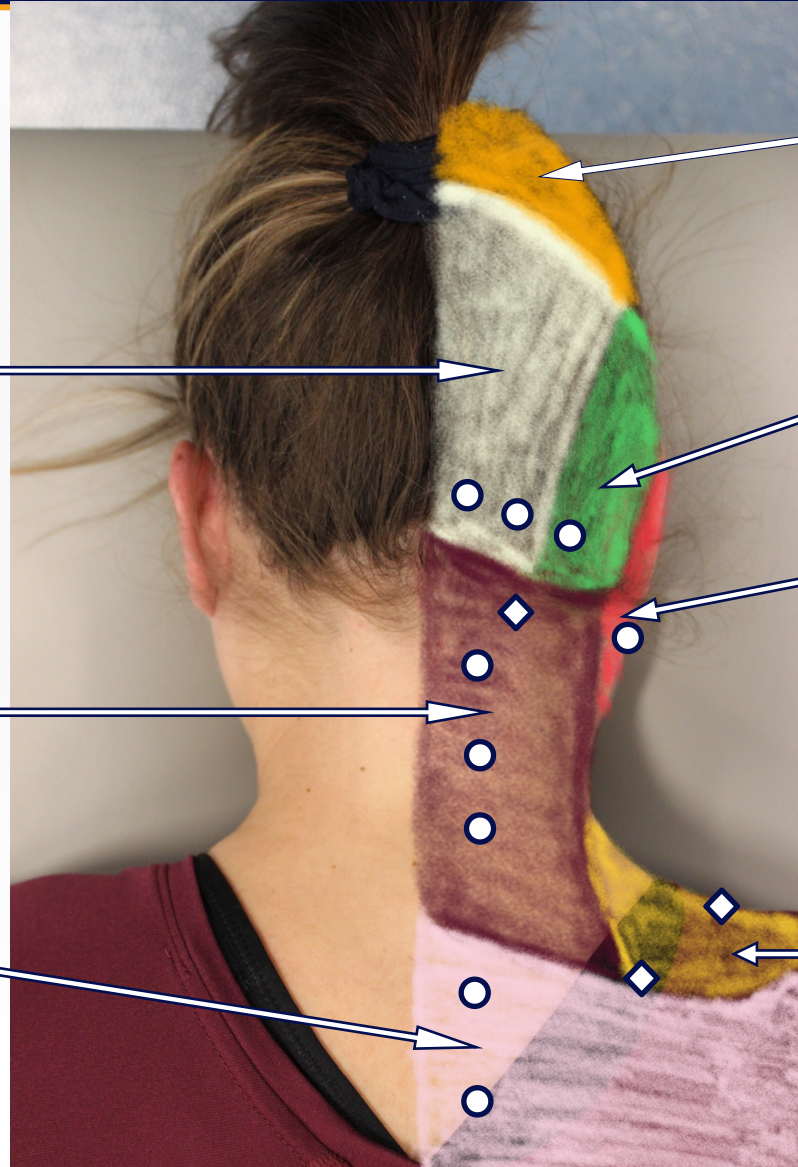
Thoracic Posterior Primary Rami

V1 Ophthalmic Division Trigeminal

Lesser Occipital (C2)

Greater Auricular (C2-C3)

Supraclavicular. (C3-C4)





# Face / Jaw Pain

| Body Area Involved | Local                                       | Segmental Relationship | Systemic (HA's in the area)  | Check Opposite   | Check Regional: proximal/ distal                  |
|--------------------|---|------------------------|--|--|---|
| Face / Jaw Pain    | Trigeminal n.<br><br>Muscles of mastication | CN V.<br>C2-C3         | Supraorbital n.<br><br>Infraorbital n.<br><br>Greater Auricular n. | Greater occipital n.<br><br>Spinal Accessory n.<br><br>Suboccipitals | Scalenes<br><br>Pectorals<br><br>Latissimus dorsi |

# Anterior Neck and Jaw Pain

V1 Ophthalmic  
Division Trigeminal

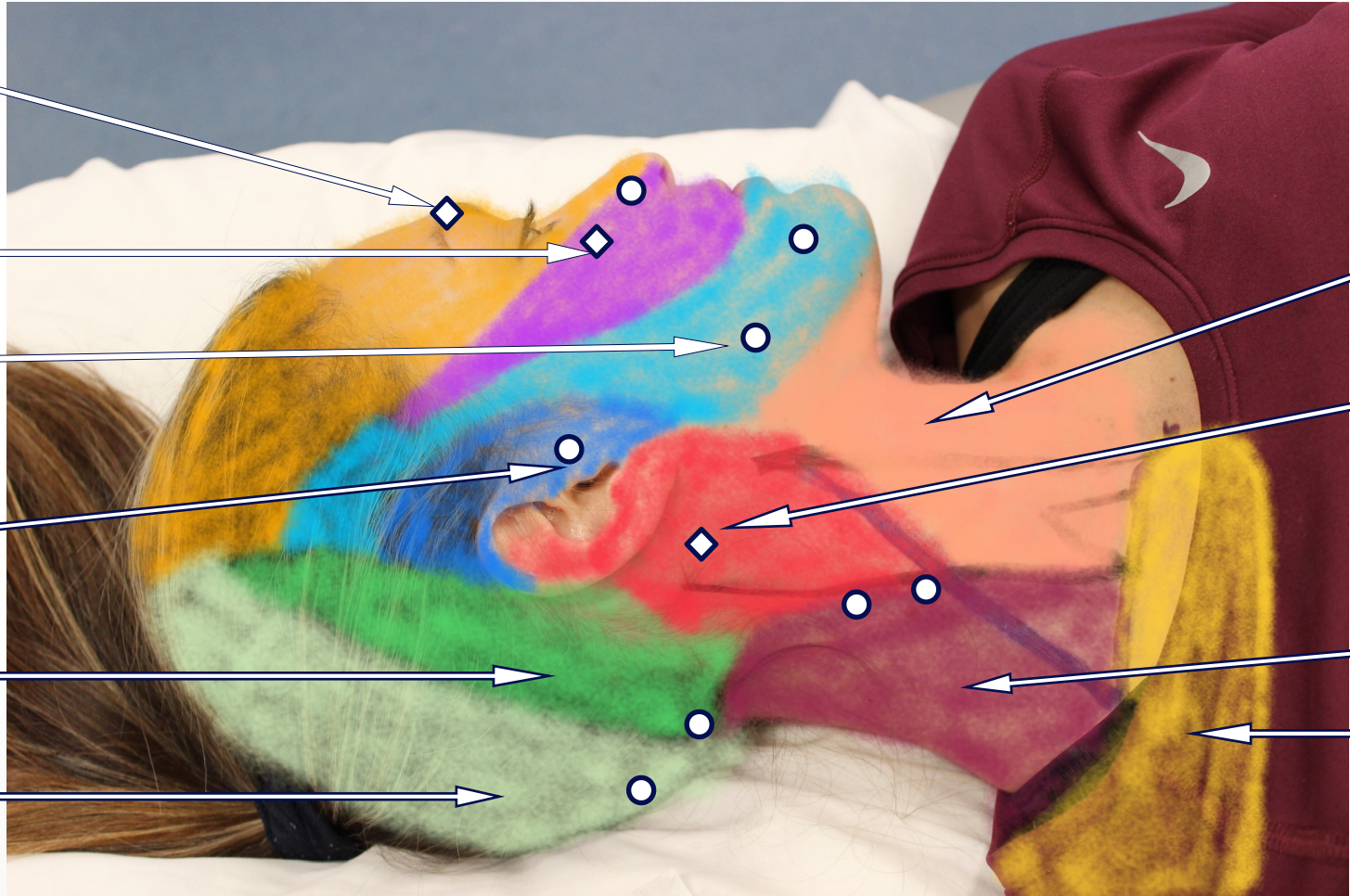
V2 Maxillary  
Division Trigeminal

V3 Mandibular  
Division Trigeminal

Auriculotemporal  
(V3 trigeminal)

Lesser Occipital  
(C2)

Greater  
Occipital (C2)



Transverse Cutaneous  
(C2-3)

Greater Auricular (C2-  
C3)

Cervical Posterior  
Primary Rami

Supraclavicular. (C3-  
C4)

# Thoracic Pain

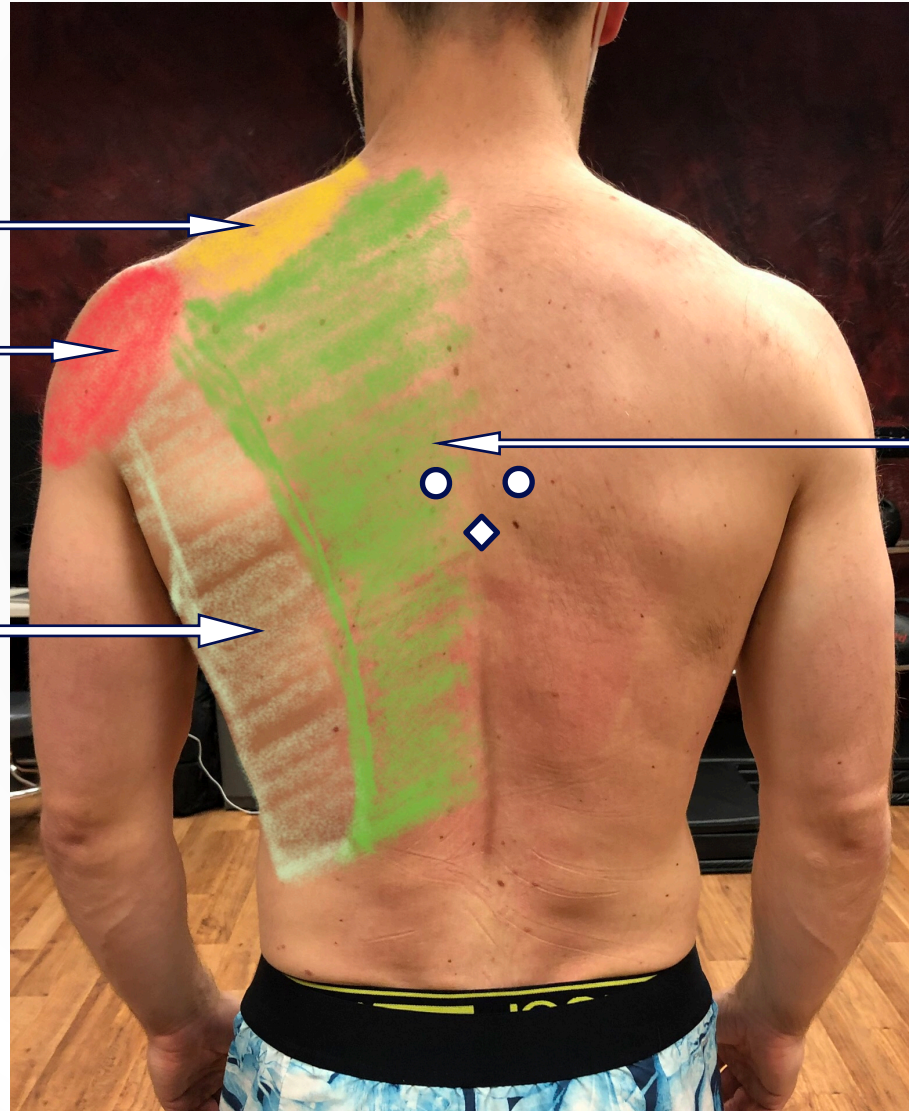
| Body Area Involved | Local  | Segmental Relationship | Systemic (HA's in the area)  | Check Opposite               | Check Regional: proximal/ distal           |
|--------------------|--|------------------------|--|------------------------------|--|
| Thoracic Pain      | Thoracic paraspinals<br><br>Posterior paraspinals. | T1 – T12               | Posterior Cutaneous T6<br><br>Interspinous T7<br><br>Dorsal Scapular | Abdominals<br><br>Diaphragm. | Rib mobility<br><br>Scapulo-humeral rhythm |

# Thoracic Pain

Supraclavicular. (C3-C4)

Axillary (C5-6)

Lateral Division  
Posterior  
Primary Rami  
(T1-T12)



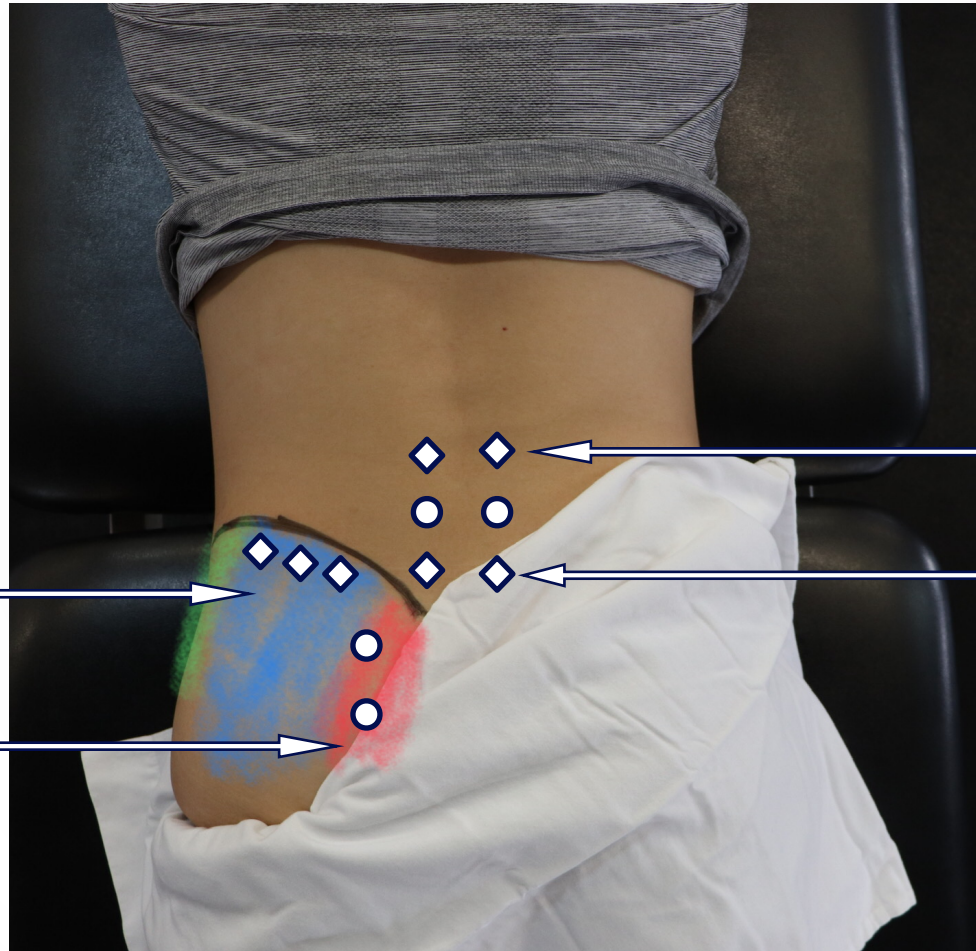
Thoracic  
Posterior  
Primary Rami  
(T1-T12)

\*Treat Segment  
Involved + One  
above and  
below.

# Lumbar Pain

| Body Area Involved | Local                                      | Segmental Relationship | Systemic (HA's in the area)                                      | Check Opposite                | Check Regional: proximal/ distal   |
|--------------------|--|------------------------|--|-------------------------------|--|
| Lumbar Pain        | Involved segment of the Lumbar paraspinals | L1-L5<br>S1-S4         | Posterior Cutaneous n. of L2<br><br>Posterior Cutaneous n. of L5 | Abdominals<br><br>Hip flexors | Superior cluneal n.<br><br>Inferior gluteal n.<br><br>Gluteals<br><br>Hamstrings<br><br>Thoracic spine |

# Lumbar Pain



Superior Cluneal n. (L1-L3)

Medial Cluneal n. (S1-S3)

Posterior Cutaneous L2

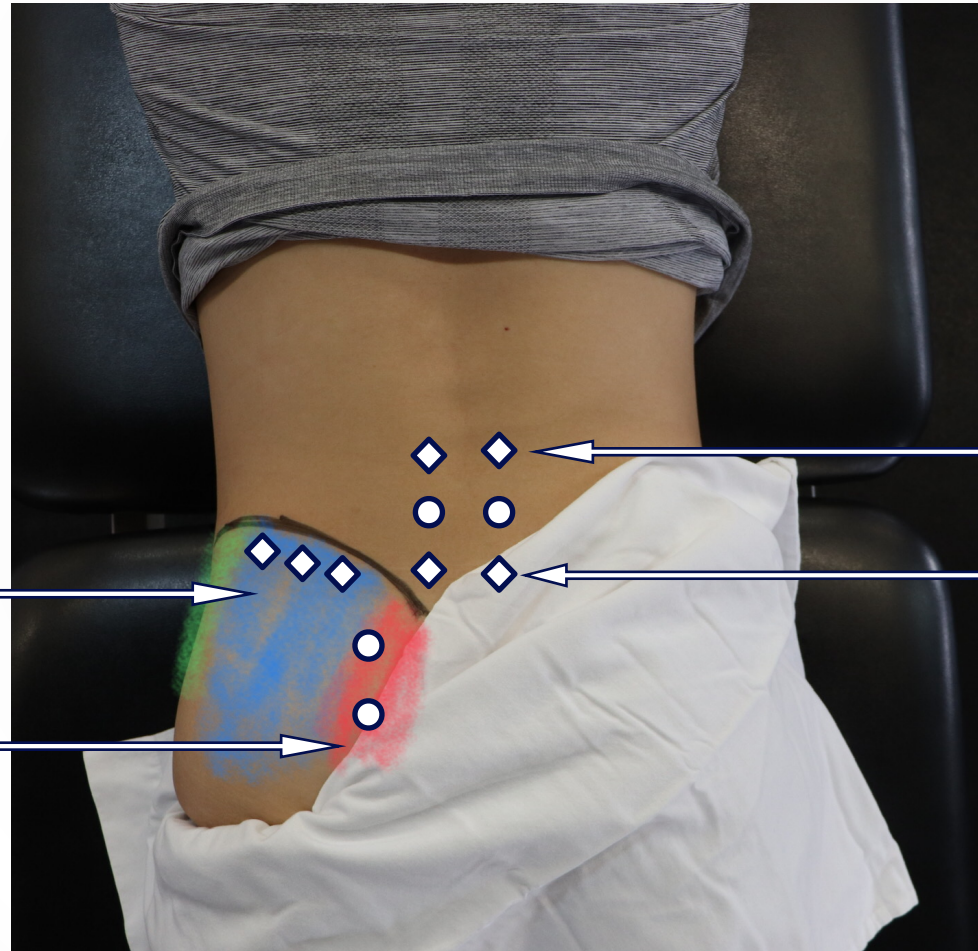
Posterior Cutaneous L5

*Treat Posterior Cutaneous Distribution of the Involved Segment + One Above & One Below.*

# Posterior Hip Pain

| Body Area Involved | Local  | Segmental Relationship     | Systemic (HA's in the area)   | Check Opposite                     | Check Regional: proximal/ distal  |
|--------------------|--|----------------------------|---|------------------------------------|---|
| Posterior Hip Pain | <p>Superior, medial, or inferior Cluneal nerves</p> <p>Superior or Inferior gluteal n.</p> <p>Gluteals<br/>Hip Ext Rot's</p> | <p>L4-L5.</p> <p>S1-S2</p> | <p>Superior Cluneal n.</p> <p>Inferior Gluteal n.</p> <p>Posterior Cutaneous n. of L5</p> | <p>Anterior hip</p> <p>Abdomen</p> | <p>Thoracic</p> <p>Quadratus lumborum</p> <p>Hamstrings</p> <p>Quads</p> <p>Hip flexors</p> |

# Posterior Hip Pain



Superior Cluneal n. (L1-L3)

Medial Cluneal n. (S1-S3)

Posterior Cutaneous L2

Posterior Cutaneous L5

*Treat Posterior Cutaneous Distribution of the Involved Segment + One Above & One Below.*

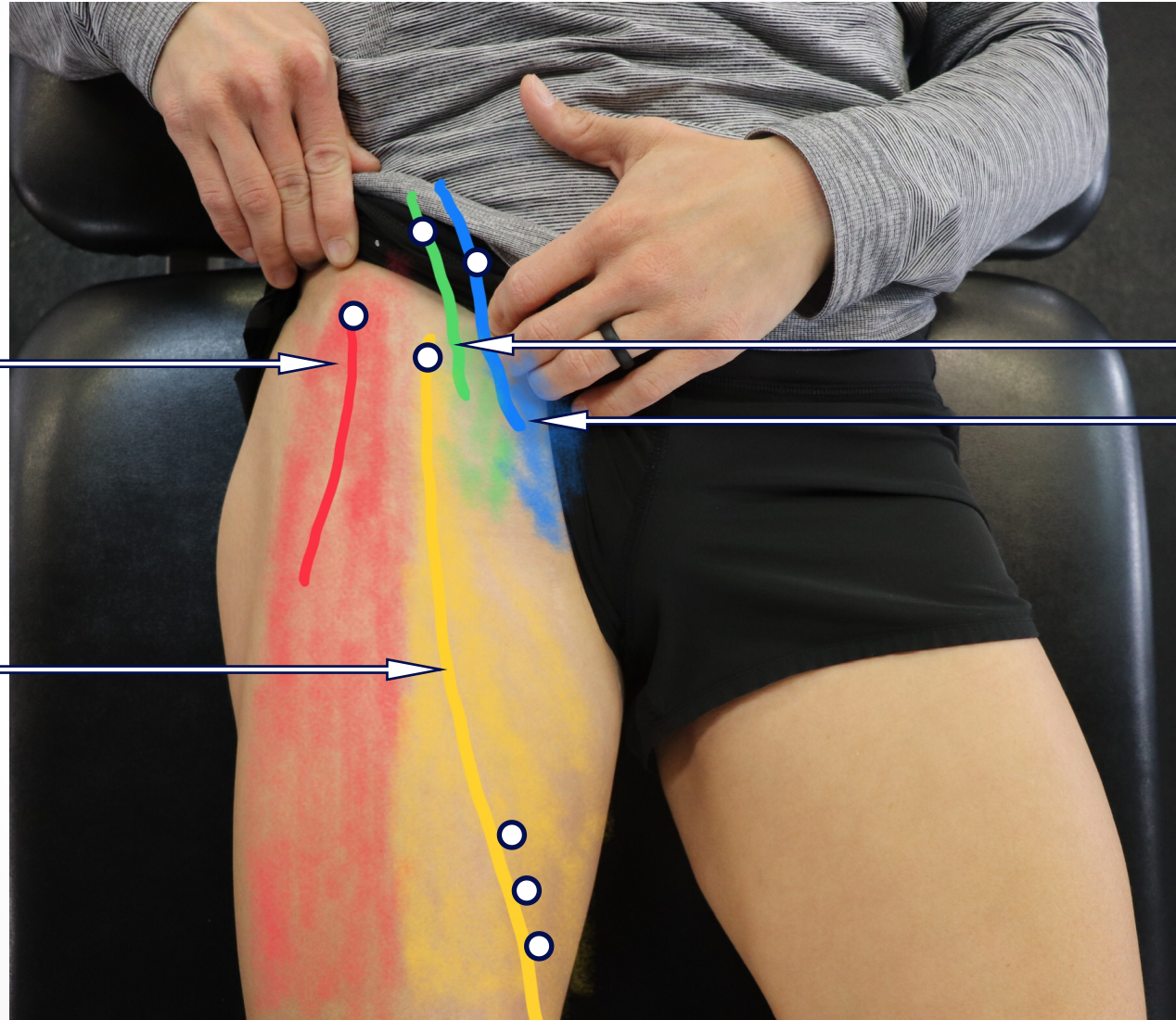


# Anterior Thigh Pain

| Body Area Involved  | Local  | Segmental Relationship | Systemic (HA's in the area)                      | Check Opposite   | Check Regional: proximal/ distal  |
|---------------------|--|------------------------|--|--|---|
| Anterior Thigh Pain | Femoral n.<br>Obturator n.<br>Iliohypogastric n.<br>Ilioinguinal n.<br>Hip flexors<br>adductors<br>TFL<br>Quadriceps | L1-L4                  | Posterior Cutaneous n. of L2<br><br>Saphenous n. | Inferior gluteal n.<br>Superior cluneal n.<br><br>Gluteus medius, minimus, and maximus.<br><br>Hip Deep Rotators (piriformis, superior and inferior gemelli, quadratus femoris, obturator internus and externus. | Quadratus lumborum,<br><br>Rectus femoris<br><br>TFL<br><br>Abdominals and Obliques |
| Yes                 |  |                        |  |  |   |

**N-**

# Anterior Thigh Pain



Lateral Femoral Cutaneous (L2-L3)

Genitofemoral (L1-L2)

Anterior Femoral Cutaneous (L2-L3)

Ilioinguinal (L1)

# Knee Pain

| Body Area Involved | Local   | Segmental Relationship | Systemic (HA's in the area)                                       | Check Opposite   | Check Regional: proximal/ distal |
|--------------------|---|------------------------|---|--|----------------------------------|
| Knee Pain          | Femoral n.<br>Saphenous n.<br>Lateral femoral cutaneous n.<br>Lateral Popliteal n.<br><br>Quads, Hamstrings,<br>Popliteus m.<br>Plantaris m.<br>Gastrocnemius | L2-L4                  | Saphenous n.<br><br>Common fibular n.<br><br>Lateral popliteal n. | Lateral popliteal<br><br>Popliteus m.<br><br>Gastrocnemius | Hip<br><br>Ankle<br><br>Lumbar.  |

# Anterior Knee

Lateral Femoral  
Cutaneous (L2-  
L3)

Anterior  
Femoral  
Cutaneous (L2-  
L3)

Common  
fibular (L4-S2)

Superficial  
Fibular (L4-S2)

Sural (S1-S2)

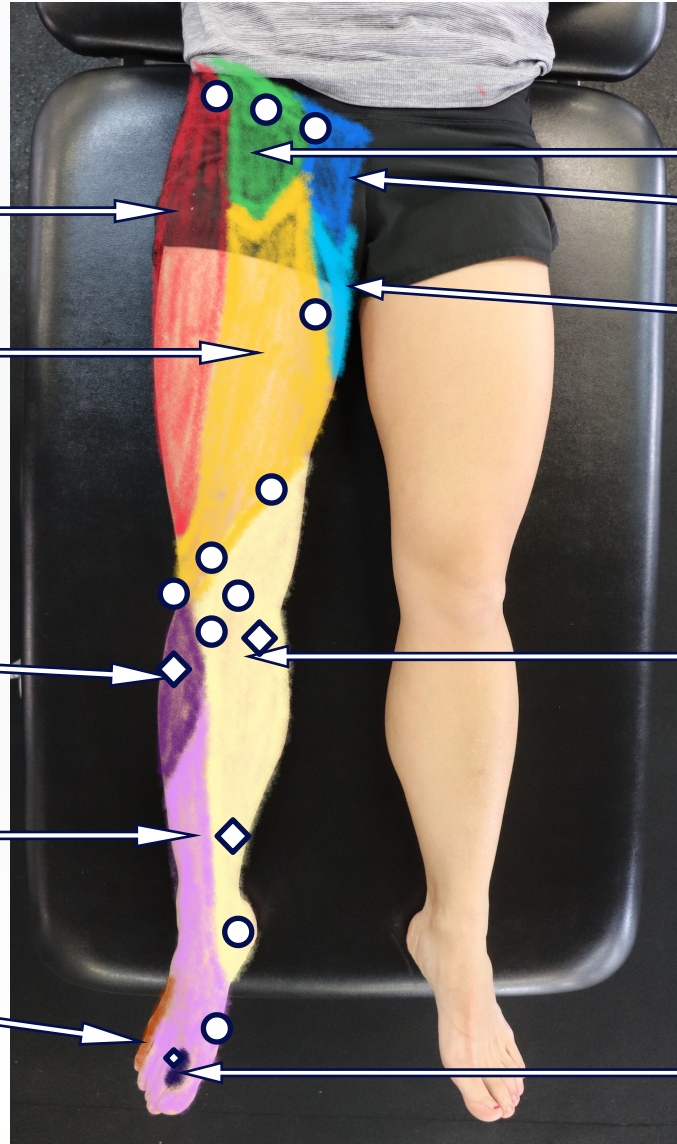
Genitofemoral  
(L1-L2)

Ilioinguinal (L1)

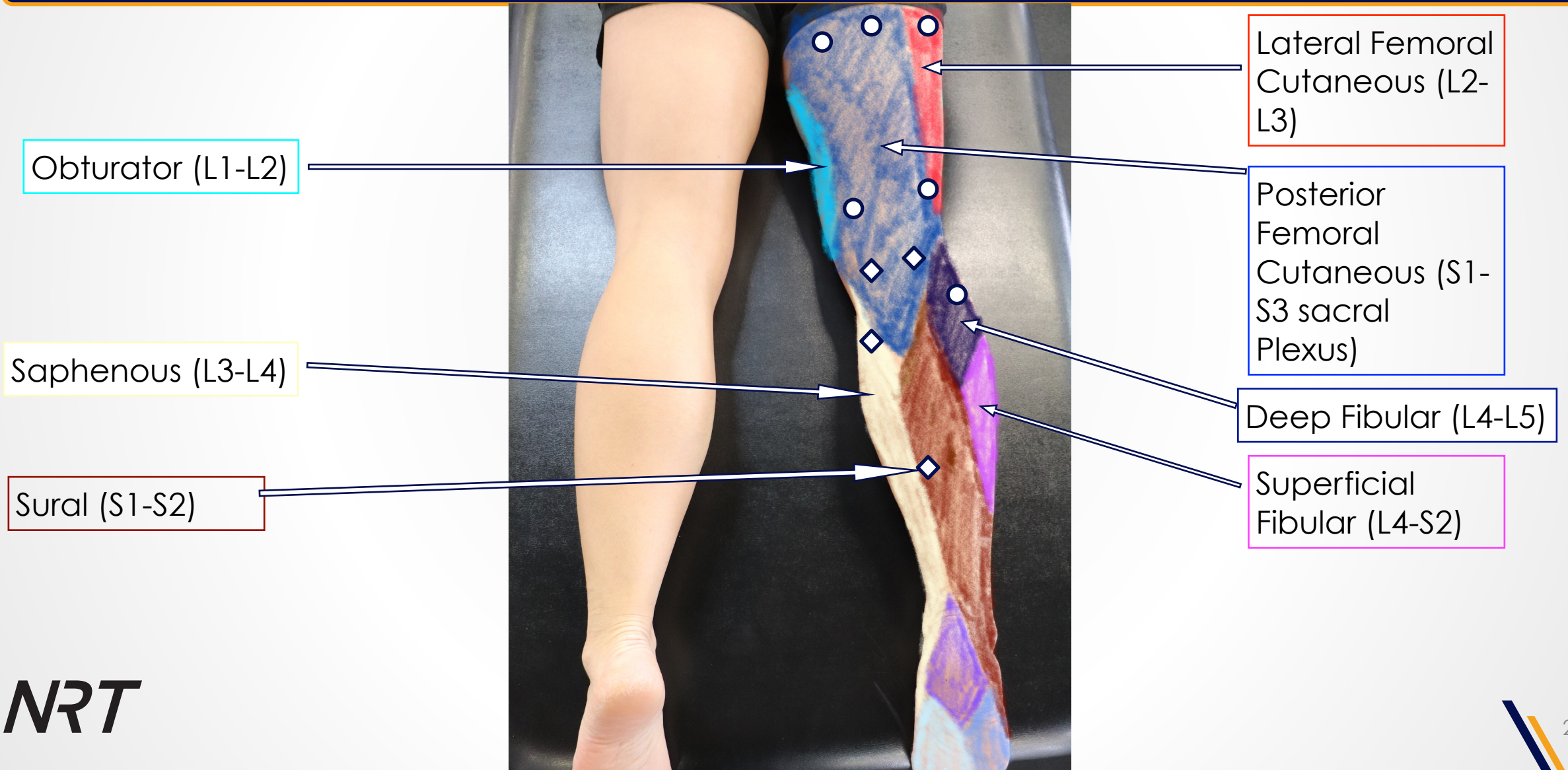
Obturator (L1-L2)

Saphenous (L3-L4)

Deep Fibular (L4-L5)



# Posterior Knee



# Lateral Ankle Pain

| Body Area Involved | Local   | Segmental Relationship | Systemic (HA's in the area)              | Check Opposite   | Check Regional: proximal/ distal          |
|--------------------|---|------------------------|--|--|---|
| Lateral Ankle Pain | Common fibular n.<br><br>Anterior / Lateral compartment mm. | L4-S2                  | Common Fibular n.<br><br>Deep fibular n. | Tibial n.<br><br>Sural n.<br><br>Posterior compartment mm. | Intrinsic Foot<br><br>Hip.<br><br>Lumbar. |

# Lateral Ankle Pain

Lateral Femoral  
Cutaneous (L2-  
L3)

Anterior  
Femoral  
Cutaneous (L2-  
L3)

Common  
fibular (L4-S2)

Superficial  
Fibular (L4-S2)

Sural (S1-S2)

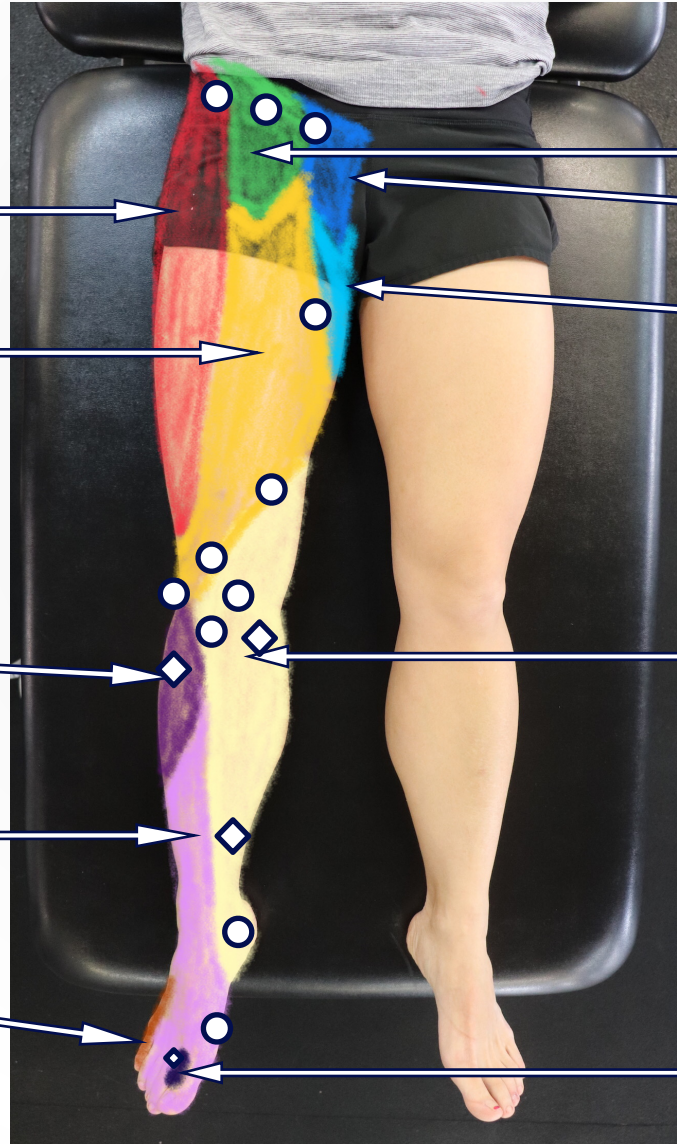
Genitofemoral  
(L1-L2)

Ilioinguinal (L1)

Obturator (L1-L2)

Saphenous (L3-L4)

Deep Fibular (L4-L5)



# Bottom Of Foot Pain

| Body Area Involved  | Local   | Segmental Relationship | Systemic (HA's in the area)                      | Check Opposite    | Check Regional: proximal/distal   |
|---------------------|---|------------------------|--|-------------------|---|
| Bottom of Foot Pain | Medial and Lateral Plantar nerves via Tibial n.<br><br>Sural n. | L4-S2                  | Tibial n.<br><br>Deep fibular n.<br><br>Sural n. | Common fibular n. | Posterior compartment leg mm.<br><br>Hamstrings<br><br>Lumbar (L5-S1)<br><br>Hip Ext Rot's<br>Gluteals<br><br>Foot intrinsics |



# Bottom of Foot Pain

Saphenous (L3-L4)

Sural n. Branch of common fib and tibial (S1-S2)

Calcaneal Plantar n. off of tibial. (S1-S2)

Medial Plantar n. off of tibial. (L4-L5)

Posterior Femoral Cutaneous (S1-S3 sacral Plexus)

Deep Fibular (L4-L5)

Superficial Fibular (L4-S2)

Lateral Plantar n. off of tibial. (S1-S2)

