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Common Leg Injuries and Therapeutic Strategies by George Kousaleos LMT

The first therapeutic massage I ever witnessed was in the fall of 1968 in the Harvard University Athletic Training Room. I was a football player for the freshman team and like most days I was having my ankles taped before practice. Across the room I watched one of Harvard's senior athletic trainers perform a deep-tissue massage routine on the thigh of a varsity cross-country runner. His hands moved with a skill that fascinated me, and the depth of his work on the quadriceps, adductors, hamstrings, and iliotibial band gave the impression that the muscles were made of soft dough. I still remember thinking that my thigh muscles were too dense and contracted to allow any treatment resembling what I was observing.

Later that fall I suffered an injury to my lateral thigh and hip that required regular treatment, including hydrotherapy, cryotherapy, and therapeutic massage. The same athletic trainer whom I watched just months earlier was assigned to my case. Indeed, my earlier thoughts proved to be true. He told me that the tightness and restriction of my musculature would need to be modified before he could apply the deeper pressure that would improve my condition. While the injury was clearly along the iliotibial band he worked the whole hip, thigh and knee every treatment. At first the pressure seemed unbearable, but later I welcomed his decisive touch, even though it was accompanied by a burning sensation that slowly decreased over time. He recommended that I include more flexibility exercises to my workout regimen, especially for the back, hips, and legs. Like many football players of that era flexibility was something that I knew little about. Only years later, after experiencing a neck injury

while playing rugby did I finally commit myself to flexibility training.

This article will look at three common leg injuries – iliotibial band syndrome, shin splints, and plantar fasciitis - that affect the thigh, lower leg and foot. The treatment strategies can be added to any therapeutic massage routine, but clearly focus on the fascial bands that wrap and support each region.

Thigh and Iliotibial Band Syndrome

The musculature of the thigh provides for some of the most powerful and explosive movements available to the human body. The quadriceps and hamstrings are often considered to be the critical pair that keeps us standing, moving, kicking, and jumping. The adductors of the medial thigh stabilizes the knee and also medially rotates the femur, adding support and force to any side-to-side movement. Because of the intricate web of these functional muscle groups that attach the leg to the pelvis and the thigh to the lower leg, it is critical to understand the layers of fascia that surround and support the thigh.

The iliotibial band (ITB) is the most important layer of dense, fibrous connective tissue that supports the interrelationship of the hip, thigh and knee. Located along the lateral line of the thigh, the ITB runs vertically, with emerging fibers from the gluteal fascia and from the tensor fascia lata (TFL). At the lateral pelvis and upper thigh the ITB is a broad layer of fascia that eventually narrows into a thick and strong cable that attaches distally at the tibial tubercle just below the lateral knee. Because of its close proximity to the vastus lateralis of the quadriceps group, the ITB plays an important role in stabilizing the leg, from hip to knee, during all movement.

Iliotibial Band Syndrome (ITBS) is normally a result of excessive friction between the ITB and the lateral epicondyle of the femur, which creates sharp pain at the side of the knee, most often during running or related exercise. ITBS can also cause pain at the side of the hip when trauma has affected the function of the TFL. ITBS is most common with runners and cyclists, especially when their training levels have recently increased, or for runners when they train on uneven or sloped surfaces. ITBS can also be associated with court and racquet sports, strength training (especially from weight-bearing squats), and even pregnancy. Leg-length differences and misalignments of the pelvis can also be contributing factors.

The real cause of the pain is the repetitive movement of the cabled portion of the ITB sliding back and forth across the outer surface of the lateral epicondyle. In running this happens on the average of 90 times per minute or 22,000 times for a 4-hour marathon. If the ITB is too weak or too tight this constant movement across the lateral epicondyle will inflame the fascial membranes of both the ITB and the periosteum of the epicondyle. Most coaches, athletic trainers, and sports massage practitioners recommend using the RICE formula for treatment. While this will help calm the agitated tissues and the copious amount of sensory neurons in the affected area, this formula for treatment will not improve strength or flexibility. A balanced treatment strategy should also include an improved training regimen that includes strengthening and lengthening of both the lateral and medial tissues of the thigh. Massage techniques can assist in reducing the tightness of the ITB while restoring the tonicity of the soft tissue.

Lower Leg & Shin Splints

The lower leg is responsible for a myriad of movements or actions required in standing, walking, running, jumping, swimming and cycling. The lower leg is divided into four fascial compartments, each containing muscles and tendons that support movement specific to that compartment. The muscles of the anterior compartment, located at the front of the shin, are primarily responsible for dorsiflexion of the foot and toes. The anterior tibialis may also assist with inversion of the foot. The lateral compartment contains the muscles that produce eversion of the foot and also assist with plantar flexion of the foot. These muscles used to be known as peroneus longus and brevis but have been recently renamed fibularis for the lateral bone of the lower leg. The posterior compartment contains the large muscles of the calf (gastrocnemius, soleus, and plantaris) that produce plantar flexion of the foot, while the deep posterior compartment contains intrinsic muscles that either flex the toes (flexor digitorum longus), invert the foot (tibialis posterior), or flex the big toe (flexor hallucis longus). These muscles may also assist with plantar flexion.

Shin splints are injuries to the portion of the anterior leg that is closest to the lateral or medial edge of the tibia. The term shin splint has been more recently called medial tibial stress syndrome or anterior compartment syndrome. Often associated with overuse in runners, basketball players, and aggressive walkers, shin splints can be mildly uncomfortable or can

become so painful that exercise must be discontinued. The most common shin splint is located along the medial edge of the tibia in an area that runs from just above the medial malleolus through the mid-portion of the lower leg. The associated pain is found both on the edge of the bone and in the mass of soft tissue just behind and medial to the tibia. Hard surface running, improper shoe support, toe running, or affiliated injuries to several ligaments in the posterior knee can also cause shin splints. Shin splints can be associated with stress fractures or micro fractures to the tibia, or from periostitis, an inflammation to the periosteum of the tibia. Treatment strategies include RICE protocols and manual therapy that will improve structural balance, adhesion reduction, and myofascial tonicity.

Foot & Plantar Fasciitis

The most important functions of the foot include the twin responsibilities of weight bearing and propulsion. While these two primary functions require a strong measure of stability, it is also necessary for the foot to be flexible, allowing it to adapt to uneven surfaces while standing or moving. The foot is divided into three sections, which include the forefoot, the midfoot, and the hindfoot. The forefoot consists of the five metatarsal bones and the phalanges. The midfoot includes five of the seven tarsal bones while the hindfoot includes the calcaneus and the

talus. The musculature of the foot is either classified as intrinsic or extrinsic. The intrinsic muscles are located in the foot and primarily operate the various movements of the toes. The extrinsic muscles are located in the lower leg and their tendons cross the ankle joint to attach to various bones of the foot, supporting plantar flexion, dorsiflexion, eversion, and inversion. The plantar region of the foot contains three arches, which give the foot its supportive shape. The medial longitudinal arch includes the calcaneus, talus, navicular, cuneiforms, and the first three metatarsals. The lateral longitudinal arch is normally lower and flatter than the medial arch and includes the calcaneus, cuboid, and the fourth and fifth metatarsals. The transverse arch includes the cuneiforms, the cuboid, and the five metatarsal bases. These three arches are covered by the plantar fascia, one of the densest and most resilient layers of fascia in the body.

Plantar Fasciitis is considered to be an overuse injury to the plantar tissues of the foot. It affects the fascia that comprise the soft tissue of the arches with inflammation, sharp pain, or a burning sensation (fascial pain). In the majority of cases plantar fasciitis is located in the center of the plantar surface of the calcaneus, but it can also occur along the longitudinal arches, and sometimes across the balls of the foot.

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This condition is often associated with long periods of exercise and weight bearing, arches that are too flat or too high, improper ankle and foot mechanics, obesity, inactivity, or from shoes that don't effectively support the arch. Treatment plans should also include rest, cryotherapy, and increased flexibility training for the calf musculature and the calcaneal (Achilles) tendon.

All of these common injuries are related to overuse, trauma, or under use of the myofascial compartments of the

thigh, lower leg, and foot. Studying the anatomy and physiology of fascia and myofascia is essential for developing effective treatment plans. Recognizing the interrelationships of these tissues with the sensory nervous system, the lymphatic system, and the venous return system encourages the massage therapist to develop a treatment strategy that will improve acute or chronic injuries while promoting client-education and improved biomechanical performance.

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director of the CORE Institute School of Massage Therapy and Structural Bodywork, in Tallahassee, Florida. George has practiced and taught myofascial therapy and structural integration since 1979. He was active in the development of the National Certification for Therapeutic Massage and Bodywork examination program and the Massage Therapy Foundation, as well as organizing sports massage teams for the British Olympic Association in 1996 and for the 2004 Athens Olympiad. www.coreinstitute.com.

Treatment Strategies

Plantar Fasciitis

1. With the client in supine position apply general techniques to warm the foot, ankle, lower calf and calcaneal tendon.
2. Apply plantar flexion and dorsiflexion range-of-motion for ankle, foot and toes.
3. Apply specific techniques to the retinaculum of the ankle and to the calcaneal tendon and its attachments to the calcaneus.
4. Apply broad strokes (thumb pads or soft fist) to full planter surface of the foot, include vertical and horizontal planes of force.
5. Use deep circular friction on affected areas of the plantar surface of the calcaneus and the arches. Locate all tender points and work thoroughly.
6. Complete treatment with general techniques and check for improved range-of-motion of ankle, foot, and toes.

Shin Splints

1. Apply general techniques to warm the tissues of the compartments of the lower leg. Include range-of-motion exercises for ankle joint.
2. With client in supine position apply broad myofascial techniques to all tissues immediately medial and lateral of tibia, starting immediately above the ankle and progressing to the knee.
3. Using deeper circular friction techniques work the affected areas of the tibial periosteum and surrounding soft-tissue adhesions.
4. Apply balancing techniques to both sides of the tibia and return to range-of-motion exercises to check flexibility improvement.

Iliotibial Band Syndrome

1. Apply general techniques to full thigh to warm the tissues. Balance the techniques between the four sides of the thigh.
2. From the side-lying position, with the thigh supported by pillow or bolster, apply broad myofascial spreading/ broadening strokes that work across the ITB tissues. Work from hip to lateral knee.
4. With fingertips or fist apply deeper strokes across the affected areas of the ITB (the distal third of the ITB is normally more sensitive).
5. With finger pads of both hands lift and stretch the ITB from mid-thigh through lower thigh.
6. Finish treatment with moderate techniques that increase parasympathetic response.

Upcoming workshops

9-11 Apr & 6-8 Aug 2010
CORE Myofascial Therapy Certification (6-days)
 with George Kousaleos
 Edinburgh
 £540

17&18 Apr 2010
Sports & Performance Bodywork: A 4-system approach
 with George Kousaleos
 London
 £210

Some Thoughts About Pain in Bodywork by Art Riggs

Part One: Your Relationship with Your Clients

Two years ago, Tom Myers wrote an interesting article about pain in which he focused upon the subjective qualities of discomfort that our clients experience in bodywork. I particularly liked Tom's distinction of three kinds of pain:

- Pain entering the body—from injury or other external causes, including too aggressive work
- Pain stored in the body's tissues
- Pain leaving the body

This subject is often neglected in articles and training--I think partly because it is such a subjective sensation but, also, because pain is a bit like the black sheep relative that everyone in the family feels uncomfortable acknowledging.

In this and an upcoming article I would like to focus upon our role as therapists to facilitate the release of pain stored in the body and some practical ways of skilfully dealing with these sensations in our relationships with our clients. Even if our bodywork practice is primarily relaxation and enjoyment based, the reality is that virtually all people we see have areas of dysfunction, discomfort, or actual pain somewhere in their body. If we fail to address these issues, we do a disservice to our clients and limit the success of our practice. One of the most frequent complaints I hear from

people asking for referrals is that overly conservative massage is ineffective in providing long-lasting benefits and in dealing with chronic pain in the body. Conversely, I also hear criticism of over-zealous therapists who impose unnecessary discomfort (the first of the three pains listed above), primarily from poorly developed skills of touch, but also because of less than satisfactory attention to the emotional aspects of pain and the subjective connection of trust one has with a client.

Spend any time watching daytime TV and you will see countless commercials offering relief from pain. Pain is the enemy and is almost always looked at as a sign that something is wrong, so we are offered opiates to dull the sensations rather than addressing the causes. I prefer to look at symptoms of discomfort as the "canary in the mine shaft" alerting us of a potential problem. We all frequently have the experience of encountering congested or fibrosed tissue that our clients express surprise at the tenderness and admiration for our skills at discovering these secrets. Finding these areas is the preliminary skill, but the release of these patterns requires even more finesse to mitigate the symptoms and their causes rather than increasing discomfort from our work.

Scientific literature is replete with attempts to measure the specific

quantitative aspects of pain. I recently had a physical therapist in a workshop ask how many ounces of pressure in a localized area of how many square inches delivered at how many centimetres per minute would elicit a pain response and the inevitable rebound of tissue? Teaching can indeed be a challenging experience at times! Such a question ignores the intangibles of touch and vast differences between clients. Although our manual skills are to a large extent specific and measurable, our client's perceptions of our touch are extremely varied, subjective, and in many ways contingent upon the intangible aspects of our humanity and relationships with them.

In this newsletter edition I will focus upon your connection with your clients and how your relationship can affect the greatly varying subjective aspects of their perception. In a later article, I will discuss the physical skills of how to develop an effective and powerful therapeutic touch that will "feel good" to your clients.

YOUR RELATIONSHIP WITH YOUR CLIENT
Pain, either stored in the body or from your touch does not exist in a vacuum. Most all of our perception of this sensation is influenced by context. Think of the difference in perception between being stuck with a needle accidentally and the careful probing to

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remove a splinter. The context of your relationship with your client and your intention can provide the confidence and caring that can make the difference between a tense and painful session or a relaxed and easy one as they realize the benefits from focused work to solve problems.

Since our bodies and minds are conditioned to interpret pain as the messenger that "something is wrong here!" fear is often the primary emotion that we deal with when working deeply with our clients. The first few minutes of your session can be your major tool in allaying fear and the tension in the body caused by this emotion. Following, are some suggestions for consideration:

- Establish rapport-- Taking just a few minutes to chat with your clients, especially if it is the first time you have seen them, can define the context of everything you do in the session. A few minutes of relaxed conversation, and not necessarily only about "business," can let your client feel like a person you actually care about on a personal level and begin to establish a relationship based upon mutual trust.
- Cultivate confidence in your skills
 - Rather than immediately beginning work on sensitive or troublesome areas of complaint,

address areas that will "feel good" and let your client become familiar and relaxed with your touch in an area where they feel safe.

- Explain the rationale behind your strategies, especially in areas that are sensitive. Intense therapy with a purpose will be perceived very differently from work that appears to be insensitive and without benefit.
- Give a feeling of empowerment to your client.
 - The most important gift of safety you can give to your clients is the knowledge that you will stop immediately if they ask you to. However, there is a delicate balance between being receptive to feedback and appearing to be under-confident. Constantly asking your client if the work is too intense can call attention to the issues of pain. The client should be able relax with confidence rather than having to be overly vigilant in giving feedback.
 - We will discuss this in more detail in the next article on this subject, but suffice it to say that your

session will be much smoother and enjoyable if you err towards the side of caution rather than overworking and having to interrupt the flow of the session by frequently stopping work and having to regain the confidence and relaxation of your clients after over-stimulation. Cultivate your sensitivity to the preliminary signs of defensive withdrawal rather than crossing the threshold into painful territory.

- Pace your sessions and clarify your goals
 - Good (overly ambitious) intentions can lead to trouble. I joke with my friends that they need to beware of my enthusiasm as I try to give them "extra" work. I wish I could give recall notices to my early clients as I watched them levitate off the table as a result of my "over-generous" attempts at being a miracle worker. Probably the single largest cause of overworking or causing discomfort is **not** the error of working too deeply or applying too much pressure, but of working too fast.

Upcoming workshops

8&9 May 2010

Deep Tissue Massage: Techniques for the Upper Body

*with Art Riggs
Belfast*

Early Bird £190

15&16 May 2010

Soft Tissue and Movement Strategies for Resolving Trauma to the Lower Body: An Integrated Approach to Rehabilitation

*with Art Riggs
London*

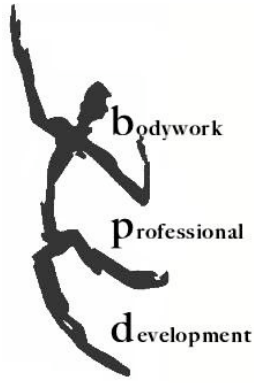
Early Bird £190

11&12 September 2010

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*with Art Riggs
Edinburgh*

Early Bird £190



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- A friend once gave me some excellent advice from a Buddhist teacher: "In life, as in music, the rests are as important as the notes." I apply this wisdom to my sessions. When performing intense work, I give frequent breaks for my clients to assimilate the changes and enjoy integrative and "feel good" work. This allows for a rest and the chance to appreciate and solidify the good work you have performed.
- Consider Einstein's wisdom on the relativity of time. I learn a great deal when I go to yoga classes. As I look around the room, I see the lithe young things who appear to be warming up for their primary jobs as contortionists for Cirque du Soleil. In some poses, when I'm sweating bullets and considering crying out that I confess to uncommitted crimes,

the teacher will sometimes let the class know that "we only have 30 seconds left." Suddenly, my perception of overwhelming pain dissipates as I realize that an end is in sight. I relax and move to a new level of release. When you feel that your clients are working with you for important release, let them know that you are aware and grateful for their cooperation and that relief is in sight. The very tension of conscious withholding is often the last obstacle in the way of dramatic change. Often, lightening up in force and speed is all that is needed to achieve that last release and true education to "let go" of chronic tension.

This last point may be the most important of this article. The issue of pain is emotionally charged, both for our clients and ourselves. It is important to realize that pain, albeit with lots of very real

variable and personal emotional considerations, also has a great deal of cultural judgment. I see absolutely no purpose or benefit from imposing unnecessary discomfort in a session, however, don't berate yourself if you very occasionally overstep the limits of your clients' sensitivity. As my Catholic friends remind me, "It isn't a sin unless you enjoy it." For pain held in the body, a careful dialogue--both with your touch and your unique relationship with each person--of communication and negotiation (rather than coercion) in intense work can spell the difference between a lost opportunity and profound release.

Art Riggs is a Certified Advanced Rolfer®, teacher of bodywork, and the author of *Deep Tissue Massage: A Visual Guide to Techniques* and the acclaimed seven volume (11 hour) DVD series that accompanies the book.

Upcoming CPD events in Spring 2010

- 27/28 Mar ~ Medical Massage for the Abdominal Wall & Shoulder Girdle ~ Ralph Stephens ~ Edinburgh
- 9-11 Apr & 6-8 Aug ~ CORE Myofascial Therapy Certification ~ George Kousaleos ~ Edinburgh
- 17/18 Apr ~ Sports & Performance Bodywork: A 4-system approach ~ George Kousaleos ~ London
- 25 Apr ~ Biotensegrity: A New Approach to Human Structure (Lecture and hands-on) ~ Stephen Levin & Daniele-Claude Martin ~ London
- 8/9 May ~ Postural Assessment and Correction ~ Graham Blakeley ~ Edinburgh
- 8/9 May ~ Deep Tissue Massage for the Upper Body ~ Art Riggs ~ Belfast
- 15/16 May ~ Soft Tissue and Movement Strategies for Resolving Trauma to the Lower Body: An Integrated Approach for Rehabilitation ~ Art Riggs ~ London
- 12/13 Jun ~ Anatomy Trains Myofascial Meridians for Therapists ~ Mike Doxey ~ Edinburgh
- 18-20 Jun ~ Integrative Fascial Release (IFR) Foundations ~ Steven Goldstein ~ Edinburgh
- 25-27 Jun ~ Integrative Fascial Release (IFR) Foundations ~ Steven Goldstein ~ London