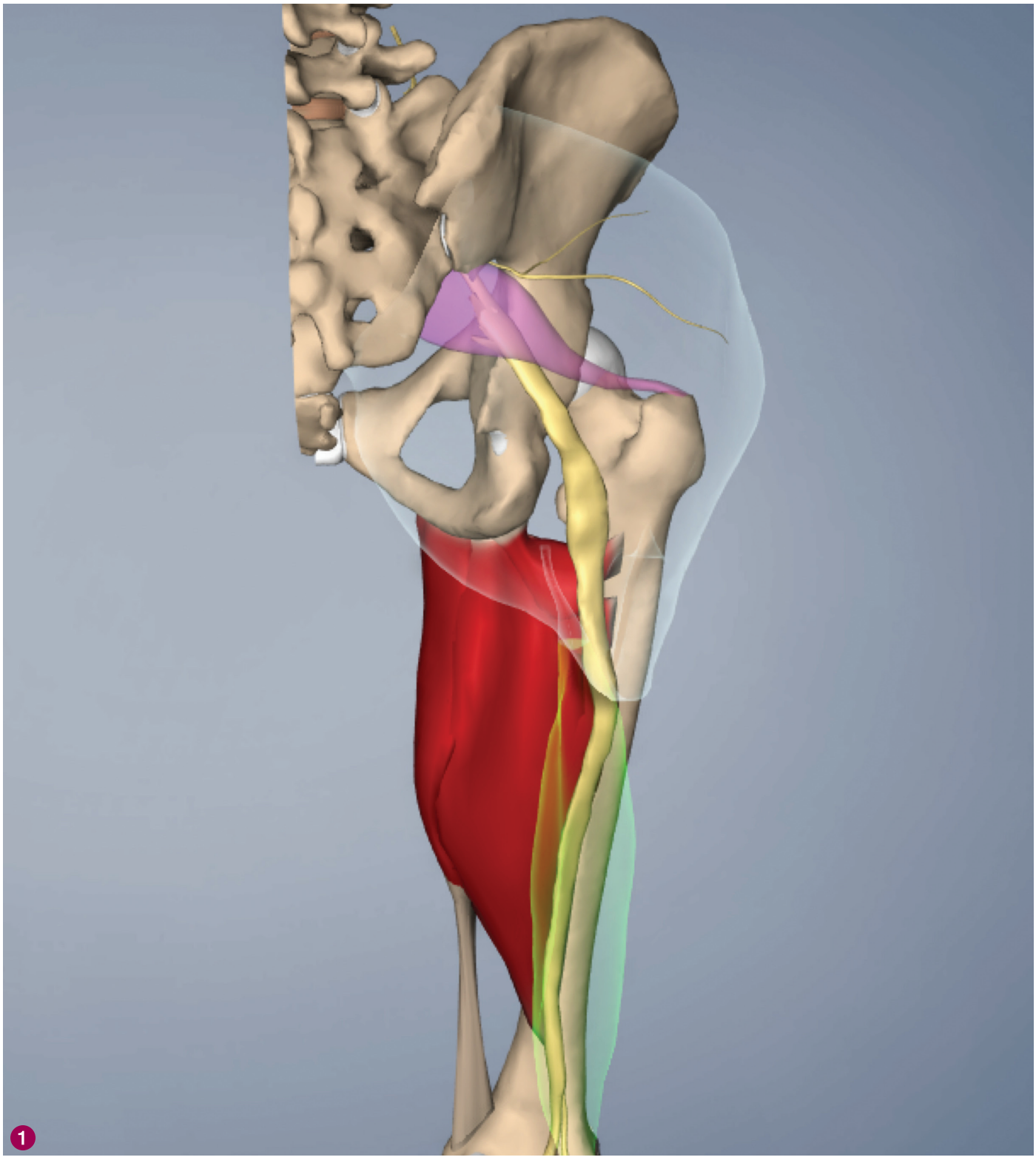
BY TIL LUCHAU



In appendicular sciatica, the sciatic nerve (yellow) can be entrapped by any of several structures in the hip or leg, including the piriformis (violet) and other rotators, or between the adductor magnus (red) and biceps femoris (green, transparent). *Image courtesy Primal Pictures. Used with permission.*

WORKING WITH APPENDICULAR SCIATICA, PART 3

Sciatic pain, that is, pain involving the lower back or buttocks that radiates down the posterior leg, comes in at least two varieties: axial and appendicular. In the first installment of this article ("Assessing Sciatic Pain," July/August 2011, page 110), we discussed ways to assess axial sciatica (which originates from impingements of the nerve roots at the lumbar spine), and to differentiate it from appendicular sciatica (which arises from nerve entrapment distal to the nerve roots).

A brief review: because axial sciatica can be associated with spinal instability (which can be worsened by indiscriminate deep work), the safest approach to this type of sciatica is easing the whole-body guarding and stress that accompany chronic pain, rather than performing deep, focused work on the lumbar nerve roots themselves. Persistent axial sciatic symptoms (as described in Part 1) can be a reason for referral to a rehabilitation specialist, such as a physical therapist, chiropractor, or orthopedist.

By contrast, with appendicular sciatica, our approach is different. Appendicular sciatica is characterized by increased pain from sitting; stepping up stairs or inclines; the direct pressure of sexual intercourse in women; or with resisted active external rotation of the femur. Appendicular sciatica can be just as painful as axial sciatica, but is generally more amenable and responsive to soft-tissue work. This is because in appendicular sciatica, it is usually soft tissue itself that entraps the sciatic nerve, as opposed to the boney or fibrocartilaginous entrapments typical in axial sciatica.

Our intention when working with appendicular sciatica is to facilitate normal nerve glide by releasing the tethering or compressing myofascial entrapments. These entrapment sites can be identified using the Sciatic Nerve Glide Test described in the second part of this article ("Assessing Sciatic Nerve Glide," September/October 2011, page 110). Now, in this third installment, I will describe techniques from Advanced-Trainings.com's Advanced Myofascial Techniques series that have proven both safe and effective for easing the most common appendicular sciatic nerve entrapments.

ROTATOR (PIRIFORMIS) TECHNIQUE

Sciatic nerve entrapment by the piriformis ("pear-shaped") muscle is probably the most common cause of appendicular sciatica, the piriformis accounts for about 70 percent of all nonlumbar sciatic pain, according to one large-scale study[1]). Piriformis syndrome was first described in 1928, and its causes have been well studied and debated in the years since. It is also known as "pseudosciatica," or Type II Sciatica in chiropractic terminology. (In our trainings at Advanced-Trainings.com, we emphasize the broader term "appendicular sciatica," since piriformis-related entrapment is just one of several types of nonspinal sciatic nerve impingement.) Although sciatic symptoms are about equally common in men and women, piriformis syndrome occurs six times more frequently in women than in men,[2] and some studies suggest that women's sciatica is often more severe.[3] (On the other hand, lumbar disc issues, often the cause of axial sciatica, are twice as common in men than women.[4])

Anatomical variations in the sciatic nerve's pathway in relationship to the piriformis have long been thought to be the cause of piriformis-related sciatic pain. In most people, the sciatic nerve passes deep to the piriformis (as it does in Image 1), but 15–30 percent of people have variations in this arrangement,[5] which can include:

- The nerve passing superficial to the piriformis.
- The nerve passing through the split belly of the muscle.
- The split nerve passing in two parts around the piriformis.

However, some researchers question whether these anatomical variations have any significant bearing on sciatic symptoms.[6] In a manual therapy setting, these variations are probably more interesting as anatomical trivia than as

The Rotator Technique: use static pressure on the piriformis attachments on the greater trochanter, combined with femur rotation. *Images courtesy Advanced-Trainings.com.*

clinically useful information, since it is questionable whether variations in the piriformis/sciatic nerve arrangement, even if they were known, would change one's hands-on therapeutic approach. In other words, whatever the anatomy, the most practical strategy is usually to do some work and see how the symptoms respond, then adjust your approach accordingly.

Piriformis entrapment doesn't occur without reason or cause, however. Some of the other structural and functional factors that may trigger piriformis-related sciatic pain include:

- Internal rotation of the hip or leg, since during gait, the piriformis may contract to counteract tendencies toward internal rotation. Internal hip rotation, in turn, can be related to ankle pronation or myofascial imbalances (e.g., tightness of the anterior fascia lata, medial hamstrings, or posterior adductors).
- Sacral position and movement restrictions (since the piriformis acts on the sacrum), such as will be seen when there are sacroiliac joint issues, leg length differences, or ilia mobility imbalances.

Whatever the cause of piriformis entrapment, the Rotator Technique is an efficient and effective way to assess and release any local impingement related to the piriformis, as well as the other external rotators (such as quadratus femoris) that can have bearing on sciatic nerve health.

To perform the technique, start with your client prone and the knee of the affected leg flexed. Use the lower leg to slowly roll the femur into internal and external rotation (Images 2 and 3). With the soft fist of your other hand, gently apply firm, static pressure to various aspects of the greater trochanter, which is the distal attachment of the piriformis and other rotators. Use both hands: with the hand moving your client's leg, feel through the client's structure for the resistance of your static hand on the rotators.

Once you feel a change in the tissue's resilience, release your pressure, move your soft fist to another location, and slowly roll the femur again, feeling for restrictions in the new location. Be thorough: use this technique throughout the buttock and rotator region, but avoid direct pressure on the sciatic nerve itself. (The nerve runs midway between the trochanter and lateral edge of the sacrum, and pressure on it will be felt by your client as a tenderness or electric sensation.) Rather than indiscriminately mashing the nerve and tissues here, imagine freeing the nerve by releasing any hypertoned or adhered structures that surround it.

As its name suggests, the superior gluteal nerve is in the superior portion of this gluteal region (visible superior to the piriformis in Image 1 on page 110). Although considerably smaller than the sciatic nerve, it can be a source of sciatic-like pain in the upper buttock and low back. If your client experiences pain here, you can use the Rotator Technique to release the tissues around this nerve as well.

BICEPS FEMORIS/ADDUCTOR MAGNUS TECHNIQUE

Distal to the rotators, the sciatic nerve can be impinged or tethered within the structures of the posterior thigh, particularly where it lies within the thick connective tissue of the intermuscular septum between the biceps femoris and adductor magnus (Image 4). We can adapt the Rotator Technique to help differentiate these powerful leg structures from one another, and in doing so, provide more freedom for the nerve. Begin with the biceps femoris, which is the most lateral of the hamstrings. As in the Rotator Technique, use gentle medial rotation of the femur with one hand, while the soft fist of your other hand rolls the biceps laterally off the underlying

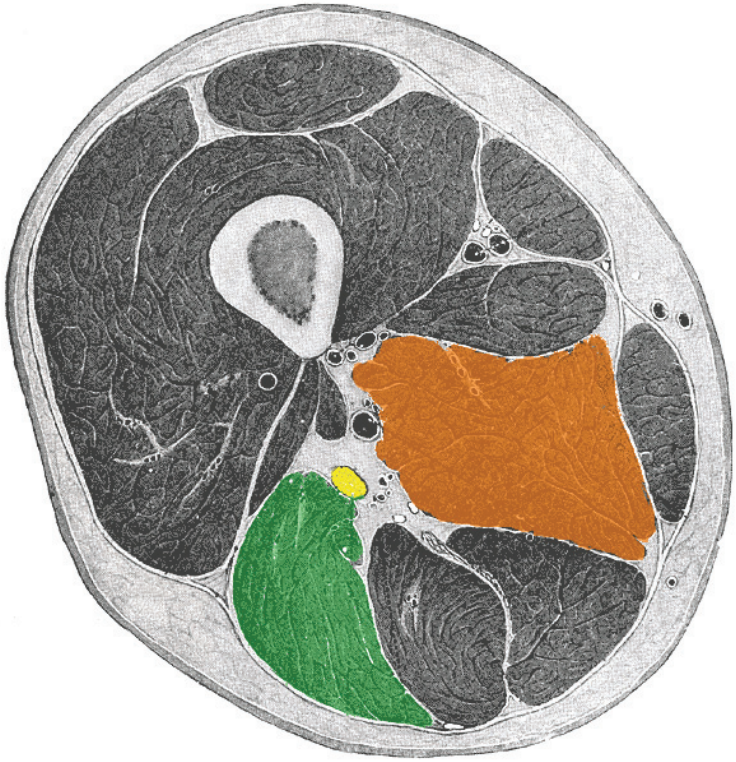
femur and adductor magnus (Image 5). At the extreme of the allowed motion, pause, wait, and feel for tissue release. Work the entire length of the biceps femoris, including its attachments on the ischial tuberosity. (If these attachments are particularly tender, as in "hamstring syndrome," use direct work on the irritated attachments cautiously, monitoring how your client responds in the days after the session.)

After laterally releasing the biceps femoris, move to the other side of the table and use lateral rotation of the femur to medially release the adductor magnus of the same leg (Image 6). Imagine rolling the magnus and biceps away from one another like the two parts of a scroll, opening space between for the sciatic nerve.

SCIATIC TRACTION TECHNIQUE

Although in most cases it is advisable to avoid direct pressure on a nerve itself, sometimes distal traction carefully applied directly to the sciatic nerve can free entrapments in the posterior thigh that other techniques don't quite address.

Once the large muscles of the posterior leg have been differentiated with the previous techniques, perform the Sciatic Traction Technique by using the fingers of both hands to wrap around the knee into the popliteal space (behind the knee, Images 8 and 9). The sciatic nerve is easily palpated in the upper recesses of the popliteal space, where it emerges from between the medial and lateral hamstrings (Image 7). The way the nerve feels to your hands is softer than the muscles and tendons most massage therapists are accustomed to feeling for; in fact, most manual therapists unconsciously avoid the nerves, so for many practitioners, looking for the nerve will be a ground shift. The feel of the sciatic nerve has the consistency and size of a large earthworm (pardon the analogy), or a thick, al dente noodle. Until you are practiced at finding the sciatic nerve here, your client will be your



4

This cross section of thigh shows how the sciatic nerve (yellow) lies within the thick connective tissue septum between the biceps femoris (green) and adductor magnus (orange). *Source image from* Gray's Anatomy of the Human Body, 1918.

5

6

In the Biceps Femoris/Adductor Magnus Technique, passive femur rotation is used to roll these two structures apart. *Technique images courtesy Advanced-Trainings.com.*

YOU CAN SEE TECHNIQUES FROM THIS COLUMN IN *MASSAGE & BODYWORK'S* DIGITAL EDITION, WHICH FEATURES A VIDEO CLIP FROM ADVANCED-TRAININGS.COM'S ADVANCED MYOFASCIAL TECHNIQUES DVD AND SEMINAR SERIES. THE LINK IS AVAILABLE AT BOTH MASSAGEANDBODYWORK.COM AND ABMP.COM.

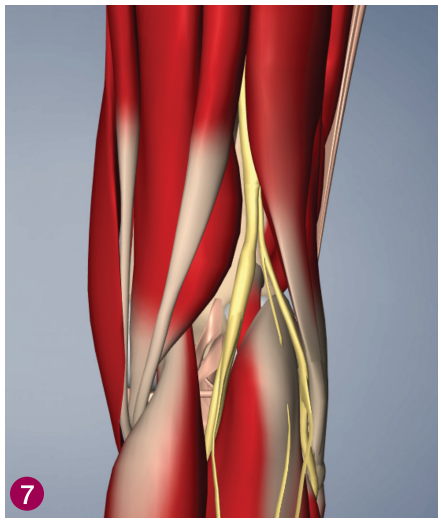
most reliable guide—when you're on it, it will cause a mildly tingling or electric sensation. The more the nerve is irritated in this region, the more sensitive the nerve here will be.

Once you've found the nerve, apply gentle traction to it as your client slowly lifts her knee slightly (Image 9). This will allow you to pull the nerve distally, freeing its lower section as it passes between the hamstrings. When done correctly with a client who has sciatic impingement here, this technique can yield a sense of immediate relief.

Here and elsewhere, however, it is good to keep in mind that relief from sciatic pain doesn't always come right away. Even when you've thoroughly released the connective tissue tethering that irritates a nerve, the inflammation can take time to subside. In some cases, long-term neuropathic pain (of which sciatic pain is one kind) can lead to changes in nerve function that take time to reverse. The non-noxious tactile stimulation of your work is therapeutic in these cases, so remember that you are helping the nerve recover normal function by just doing your work.

In most cases, plan to address sciatica over a series of sessions, and make sure your client is aware that habitual activity modification, stretching, or exercise may be necessary to augment your hands-on work. Be sure to refer stubborn cases to medical or orthopedic examination, especially if you suspect lumbar involvement. Even if the nerve entrapment is released in a single session (which does happen), an inflamed nerve can take time to heal, so be patient, thorough, and as always, don't hesitate to email us with either your quandaries or your stories of success. **m&b**

Til Luchau is a member of the Advanced-Trainings.com faculty, which offers distance learning and in-person seminars throughout the United States and abroad. He is also a Certified Advanced Rolfer and teaches for the Rolf Institute of Structural Integration. Contact him via info@advanced-trainings.com and Advanced-Trainings.com's Facebook page.



The Sciatic Traction Technique: use gentle pressure to feel for and distally stretch any sciatic nerve connective tissue tethering in the posterior thigh. Use your client's feedback to help comfortably locate the nerve. *Image 7 courtesy Primal Pictures. Used with permission. Image 8 and 9 are courtesy Advanced-Trainings.com.*

NOTES

1. A. Filler, J. Haynes, S. Jordan, et al., "Sciatica of Nondisc Origin and Piriformis Syndrome: Diagnosis by Magnetic Resonance Neurography and Interventional Magnetic Resonance Imaging with Outcome Study of Resulting Treatment," Journal of Neurosurgery: Spine 2 no. 2 (2005): 99–115.
2. Carol Otis, "What's Sciatica: A Pear-Shaped Problem," accessed September 2011, www.sportsdoctor.com/articles/sciatica3.html.
3. Stanley J. Swierzewski, ed., "Sciatica Overview, Incidence, and Prevalence of Sciatica," accessed September 2011, http://pain.healthcommunities.com/sciatica/index.shtml.
4. "Males are affected approximately twice as often as females by lumbar disc issues, except in adolescents where there is a small female preponderance, probably due to earlier skeletal maturity. White-collar and professional employees are the least likely to be affected by lumbar disc herniations, and motor vehicle drivers are the most likely. The driver who spends greater than 50 percent of the working day behind the wheel has a three-fold increased risk, whereas the lorry [truck] driver has a five-fold increased risk." From: Hilali Noordeen et al., Interactive Spine [electronic resource] Primal Pictures Ltd, 2009.
5. D. Pokorny et al., "Topographic Variations of the Relationship of the Sciatic Nerve and the Piriformis Muscle and Its Relevance to Palsy After Total Hip Arthroplasty," Surgical and Radiologic Anatomy 28, no. 1 (2006): 88–91.
6. H.T. Benzon et al., "Piriformis Syndrome: Anatomic Considerations, a New Injection Technique, and a Review of the Literature," Anesthesiology 98, no. 6 (2003): 1,442–8.