



TERRA ROSA ***E-MAGAZINE***

Open information for massage therapists & bodyworkers

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Inside this Issue

- 2 Cover Feature
- 2 Fascia and Fascism
- 3 Joint Mobilisation of the Neck—Joe Muscolino
- 9 Warming up—Art Riggs
- 10 Chronic Hamstring Strain and the Pelvis—Stephanie Panayi
- 12 Fascial Unwinding Cancels Torsional Forces—Dorothea Blostein
- 17 Myofascial Vacuum Cupping—Robert Granter
- 21 Give Them a Reason to Come Back—Don Dillon
- 24 Muscle Energy Techniques for Thoracic Outlet Syndrome—Tom Ockler
- 27 Pandiculation: An organic way to maintain musculoskeletal health—Luiz Fernando Bertolucci
- 36 Body Image and Massage
- 39 Research Highlights
- 41 6 Questions to Robert Granter
- 42 6 Questions to Byron Barth

Welcome to our ninth issue of Terra Rosa e-magazine at the end of 2011. It has been a great year, despite of the economic uncertainty, I think Australia is quite stable and strong. Most probably of that reason, many international instructors (from USA) came down under with great workshops, notably Joe Muscolino, Tom Myers and Robert Schelip. We will see more great teachers again next year. Joe Muscolino will be in Australia in March 2012 and Art Riggs will be here in October 2012.

In this issue, we begin with Joe Muscolino showing joint mobilisation techniques for the neck. Art Riggs answers some a fundamental issue on warming up. Here we have 2 articles from our Melbourne bodyworkers. Steph tackles the issue of hamstring strain, and Robert Granter shows you the new myofascial cupping technique.

The topic of fascial unwinding is back, Dorothea from Canada proposes a model and Fernando from Brazil proposes Pandiculation as a natural way to maintain our fascial flexibility.

Don Dillon deals with the business issue, and gives you some tips how to get your client back. And Tom Ockler explains MET for thoracic outlet syndrome.

Don't forget to read 6 questions to Robert Granter and Byron Barth.

Have a good holiday, hope you have a successful new year. Enjoy reading and Stay Healthy

Sydney, December2011

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Cover Feature



Featured on the cover is Anika-Jovi McCarthy, 11 years old, a Junior Excellence Programme student at [Queensland National Ballet](#) (QNB). Anika loves dancing and was recently awarded the 2011 "Most Promising Classical Ballet (junior) Dancer" Trophy at Redlands. She also performs in classical ballet, neo-classical, contemporary, jazz and flamenco at the Eisteddfods, Anika has been rewarded a number of first and second places so far in 2011 at Wynnum, Ipswich, Redcliffe and Redlands. She is also performing in Brisbane, Gold Coast and Beenleigh Eisteddfods in August-September 2011. Last year, Anika won the classical championships in Redlands, Beenleigh and Gold Coast.

Anika also trained in competitive Irish dancing and Troupe Eisteddfod dances with Kick Dance Studio, Bulimba where Anika started dancing since she was in pre school. Lisa Wyatt, Kick Dance's principal said that Anika excelled in athletics and represented her school St Peter's and Paul's at district level. Anika's teacher at QNB is Tracey Myles.

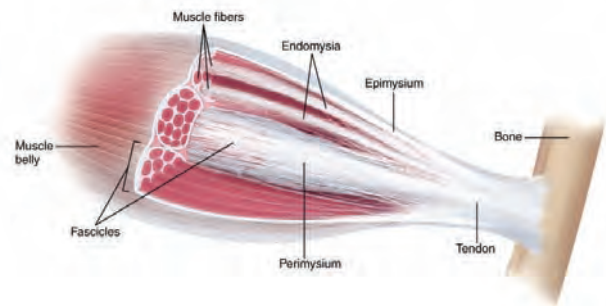
Anika's prime dancing support (chauffeur, costume change assistant, massage therapist, etc.) is her mother Maria Victoria McCarthy, a counsellor at Queensland University of Technology (QUT). Maria is a trained reflexologist and has a great interest in bodywork, yoga and meditation. According to Maria, Anika is a good kid, loves music, school, having friends and eats her veggies. Anika is also fond of sailing her little "sabot" (her dad, John McCarthy is her sailing coach) and likes to beat her 21 year old brother Jonas Trefeu when they play chess.

Anika has been accepted to train with the Australian Ballet (interstate training program for gifted children) and excited to meet with fellow young dancers in Melbourne in September.

Photograph by Tom Baker, <http://www.tombakerphotographics.com.au/>

Fascia & Fascism

The terms *fascia* and *fascism* share the same Latin word root origin, *fascia*, which means bandage. Fascial tissue is so named because like a bandage, it wraps around and connects structures. Fascism derives from the Latin word *fasces*, which was a bundle of rods tied together (bandaged) around an axe, and was an ancient Roman symbol of authority. The symbolism of the fasces represented strength through unity because whereas a single rod is easily broken, a bundle is difficult to break.



Text from: *Kinesiology: The Skeletal System and Muscle Function*, 2ed., Elsevier, 2011. Muscle figure reprinted with permission of the *Massage Therapy Journal*; artwork by Giovanni Rimasti. Fasces figure from public domain image at rationalwiki.org.

JOINT MOBILISATION OF THE NECK

By Joe Muscolino, DC

Joint mobilisation is a type of joint manipulation that effectively is a very precise method of pin and stretching*. What makes joint mobilisation unique and different than typical pin and stretching is that the joint is moved into a range of motion that is called joint play. Joint play is defined as the small amount of motion permissible after the end of passive range of motion is reached (Figure 1). When doing joint mobilisation of the neck, the neck can be stretched in all possible ranges of motion: flexion or extension in the sagittal plane; lateral flexions in the frontal plane; rotations in the transverse plane, oblique plane combinations of these cardinal plane joint actions, and nonaxial glide motions.

Joint mobilisation requires a fine coordination of both of the therapist's hands. The stabilisation hand primarily functions to stabilize (pin) one bone at the joint while the treatment hand then moves the other bone of the joint into the realm of joint play, stretching the soft tissues of the joint. Because the range of joint play is very small, it is extremely important that joint mobilisation is done very carefully. Further, its movement

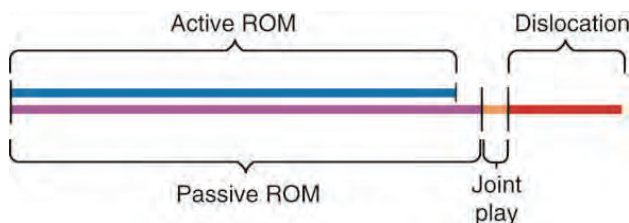


Figure 1. The relationship between active, passive, and joint play ranges of motion. (Figure from Kinesiology, Kinesiology: The Skeletal System and Muscle Function, 2ed., Elsevier, 2011)

Cautions:

Joint mobilisation of the cervical spine is a very powerful technique that has the potential to do great good, but may cause harm instead if not performed correctly. It is extremely important with joint mobilisation (or any type of stretch for that matter) that the stretch is not forced; the client should never experience any pain. Further, if the client has a bulging or herniated disc, or advanced degenerative joint disease (osteoarthritis), joint mobilisation at or near that level is likely contraindicated. In these cases, written permission from the client's physician should be obtained before performing joint mobilisation of the neck.

should be performed slowly and evenly as the joint is stretched into its joint play range of motion; joint mobilisation never involves a fast thrust!

Treatment hand contact

When performing joint play to the client's neck, there is a choice of possible treatment hand contacts. Figures 2abc illustrate three options: the thumb pad, finger pads, and the radial side of the proximal phalanx of the index finger respectively. In each case, the contact point on the client's body is the vertebral facet (articular process) located approximately halfway between the spinous process and transverse process (Figure 3); in the cervical region, the facets form a wide and comfortable place to contact and move a vertebra.

* Pin and stretch is the type of stretching in which one hand pins (fixes) a part of the client's body while the other hand stretches the client around that pinned point. This allows for a more specific stretch to be done than would otherwise be possible.

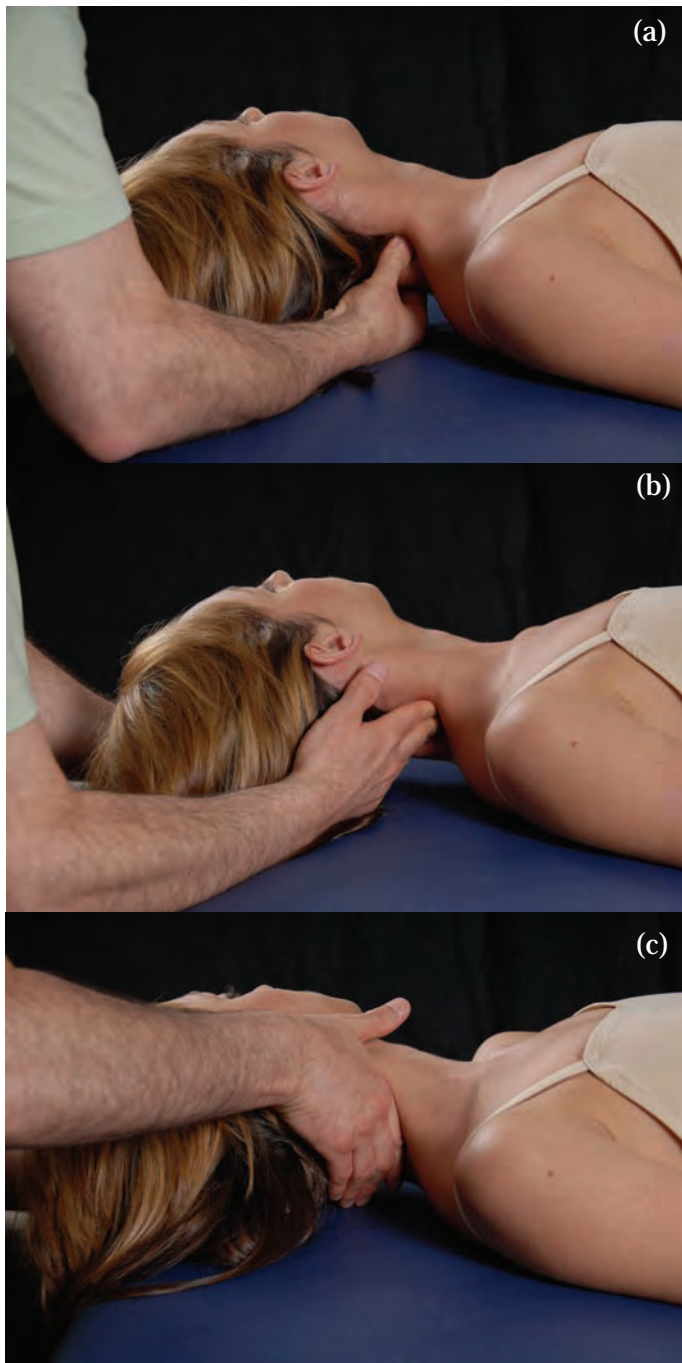


Figure 2. Treatment hand contacts when performing joint mobilisation of the cervical spine. (a) Thumb pad. (b) Finger pads, and (c) radial side of the index finger.

It is critically important to emphasize that joint mobilizations never involve any type of fast thrust. If a fast thrust is done, the therapist is no longer performing a joint mobilization, but rather is performing an osseous adjustment that is only within the scope of practice of chiropractors and osteopaths.

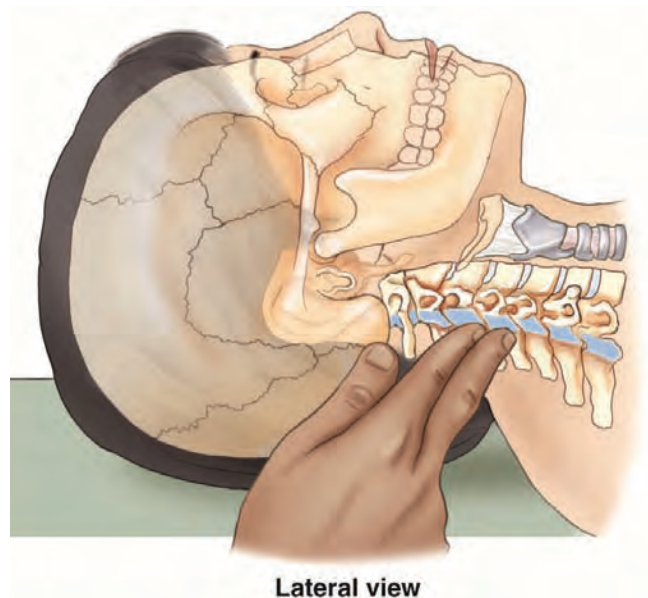


Figure 3. The facets of the cervical spine form an ideal contact point for the treatment hand when doing joint mobilisation of the neck. (Figure from *The Muscle and Palpation Manual*, Mosby, 2008)

Stabilisation hand contact

In some ways, placement and use of the stabilisation hand is more challenging than the treatment hand because the role of the stabilisation hand is to hold and move the client's head. If the client does not feel both comfortably and securely held, she will not relax and let you perform the joint mobilisation. Exactly how the stabilisation hand is positioned will vary depending upon the level and exact joint mobilisation that is being done. As a general rule, it will be placed on the opposite side from the treatment hand and under the centre of weight of the head so that the head is comfortably balanced in the hand (Figure 4). When placing the stabilisation hand on the client's head, be careful to place your thumb and index finger around the ear; do not cup over the client's ear, and be sure to not place any pressure on the client's temporomandibular joint.

4 Steps to perform joint mobilisation of the neck (see Figure 4)

1. Comfortably and securely, place client's head in your stabilisation hand.
2. Place treatment hand contact on the facet at the desired vertebral level.
3. With stabilisation hand, move the client's head and upper cervical spine around the treatment hand contact until the end of passive range of motion is reached (at

Joint Mobilisation of the Neck

the vertebral joint level between your treatment hand contact and the vertebra above it).

4. Now the actual joint mobilisation can be performed in one of three possible ways:

(a) The treatment hand can push its vertebral facet contact while the stabilisation hand securely holds (pins) the client's head and the region of the cervical spine that is above the level of the treatment hand contact.

(b) The stabilisation hand can further move the head and upper cervical spine around the vertebral level that is being held fixed (pinned) by the treatment hand.

(c) The treatment hand can push on its vertebral facet contact while the stabilisation hand moves the head and upper neck around the treatment hand contact. In other words, both the treatment and stabilisation hands move relative to each other.

The position of joint mobilisation stretch is held for less than one second and then released. It is usual to repeat it 2-3 times at that level. It is then customary repeat the joint mobilisation at all other cervical spinal levels so that the entire neck is mobilized. Once done, the entire process can be repeated for other ranges of motion of the neck.

Of all physical treatment techniques available in the world of massage therapy, joint mobilisation may be the most powerful, but is likely the least utilized. While it does take practice to become proficient with this

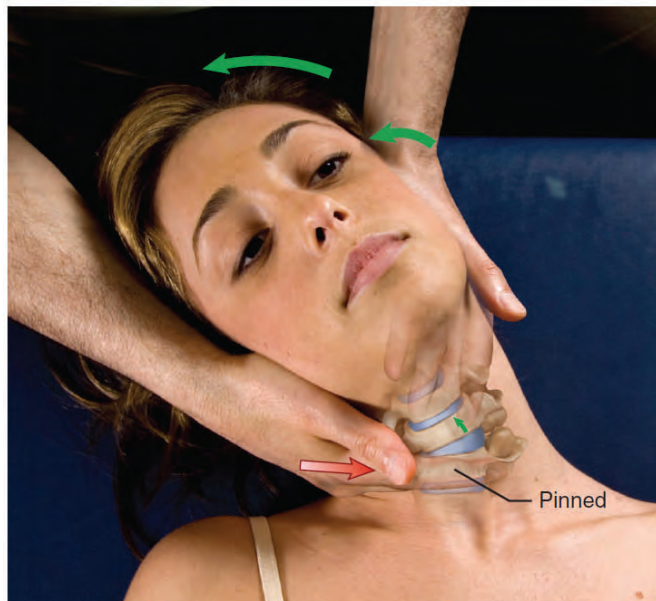
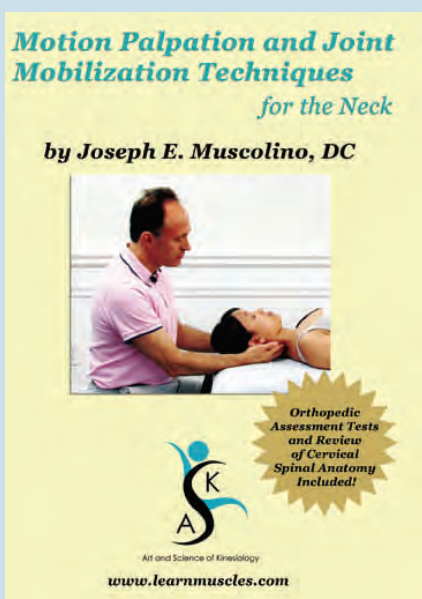


Figure 4 demonstrates right lateral flexion joint mobilisation of the neck at the C5-C6 level. The therapist's left hand is the stabilisation hand and supports and moves the client's head and upper neck around the contact point of the treatment hand (therapist's right hand) on the right facet of C6. Once this position is reached, the treatment hand pushes the facet of C6 to the left (red arrow) and/or the stabilisation hand further moves the client's head and neck around the contact of the treatment hand (green arrow).

technique, the benefits to your clients will be great. I strongly recommend that you add this powerful and effective tool to your practice!



Learn the art of
Motion Palpation &
Joint Mobilization
with the new DVD by
Joe Muscolino, DC
Available from www.terrarosa.com.au

Clinical Orthopedic Massage Therapy with Dr. Joe Muscolino

Sydney & Melbourne
March-April 2012



Clinical Orthopedic Massage Therapy (COMT)

The focus of these workshops is to learn how to work clinically utilizing deep pressure, basic and advanced stretching, and joint mobilisation techniques; and to do so more efficiently by working from the core with less effort so you do not hurt yourself. In effect, how to work smarter instead of harder!

Working clinically and efficiently can be done simply by learning a few basic guidelines of proper technique that Dr. Joe Muscolino will show you. An invaluable workshop for anyone who does sports, clinical, and/or rehab. work! Each workshop delivers 8 hours of instruction every day (9am–6pm). Venue in Sydney will be at the Australasian College of Natural Therapies, 57 Foveaux St, Surry Hills.

COMT for the Lower Back & Pelvis

Melbourne: 24-25 March 2012

Sydney: 29-30 March 2012

The first day will cover body mechanics for deep tissue work, muscle palpation assessment, orthopedic assessment testing of the lumbar spine, and stretching for the lower back and pelvis. The second day focuses on advanced stretching (CR, AC, and CRAC stretching), assessment of the sacroiliac joint, and how to safely perform joint mobilisation.

COMT for the Neck

Melbourne: 26-27 March 2012

The workshop will cover body mechanics for deep tissue work and stretching for the neck, including: How to use your core to easily perform deep work to the neck, and How to perform multiplane stretching. It will also cover Advanced Stretching Techniques and Joint Mobilization: How and why CR, AC, and CRAC stretching techniques work and advanced safe joint mobilisation techniques.

COMT for Common Musculoskeletal Conditions

Sydney: 31 March–1 April 2012

This workshop covers the most common musculoskeletal conditions that the clinical orthopedic massage therapist encounters in practice. Conditions include sciatica, bulging/herniated disc, tennis elbow, thoracic outlet syndrome, carpal tunnel syndrome, and many more. For each condition, the causes, mechanism, assessment and treatment will be discussed and demonstrated.

Advanced Assessment & Joint Mobilisation of the Spine

Sydney: 2 April 2012

This one-day workshop covers motion palpation and joint mobilisation of the entire spine (cervical, thoracic, and lumbar) as well as the sacroiliac joint and rib cage.

About Dr. Joe Muscolino

Dr. Joe Muscolino is a licensed chiropractic physician and has been a massage therapy educator for more than 25 years, with extensive experience in teaching kinesiology and musculoskeletal assessment and technique classes. Dr. Muscolino has authored 8 major publications with Mosby of Elsevier Science, including "The Muscle and Bone Palpation Manual, with Trigger Points, Referral Patterns, and Stretching"

AMT, AAMT Approved CPE/CEU Points
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"Joe Muscolino is a master of his profession! His broad knowledge on the human body and extensive experience made the workshops interesting and engaging. I would highly recommend his workshops to any body-worker. I, myself, can't wait for the next one!" Zuzana Gaalova, Queenscliff, NSW.

Book Early as Places are Limited

To register your interest & for more information, visit www.terrarosa.com.au/joe



WARMING UP

By Art Riggs

Dear Art,

I've been taught that I need to warm the body before starting a massage. How much time is sufficient so I can get to work?

— Time Urgency

Dear Time Urgency,

Actually, your question brings up a crucial issue: a warm-up is not something to do before you begin real work. Warm-ups are, indeed, work and require a definite therapeutic focus, albeit with more emphasis on evaluation. A broad and general warm-up is certainly beneficial, as long as it doesn't entice you to cut corners in the body of your massage because you lost time with preliminaries.

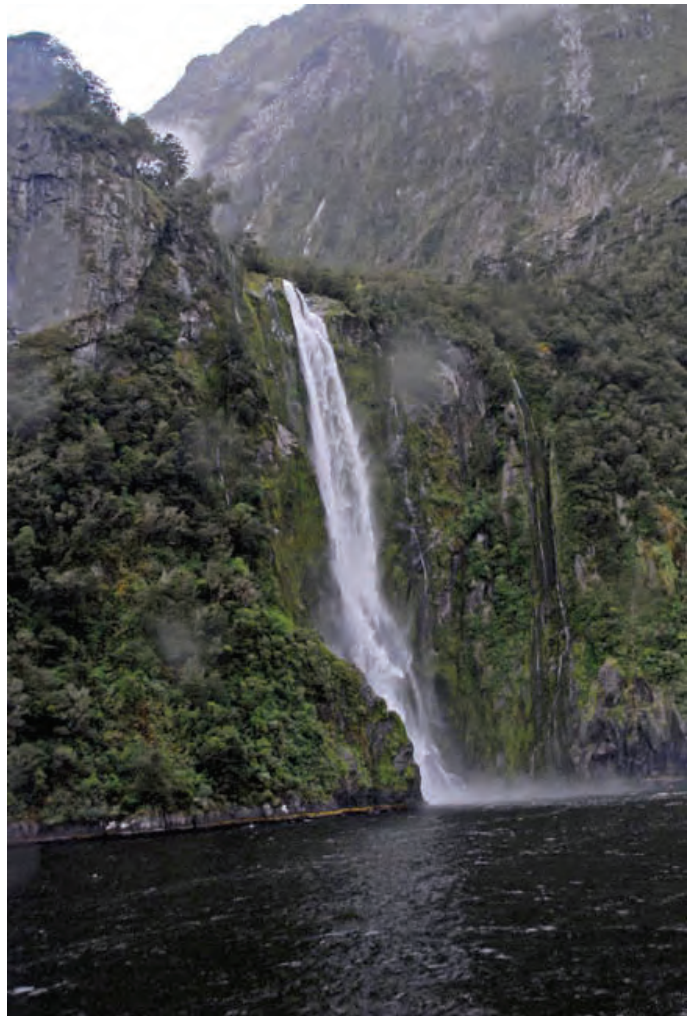
Time management is crucial for a smooth session. Even five minutes of superfluous preliminary work may have more downsides than benefits because of lost opportunities for concentrated focus in the core of your session. That's why I try to educate my clients on the benefits of longer sessions.

Let's look at the main reasons for doing a warm-up:

Introducing yourself. Particularly with new clients, this can be a good way to introduce yourself to the whole body, rather than an isolated part, and to prospect for areas of hidden tension. However, some therapists aren't clear with their intention. This doesn't accomplish much in getting to know each other and can seem like superficial conversation at a cocktail party: "Nice weather we're having." "So ... are you a Taurus?"

Calming your client. We want to release the client from the emotional stresses of life before performing deep work. This is certainly a worthwhile goal, but may not always be necessary. By starting your work with a slow and focused intention on the shoulders or other core areas of holding, you may initiate an even deeper relaxation and leave more time for detailed work.

Preparing for later work. While this is a worthy strategy, many therapists spend an inordinate amount of time working on relaxed superficial layers that cover



Photograph by Art

Don't feel obliged to perform an extensive warm-up with every client.

the actual deep holding patterns. Always apply enough pressure to sink through to deeper holding to say "hello" to the specific tissue pressing back in resistance, if only to give the message that you will return.

Evaluating holding patterns and tension. This is also useful, but work to hone these skills during the actual performance of work, rather than putting on your

Warming Up

evaluation “soft” hat to begin, and then abruptly rolling up your sleeves and putting on your “hard” hat after the introduction. What’s your prelude?

Make Your Warm-Up Pleasing and Effective

Most everyone I ask seems to feel they can tell how good a massage will be in the first minute or two after they feel the therapist’s touch. The most important thing is to have a clear purpose in your strokes. A stroke (even a gentle energy stroke) without intention is an empty gesture (or like a day without chocolate). As the saying goes, “You never get a second chance to make a first impression.”

I’ve had fantastic warm-ups as the therapist tunes into my body rhythms, slow down to say hello to pockets of tension, and actually lays the groundwork for later. Conversely, I’ve had therapists performing a choreographed routine that, like a limp handshake, only demonstrates a lack of focus and contact, and a waste of time.

Here are some suggestions to add substance to your warm-up:

- Apply pressure from your body weight and core, rather than through peripheral muscular effort.

- Linger at areas of holding and begin the first stage of release.
- When moving any part of the body, move joint and muscular restrictions to their end range of easy motion and wait a bit to give a message of release, rather than just testing or jostling in the middle range of joint motion.
- Sink quickly through layers of superficial ease until you encounter deeper layers that resist your efforts. This will not only begin to free tension in the first couple of minutes, but will tell you where to plan work for efficient management of your time.

Don’t feel obliged to perform an extensive warm-up with every client. Undue emphasis is sometimes placed on an overcautious approach to working both with the body’s energy and more deeply with specific tight areas. We don’t want to get a running start from across the room, but we also don’t want to tiptoe or hesitate. A photographer, explaining how he composes photographs and what to include in the foreground, background, and main focus, once told me, “With every consideration, I ask myself, ‘Does this add to, or detract from, what I’m trying to convey?’” These are wise words for many things, and especially for a bodywork session.

Join Art Riggs
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Sydney,
October 2012

More details will be available at
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CHRONIC HAMSTRING STRAIN & THE PELVIS

By Stephanie Panayi

Perhaps the most prevalent injury in Australian Rules Football, hamstring strain can be a major problem for elite athletes. Because of the attachment of biceps femoris into the ischial tuberosity and sacrum via the sacrotuberous ligament, the biomechanics of the sacroiliac joint and hip, along with lumbar-pelvic stability, play a significant role in hamstring function.

Generally speaking, while localised assessment is acceptable for acute injury, a more global approach is often appropriate when addressing chronic musculoskeletal pain. When treating someone for chronic or recurring hamstring strain, it is therefore pertinent to assess the lumbar-pelvic region for contributing factors.

Posture

Lumbar hyperlordosis, anterior tilt of the pelvis, and sacroiliac joint (SIJ) dysfunction have all been implicated in chronic hamstring strain (Cibulka et al 1986; Hennessey & Watson 1993; Hoskins & Pollard 2005).

An excessive lumbar lordosis usually correlates with more than optimal anterior tilt of the pelvis. Anterior pelvic tilt places strain on the origin of the biceps femoris at the ischial tuberosity, resulting in hamstring pathology (Cibulka et al 1986). Because of the origin of biceps femoris, the position and freedom of movement of the sacrum may also be influential in hamstring function.

Sacroiliac Joint (SIJ) dysfunction occurs when there is asymmetry between the left and right innominates. The amount of joint play at the SIJ is very small but this small movement allows the left and right innominates rotate posteriorly and anteriorly when we walk. This movement of the innominates causes the sacrum to



Picture from Wikipedia Commona

rotate and side bend. If any of these movements becomes impeded, SIJ dysfunction can occur. In other words, the sacrum gets stuck!

Ideally, during hip flexion the innominate on the same side rotates in a posterior and inferior direction (using the posterior superior iliac spine as the reference), moving the ischial tuberosity anteriorly and reducing hamstring strain. If however, the innominate is fixed in anterior rotation, the ischium will not move anteriorly during hip flexion and this will increase stress at the origin of the hamstrings.

Over time, unilateral muscle tightness can produce rotational forces in the innominates, and this is particularly true of athletes overtraining with unilateral load-

Chronic Hamstring Strain and the Pelvis



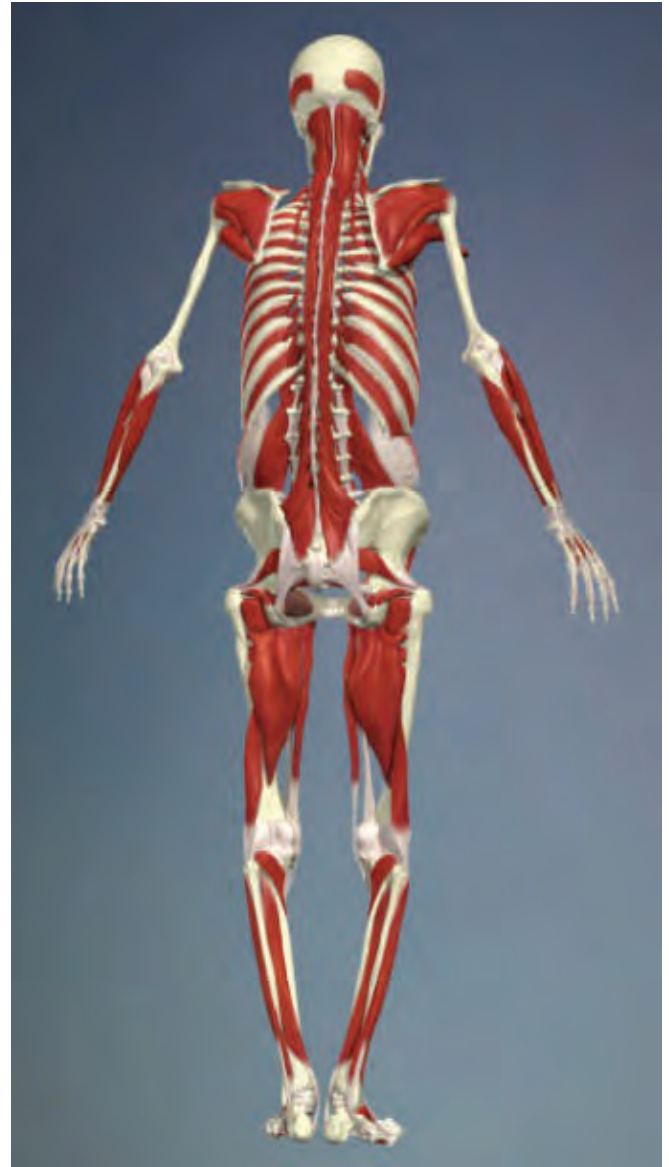
Picture from Primal Pictures. Used with permission

ing as in kicking or throwing (Ross 2000). For example, a tight rectus femoris could produce anterior-inferior rotation force on the anterior superior iliac spine, while a tight biceps femoris could produce posterior-inferior rotational force at the ischial tuberosity and sacrum. Mobilising the SIJ can reduce asymmetry in the tilts of innomates and therefore reduce stress on the biceps femoris (Cibulka et al 1986). SIJ dysfunction has also been associated with hamstring spasm (Dowling 2004).

Joint Influences

We are all familiar with the terms “agonist” and “antagonist” in relation to muscle pairing based on opposing functions. What is not often remembered however, is that during contraction of agonist muscles, the antagonists do not behave passively, but are actively inhibited by the central nervous system. This is Sherrington’s principle of reciprocal innervations (Day et al 1984). This mechanism is thought to be partly mediated by joint receptors, which form arthrokinetic reflex (AKR) circuits that can inhibit or facilitate muscle tone (Makofsky et al 2007). In other words, by mobilising a joint in a particular way for a specific effect, we can help “switch on” or “off” a muscle group by influencing reflexes generated from within the joint capsule.

In relation to chronic hamstring pain, for example, a tightened anterior hip capsule would facilitate the iliopsoas muscle while inhibiting the gluteus maximus through the arthrokinetic reflex (Yerys et al 2002). Muscle wasting of the gluteals is often visible when tightness is present in the iliopsoas. Since gluteus



Picture from Primal Pictures. Used with permission

maximus is a prime mover in hip extension, its inhibition places undue loads on its hamstring synergists making them more prone to injury.

Mobilisations performed on the anterior hip capsule have been shown to significantly increase gluteus maximus strength (Yerys et al 2002), and muscle weakness may therefore be influenced by inhibition related to capsular hypomobility of the underlying joint. In other words, the gluteus maximus is inhibited each time the hip extends against its restrictive barrier of motion.

When there are joint restrictions, mechanoreceptor inputs to the CNS can cause active weakening (or inhibition) of muscles whose action could take the joint beyond its restrictive barrier. Therefore, trying to strengthen a muscle that is being inhibited before mobilising the joint may be counterproductive. It is more beneficial to lengthen the chronically contracted myofascial units and mobilise the associated joint, prior to

Chronic Hamstring Strain and the Pelvis

strengthening muscles that are weak.

Joint mechanoreceptors can also be stimulated during tasks that maximise sensory input to the central nervous system and elicit subconscious and automatic responses in muscles. This is most effectively done by providing balance-challenging exercises which stimulate the sub-cortical systems which regulate movement and balance (Janda et al 2006).

Lumbar/Pelvic Stabilisation Exercises

For dynamic stability and optimum kinetic chain muscle activation patterns, it is important that there is normal length-tension relationships across the pelvis. A key influence in developing and maintaining such relationships is lumbar-pelvic stabilisation achieved through targeted exercises. The main muscles of lumbar-pelvic stabilisation are the multifidus, transverses abdominus and internal obliques (Elphington 2008). The oblique abdominals and transversus abdominus are particularly important in spinal stability due to their connections with the thoracolumbar fascia. The gluteal group is also an important contributor to dynamic pelvic stability.

In stability training, the client's attention to the exercise is crucial. This is not only important so that the exercise is performed properly, but attention is likely to aid in the facilitation of muscles which have become reflexively inactive. Imagining movement has been shown to facilitate motoneurons of the agonist muscle while having an inhibitory effect on those of the antagonist muscle (Duk Yang et al (2005). This suggests that focussed attention to specific muscular contraction can play a significant role in muscle facilitation and reciprocal inhibition.

Summary

The aetiology of hamstring strain is often multifactorial and difficult to define. It is possible however, that chronic or recurring strain may be related to lumbar-pelvic imbalances which increase the functional load on the hamstrings by defacilitating the gluteus maximus, and/or increasing the tensile stress on the biceps femoris origin. Apart from working to increase hamstring flexibility and address scar tissue formation, successful resolution of hamstring strain may involve the following:

- Lengthening myofascial components that contribute to excessive lumbar lordosis, anterior pelvic tilt, and pelvic obliquity

- Mobilising the SIJ and/or the anterior hip joint to stimulate joint receptors and facilitate gluteus maximus and the hamstrings
- Balance-challenging exercises to further stimulate joint proprioceptor activity and enhance gluteal strength
- Strengthening exercises for the lumbar-pelvic stabiliser muscles to create and maintain a balanced pelvis.

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This article is an abridged version of an article by the author published in the July 2010 issue of the *Journal of Bodywork and Movement Therapies* titled "The need for lumbar-pelvic assessment in the resolution of chronic hamstring strain".

FASCIAL UNWINDING CANCELS TORSIONAL FORCES

By Dorothea Blostein

Over the past two years I have undergone a difficult process of large-scale fascial unwinding. In this article I describe my personal impression of the mechanics and forces in fascial unwinding. My impressions have been shaped by treatments provided by four manual therapists (who are not to blame for any misconceptions in this article): osteopath Robert Black, chiropractor Brent Helmstaedt, registered massage therapist Kristin Kelly, and Feldenkrais® practitioner Jennifer Payne.

I propose a model of fascial unwinding in which adhesive forces are overcome to allow a torsional force in the fascia network to cancel a countertorsional force. Unwinding leaves the fascia network in a state of lower energy. This energy reduction is one of the driving forces behind spontaneous body movements associated with fascial unwinding.

At present, my introspection provides the only evidence to support the proposed model. I am publishing these speculative thoughts in case they are useful to others. Perhaps they will lead to discussion and experimentation.

Fascia forms a connected network that spans the entire body (Myers, 2001). Terminology for fascia varies; standardized terminology is proposed by Langevin and Huijing (2009). Fascia has plasticity, meaning that the structure of the fascia network can change over time (Schleip, 2003).

Pantyhose and wetsuits are suggested as analogies for explaining fascia to patients (Bose and Lesondak, 2009). Some of us know from personal experience how difficult it is to straighten out twisted pantyhose or a twisted wetsuit! Usually it's easiest to just take the darn thing off and start over. Unfortunately, our bodies do



Michelangelo, Atlas Captive, 1520. Seen statically, this captive figure is endlessly straining against the adhesive forces in the marble. But imagine the marble in motion and you have an inspiring symbol of fascial plasticity, the body emerging to freedom.

not have this option for straightening out the fascia network. Instead, the body goes through fascial unwinding, a process that can take several years in severe cases.

Fascial unwinding has several definitions. In a recent survey paper, it is defined as a type of indirect myofascial release technique (Minasny, 2009). In other circles, fascial unwinding refers to spontaneous movements (for example, see http://www.youtube.com/watch?v=1QM-8_DwArU). Fascial unwinding is closely related to pandiculation (stretching and yawning); Ber-

Fascial Unwinding

tolucci (2011) discusses the role of pandiculation in maintaining the myofascial system.

A model of a biological system is a simplification: the model characterizes selected aspects of a complex physical system. A model can be used for understanding and teaching, as well as for formulating testable research hypotheses. Tensegrity and viscoelasticity are two well-established models for biological systems. Ingber, Heidemann, Lamoureux and Buxbaum (2000) debate the strengths and weaknesses of tensegrity and viscoelasticity for modeling at the cellular level. Myers (2001) provides a popular and accessible presentation of tensegrity and its use to model bones (under compression) and fascia (under tension). The body's ground substance can be modeled as a viscoelastic liquid. Viscoelastic liquids have marvelous properties: if you pull on them suddenly, they are tremendously strong, like a solid, but left on their own, they flow around like a liquid. To experience this for yourself, use this [goop](#) recipe to make a viscoelastic liquid out of a mixture of water, white school glue, and borax.

Here is a description of the elements of the proposed model for fascial unwinding.

- The fascia network naturally tends to a configuration that minimizes energy. An idealized initial state is used as a reference. In the initial state, the fascia network is straight, meaning that torsional forces in the fascia network are at a minimum. Thus the initial state is the configuration of lowest energy.
- Injury can introduce torsional forces into the fascia network. When a torsional force is introduced, this necessarily introduces an equal and opposite countertorsion elsewhere in the fascia network. A torsional force applied to some part of the fascia network causes twisting in that part of the network. The amount of twist – the angle of rotation – depends on the torsional stiffness of the affected fascia. Even small angles of twist are damaging in many parts of the body; the body compensates by increasing torsional stiffness of affected fascia and/or by distributing the torsional force to other parts of the fascia network.
- Adhesive forces can prevent a twist and countertwist from meeting and cancelling out. Thus the adhesive forces hold the fascia network in a higher energy state.
- Fascial unwinding is the process of overcoming adhesions to bring together and cancel a twist and



countertwist. This cancelation of torsional forces moves the fascia network from a higher energy state to a lower energy state.

- Fascial unwinding can be facilitated in two ways:
 1. Place the body into a position that aligns a twist and countertwist along a straight axis. Applying force along this unwinding axis helps to bridge the adhesion that separates twist and countertwist*.
 2. Reduce adhesive forces, by breaking up scar tissue or by increasing circulation to reduce the viscosity of the ground substance.
- Fascial unwinding axes have a *fractal* organization. This arises because the fascia network has a fractal structure. (*Fractal* means that a zoomed-in view of a small region of fascia looks similar to a zoomed-out view of a large region of fascia.) During self unwinding the perceived locations of several small unwinding axes can be used to find larger-scale axes along which fascia needs to unwind.
- Positive feedback assists the process of fascial unwinding, with the effect that successful unwinding facilitates further unwinding. When unwinding succeeds, this reduces torsional forces in some part of the fascia network. I hypothesize that a reduction in torsional forces triggers a local reduction in the viscosity of the ground substance. The less-viscous ground substance allows fascia to move more easily, further decreasing the local strain on the fascia, trig-

* Applying force along an unwinding axis usually has the effect of straightening the axis. However, in some cases the unwinding axis stays bent or curved. For example, fascia can unwind along an axis that curves around skull bones: muscular force can put tension along this curving axis because the skull bones act as a brace.

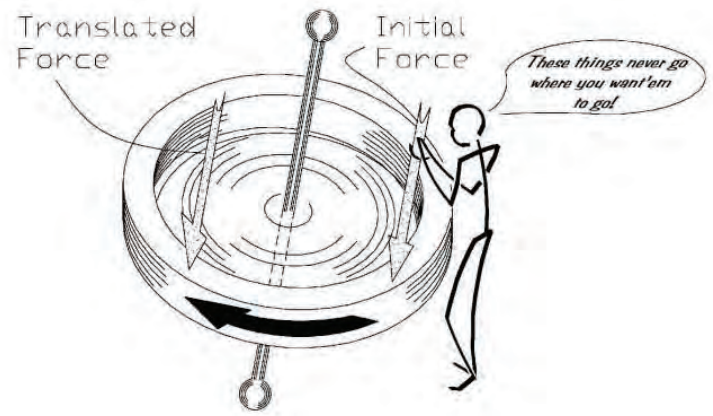
Fascial Unwinding

gering further reduction in ground-substance viscosity. Also, less viscous ground substance allows fluid circulation to improve, thereby encouraging further reduction of viscosity.

Various investigations could be undertaken to refine this model. One problem is to study how the body reacts to torsion. My hypothesis is that high torsional force triggers an increase in local torsional stiffness (for example, an increase in the viscosity of the ground substance, or a stiffening of the fascia). Such increase in torsional stiffness is advantageous because it reduces the angle of twist for a given torsional force, thereby reducing the degree to which the torsional force impacts mechanical performance of the affected body part. The entire fascia network responds to a local injury, so a torsional force can be distributed to body parts that are far from the site of injury.

It would be interesting to model injuries and how they introduce torsional forces into a fascia network. An impact injury could create scar tissue and adhesions that cause long-term displacement of fascia, thus giving rise to torsional and countertorsional forces elsewhere in the fascia network. Alternatively, long-term asymmetrical body use might introduce imbalances and twists. Another possibility is that localized proprioception reversals can cause incorrect reflexive responses, increasing torsional forces instead of reducing them. (Eye movement exercises can be used to correct proprioception problems in the head and neck. The stability of vision is discussed by Harris (1965): in situations where vision information disagrees with the position sense, the disagreement is resolved by changes in the position sense.)

Computer simulation can be used to investigate the behavior of the model. I propose simulating a tensegrity model that has been extended to include adhesive forces as well as tension and compression forces. A single scale can be used for model elements that are under compression (these represent bone) and fractal structure can be used for model elements that are under tension (these represent fascia). Torsional forces and adhesions can be introduced during the simulation. It would be interesting to develop measures for characterizing a tensegrity structure in terms of its “structural buffering capacity”: how much adhesion and twisting can the tensegrity structure tolerate, while still maintaining a specified level of functionality? Related work includes the study of tensegrity and adhesions at the cellular level (Stamenovic 2006), tensegrity models of biomechanics (Levin 2002 and 2006), and engineering methods for designing tensegrity structures that minimize construc-



The gyroscope analogy. When you push on a spinning gyroscope it responds by moving in a direction that is at a right angle to the direction of your push. Picture from: <http://www.i-am-a-i.org> (used with permission).

tion cost while meeting stated load-bearing requirements (Rhode-Barbarigos, Schmidt, Ali and Smith, 2009). Computer simulation offers the opportunity to study how localized damage in a tensegrity structure causes a gradual, system-wide degradation of function.

Physical realizations or computer simulation could be used to see whether this model of fascial unwinding can give rise to spontaneous movements as the modeled fascia network undergoes “self unwinding” to return to a lower energy state. If successful, this could offer a mechanical explanation for the spontaneous movements people exhibit during fascial unwinding. I conjecture that smooth, flowing types of spontaneous movement are due to the body aligning itself along a shifting axis of fascial unwinding. In contrast, fast oscillatory movements arise when the body is improperly aligned along an axis; the oscillation calms down when alignment is corrected by a manual practitioner or by the patient during self unwinding. Oscillatory movements can also arise when the body oscillates between several possible unwinding axes; in this case unwinding is unsuccessful and the oscillatory movements can repeat indefinitely.

I conclude with personal observations about self unwinding. Fascial unwinding is mostly sub-conscious and reflexive, but I can consciously take actions to assist unwinding. Helpful feedback is provided by the amount of spontaneous body movement: if I succeed in lining things up correctly, the external body movement stops. This reminds me of balancing a spinning basketball on my finger: if I do this correctly, my hand and the ball are stable, whereas if I do it incorrectly my hand and the ball wobble around.

Fascial Unwinding

For many months, I found it difficult to react properly to my sensations of the shifting axes of fascial unwinding: an axis moves in an unexpected direction when I (internally) apply a force in a direction that is perpendicular to the axis. This unexpected response suddenly struck me as familiar when I recalled an earlier experience in which I was holding a spinning bicycle wheel with one hand on each end of the axle. This inspired me to take the front wheel off of a bicycle and use it for more gyroscope practice. I found that the reflexive movement patterns I developed using the bicycle wheel were transferable to the movement patterns I needed during self unwinding.

This gyroscope analogy seems puzzling because fascia cannot possibly spin fast enough to act like a traditional gyroscope. The effect might be explained as follows. Imagine looking along the length of a horizontal axis of fascial unwinding: imagine that this section of fascia is under clockwise torsion, so that it needs to unwind clockwise around the horizontal axis in order to reduce torsional forces. (Since torsion and countertorsion are counterbalanced, there is some other part of the axis where fascia is under counterclockwise torsion. For this example, focus on the part of the unwinding axis that is experiencing clockwise torsional forces.) Now imagine trying to make a fine adjustment in body position to keep this unwinding axis properly lined up. Continuous small adjustments are needed as unwinding occurs, because the axis location shifts in response to asymmetries such as an anisotropic extracellular matrix. Imagine applying a force that pushes on this section of the unwinding axis from the right; the expectation is that this force from the right will move the unwinding axis toward the left. But because the fascia is under clockwise torsion, the tangential force from the surrounding extracellular matrix may cause the unwinding axis to move upwards rather than toward the left. This might explain the apparently gyroscopic nature of fascial unwinding.

In summary, during self unwinding I have found it helpful to envision the goal of overcoming adhesive forces to cancel a fascial twist and countertwist. Formal diagnosis is difficult in a case like mine because current medical imaging techniques are limited in their ability to capture fascia. I have heard a prediction that within 2-5 years the rapid advances in ultrasound elastography may make it possible to detect small local changes in fascial stiffness (R. Schleip, personal communication, Dec. 2010). Such imaging would revolutionize the diagnostic capabilities for fascial unwinding patients. However, treatment will likely continue to be centered

around manual therapy.

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MYOFASCIAL VACUUM CUPPING



By Robert Granter
BSocSci AdDipRemMass

What is Myofascial Vacuum Cupping?

A vacuum pump is used to induce a vacuum inside a cylinder sealed to the skin by the use of oil or cream. The vacuum “draws” the soft tissue perpendicular to the skin thus providing a tensile force to the soft tissue system, which can be left in one site for a prolonged period or moved along the tissue.

I believe the modality is an essential tool for the Remedial Therapist for effective soft tissue mobilisation & for taking stress off the practitioner’s fingers.

It has been used by many cultures throughout the world to relieve various musculo-skeletal and systemic symptoms however our explicit focus is on the mobilisation of the myofascial system.

How does Myofascial Vacuum Cupping positively change tissue mobility?

There are a number of theories as to how external force like that applied from Myofascial Vacuum Cupping positively impacts on soft tissue.

The following are 4 examples:

1. *The Stimulation of Fibroblast activation:* The applied force may stimulate the fibroblasts within the connective tissue to maintain an ideal level of glycoaminoglycans. This may permit optimal retention of water molecules to allow the ground substance to maintain an ideal volume.

2. *The Disruption of excessive collagen cross linkages:* The external force supplied may also disrupt any unnecessary collagen cross linkages that may already exist that are binding adjacent collagen fibres together.

3. *The Thixotropic-like nature of connective tissue: (or the Plastic deformation model)*

The founder of the Rolfing technique, Ida Rolf, used this explanation to account for the changes evident in fascial tissue after treatment – If something is thixotropic it means that it is capable of changing its state, for example, from a dense thickened form to a more fluid “plastic” form when external energy is applied. Many now discredit this concept in relation to connective tissue however if we advance an explanation of delayed thixotrophy where the effect occurs over time and NOT instantaneously post treatment it may still be a relevant concept.

4. *Through the Activation of mechano-receptors:* Highly respected clinician & researcher Robert Schleip in particular has thrown doubt on the above theories in favour of a more neurological explanation where mechano-receptors are activated by the application of external force and the nervous system responds.

As the arguments continue and research develops our understanding will become more clear. All the above theories may offer components of the complete answer.

Are there any clinical trials that show the efficacy of cupping?

In the June 2009 issue of Journal Pain, Michalsen and fellow researchers from Germany reported the results of a randomized trial on the clinical effects of traditional cupping therapy in patients with carpal tunnel syndrome are presented.

Michalsen et al recruited 52 patients with a carpal tunnel syndrome (CTS) and randomized them into 2 groups. The experimental group patients were treated

Myofascial Vacuum Cupping

with a single application of wet cupping, and control patients with a single local application of heat within the region overlying the trapezius muscle. Patients were followed up on day 7 after treatment. The primary outcome, severity of CTS symptoms, was statistically reduced at day 7 in the cupping group. The researchers found that cupping of segmentally related shoulder zones appears to alleviate the symptoms of carpal tunnel syndrome. "The treatment was safe and well tolerated and conclude that cupping therapy may be effective in relieving the pain and other symptoms related to CTS."

What are the Body regions most suited for the Myofascial Vacuum Cupping technique?

Myofascial Vacuum Cupping is ideally suited to treating the superficial fascial layer and the deeper irregular dense fascial layers around the following structures:

- Upper Trapezius, and Levator Scapula
- Deltoid
- Thoraco-lumbar Fascia and Longissimus
- Hamstrings and Quadriceps
- Lateral & Anterior lower leg compartments

Is Vacuum Cupping Completely Safe?

I believe that MVC should be applied by a skilled practitioner and certain contra-Indications apply in exactly the same way as direct hands-on treatment.

Examples of absolute contra-Indications to MVC are:

- Skin lesions, skin fragility, Myofascial attachment sites to bone.
- History of Vascular disease eg Previous incidents of Deep vein thrombosis Varicose veins

Examples of Relative Contra-Indications are:

The release of Relaxin and other hormones during pregnancy, to allow the connective tissue in the pelvis to elongate and allow the child to move through the birth canal, may also cause the general fascia structure to change with less external force than the tissue in non-pregnancy mode. It is therefore wise, as with any technique during pregnancy, to be conservative and watch the tissue carefully to ensure adverse reaction doesn't occur

Patients taking specific medications, e.g. Blood thinning medications like Aspirin and Warfarin may increase

their risk of bruising. This fact doesn't prohibit Myofascial Vacuum Cupping but it is wise to be aware of the potential adverse reactions and to be conservative in your application of the technique.

Are there specific Principles of Application of Myofascial Vacuum Cupping to limiting adverse tissue reaction?



Photo showing the potential bruising of the tissue from vacuum cupping. While this reaction is common in the traditional methods of vacuum cupping, in the western model that we are recommending we attempt to keep bruising to a minimum. Source: <http://home.indy.rr.com/mkimpel/Acupuncture/cuppingpix.htm>

Cupping has the potential to significantly bruise tissue and this is to be avoided in the style of cupping we are advancing.

How can you maximize the effectiveness of the treatment and limit adverse tissue reaction?

We suggest that there are 4 Vital Signs to adhere to, that will minimise bruising, they are

1. Watch and monitor the colour of the tissue being treated and do not allow the tissue to become a red/purple colour keep it to a pink colour. As soon as the colour changes to a red/purple remove the cup.
2. Don't leave the cups on for more than 2 minutes initially.
3. Be aware of your patients skin type: Fair skin will bruise more easily than "olive" skin
4. Monitor the degree of Vacuum inside the cup by watching the degree of Skin raise within the vacuum cup to ensure it is not excessive.

As a guide only draw the skin approximately $\frac{3}{4}$ of the way up to the 1st treatment line on the cup

Myofascial Vacuum Cupping

Can you give some Practical examples of how Myofascial Vacuum Cupping can be applied?

If the Thoraco-lumbar Fascia, Longissimus or Ilio-costalis are assessed to be hypomobile then a number of techniques can be used to treat that dysfunction, for example using Static cupping. The steps are



1. Apply cream or oil to the above region, begin superior to the crest of the Ilium

2. Place a Size 1. (45mm) cup on the left side in the center of the Ilio-costalis / Longissimus Muscles and the Superficial Thoraco-lumbar fascia just below the “target tissue”. Avoid contact with the Spinous Processes and the Iliac crest.

3. Monitor the level of Skin raise and stop at a point 3/4 's the way up to the first cup line. Monitor also the Skin Colour. Ask the patient “How does it feel?” The response we want is “A mild Stretching feeling”

4. Place and secure a cup at the same place on the right

5. Remove the 1st cup and place it superior to the original position of the 1st cup (i.e. Still on the Left Longissimus)

6. Remove the 2nd cup and place it superior to the original position of the 2nd cup (i.e. Still on the Right Longissimus)

7. Continue this “leap frog” method until you reach the level above the target tissue. Remove cups and repeat the same process, steps 1 to 7, twice more.



Sliding cupping

Sliding Cupping can also be used. The steps are

1. Apply cream or oil to the above region

Begin just below, inferior, to the target tissue and place a 45mm cup on the center of the Longissimus / Thoraco-lumbar Fascia. Again avoid contact with the Spinous Processes

2. Use ½ Full Pump Stroke or stop at a point of skin raise 3/4 's the way up to the first cup line

Leave the cup in place and Remove Pump and Monitor the Skin Colour. ASK & OBSERVE

3. Move the cup by sliding it slowly superiorly all the way through the Target tissue and back down again.

Apply a zig-zag motion as the cup is moved to activate as many mechano-receptors as possible for improved treatment effectiveness

If the Resistance within the cup is INSUFFICIENT Increase the level of Vacuum until the first onset of resistance is felt.

Myofascial Vacuum Cupping

Repeat until a MILD pink Colour is produced in the target tissue.

Reassess to check the effectiveness of the technique

These are only two of the possible methods of application that can be used with Myofascial Vacuum Cupping. Please refer to the DVD "Vacuum Cupping For Myofascial Mobilisation in Clinical Practice" by Rob Granter available through Terra Rosa for more detailed information.

Rob conducts training courses in this specific style of Myofascial Vacuum Cupping. Contact Rob through his website <http://www.softtissuetherapyonline.com/> for more information.

Read also 6 Questions to Rob on page 41 .

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Vacuum Cupping for Myofascial Mobilisation

An Essential Tool for Soft Tissue Therapists

This new DVD by Robert Granter will show you an efficient use of Vacuum Cupping for the Soft Tissue Therapist. The cupping technique is anatomically specific myofascial mobilisation. Unlike traditional cupping methods which can usually create bruise on the skin, these new and innovative techniques are anatomically based for myofascial mobilization. It can be integrated into your massage treatment and reduce excessive stress on the therapist's body.

Available from www.terrarosa.com.au

GIVE THEM A REASON TO COME BACK

By Don Dillon

The law of cause and effect tells us that we can attract people to us by giving value without expecting an immediate benefit. Do for others and then wait. The law will reward you in due time. - Hilton Johnson

Do your practice management efforts draw people back to you, or encourage them on to the next practitioner? Do a high percentage of first-timers or gift-certificate redeemers return for more of your care, or disappear into the ether? What a tyrannical treadmill we ride if we are constantly scrounging for new business instead of cultivating relationships and serving our existing patrons better!

Car manufacturer General Motors doesn't just want to sell you a car. GM estimates that if they keep you satisfied through quality products and service, you could provide them with up to \$400,000 of business over your lifetime. A U.S. government study estimated it costs five times the amount of time, energy and money to gain a new customer than to keep a satisfied, loyal existing one. One grocery store estimates that if they can keep you happy, you are worth more than \$200,000 in business to them over a 20-year period.

I encourage you to examine your service delivery process regularly and change what can be improved on. People pay good money to see you. They want their concerns heard, their condition clearly explained and their problems addressed. Set excellence as a standard, not an exception, in your day-to-day delivery of care.

What does excellence in care mean to you? Walt Disney admonished his staff "*Do what you do so well, people will come back to see you do it again.*" I believe this is an excellent definition of retention – do something so well people will return to see you do it again.

Can you remember a time when you provided excellent care/service? What made it excellent? In what way did

you talk and listen to the person? How did you engage their body during the assessment and treatment? How did you use your own body ergonomically and effectively to care for yourself as well as the person on the table? How did you determine what type of method or modality to use? What went through your mind during the session? How did you interact with the person at the closing?

After providing many excellent (and not so excellent) treatments, I analysed what made a good treatment a good one and a poor treatment poor. Here's a six-point system I use to increase my patient retention, from their first awareness of me to reconnecting on a regular basis.

Awareness. How does someone get their first inkling of what you provide? Your signage, your brochures, your yellow pages ad, your reputation via word-of-mouth all form a person's first awareness of you. It's important that your primary message, what they remember when they think of you, is clear, positive and consistent. Awareness is the first step in your interaction with a prospective patient/client.

Intake. The person is aware of you, and has committed to making an appointment. Here's your opportunity to expand their perception of your service. Your waiting room, your personal greeting, your receptionist's greeting, your office facilities, all contribute to the person's perception of what you can provide for them. They become aware of your policies, your fees, your certificates/diplomas. They are checking out your authenticity to determine if they want to invest in your care.

Get 'em back

In our office, we have a comprehensive one-page intake form that patients fill out in the waiting room. Underneath is a laminated fee schedule outlining our fees, possible initial reactions to treatment, and the names and pictures of our practitioners. We are building credibility.

Your intake interview outlines what they can expect from you. Holding eye contact, actively listening, asking clarifying questions...all demonstrate your interest in them. I screen potential associates by acting as "patient" in a mock intake. Most practitioners quickly scan the intake form and encourage me to get on the table. She/he often doesn't take the time to listen and really assess my needs before trying some intervention. My point is: Your intake process is an opportunity to make a positive, lasting impression and to build trust.

Treatment. Treatment is more than the techniques you will apply. It's using verbal and kinaesthetic communication. It's honouring the person's responsiveness, and your biomechanics. It's an opportunity to describe your findings (cause), how this problem has manifested in the body (effect), and what your plan of action is (remedy). Use treatment as an opportunity to educate, to draw awareness to movement or postural patterns that are causing harm, and to discuss and apply interventions that can prevent further entrenchment. Address the primary problem, with some attention to secondary problems. Stay focused. Get some positive results, even if minimal in that first session together to instil the patient's confidence in your work.

Evaluate. Re-check the findings you observed during the assessment process. Evaluate postural assessment, range-of-motion, muscle testing, palpation, ortho/neuro tests, numeric pain scale or pain/disability questionnaires. How have things changed, and by how much? What hasn't? Reinforce the session outcomes in the mind of the patient, stressing the benefits your interventions have induced. Encourage the patient to modify attitude and behaviour to reinforce the changes. Plan together how the things that haven't changed can be approached in a future treatment.

Report of Findings. An ROF summarizes what you have been saying during the whole process - cause, effect and remedy. In our office, we use a variety of teaching aids to get our points across, such as a comprehensive spine model with nerves, muscles and shoulder/pelvic girdles, cranium with painted facial/cranial muscles, trigger point and anatomy charts, and analogies or "word-pictures." Incorporate visual, auditory and kinaesthetic means of helping patients under-

stand their condition. Educated patients feel empowered and make better health care decisions.

Add further value by giving your new patient a small bag of Epsom salts with instructions on how to use, and a glass of water after their treatment. "Wow" them with service above and beyond their previous experiences.

Reconnect. Call first-timers next day to check their response to treatment, and to offer guidance if the person is having a reaction or needs clarification on a remedial exercise prescribed. How many times have you heard someone say "I went to XYZ therapist and I was sore for three days afterward!"? How many people never seek bodywork again because the practitioner did not follow up to assess an unfavourable reaction?

Over a longer term, reconnect with patients via regular mailings. Newsletters, birthday cards or monthly tip-based e-mails are all ways to stay in their perceptual field and reinforce that your care is an important aspect of their health care. Practitioners ask "Isn't that pushy?" Nope. When I call, my patients to offer an open appointment, they say "I'm glad you called. I need an appointment." Or "I should have been in earlier but I was so busy...." In this era of mass interruption, distress and technology overload, people will be glad you were thinking of them and offered a little reprieve from the world.

If you want to know what patients/clients really think, administer a short survey. Let your existing patients know you want to provide the best care, and you would appreciate them taking a few moments to respond. Survey everyone – it will only take a few moments. Use 13 x 10 cm (5 x 4-inch) cards and a shoe box with a slot cut out for returned cards, to protect people's anonymity. Here are several sample questions:

We strive for excellence in providing your massage therapy. Please help us grow by completing the following questions as completely and as accurately as possible. Feel free to write additional comments on the back of the card.

1 - unsatisfactory 2 - poor 3 - satisfactory 4 - good 5 - excellent

Availability - Did you get an appointment when you needed to? 1 2 3 4 5

Environment - How are the temperature, lighting, sound/noise levels?

1 2 3 4 5

Get 'em back

Quality - How pleased are you with the therapy/
service you are receiving?

1 2 3 4 5

What do you really value, and always expect from us?

Please list 3 reasons why you would refer someone to
our office?

Thank you for helping us provide better care!

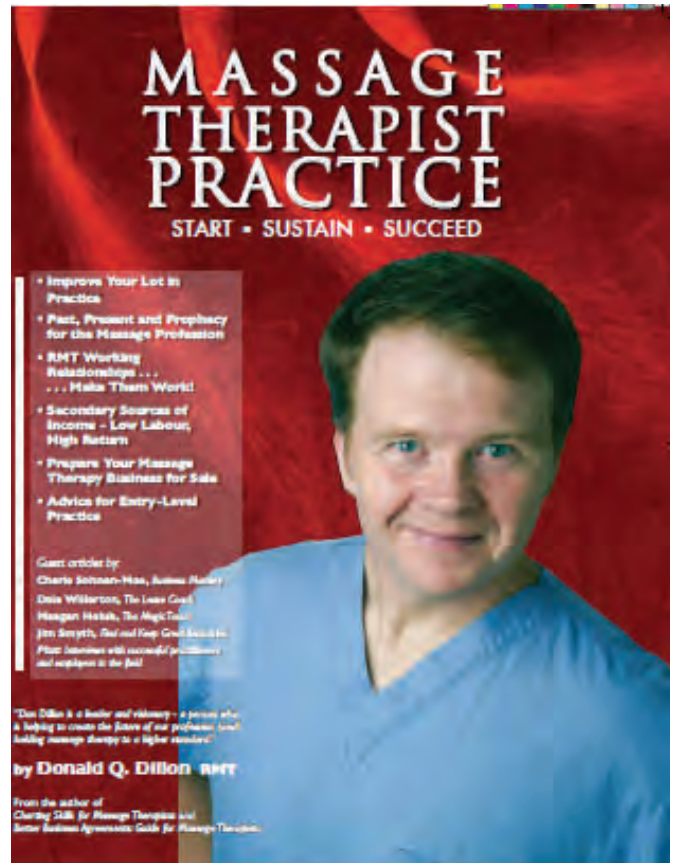
Jane Doe, DRM

I'd recommend doing this survey every six to 12 months
to check how well you're meeting the needs of your pa-
tients.

This is worth repeating. Add value to your services at
first meeting by providing above and beyond what they
expect. Take the time during the case history to listen
and empathize. Do a thorough assessment to really un-
derstand their problem and explain to them the cause,
effect and remedy. Make sure to address their primary
problem in the first session, even if this is not the root
cause, so they feel you are listening and want to help.
Send them home with Epsom salts and simple, effective
remedial exercises.

Create a healing, nurturing, relaxing or rehabilitative
experience. Do the things that go above and beyond
your hands-on work to add value to your services.

This excerpt is reprinted from *Massage Therapist
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Terra Rosa [http://www.terrarosa.com.au/book/
massage_therapist_practice.htm](http://www.terrarosa.com.au/book/massage_therapist_practice.htm)



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Don is the recipient of several awards from the Ontario Massage Therapist Association, and is one of the founding members of Massage Therapy Radio www.massagetherapyradio.com. His website, www.MTCoach.com, provides a variety of resources for massage therapists.

MET FOR TOS

A CASE STUDY

By Tom Ocker, PT

I had an interesting patient come through my door today. She was a 41 year old mother of two, referred to me by an acupuncturist who frequently uses me when she is stumped. The initial diagnosis was TOS (thoracic outlet syndrome) with symptoms worse on the right than left due to the numbness in bilateral upper extremities. While present most of the time during the day, the numbness and tingling also appeared when she was lying down and she frequently needed to shake her arms. "My 4 year old started shaking his arms and hands just like he see's mommy do."

The EMGs were highly positive for carpal tunnel syndrome and the medical doctors recommended immediate surgery to decompress the carpal tunnels. If that didn't work, they would consider resecting the 1st rib. Pt refused and so did her husband, a physician and neuro-radiologist.

Initial evaluation was significant for:

- Bilateral elevated (but not subluxed) 1st ribs, with Rib #3 on the R tender and caught expired
- Remarkably full cervical, lumbar, hip and shoulder ranges but shoulder flexion quickly caused both hands to go numb
- Trigger points of the upper traps
- Tight scalene
- Positive for Neuro dynamic tension testing in Median and Ulnar distributions
- Pelvis was hypo-mobile on the R with an up-slip and functionally short R leg
- Sacrum was in L on L forward sacral torsion.

Treatment was begun using muscle energy techniques

(as taught by my DVDs, Manuals and Seminars) for not only the articular asymmetries but also the muscle groups that were affected (pecs, traps, and scalene.) (Watch a video clip on 1st Rib treatment here <http://youtu.be/YXagQ0eTvxs>) By the end of the initial treatment session, the neuro-dynamic tension signs were gone as were the trigger points in the upper traps, 1st and 3rd rib asymmetries. The patient's husband is an Osteopathic Physician and was absolutely amazed with the outcome on the initial session.

The problem occurred after almost 2.5 years of breast-feeding, (two children less than 2 years apart) holding very large babies close to her chest and looking down at the baby many times a day.

The shoulder girdles became forward and elevated, the pecs shortened and eventually the tight scalene began elevating the 1st ribs. This made the neuro-vascular bundle take a bit of an excessive detour over the 1st rib, thus putting pressure on the nerves and blood vessels of the upper extremities. The #3 rib on the right caught expired, further stretched the pec minor across the neuro-vascular bundle as it made its way into the upper extremity on the R.

The techniques used to correct these somatic asymmetries and hypo-mobilities are all explained and demonstrated on my DVDs and in the corresponding manuals which are easier to reference while treating the patient after viewing the DVDs.

I went on to show her how to self stretch the pecs major and minor and to begin strengthening the rhomboids, serratus anterior and lower traps to assist in holding the corrections and preventing further relapse.

As food for thought, how many times do our patients and clients come to us having had surgeries that didn't work, only to find that the problem was not distal as in

MET for TOS

carpel tunnel, but instead more proximal as with 1st rib, scalene and tight pecs? The couple was both smart (declined the surgery) and lucky that their therapist knew where to look for the real causes and how to correct them.

The more therapists and body-workers that learn these techniques, the smarter and luckier the patients get. I have a feeling I'll be getting some referrals from her husband who made an appointment for me to work on his herniated L4 disc.

Watch online the MET for first rib treatment here <http://youtu.be/YXagQOeTvxS>. For the rest of the MET described in the case study and many more, order your DVDs from Terra Rosa. A series of accompanying MET manuals is available at: <http://www.tomocklerpt.com/practitioners/manuals/>

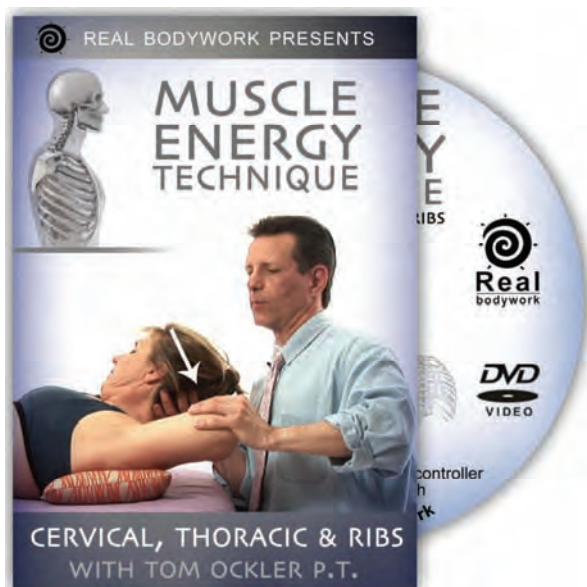
Interested in learning more about these and other techniques? Join Tom Ocker's email list to receive a monthly eNewsletter that includes "Clinical Pearls" – tips and tricks to improve patient outcomes at <http://www.tomocklerpt.com/newsletter1/>



Tom Ockler P.T. has extensive teaching experience throughout the United States, Canada, England and Australia. As a teacher, Tom has earned the nickname "The Patch Adams of Physical Therapy" due to his unique style of injecting humour into complicated subjects.

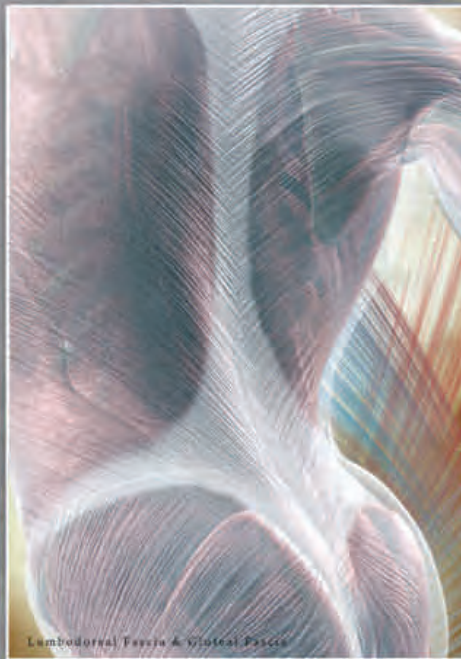
He has developed teaching methods that explain very complicated subjects in easily understandable formats. His two books and DVDs Muscle Energy Technique for Lower Extremities, Pelvis, Sacrum, and Lumbar Spine and Muscle Energy Techniques for the Thoracic Spine, Ribs, Shoulder and Cervical Spine have been hailed by students as the most user friendly and useful Muscle Energy manuals ever.

The Best Muscle Energy Techniques DVD





The Fascial Web



Lumbodorsal Fascia & Gluteal Fasciae



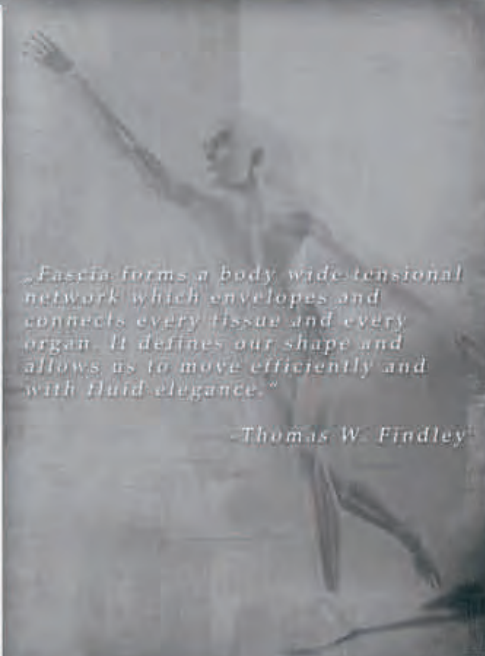
Epi-, Peri- & Endomysium



Lower leg compartments

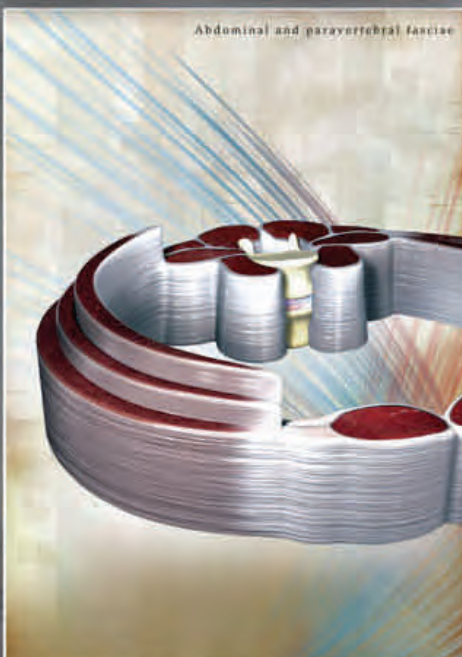


Microscopic view of extracellular matrix



„Fascia forms a body wide tensional network which envelopes and connects every tissue and every organ. It defines our shape and allows us to move efficiently and with fluid elegance.“

Thomas W. Findley



Abdominal and paravertebral fasciae



Diaphragmatic structures

PANDICULATION: ***An organic way to maintain*** ***musculoskeletal health***

By Luiz Fernando Bertolucci, MD

Summary

Pandiculation is the involuntary stretching of the soft tissues, which occurs in most animals and is associated with transitions between cyclic biological behaviours, especially the sleep-wake rhythm. Yawning is considered a special case of pandiculation. When, as often happens, yawning occurs simultaneously with pandiculation in other body regions, the combined behaviour is referred to as the stretch-yawning syndrome (SYS).

Although today it is possible to trace the main neural pathways responsible for the expression of the SYS, its intimate biological meanings are still poorly understood. In the First International Congress on Yawning, held in Paris in 2010, different hypotheses were presented about the main possible SYS's mechanisms and purposes (summarized in the book: *The Mystery of Yawning in Physiology and Disease*, edited by Dr O. Walusinski), ranging from ethological to neurophysiological perspectives.

This article explores the hypothesis that the SYS has an auto-regulatory role in our locomotor system: to maintain the animal's ability to express coordinated and integrated movement by regularly restoring and resetting the structural and functional equilibrium of the myofascial system.

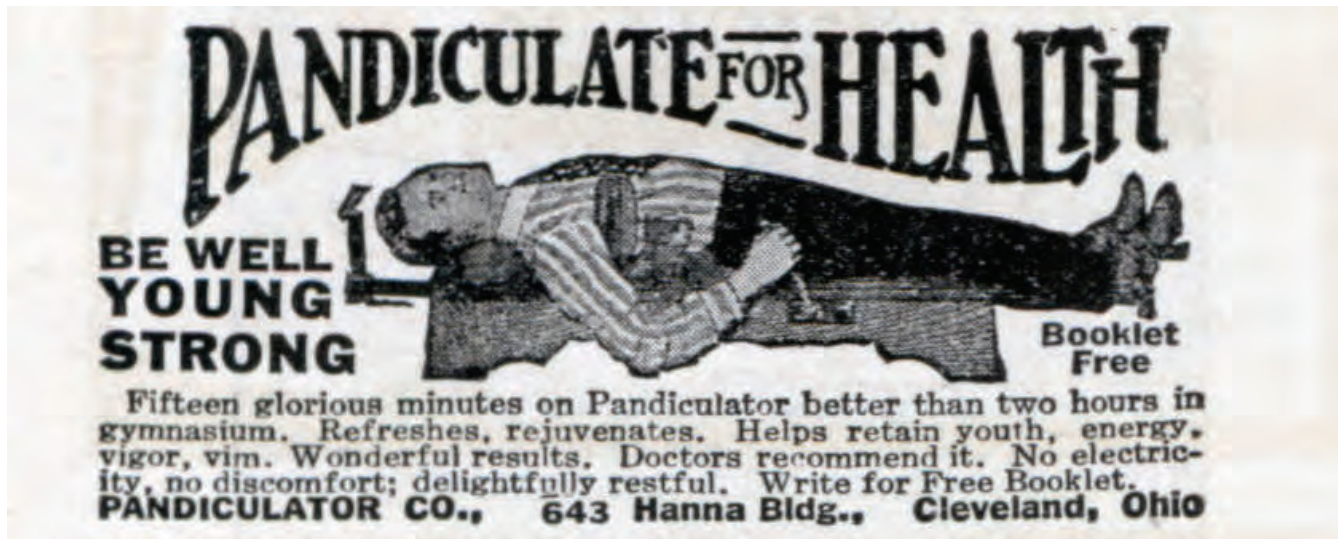
The ideas presented here initially arose from clinical observations during the practice of a manual therapy called Muscular Repositioning (MR) (Bertolucci, 2008; Bertolucci and Kozasa, 2010a; Bertolucci, 2010b). These observations were supplemented by a review of the literature on the subject. A possible link between MR and SYS is presented: The neural reflexes characteristically evoked through MR are reminiscent of SYS,



which both suggests that MR might stimulate parts of the SYS reaction, and also points to one of MR's possible mechanisms of action.

Pandiculation: determining and maintaining musculoskeletal structure and function

Pandiculation is an old and almost ubiquitous behaviour that occurs in similar form and circumstances across a wide spectrum of species (Baenninger, 1997). The regularity and vigour of pandiculatory movements suggest that they might be physiologically significant. Walusinski noted that according to Darwin's concepts, the cost of a behaviour with high metabolic demand is likely to be outweighed by some adaptive benefit (Walusinski, 2006). Indeed, the phylogeny and ontogeny of pandiculation reveal its likely role in the development and maintenance of motor function, in both its structural and neural aspects. Fraser (1989a), in connection with ultrasound foetal studies on sheep, refers to foetal pandiculation as a mechanism that influences functional determination of the moving parts of the musculoskeletal system and contributes to articular



development and maintenance. He also identified a bodily care and self-maintenance function of pandiculation, which restores muscle homeostasis in poultry, dogs, cats and horses, among other animals (Fraser, 1989a).

In human, pandiculation is also ontogenetically precocious, starting as early as 12 weeks of gestation (de Vries et al., 1982). It has been associated with the development of motor neural circuitry (Lagercrantz and Ringsted, 2001; Marder and Rehm, 2005; Briscoe and Wilkinson, 2004) and associated musculoskeletal effectors (de Vries et al., 1982; Walusinski et al., 2005). In fact, individual muscles are differentiated only after the establishment of their neural connections (Sadler, 1995), based on their specific motor actions.

Such mechanical-structural coupling is not confined to soft tissues; it can be extended to bone (Wolff, 1986), joint surface shapes (Kapandji, 1987) and virtually every tissue under mechanical stress (Moore, 2003; Silver et al., 2003).

In summary of the above, repetitive motion gradually determines shape and composition of moving structures, as well as their associated neural control pathways. The precociousness and stability of pandiculation suggest its contribution to such development.

SYS and arousal: restoration of postural tonus

The SYS has been associated with the maintenance of arousal and attention; i.e., it sets and maintains the central nervous and locomotor systems so that the animal is able to perceive environmental stimuli and respond to them with appropriate motor actions (Baenninger, 1997; Walusinski, 2006; Askenasy, 1989). It has been shown that rats' stereotypical yawning, including trunk stretching (SYS), can be triggered by

stimulation of the paraventricular nucleus (PVN) of the hypothalamus via electrical or chemical means (Sato-Suzuki et al., 1998).

The fact that animals most often awaken immediately following REM sleep (which is characterized by muscle atonia), led Walusinski (2006) to postulate an opposing relationship between REM sleep and SYS. Apparently, SYS restores to the myofascial system the elevated level of tonus required for activity in gravity: because in sleep the myofascia is slack and relaxed, the body segments must be reassembled upon awakening before the organism can move properly in the field of gravity.

SYS: compensatory response to stiffness

The SYS has a similar and stereotyped phenotype along the evolutionary scale, having remained virtually unchanged. Yawning starts with a long and deep inhale, reaches a peak, and concludes with a short exhale. Respiratory, mouth, neck and upper spine muscles engage in co-contraction, simultaneously stiffening the joints and stretching the myofascial tissues (Walusinski, 2006). The few references to body pandiculation in the existing literature describe it as a series of coordinated actions that unfold sequentially, building up soft tissue contractile tension to a peak, at which point the joints of the limbs and trunk are maximally extended or, alternatively, the trunk is arched in flexion (Fraser, 1989b). After the peak, the soft tissue tension level plummets, yielding a sense of pleasure and well-being.

The patterns of full body pandiculation are, in general, similar to the ones used in striding and righting behaviours (Fraser, 1989b) – i.e., they emulate ordinary functional movements – while pandiculation of limited bodily regions seem to be a corrective response to the stiffness induced by temporary positional stress or im-



mobility. Such stiffness is related to the molecular composition and dynamics of the extracellular matrix (ECM). In fact, during physiological turnover metabolism, ECM components are continuously being replaced, depending on the mechanical stresses acting on them; i.e., movement is crucial to the maintenance of the appropriate form and function of the ECM (Kjær et al., 2005, 2006, 2009; Tomiosso et al., 2005). For example, dense tissue is deposited in response to the mechanical need for tensional resistance, while areolar tissue is renewed where gliding is required. Without mechanical input, the ECM would be laid down amor- phously and its configuration would not meet physio- logical requirements.

For the configuration of the ECM to be physiologically appropriate, the mechanical input that stimulates it must first be appropriate. For example, a long striding movement will remain possible only to the extent it is sufficiently expressed, because only such expression will stimulate a supportive ECM configuration (Kjær, 2004; Kjær et al., 2009, Heinemeier et al., 2007). But, most of the time, animals are not expressing their optimal qualities of movement, such as running at maximum speeds and attaining maximum range of movement (ROM) in the joints. What's more, sleep imposes a regular period of immobilization, to which the ECM turnover will accommodate. This suggests a continual tendency to "tie up" the animal's entire structure by the creation of abnormal ECM links (adhesions).

Pandiculation, with its specific and vigorous muscle activity, might be a means to compensate for the mechanical signals delivered by rest periods and sub-optimal movements. Fraser mentions, in connection with his studies of pandiculation among various species, that it might be considered a feedback from stiffness, and possibly be triggered by extended periods of immobility in asymmetrical positions. He concludes that if the body tends to stiffen, pandiculation "can serve to restore the

limb (and related musculature) to an original (homeostatic) state (Fraser, 1989a, 1989b)". In fact, SYS has much in common with other homeostatic functions, as discussed below.

Emotional motor system and SYS

Human movement involves the concerted activity of all parts of the motor system. Voluntary movement involves the so-called cortico-spinal tract (connection between cerebral cortex and spinal nerves), which is modulated, by information from lower motor regions (basal ganglia, thalamus, midbrain, cerebellum, spinal cord). Such modulation allows voluntary movements to be smooth, precise and well coordinated (Kandel et al., 2000) and is mainly unconscious and automatic (Jacobs and Horak, 2007; Guyton and Hall, 2006; Takakusaki et al., 2003).

In contrast to voluntary movement, there is a wide range of instinctive motor behaviours that are automatic and can be executed without the intervention by the cortical centres. Instinctive behaviours evolved to guarantee the continuity of the organisms' lineages, to maintain internal homeostasis, and to insure successful breeding (Dentona et al., 2009). They are mediated primarily by the limbic system and include those life-supporting activities (e.g., feeding, self-defense, sex) collectively named emotional behaviours (Guyton and Hall, 2006; Kandel et al., 2000). In experimental animal models, stimulation of limbic structures, notably the hypothalamus and the amygdala, has elicited various emotional behaviours (Kandel et al., 2000, Guyton and Hall, 2006) – even in the absence of the cerebral cortex. Experimentally, animals without cortical function can feed themselves, express rage and fight, and have sexual intercourse (Magoun and Ranson, 1938; Smith, 1939; Guyton and Hall, 2006), which shows that the limbic system can produce such behaviours in the absence of cortical participation.

In fact, the limbic system sends diffuse and innumerable projections to the medulla. It is a system unto itself, able to produce motor activity independent of the voluntarily driven cortico-spinal system. Holtstege describes it as the emotional motor system because limbically regulated behaviours depend on the emotional state of the animal. The functions governed by the limbic system include different types of involuntary movements associated with olfaction and eating, such as licking, chewing, and swallowing; clonic and rhythmical movements (e.g., locomotion, shivering); sexual function; vocalization, laughing, and crying; and defense reflexes, among others (Guyton and Hall, 2006; Holstege, 1992). In-

Pandiculation

deed, in laboratory animals various stereotyped behaviors have been reproduced with electrical or chemical stimulation of mesencephalic nuclei, particularly the PVN (paraventricular nucleus) of the hypothalamus. Chewing, licking, lordosis in females, penile erection, and grooming have been observed (Argiolas et al., 2000; De Wied, 1999; Vergoni et al., 1998). The SYS is among these behaviors produced by the limbic system, and its phylogenic longevity suggests an adaptive function. That the SYS is mediated by the PVN suggests that the SYS might serve some general homeostatic function, which functions are carried out autonomously by the emotional motor system.

In human, the workings of the emotional motor system are illustrated by the involuntary movements of patients with voluntary motor pathway lesions. For instance, when hemiplegic patients yawn, they have been observed to raise involuntarily an otherwise plegic arm (Graham, 1982; Töpper et al., 2003; Stewart, 1921) (Omam et al., 1989). Similarly, patients with voluntary facial palsy show facial movements while laughing (Hopf et al., 1992; Töpper et al., 1995; Chernev et al., 2009), and patients incapable of voluntarily opening their mouths do indeed open them while yawning (Askenasy, 1989).

Taken together, the experimental and clinical observations summarized above illustrate that automatic (emotional) motor behaviours can express their patterns independent of the voluntary motor system. Such automatisms may be interfered with, because normal adult human motor behaviour includes the inhibition of instinctual drives (Smith, 1992). In fact, yawning has negative social connotations in most cultures and religious traditions, and the SYS behaviour has been observed to decrease as the person ages (Walusinski et al., 2010). Based on the above, one can speculate that cultural conditioning inhibits the SYS in humans. Given the likely homeostatic function of SYS, any such inhibition might contribute to the high incidence of human musculoskeletal disorders.

Pandiculation versus ordinary stretching: automatic versus volitional motor actions

If we attend to our interoceptive sensations, our experience tells us that pandiculation and SYS exhibit peculiar motor recruitment. If one “yawns” on purpose, one’s internal sensations are quite different from those elicited by a spontaneous yawn. Similarly, the sensations produced by spontaneous pandiculation are different from those that accompany either “volitional pandiculation” or volitional soft tissue stretching. The



Joseph Ducreux pandiculating; self-portrait ca. 1783. Image source: Wikipedia.

patterns of volitional stretching are cognitively established and the action purposely performed. They often involve relaxation of the muscles through a diminution of their actions: the subject muscle is elongated passively, as a result of either gravity or the activity of opposing muscles.

By contrast, the patterns of pandiculation are automatic. Through intense and involuntary deep muscle co-contractions, the soft tissues actively elongate themselves against the bony structures as the joints are stiffened. Each movement within the pattern emerges in sequence, apparently from the recruitment of a mosaic of reflexes, the sequence of which can neither be anticipated nor purposely performed. Just as a spontaneous yawn feels quite different from a deliberate imitation of one, spontaneous pandiculation feels quite different from a voluntary pandiculation-like stretch.

Because the voluntary and emotional motor systems have discrete neural pathways, pandiculation’s distinctive internal sensations might be attributable to the motor unit recruitment sequences dedicated to automatic movement patterns. Indeed, the contrast between interoceptive experiences during automatic versus volitional motor actions has been documented (Hommel, 2009). What’s more, operation of the hierarchically higher volitional system can inhibit that of the

Pandiculation

lower automatic system; this inhibition can disrupt the characteristic spontaneity of the SYS in favor of a cognitively directed stretch. Automatic arm abduction during yawning in hemiplegic shows the non-volitional nature of SYS: the patients did not show any arm movement when they imitated a yawn (Töpper et al., 2003). In other words, voluntarily imitation of the automatic motor pattern (via the cortico-spinal system) will not reproduce immediately the instinctive patterns originated in the limbic system (via the emotional motor system). Moreover, if the motor patterns are discrete, their physiological effects should be discrete, as well.

The importance of stretching to the maintenance of musculoskeletal health is well-known. In humans, each of the myriad of physical fitness regimens that include stretching has its own rationale; and although all muscle groups should be stretched, different regimens address particular problems and are intended to compensate for various patterns of muscle shortness or consequent joint mobility restriction. But how do animals in the wild maintain musculoskeletal health? They perform no voluntary stretching and still maintain their motor capabilities. Might SYS be responsible? If so, and if it were possible to stimulate SYS, might SYS be employed to achieve therapeutic goals?

Various somatic practices encourage the SYS because of its apparent homeostatic effects, e.g., Hanna Somatics, Joyflexing, Eutonia (Hanna, 2004; Johnson, 2002; Vishnivetz, 1995). In Eutonia, the SYS is observed to be evoked by certain attentional states and forms of mechanical stimulation. Similarly, the specific mechanical stimulation of Muscle Repositioning might also stimulate the SYS. (see section on responses induced by MR, below).

Pleasure and health

Ancient biological behaviours associated with the maintenance of homeostasis are directed through interoception – the sensory experience reflective of the physiological condition (Craig, 2003). Sensory experiences of displeasure and pleasure define the affective qualities of stimuli, which influence an animal's behaviour (Guyton and Hall, 2006; Bozarth, 1994). The positive effects of pleasurable experiences support many life-supporting behaviours: satisfaction of hunger and thirst, sexual intercourse, and vesicle and bowel evacuation are examples of instinctive behaviours that, once accomplished, reward the animal with an experience of pleasure, which biologically reinforces their expression.

Preservation of health (salutogenesis) is intimately



Picture from: Wikimedia commons.

linked to the perception of positive affects (Esch and Stefano, 2004). Such positive affect states are closely related to ancient limbic brain regions common among humans and other mammals (Burgdorf and Panksepp, 2006; Vincent, 1994; Cabanac, 1992). The instinctive behaviours, contributing as they do to the maintenance of the internal milieu, can be considered homeostatic drives (Sherwood, 2010), a category within which pandiculation may also be included. Not only has pandiculation been associated with pleasure and well-being (Fraser, 1989a; Sauer and Sauer, 1967; Russel and Fernandez-Doz, 1997; Walusinski, 2006; Steward, 1921), but it also shares with the other homeostatic drives involvement of the PVN nucleus of the hypothalamus. Homeostasis is maintained chiefly by the parasympathetic division of the autonomic nervous system (Recordati and Bellini, 2004), and increased parasympathetic activity has been detected during SYS (Askenasy and Askenasy, 1996). What's more, the frequency of SYS is correlated with degrees of health or convalescence: Fraser (Fraser, 1989b) notes that pandiculation is absent in animals with some systemic illnesses, but returns as the animal recovers. Similarly, in recovering hemiplegic patients, SYS and synkinesias characteristically re-emerge (Töpper et al., 2003; Hwang et al., 2005) in advance of voluntary limb movements.

However, excessive pandiculation is associated with certain diseases and the use of certain drugs (Askenasy, 1989). This suggests a possible distinction between complete (and successful) and an incomplete (and unsuccessful) pandiculation. Perhaps the former, having fulfilled its purpose, physiologically recurs; while the latter, seeking completion, pathologically repeats. Consider, for example, the palpable frustration that accompanies the interruption of a yawn or sneeze!



The pandiculation connection: yoga and martial arts

The downward dog position, like many yoga asanas, is reminiscent of an animal pandiculation position (Iyengar, 1979). In fact, some say yoga is derived from automatic and spontaneous actions of sages deep in meditation, and that yoga should be practiced spontaneously (Muni, 1994). Eastern martial arts might also have a connection with pandiculation. Qi Gong, for instance, requires the body to be fortified with automatic (involuntary) tonus in the deep postural muscles at the same time the superficial muscles associated with voluntary activity are relaxed. Under these conditions, the body is integrated as a whole and all its parts relate with one another in movement (see [http://www.caiwenyu.com.br/09 Fotos p ing.htm](http://www.caiwenyu.com.br/09_Fotos_p_ing.htm)). These conditions cannot be produced by voluntary motor action, but emerge spontaneously with appropriate states of attention in which mechanosensing is enhanced. A person in such state could take advantage of elastic potential energy stored in the body when performing a blow. This characteristic of Qi Gong suggests a tensegrity-based mode of action with a high pre-stress level. In fact, potentiation of performance has already been shown in prestretched muscles, due to their ability to store potential elastic energy (Bosco et al., 2008; Ettema et al., 1990; Ishikawa et al., 2006). Elements of martial arts training forms are often described in terms suggestive of animal pandiculatory patterns (Johnson, 2002). This invites reflection upon the fact that decorticated cats and dogs do exhibit instinctual behaviours, such as eating, copulating and fighting (Argyle, 1988); i.e., that basic life-supporting behaviours can happen without cortical participation. In fact, fighting appears to be a largely reflexive behaviour, the expression of which is associated with subcortical structures such as

the hypothalamus and midbrain periaqueductal gray (PAG) (Ulrich and Azrin, 1962; Shaikh and Siegel, 1994).

Muscle Repositioning: assisting pandiculation?

Like pandiculation, MR's manual local loading of the myofascial system integrates body parts, apparently by inducing co-contraction of opposing muscle groups (Bertolucci, 2008; Bertolucci and Kozasa 2010a, Bertolucci, 2010b), at the same time as it evokes a measurable rise in tonic muscle activity indicative of an overall increase in load. The client's subjective experience is similar to that evoked by pandiculation, which suggests a common element among pandiculation, yoga and martial arts and MR.

In pandiculation, muscle activation begins locally and spreads to neighbouring areas until it reaches a peak of distribution and intensity; i.e., joints progressively stiffen through a chain of reflexes, in which neighboring segments are sequentially engaged to form an ever-larger block that eventually encompasses the entire body. Following the peak, the tissues release. MR induces a similar progressive engagement of body segments. The inclusion of each segment increases the overall tension within the block until, following the peak, the practitioner feels an abrupt soft tissue release. The progressive segmental engagement is paralleled by an increasing involuntary tonic muscle activity observable both by palpation and by electromyography (Bertolucci, 2008; Bertolucci and Kozasa, 2010a; Bertolucci, 2010b). Let us imagine how it might be that MR and pandiculation would evoke similar muscle activity.

The author hypothesizes that the manual forces applied during MR maneuvers mimic internal forces, and therefore induce mechanoreceptor afferents, similar to those characteristic of pandiculation. In the clinical setting, recipients of MR treatments have exhibited spontaneous pandiculation-like movements (see videos at <http://musclerepositioning.blogspot.com/>), and have described their subjective experiences during MR as similar to their experiences during pandiculation. Some clients also report having resumed the habit of pandiculating in the morning, to which they attribute a greater sense of bodily well-being along with relief from musculoskeletal symptoms. These observations support the hypothesis of a similarity between MR and pandiculation. Perhaps MR is a blend of myofascial release and "assisted pandiculation", with the soft tissue release evoked by a combination of the practitioner's manual input and the internally generated forces of tonic pandiculation-like reactions. This combination of forces



might produce a greater effect in the soft tissues than either manual input or pandiculation alone.

Conclusion

The concept of myofascial force transmission (Huijing and Jaspers, 2005) assumes the presence of ECM links among musculoskeletal components, which links unite those components into an integrated system; i.e., the fascia itself is assumed to play an integrative role. Integrated movement both requires and stimulates appropriate matrix connections. However, animals engage in a great deal of non-optimal movement, of which immobilization (e.g., during sleep), trauma and bad postural habits are among the causes. Should normal activities generate both “good” and “bad” mechanical signals to the ECM, the bad signals would need to be countermanded by good ones for the animal to maintain full movement capabilities throughout life. Pandiculation might provide one source of good signals by (i) breaking bad connections while stimulating better ones, and (ii) resetting postural muscle tonus to produce integrated movement, which movement is a further source of good mechanical signals. In short, pandiculation might be a form of neuro-myofascial hygiene. If this be true, might we encourage pandiculation to enhance general health? This would require a reassessment of the cultural stigma against yawning and pandiculation, as well as further investigation of therapeutic approaches, such as Muscle Repositioning, that seem to stimulate it.

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Pandiculation

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BODY IMAGE AND MASSAGE

Body image or the conscious sense of our body, is our perception of and beliefs about our own body's appearance. Or simply the feeling we have of our own body. Constructed by the brain from past experience and present sensations, the body image is a mental representation of our physical appearance, and is a fundamental aspect of self-awareness and self-identity. Body image depends on our internal 'body maps' that are modulated by somatic and proprioceptive input.

The term "body image" was introduced in 1935 by Paul Schilder, an Austrian American neurologist, which refers to the mental pictures we have of our bodies or the way our bodies appear to us. It is the set of beliefs we hold about ourselves.

The topic of body image is covered extensively in recent popular books: *The Body has A Mind of Its Own* by Sandra and Matthew Blakeslee and *The Brain that Changes Itself* by Norman Doidge.

Distorted body image

Body image can be disrupted in people with pain disorders, and the disruption can have profound physical and psychological effects. For example, body image distortion is implicated in people with eating disorders (such as anorexia nervosa). Anorexics experience their bodies as fat when they are on the edge of starvation

Body image can be distorted in people suffering from chronic pain, as complex regional pain syndrome, phantom limb pain, and back pain.

Pain is commonly experienced as projected into the body. People say "My back is killing me!", but not "My pain is killing me." However people having phantom limb pain show that we don't need a body part or even pain receptors to feel pain. The only factor that controls this pain is our body image.

Physician VS Ramachandran said that pain is an opinion on the organism's state of health rather than a mere



reflexive response to injury. The brain gathers evidence from many sources before triggering pain. Pain, like the body image, is a construct of our brain. Therefore he successfully used a mirror box to modify a body image and eliminate the phantom and its pain.

Dr. Lorimer Mosely, a scientist from Australia, have demonstrated visual distortions of the body image in patients suffering from chronic pain can significantly affect their perception of painful sensations. People with CRPS and phantom limb pain, were shown to have decreased tactile acuity and distorted body image for the affected limb. CRPS and phantom limb pain patients tend to perceive the painful or phantom limb as being bigger than it really is.

Lorimer also tested to use the mirror box to make chronic pain in a real limb disappear. He asked his patients to simply imagine moving their painful limbs, without executing the movements, in order to activate brain networks for movement. The patients also looked at pictures of hands, to determine whether they were the left or right, until they could identify them quickly and accurately. They were shown hands in various positions and asked to imagine them for fifteen minutes, three times a day. After practicing the visualization exercises they did the mirror therapy, and with twelve weeks of therapy, pain had diminished in some and had



disappeared in half.

Lorimer also demonstrated that people with chronic back pain has disrupted body image. The patients were unable to clearly delineate the outline of their trunk and stated that they could not “find it”. This finding raises the possibility that training body image or tactile acuity may help patients in chronic spinal pain

Massage and Body Image

Massage is well known to make people feel more relaxed and better about themselves. While there are many evidences that suggest positive effects of massage on psychological health, little is known about the effects of massage on body image. Researchers have started to investigate massage as a way of improving body image.

Thomas Pruzinsky in his book *Body Image: A Handbook of Theory, Research, and Clinical Practice*, writes that massage therapy is a somatic approach that is helpful in positively affecting body image “by helping the client reconnect to the body in a very concrete manner.” Dr. Marcia Hutchinson, author of the book *Transforming Body Image*, suggests that since body image is a product of the imagination, it can also be changed using the imagination. Hutchinson describes an exercise called “imaginal massage” in which you visualize a massage occurring allowing the hands of the massage therapist to transfer healing to your body-mind allowing acceptance of your body.

A study conducted by the Department of Nursing, Wonkwang Health Science College in South Korea evaluated the effect of massage on abdominal fat, waist circumference and body image of post-menopausal women. The participants received a full body massage once a week and massaged their own abdomens twice a

day during a six week experiment. Half the group received massages with grapeseed oil. The other half received an aromatherapy massage with a blend of essential oils. Both groups felt better and improved body image after the treatment, but the group receiving aromatherapy massage showed significant changes across all areas – body image, waist circumference and abdominal fat.

Massage may improve body image by decreasing negative body image and increasing positive body image. A positive body image accepts the body and respects it by attending to its needs and engaging in healthy behaviours. In a qualitative study, many college women with a positive body image indicated that they regularly received massages to take care of, appreciate, and pamper their body, showing that they view massage as pleasurable.

Massage treatment could function as a positive feedback cycle, by not only lessening negative feelings about the body through increasing body acceptance, but also by associating emergent positive feelings with the body and partaking in a behaviour that honours and relaxes the body. Massage could also improve body image by reducing women’s objectification of their body. A woman with a negative body image often views her body as an object to be evaluated. Women in western cultures learn to survey their bodies through the eyes of their culture to avoid negative judgment. A woman can feel that her body brings unhappiness and shame because it is perceived as not measuring up to society’s ideals. A woman who receives a massage, can let her body becomes a vehicle for the experience of pleasure. Women who hold a negative body image may avoid massage due to shame or embarrassment.

A study conducted by scientists from Bridgewater State University, MA, USA looked at the effect of massage on state body image. The study recruited forty-nine female university students; they were randomly assigned to either a massage condition or a control condition. It was hypothesized that participants in the massage condition would report improved state body image following the intervention when compared to participants in the control condition.

As predicted, participants in the massage condition reported a more favourable state body image than participants in the control condition post-manipulation. Certain body image evaluations were moderately associated with views that massage is pleasurable, with the link between Body Areas Satisfaction and viewing massage as pleasurable reaching significance.



In this study, it is conclusive that the female university students reported feeling better about themselves and their bodies after having massage. Meanwhile the control group, who did not receive massage, showed no change in their attitudes.

A woman's negative view of her body can make the body seem untouchable and grotesque. Massage can be a vehicle to have a positive experience the body could potentially break through these negative body image attitudes. Nevertheless, a woman who holds negative thoughts about her body may be less apt to seek out massage therapy. This attitude will need to be addressed for massage to be a viable therapeutic option.

In addition to relaxation and a shift in focus from the body as an object, regular massage could help change negative thoughts about the body as the body becomes associated with the good feelings that it brings through the massage experience.

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Research Highlights

Relaxed muscles behave like springs

Australian researchers have discovered an entirely new aspect of human muscle behaviour. Professor Simon Gandevia, of Neuroscience Research Australia and the University of New South Wales, and colleagues, report their findings in the *Journal of Physiology*. Gandevia and team have discovered that when human muscles are completely relaxed, the muscle fibres don't just shorten, but behave like springs that resist joint motion. Although this sounds paradoxical, it means that at rest, muscles are under no tension whatsoever. "Just imagine a coil of rope or wire that had become so low in tension [or slack] that it buckled," says Gandevia.

At short lengths most muscle fascicles (bundles of muscle cells) are slack. As the muscle is lengthened the slack is progressively taken up, first in some fascicles then in others. The increase in muscle length is due partly to increases in the length of muscle fascicles but most of the increase in muscle length occurs in the tendons.

Sensory innervation of the thoracolumbar fascia

There has been a debate on the role of the fascia as a potential source of pain in the low back because the lack of data on the sensory innervation of the thoracolumbar fascia (TLF). A recent study from Germany provided a quantitative evaluation of calcitonin gene-related peptide (CGRP) and substance P (SP)-containing free nerve endings in the rat TLF. A preliminary non-quantitative evaluation was also performed in specimens of the human TLF. Their data show that the thoracolumbar fascia is a densely innervated tissue with marked differences in the distribution of the nerve endings over the fascial layers. In the rat, they distinguished three layers: (1) Outer layer (transversely oriented collagen fibers adjacent to the subcutaneous tissue), (2) middle layer (massive collagen fiber bundles oriented obliquely to the animal's long axis), and (3) inner layer (loose connective tissue covering the paraspinal muscles). The subcutaneous tissue and the outer layer showed a particularly dense innervation with sensory fibres. Because of its dense sensory innervation, including presumably nociceptive fibres, the TLF may play an important role in low back pain.

The effect of massage on pain management for thoracic surgery patients

Thoracic surgery patients undergo long procedures and commonly have postoperative back, neck, and shoulder pain. A study published in the June issue of *International Journal of Therapeutic Massage & Bodywork* looked at the effectiveness and feasibility of massage therapy delivered in the postoperative thoracic surgery setting.

The study was with patients who received massage in the postoperative setting had pain scores evaluated pre and post massage on a rating scale of 0 to 10 (0 = no pain, 10 = worst possible pain). In total, 160 patients completed the pilot study and received massage therapy that was individualized. Patients receiving massage therapy had significantly decreased pain scores after massage, and patients' comments were very favourable. Patients and staff were highly satisfied with having massage therapy available, and no major barriers to implementing massage therapy were identified.

Effects of massage on pain in patients with metastatic bone pain

Patients with metastatic cancers, such as bone metastases, are more likely to report pain, compared to patients without metastatic cancer. Their cancer pain results in substantial morbidity and disrupted quality of life in 34-45% of cancer patients. A study from Department of Nursing, Chang Gung University of Science and Technology, Taiwan published in the *Journal Pain* July 2011 conducted a randomized clinical trial to study the effects of massage on pain, mood status, relaxation, and sleep in patients with metastatic bone pain.

Massage therapy appears to have positive effects in patients with cancer; however, the benefits of MT, specifically in patients with metastatic bone pain, remains unknown. In the study with 72 Taiwanese cancer patients, massage was shown to have beneficial within- or between-subjects effects on pain, mood, muscle relaxation, and sleep quality. Results also demonstrated that massage resulted in a linear trend of improvements in mood and relaxation over time. More importantly, the reduction in pain with massage was both statistically and clinically significant, and the massage-related effects on relaxation were sustained for at least 16-18 hours post intervention. Furthermore, massage-related effects on sleep were associated with within-

Research Highlights

subjects effects.

Effects of infant massage on HIV-infected mothers and their infants

A study from Arizona State University was conducted to determine the feasibility of implementing an infant massage intervention and to evaluate the preliminary effects of infant massage on HIV-infected mothers and their infants. The study was published in the July issue of *J Spec Pediatr Nurs*.

In the study, two-group, randomized controlled pilot study, intervention group mothers were taught to perform infant massage daily for 10 weeks. The results showed that Infant massage training had a positive impact on maternal depression, parental distress, and infant growth along with facilitating more optimal parent-child interactions. The authors concluded that infant massage, a quick, easy, and inexpensive intervention, is feasible in a clinic setting and may benefit human immunodeficiency virus-infected mothers and their infants.

The Effect of Static Stretching on Muscle Performance

Kay & Blazevich, scientists from Western Australia recently reviewed the Effect of Static Stretching on Maximal Muscle Performance, it was published in *Medicine Science of Sports & Exercises Journal* July 2011.

The authors addressed the benefits of pre-exercise muscle stretching, which have been recently questioned following reports of significant post-stretch reductions in force and power production. However, there are many methodological issues and equivocal findings have prevented a clear consensus being reached.

The authors conducted a systematic review for randomized or quasi-randomized controlled trials and intervention-based trials published in peer-reviewed scientific journals examining the effect of an acute static stretch intervention on maximal muscular performance.

From 106 good studies they found:

Clear evidence indicating that short-duration acute static stretch (less than 30 seconds) has no detrimental effect, with overwhelming evidence that stretch durations of 30-45 seconds also imparted no significant effect. However a significant reduction likely to occur with stretches greater than 60 sec.

This strong evidence was independent of performance task, contraction mode or muscle group.

The authors concluded that the detrimental effects of static stretch are mainly limited to longer durations (≥ 60 s) which may not be typically used during pre-exercise routines in clinical, healthy or athletic populations. Shorter durations of stretch (< 60 s) can be performed in a pre-exercise routine without compromising maximal muscle performance.

6 Questions to Robert Granter



1. When and how did you decide to become a bodyworker?

The seed was planted in the late 70's when I suffering from severe Low Back and Neck pain and I was helped significantly by a Massage Therapist and I was getting little relief from the other more accepted health modalities. I decided to commit to a career in Massage Therapy in 1985 by moving to Melbourne to study for a professional qualification.

2. What do you find most exciting about bodywork therapy?

The ability to significantly help people with something very tangible. I have also had some very exciting times working with elite sporting teams. Marching into an opening ceremony with the Australian Olympic team in Barcelona (1992), Atlanta (1996) and in Sydney (2000) was so incredibly exciting. The industry also is composed of so many wonderful practitioners. Its an exciting and caring profession.

3. What is your most favourite bodywork book?

Clinical Sports Medicine by Brukner & Khan, now in its 4th edition, because it was the first Sports Medicine book to sincerely embrace and value soft tissue therapy as an integral component of the respected health modalities.

4. What is the most challenging part of your work?

Caring for my own body to maintain a high-level physical and mental wellbeing.

5. What advise you can give to fresh massage therapists who wish to make a career out of it?

Seek and listen to the advice of a successful Massage Therapist who is already doing what you want to be doing. Give and receive lots of Massage treatment to refine and expand your abilities to plan successful

treatments. Commit to working to gain a great knowledge base and to highly develop your "tissue touch sense". Treat every single person with the same high level of care and professionalism. Have fun.

6. How do you see the future of bodywork and massage therapy?

Fantastic future. As our technological world continues to gather pace, effective hands on therapies will have an essential place in our true health care system.

Robert Granter has more than 20 years experience in Soft Tissue Therapy within the Australian Sports Medicine Multidisciplinary Model. Since 1992, he has delivered over 30 conference presentations within Australia, the UK, and New Zealand. He is co-founder of the Australasian College of Soft Tissue Therapy and is the only Soft Tissue Therapist on the editorial board of the British Journal of Sports Medicine. Rob is based in Melbourne, Australia, and has been head of Massage Therapy/Soft Tissue Therapy for:

Australian Olympic teams for Atlanta 1996 and Sydney 2000, Victorian Institute of Sport (10 years), 2006 Commonwealth Games, Melbourne, The Sports Medicine Centres of Victoria group practice (5 years), Olympic Park Sports Medicine Centre (6 years), Essendon, Australian Football League Football club (7 years), Australian Commonwealth Games team Kuala Lumpur 1998

He is currently in private practice in Melbourne and is a teacher in the Myotherapy Department at the Royal Melbourne Institute of Technology University.

6 Questions to Byron Barth



1. When and how did you decide to become a bodyworker?

In 1995 I had my first experience with bodywork. A good friend and roommate of mine was receiving Shiatsu regularly and would always speak highly about his Shiatsu experience. He spoke of it days before and for days after each session. I eventually went and was immediately hooked. It was as if I was finally introduced to “myself” and had experienced a body awareness and grounding unlike ever before. I became fascinated with how Shiatsu made me feel, with the meridians and this thing called Ki. After about three sessions I enrolled in Shiatsu school and was on my way towards a career change and new path of learning and healing.

2. What do you find most exciting about bodywork therapy?

I love how it makes people feel. I love how it makes me feel. The integration of the body, mind and spirit that one feels both during and after a bodywork session is fantastic. The satisfaction felt when you have really helped someone is also beyond words.

3. What is your most favourite bodywork book?

My favourite bodywork book is Paul Lundberg’s “The Book of Shiatsu”. It is a wonderful blend of TCM and Shiatsu theory. It is complete with artistic illustrations and photos depicting not only the Shiatsu routines and theory but also the meridians and commonly used points. It also includes some nice additions such as warm-up and grounding exercises as well as the Makko Ho meridian stretches.

4. What is the most challenging part of your work?

The most challenging part of my work is seeing people discontinue treatment after only one or two sessions. Many of these people often say “it just didn’t work for me” when they actually didn’t give it an honest try. We as alternative healers are often the “last stop” for people, many of whom have exhausted all other options. When these same people quit prematurely it is frustrating and disheartening. Had we been given the opportunity years earlier with many of these patients we could have quite possibly been the one and only stop. Many of these conditions were years in the making and we must educate these patients that natural healing takes time.

5. What advice can you give to fresh massage therapists who wish to make a career out of it?

First and foremost, remember the principles of proper pos-

ture, stance, position and technique. Your hands and body are your livelihood and you must take care of yourself. Practice what you preach and receive massage regularly. You can always trade with other therapists. The main reason that body workers quit the profession is injury.

Also, I suggest that you do not limit yourself to only one setting or environment at the beginning. Work at a spa, for a chiropractor, doctor and do chair massage at the local market or mall. It is important to get as much exposure at the beginning to really boost your clientele.

Do not stagnate in your profession but continue to learn massage techniques and refine your craft. Attend continuing education workshops so you can remain informed and provide your patients with the best possible care.

6. How do you see the future of massage therapy?

Massage is an ancient practice that is seen in all cultures throughout history. When we injure ourselves the basic and natural instinct is to rub or hold the injury.

Today we have scientific explanations for the healing and medical benefits of massage. Massage is no longer just viewed as a luxury or purely for relaxation. Massage has now integrated into medical settings throughout the world. The public is getting more educated with the healing, medical and preventative benefits of receiving massage. I feel that recent regulation of massage and stricter curriculum in massage schools only serves to benefit and provide added credence for our profession.

I see a very bright future for massage therapy as the general public and medical profession continues to increase their awareness, acceptance and understanding of our powerful healing art.

Byron Barth, L.Ac., Dipl. O.M., MSTOM, is the author of the DVD The Art of Zen Shiatsu. He is a practicing Zen Shiatsu therapist and licensed Acupuncturist. He has been instructing Zen Shiatsu for over a decade and is on faculty at Pacific College of Oriental Medicine in San Diego, California. He is nationally certified in Chinese Herbology, Acupuncture and Oriental Medicine (NCCAOM). Other licenses include Holistic Health Practitioner and NCBTMB for Massage.