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 (Gestalt). 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 aim to identify the “involved” structure is faulty reasoning and should be reconsidered. Sound clinical reasoning is dependent on a multifactorial construct, which encourages 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.
## 24 Homeostatic Neuro-Trigger Points (HNTrP)

**KEY:** *In the extremities, the length and depth of the needle penetration is variable based on patient size and the intended therapeutic result. In the extremities, different needling techniques can be safely utilized from superficial to deep (including to the depth of bone). This decision is based solely on the specific need of the patient and your therapeutic goal for the treatment.*

<table>
<thead>
<tr>
<th>1. Deep Radial</th>
<th>2 finger widths distal to the lateral epicondyle of the elbow in the extensor groove between the brachioradialis and extensor carpi radialis brevis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin</td>
</tr>
<tr>
<td>Needle depth</td>
<td>*Depth is variable dependent on patient size and clinical intent.</td>
</tr>
<tr>
<td>Special notes</td>
<td>Upper extremity Quantitative Analysis point.</td>
</tr>
<tr>
<td>2. Greater Auricular</td>
<td>Clinical point is posterior and inferior to the anatomical point directly over the SCM. Inferior and posterior to the anterior portion of the mastoid process (behind the ear lobe) directly over the SCM.</td>
</tr>
<tr>
<td>Needle length</td>
<td>15mm / ½ inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Up to ½ inch</td>
</tr>
<tr>
<td>Special notes</td>
<td>Set needle between 2 fingers bracketing the anterior and posterior margins of SCM.</td>
</tr>
<tr>
<td>3. Spinal Accessory</td>
<td>Mid-point between the acromion and 7th cervical vertebra on the anterior aspect of the upper trap</td>
</tr>
<tr>
<td>Needle length</td>
<td>25-50mm / 1-2 inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Posterior to anterior, or anterior to posterior, slightly cephalic and always directed toward the clinician’s palpating finger</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Insert needle into muscle bulk until detected by palpating finger on opposite side</td>
</tr>
<tr>
<td>Special notes</td>
<td>LUNG FIELD SAFETY. Must hold muscle between thumb and fingers while needling. Needle IN/OUT +/- pistoning. Release muscle AFTER needle removed.</td>
</tr>
<tr>
<td>4. Saphenous</td>
<td>Located in a ‘box’ below the tibial plateau and on the medial side of the tibial shaft. Palpate for the most tender spot within the box.</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin</td>
</tr>
<tr>
<td>Needle depth</td>
<td>*Depth is variable dependent on patient size and clinical intent.</td>
</tr>
<tr>
<td>Special notes</td>
<td>Lower Extremity Quantitative Analysis point.</td>
</tr>
<tr>
<td>5. Deep Fibular</td>
<td>Between the 1st and 2nd metatarsals approximately one finger width proximal to the web space</td>
</tr>
<tr>
<td>Needle length</td>
<td>25-50mm / 1-2 inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin</td>
</tr>
<tr>
<td>Needle depth</td>
<td>As deep as necessary, until detected by palpating finger on plantar aspect of foot.</td>
</tr>
<tr>
<td>Special notes</td>
<td>Use clinician’s fingers to palpate plantar aspect of foot between 1st and 2nd MT while inserting.</td>
</tr>
<tr>
<td>6. Tibial</td>
<td>4 finger widths proximal from the top of the medial malleolus and posterior to the tibia</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin, aiming behind tibia</td>
</tr>
<tr>
<td>Needle depth</td>
<td>*Depth is variable dependent on patient size and clinical intent.</td>
</tr>
<tr>
<td>Special notes</td>
<td>Tibial nerve is immobile in this area, insert the needle slowly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Greater Occipital</th>
<th>Locate the C2 spinous process and move laterally over the paraspinal muscle bulk and move slightly superior to be located over the inferior oblique muscle. Halfway between C2 spinous process and C1 transverse process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle length</td>
<td>25-50mm / 1-2 inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Depending on the tolerance of the patient you can go as deep as necessary, may go to the C2 lamina</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Suprascapular (Infraspinatus)</th>
<th>Bracket the medial border and lateral border of the scapula with your thumb and middle finger; center your index finger between them. (Center of the scapular fossa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle length</td>
<td>25-50mm / 1-2 inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin</td>
</tr>
<tr>
<td>Needle depth</td>
<td>As deep as necessary, may go to the bone</td>
</tr>
<tr>
<td>Special notes</td>
<td>Care must be taken to verify that you are over the scapula and not medial to it!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Lateral Antebrachial Cutaneous</th>
<th>With the elbow bent and forearm supinated, the HNTrP is at the lateral margin of the cubital crease.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin in a posterior to medial direction towards the radial head.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>*Depth is variable dependent on patient size and clinical intent.</td>
</tr>
<tr>
<td>Special notes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. Sural</th>
<th>The HNTrP is between the two heads of the gastrocnemius muscle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>*Depth is variable dependent on patient size and clinical intent.</td>
</tr>
<tr>
<td>Special notes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11. Lateral Popliteal</th>
<th>Flex the knee, the HNTrP is on the crease just medial to the biceps femoris tendon.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>*Depth is variable dependent on patient size and clinical intent.</td>
</tr>
<tr>
<td>Special notes</td>
<td>Avoid neurovascular bundle in midline. Avoid visible blood vessels, or baker’s cyst.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12. Superficial Radial</th>
<th>Located between the 1st and 2nd metacarpals at the midpoint of the interosseous muscle bulk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle length</td>
<td>25mm / 1inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>As deep as necessary, until detected by palpating finger on palmar aspect of hand.</td>
</tr>
<tr>
<td>Special notes</td>
<td>Use clinician’s fingers to palpate palmar aspect of hand between 1st and 2nd MC while inserting.</td>
</tr>
</tbody>
</table>
### 13. Dorsal Scapular
Locate the superior angle of the scapula, the HNTrP is in the levator scapulae insertion.

<table>
<thead>
<tr>
<th>Needle length</th>
<th>Up to 25mm / 1 inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>The needle should be directed from the medial aspect of the superior angle of the scapula moving laterally away from the thorax, assuring the needle point is over the bony backdrop of superior angle of the scapula.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Assure the needle point is directed toward the bony backdrop of the superior angle of the scapula. It is also acceptable to grasp the soft tissue and lift away from the thorax and needle as described above.</td>
</tr>
<tr>
<td>Special notes</td>
<td>LUNG FIELD SAFETY. Needle IN/OUT and verify that you are needling from medial to lateral over the superior angle of the scapula.</td>
</tr>
</tbody>
</table>

### 14. Superior Cluneal (L1-L3)
There are 3 branches of the nerve traveling over the iliac crest inferiorly toward the gluteus medius region. There is variability in their location so draw a small box beginning 4 fingers widths from the spinous process.

<table>
<thead>
<tr>
<th>Needle length</th>
<th>75mm / 3 inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>superior to inferior ensuring you are inferior to the iliac crest. Can vary the needle angle to obtain more depth into the gluteal muscles</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Variable depending on therapeutic goal-can be superficial to affect the cutaneous distribution or deep to affect the gluteals.</td>
</tr>
<tr>
<td>Special notes</td>
<td>Care must be taken to verify the iliac crest is properly identified and the needle is inserted below it to avoid penetrating the abdominal cavity</td>
</tr>
</tbody>
</table>

### 15. Posterior Cutaneous of L2
At the inferior aspect of the 12th rib make a horizontal line back toward the spine, which approximates the L2 vertebra. The clinical HNTrP is 2 finger widths lateral to L2 spinous process

<table>
<thead>
<tr>
<th>Needle length</th>
<th>Up to 50mm / 2 inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin, or lateral to medial toward the vertebra</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Up to 50mm / 2 inch</td>
</tr>
<tr>
<td>Special notes</td>
<td>KIDNEY FIELD SAFETY use 2:2 rule in upper lumbar region. 2:2 rule = 2 finger widths lateral to the spinous process and up to a 2” needle. In cases of the presence of a LAMINECTOMY use a shorter needle or move a segment up or down as there may be no bony backdrop.</td>
</tr>
</tbody>
</table>

### 16. Inferior Gluteal
Find the “crown” or center of the buttock.

<table>
<thead>
<tr>
<th>Needle length</th>
<th>75mm / 3 inch or more depending on patient size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin at center of buttok.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>As deep as necessary, may go to the bone.</td>
</tr>
<tr>
<td>Special notes</td>
<td>Sciatic nerve is in close proximity, advance the needle slowly in final 25mm / 1inch.</td>
</tr>
</tbody>
</table>

### 17. Lateral Pectoral
HNTrP is located 2 finger widths inferior and perpendicular to the center of the clavicle.

<table>
<thead>
<tr>
<th>Needle length</th>
<th>50mm / 2 inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>Medial to lateral direction aiming the needle tip toward the clinician’s palpating fingers</td>
</tr>
<tr>
<td>Needle depth</td>
<td>As deep as necessary until detected by palpating fingers under pectoralis major.</td>
</tr>
<tr>
<td>Special notes</td>
<td>LUNG FIELD SAFETY. Must hold pectoralis muscle between thumb and fingers while needling, always identify the rib cage and needle parallel, never perpendicular, to it. Needle IN/OUT +/- pistonning. Release muscle hold AFTER needle is removed. Care must be taken when IMPLANTED DEVICES (tissue or other device) are present and may be prudent not to perform dry needling.</td>
</tr>
<tr>
<td>18. Iliotibial</td>
<td>Midway between the greater trochanter and lateral femoral condyle. (Center of the femur)</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Needle length</td>
<td>50-75mm / 2-3 inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin, towards femur.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>As deep as necessary, may go to the bone.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>19. Infraorbital</th>
<th>Located directly below the pupil, level with the nasal flare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle length</td>
<td>15mm / ½ inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Angled inferior to superior so needle handle is angled away from the eye.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Superficial, set the needle with minimal advancement just to ensure needle is well set</td>
</tr>
<tr>
<td>Special notes</td>
<td>To reduce the likelihood of bruising on the face apply direct pressure to the needle site simultaneously while removing the needle, hold pressure for 5-10 seconds after removing needle.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20. Spinous Process of T7</th>
<th>Draw a horizontal line from the inferior angles of the scapula, which approximates T7, palpate for tenderness in the interspinous space. Select the most symptomatic interspinous space T6-7 or T7-8.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle length</td>
<td>Up to 50mm / 2 inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Inferior to superior in the interspinous space (i.e. between the spinous processes) adjusting the angle of the needle as necessary.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Up to 2 inches</td>
</tr>
<tr>
<td>Special notes</td>
<td>Use 2 palpating fingers to bracket the lateral borders of the intended interspinous space while needling.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>21. Posterior Cutaneous of T6</th>
<th>Locate the T7 HNTrP, move up 1 segment and laterally 1 finger width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle length</td>
<td>Up to 25mm / 1 inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin, or lateral to medial towards vertebra.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Up to 25mm / 1 inch</td>
</tr>
<tr>
<td>Special notes</td>
<td>LUNG FIELD SAFETY. Use the 1:1 rule when needling the thoracic paravertebral area T1-T12. 1:1 rule = 1 finger width lateral to the spinous process and up to a 1” needle. Reduce needle depth in cases of lung disease, fragility, small stature and severe scoliosis if unsure of rib orientation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>22. Posterior Cutaneous of L5</th>
<th>HNTrP located within the paravertebral muscle above the sacrum at the level of L5, the 2:2 rule applies but can increase needle length on larger patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle length</td>
<td>50-75mm / 2-3 inch as needed.</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Perpendicular to skin, or lateral to medial, towards the vertebra.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>As deep as necessary, may go to the bone.</td>
</tr>
<tr>
<td>Special notes</td>
<td>In case of LAMINECTOMY use a shorter needle or move a segment superior as there may be no bony backdrop.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>23. Supraorbital</th>
<th>Medial aspect of the eyebrow is the clinical point.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle length</td>
<td>15mm / ½ inch</td>
</tr>
<tr>
<td>Needle direction</td>
<td>Slightly superior to inferior, ensuring the handle of needle is directed AWAY from the eye.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>Superficial</td>
</tr>
<tr>
<td>Special notes</td>
<td>To reduce the likelihood of bruising on the face apply direct pressure to the needle site simultaneously while removing the needle, hold pressure for 5-10 seconds after removing needle.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>24. Common fibular</th>
<th>Located 4 finger widths below the patella between the anterior aspect of the fibular head and tibial shaft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle direction</td>
<td>Perpendicular to the skin, towards the tibia.</td>
</tr>
<tr>
<td>Needle depth</td>
<td>*Depth is variable dependent on patient size and clinical intent.</td>
</tr>
<tr>
<td>Special notes</td>
<td>Fibular nerve is superficial as it passes the fibular head so insert the needle slowly</td>
</tr>
</tbody>
</table>