CMT seminar

Corrective Manual Therapy

Correcting Pelvic Torsion

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Section 1 - An Introduction to Corrective Manual Therapy Concepts

Corrective Manual Therapy (CMT) is a structured approach to the treatment dysfunction, soft tissue injury and chronic pain that addresses the muscular, skeletal and nervous systems. These CMT seminars are based on Aubrey Gowing's assessment and treatment protocols. This sequencing can help therapists quickly identify and treat common pain-producing conditions. These seminars are specially designed for practicing therapists who wish to dramatically improve treatment outcomes and shorten the route to success with each client. This approach was influenced by the work of many industry leaders such as, Erik Dalton, Tom Myers, Til Luchau, Whitney Lowe, Benny Vaughn, James Waslaski, Vladimir Janda and Leon Chaitow.

Dr. Vladimir Janda was a Czech neurologist and physiatrist. He began his study of medicine after receiving physiotherapy for polio in his teens. Janda's primary interest was the treatment of chronic musculoskeletal pain. Through clinical research he established predictable patterns of dysfunction he termed upper crossed and lower crossed syndromes (figure 1.1 & 1.2). These crossed syndromes describe how over used tight flexor muscles can inhibit other extensors muscles causing them to become weak. He used the terms Tonic to describe the flexors and Phasic for the extensors.

Goals of Treatment:

- To promote muscle balance, address fascial migration and adhesion.
- To reduce fibrotic tissue and adhesion
- To restore function and encourage optimal postural alignment
- To reduce hypertonicity in short, tight Tonic flexor muscles, that create asymmetry in the skeletal system.
- To reduce tensile pressure on the over stretched, weakened Phasic muscles, that permit asymmetry in the skeletal system.
- To promote recovery by supporting tissue and improving Proprioception
- Golgi Tendon Organ work (GTO's)
- Use the bones as leavers to treat soft tissue and relieve muscle guarding

Home Care:

The effects of treatment will be very short lived if home care exercises are not performed. Stretching of tight flexors is essential and takes only a few minutes. Strength training for weak extensors can also be done in minutes using inexpensive exercise bands.

Janda's Upper & Lower Crossed Syndromes

Tonic Muscles	Phasic Muscles
Prone to Tightness or Shortness	Prone to Weakness or Inhibition
Gastrocnemius Soleus Posterior Tibialis Flexor Digitorum & Hallucis Distal portion of the Hamstrings Quadriceps Gluteus Medius and Minimus Tensor Fascia Lata (T.F.L.) Piriformis and the deep hip rotators	Anterior Tibialis Extensor Digitorum & Hallucis Peroneals (Fibularis muscles) Proximal portion of the Hamstrings Adductors Gluteus Maximus

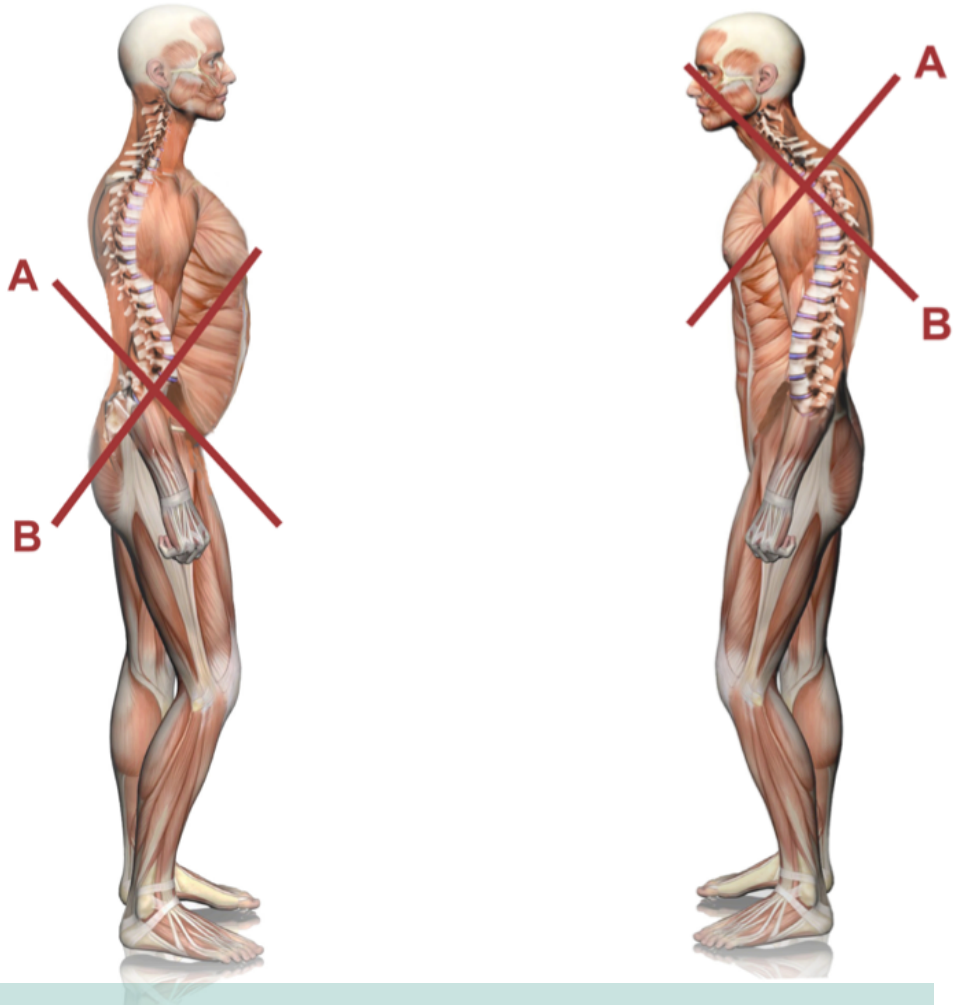
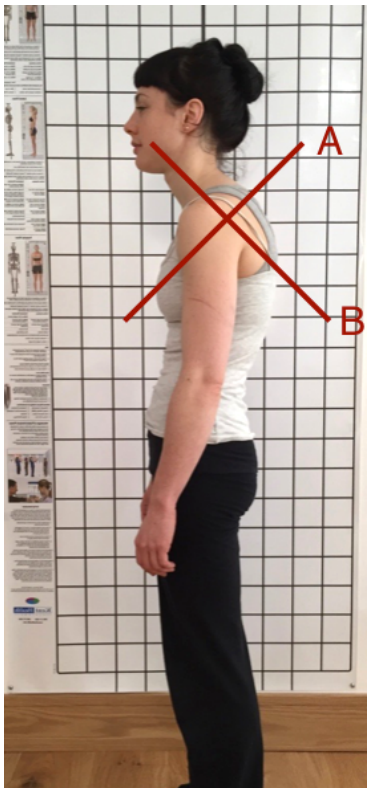


Figure 1.1 Illustration of Janda's Upper & Lower Crossed Syndromes

Janda's Upper & Lower Crossed Syndromes

Tonic Muscles	Phasic Muscles
Prone to Tightness or Shortness	Prone to Weakness or Inhibition
Iliopsoas Quadratus Lumborum Latissimus Dorsi Upper Trapezius Levator Scapulae Pectoralis Major & Minor Sternocleidomastoid Scalene Muscles Suboccipital Muscles	Gluteus Maximus Erector Spinae Multifidus Rhomboids Lower Trapezius Serratus Anterior (lower fibres) Deep Neck Flexors - Longus Colli & longus Capitis



Line A indicates muscles prone to tightness or shortness

Line B indicates muscles prone to weakness or inhibition

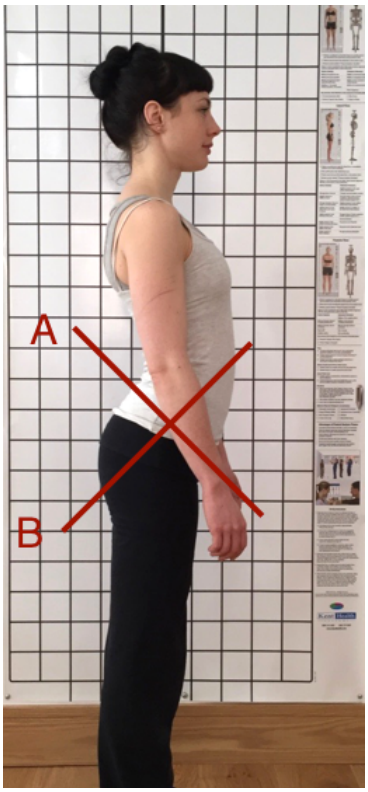


Figure 1.2 Mimicking Janda's Upper & Lower Crossed Syndromes

The cardinal planes are three basic planes which bisect the body. They are used to describe movement, reference a structures relationship to another structure and are used to describe planes in which dissections can be made (Figure 1.3).

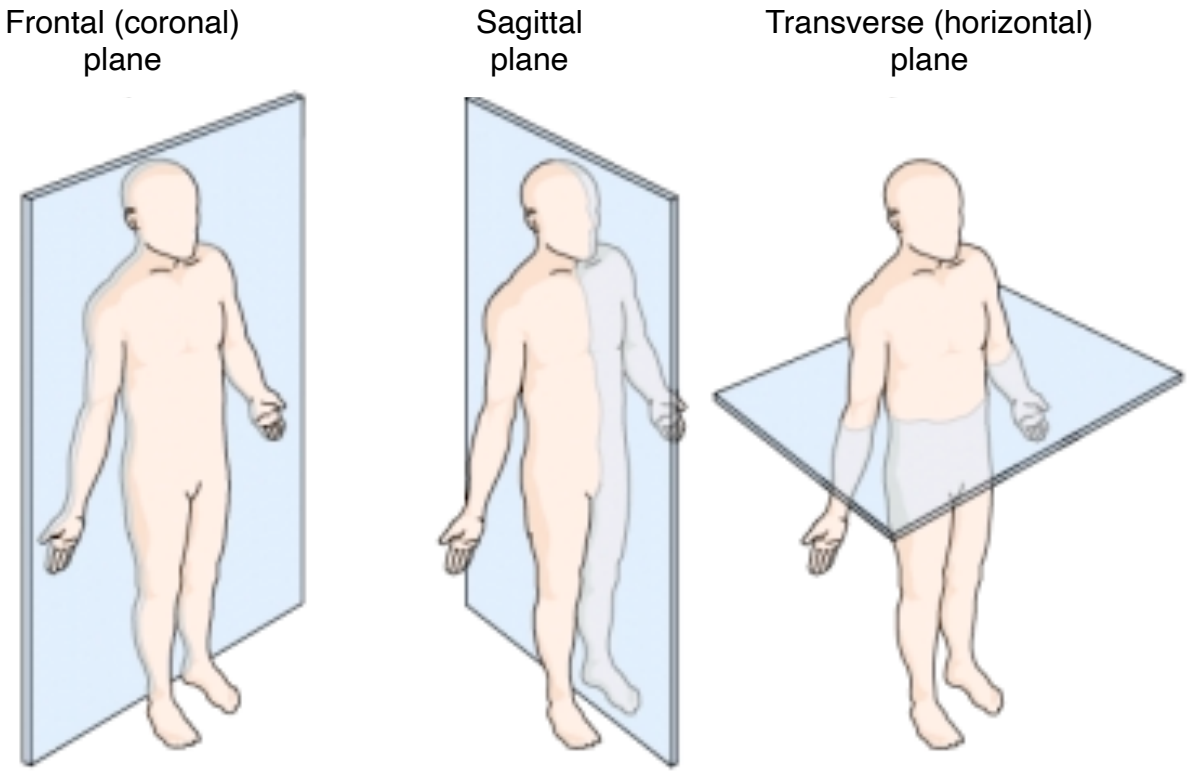


Figure 1.3 The three cardinal planes - Sagittal, Coronal & Transverse

"Increasing Range of Motion in any one of the three cardinal planes, increases Range of Motion in all three planes."

- Erik Dalton

This means if joint movement is restricted or painful in Sagittal plane (flexion or extension) instead of trying to force it to increase, move it in the Coronal plane (abduct or adduct).

Don't just mobilise a joint through its typical planes of motion, move it in ANY direction.

Each synovial joint needs to be capable of an eighth of an inch distraction for healthy cartilage and for synovial fluid circulation.

ASSESSING RANGE OF MOTION

There are three primary types of tests. Each one provides important information about the client's condition.

1. Active Range of Motion Test:

In an active test, the client performs the movement. As soft tissues, osseous tissue and cartilaginous tissues are all in motion, active tests are considered to give general information.

Active tests provide:

a) General information
b) Indicate the severity of the injury
c) Indicates the movement that causes discomfort.

Assess active ROM by having the client move through flexion, extension, lateral flexion and rotation

2. Passive Range of Motion Test:

In passive tests, the therapist provides the movement as the client remains relaxed or passive. As muscles are not contracting, passive structures can be tested.

Passive tests provide:

a) Specific information regarding passive structures e.g. ligaments, joint capsule and articulating cartilage.
b) True range of movement.
c) Information about end feel, e.g. leathery/soft tissue, springy/ tissue on tissue or hard/ bone on bone.

Assess passive ROM by moving the client through flexion, extension, lateral flexion and rotation and translation.

3. Muscle Resistance Test:

Resisted tests are performed by having the client isometrically contract a muscle against resistance. These are used to test the muscle, its tendon and attachment points for strains/ disorganised collagen.

Resisted tests:

a) Provide specific information about a muscle-tendon unit.
b) Differentiate between myofascial pain, neuromuscular pain, and muscle-tendon strain pain.
c) Enable the therapist to accurately locate and treat a strain.

N.B. for a resisted test to be considered positive, pain/discomfort must be felt in the muscle being tested during the test. Pain felt elsewhere during the test is NOT a positive test.

Remember, if in doubt, refer out!

The Nature Of Fascia

"Fascia is the organ of posture." - Ida P. Rolph Ph.D. 1896-1979

Definition

Fascia is loose irregular connective tissue found just about everywhere in the body. It is described as sparse, with a loose arrangement of collagen fibres and with greater amounts of elastin than the dense regular connective tissue found in ligaments and tendons. Typical fascia is multidirectional with a low density of fibres.

Function and Location

- Fascia has a greater amount of *ground substance* than other types of connective tissue and is in the immediate environment of every cell in the body.

- It forms the *interstitial* spaces and has important functions in support, protection, separation, cellular respiration, elimination, metabolism, fluid flow, and immune system function.

- Any restriction or dysfunction of the fascia can lead to a variety of problems, including poor exchange of cellular nutrients and wastes, pain and poor mobility.
- The muscles fascia or *Myofascia* is organised in layers that are continuous with the muscle tendon.
- From superficial to deep these layers are the Epimysium, Perimysium and Endomysium (figure 1.4 & 1.5).

Scanning electron micrograph of endomysial structures remaining after removal of the myofibrillar contents of muscle cells. The endomysium forms a continuous lattice connecting all the muscle fibers in the fascicle.

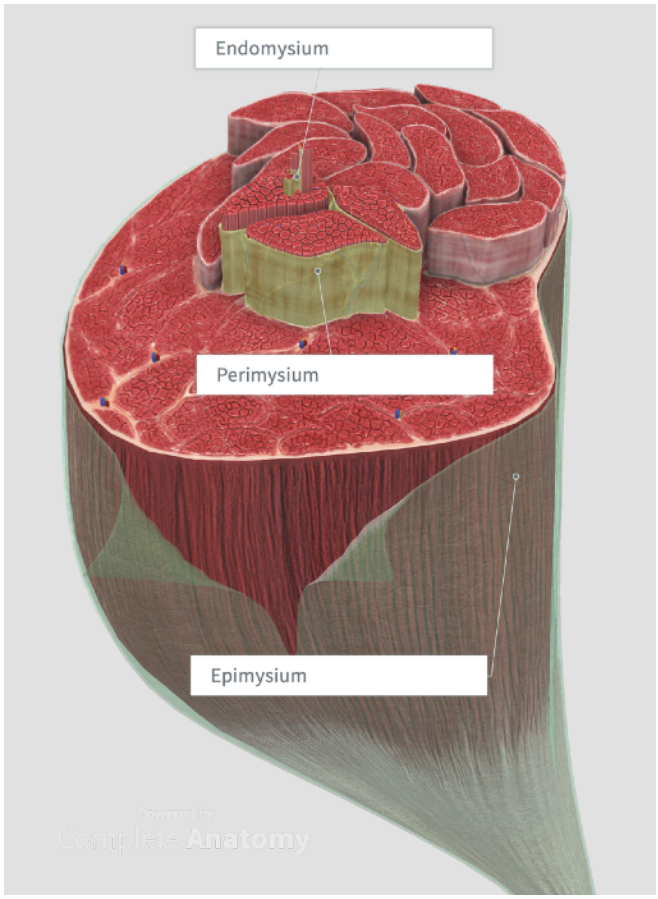


Figure 1.4 & 1.5 Myofascia

Contra Indications

A contraindication is any symptom or condition that renders performing a massage unsafe for either the client or therapist. They can be divided into 2 categories:

1. Conditions that restrict treatment - Either Totally or Locally.
2. Medical contraindications when massage may only be performed with the written consent of the client's doctor.

Total Contra-indications: Massage should not be performed at all.

Fever. Infection. Under the influence of drugs or alcohol. Diarrhoea. Vomiting

Local Contra-indications: Massage can be performed on the rest of the body except on the effected area

Skin diseases. Undiagnosed lumps and bumps. Localised swelling. Inflammation. Varicose veins – work above the vein. Pregnancy (after medical permission obtained and not over the abdomen). Cuts and bruises (haematoma). Bites and stings. Abrasions. Scar tissue (2 years for major surgery and 6 months for a small scar). Sunburn. Abdomen (first few days of menstruation). Hormonal implants. Hernia. Recent fractures (minimum 3 months). Gastric ulcers. After a heavy meal

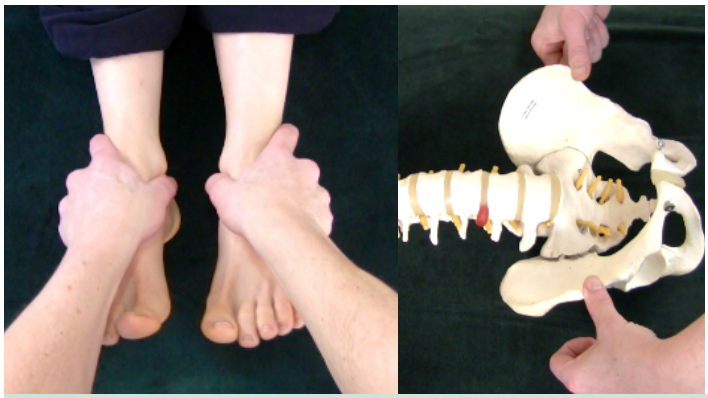
With Medical GP or Specialist Permission:

Pregnancy – seek permission for massage, avoid the abdomen. Cardio vascular conditions - thrombosis, phlebitis, hypertension (high BP), hypotension (low BP), heart conditions. Medical oedema. Osteoporosis . Nervous/Psychotic conditions. Recent operations (2 years for major surgery and 6 months for a small scar). Diabetes (check for reduced nerve sensation - Dermatome tests). Bells Palsy (during infectious phase). Trapped/Pinched nerve. Inflamed nerve. Acute rheumatism. Kidney infections. Recent Whiplash (must have medical clearance). Haemophilia. Undergoing cancer treatment. Ruptured disc. Undiagnosed pain

Section 2 - Supine Pelvic Torsion Correction

Structural assessment Supine:

- Supine leg length test
- Ilium rocking
- Check levels of ASIS
- Check levels of PSIS
- Palpate the S.I. ligaments



Leg length and ASIS assessment

Supine techniques for de-rotating the pelvis

1. Myofascial technique for the TFL

As Tensor Fascia Lata is typically short and tight, the myofascial technique is applied from origin to insertion. The therapist uses the dorsal surface of the fingers to sink into the muscle until a resistance is felt. A fascial 'hook' is then achieved by drawing the muscle distally. This 'hooking in' is central to this technique and should feel like there is drag or resistance as the therapist rotates the leg to mobilise the muscle fibres of TFL (Figure 2.1).

Figure 2.1 Myofascial technique for TFL

2. Myofascial technique for Quads

This technique is applied from origin to insertion, as the quads are typically short and tight. The muscle and its fascia is 'hooked into' and moved distally. Again, a drag or resistance should be felt as the therapist's hands move distally. Pressure is strong enough to meet the depth of resistance in the tissue, but not so heavy as to create tissue crush or pinching against the femur. The technique can be applied with the palm, the dorsal surface of the fingers, the finger pads or the forearm alternately (Figure 2.2).

Figure 2.2 Myofascial technique for Quads

3. Hip capsule mobilisation

If a bone on bone like end feel is encountered on femoral rotation, the treatment protocol indicates positional release and joint distraction to address this adhesion. Aggressive stretching will only irritate a capsular adhesion and can increase fibrosis. The adhesive processes among the collagen fibres of the capsule respond positively and soften in response to pressure, heat and movement.

Figure 2.3 Positional release for the hip

Positional release is used initially to reduce guarding and calm the hypersensitive neurological responses in the area (Figure 2.3). The thigh is pushed superiorly to seat the femoral head in the acetabulum. Care must be taken to avoid using excessive force and to hold at the point where the pelvis is just beginning to move. This will avoid a compressive force travelling up into the lumbar spine and causing irritation at L5/S1.

Figure 2.4 Decompression of the hip

Once a relaxation of the local tissues is felt the focus switches to decompressing the hip and gently stretching the surrounding tissues (Figure 2.4).

4. Treat Iliacus and Psoas

Pump and stretch - This starts with the muscles of the abdominal wall, progressing through the intestines before finally contacting and treating Iliacus and then Psoas. Work slowly, without causing pain. If at any stage an arterial pulse is felt the hand placement must be changed immediately.

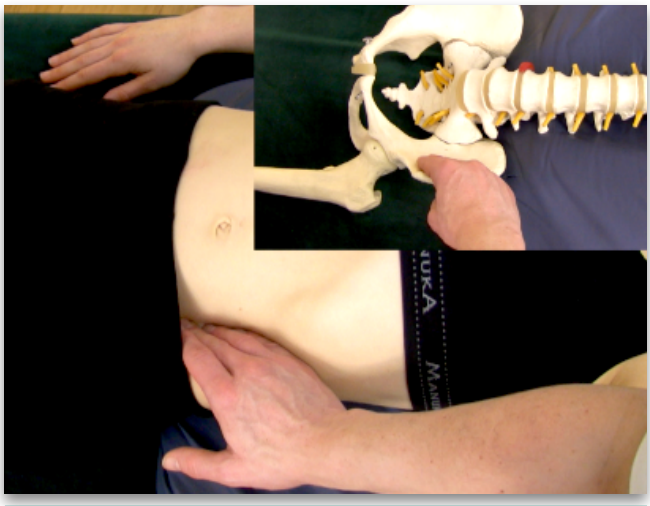


Figure 2.5 Hand placement for working Iliacus

To work the Iliacus portion of Iliopsoas, the index finger of the craniad hand (closest to the head) is placed just superior to ASIS with the fingers resting on the abdomen. The pressure is gently increased in a posterior and lateral direction, with the intent of contacting the inner aspect of the ilium (Figure 2.5). Once mild tissue resistance is felt, begin gently compressing and releasing to pump the tissue.

Active engagement. At this point, the therapist gently compresses and holds the muscle as the client is asked to medially and laterally rotate the femur for approximately 10 seconds.

Decompress the hip. While still maintaining contact with the iliacus, the caudad hand is then placed on the thigh. The fascial layers are then drawn or 'flossed' back and forth 3 to 4 times. This technique also helps decompress the hip when pressure is applied distally.

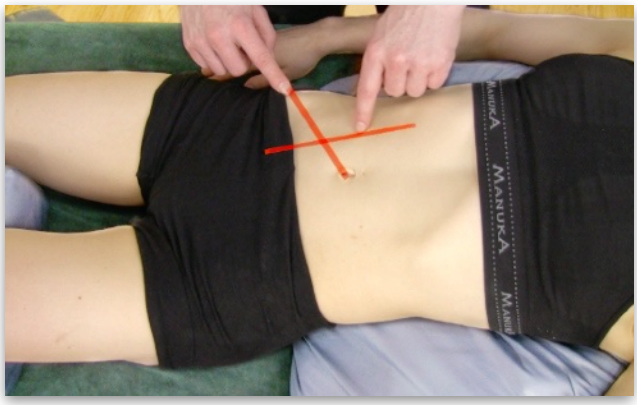


Figure 2.6 Hand placement for working Psoas

This active engagement and fascial flossing is repeated 3-4 times until the tissue texture has normalised, i.e. it is smooth to palpation and no sensitivity remains.

The hand placement is then adjusted to target Psoas (figure 2.6) and the protocol is repeated; Pump and stretch, Active engagement and tissue floss (figure 2.7).

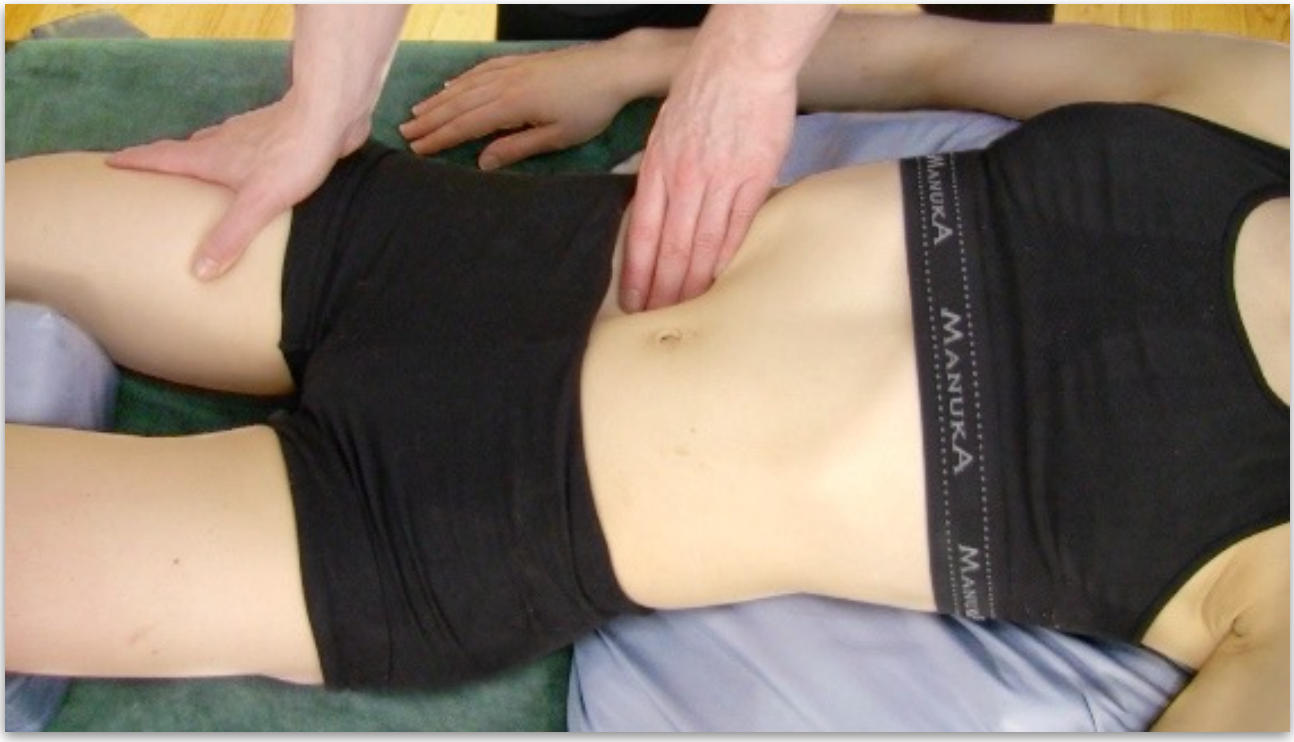


Figure 2.7 Myofascial release and fascial flossing applied to Psoas

5. Don Tigney's pelvic torsion correction

With the client's knees flexed, the therapist places the forearm closest to the client's head at the back of the knee, on the same side as the low ASIS. The knees are rolled away from the therapist to the first point of resistance or 'bind' (Figure 2.8). The client then 'hip hikes' to pull the hip towards the shoulder on the same side. This tension is held for 10 seconds and on relaxation the knee is pulled distally and the client is further rotated to the next point of bind.

Figure 2.8 Don Tigney's pelvic torsion correction. Performed on the anteriorly, inferiorly rotated side only

6. Pubic symphysis alignment technique - Iliac in-flare and out-flare

The client is asked to alternate between Adducting and Abducting against the therapist's resistance. As the client adducts with the femurs fixed in position, by the therapist's resistance, the adductor muscles pull on the base of the pelvis creating in-flare (Figure 2.9). As the client abducts against the therapist's resistance glut medius and minimus pull on the ilia to create out-flare. The technique can be enhanced with elevation (bridge position) and/or pelvic rocking (optional)

Figure 2.9 Pubic symphysis alignment technique. Shown here is adduction used to create iliac inflare

Section 3 - Prone Pelvic Torsion Correction

7. MET for the hip flexors

If iliacus or psoas test as short and tight in a Thomas test, this will be seen as restricted extension of the femur with the knee at the distal end of the femur sitting higher than the hip at the proximal end. In a prone position, limited femoral extension will be observed. In either case, MET is indicated to restore extensibility and normal muscle resting length.

To apply the technique, it is important that the pelvis is stabilised to prevent anterior tilt and lumbosacral compression and pain. This is done by placing the hand closest to the 'head end' of the table (the cephalic hand) at the proximal end of the femur, at the gluteal crease to pin the femur and pelvis to the table. The hand closest to the 'foot end' of the table (the caudal hand) holds the thigh just proximal to the patella on the anterior surface to lift the leg. The client then contracts the hip flexors by attempting to press the knee into the table (Figure 2.1).

Figure 3.1 Hip flexor MET

8. Spindle Stim

If muscles are tight and need to have their normal muscle resting length restored, MET and stretching are perfect. However, when a muscle is weak and inhibited it needs to increase its tone, not reduce it. This is where spindle stim is extremely useful. By placing a sudden load on the muscle-tendon junction, a spinal reflex arc will cause a motor response that will increase tone in the affected muscle. This is the opposite side of the coin that is neglected in most therapy sessions.

This loading of the specialised nerve endings in the muscle-tendon junction known as muscle spindles, is achieved by placing a sudden rhythmic pull or tug on the tendon. A loose fist is used to hook into and pull on the muscle, away from its attachments at either end (Figure 3.2). The effect is short lived but can help restore proprioception and elevate habitual hypotonicity that Tom Myers terms 'sensory-motor amnesia'.

Figure 3.2 Spindle stim applied to glute max

9. Sacroiliac torsion treatment

De-rotate a torsioned pelvis by drawing back on the ilium that presents as the low ASIS at the front (Figure 3.3). Stabilise the opposite S.I. joint using the heel of the hand and have the client push the low ilium towards the table for 5-10 seconds, then increase the rotation. Repeat 3-4 times.

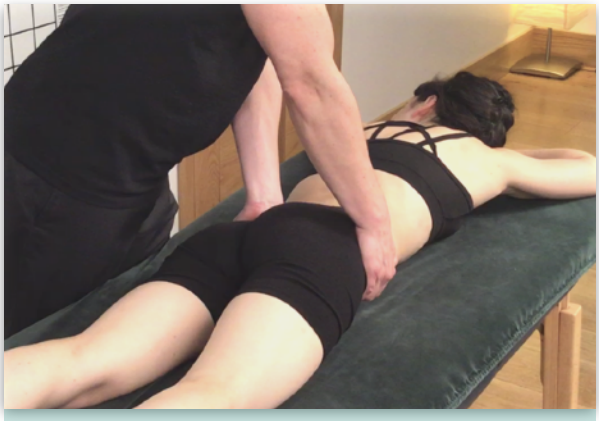


Figure 3.3 Sacroiliac torsion treatment

10. Up-slip correction

Check the levels of the PSIS after the iliosacral alignment technique. If the high side appears higher after the application there is an up-slip leg on the side of the high PSIS is gripped therapist's legs while the heel of the hand client's sacrum at the inferior lateral angle (ILA). The client's leg is pulled distally to move the high ilium inferiorly correcting the up-slip (Figure 3.4).

Repeat the iliosacral alignment technique and up-slip correction until the PSIS are level and the ligaments no longer palpate as painful.

Figure 3.4 To correct iliac up-slip the leg is pulled down as the sacrum is stabilised

Supine or Optional Side-lying MET for QL

11. Supine MET for QL

With the client lying supine, the therapist holds the lower leg or feet and swings the legs towards themselves until the first point of resistance is felt. The client is then instructed to gently pull the legs back to a centred position (figure 3.5). This contracts the QL. The contraction is held for 10 seconds. This must be pain free.

After 10 seconds the client relaxes and takes a deep breath. On exhalation the therapist swings the legs further to the side and the process is repeated approximately three times.

Figure 3.5 Supine MET for QL

Optional Side-lying MET for QL

With the client Side-lying, the therapist holds the clients leg around the heal and foot. The therapist then sits into a squat position pulling the leg distally and dropping the pelvis on the same side. The client is then asked to gently pull the hip up, as in a hip hike. This contraction is held for 10 seconds. Again, this must be pain free. If the client feels pain on contraction, this is serving as a muscle resistance test. Ask them to point to where it feel sore and treat as appropriate (figure 3.6).

After 10 seconds the client relaxes and takes a deep breath. On exhalation the therapist pulls down further on the leg to further open the gap between the pelvis and the ribcage, increasing the length of QL. The process is repeated approximately three times or until normal resting length is restored.

Figure 3.6 Side-lying release for tight QL

Section 4 - Optional Finishing Techniques

12. Sacral base decompression

Placing the palm of the hand flat on the sacrum, the therapists applies a pressure to encourage the sacrum to move into nutation and reduces pressure as the sacrum moves back in counter-nutation (Figure 4.1). This is most effective when timed with the clients breathing.

Figure 4.1 Sacral base decompression

13. Sacral torsion correction

Placing the heel of the hand on the sacrum the therapist gently but firmly presses in a pumping or springing motion (Figure 4.2). Restriction in the joint will be felt as a lack of movement. By working around the sacrum springing from different angles the therapist can identify restriction and restore joint motion by simply springing until motion is restored.

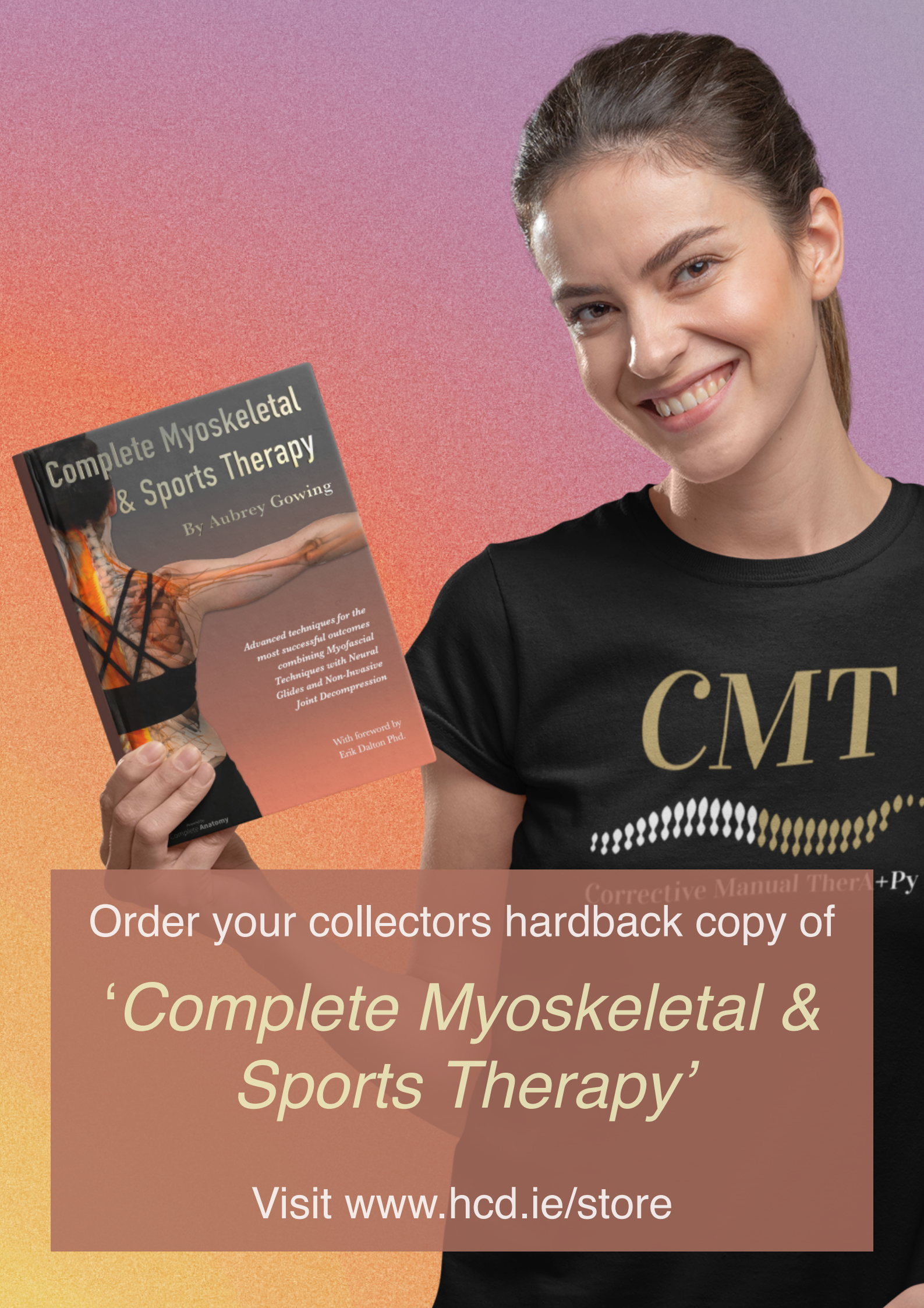
Figure 4.2 Sacral base decompression

14.Sacral base decompression / Jelly roll

Flexion of the lumbar spine should cause the facet joints to open. Lifting one leg at a time the client actively flexes on exhalation to bring the knees to the chest. The therapist assists by lifting the pelvis and gently pressing on the knees to focus the movement into the lumbar spine (Figure 4.3).

Figure 4.3 Sacral base decompression

Caution! This technique must only be performed pain free. If pain is felt, discontinue the technique immediately.



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