Physiologic Effects

Through sensory stimulation and application of force, massage methods stimulate

- mechanical effects,
- reflexive effects, and
- c hemical effects.

Massage methods assist restoration of balance by inhibiting "too much" conditions and stimulating "not enough" conditions.

Massage responses cannot be generalized. Responses to massage are often the combination of effects of massage coupled with the client's physiologic state and receptivity to the massage

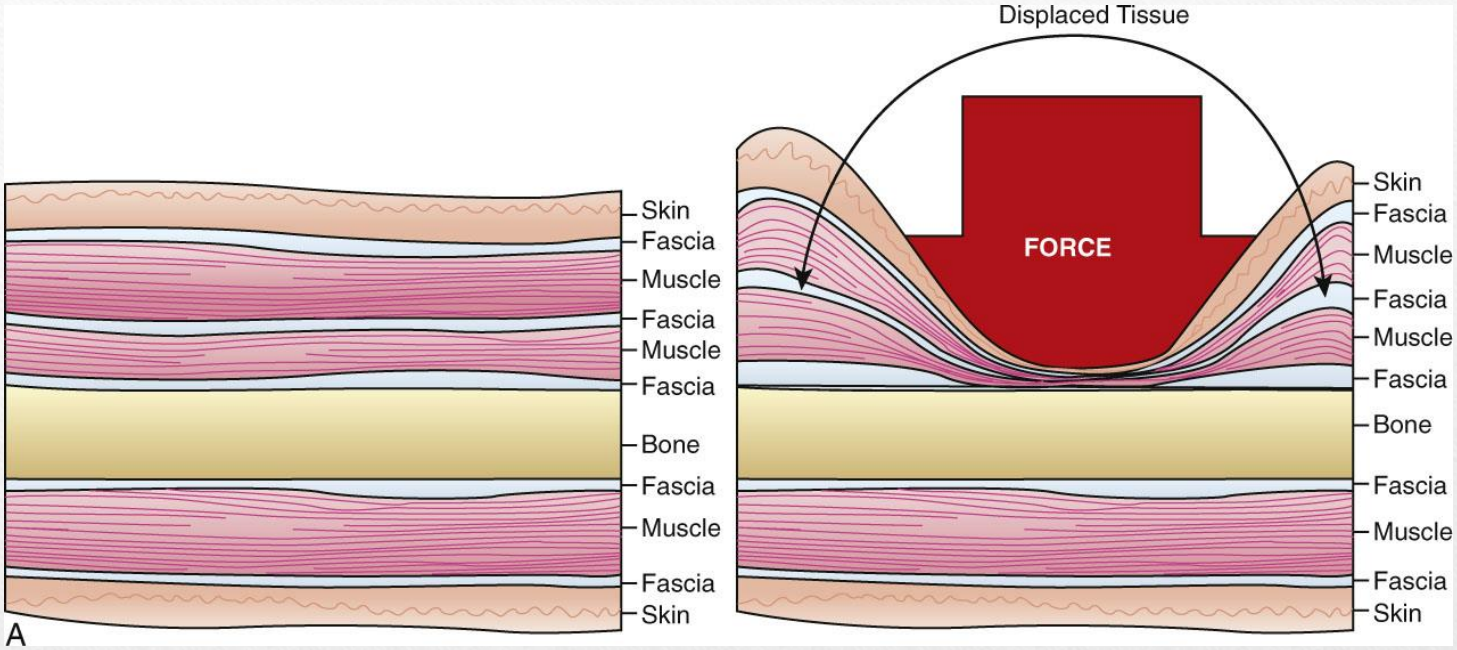
Quality of Touch

Massage methods vary in relation to:

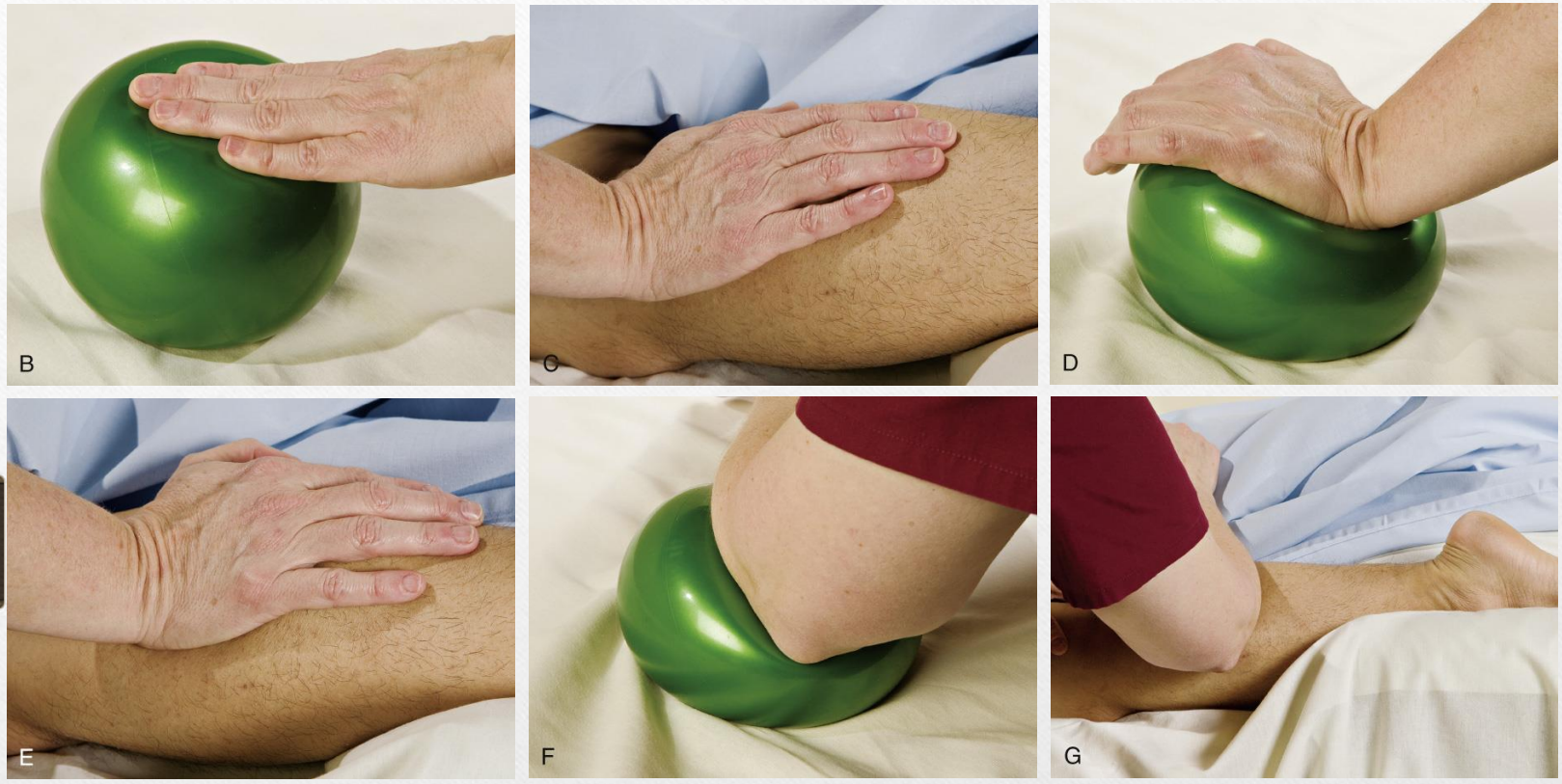
- Depth of pressure (compressive force)—light, moderate, deep or variable
- Drag—amount of stretch on tissue
- Direction—centrifugal or centripetal
- Speed—fast, slow, or variable
- Rhythm—regularity of technique application
- Frequency—rate of repetition of method
- Duration—length of time spent in a location

Depth of pressure is important because most body tissue has several layers, including the skin; the superficial fascia; the superficial, middle, and deep muscle; and the various fascial sheaths and connective tissue structures. Pressure must be applied through each successive layer to reach the deeper layer without causing damage or discomfort to the tissue.

Depth of Pressure



Massage applications systematically generate force through each tissue layer. Depth of pressure is the first application during massage. It is necessary to determine the tissue layer targeted first before any other massage methods are applied.



The varying degrees of pressure are: ***B****, Light.* ***C,*** *Light.* ***D,*** *Medium.* ***E****, Medium.* ***F****, Deep.* ***G****, Deep*

Establishing and Adjusting Physical Contact

Make sure your hands are warm.

Tell the client you are about to touch him or her.

Your touch should be steady, not abrupt.

Maintain touch contact/intention.

If removing touch, verbally inform the client.

Inform client again before reestablishing touch.

The massage professional must make contact with the client's body in a secure, confident way.

An unsure touch is difficult to interpret and unsettling to the client.

Centering facilitates this process of remaining focused on the client.

Positioning the Client

All four used in combination:

- Prone
- Supine
- Side-lying
- Seated

Making sure the client is comfortable is important when positioning, and supports can be used for this purpose.

Types of Force

Compression

Tension

Bending

Shear

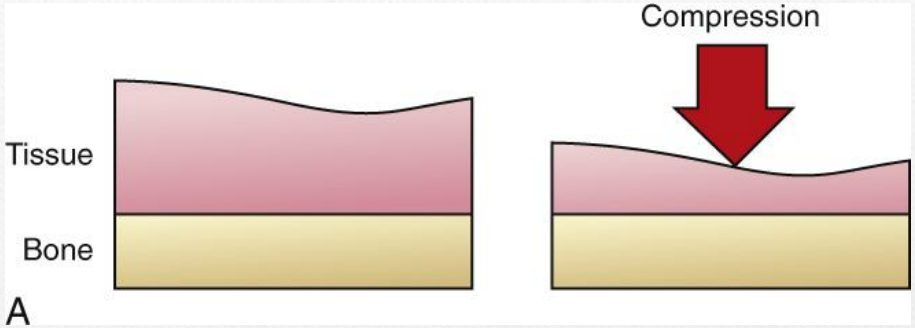
Torsion

Actions that involve pushing, pulling, friction, or sudden loading (e.g., a direct blow) are examples of mechanical force.

Not all tissue is affected the same way by each type of force.

Compression

Compression—two structures pressed together



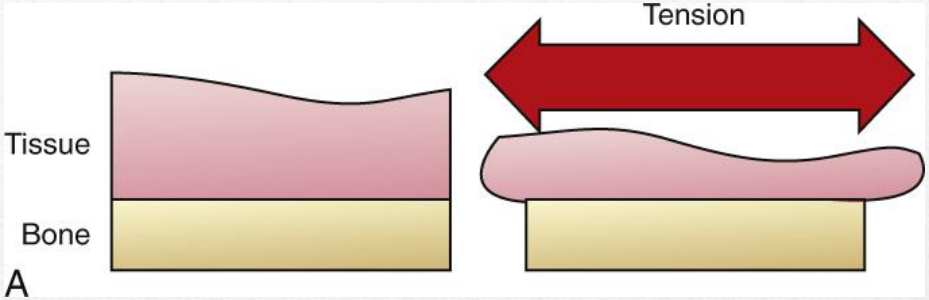
The magnitude and duration of the force are important in determining the outcome of the application of compression. Some tissues are more susceptible to compressive forces:

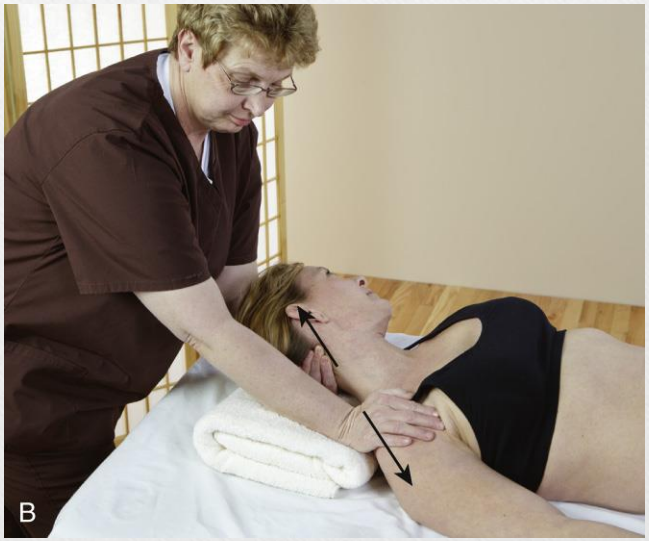
Nerve tissue is capable of withstanding moderately strong compressive forces if they do not last long, but a small force applied for a long time can cause nerve damage.

Muscle tissue is not resistant to compressive force, and excess force will rupture or tear muscle tissue by causing bruising and connective tissue damage.

Tension

Tension force (tensile force)—two ends of a structure are pulled apart





What is the difference between tension forces and muscle tension?

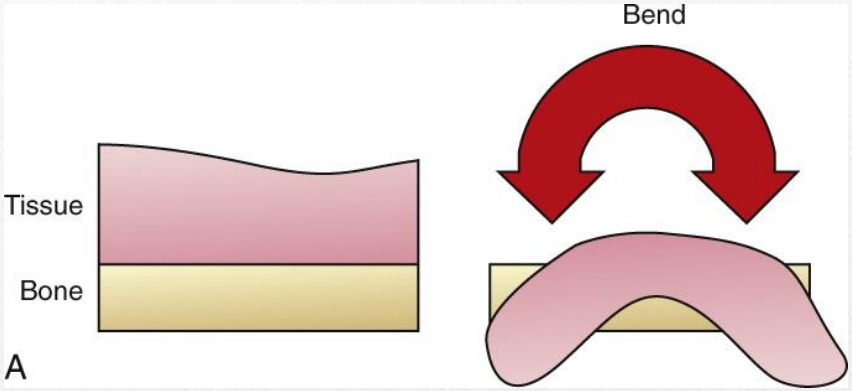
Muscle tension is created by excess amounts of muscular contraction. Tension forces are caused by strong levels of pulling force applied to tissue.

Examples of soft tissue injuries due to tensile stress include muscle strains, ligament sprains, tendonitis, fascial pulling, and nerve traction injuries.

Tension force is used during massage to elongate connective tissue and lengthen short muscles.

Bending

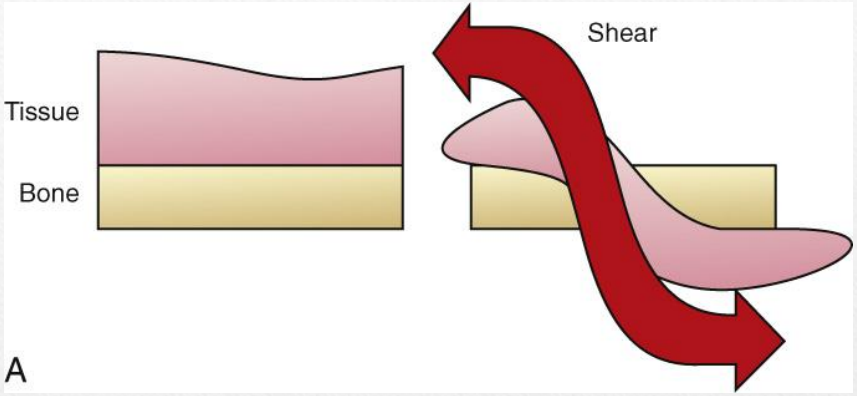
Bending force—compression and tension in combination



The bending force is very effective in increasing connective tissue pliability and affecting proprioceptors in the tendons and belly of the muscles.

Shear

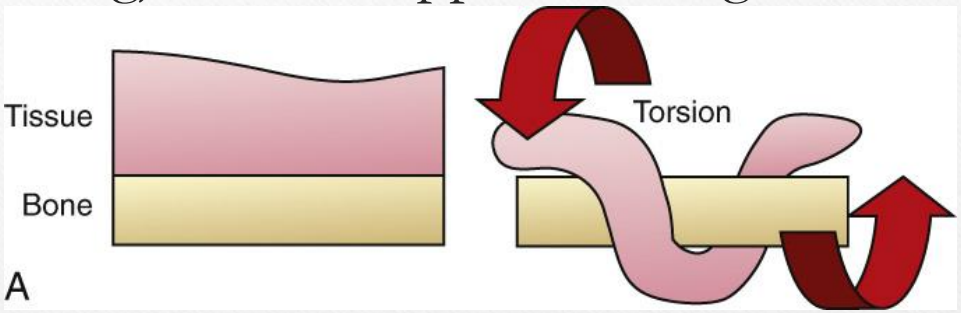
Shear—sliding force that results in friction between structures

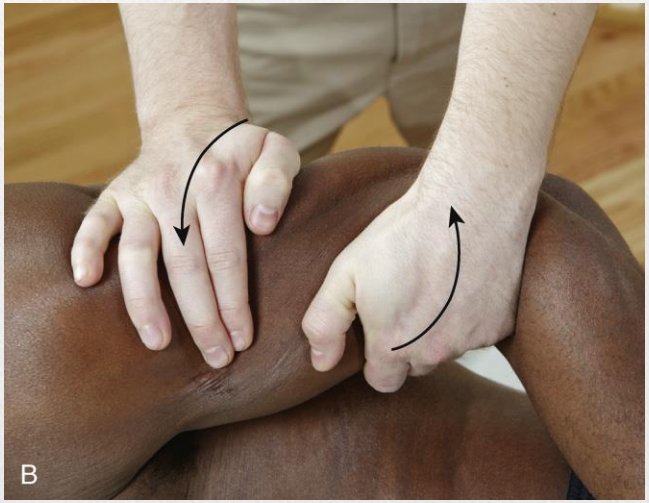


Excess friction (shearing force) results in inflammatory irritation and soft tissue problems.

Torsion

Torsion (twisting) forces—applied through methods that use kneading



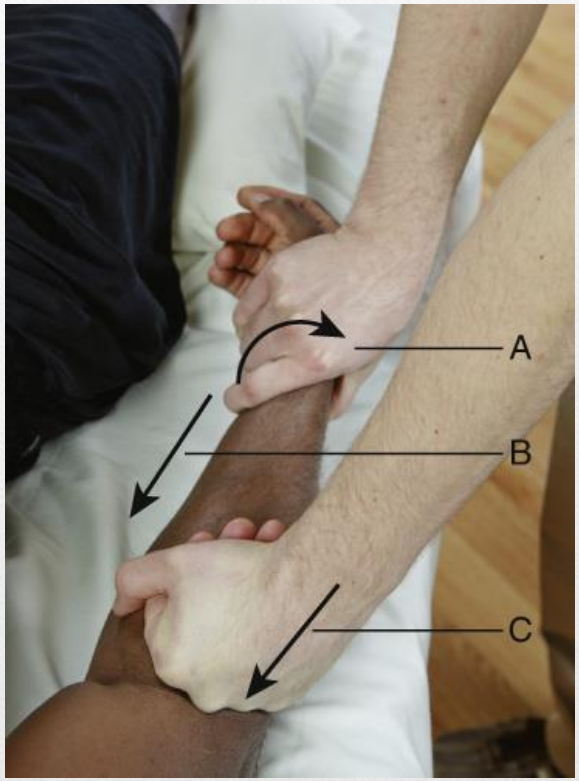


Torsion forces affect connective tissue in the body.

Appropriate application of any type of force is necessary because massage is ineffective if insufficient force is applied. Excess application of force can cause tissue damage.

Massage Manipulations and Techniques

Combination of forces



The methods of massage described in the following sections introduce one or a combination of the five types of mechanical force into the body to achieve a therapeutic benefit.

This process is influenced by the quality of touch, depth of pressure, drag, duration, speed, rhythm, and frequency.

Holding (Resting Position)

First touch—while client is in the resting position:

- Holding allows massage practitioner to enter client's personal boundary space
- Holding allows stillness when intermixed with other massage movement
- Holding calls attention to an area through stimulation of cutaneous sensory receptors

Holding provides time for the client to become acclimated to the proximity of another human being.

Applying the Holding Technique

Open, relaxed hands

The body innately responds to a hesitant touch by withdrawing. An unsure touch is difficult and unsettling for the client.

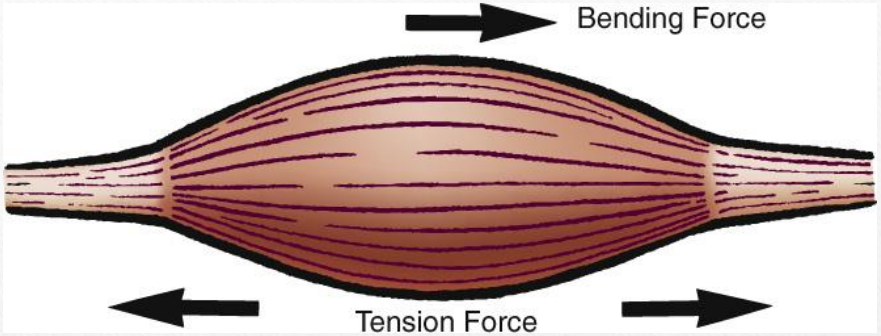
Gliding Strokes (Effleurage)

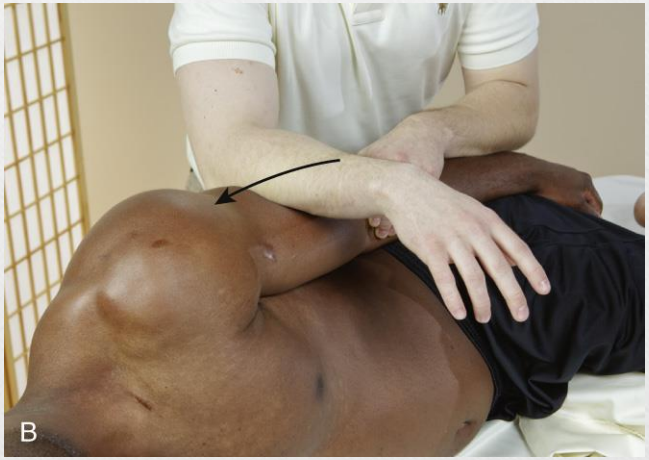
Gliding strokes, or effleurage, are

- Determined by pressure, drag, speed, direction, and rhythm.
- Excellent for spreading lubricant.
- Effective to use repetitively while increasing the depth of pressure.
- Excellent to warm and prepare tissue.
- The preferred method for abdominal massage.

The most common forces introduced by gliding are tension force, bending force, and compression force.

Application of Gliding (Effleurage)



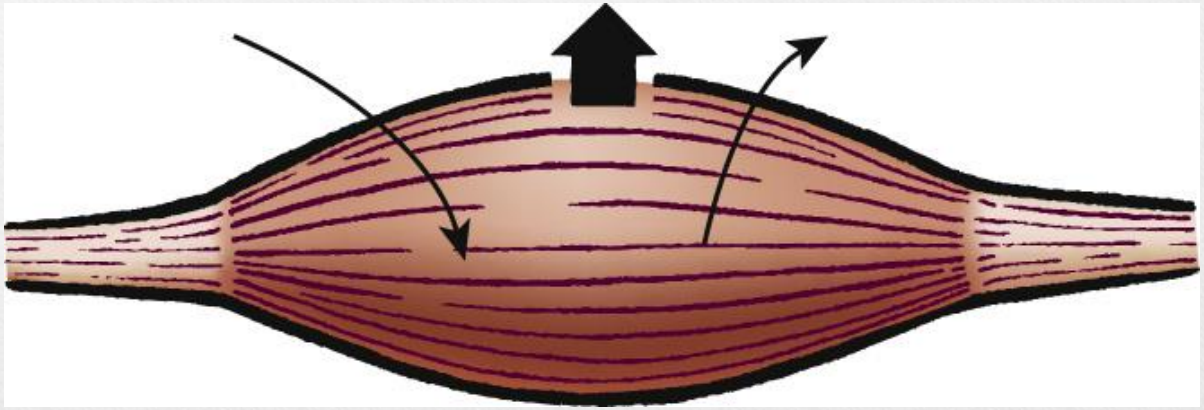


Gliding is applied horizontally in relation to the tissues, generating a tensile force.

Strokes that use moderate pressure from the finger and toes toward the heart are excellent for mechanical and reflexive stimulation of blood flow, whereas light pressure with short and repetitive gliding is excellent for manual lymph drainage.

Kneading (Pétrissage)

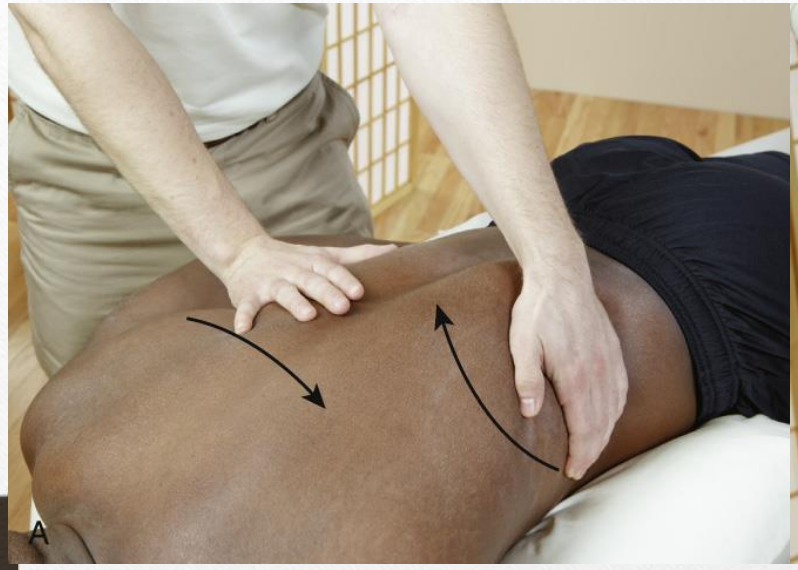
Kneading focuses vertically on the body and requires that the soft tissues be lifted, rolled, and squeezed by the massage practitioner.



Kneading is effective in reducing muscle tension through activation of spindle cells and proprioceptors.

It is also effective for the mechanical softening of the superficial fascia, which is connective tissue located under the skin.

The kneading methods are also effective in supporting circulation.



Compression is a component of kneading and is done first.

Kneading is very good for reducing motor tone.

Skin Rolling

Skin rolling is a variation of the lifting manipulation, wherein deep kneading attempts to lift the muscular component away from the bone. It has a warming effect on the superficial fascia and causes reflexive stimulation of the spinal nerves.

When should the application of skin rolling be avoided? (If there is excessive body hair or if the skin will not lift because of the presence of excessive edema, a heavy fat layer, or scarring that extends into the deeper body layers, skin rolling should be avoided.)

Compression

Compression uses a lift-press method that is suitable:

When the use of lubricant is undesirable

On a hairy body

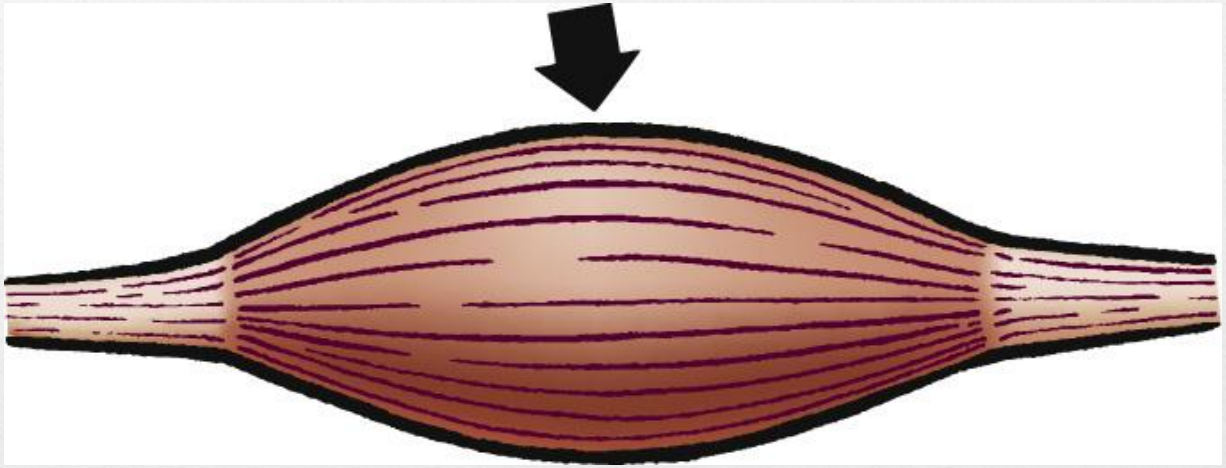
The effect of compression is called tissue displacement, which is an effect similar to flattening a ball of clay.

Application of compression:

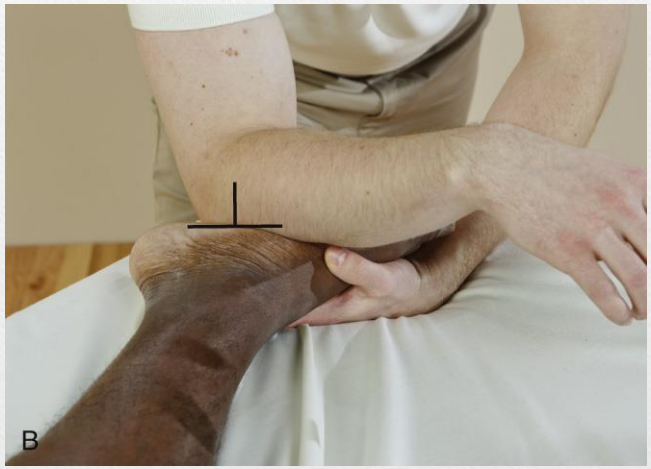
Effects the connective tissues

Relaxes the muscles and nervous system

Enhances circulation



Application of compression increases nerve stimulation just enough for the nerve to discharge. As a result, the muscle contracts and resets to a normal resting length.



Compression can be done with the point of the thumb or stabilized finger, palm and heel of the hand, fist, knuckles, forearm, and, in some systems, the knee and heel of the foot.

The position of the forearm in relation to the wrist should be about 120 degrees—the center angle of a pizza or pie cut into three pieces.

The arms and hands must be relaxed and leverage must be applied through appropriate body mechanics to avoid the use of muscle strength.

Oscillation

Oscillation is any effect that varies in a back-and-forth, or reciprocating, manner.

May include:

- Vibration
- Shaking
- Rocking

Vibration

Vibration is the application of powerful strokes in a sufficient amount of time and intensity to produce reflexive effects.

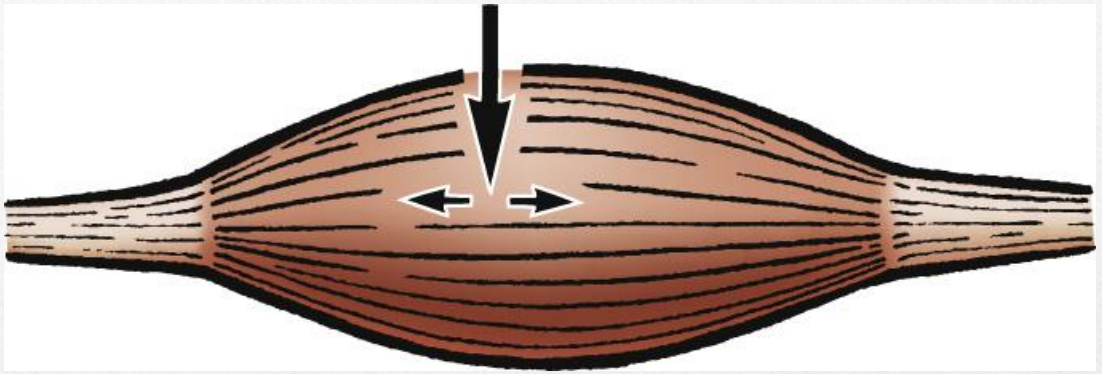
Used to:

- Stimulate muscles
- "Wake up" nerves
- Shift the muscle/joint pain perception

Vibration also can be used to break up the monotony of the massage.

If the same methods are used repeatedly, the body adapts and does not respond as well to the sensation or stimulation.

Applying Vibration



Vibration is applied downward and back and forth in a fast, oscillating manner.

Vibration uses lots of energy, so it is suggested that a forearm gliding should follow vibration because effleurage massages and relaxes the practitioner's arm, protecting it from repetitive use problems.

Shaking

Effective for relaxing muscle groups or an entire limb

Begins with lift-and-pull technique

Shaking relaxes muscle groups and confuses the positional proprioceptors because the sensory input is too unorganized for the brain to interpret. Shaking also warms and prepares the body for deeper work and affects the connective tissues.

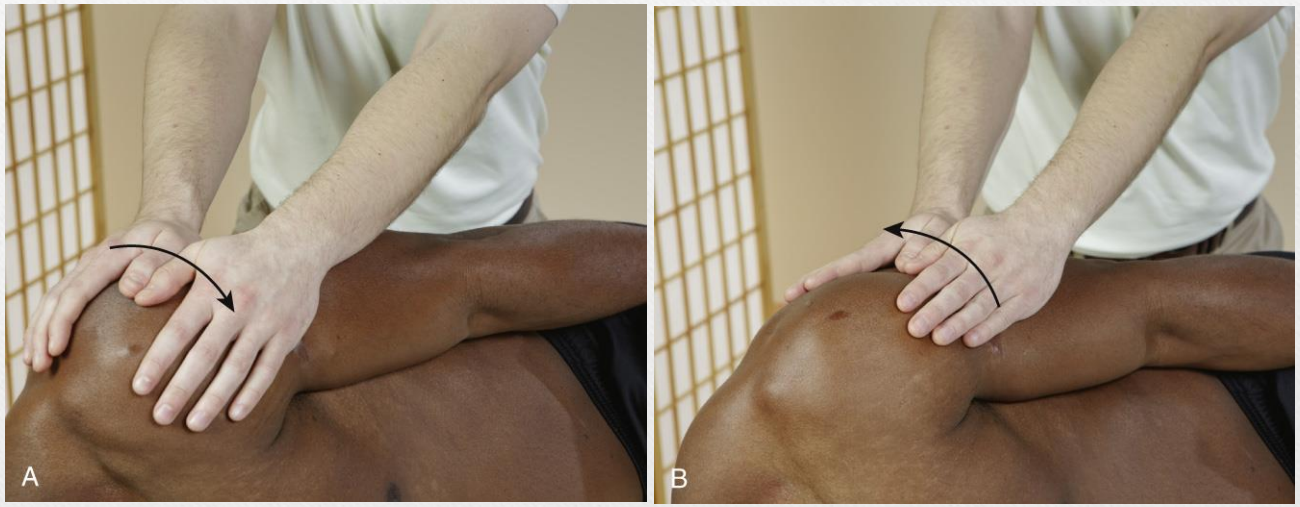
Applying Shaking

Shaking should not be used on the skin or superficial fascia, nor is it effective for use on the entire body.

Good areas for shaking are the upper trapezius and shoulder area, biceps and triceps groups, hamstrings, quadriceps, gastrocnemius and, in some instances, the abdominals and the pectoralis muscles close to the axilla. The joints of the shoulders, hips, and extremities also respond well to shaking.

Rocking

Rocking is rhythmic and should be applied with a deliberate, full-body movement.



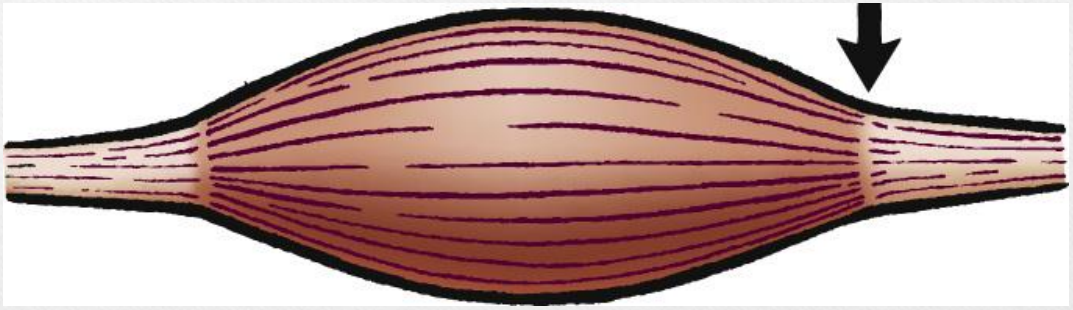
Rocking is a soothing, rhythmic method that is used to calm people. Its effects are both reflexive and chemical. Rocking is also an effective method to achieve entrainment.

During rocking, nothing is abrupt; the methods have an even ebb and flow.

Percussion (Tapotement)

Percussion (tapotement) moves up and down on the tissue.

Springy blows are directed downward, creating rhythmic compression of the tissue.



The term tapotement comes from the French verb tapoter, which means "to rap, smack, drum, or pat."

Percussion is divided into:

- Light (skin and subcutaneous layers)
- Heavy (muscles, tendons, and organs)

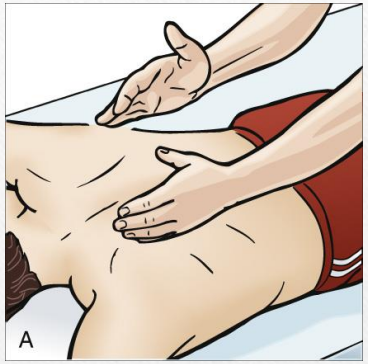
Percussion:

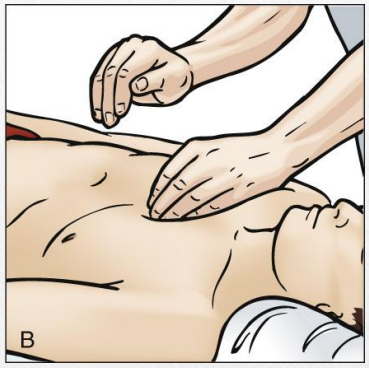
- Increases sympathetic activity
- Lengthens and stimulates weak muscles
- Increases blood flow through release of histamine

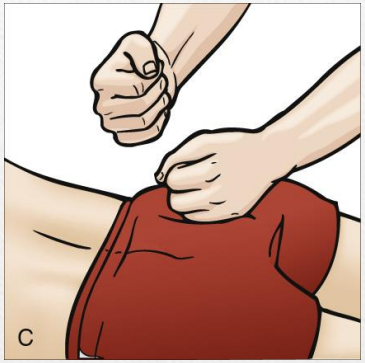
The effects of percussion result from the response of the tendon reflexes. A blow to the tendon stretches it, which results in a protective muscle contraction.

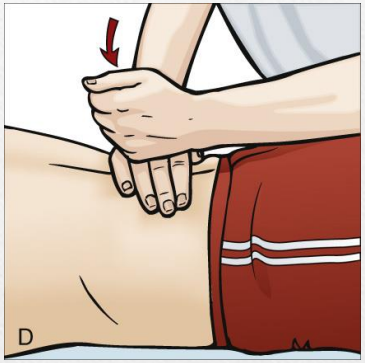
Percussion affects the joint kinesthetic receptors responsible for determining the position and movement of the body. A quick blow confuses this system, and the body muscles tense.

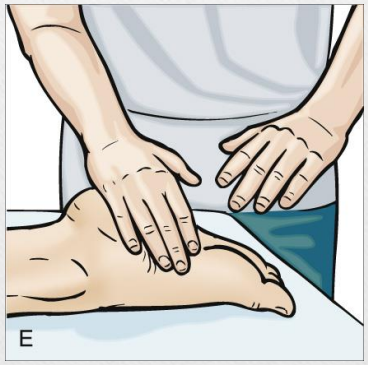
Applying Percussion

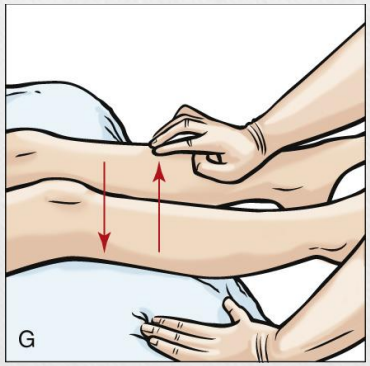












1. Hacking is applied with both wrists relaxed and the fingers spread.

2. Cupping occurs when the fingers and thumbs are placed as if making a cup.

3. Beating and pounding use a soft fist with knuckles down or vertically with the ulnar side of the palm.

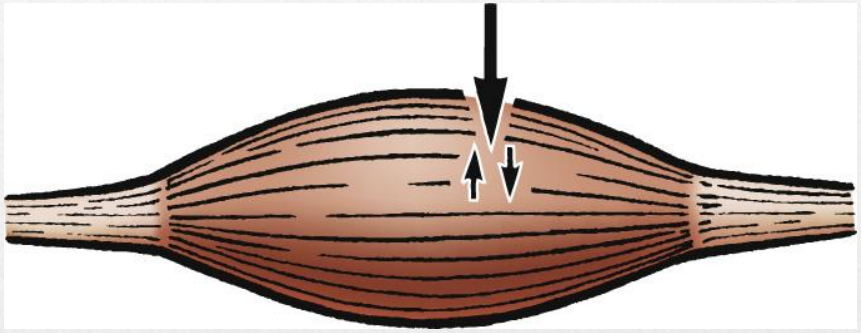
4. Slapping uses the whole palm of a flattened hand to make contact with the body.

5. Tapping uses the palmar surface of the fingers to alternately tap the body area with light to medium pressure.

Friction

Small, deep movements on a local area

Focus is a vertical downward pressure applied with back-and-forth movement



Friction provides shear force to the tissue.

Friction

Friction is used to:

- Prevent and break up local adhesion in connective tissues
- Reduce pain through counterirritation and hyperstimulation analgesia
- Increase tissue repair through activation of inflammatory responses
- Enhance pliability of connective tissue through an increase in water-binding capacity of the ground substance

The most common approach is to combine friction with compression, which has mechanical, reflexive, and chemical effects

Applying Friction

The area being subjected to friction may be tender to the touch for up to 48 hours after the massage. The sensation should be similar to mild after-exercise soreness.

The postfriction response is generally a small and controlled inflammatory response. The release of histamine causes heat and redness. In addition, increased circulation results in a small amount of puffiness as more water binds with the connective tissue.

Compression + Movement = Friction

Another effective way to produce friction is a combination of compression and passive joint movement, with the bone under the compression used to perform the friction.

This method is much easier for the massage professional to perform and also may be more comfortable for the client.

Sequence of a Basic Massage

Basic sequence:

1. Gliding
2. Kneading
3. Compression
4. Oscillation
5. Repeat gliding (step 1)

Massage Techniques Using Joint Movements

Be specific.

Be mindful of "too much"/"not enough."

Stabilize the body.

Cooperate with the client.

Remember the purpose.

Be a facilitator in the process.

Use slow and purposeful application.

Repeat movements 2 or 3 times.

What are the effects of techniques of passive and active joint movements and muscle energy?

These techniques work with the neuromuscular reflex system to relax and lengthen muscles. These techniques focus on delivering accurate, specific information to the neuromuscular system that supports normal functioning.

Joint Movement and ROM

ROM determined by:

- Shape of the bones that form the joint
- Tautness or laxity of the ligament and capsule structure of the joint
- Length of the soft tissue structure that supports and moves the joint
- Whether joint moves independently (open chain) or is linked to other joints in a combined movement (closed chain)

Range of motion (ROM) is the angle through which a joint moves from the anatomic position to the ends of its motion in a particular direction. It is measured in degrees.

If the joint moves less than the normal range or more than the normal range, a problem may exist.

How Joints Work

The position of joints and velocity receptors inform CNS of body position in gravity and speed of movement:

- Osteokinematic movements—voluntary joint movements (flexion, extension, abduction, adduction, and rotation)
- Arthrokinematic movements—normal physiologic movement as a result of inherent laxity or joint play

If we compare a joint to a door hinge, what part of the body acts as a hinge?

The ligaments act as hinges.

In this door, what is the role of the synovial membrane?

The synovial membrane secretes synovial fluids acting as the oil in the door hinges [ligaments, which allow for smooth movements].

Limits of Joint Movement

Anatomic barriers—determined by shape and fit of bones at the joints

Physiologic barriers—result of limits in range of motion imposed by protective nerves and sensory functions to support optimal function

Pathologic barriers—protective function limits instead of supports optimal functioning (stiffness and pain)

If either the ligaments and connective tissue that make up the joint capsule are not firm enough to maintain the joint space, or they are too tight, the joint play is lost.

When a joint is taken to its physiologic limit, usually a little bit of movement is still possible. This type of joint-end feel is called soft end-feel.

When a joint is restricted by a pathologic barrier, the joint is fixed, and any attempt to take it farther causes discomfort—this is called hard end-feel.

Effects of Joint Movement Methods

Joint movement:

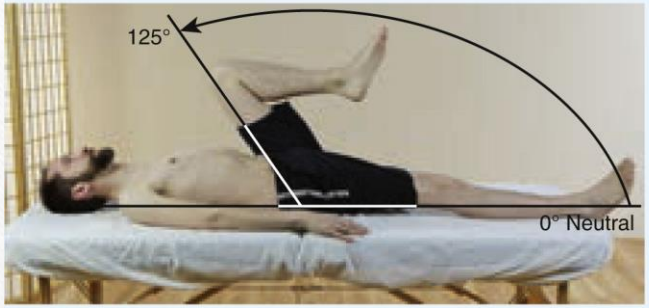
- Provides a means of controlled stimulation to joint mechanoreceptors
- Encourages lubrication of joint
- Contributes an important addition to lymphatic and venous circulation

Normal joint movements often are indicated by the degree of movement available, with the anatomic, or neutral, position labeled 0 degrees. For example, the elbow is said to be able to flex 106 degrees and extend 180 degrees from neutral.

The "normal" range of motion for each joint should be identified for each individual.

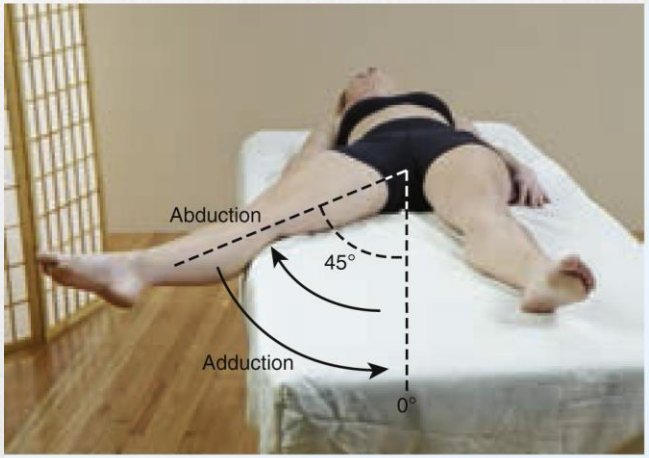
Normal ROM

Normal Values (in degrees)

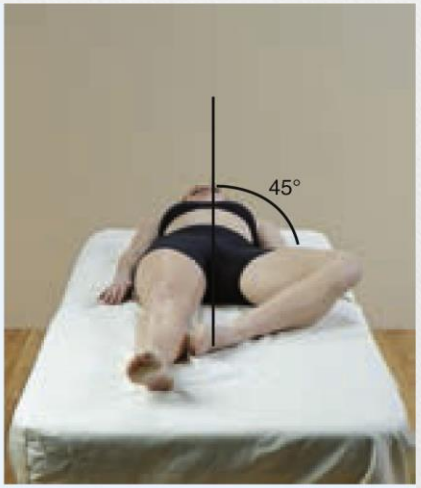


Hip flexion (0 to 125 degrees).

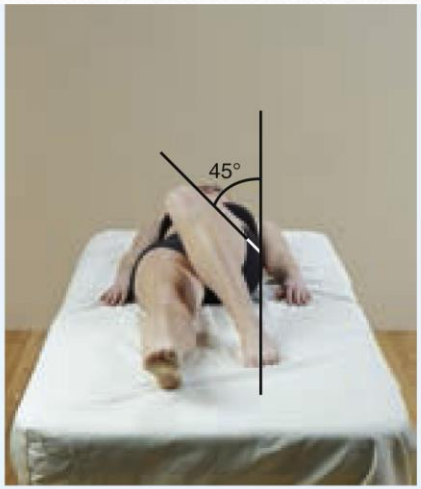
Hip hyperextension (0 to 15 degrees).



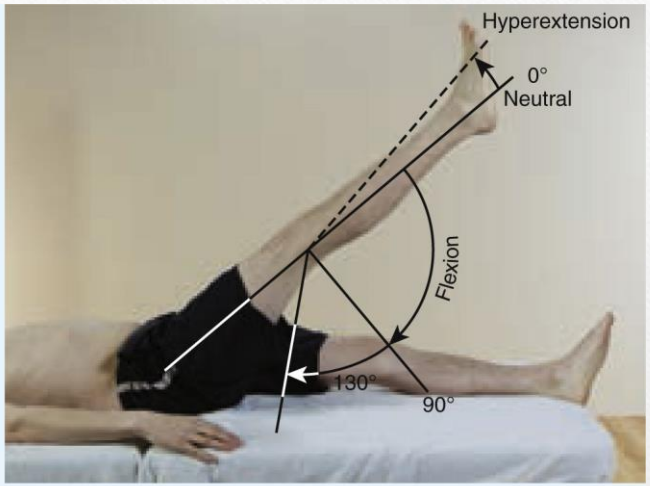
Hip abduction (0 to 45 degrees) and hip adduction (45-0 degrees).



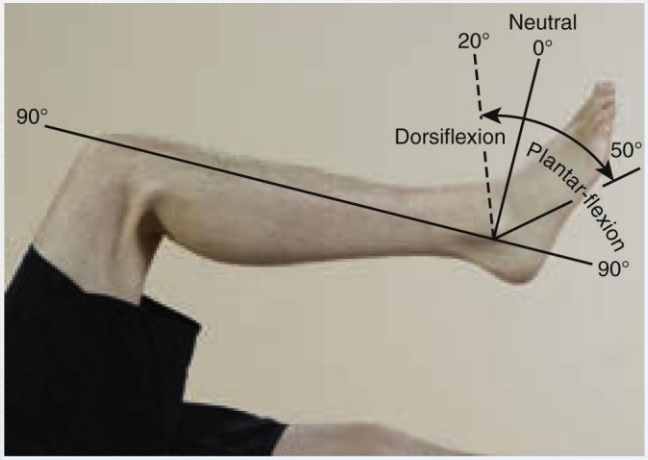
Hip lateral (extended rotator 0 to 45 degrees).



Hip medial (internal) rotation 0 to 45 degrees.

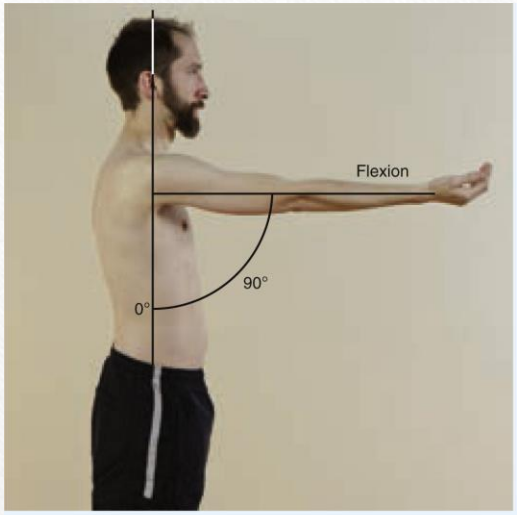


Knee flexion (0 to 130 degrees) and knee extension (120 to 0 degrees).

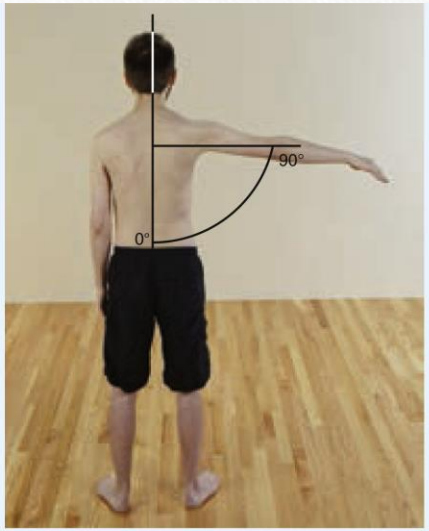


Ankle plantar flexion (0 to 50 degrees) and ankle dorsiflexion (0 to 20 degrees).

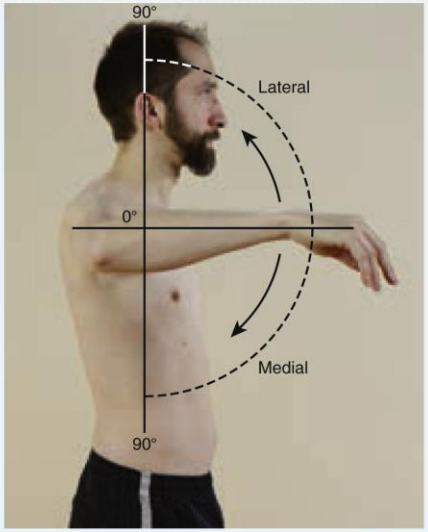
Foot inversion (0 to 35 degrees) and foot eversion (0 to 25 degrees).



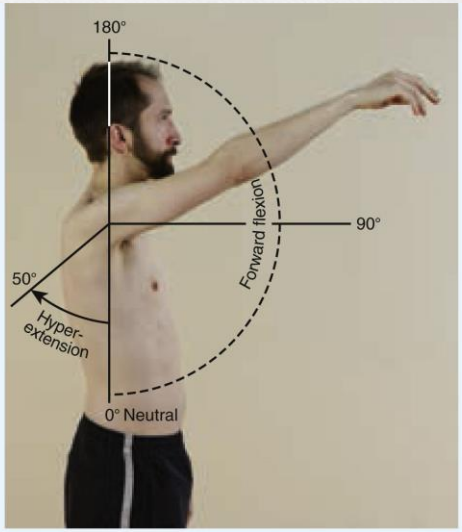
Shoulder flexion (0 to 90 degrees) and shoulder extension (90 to 0 degrees).



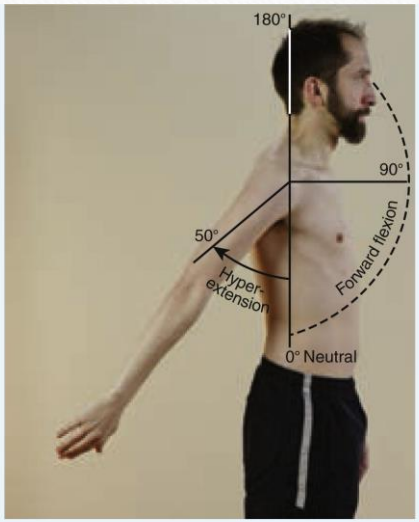
Shoulder abduction (0 to 90 degrees) and shoulder adduction (90 to 0 degrees).



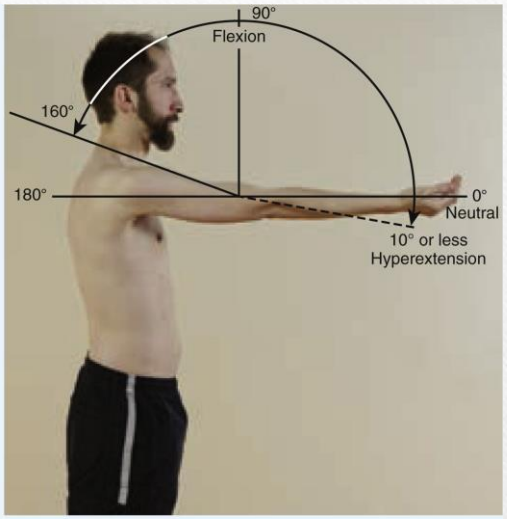
Shoulder lateral (medial) rotation (0 to 90 degrees) and shoulder medial (internal) rotation (0 to 90 degrees).



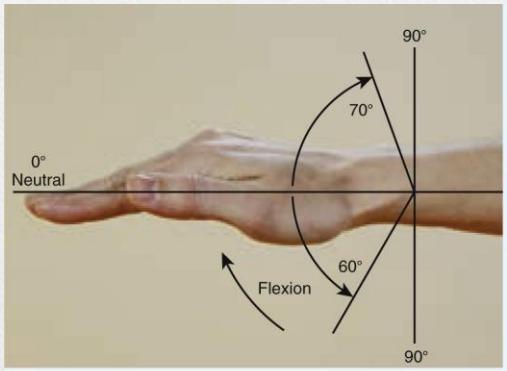
Combined shoulder and scapular movement forward flexion (0 to 180 degrees); extension (180 to 0 degrees).



Combined shoulder and scapular movement hyperextension (0 to 50 degrees).



Elbow flexion (0 to 160 degrees); elbow extension (160 to 0 degrees); elbow hyperextension (0 to 10 degrees).



Wrist flexion (0 to 60 degrees); wrist extension (0 to 70 degrees).

Wrist abduction (0 to 20 degrees); wrist adduction (0 to 30 degrees).

Types of Joint Movement Methods

Active

- Active assisted movement occurs when both the client and the massage practitioner move the area
- Active resistive movement occurs when the client actively moves the joint against resistance provided by the massage practitioner

In active joint movement, the client moves the joint by active contraction of muscle groups.

Passive

Occurs when the client's muscles stay relaxed and the massage practitioner moves the joint with no assistance from the client

When doing passive joint movement, the massage practitioner should feel for the soft or hard end-feel of the joint range of motion.

During the massage, the client's body must be stabilized.

Place one hand close to the joint to act as a stabilizer and for evaluation.

Place the other hand at the distal end of the bone.

Move slowly.

Work within the physiologic range of joint motion.

Nerves stimulate muscles to contract, which moves the joints. If the sensory stimulation is not strong enough, the muscle may tense but not contract; this is called facilitation.

Joint movement facilitates the application of muscle energy techniques to lengthen muscles, as well as stretching methods for elongating connective tissues.

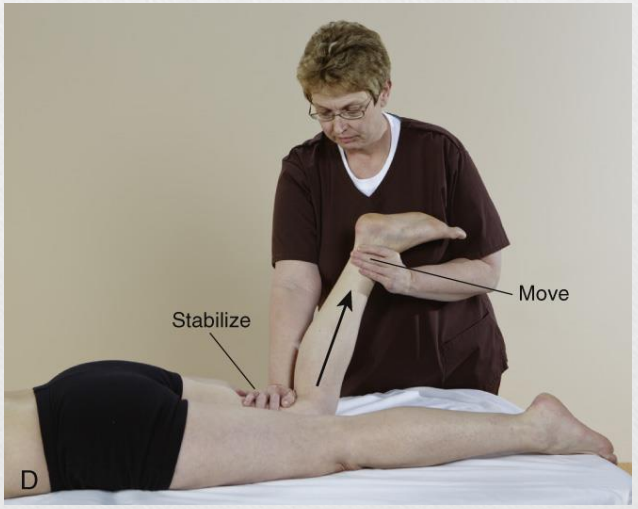
Examples of Joint Movement

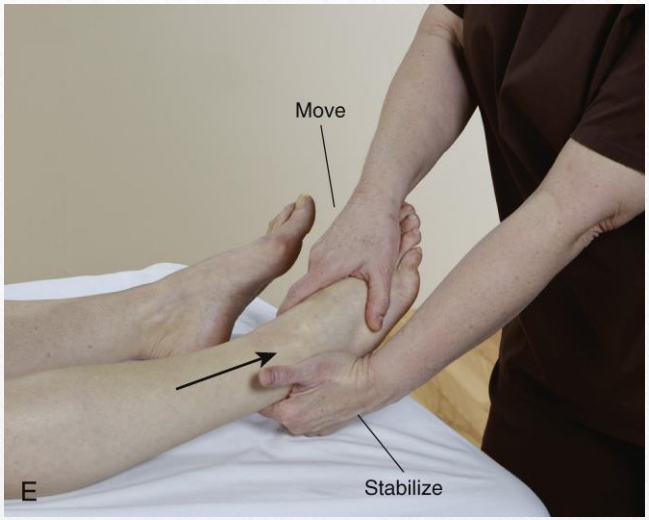
A, *Wrist joints. The stabilizing hand holds below the wrist while the moving hand produces a slight traction and moves the joint through circumduction. (Circumduction is a circular movement of a jointed area.)*

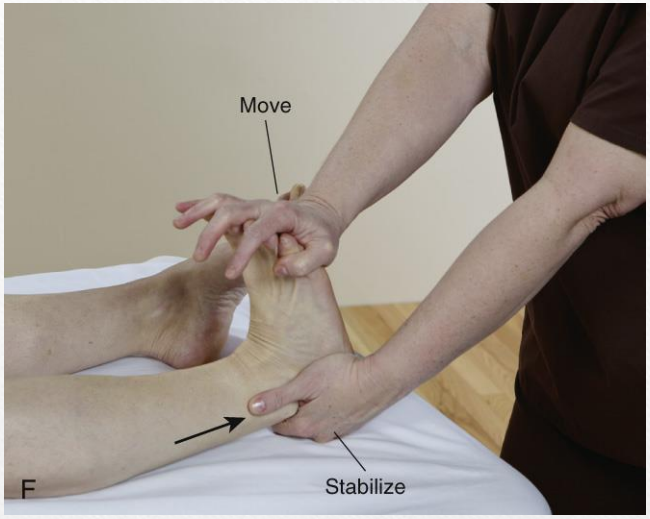
B*, Hip joint. The stabilizing hand holds above the anterosuperior iliac spine while the moving hand and arm produce a slight traction and move the joint through circumduction.*

***C**, Hip joint (alternate position). The stabilizing hand holds at the hip while the moving hand moves the hip through internal and external rotation. No traction is produced in this position.*

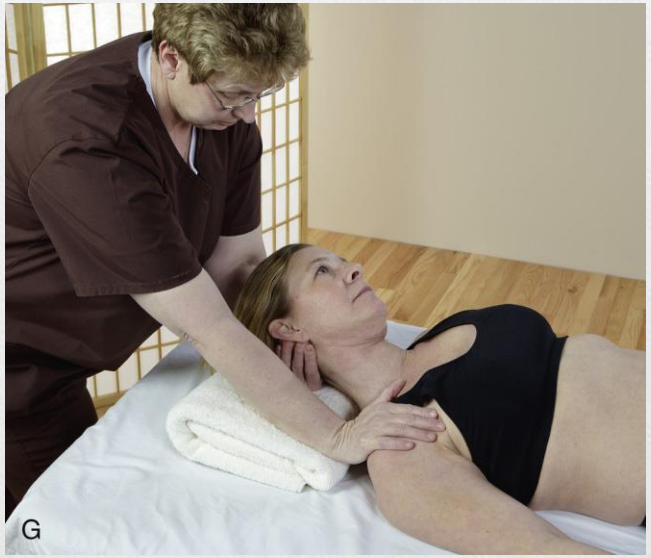
***D**, Knee. The stabilizing hand holds above the knee while the moving hand produces a slight traction and moves the joint through flexion and extension.*



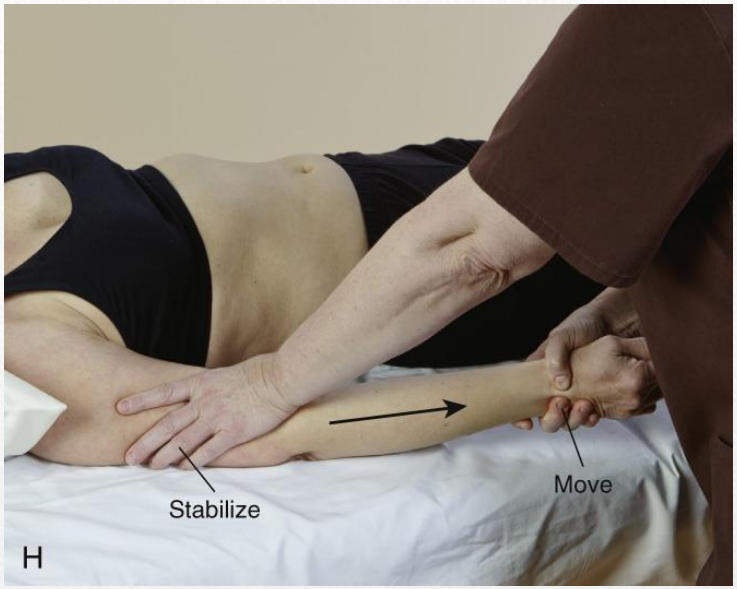


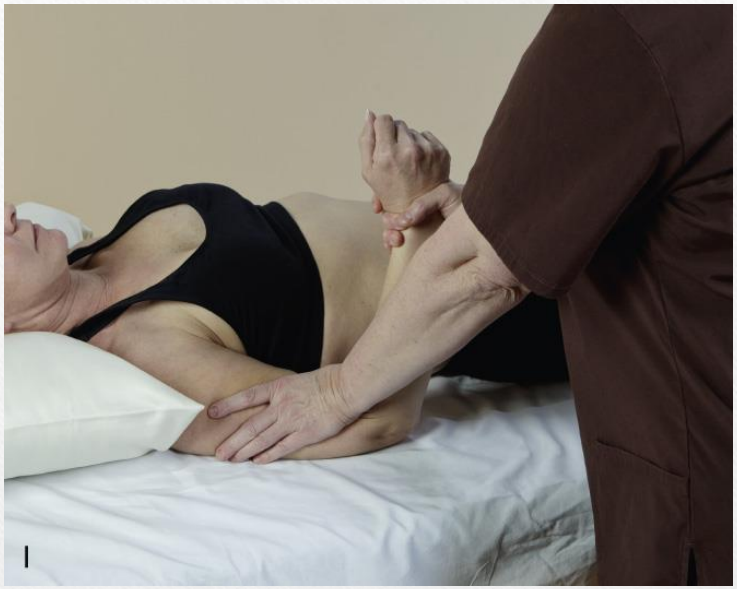


E *and* ***F****, Ankle. The stabilizing hand holds above the ankle. The moving hand produces a slight traction and moves the joint through circumduction.*



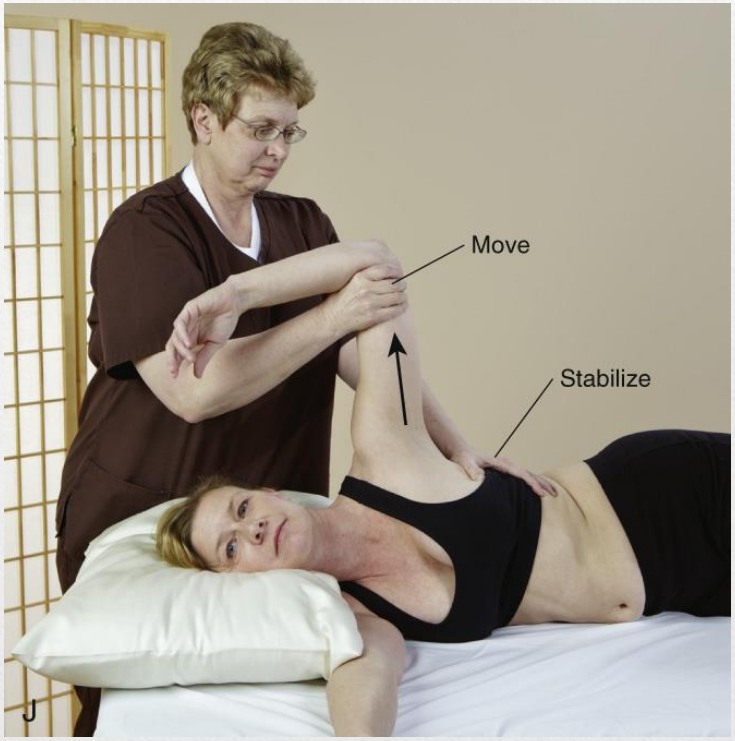
G*, Neck. The stabilizing hand holds at the occipital base and produces slight traction while the moving hand moves the shoulder toward the feet.*

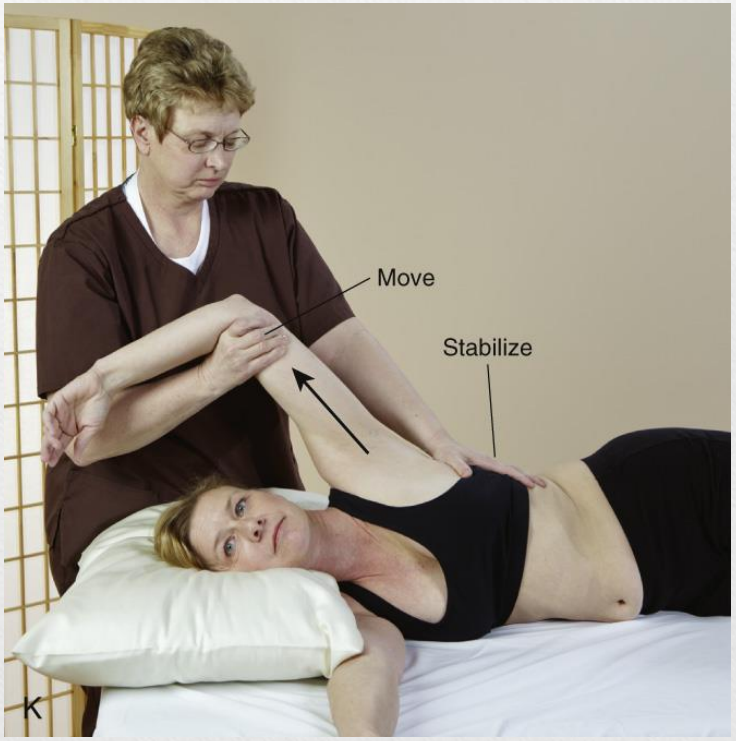




H and I, *Elbow joints. The stabilizing hand holds above elbow while the moving hand produces a slight traction and moves the joint through flexion and extension. Supination and pronation can also be achieved.*

J and K, *Shoulder joint. One hand stabilizes at the shoulder joint. The other hand produces a slight traction to the shoulder joint and moves the shoulder through circumduction range of motion.*





Sequence for Joint Movement Methods

Perform active joint movement first.

Assess ROM

To increase the intensity of signals from contracting muscle, have the client move against a stabilizing force.

Incorporate any or all of the previously discussed massage methods.

Active assisted range of motion is very useful in cases of weakness or pain with movement. It creates movement within the joint capsule, encouraging synovial fluid movement to warm and soften connective tissue and support muscle function.

Perform passive joint movement

After tissue is warm and nervous system relaxed

Move every joint three times

Incorporate into every massage if possible

When patients are paralyzed or very ill, only passive joint movement is possible because the client's participation is not necessary.

Muscle Energy Methods

Box 10-6 Pioneers in Muscle Energy Techniques

Dr. T. J. Ruddy: Developed resistive induction technique.

Dr. Fred K. Mitchell: The father of muscle energy technique. He built on Dr. Ruddy's method, turning it into a whole body approach (Greenman, 2010).

Dr. Karel Lewit: Described the importance of methods that use postisometric relaxation (Lewit, 1998).

Dr. Leon Chaitow: Synthesized the methods of Ruddy, Mitchell, and Lewit.

Margaret Knott and Dorothy Voss: Wrote the first book on proprioceptive neuromuscular facilitation techniques, which grew out of physical therapy approaches during the 1950s (Knott and Voss, 1985).

Muscle energy methods (MET) emerged from the osteopathic profession.

Techniques to lengthen neurologically shortened muscles:

- Proprioceptive neuromuscular facilitation (PNF)—rehabilitation method for spinal cord injury and stroke; uses maximal contraction and rotary diagonal movement patterns to reeducate nervous system

Muscle Energy Techniques

Involves a voluntary contraction of client's muscle:

- In a specific and controlled direction
- At varying levels of intensity
- Against a specific counterforce that massage practitioner applies

Counterpressure is the force applied to an area that is designed to match the effort or force either exactly or partially.

Focus of muscle energy technique

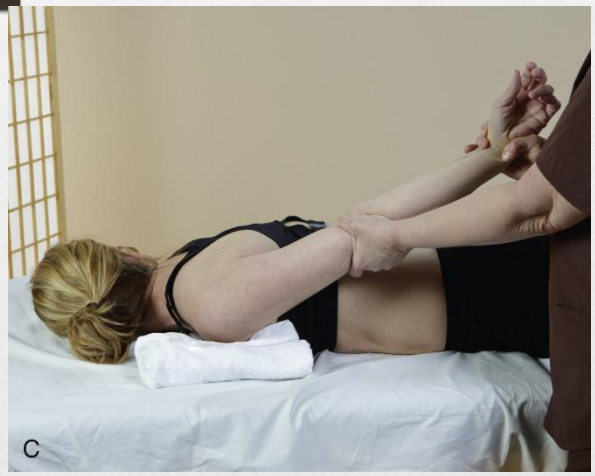
- Stimulates nervous system—normal muscle resting
- Focuses on specific muscle groups
- Increases tolerance to stretch

The massage practitioner must position muscles so that the proximal and distal attachments are either close together or in a lengthening phase, with the proximal and distal attachments separated.

Positions for Muscle Isolation

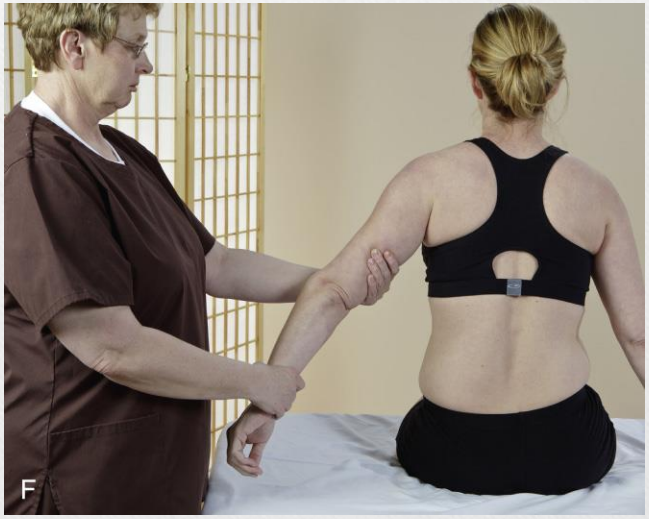
A, *Serratus anterior.*

B, *Subscapularis.*



C, *Latissimus dorsi.*

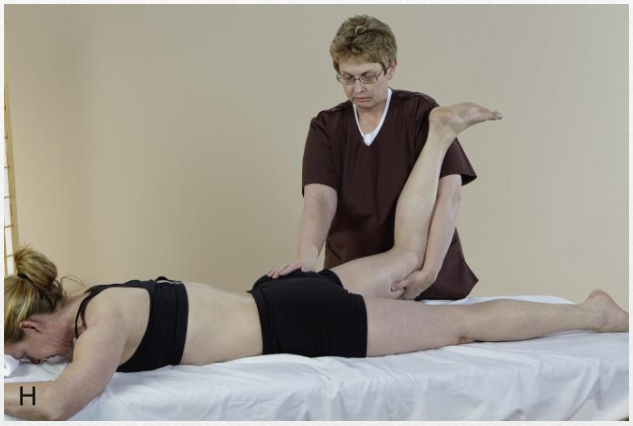
D, *Deltoid.*



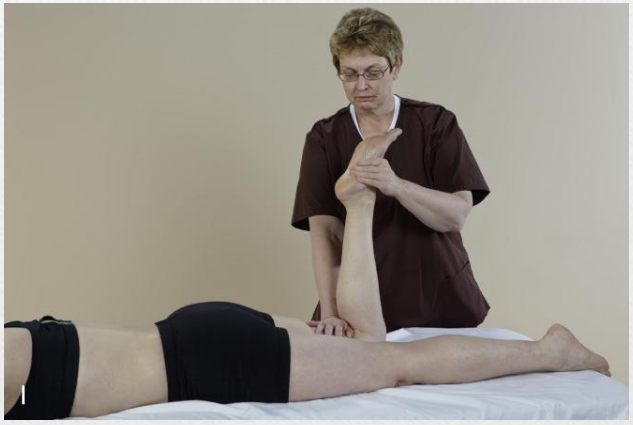
E, Biceps and brachialis.

F, Triceps.

G, *Gluteus medius.*



H*, Gluteus maximus and hamstrings.*



I, *Gastrocnemius and soleus.*

J*, Fibularis.*

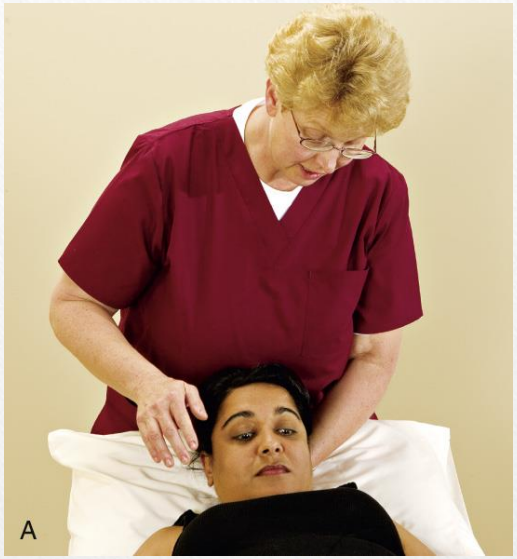
Types of Muscle Contractions

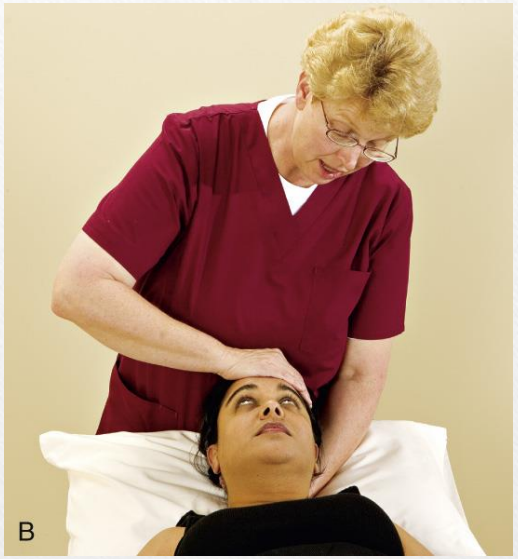
To activate muscle energy techniques:

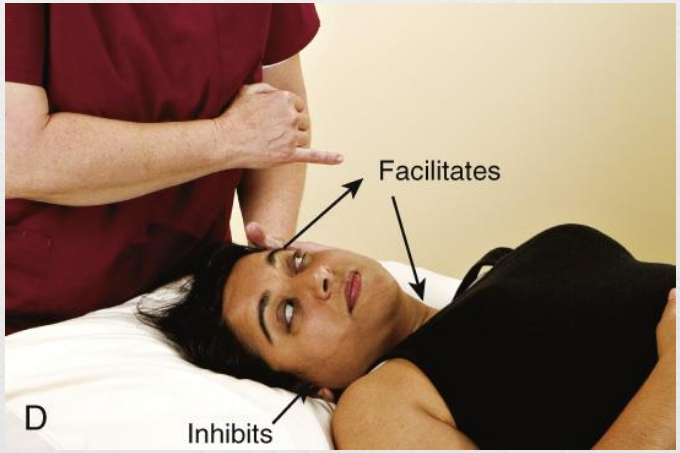
- Isometric contraction
  - The effort of the target muscles are matched by counterpressure—no movement
- Isotonic contraction (concentric and eccentric)
  - The effort of the target muscles are not matched by counterpressure—resisted movement
- Multiple isotonic contractions
  - Client moves the joint against partial resistance

With a concentric isotonic contraction, the massage practitioner applies counterforce but allows the client to move the proximal and distal attachments of the target muscles together against the pressure. In an eccentric action, the massage practitioner applies a counterforce but allows the client to move the jointed area so that the proximal and distal attachment of the target muscle separates as the muscle lengthens against the pressure

Strength of Contraction







Muscle energy techniques usually do not use the client's full contraction strength.

Coordinated breathing can be used to enhance particular directions of muscular effort.

Eye positions, as shown here, can also be used. Looking down activates flexors, and looking up activates extensors; when the client looks left, all muscles used to turn left are activated; when the client looks right, all muscles used to turn right are activated.

Neurophysiologic Principles

Postisometric relaxation (PIR)

- Occurs after isometric contraction of a muscle and results from the activity of the Golgi tension bodies
- Muscle lengthens painlessly

After an isometric contraction, the muscle is briefly in a state in which nerve impulses to the target muscle are inhibited.

This period is called the refractory state, and it allows the target muscle to be lengthened passively to its comfort barrier. The comfort barrier is the first point of resistance before the client perceives any discomfort.

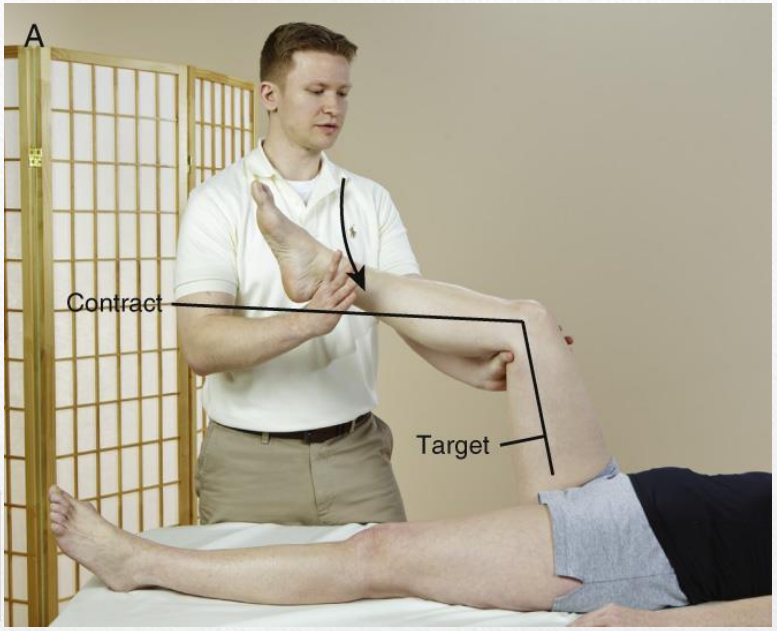
The refractory state may not be the reason for the ability for the muscle to lengthen more easily. The result may be attributed to an increase tolerance to stretch.

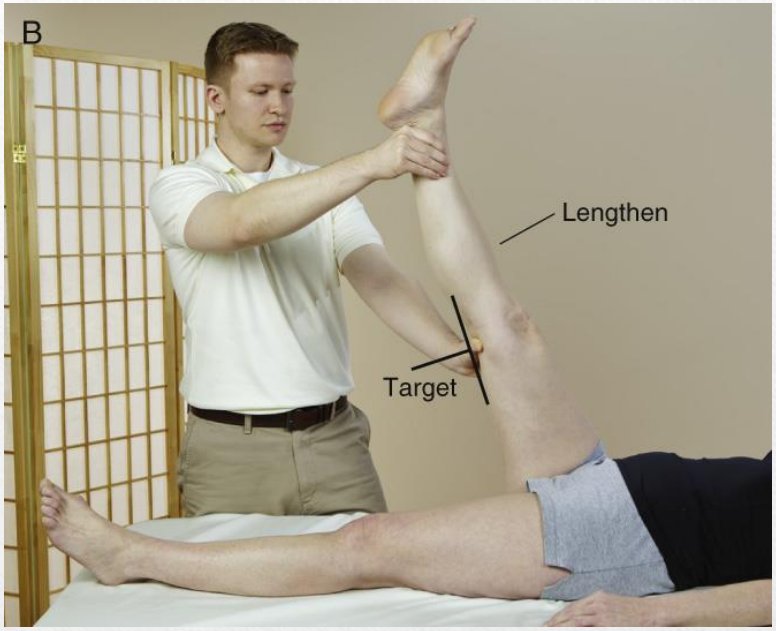
PIR Procedure

1. Lengthen the target muscle to the comfort barrier. Then back off slightly.
2. Tense the target muscle for 7 to 10 seconds.
3. Stop the contraction and lengthen the target muscle.
4. Repeat steps 1 through 3 until the normal full resting length is obtained.

After an isometric contraction, the muscle is briefly in a state in which nerve impulses to the target muscle are inhibited.

This period is called the refractory state, and it allows the target muscle to be lengthened passively to its comfort barrier. The comfort barrier is the first point of resistance before the client perceives any discomfort.



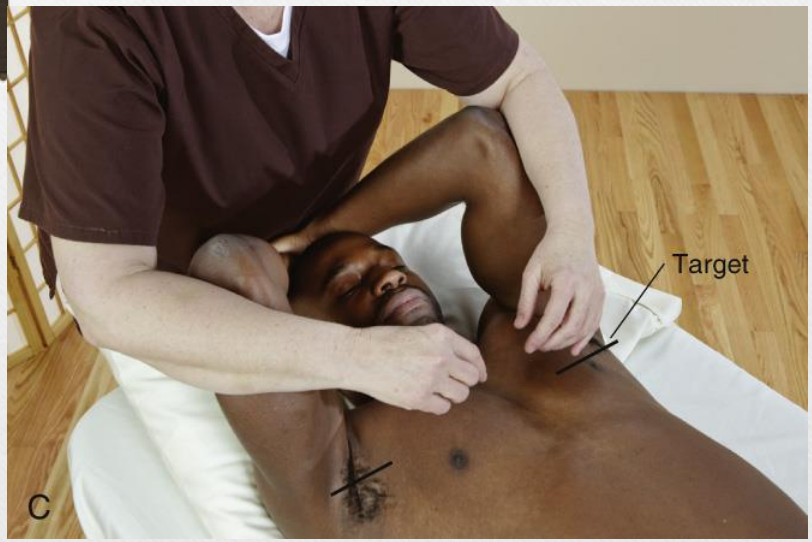


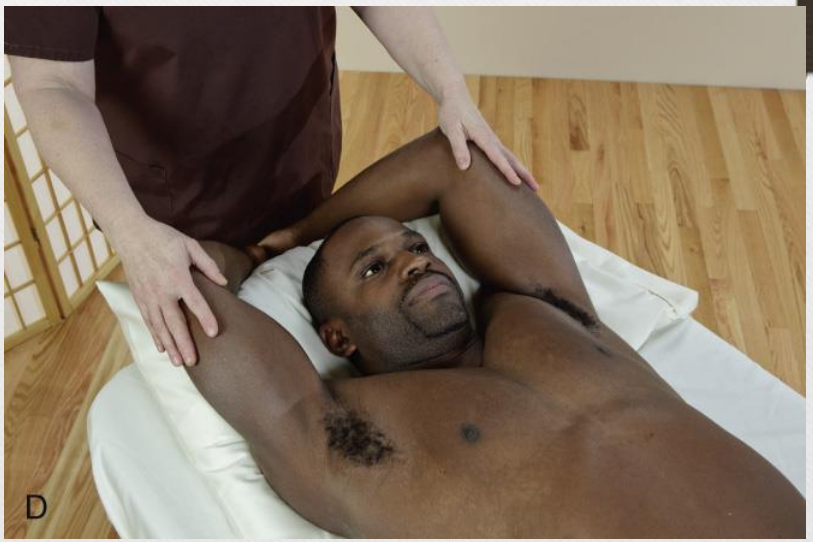
A, Isolate target muscles hamstrings and gastrocnemius and have client contract by pushing calf down.

B, Lengthen target muscle.

C, Isolate target muscles, latissimus dorsi, and pectoralis major, and have client contract by pushing arms down toward chest.

D, Relax and lengthen.





Neurophysiologic Principles

Reciprocal inhibition (RI)

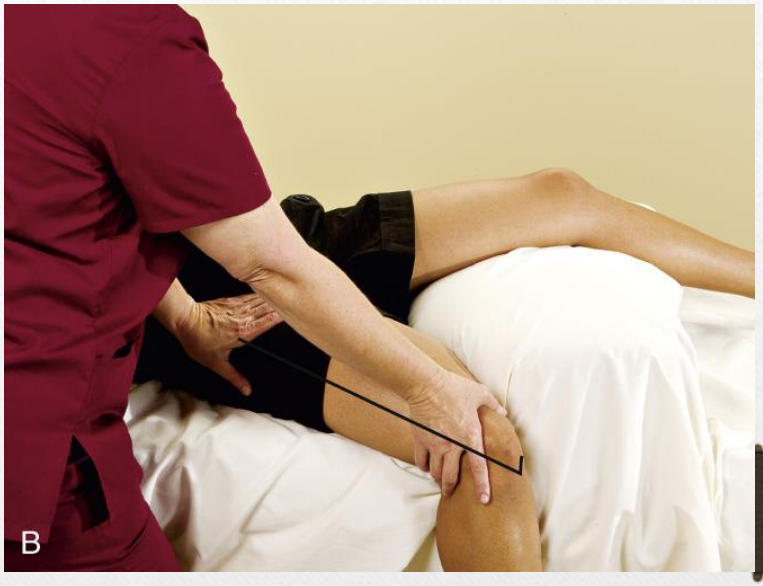
Contraction of one muscle allows its antagonist to relax.

Just as with postisometric relaxation, reciprocal inhibition may not be the reason for why muscle energy methods work.

Research indicates that an increase tolerance to stretch is the mechanism of action.

RI Procedure

1. Isolate the target muscles by putting them in passive contraction.
2. Contract the antagonist muscle group.
3. Stop the contraction and slowly bring the target muscle into a lengthened state, stopping at resistance.
4. Place the target muscle slightly into passive contraction again.
5. Repeat steps 2 through 4 until the normal full resting length is obtained.



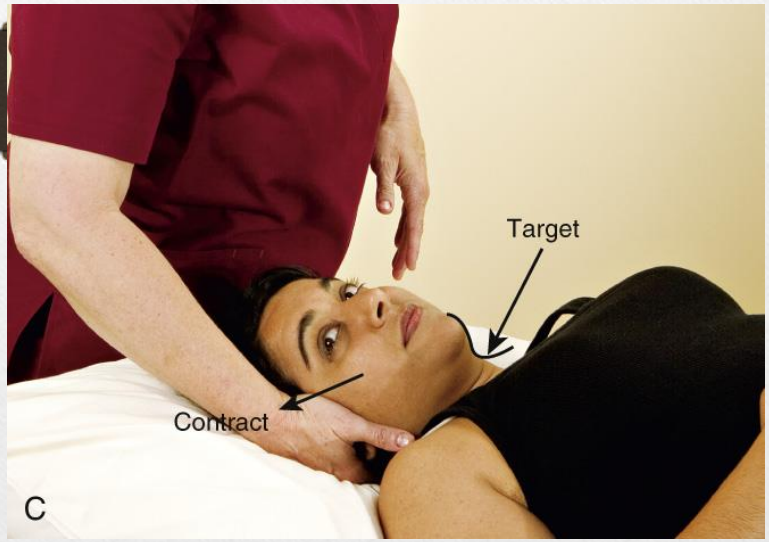
Muscle energy technique using antagonist contraction.

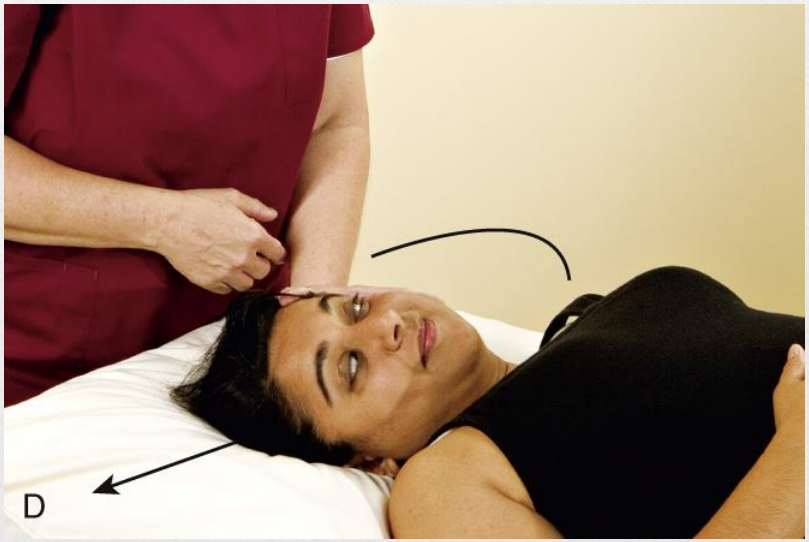
***A**, Antagonist contraction (hamstrings)—target quadriceps.*

***B**, Lengthen quadriceps.*

C, *Identify antagonist muscles (lateral neck flexors) and contract antagonist.*

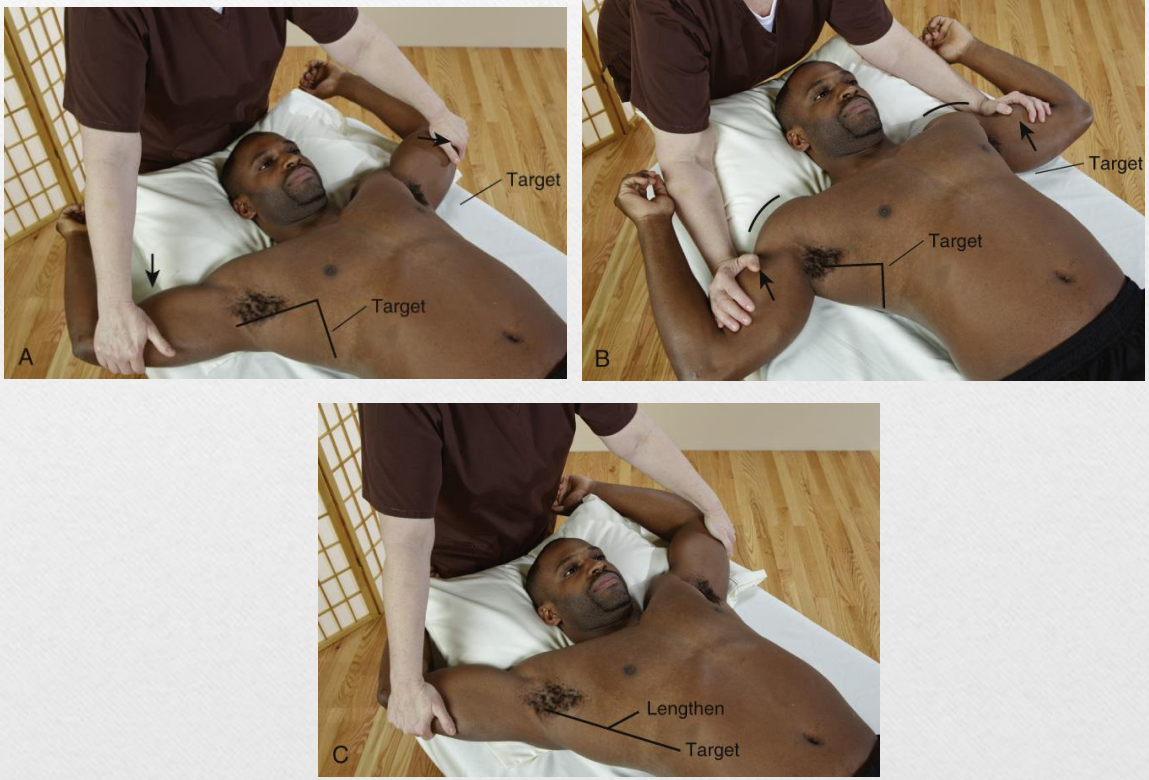
D*, Lengthen target muscles.*





Combined Methods: Contract-Relax-Antagonist-Contract

The method that results from the combination of the PIR and RI methods to enhance the lengthening effects



1. *Position the target muscles, as in tense and relax procedures.*

2. *Lengthen the target muscle to the barrier and back off slightly.*

3. *Tense the target muscle for 7–10 seconds.*

4. *Contract the antagonist muscle as in reciprocal inhibition.*

5. *Stop the contraction of the antagonist muscle.*

6. *Lengthen the muscle to a more resting length.*

Pulsed Muscle Energy Procedure

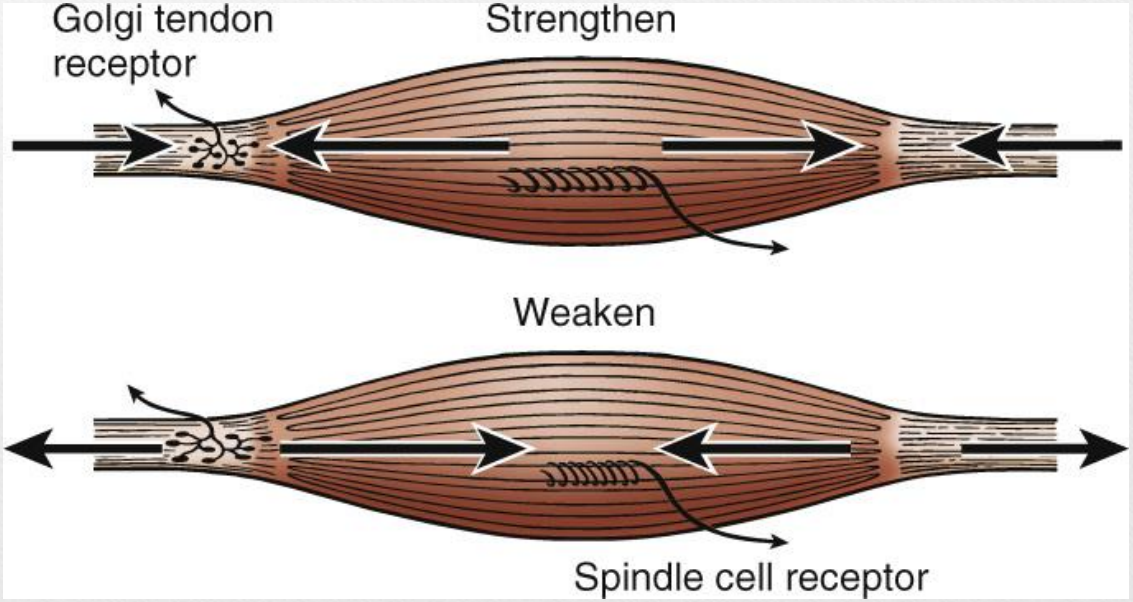
1. Isolate target muscle
2. Apply counterpressure
3. Client rapidly contracts muscle
4. Slowly lengthen target muscle
5. Repeat steps 2 and 4

The pulsed muscle energy involves engaging the comfort barrier and using small, resisted contractions (20 in 10 seconds).

Direct Application

Some clients cannot or will not actively participate in massage.

The principles of muscle energy techniques can still be used by direct manipulation of spindle cells or Golgi tendons.



When the client does not wish to or cannot participate actively in the massage, the principle of muscle energy techniques can be used by direct manipulation of the spindle cells or Golgi tendon.)

Approximation is the pushing of muscle fibers together in the belly of the muscle. It is a way to relieve muscle cramps.

Direct Application Procedure

1. Place the target muscle in comfortable passive extension.
2. Press the tissues together on the target muscle.
3. Pull the tissues apart on the antagonist muscle.
4. Lengthen the target muscle.
5. Repeat steps 2 through 4 until the normal full resting length is obtained.

Direct Manipulation of Golgi Tendon Organs

1. Place the target muscle in comfortable passive extension.
2. Pull apart on the tendon attachments of the target muscle.
3. Push the tendon attachments together on the antagonist muscle.
4. Lengthen the target muscle.
5. Repeat steps 2 through 4 until normal full resting length is obtained.

Direct manipulation of proprioceptive muscle.

A, Strengthen.

B, Weaken.

Positional Release /Strain-Counterstrain

Strain-counterstrain: Use tender points to guide the positioning of the body into a space where muscle tension can release on its own.

Repositioning of the body

- allows proprioceptors to stop firing protective signals and
- resets the neuromuscular mechanism

The positioning is a full-body process; therefore areas distant to the tender point must be considered during this process.

Positional Release Procedure

1. Locate the tender point.
2. Gently initiate the pain response with direct pressure.
3. Slowly position the body until pain subsides.
4. Wait at least 30 seconds or longer until the client feels the release.
5. Slowly lengthen the muscle.
6. Repeat steps 1 through 5.

The positioning is a full-body process; therefore areas distant to the tender point must be considered during this process.

The muscle energy methods can be used together or in sequence to enhance their effects because muscle tension in one area of the body indicates an imbalance and compensation pattern in other areas.

Generalized Positional Release

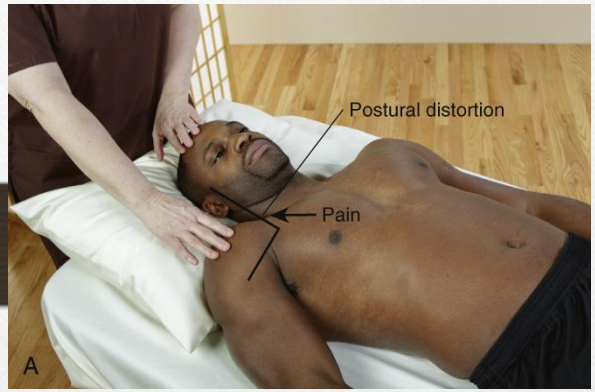
***A**, Identify tender points in **B** and **C** and begin to move the client into pain-relieving positions.*

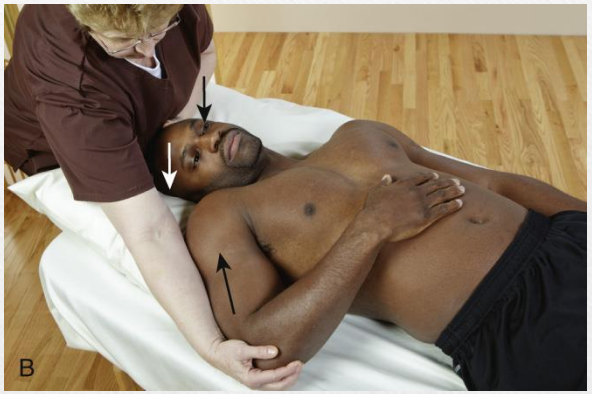
***A**, Identify tender points in **B** and **C** and begin to move the client into pain-relieving positions.*

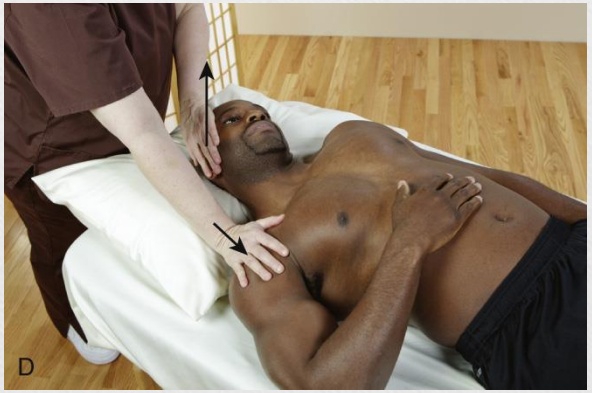
***D,** Direct lengthening of tender area.*

Integrated Approach

Using an integrated approach provides the nervous system with info needed to self-correct.

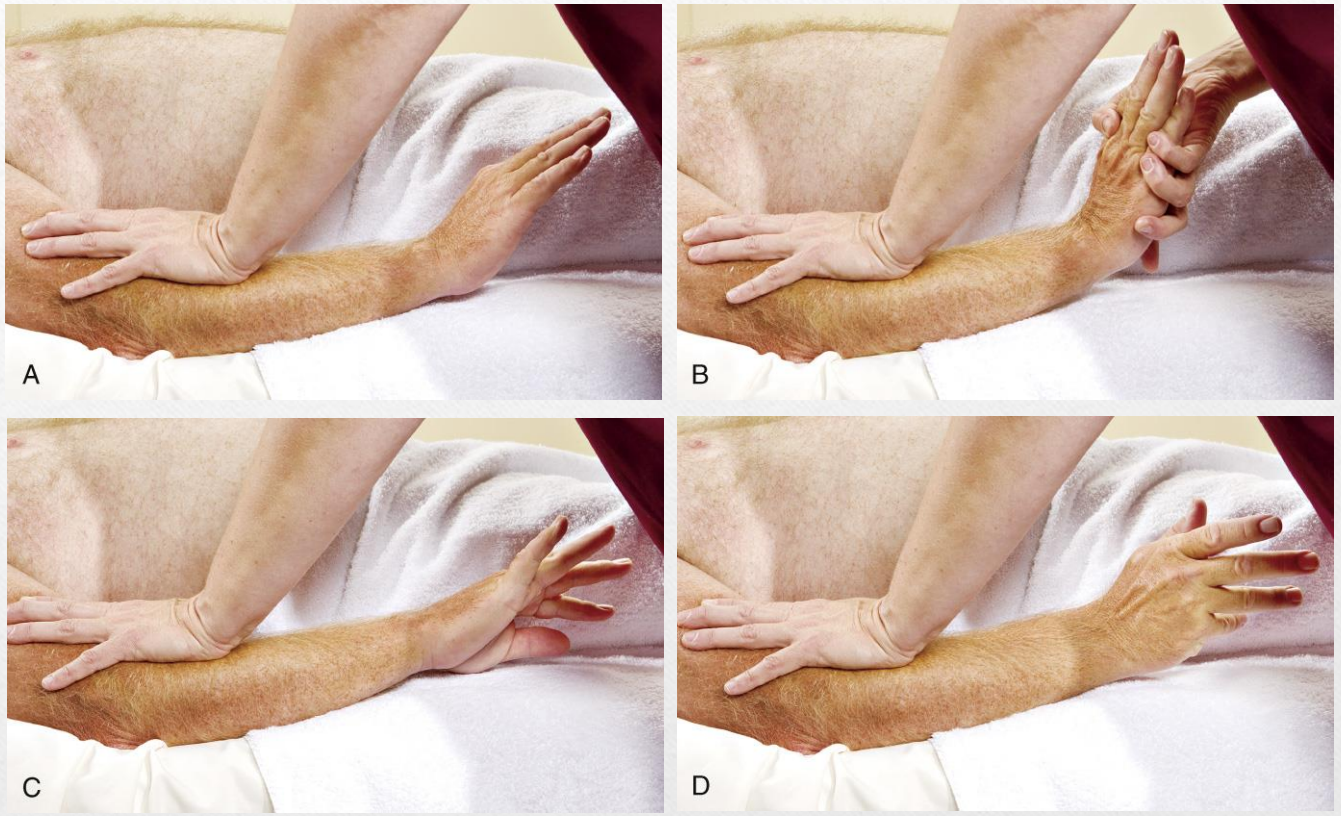






The muscle energy methods can be used together or in sequence to enhance their effects because muscle tension in one area of the body indicates an imbalance and compensation pattern in other areas.

Making It Simple



***A**, Identify short tissue. **B**, Increase passive shortening of tissue.*
***C and D**, Move distal joints in circle.*

Stretching

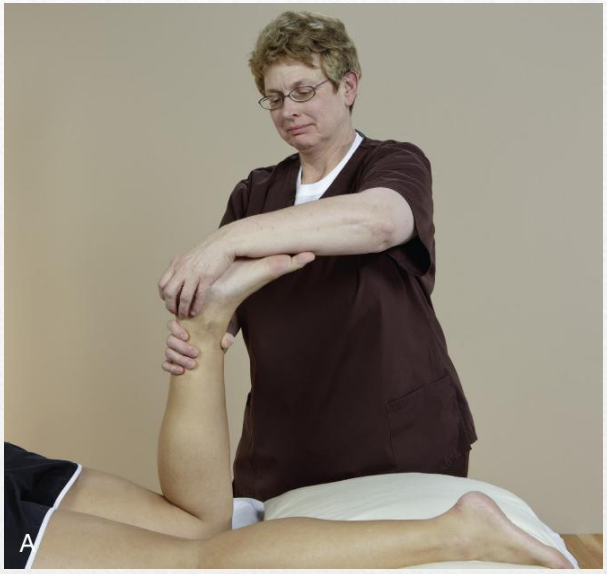
Stretching mechanically affects connective tissues by introducing bending, torsion, and tension forces.

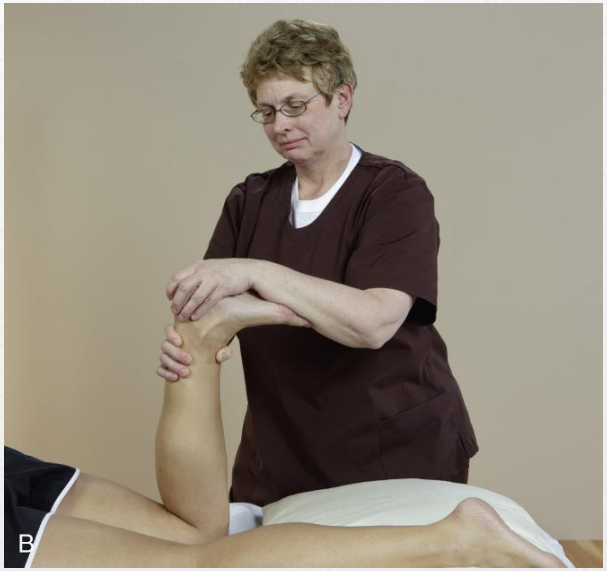
Longitudinal stretching pulls the connective tissue in the direction of the fiber configuration.

Cross-directional stretching pulls the connective tissue against the fiber direction.

Stretching affects the fiber component of connective tissue by elongating the fibers past their normal give and creates either a freeing of fibers or a small therapeutic inflammatory response that signals for change in the fibers. Stretching also warms and softens the ground substance of the connective tissue and increases its pliability

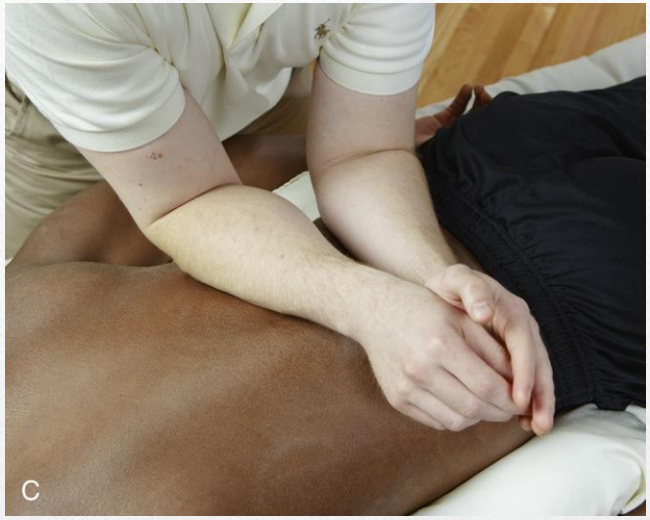
Passive Longitudinal Stretch

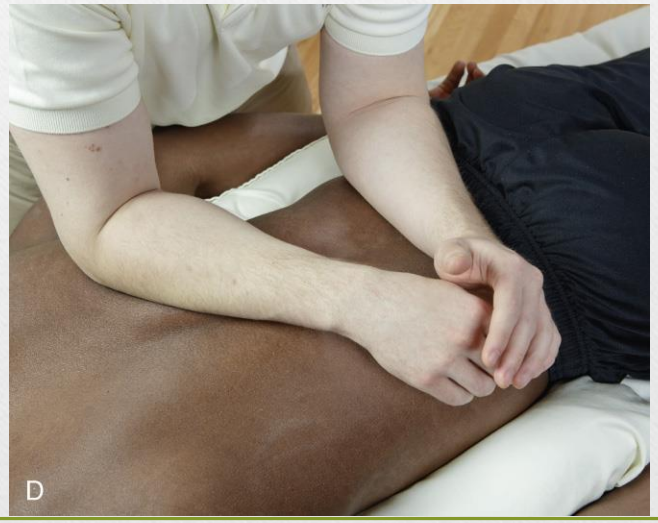




If lengthening is not performed first, the muscle may develop protective spasms. Stretching often moves into pathologic barriers formed by changes in connective tissues. The connective tissue cannot be accessed until the muscle is lengthened.)

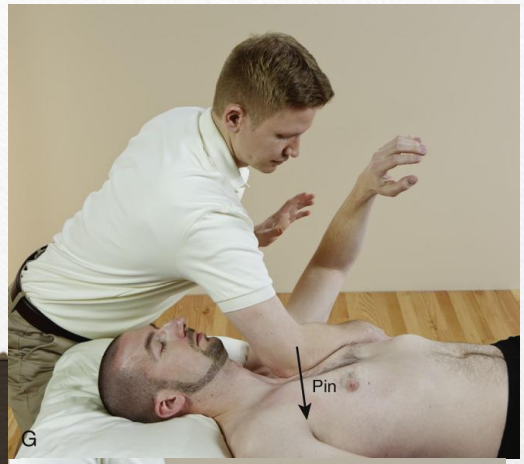
Direct Tissue Stretch

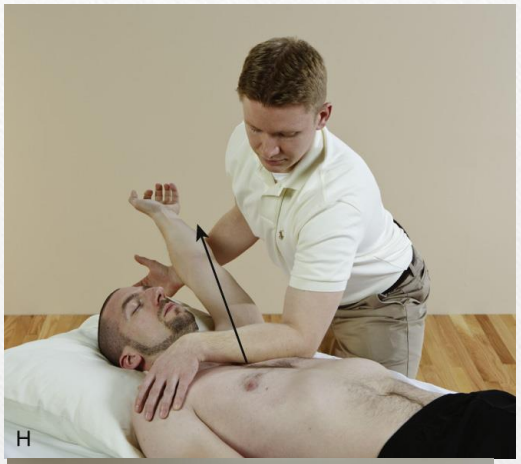


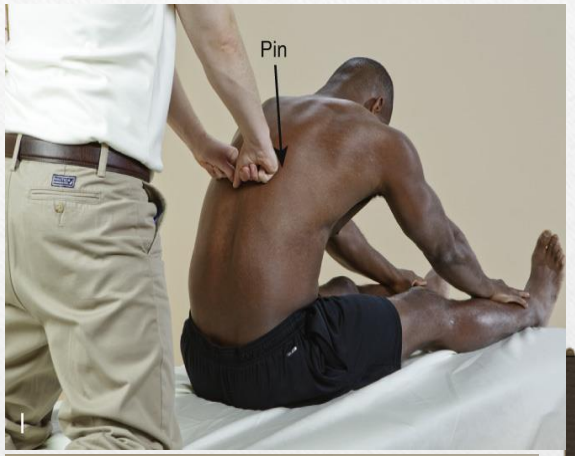


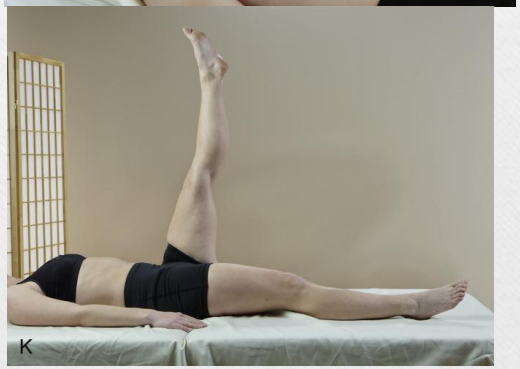
If lengthening is not performed first, the muscle may develop protective spasms. Stretching often moves into pathologic barriers formed by changes in connective tissues. The connective tissue cannot be accessed until the muscle is lengthened

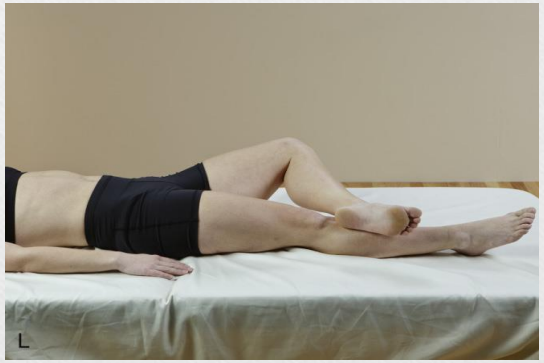
Active Release and Pin Stretch











At variations in the pin and stretch and active release concepts, simply involve the client either being passive or active.

Alternate Procedures for Longitudinal Stretching

Cold application or the cold spray-and-stretch: The cold spray stimulates cold receptor and blocks other sensory signals (proprioceptors) to allow muscle relaxation

Percussion with stretching: Same principle as cold spray-muscle relaxation

Stretching deep facial planes: Myofascial release and deep tissue work

Sequence and Flow

The focus of the session depends on the client's stated outcome based on:

- General history
- Basic assessment

Use variety of techniques in an effective sequence for each area of the body

- General to specific to general
- Superficial to deep to superficial

It accustoms the client to the touch, and it allows the massage practitioner to palpate through layers of tissue in a systematic manner for assessment. Without this approach, the client may experience postmassage soreness for hours or days after the session

To Test

Access Code: FD9HXN8

Please write down code. You will be asked for it

Once you have successfully passed the test (70% correct), please email Kim Jackson at kim_hotschool@yahoo.com. We will email you your CE certificate within 7 business days.