

# MEET FR:EIA

## The World's First Whole-Body, Fascial-Focused Plastinate

By Rachelle Clauson, Gary Carter,  
and Fauna Moore

*Photos by © BODYWORLDS.com/FR:EIA*

What would it be like if we could see air with the naked eye? If we could actually see the strength in a burst of wind? To suddenly be able to see something we couldn't see before could change a lot of things—and this is what's happening with fascia.

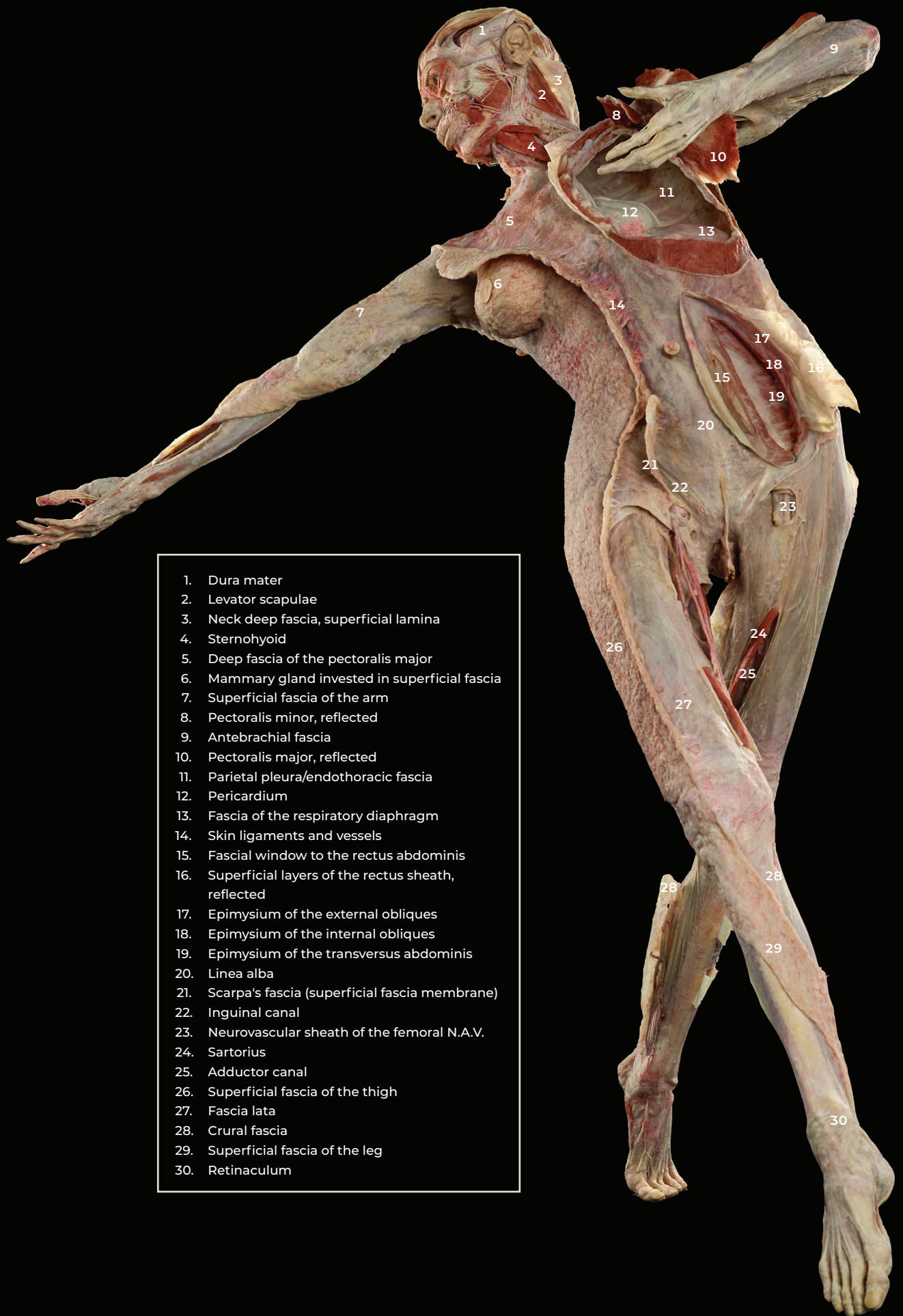
Unlike air, fascia is a visible tissue. Yet, it is so frequently omitted from illustrations in our anatomy books and removed from cadaver dissections before any pictures are taken that few people have actually seen it. That is changing with the introduction of FR:EIA (pronounced fray-uh), the world's first whole-body, fascial-focused plastinate model.

"FR:EIA's singular representation of the human fascial system reflects various components in ways that have never been seen before, giving us all an opportunity to capture a visual atlas of these tissues in our mind's eye. I can't think of anything more critical than this as a means to advance our own learning as therapists."

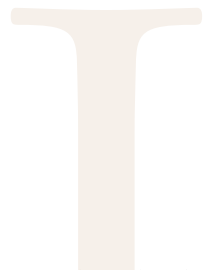
—Gina Tacconi-Moore, Dallas, Texas: Team FR:EIA dissector, manual therapist

### ■ KEY POINTS

- FR:EIA, the first of her kind, is changing how we look at fascia.
- Seeing the fascial continuities in this plastinate model shows us how interconnected our movements really are.
- Studying FR:EIA's dynamic fascial system helps us better understand its organization, fluidity, and strength, and offers clinical insights for how we touch and treat as therapists.



1. Dura mater
2. Levator scapulae
3. Neck deep fascia, superficial lamina
4. Sternohyoid
5. Deep fascia of the pectoralis major
6. Mammary gland invested in superficial fascia
7. Superficial fascia of the arm
8. Pectoralis minor, reflected
9. Antebrachial fascia
10. Pectoralis major, reflected
11. Parietal pleura/endothoracic fascia
12. Pericardium
13. Fascia of the respiratory diaphragm
14. Skin ligaments and vessels
15. Fascial window to the rectus abdominis
16. Superficial layers of the rectus sheath, reflected
17. Epimysium of the external obliques
18. Epimysium of the internal obliques
19. Epimysium of the transversus abdominis
20. Linea alba
21. Scarpa's fascia (superficial fascia membrane)
22. Inguinal canal
23. Neurovascular sheath of the femoral N.A.V.
24. Sartorius
25. Adductor canal
26. Superficial fascia of the thigh
27. Fascia lata
28. Crural fascia
29. Superficial fascia of the leg
30. Retinaculum



## INTRODUCING FR:EIA

FR:EIA was brought to life through a historical collaboration between the expert anatomists and masters of plastination at Dr. Gunther von Hagens's Body Worlds and Plastinarium laboratories in Guben, Germany, and a team of leading scientific fascia researchers, educators, and fascial dissectors from the Fascia Research Society. To achieve a long-held dream of depicting the human fascial system in three dimensions as an integral, body-wide structure required the highest levels of knowledge, skill, creativity, problem-solving, and passion.

Working side by side as the Fascial Net Plastination Project (FNPP), the teams of this three-year project shared a vision to revolutionize the universal anatomical view of the human body. (You can read more about the FNPP's early work on FR:EIA in the September/October 2018 issue of *Massage & Bodywork*, page 62.)

FR:EIA's tissue was preserved through plastination, a process invented and perfected by von Hagens, which entails a series of chemical processes that removes water from the tissue and replaces it with plastic polymer, making detailed anatomical understanding of the body available to everyone—outside the cadaver lab.<sup>1</sup>

This plastinate model was originally named Freya, after the Norse goddess of love, but the spelling was later changed to FR:EIA, as an acronym for “Fascia Revealed: Educating Interconnected Anatomy.” An elegant female form, FR:EIA shows continuity of tissues from surface to deep, head to foot, in long sweeping lines, curves, and spirals depicting fascia's patterns in motion. A dancer's posture was chosen to evoke a sense of movement and to showcase the fascial system. The dissection was designed around her graceful shape to create a visual understanding of

fascia's organization, connectivity, and force transmission capacity, while highlighting continuity of tensional relationships throughout the body. Once you see FR:EIA, everything you already know about fascia instantly makes more sense.

**“Every time I work in the dissection lab, I am reminded that our uniqueness is body-wide and body-deep; that the body has volume, depth, and continuous connections, not only along length or width but between the superficial and the deep. We move as a whole body, so we should learn about the holism of the body.”**

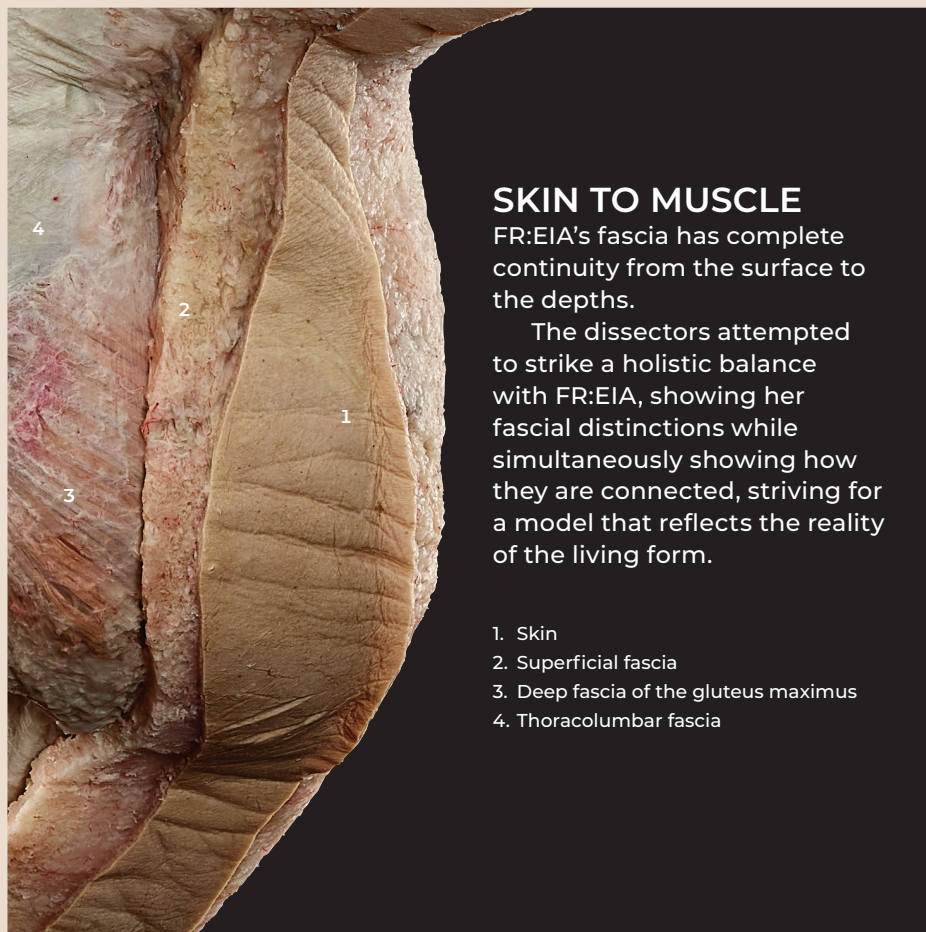
**—Tracey Mellor, Mid-Sussex, UK: Team FR:EIA dissector, Pilates studio owner, and fascial fitness master trainer**

## FASCIAL BRIDGES: SKIN TO MUSCLE

When we look at FR:EIA's fascia, it shows complete continuity—from the surface to the depths. Though you can see distinctions in tissue organization, quality, and density, be careful not to allow different names or dissection cuts to cause you to think of them as more separate than they are. The team working on FR:EIA attempted to strike a holistic balance, showing her fascial distinctions while simultaneously showing how they are connected, all the while striving for a model that reflects the reality of the living form.

### The Skin

FR:EIA's skin is shown as a continuous ribbon following the contours of her body from below her right shoulder blade, flowing



## SKIN TO MUSCLE

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The dissectors attempted to strike a holistic balance with FR:EIA, showing her fascial distinctions while simultaneously showing how they are connected, striving for a model that reflects the reality of the living form.

1. Skin
2. Superficial fascia
3. Deep fascia of the gluteus maximus
4. Thoracolumbar fascia





down her back and right leg. Composed of the epidermis and dermis, skin begins fascia's journey at the surface. Though the epidermis is made of epithelial cells and is not a part of the fascial system, the deeper dermis is made of collagen-rich connective tissue and is part of the body-wide fascial network. The skin is included on FR:EIA in order to show fascia in context with the body's outermost wrapping.

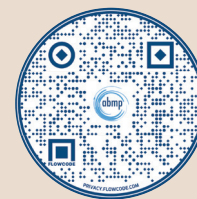
#### The Superficial Fascia

Starting to sink gently below the surface, FR:EIA's superficial fascia is shown softly curling away from her right shoulder like an evening shawl and spiraling down her right side. Within the superficial fascia, there are three "layers"—the superficial adipose tissue, the superficial fascia membrane, and the deep adipose tissue. These distinctions within the *subcutis* (another name for

superficial fascia) make up the superficial fascia. Reminiscent of honeycomb or bubble wrap, the superficial fascia bridges our skin to the deeper tissues through skin ligaments, called *retinacula cutis*, providing structure and order for our fat lobules. It is important to note the fat that was housed in FR:EIA's superficial fascia has been dissolved as a natural effect of the plastination process. Fat will not plastinate, but the collagen-rich scaffolding remains, leaving an empty framework where the yellow fat lobules once lived.

**"I have hope that FR:EIA will teach and inspire a multitude of people to not only learn the anatomy, but to also have an appreciation for what is creating the framework of the human body."**

**—Joel Talsma, Portland, Maine: Team FR:EIA dissector, assistant professor of anatomy at the University of New England, College of Osteopathic Medicine**



**VIDEO: "FR:EIA—UNVEILING OF THE WORLD'S FIRST 3D HUMAN FASCIA PLASTINATE, BODY WORLDS MUSEUM, BERLIN"**

1. Open your camera
2. Scan the code
3. Tap on notification
4. Watch!

#### THE DEEP FASCIA

Fascia expresses itself with different qualities and characteristics. Deep fascia can be categorized into two main types: fibrous, strapping tape-like aponeurotic deep fascia and the more membranous, shrink wrap-like epimysial deep fascia. Together, they cover the body from head to toe underneath the superficial fascia. Both can be seen on FR:EIA, giving her an almost iridescent white color, in striking contrast to the red muscle charts we are used to seeing, devoid of their deep fascial coverings.

Aponeurotic fascia has a different organization on the torso than on the limbs. On the limbs, it keeps groups of muscles in place; on the torso, it serves as an insertion for broad muscles. On FR:EIA's limbs, this dense fascia can be seen enveloping her arms and legs like sleeves and stockings, dividing the muscles into groups through fascial walls that dive deep to the bone. On her torso, we can see her aponeurotic fascia in areas of muscular convergences, including her thoracolumbar fascia and rectus sheath. Deep aponeurotic fascia supplies structural stability, force transmission capacity, and energy efficiency to groups of muscles. It is also known to be highly innervated with proprioceptive nerve endings, especially near the joints and retinacula.

Epimysial fascia, on the other hand, covers and interpenetrates individual muscles, defining their form and volume. Thinner than aponeurotic fascia, epimysial fascia is far less dense and more film-like. On some of FR:EIA's muscles, it is not visible at all because of its sheeriness. You can see it as a slight clouding to the right gluteus maximus and right trapezius, however. And it is very clear to see where it has been reflected away from the left gluteus maximus, exposing the bright red muscle fibers beneath.

**The Layers Between the Layers**  
Between the superficial and deep fascia and always making appearances between muscles, we find the loose areolar connective tissue. It is non-uniform, ubiquitous, and rich in water-loving hyaluronan, made of both loose collagen fibers and well-hydrated glycosaminoglycans (GAGs). Gil Hedley, founder of Integral Anatomy, often refers to this tissue as “the fascia’s fascia,” or “perifascia” in the areas where it is found near its dense regular connective tissue sibling, deep fascia. This loose connective tissue facilitates differentiated movement, serves as a lubricant in healthy tissue, and creates frictionless spaces for vessels and nerves to travel.

When inflammation occurs, loose connective tissue serves as a transport system, carrying cytokines and repair cells along its watery pathways.<sup>2</sup> If you look closely, you can see areas where this ephemeral tissue has been captured in FR:EIA's permanent form between her superficial and deep fascia—a sight of delight for fascia enthusiasts and anatomy nerds everywhere.

**“Movement that reflects our whole-body continuity must involve the connection of structures, deep to superficial and superficial to deep, as well as proximal to distal and distal to proximal.”**

—Elizabeth Larkam, Mill Valley, California:  
Team FR:EIA dissector, movement professional,  
therapist, educator, and author of *Fascia in Motion*

## FORCE TRANSMISSION

Fascia is more than just a covering or wrapping. When muscles contract, fascia is always in the story, so much so that it almost makes you wonder if our classical origin/insertion models need a little updating. You are probably familiar with this muscle story: *Muscular contraction transmits force through the tendon to the bone, which makes a movement.* But how well do you know this myofascial story? *Muscular contraction tensions the fascia within the muscle, transmitting force to a variety of possible locations, including tendon, bone, and other fascia, and even other muscles via more fascia for the purposes of stabilization, movement, or sensory perception and neuromuscular coordination.* There's a lot going on.

This more complete picture of how muscles move us includes something called myofascial expansions. In Carla Stecco's groundbreaking book, *Functional Atlas of the Human Fascial System*, she defines a myofascial expansion as a “connection that originates from a skeletal muscle, or from its tendon, that inserts into the aponeurotic fascia.”<sup>3</sup> Most muscles have myofascial expansions with consistent and precise organization. When muscles contract, they not only move bones, but they also stretch the deep fascia via the myofascial expansions.

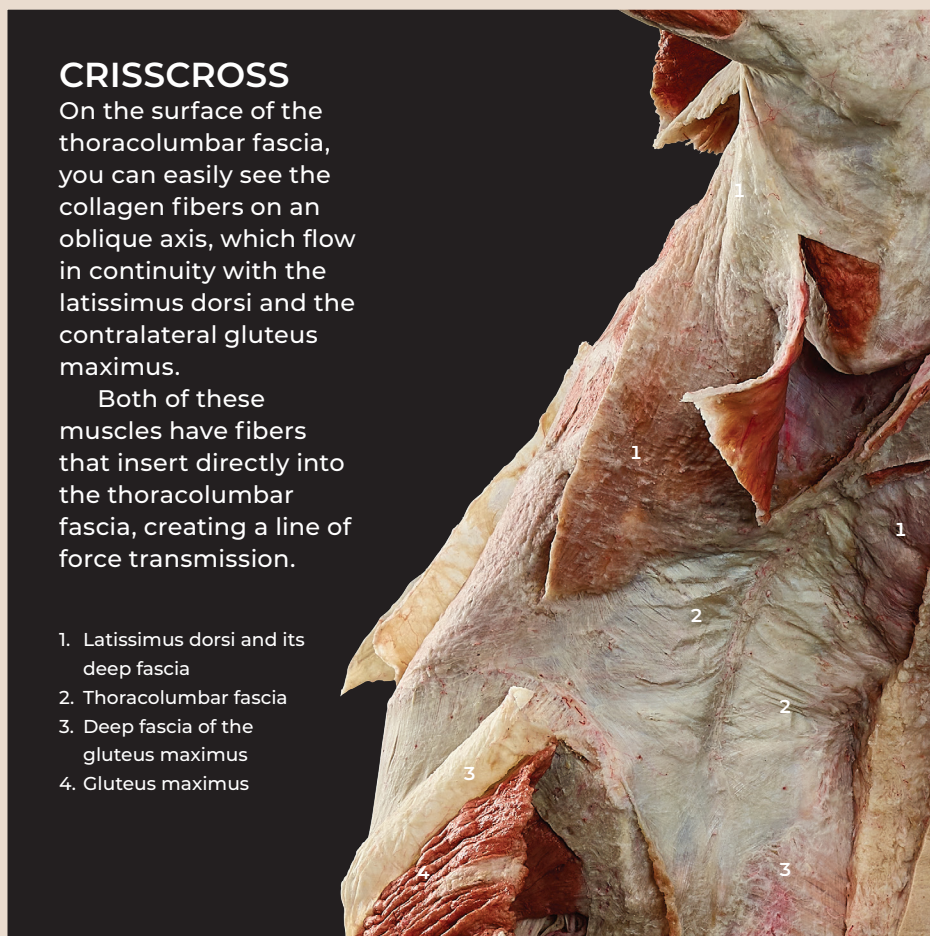
When myofascial expansions show a clear path of force transmission in motion, we call them myofascial chains, or slings. You can see some well-recognized examples of myofascial chains on FR:EIA, including the *posterior oblique sling* and the superficial back line.<sup>4</sup>

## CRISSCROSS

On the surface of the thoracolumbar fascia, you can easily see the collagen fibers on an oblique axis, which flow in continuity with the latissimus dorsi and the contralateral gluteus maximus.

Both of these muscles have fibers that insert directly into the thoracolumbar fascia, creating a line of force transmission.

1. Latissimus dorsi and its deep fascia
2. Thoracolumbar fascia
3. Deep fascia of the gluteus maximus
4. Gluteus maximus





### Crisscross

Beautifully revealed on FR:EIA's posterior surface is the anatomical connections known as the posterior oblique sling, also popularly recognized as the posterior functional line from Thomas Myers's *Anatomy Trains*.<sup>5</sup> In FR:EIA's design, the fascial view of this line was extended even further to include the fascial coverings of her limbs, thereby telling the larger story of its function.

Viewing FR:EIA from the back, the diamond-shaped, multilayered thoracolumbar fascia glistens with an intricate cross-weaving pattern of collagen fibers. On the surface, you can easily see the collagen fibers on an oblique axis that flow in continuity with the latissimus dorsi and the contralateral gluteus maximus. Both of these muscles have fibers that insert directly into the thoracolumbar fascia, creating a diagonal line of force transmission.

Moving out from the center, we can follow this oblique tensional relationship further through the gluteus maximus to the fascia of the thigh. A study conducted in 2013 showed that 80 percent of the gluteus maximus fibers insert into the fascia lata, transmitting much of their force through the thickest part, named the iliotibial band. This percentage of fiber insertion was considered so significant, the researchers suggested the iliotibial band “be considered a tendon of insertion of the gluteus maximus” and could also explain the “transmission of the forces from the thoracolumbar fascia to the knee.”<sup>6</sup>

Beyond the knee, the deep fascia continues as an uninterrupted fabric, changing in name only as it becomes the crural fascia, enveloping the leg, ankle, and foot. There is a similar pattern in the upper extremities, where the latissimus dorsi fascia flows in continuous connection with the brachial fascia of the arm<sup>7</sup> and then past the elbow to the antebrachial fascia of the forearm. Along with the thoracolumbar fascia and iliotibial band, these fasciae of the limbs are rich in proprioceptive nerve endings, which increase in density at the retinacula of the wrist and ankle. As a result, everyday activities such as walking, throwing, and other spiral-based motions engage these myofascial relationships as

proprioceptive kinetic force transmitters through the full length of the body.


Seeing these fascial continuities on FR:EIA, you start to get the idea of how interconnected our movements really are, transmitting force cross-laterally through the thoracolumbar fascia.<sup>8</sup>

### Up and Down

Starting at the sole of FR:EIA's left foot, we can follow her myofascial interconnection through her dancing form longitudinally, all the way to her skull. It begins with her left plantar fascia through to her Achilles tendon, up her calf to her hamstring attachment (which is in continuity with her sacrotuberous ligament), through the deep layer of the thoracolumbar fascia, to her erector spinae, and ending with the frontalis at her eyebrows.<sup>9</sup> This whole back-body connection, which supports the body in full upright extension and affects virtually all movement, is recognized as the “superficial

## UP AND DOWN

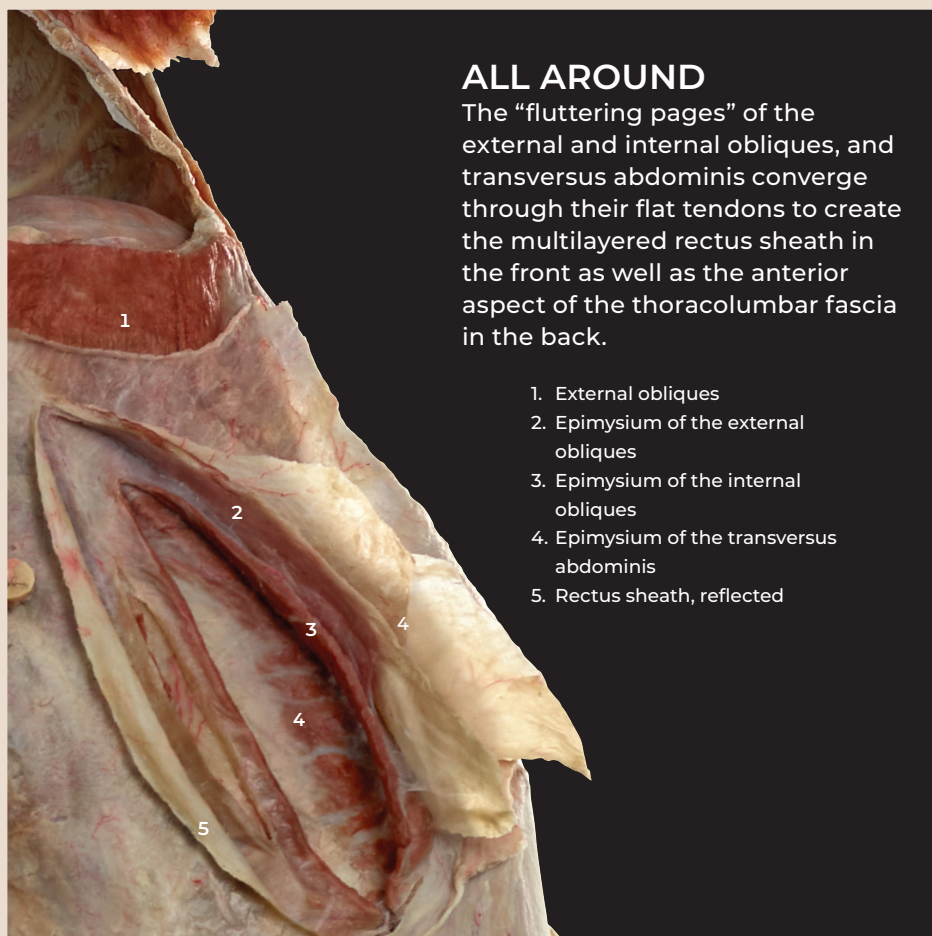
FR:EIA shows myofascial interconnection head-to-toe, starting with her left plantar fascia, through her Achilles tendon, up her calf to her hamstring attachment, which is in continuity with her sacrotuberous ligament, through the deep layer of the thoracolumbar fascia, to her erector spinae, up and over her head through the galea aponeurotica, and ending with her frontalis at her eyebrows.

- 
1. Plantar fascia
  2. Calcaneal fascia
  3. Achilles tendon
  4. Soleus
  5. Gastrocnemius
  6. Crural fascia

back line” in Thomas Myers's *Anatomy Trains*. Each transition from muscle to fascia was carefully uncovered in FR:EIA to show the seamless continuity between them, something that has never been shown before in a full-body plastinate.

### All Around

When viewing FR:EIA from the front, we immediately see the “fluttering pages” of her external and internal obliques, and transversus abdominis. The muscles converge through their flat tendons to create the multilayered rectus sheath in the front, but they are also directly connected to the spine via the deepest layer of the thoracolumbar fascia in the back. This means when we contract our deep abdominal muscles, we are simultaneously tractioning our abdominal fascia *and* our low-back fascia. Research on this front-to-back fascial relationship has found that the action of stretching the thoracolumbar



## ALL AROUND

The “fluttering pages” of the external and internal obliques, and transversus abdominis converge through their flat tendons to create the multilayered rectus sheath in the front as well as the anterior aspect of the thoracolumbar fascia in the back.

1. External obliques
2. Epimysium of the external obliques
3. Epimysium of the internal obliques
4. Epimysium of the transversus abdominis
5. Rectus sheath, reflected

## Compartmental Connections

Flowing down FR:EIA’s outstretched right arm, we see a window inside her forearm that exposes the extensor carpi ulnaris with its most proximal fibers embedded into the fascial sleeve of the antebrachial fascia. If we look more distally toward her hand, the deep fascia is easily separated from the muscle and tendon, permitting the freedom to glide within the sleeve. The same pattern is visible in the extensor digitorum muscle, which anchors into its surrounding antebrachial fascia and compartmental septa proximally toward the elbow, but then is free to glide at the more distal end.

This kind of muscular insertion into the deep fascia of the limbs is particularly a feature in the feather-shaped pennate muscles. Every time they contract, they stretch the fascia via their broad proximal insertions, while still being able to glide distally where they transition into their more quill-like tendons. Not surprisingly, this pattern is also present in the lower leg muscles that insert into regions of the crural fascia and travel to the ankle and foot. Current research on the innervation of deep fascia indicates this connection is essential for motor coordination.

fascia through abdominal contraction increases the amount of pressure within the fascial compartment of the erector spinae muscles, allowing them to work more efficiently.<sup>10</sup> This abdominal support system for the back affects posture, core coordination, and global body movement.<sup>11</sup>

With a fascial view, muscles are no longer floating in space like you may see them in anatomy books or apps; they can be understood as integrated components of a more complete reality of how the body moves and stabilizes. This major shift in thinking may take some getting used to if you’ve been relying on the muscle-tendon-bone model, but it quickly starts to make sense when you have a beautifully detailed model like FR:EIA to help you pull the whole picture of the human body into view.

*“In each quadrant, there slowly appeared ‘windows’—every window opening to a completely new story of FR:EIA, full of anatomical details and fascinating structures. And if you look into a window from a new angle, another story awaits.”*

*—Stefan Westerback, Helsinki, Finland: Team FR:EIA photographer, vocational training manager*

## GOING DEEPER

Sinking deeper into the limbs, we meet another kind of fascial connection that clearly demonstrates how integral fascia is to the musculoskeletal system. The oversimplified story of muscle-tendon-bone falls apart, because here we can see muscle fibers “feathering out” to the sides, inserting directly into their deep aponeurotic fascial sleeve. You may already have caught on that this is another example of a myofascial expansion. This muscle-fascial organization distributes forces in another way altogether.

## The Truth About Ligaments

Another kind of continuity seen in FR:EIA is between tendons and ligaments. Classically, ligaments are described as separate structures from tendons. Seen as strong straps or ropes that stabilize a joint, they are typically drawn as discrete structures. But as anatomy expert Jaap van der Wal, MD, describes it, the elbow ligaments are created in the minds of the anatomists. In reality, there are no actual collateral or annular ligaments, as the tissues are all part of a complex connective tissue apparatus.<sup>12</sup>

Looking closely at FR:EIA’s right elbow, this new view becomes clear. Instead of separate structures, we see the complex architecture of the tissues that are in continuity (once again!), working in a seamless, cohesive fabric to keep the bones together in every position of the joint. This might seem obvious to you now that you are starting to see the full story of the fascial system, but this way of seeing is relatively new.

“Anatomy education through dissection has been the most significant and useful learning tool in my 22 years of bodywork. The lab experiences with the FNPP have transformed my teaching, my touch, and my approach to the body. Being able to not just see what is under the skin but to *feel* it has deepened my understanding of the connectivity of the human body, systems-wide. Through fascia, we truly are one cohesive whole.”

—Beverly Johnson, Pittsboro, North Carolina:  
Team FR:EIA dissector, massage therapy educator,  
co-founder/lead instructor at Integrity Trainings

## MORE THAN JUST PACKING MATERIAL

Previously, fascia has generally been viewed as passive packing material. No more impressive than the packing peanuts in your latest Amazon box, it has been largely ignored. Relatively recent research tells a whole new story that brings fascia forward as a much more dynamic player. It turns out, fascia has “feelings” and can be a shapeshifter.

### Fascia Feels

New discoveries have made big changes in how we think about fascia. For one, we now understand that fascia can actually feel muscular contraction due to its high innervation of proprioceptive and nociceptive nerve endings,<sup>13</sup> particularly in the deep fascia, which makes it a bigger player than previously understood in the areas of proprioception, motor coordination, and pain.<sup>14</sup>

In the continual search for the cause of low-back pain, researchers have their eyes on the deep fascia of the back—the thoracolumbar fascia. A 2014 study looked at the role of the thoracolumbar fascia in low-back pain in human subjects.<sup>15</sup> Researchers injected a hypertonic saline solution known to stimulate nociceptors into the low-back region of study participants. They sought to compare three different depths: the subcutaneous tissue (superficial fascia), the deep fascia (thoracolumbar fascia), and the muscle (erector spinae). They mapped out the pain response at each depth and found the deep fascia was the most sensitive and elicited the more significant pain response. The researchers concluded that

the thoracolumbar fascia could indeed be a prime contributor to nonspecific low-back pain.

Appreciating the tensional relationships of the deep fascia has implications in many issues—from back pain to plantar fasciitis, and from tension headaches to the impact of scar tissue.

**“Fascia changes after physical movement. It is the history of our previous body’s previous movement. It is our record of time, our record of history, our life history, our lifetime.”**

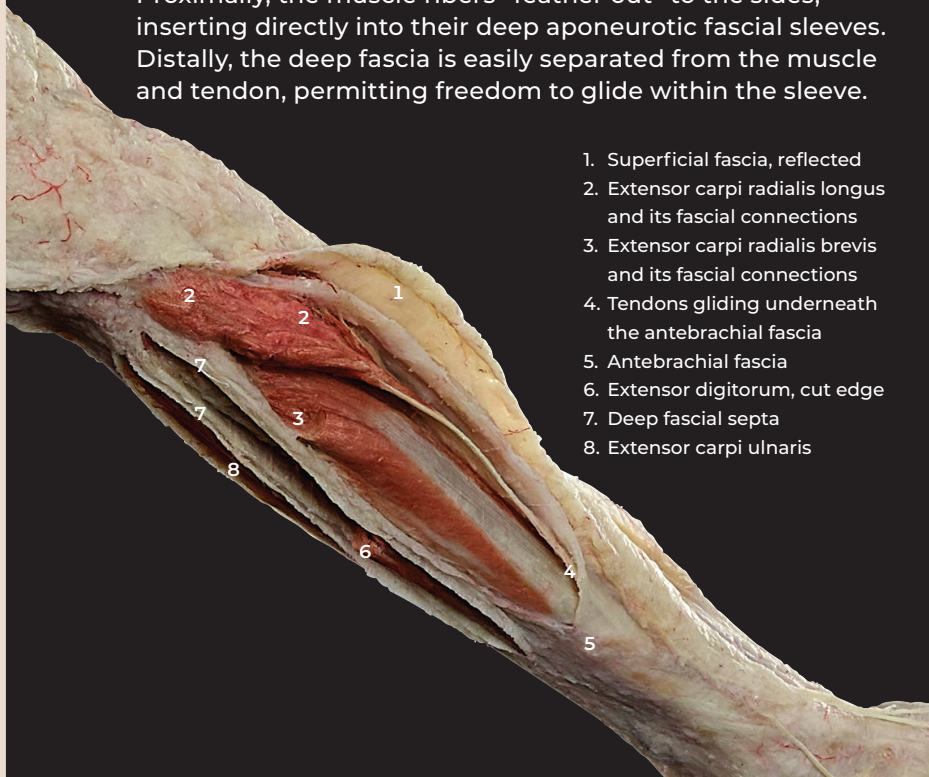
—Jihan Adem, Devon, England: Team  
FR:EIA dissector, Bowen Technique tutor, clinical  
practitioner, TMJ specialist

### Fascia Changes

Your fibrous deep fascia is constantly renewing itself, but with a slower turnover rate than muscle fibers. Additionally, we now know fascia remodels itself

## COMPARTMENTAL CONNECTIONS

The antebrachial fascia provides both compartments and attachment sites for many muscles of the forearm. Proximally, the muscle fibers “feather out” to the sides, inserting directly into their deep aponeurotic fascial sleeves. Distally, the deep fascia is easily separated from the muscle and tendon, permitting freedom to glide within the sleeve.



1. Superficial fascia, reflected
2. Extensor carpi radialis longus and its fascial connections
3. Extensor carpi radialis brevis and its fascial connections
4. Tendons gliding underneath the antebrachial fascia
5. Antebrachial fascia
6. Extensor digitorum, cut edge
7. Deep fascial septa
8. Extensor carpi ulnaris

based on how it is loaded.<sup>16</sup> The density and organization of the new fibers are determined by how the cells are stimulated. For example, did you know that when you were born you didn’t have an iliotibial band? It developed over time through the act of walking, which loads the lateral aspect of the enveloping deep fascia of your thigh, the fascia lata. This mechanical loading triggers a molecular/chemical response from the fibroblast cells to produce more collagen fibers to reinforce the fascia receiving the greatest strain. Not surprisingly, the fibers are not laid down in a random fashion; they are organized and aligned in the direction of strain. Your deep fascia does change, but the changes are slow. The good news is that with its steady nature, it’s not likely to have any problems arise overnight; once it does have problems, however, it can take a while to get back to normal again.





- |                                                     |                                                                 |
|-----------------------------------------------------|-----------------------------------------------------------------|
| 1. Skin                                             | 23. Deep fascia of the gluteus medius                           |
| 2. Superficial adipose tissue                       | 24. Deep fascia of the gluteus maximus, reflected               |
| 3. Galea aponeurotica                               | 25. Gluteus maximus                                             |
| 4. Epicranial fascia                                | 26. Sacrotuberous ligament                                      |
| 5. Temporalis fascia                                | 27. Skin                                                        |
| 6. Neck deep fascia, superficial lamina             | 28. Superficial fascia                                          |
| 7. Levator scapulae                                 | 29. Deep fascia of the gluteus maximus                          |
| 8. Triceps                                          | 30. Adductor magnus                                             |
| 9. Brachial fascia                                  | 31. Iliotibial band                                             |
| 10. Trapezius                                       | 32. Biceps femoris                                              |
| 11. Deep fascia of the trapezius                    | 33. Fascia lata                                                 |
| 12. Superficial fascia membrane                     | 34. Semitendinosus                                              |
| 13. Superficial adipose tissue                      | 35. Semimembranosus                                             |
| 14. Infrapinatus                                    | 36. Lesser saphenous vein, perforating through popliteal fascia |
| 15. Serrati fascia                                  | 37. Gastrocnemius                                               |
| 16. Latissimus dorsi, reflected                     | 38. Crural fascia                                               |
| 17. Skin ligaments                                  | 39. Soleus                                                      |
| 18. Extensors of forearm                            | 40. Achilles tendon                                             |
| 19. Antebrachial fascia                             | 41. Plantar fascia                                              |
| 20. Deep fascia of the latissimus dorsi             |                                                                 |
| 21. Thoracolumbar fascia                            |                                                                 |
| 22. Deep fascia of the external obliques, reflected |                                                                 |

And it's not just the iliotibial band; all your fascia is responsive to load. Over time, your fascia becomes a kind of physical record of your movement patterns, which can be observed based on where and how the fascia is organized. If you think about it, this shouldn't be a big surprise, since we are all used to being able to tell who works out based on the shape and tone of their muscles. Fascia is similar—just a little harder to see and slower to train or untrain.

“Dissection and plastination as art involves many levels of narrative; however, we can never see everything. The story of fascia presented in FR:EIA involves only the ideas of the leading thinkers right now . . . FR:EIA reflects our current concepts and definitions of fascia. Our concept of human anatomy will continue to evolve.”

—Lauri Nemetz, Ossining, New York: *Team FR:EIA dissector, adjunct professor at Pace University, visiting associate professor at Rush Medical, clinical movement therapist*

#### WHAT STILL REMAINS UNSEEN

With all aspirational endeavors, it is important to acknowledge the limitations and challenges that arise. One note to consider while observing FR:EIA is that the very process of plastination is a bit at odds with the molecular makeup of fascia. Plastination, as mentioned previously, works by replacing the water from the tissue with a plastic polymer. This process inherently highlights fascia's fibrous components while masking its watery and gel-like nature. The positioning of FR:EIA had unique challenges precisely because of this fact. Without the naturally occurring water within, FR:EIA's fascia acted almost like shrink wrap, making it much more challenging than expected to move her joints and limbs into the desired positions. But this, in itself, was another lesson about fascia for us. With the suppleness reduced, the strength of the fascia became even more

evident, which really drove the point home about the strength of our fascial bodies.

Additionally, in order to reveal anything inside the human body, something has to be removed. Though every effort was made to show fascia's story truthfully in FR:EIA, choices of what to cut away and what to leave were influenced by what we currently know and understand about fascia as a living architecture. As we learn more, our ideas about fascia will continue to develop, which may lead to other ways to illustrate its organization and relationships.

Even though FR:EIA is *real* anatomy, she is still only a model for the living, breathing person you meet in your practice. Plastination can help you see more than you've likely seen before of the fascial system, but it is still just one view of many. Photography, illustration, MRI, ultrasound, 3D computer rendering, and other methods each give us a slightly different perspective. With any luck, the more we study and put them all together, the closer we will get to reality in our mind's eye, continuously disassembling and reassembling our mental constructs as we grow in understanding.

“Those of us who do manual medicine now have a better understanding of what it truly is we are experiencing when we place our hands on our patients. But those who will gain the most of this profound knowledge will be our patients; and that is the remarkable gift gleaned from this FNPP adventure.”

—Adrian L. Woolley, Des Moines, Iowa: *Team FR:EIA dissector, director of Osteopathic Principles and Practice Education at Des Moines University, College of Osteopathic Medicine*

#### IMPLICATIONS FOR THE FUTURE

In FR:EIA, we have a new view of the body's true anatomical continuity with the fascial system front and center. The insights gained will be far reaching as she expresses fascia's nuanced relationships that aid in our bodies' capacity to coordinate and

#### The FR:EIA Team

- **FR:EIA's Scientific and Academic Advisors:** Vladimir Chereminskiy, Gil Hedley, Tom Myers, Robert Schleip, John Sharkey, Carla Stecco, Jaap van der Wal, and Angelina Whalley.
- **FR:EIA's Fascia Research Society Dissection Team:** Jihan Adem, Gary Carter, Tjasa Cerovsek Landes, Rachelle Clauson, Johannes Freiberg, Beverly Johnson, Elizabeth Larkam, Tracey Mellor, Fauna Moore, Lauri Nemetz, Bruce Schonfeld, Gina Tacconi-Moore, Joel Talsma, Stefan Westerback, and Adrian Woolley.
- **FR:EIA's Plastinarium Dissection and Positioning Team:** Ismael Perales Aledo, Wang Chao, Vladimir Chereminskiy, Mateusz Liczbinski, Alexandro Navarro Valdivia, Danilo Reich, Alicia Poveda Sánchez, Reno Steglich, Rurik von Hagans, Angelina Whalley, and Judith Zinnow.

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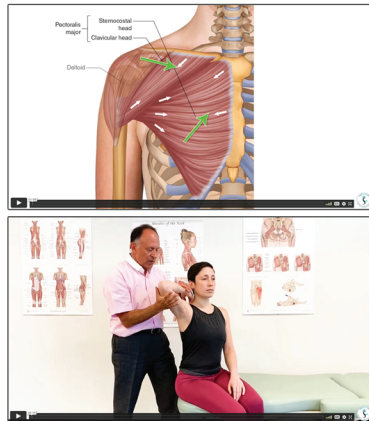
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move with remarkable finesse and agility. Fascia researchers, manual therapists, movement educators, and anatomy enthusiasts worldwide are studying FR:EIA's elegant embodiment of the dynamic fascial system in order to better understand its organization, fluidity, and strength, with clinical insights into how we touch and treat as therapists.

FR:EIA is the realization of a dream shared by fascia researchers and educators worldwide. To finally have a whole-body representation of fascia's complex network from head to toe, skin to bone, will accelerate understanding and deepen comprehension for learners everywhere. Once obscured by limited access to the dissection lab, and limited available imagery, FR:EIA elegantly takes a monumental step forward, bringing fascia into the visible realms. We can finally see the "air." **m&b**

**"It is no longer possible to be the same after this work; my view on fascia has totally changed me."**

**—Johannes Freiberg, Sao Paulo, Brazil: Team FR:EIA dissector, pedagogic director of the Gente Centro de Desenvolvimento Humano**

*Editor's note: FR:ELA (Fascia Revealed: Educating Interconnected Anatomy) is the world's first 3D human fascia plastinate. It was created at Dr. Gunther van Hagens' Plastinarium in Guben Germany, by his Body Worlds team in collaboration with the Fascia Research Society.*

*Authors' note: As members of the FNPP dissection team, working with FR:ELA has been one of our greatest joys. This project allowed us to show many aspects of fascia in a way that is clear, educational, and profoundly beautiful. We are so grateful to the Fascia Research Society, the Plastinarium, and Body Worlds for their generous support of this project, as well as to our beautiful donor and her family.*

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**See FR:EIA as she makes her North American debut at this year's 6th International Fascia Research Congress in Montreal, Canada, September 11–14, 2022: [fasciaresearchsociety.org](https://fasciaresearchsociety.org)**

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**6** Rachele Clauson serves as the Fascia Research Society's FNPP Director of Creative and Administrative Affairs. She is a board-certified massage therapist, owner of Flourish Bodywork, and co-director of AnatomySCAPES dissection lab workshops in San Diego, California. [anatomyscapes.com](https://anatomyscapes.com)

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