

Back To Chiropractic

CE Seminars ~ Technique 4 Hours



9:50 ⇒ 11:30
11:40 ⇒ 1:20



Adjusting Styles

I have seen every technique under the sun be super successful and I have seen everyone of them fail. **The difference?**

Well the difference was always the DC. If the DC was 100% behind the philosophy of that technique or style then success seemed inevitable. But if that DC was unsure of what they were doing then the whole thing seemed doomed.

The INTENT of that DC was the key to success.

Macro vs Micro Trauma

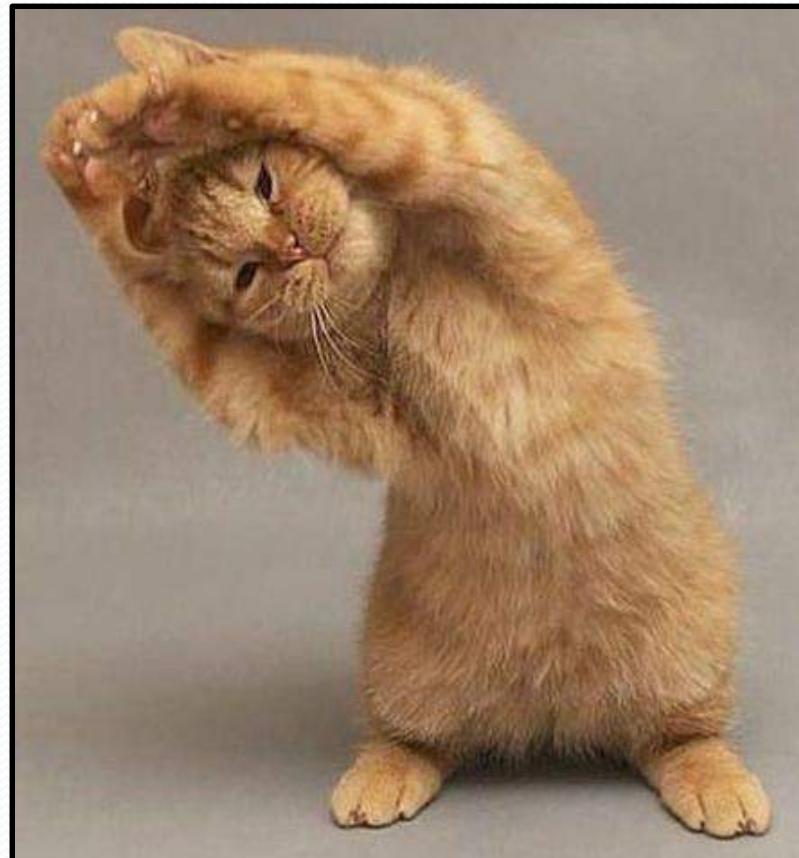
In The Beginning...

In the DC's office you get 2 types of cases, macro-trauma (think hit by a bus) or the dreaded repetitive micro-trauma (RMT).

For the typical DC office 90-99% of new pts likely present with RMT instead of macro-trauma, but we shall consider both.

For this course I will assume that visceral & systemic pathology have already been ruled out & that we are dealing with classic acute & chronic soft tissue injuries.

Review of Proprioceptive Neuromuscular Facilitation Stretching

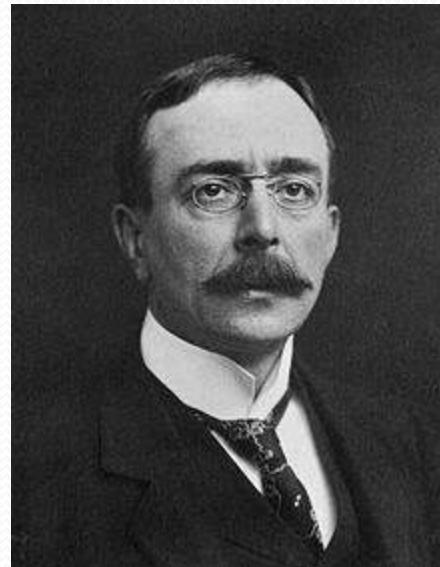


PNF Gets Started?

In the early to mid 1900s physiologist

Sir Charles Scott Sherrington popularized a model

for neuromuscular facilitation and inhibition. He received the Nobel Prize in Physiology or Medicine with Edgar Adrian, 1st Baron Adrian, in 1932 for their work on the functions of neurons. Prior to the work of Sherrington and Adrian, it was widely accepted that reflexes occurred as isolated activity within a reflex arc. Sherrington received the prize for showing that reflexes require integrated activation and demonstrated reciprocal innervation of muscles, (Sherrington's law), yes reciprocal inhibition.



Who Developed PNF?

Dr. Herman Kabat and **Maggie Knott** in the late 1940s and early 1950s used PNF as a means of rehabilitation for neurological disorders such as multiple sclerosis, cerebral palsy and poliomyelitis.



My History With PNF

I was first introduced to PNF in 1987 when I attended San Diego State in a kinesiology class. I was reintroduced to PNF in 1995, at Life West, by Dr. Carrie Picker. I then wrote the course notes and taught the Physiotherapy Rehab class from 1997-2002 at Life West.

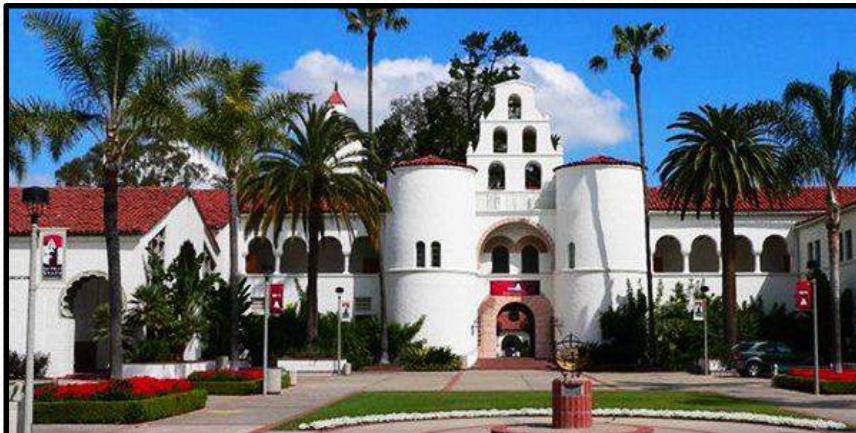
They are still using those notes today.

It was during those years when I started applying PNF to the chiropractic adjustment. I discovered how much easier it was to adjust if I used the PNF protocols right before delivering the adjustment.

And that is what I will share with you today.



**SAN DIEGO STATE
UNIVERSITY**



**LIFE CHIROPRACTIC
COLLEGE WEST**

Why Use PNF?

The goal is simple: make the adjustment easier.

If the muscles surrounding the joint to be adjusted are relatively relaxed then the adjustment will be easier to deliver and more effective.

Try this: Have your partner standing. Have them bend their elbow into flexion and contract their bicep. Try pulling their arm down. It's difficult. How come? Simple answer: the muscle is contracting and is restricting joint motion (in this case the elbow joint). Now have them loosely contract their bicep and then pull their arm down. Much easier! Why? The muscle is not contracting as much. So any time we can decrease the contractility of a muscle we know that it will be easier to increase joint motion.

So now apply this to an adjustment. I'm about to adjust a patient's low back in side posture or adjust a patient's shoulder. We know the muscles are in a contracted state restricting proper joint motion, (that is why we are adjusting it). What would make this adjustment easier? Yes, decreasing the contractility of the involved muscles **BEFORE** the adjustment. And this is where the PNF comes in. Now lets review the principals & protocols of PNF.

Yes this is the same stuff you saw in my general technique courses, as the PNF can be applied to all adjustments!

The Basics of PNF

Works with stretching, strengthening & adjusting.

Before Stretching:

Contract the muscle you are stretching for 2-5 seconds

Before Strengthening:

Lightly contract the muscle you are strengthening for 2-5 seconds

Before Adjusting:

Contract the muscle(s) your adjusting through for 2-5 seconds

Why the same for all three?

Stayed tuned, here come the details!.

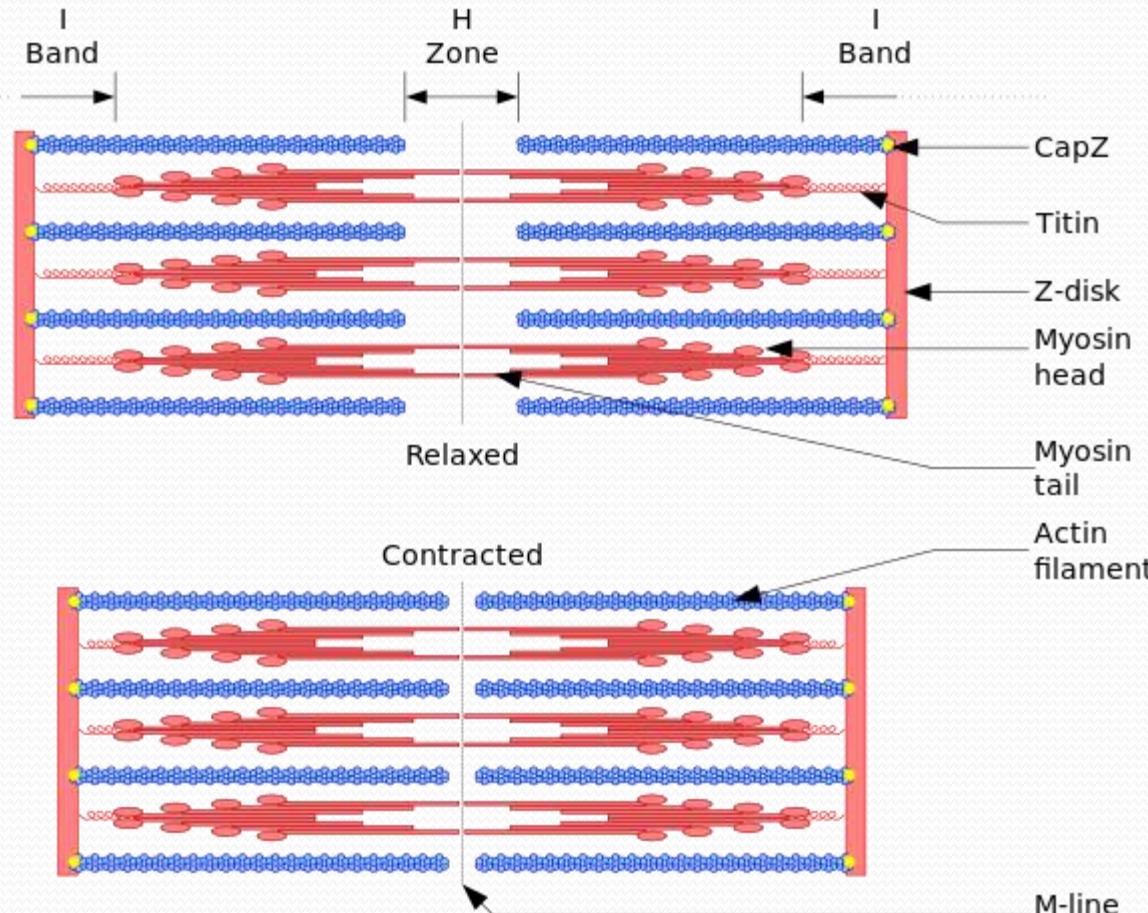
Sarcomere Complex

Muscle contraction is NOT an on-off switch, all or none phenomenon.

Muscles are rarely 100% on or 100% off.

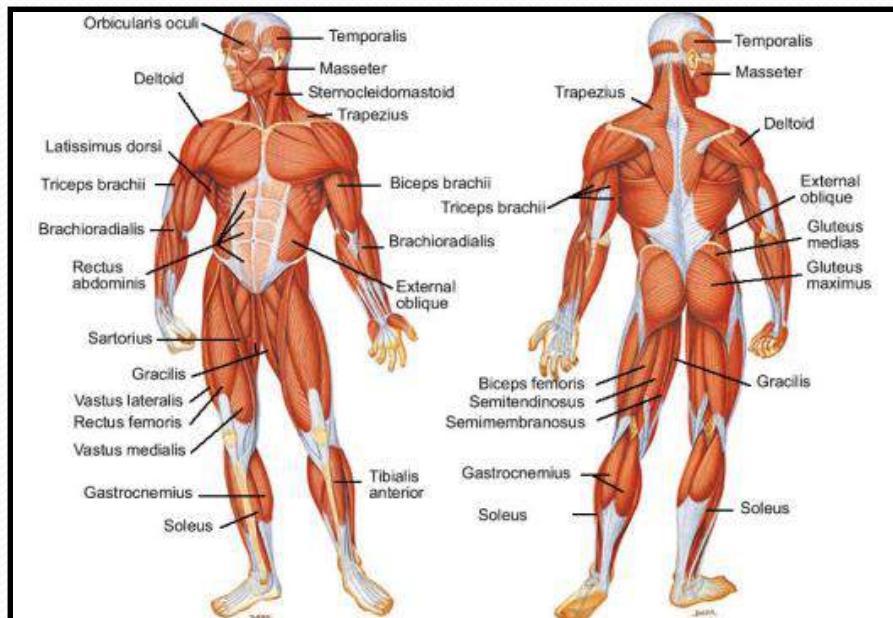
Muscles most often are in a partially contracted state.

So think of a dimmer switch where the muscle can be partially contracted.



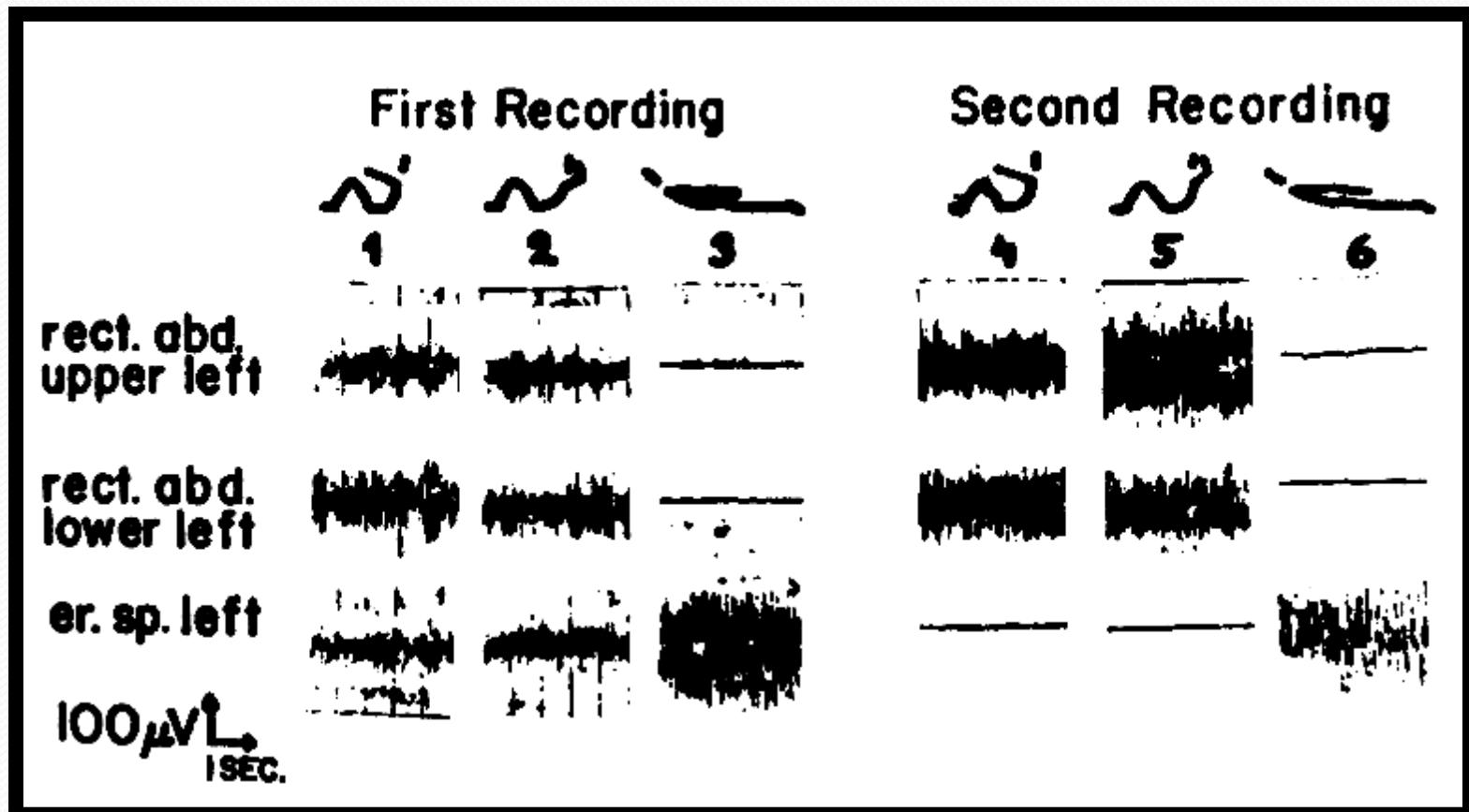
What Muscle Is Contracting?

When performing a bicep curl what muscles contract? The primary mover is the biceps & brachioradialis (going through a full range of motion). But most muscles in your body will contract isometrically as well. Your forearm flexors & extensors are acting as primary stabilizers, along with the shoulder girdle muscles (deltoids). Your postural muscles throughout your body will also be contracting at some lower level acting as secondary stabilizers, allowing you to perform the bicep curl. So at some level they are all contracting. The point being, most muscles are usually in a partially contracted state.



EMG Before & After PNF

Korr IM, Neurobiologic Mechanisms in Manipulative Therapy, 1978



In the 1st recording the pt has unbalanced muscles. With inhibited abs & overly excited erector spinae muscles. When they attempt a crunch the abs only fire part way & the erector spinae DO NOT shut off. Then after stretching, in the second recording you can see the muscle groups become balanced.

If you attempted to adjust the patient's low back after the second recording it would be much easier as the low back muscles are not overly contracted (they may shut off completely or partially).

How long would this take? That would depend upon the severity of the imbalance, muscle memory & activities of daily living. A few seconds if it's only a muscle spasm, perhaps years if it's chronic.

Relaxing Muscles

So how can we relax a contracting muscle or muscle group?

Here is the list: (some can be used before an adjustment to decrease pain and relax the muscles or after the adjustment for added benefit)

- 1. Slow deep breathing**
- 2. Ice massage**
- 3. Heat massage**
- 4. Modalities (electric stim, ultrasound etc.)**
- 5. Activator**
- 6. Ischemic compression (tendon insertions or muscle belly)**
- 7. PNF ~ Reciprocal Inhibition**
- 8. PNF ~ Contract-Relax-Passive Stretch**
- 9. PNF ~ Contract-Relax-Contract Stretch**
- 10. Soft tissue work**
- 11. Motion Therapy**
- 12. Adjustment (best for last)**

Slow Deep Breathing

Slow deep breaths are an excellent way of helping muscles relax quickly.

Try This:

Sit on the floor with your feet out in front of you. Try & touch your toes.

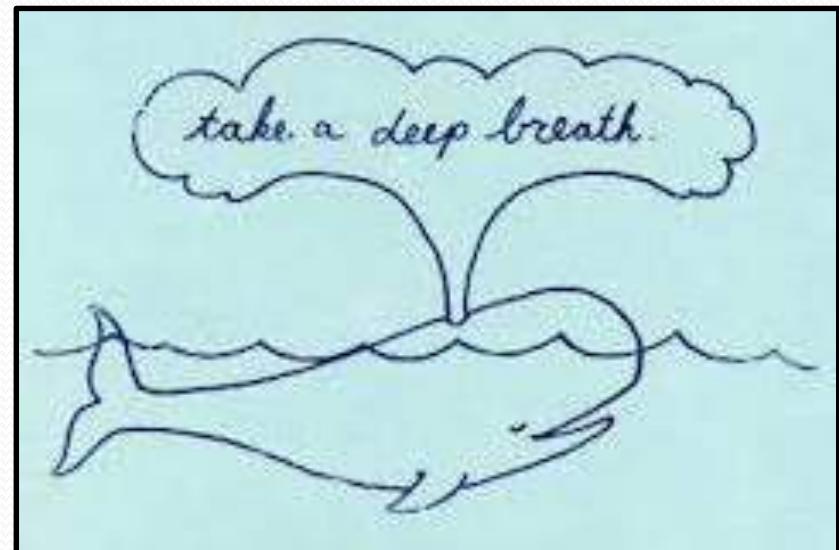
Now take a slow breath (2-5 secs) in and out and try to touch your toes again.

Should be easier.

This of course effects all your muscles and would work for all regions of your body.

This is why it's so important to have the pt take a breath before an adjustment.

What would happen if they took 2 breaths or even 3? Stop that would make the adjustment too easy!



PNF Protocols

PNF ~ Reciprocal Inhibition:

Take muscle to be stretched to tension. Have patient contract antagonist muscle.

This inhibits the agonist. Excellent for take home stretches.

Contract antagonist & hold stretch for 15-30 seconds or less based on patient tolerance/comfort.

Repeat 3-5x or less based on patient tolerance/comfort or need.

Allow 30-60 second rest between repetitions.

Try This:

Sit on the floor with your feet out in front of you.

Contract your anterior thigh & leg muscles

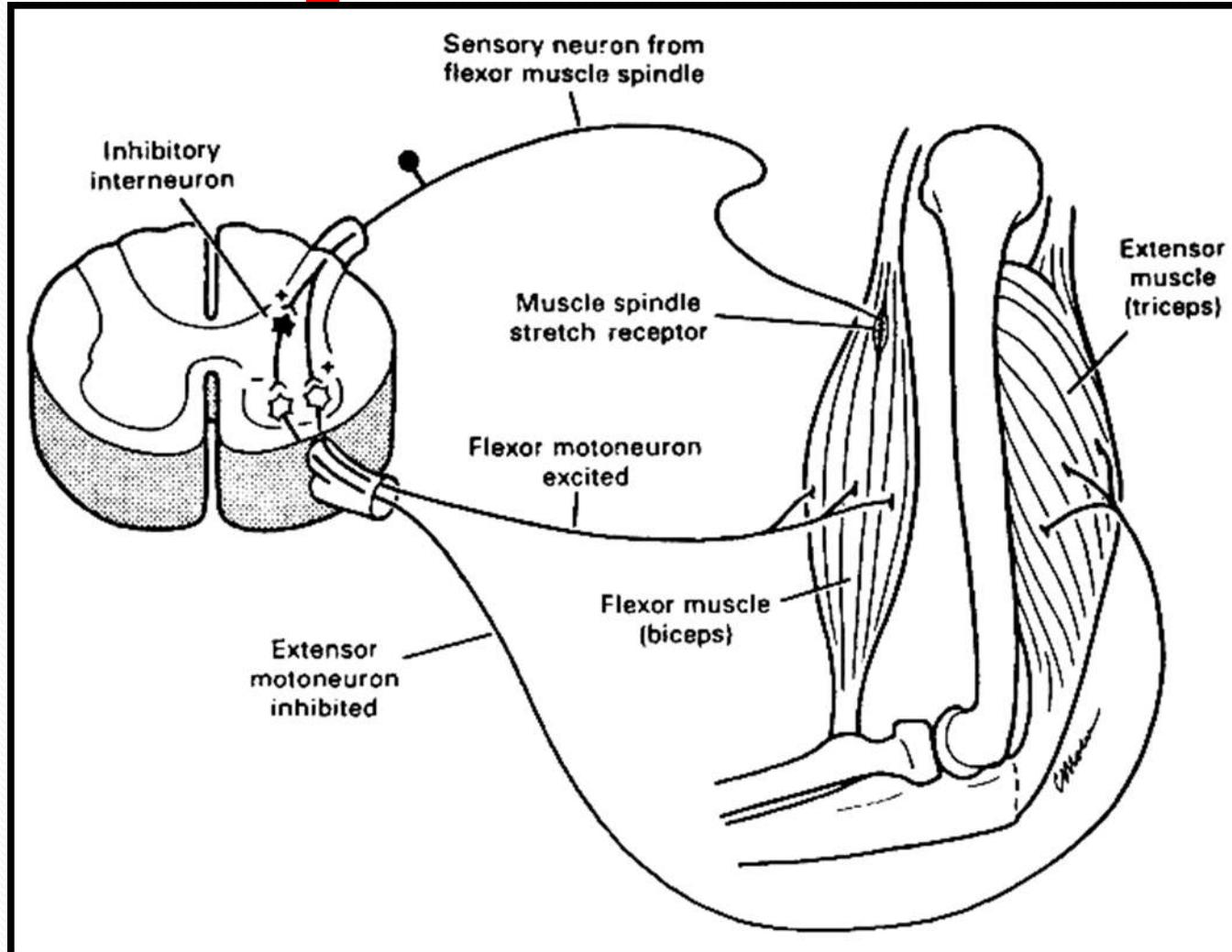
(the opposing muscle group from the hamstrings) for 2-5 secs.

Then stop contracting & try touching your toes.

You should notice an increase in flexibility.



Reciprocal Inhibition



The Rules of Reciprocal Inhibition

1. Anterior Muscles vs Posterior Muscles

When an anterior muscle contracts than the opposing posterior muscle will relax.

When a posterior muscle contracts than the opposing anterior muscle will relax.

2. Left Lateral Muscles vs Right Lateral Muscles

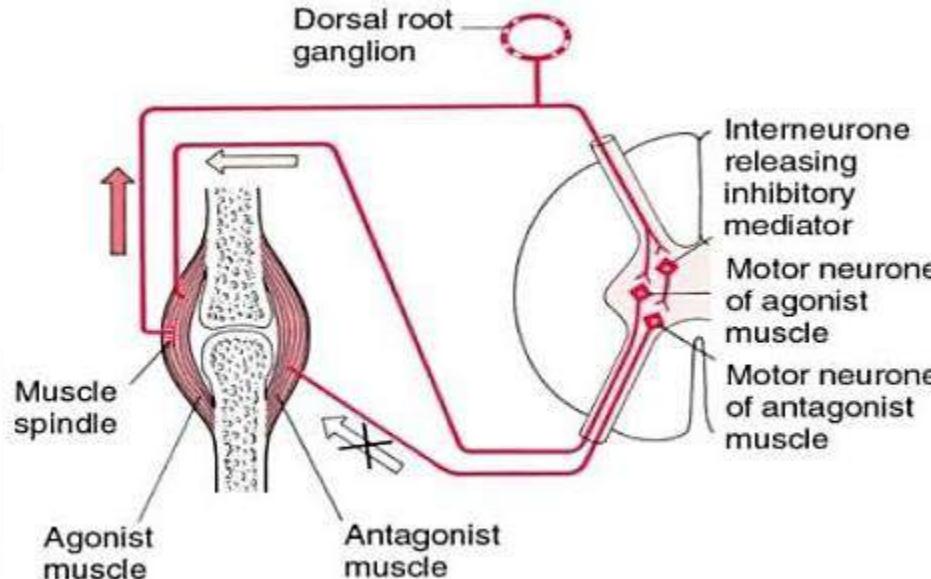
When a left lateral muscle contracts than the opposing right lateral muscle will relax.

When a right lateral muscle contracts than the opposing left lateral muscle will relax.

3. Left Rotational Muscles vs Right Rotational Muscles

When a left rotational muscle contracts than the opposing right rotational muscle will relax.

When a right rotational muscle contracts than the opposing left rotational muscle will relax.



Cross Cord Muscle Pairings

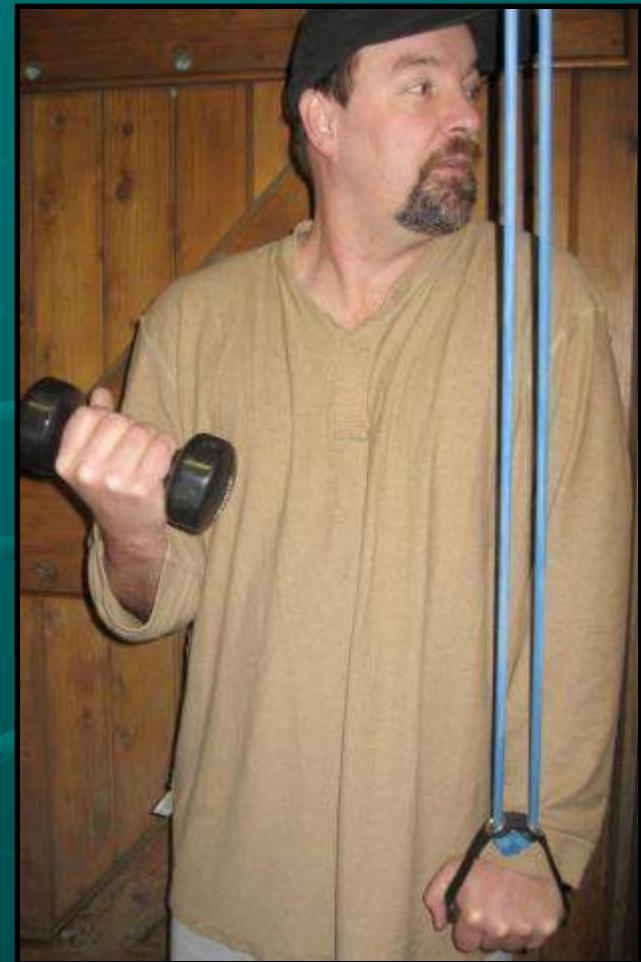
The best way to remember this is the gait pattern of walking or running. Below you can see the anterior muscles of the left upper extremity are firing, while the posterior muscles of the right upper extremity muscles are firing. In the lower extremity, the left posterior muscles are firing and the right anterior muscles are firing. Then in the next stride the opposite is true. You can use these rules in a rehab situation or working out in the gym, just keep in mind what muscles fire at the same time.



Cross-Cord Training

If you hold an isometric contraction with the triceps, the biceps performance will improve 10-20%.

Looking to the triceps side elicits the posterior tonic neck reflex, which will also improve performance.



PNF Protocols

PNF ~ Contract-Relax-Passive Stretch

Contract agonist for 5-10 seconds.

Relax for 1-2 seconds, while patient takes a slow deep breath.

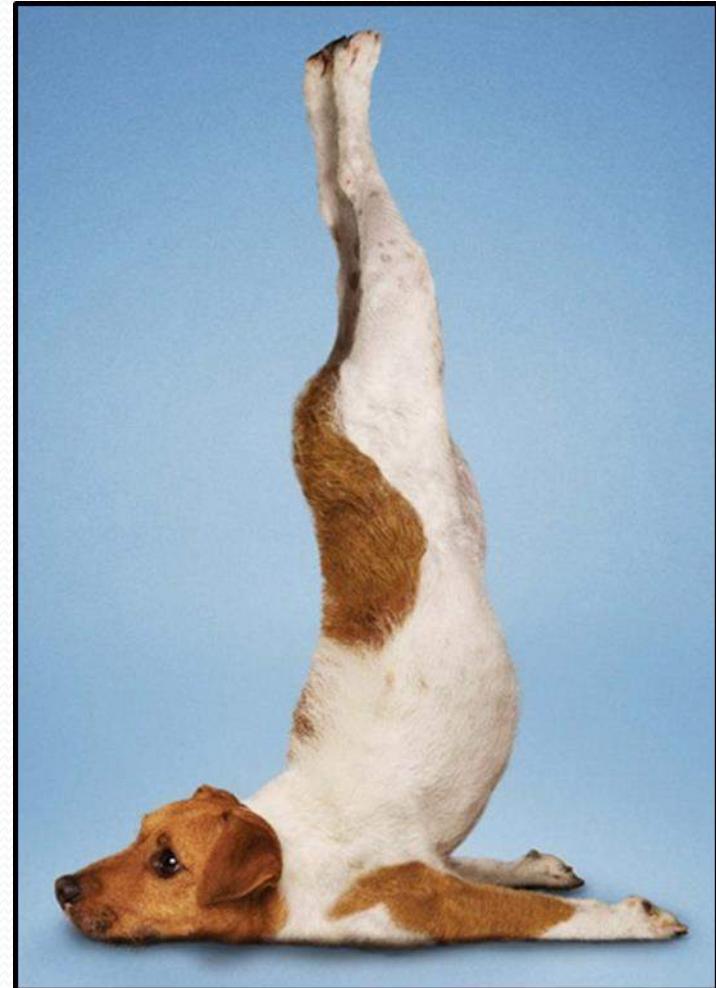
Passively stretch agonist & hold stretch for 15-30 seconds or less based on patient tolerance/comfort.

Repeat 3-5x or less based on patient tolerance/comfort or need.

Allow 30-60 second rest between repetitions.

Try This:

Sit on the floor with your feet out in front of you. Contract the agonist group (hamstrings & calves), for 2-5 secs. Then stop contracting & try touching your toes. You should notice an increase in flexibility.



PNF Protocols

PNF ~ Contract-Relax-Contract Stretch

Contract agonist for 5-10 secs.

Relax for 1-2 secs, pt takes a slow deep breath.

Contract antagonist & hold stretch for 15-30 secs or less based on pt tolerance/comfort.

Repeat 3-5x or less based on patient tolerance/comfort or need.

Allow 30-60 sec rest between repetitions.

Try This:

Sit on the floor with your feet out in front of you. Contract the antagonist group & then the agonist group for maximal gain.



PNF Protocols Summary

The PNF provides a significant change in muscle relaxation and joint motion. All the PNF protocols work well if applied **BEFORE** the adjustment, allowing for easier and more effective adjusting.

Try it.

Which muscle group should I contract first?

Whether I am adjusting, training or rehabing a patient I disregard which muscle is the agonist or antagonist and I **ALWAYS** will contract the over active muscle first and the inhibited muscle second.

Why? The overactive group is inhibiting the opposing muscle. By contracting it first it will actually dampen, which allows the inhibited group to become stronger and thus more effective when it contracts.



How Much Change With PNF?

Good question. The range of motion change can be amazing, maybe 50% or better after one session!

Acute spasms may stop in just a few seconds.

Long term chronic patterns, (think pt over 40 with chronic low back tightness), can be more difficult and may never return to 100% normal.

The goal is to move away from the muscular imbalance and get closer to balanced muscles.

This will help you deliver even better adjustments.

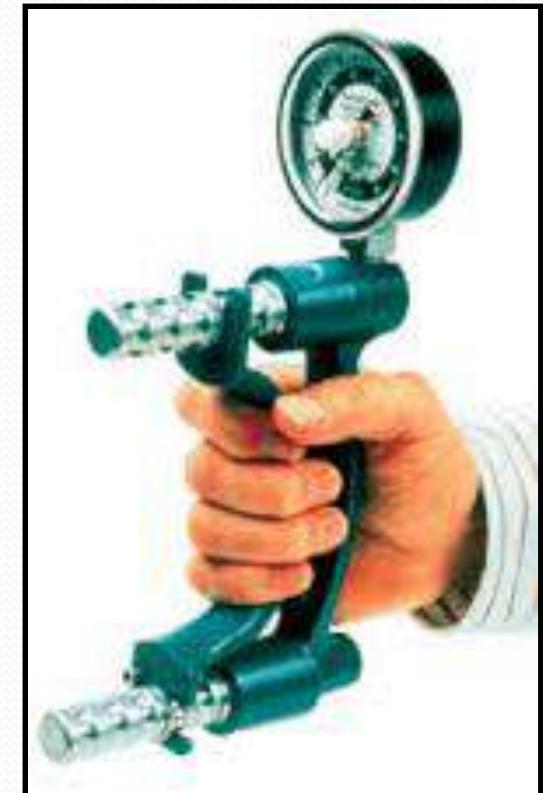


The Dynamometer Effect

Ever wonder why a pt is not the strongest on the first squeeze on a dynamometer? When a pt squeezes typically the strongest is the 2nd or 3rd squeeze.

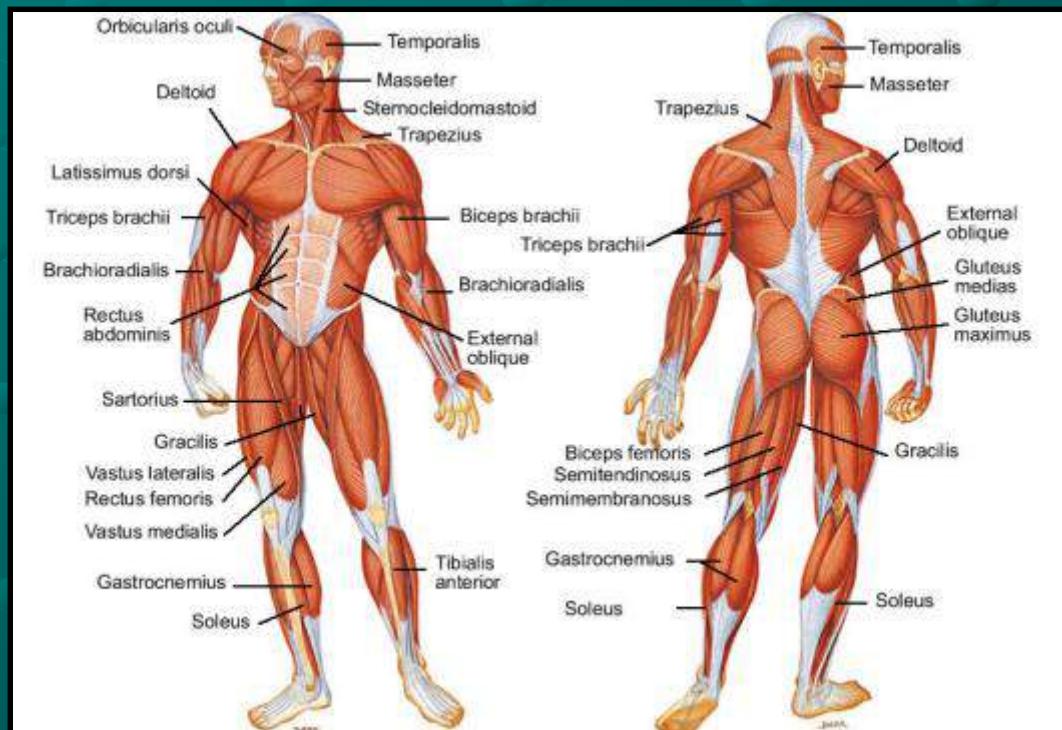
Why?

On the 1st attempt the forearm muscles are already in a shortened state & can NOT fully contract. During the 1st attempt the muscle contracts & then relaxes and becomes longer. On the 2nd attempt the muscle can contract through a more complete ROM, recruiting more muscle fibers, thus having more power. This will repeat for the 3rd attempt depending on the state of the muscle, so again increased strength and then on further attempts the muscle will begin to fatigue. This same phenomenon will occur during weight lifting as well. Weaker on the first rep and stronger on the next 2 or 3 and then the slow decline of strength from muscular fatigue.



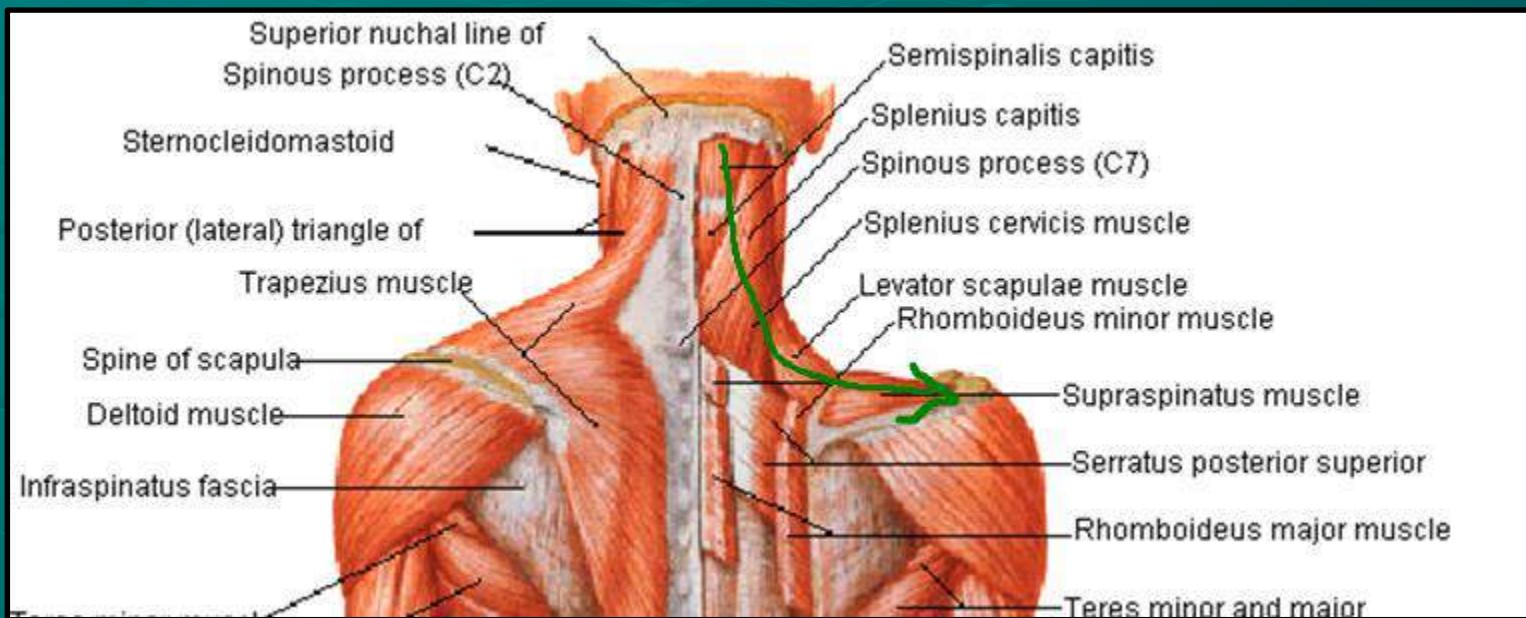
Muscle Rules

1. Muscles are rarely 100% on or 100% off.
2. Ex. when performing a bicep curl what muscles fire?
Most muscles in your body will fire as they need to act as stabilizers. So at some level they are all contracting.



Demostrate PNF

Shoulder & Neck



The Shoulder & PNF

Worst For Last

So after your history & exam you should know which shoulder muscles are most involved & which actions are most limited.

I always leave the most involved muscle group & most limited action for last. That way once I get to the primary muscle, it is likely to be easier to work on as all the secondary surrounding muscles will have calmed down and in turn so will have the primary muscles.



The Shoulder & PNF

The Protocol : Step 1 Isometrics

Always start with the least involved muscle group or action and have the patient contract that muscle isometrically, (no motion) against your resistance.

Resistance will vary from case to case, so use your best judgement and let patient comfort and/or tolerance be your guide.

Then go to the second least involved muscle group or action, and have the patient contract that muscle isometrically, (no motion) against your resistance and so forth, until you have gone through **ALL** ranges of motion and muscle groups of the shoulder with isometric contractions.

After this I always have the patient actively try all the ranges of motion. Almost always there is a significant change in motion accompanied by “oohing & ahing” from the patient and/or onlookers!



The Shoulder & PNF

The Protocol : Step 2 Partial Range of Motion

Always start with the least involved muscle group or action and have the patient contract that muscle through a partial range of motion against your resistance. Resistance will vary from case to case, so use your best judgement and let patient comfort and/or tolerance be your guide.

Then go to the second least involved muscle group or action, and have the patient contract that muscle through a partial range of motion against your resistance and so forth, until you have gone through **ALL** ranges of motion and muscle groups of the shoulder with partial range of motion contractions.

How much range of motion? This really depends on the severity of the case. The more severe the case (inflammation, pain, possible micro-tears) the more conservative I will be. Try the isometrics first and then maybe a partial range of motion of 20%, then another round of 40% and then 60% and then 80% of the range. With a less severe case perhaps I just do 50% of the range of motion and then move on to full range.

The Shoulder & PNF

The Protocol : Step 3 Full Range of Motion

Always start with the least involved muscle group or action and have the patient contract that muscle through a full range of motion against your resistance. Resistance will vary from case to case, so use your best judgement and let patient comfort and/or tolerance be your guide.

Then go to the second least involved muscle group or action, and have the patient contract that muscle through a full range of motion against your resistance and so forth, until you have gone through **ALL** ranges of motion and muscle groups of the shoulder with full range of motion contractions.

After this I always have the patient actively try all the ranges of motion. Almost always there is a significant change in motion and “oohing & ahing” from the patient and/or onlookers!



The Shoulder & PNF

Expect Results

I expect dramatic results! The PNF will immediately increase the range of motion as the major mechanism that is restricting the motion IS the partially contracted muscles.

Most practitioners miss this point and attempt to stretch & strengthen the muscles of the joint while the muscles are still in a partially contracted state. Or they only work on the primary muscle group involved and skip working on the secondary groups.



The Shoulder & PNF

Will It Work On Acute & Chronic Shoulders?

The simple answer is YES.

Shoulders with acute injuries may not respond as well as inflammation and/or micro-tears may be slowing the response.

Chronic long term injuries often respond surprisingly well as inflammation is NOT a factor.

Even though adhesions do contribute to shoulder problems they are not the primary issue with decreased range of motion.



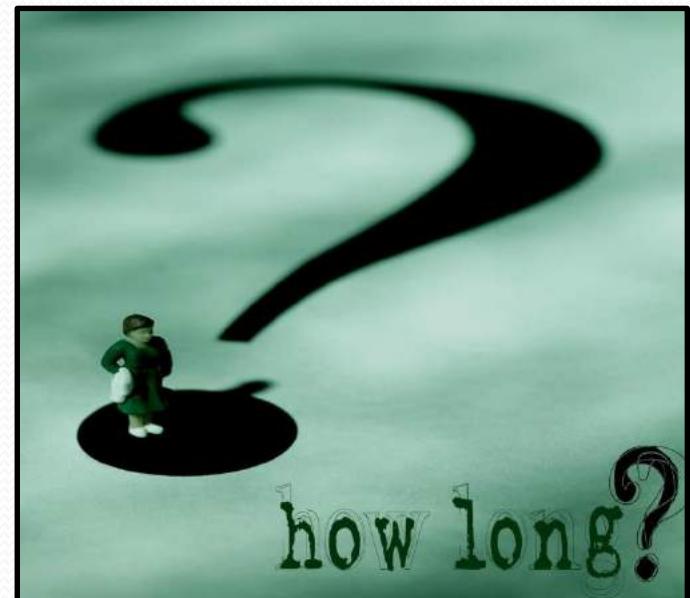
The Shoulder & PNF

How Long Will The Results Last?

Of course that depends on many factors. The primary factor is: was this shoulder injury from a one time trauma, (car accident, sports injury, etc.) or was it from repetitive micro-trauma, (sitting at a computer all day for years, driving, etc.).

One time traumas can respond surprisingly well as the mechanism of injury will not repeat, (hopefully). I have seen many old injuries improve dramatically. With the old, “I have been to so many other experts and...”

The repetitive micro-trauma cases will reoccur if the activity that causes the problem is not stopped or modified. If not then ongoing care can be beneficial.



The Keys to Great Adjusting!



The Keys to Great Adjusting!

- 1. Be quick**
- 2. Light hands on set-up & tissue pull**
- 3. Use correct biomechanical line of drive**
- 4. Use correct biomechanical sequence**
- 5. Use multiple biomechanical components**
- 6. Get depth on the adjustment**
- 7. Be confident, assertive & have no fear**
- 8. Practice skills with DCs outside pt care**

Key Concepts!

Before we dive into this we need to review a couple key concepts:

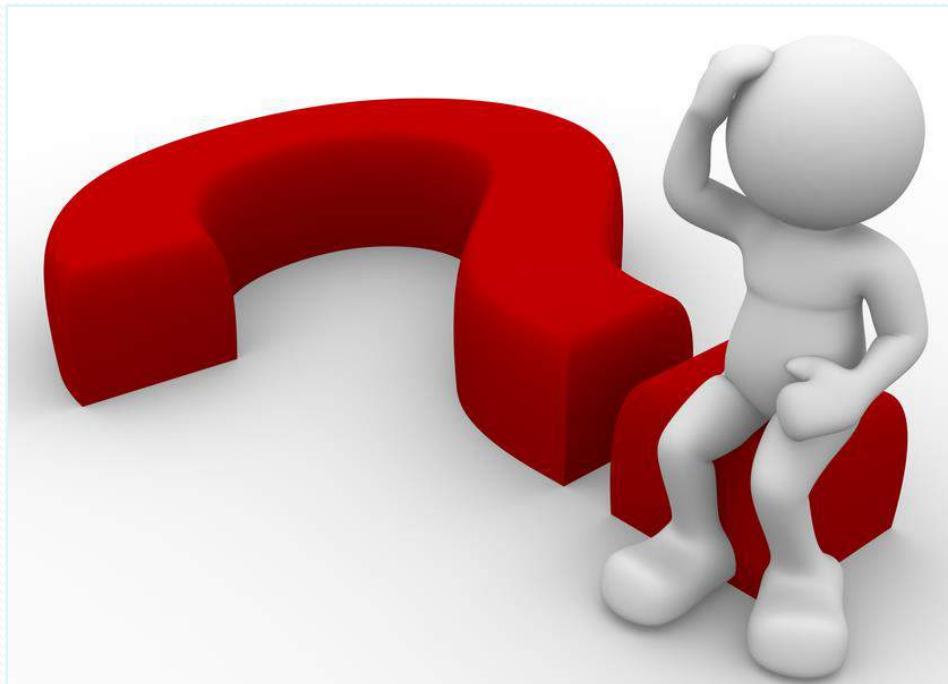
- 1. Muscle Fiber Shapes & Orientation**
- 2. Joint Motion**
- 3. Adhesion Formation**



1. Muscle Fiber Shapes & Orientation

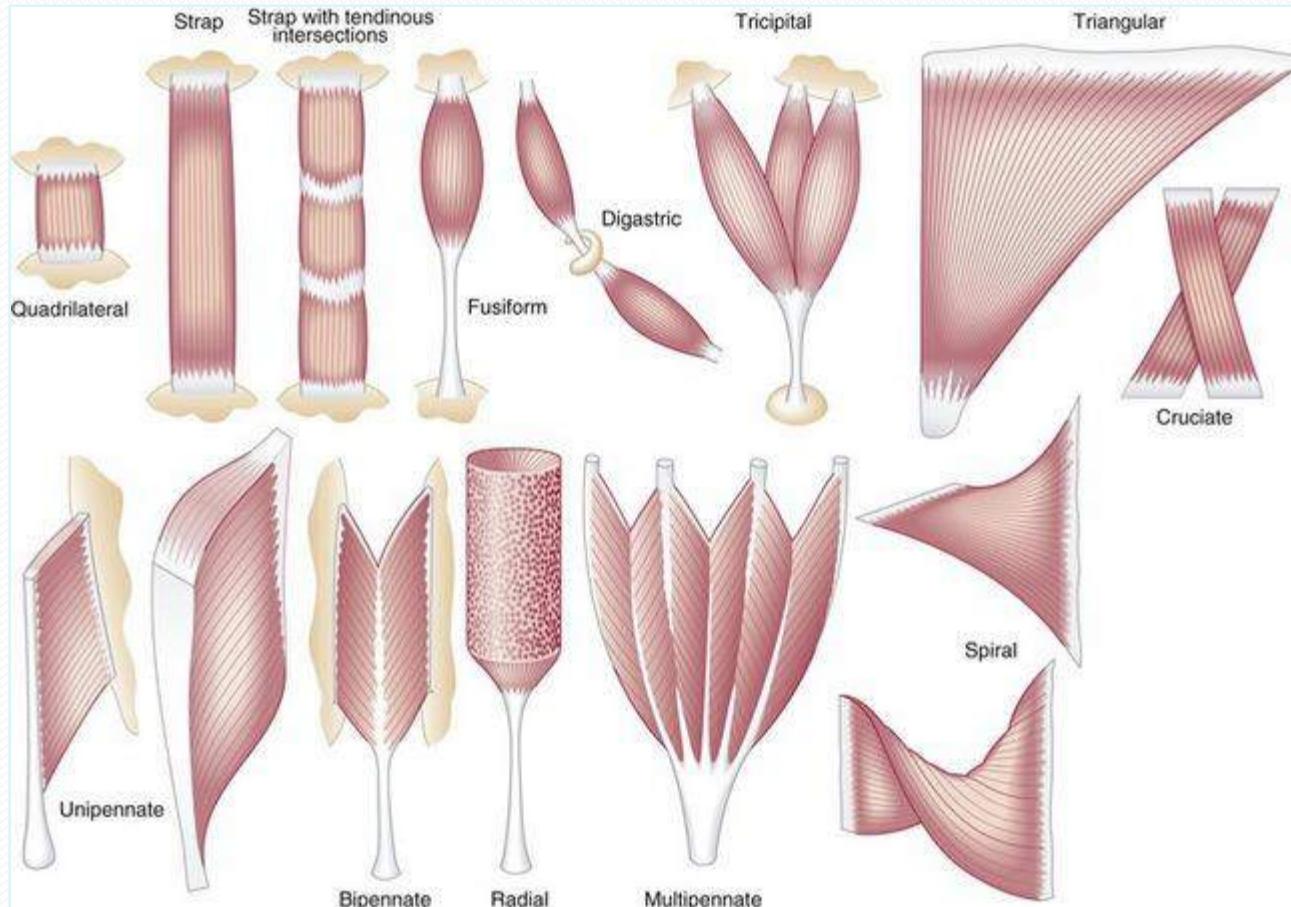
Okay so take out your muscle flash cards!
You know origin, insertion, action, innervation.
Remember memorizing all those?

Remember how happy you were when a muscle card had just one action?
Ever wonder why a muscle has a singular action versus multiple actions?



1. Muscle Fiber Shapes & Orientation

One reason is muscles have many different fiber shapes.

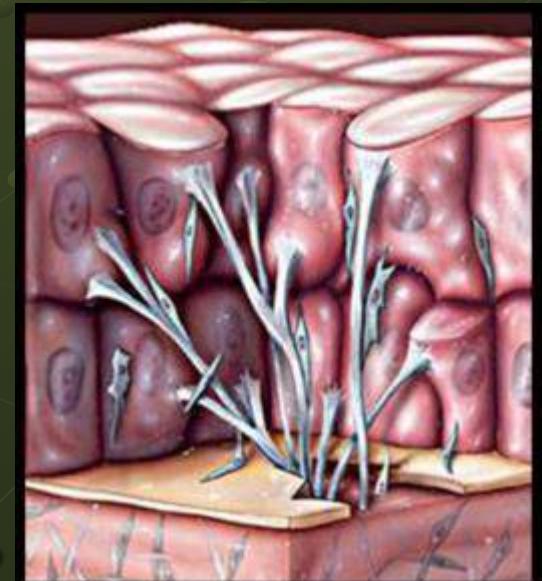
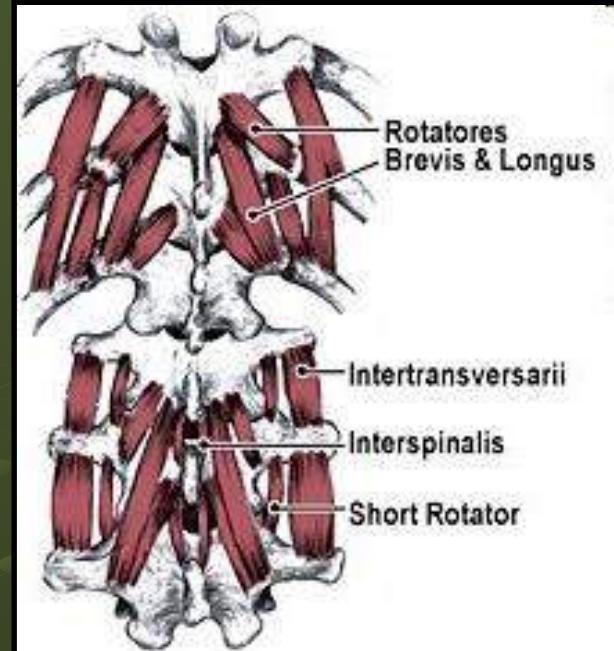


Multiple Vectors & Torque

The more vectors and/or torque you can include in your adjustment the easier the jt will release.

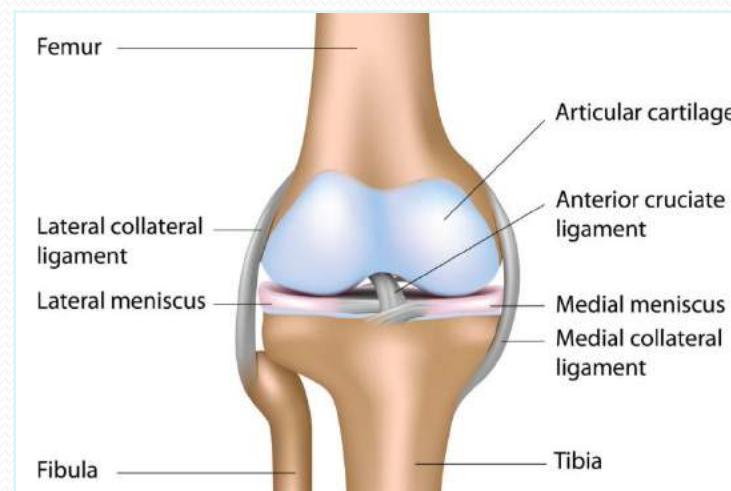
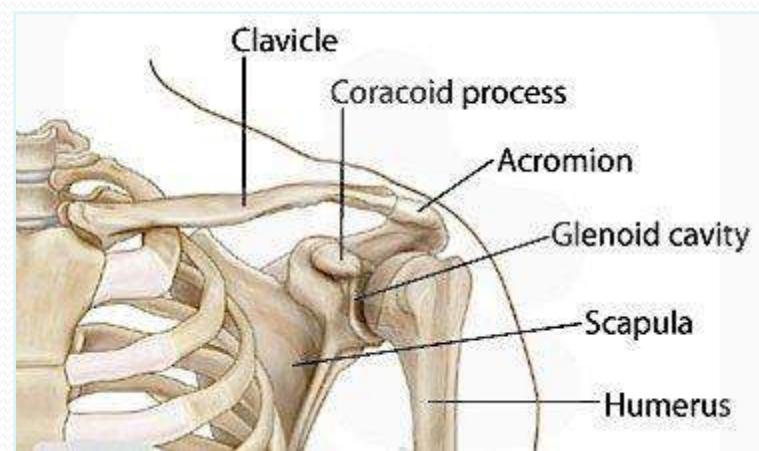
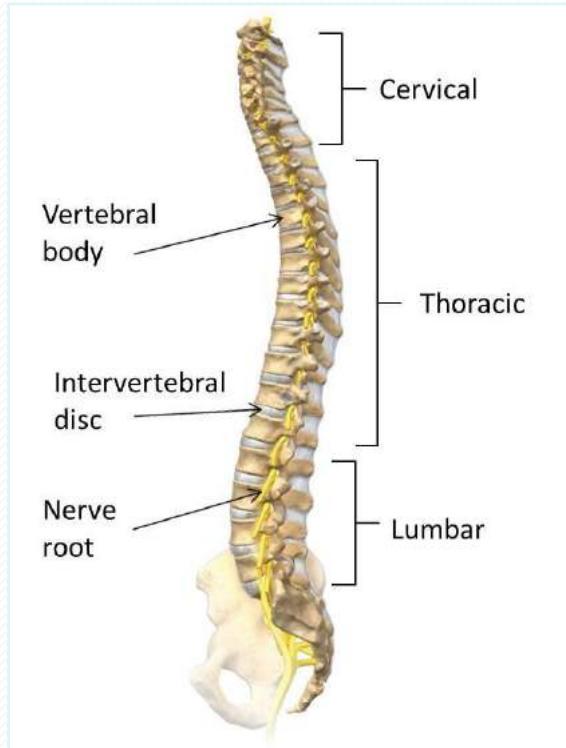
This is true because of the biomechanics of the bony jt & that the muscle fiber angles vary for a given joint. Using multiple directions maximizes GTO firing in the highest number of muscle fibers. Also maximal adhesions are broken and/or stretched & the pt is more relaxed & comfortable.

Why do muscles have multiple actions?



2. Joint Motion

Another reason is joints have different biomechanical motion potentials.
Due to their structure some joints can move in many directions (spine & shoulder)
and some in just one (hinge joint, knee).



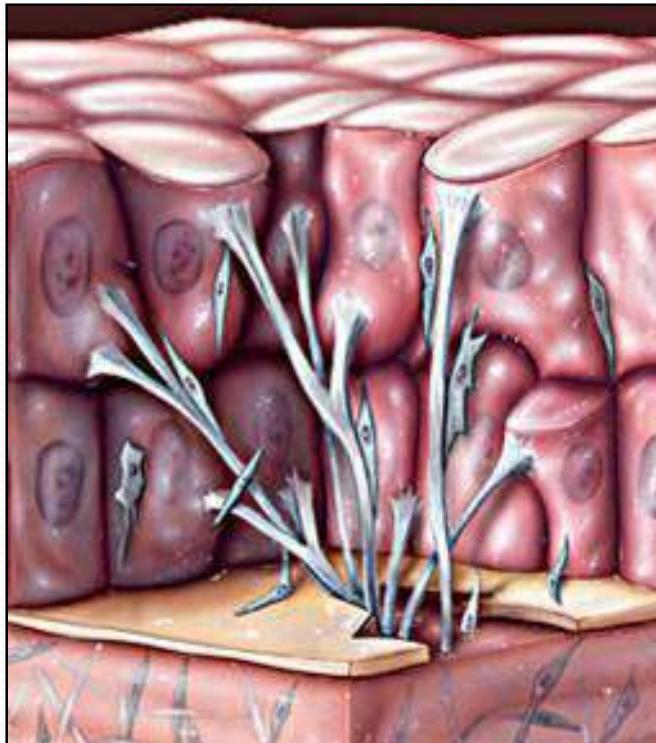
Muscle Action Rules

Here are the rules:

- 1. Single Action.** For a muscle to have just a single action, (think hamstring crossing knee joint), they have to have singular fiber directions **OR** cross a joint that has the biomechanical limitation to move in only one direction, thus just one action, (think hinge joints, ex. knee joint).
- 2. Multiple Actions.** For a muscle to have multiple actions, (think trapezius or lats or pec major), they have to have multiple fiber directions **AND** cross joints that have the biomechanical potential to move in multiple directions, thus multiple actions, (so the joints of the spine, shoulder, hip, etc. all have this characteristic).



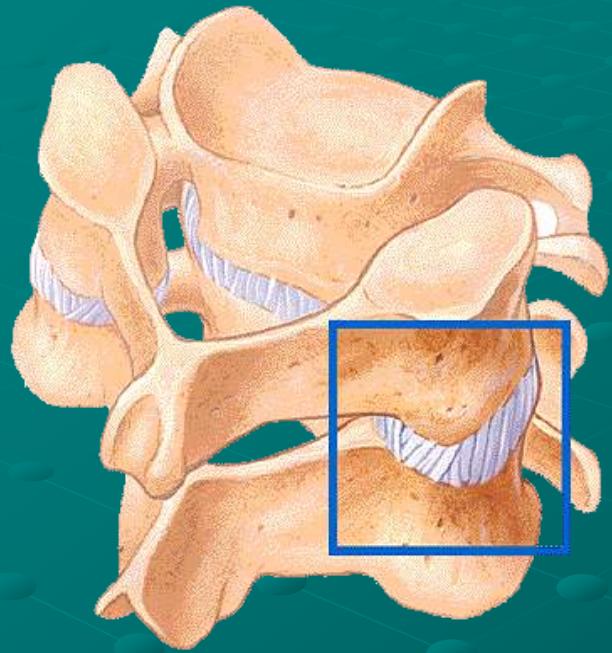
3. Adhesion Formation



**Fibrin deposits
result in chronic
inflammatory
conditions.**

Spine, 1987

**Adhesions begin to form in 4 days microscopically
It is likely they start forming right away!**



Hypomobility results in degenerative changes & adhesions around the facet joints.

Adjusting gaps the joint & breaks up adhesions, re-establishing joint motion.

JMPT, 2004

Adhesion Analogies For Patients

Scattered toothpicks: all angles and orientations, different depths as well, (superficial/deep).

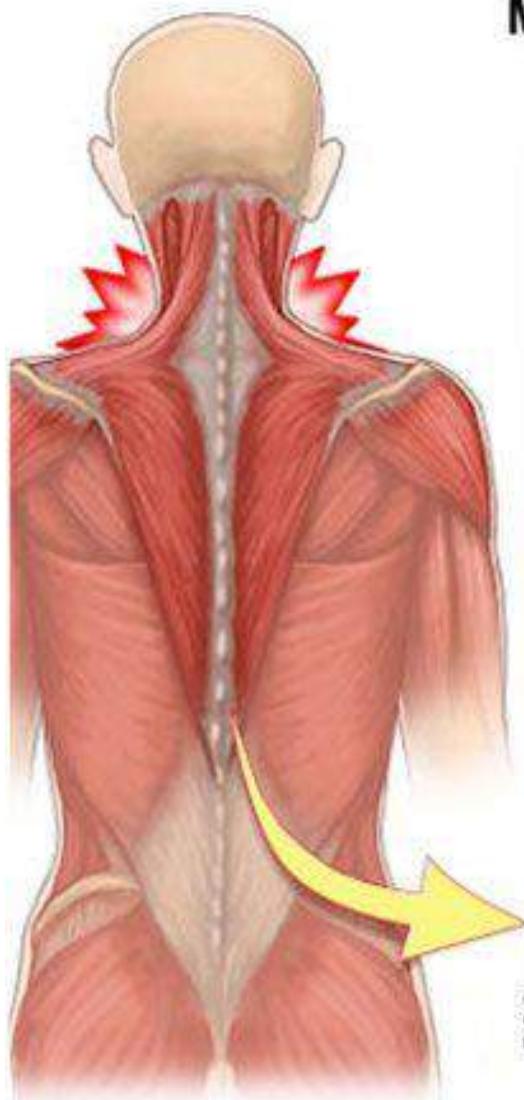
Shrink wrap: tight & restricts motion.

Spider web: tight & restricts motion.

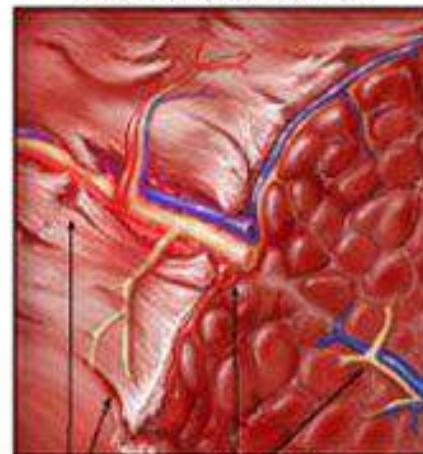


3. Adhesion Formation

Muscle Strain Injuries

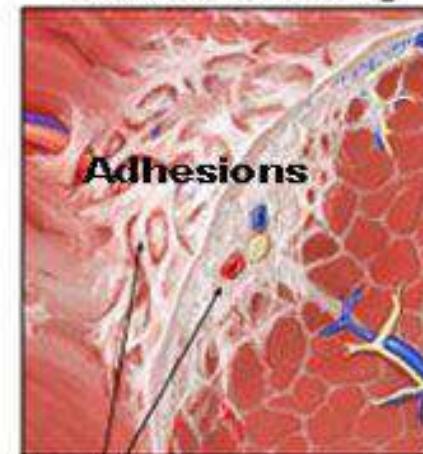


Excessively Stretched Muscles



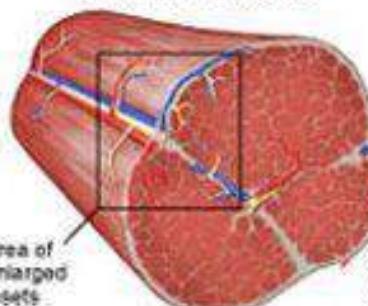
Microtears and swelling impinge upon nerves and vessels

Excessively Stretched Muscles After Healing



Adhesions and scar tissue entrap nerves and vessels

Normal Muscle



Area of enlarged insets

Symptoms:

Radicular pain down both lower extremities.
Radicular pain in both arms and hands.
Pain in neck and lower back.
Burning sensation in back.
Pain between scapulae.
Difficulty swallowing.

Adhesions can lie in any direction and therefore can restrict range of motion in the muscle.

3. Adhesion Formation

How Scar Tissue Forms In Muscles

1 Muscle Tears



An Injury like Whiplash
Or a sporting Injury



The body senses the tear
and repairs the break with
scar tissue

2 Micro-Tears In Muscles



Repetitively using a muscle
resulting in small tears of
the muscle fibres



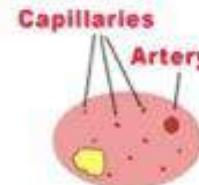
The body senses the
micro-tears and repairs
them with scar tissue

3 Sustained Contraction



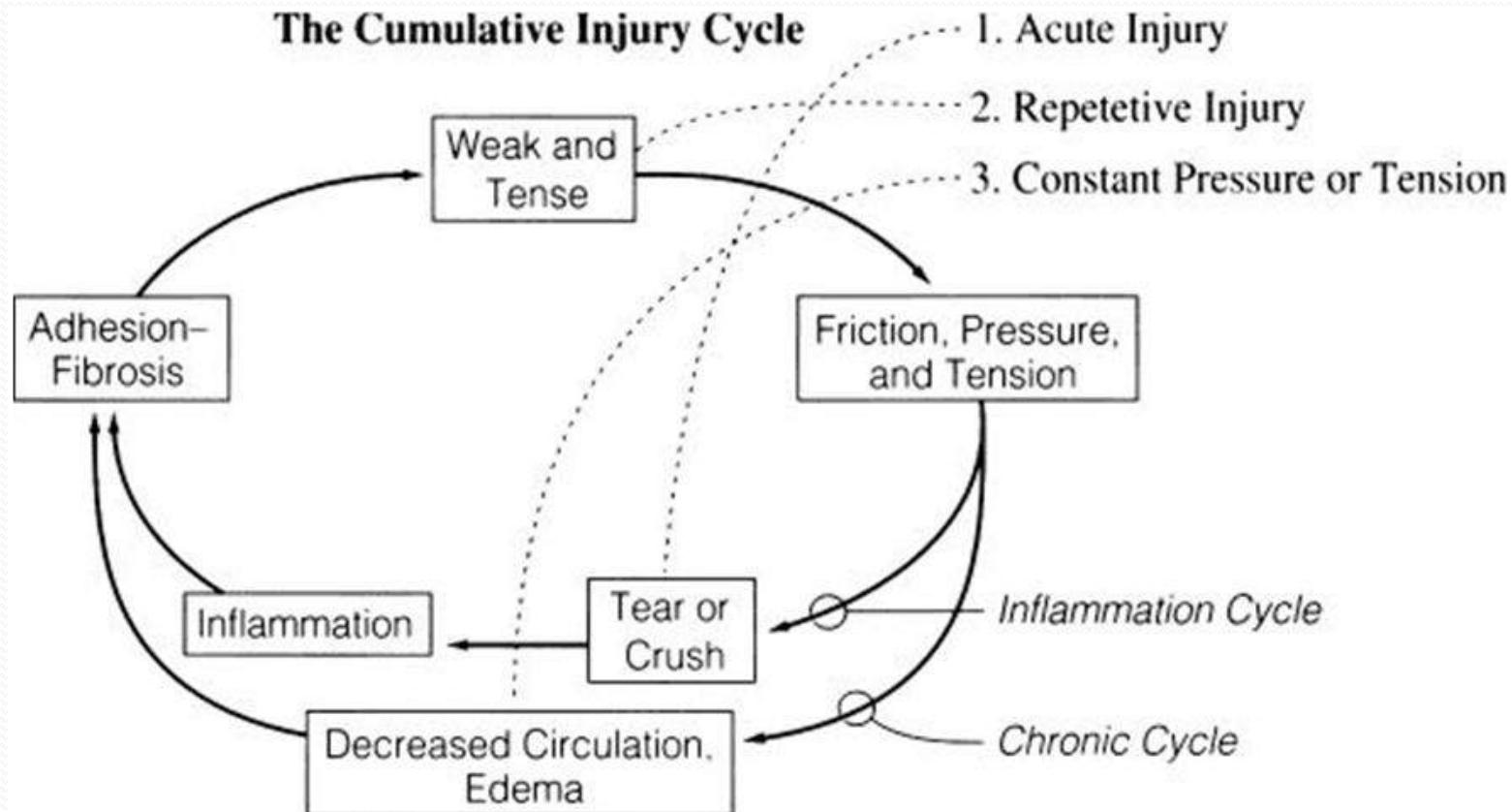
Normal
Muscle
cut through
the middle

Muscles held in tension
for long amounts of time
e.g from bad posture or
working on a Computer



Because the muscle is
held tight blood can't get
to all the parts of the
muscle. The part that
doesn't get enough
Oxygen dies and scar
tissue forms.

3. Adhesion Formation



Experience The Adhesions

Dig into the extensors on your forearm, it will likely be uncomfortable and feel as if someone put Rice Krispies under your skin and in your muscles. You should also be able to easily feel adhesions in the adductors in your hands and the plantar fascia of your foot.



Why Should We Care?

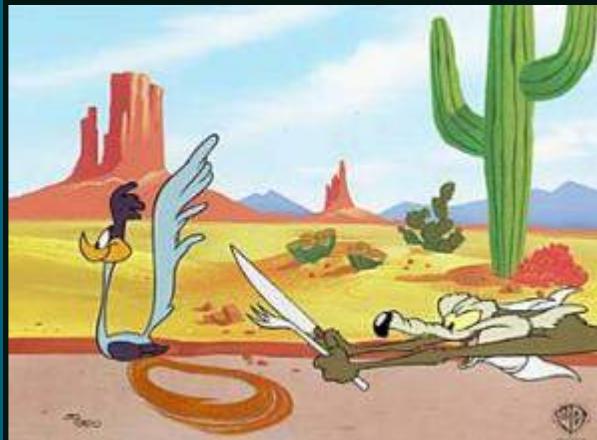
Muscle fiber shapes & orientation, joint motion and adhesion formation are all super important factors in regards to the application of PNF, soft tissue work, motion therapy and the adjustment. All the techniques above MUST be performed in every direction and every depth to maximize that techniques effectiveness on the joint and surrounding tissues (muscle fibers & adhesions) and to have the best possible patient outcome.

...and i should care,
why?

Critical Factor: Speed

A fast stretch of sufficient speed fires GTOs inhibiting alpha motor neurons ipsilaterally. Insufficient speed fires low threshold muscle spindles resulting in excited alpha motor neurons, perpetuating ↑ muscle tone.

Remember: if you thrust slow the muscles will actually tighten.



Cavitation, activator &
drop table all add enough speed
to result in high threshold
GTO discharge.

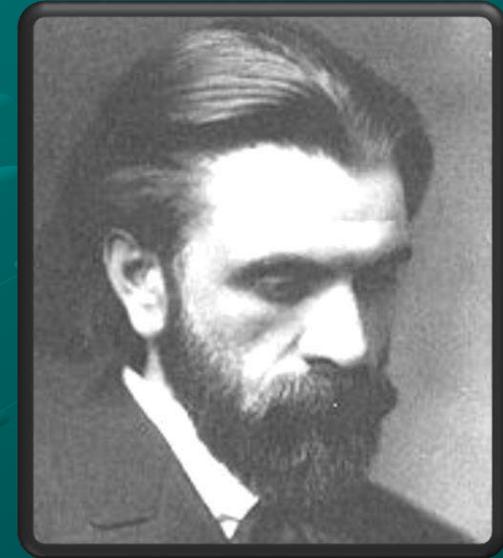
Dan Murphy, DC, DABCO
AM J of Clin Chiro, 1997



BJ Palmer ~ 1881-1961 Last Printed Words

Time always has and always will perpetuate those methods which better serve mankind. Chiropractic is no exception to that rule. My illustrious father placed this trust in my keeping, to keep it pure and unsullied or defamed. I pass it on to you unstained, to protect as he would have you do.

As he passed on, so will I.

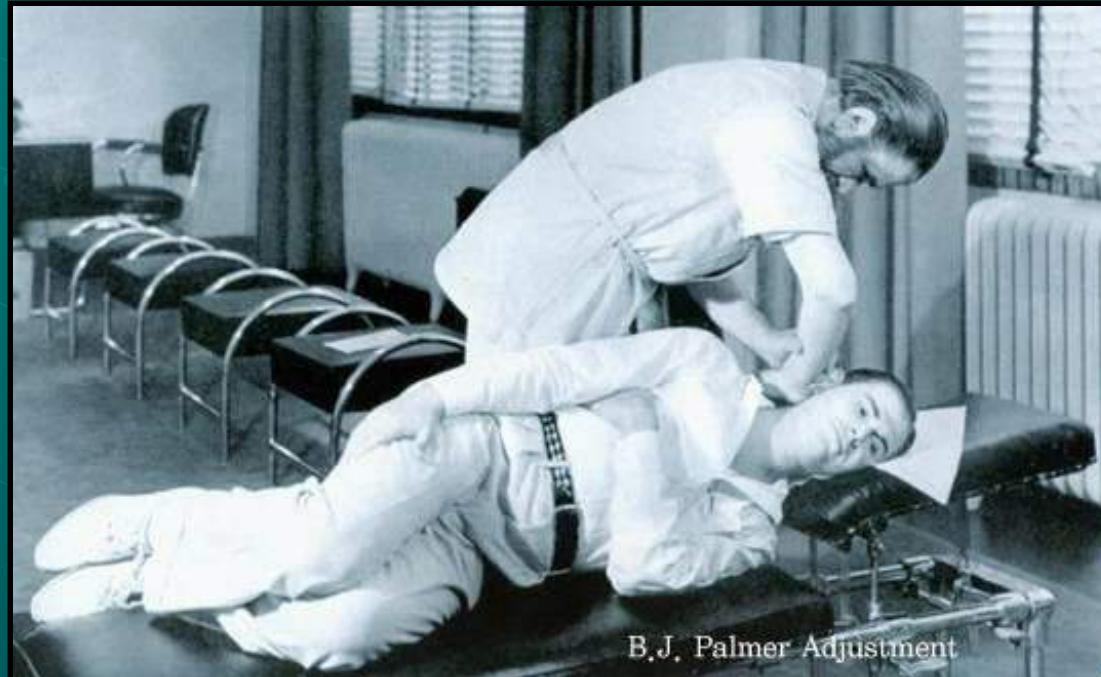


We admonish you to keep this principle and
practice unadulterated and unmixed.

Humanity needed then what he gave us.

You need now what we give you.

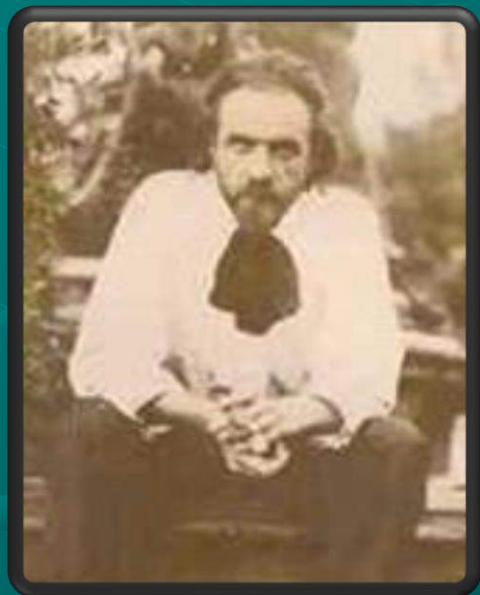
Out there in those great open spaces are
multitudes seeking what you possess.



**The burdens are heavy;
responsibilities are many;
obligations are providential;
but the satisfaction of traveling the
populated highways and byways,
relieving suffering and adding
millions of years to lives of
millions of suffering people,
will bring forth satisfaction and
glories with greater blessings than
you think. Time is of the essence.**



**May God flow from above-down his
bounteous strengths, courage's and
understanding to carry on; and may your
innate's receive and act on that free flow
of wisdom from above-down, inside-out...
for you have in your possession a sacred
trust. Guard it well.**



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Free Materials



**Watch for Dr. Palmer's technique:
Grade the following:**

His posture, low back problems long term

Elbows, wrists & shoulders at 90 degrees

Line of drive plane line of disc

Idea that bone is “out”

Concept of spinal cord & nerve root

Ligament properties

Did he do anything to make the move easier?

Would you want that adjustment?

BJ Palmer 1924

How did he do?

His posture low back problems long term
(he was bent at the waist 90°, long term will cause DC to have sore low back)

Elbows, wrists & shoulders

(his elbows, wrists & shoulders were all bent at 90°
The rule of 90°: any time a joint is bent at or close to being bent at 90° the joint is at risk of being damaged, as the energy from the thrusting motion will drive directly through that joint.)

Line of drive (plan line of disc or facets?)

(he was pushing P-A in the thoracics & lumbars,
does that open or close the facets?)

Idea that bone is “out”

(you can see in 1924 they thought the
vertebra was moving back & forth)

Concept of spinal cord & nerve root

(what would happen to the spinal cord &
nerve roots if the vertebra did slide that much?)

Ligament properties

(the biomechanical properties of ligaments is
what stops the vertebra from sliding)

Did he do anything to make the move easier?

(I did not see anything. He made it harder by rapidly pushing into the muscles before he adjusted. This causes the muscles to tighten. Also he had the patient on a knee chest table. This induces anterior pelvic tilt & hyperlordosis in the lumbar spine. Does this cause the facets to open or close?)

Would you want that adjustment?

(Of course, he is the greatest DC of all time, it would be an honor, one time!)

What Did He Do Well?

Focus

Intent

Passion

Specificity

Put motion into joint complex

What's Wrong With This Picture?

Please list as many things as you can that this DC is doing wrong.



What's Wrong With This Picture?

1. No pillow for pt's head.

Make sure pt is comfortable & confident that they will not fall off the table! Pillow for the pt's head. This makes them comfortable & avoids their back muscles from straining.

2. DC has broken the rule of 90° seven times.

The rule of 90°: any time a joint is bent at or close to being bent at 90° the joint is at risk of being damaged, as the energy from the thrusting motion will drive directly through that joint. In this picture his wrists, elbows, shoulders & low back are all in clear violation of the rule.

What's Wrong With This Picture?

3. The gap between his contact hand & his tie.

This is a huge mistake as this is forcing him to use all shoulder & arm & NOT his body. The adjusting hand should be directly even with the DC's sternum.

4. His stabilization hand is on pts shoulder. This causes the DC to lunge forward & again puts him in a position where he can NOT use his whole body. The correction is to have the pt place their hand on their rib cage & then the DC places their stabilization hand on top. This pushes the DC back & allows the DC to get their whole body into the adjustment.

What's Wrong With This Picture?

5. The pts bottom arm is bent at the elbow & rests on the table. This classic position STOPS the pt from being able to roll themselves. The DC must now push the pt, which is too much work for the DC & can cause shoulder problems for the DC long term.



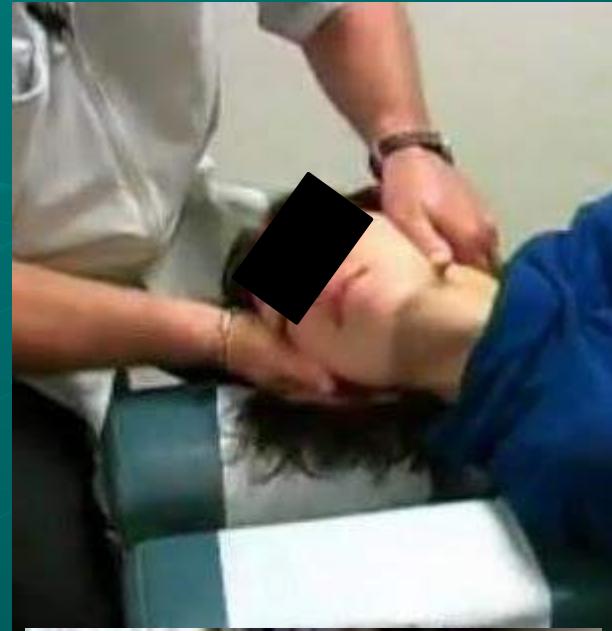
What's Wrong?



What The Heck?



What The Heck?



Are You An Amazing Adjusting DC?

Do you routinely adjust transitional regions? +20

Are your pts rarely sore after an adjustment? +20

Pts tell you no other DC has moved that segment! +30

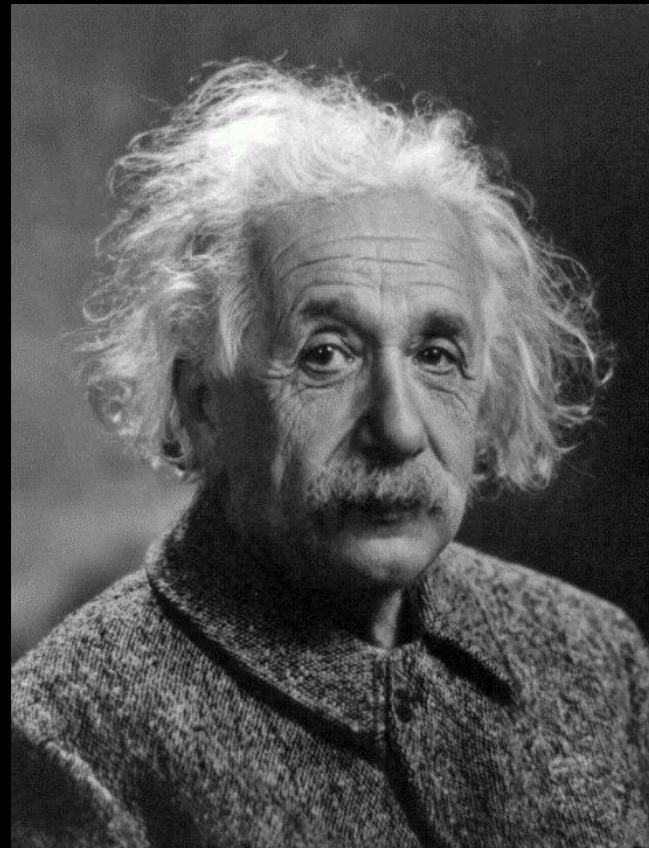
You fix something no health care provider could! +50

You prevent 4 or more surgeries a year! +100

You amaze yourself once a month or more! +100

Insanity: doing the same thing over & over again & expecting different results.

Albert Einstein

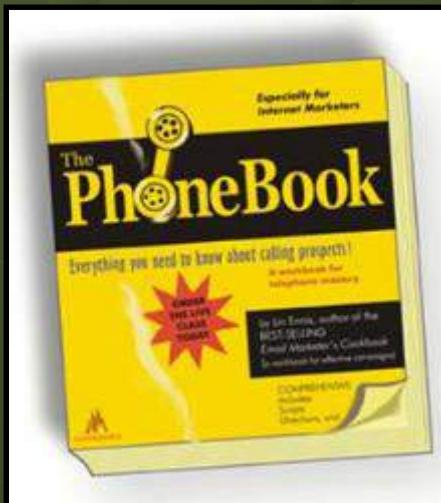


Adjust
(be able to do it)
**“Practice Does Not
Make Perfect.
Perfect Practice
Makes Perfect!”**
~ Vince Lombardi



Light Touch: Demonstration

Touch your forearm, the first time palpate firmly, the second time palpate lightly. Which way can you feel the most detail? Remember the hair in the phone book drill. Now try that with your spinal palpation skills! The lighter your touch is, the more comfortable the pt is & the less the pt's muscles will tighten, for an overall better experience!



Contact: Demonstration

Use a light contact as if you are touching a child.

Your hands should be hovering around
the pts body, not stabbing in.

Watch for aggressive contacts!

No digging as the pt will become tense!



Broad Non-Specific Contact vs. Specific Contact

With a broad contact the pt does not tighten up & they maximize the ability to breathe.

As you go to adjust simply move your hands so you have a specific contact.



No Specificity?



As you give the adjustment your hands shift from a non-specific to a specific contact.

Try this?



Put your hand flat on a table with your wrist straight. Push down with equal pressure throughout your hand. Now try pushing down & have more pressure through your pinky (5th digit), but **DON'T** move your hand or bend your wrist. Now place more pressure on your fleshy pisiform, again **DON'T** bend your wrist. This allows you to adjust with a flat wrist, while maintaining your specificity, although it will **NOT** look specific.

Do you still need to keep your finger on the contact?



Try not contacting the pt **AT ALL** until they have taken a breath.

This decreases pt tightening, which allows for the relaxation effect of the breath & decreases low back stress for the DC!

Tissue Pull Demonstration



Find the segment you want to adjust & take your tissue pull. Once you have the contact point, move & shake your hands around. This also fires the GTO's, inhibiting the involved muscles. The pt will get a much smoother, more comfortable adjustment.

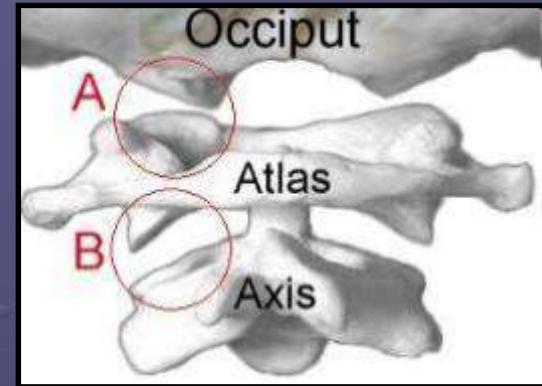
This can also help distract the pt.

The point is you do NOT have to dig in.

Reading the joint!

What is our line of drive? It has to be with the plane line of the facets, which is the direction that allows the most glide. Push in several times so you can “feel or read” that glide. Remember most jts have multiple motions, so incorporate multiple motions in the **correct sequence** to insure that the jt opens as efficiently as possible.

Practice on another DC. The goal is to be able to have your set-up feel exactly the same to them 5 consecutive times.



Backwards Adjustment

Which way to adjust?

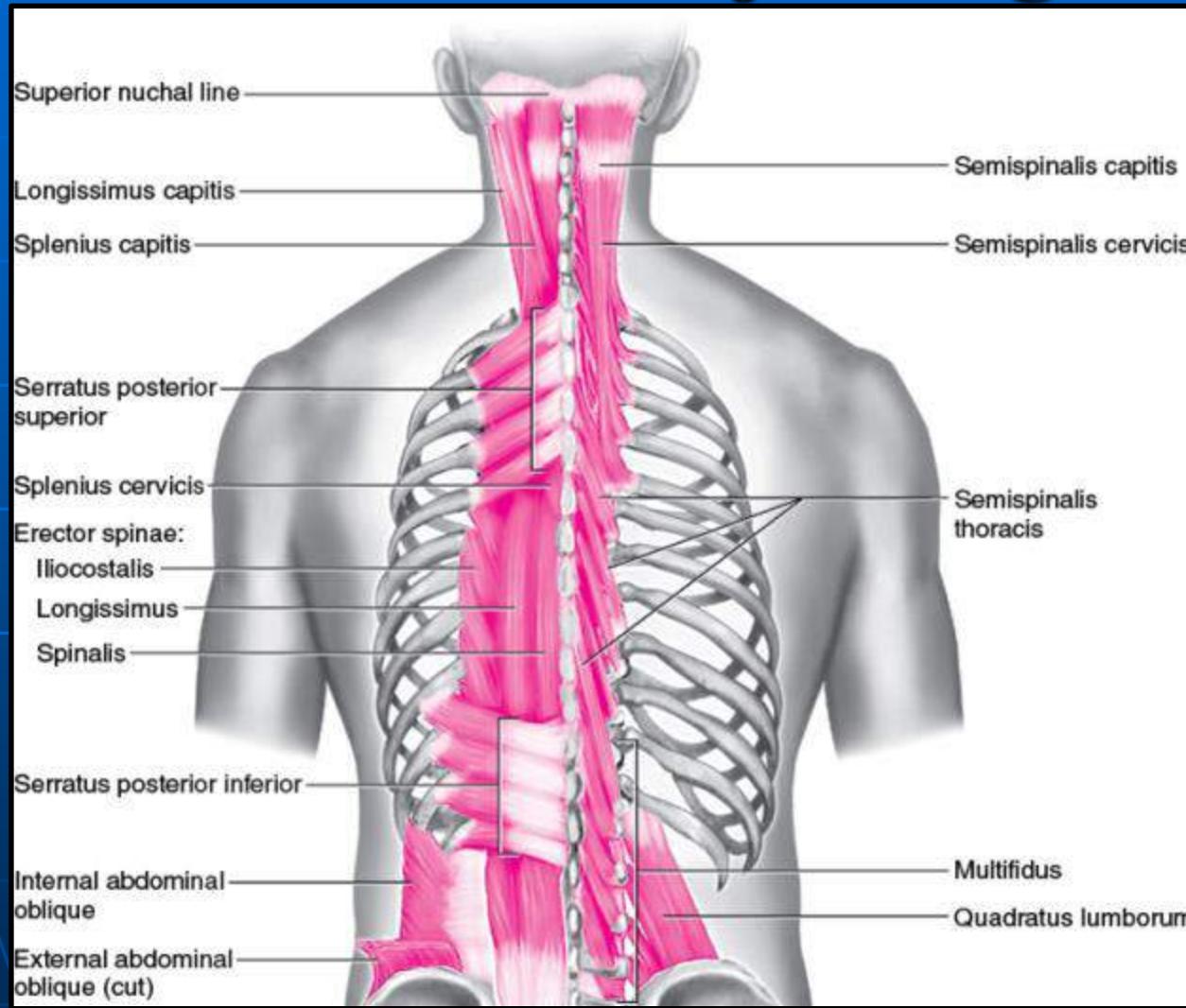
Can we adjust opposite the listing?

The vertebra will not stay in that position. Ligaments are causing the misalignment & adjusting the wrong way may ↑ the motion.

Think of loosening a jar lid, if you twist the wrong way first it may help loosen the lid. Gained motion far outweighs any aberrant neurological input.



Thoracic Adjusting



More PNF In The Thoracic Spine

Before you adjust the pt, have them retract their scapulae & lift their head for 2-5 seconds.

This helps relax the pt's thoracic spine.

Now adjust.



PNF in Thoracics



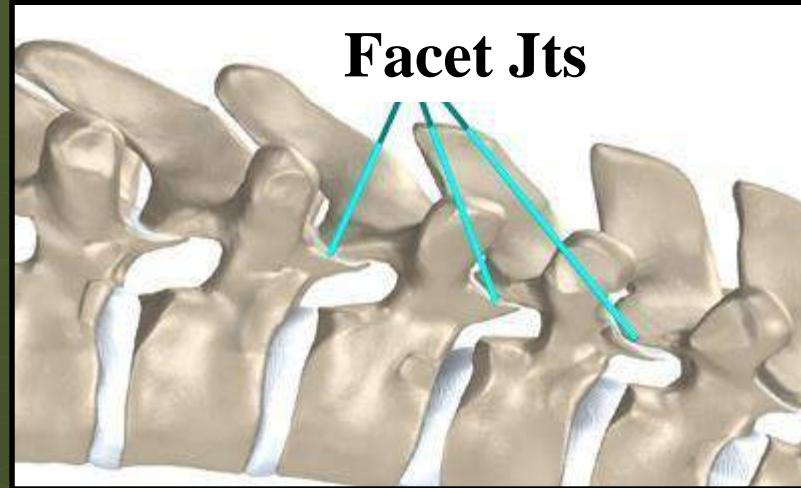
Before you adjust the pt, place your hand on their back where you are about to adjust. Apply downward pressure & have the pt inhale. This will force the muscles of inspiration to contract & then relax, (PNF). You will actually notice that the pt breaths better after this. So the pt will be more relaxed. Now adjust.

Thoracic Spine ~ Contact



Traction up the pt's spine to open facets.
Use a double knife edge & **NON-specific set-up** to
allow for maximal pt breathing & comfort.
Then torque the proper direction & finish P to A.
Bridging the table (seen above) will open the jts
BEFORE you adjust.

Thoracic Spine ~ Line Of Drive



The sequence of the line of drive is critical.

It **MUST** be:

1. I to S up the spine
2. then rotation
3. and finally P to A

This biomechanical sequence maximizes gapping the facets & pt comfort as there is no jamming.

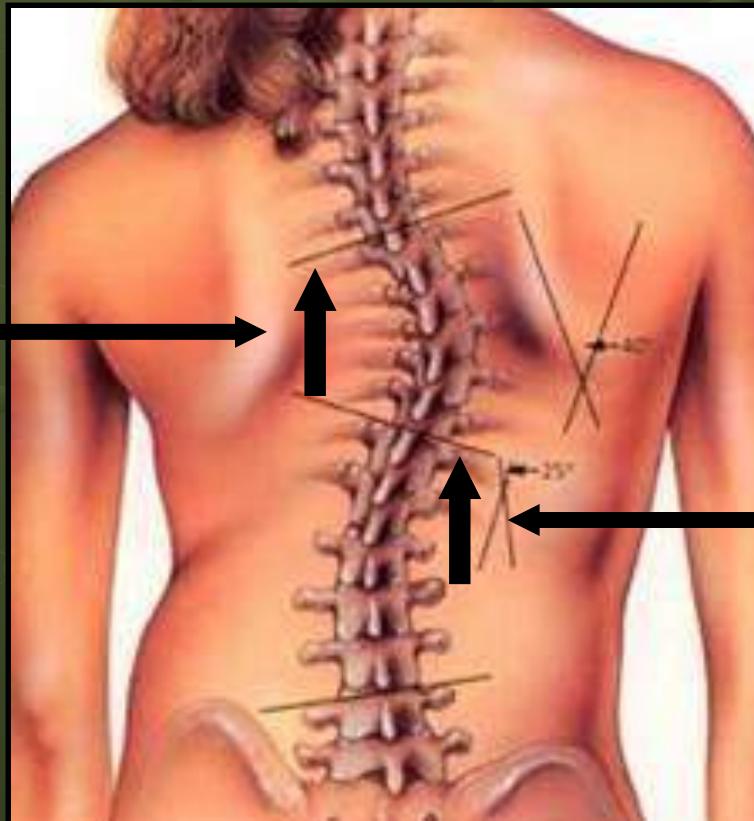
Sequence Of Events

Important to open facets before you thrust.

Ex. For scoliosis if you only torque you will likely **NOT** get the facets to gap efficiently.

Use multiple vectors & torque!

1. I to S
2. Torque Up
3. P to A



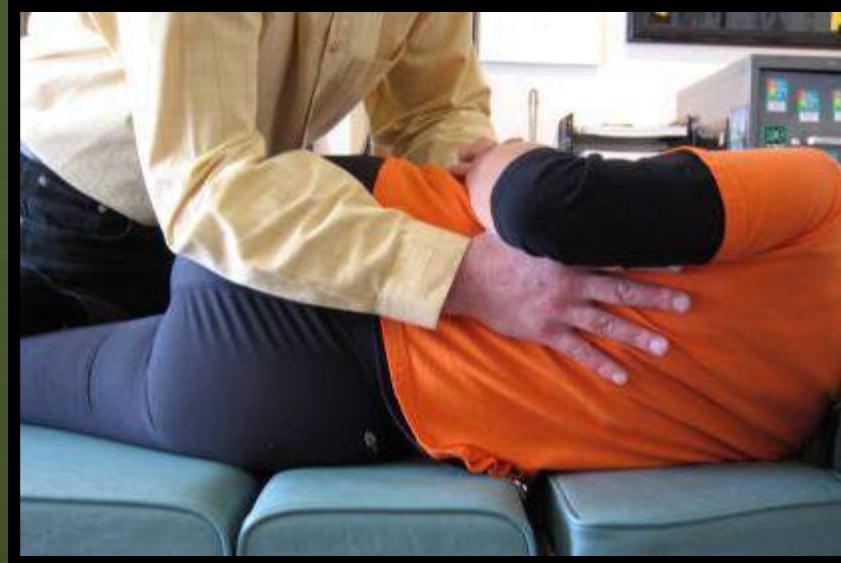
1. I to S
2. Torque Up
3. P to A

DC Position



1. Stand on side of pt by their pelvis.
2. Use double knife edge.
3. DC should then lunge into pt using their entire body, instead of just upper extremities.
4. DC should have their back leg kick up acting as a long lever to gain energy.

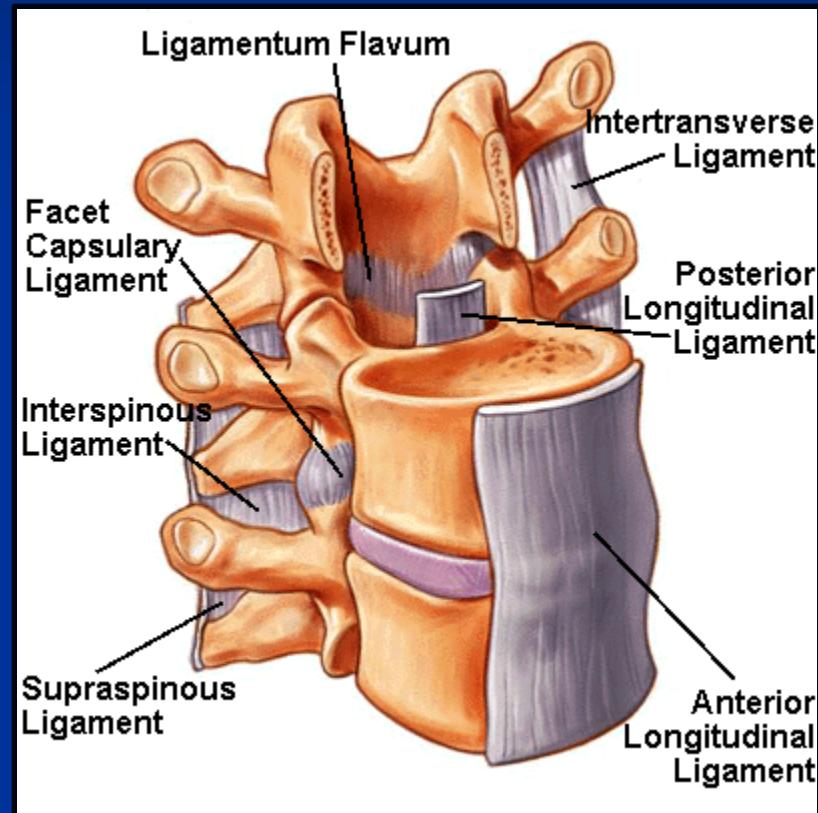
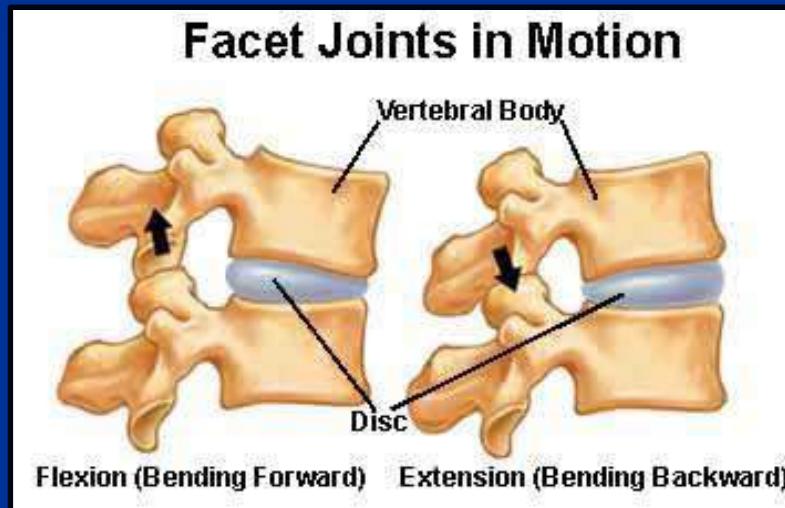
Thoracics In Side Posture?



Yes! Why? The thoracics allow for a lot of rotation. So to adjust them effectively you want to use that rotational component. If the pt is prone or supine you limit the rotation losing a major part of the jt motion!

Try it, maybe as high as T6!

Lumbar Spine Adjusting



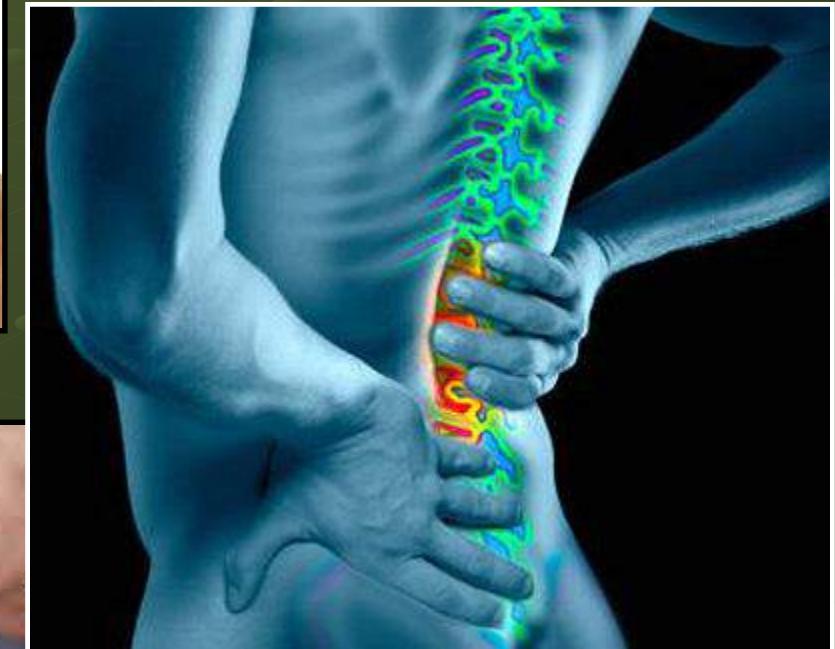


Correction: Pts bottom arm needs to be bent up towards their head not down by the pt's ribs.

This allows the pt to roll under the DC without the DC having to touch or push the pt under their body, AT ALL!

Lumbar Spine ~ Pt Rolls

Having the pt roll under you avoids you having to push on the pt & injuring your wrist, elbow, shoulder & low back.





Side Posture: PNF Stretch



Use PNF protocols to help pt relax before and/or after an adjustment. First have the pt contract their low back muscles by pushing into your hand. These muscles are the overactive group so this will help them relax. You can also have the pt push their knee up toward their chest against resistance, (isometrically or full ROM), to relax the hip flexors. Now you can have the pt contract the abs as the abs are now less inhibited & this will help shut off the low back muscles even more. Now adjust the pt.

Lumbar Spine

Side Posture: PNF Stretch



This position uses a nice longer lever.

Lumbar Spine - Seated PNF Release



Have pt extend back into your hands providing resistance. Works well to shut off spasms before or after an adjustment. Have pt go through all the 6 ROM's. For best results use a full ROM if the pt can.

Lumbar Spine ~ Line Of Drive



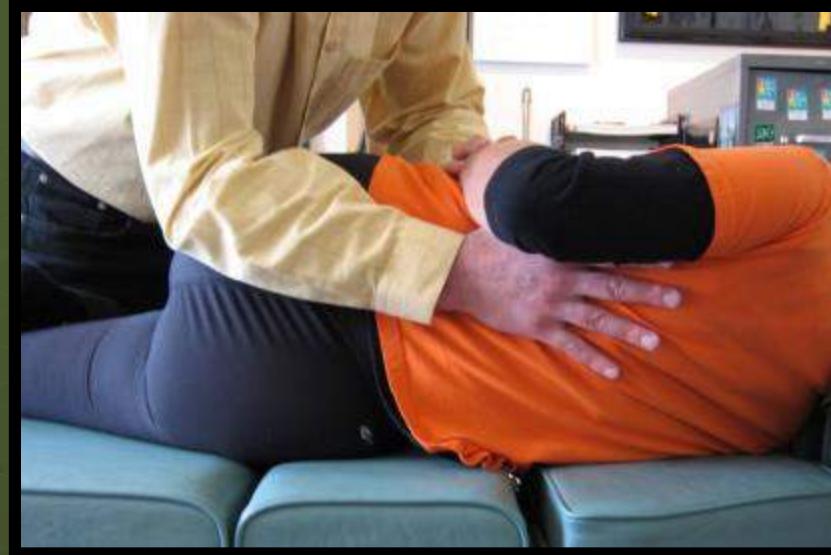
The sequence of the line of drive is critical.

It **MUST** be:

1. S to I down the spine
2. then into posterior pelvic tilt
3. and finally lumbar spine rotation

If you rotate first you jam the lumbar facets.

Lumbar Spine ~ Contact



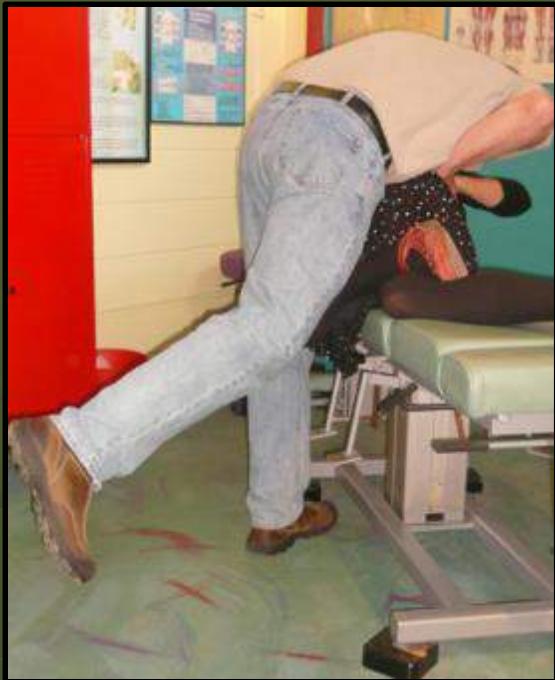
Traction down the pt's spine to open facets.
Slide your pisiform to segmental contact position.
You now can have a specific contact without
bending your wrist & jamming your pisi into the pt.
So it will **NOT** look specific, but it is. Pt is more
comfortable & you are not killing your wrist.

Lumbar Spine ~ Pt Rolls

**Now have the pt roll underneath you.
As the pt rolls under you vs you pushing
them, they should bring their knee up.**

**This induces posterior pelvic tilt &
continues to traction the low back & open
the facets. This will maximize the ability
to rotate the lumbar spine. Bringing the
knee up will actually cause the hip flexors
to fire, but once the pt reaches their own
end range they will stop & the hip flexors
will relax. This is PNF!**

**This also takes the guess work out of the
DC trying to take the low back to tension
as the pt will “feel” when it is to tension &
stop on their own!**





Lumbar Spine

Lift back leg

& use as a long lever.

**The inside of the DC's thigh
should be up against the
backside of the pt's thigh.
Now just drop your body
down & around following
the natural opening
mechanics of the facets of
the lumbar spine!
Often moves with set-up!**

Fire Hydrant ~ Kick Move



Grab the back of the pts thigh with the inside of your thigh to get the proper lumbar spinal flexion & pelvic rotation. Do NOT go straight down the seam of the pt's pants as that only jams their thigh into the table & jams the hip jt.

Unstable Spondy or Hot Disc

Easy way to traction out the low back & can be used to relieve pain from an anterior spondy or hot disc. Try having pt contract abs lightly as you roll them into trunk flexion.

GO SLOW!



Cervical Adjusting



Cervical Spine ~ Contact



Super light! With the contact & tissue pull we are only trying to get the loose skin, slight layer of fat & loose superficial muscles out of the way. Any more than that & we are digging in, causing the pt to be apprehensive & guard.

Tissue Pull: Demonstration

Just move the loose tissue out of the way.

No digging as the pt will become tense!

We are **NOT** trying to get bone-on-bone contact!



Cervical Spine ~ Setting Up



The sequence is critical, follow the steps in this order:

1. Have table/pillow hold head in flexion, Don't Lift It
2. Traction the neck out I-S to open the facets
3. then laterally flex & rotate simultaneously

This biomechanical sequence maximizes gapping the facets & pt comfort, as there is no jamming.

Head & Neck In Flexion?

To keep flexion in the adjustment without having the pt strain their neck muscles use a support, (pillow or towel), or use the headpiece on the table. This allows the pt to have relaxed anterior compartment muscles & gaps the facet jts before the adjustment.



DON'T Lift The Pt's Head!



If you lift the head to get flexion
the pt will likely tighten & guard.
**You can see the pt's (to the left)
anterior muscles contracting.**
Also if you lift the head & hold it
up too long you may begin to
shake, as your muscles fatigue!
Now the pt thinks you're nervous.

Not good!

Challenge: at the end of your set-up can you take your adjusting hand off the pt? If not there is likely a lot of pressure going into the pt's neck.
Check it out next time you adjust.

Coupled Motion Of The Neck: Demo

Try all 3 possibilities, see which one feels best!

1. first rotate & then laterally flex

2. first laterally flex & then rotate

3. rotate & laterally flex simultaneously

The neck moves easiest when both motions are
done at the same time, try it.

This is due to the concave & convex nature of
the facets. Adjust with this motion & the pt will
have a much better experience & the jt will
open more efficiently.

Center That Nose ~ Proper Position



Keep the nose centered, so it lines up with the sternum. This allows for maximum patency of the vertebrobasilar artery & better facet motion!

DC Hand Motion & The Set-up

Upon setting up **DO NOT** push in toward the midline of the pt's neck. This causes jts on that side to jam & the pt will likely tighten. **Instead:**

1. find the vertebra you want to adjust
2. fulcrum pt's neck & head over your adjusting hand
3. Set-up hand should glide **AWAY** from the midline

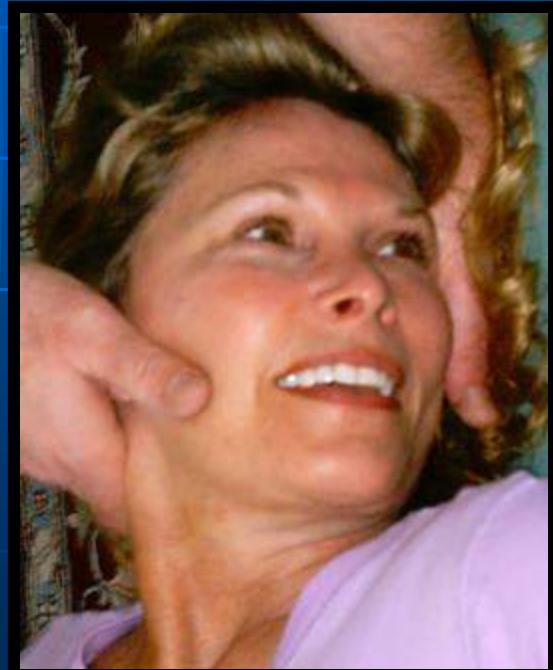
Try it. This causes no stress to the pt's neck.



Rotation Only?

This will cause a cavitation, but without coupled motion we only get muscle fibers & adhesions that are elongated in that rotational direction. We do NOT affect fibers that are oriented in other directions.

Pure rotation often causes pt soreness & increases chance of stroke!



Neck Adjustment & The Guarding Pt

Your pt wants to move their head & won't relax. 1st make sure they are not scared of the neck adjustment. Explain to them how safe the adjustment is, what the audible is, etc.



The Guarding Pt

1. In a neutral position tap the pt's face on the side you are going to adjust.
2. Ask the pt to bring their ear into your hand - they get to move their head & **can't guard!**
3. Use your hands as "guides", pushing the pt's head & neck into proper coupled motion.
4. Once the neck reaches the end ROM the pt stops contracting & their muscles relax.
This is PNF! The pt contracts & then relaxes.
5. At that instant you adjust.

This works great! Try it!

Thanks So Much For Being Here Today!



Hope To See You Soon
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