

### Thinking In Tissues: A Fresh Perspective On the Anatomy We Touch

By Nicole Trombley & Rachelle Clauson Massage & Bodywork Magazine

### TISSUE FAMILIES: Where does Fascia Fit? What is Fascia? AnatomyZINE Excerpt

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Anatomy of a Massage Stroke Layer-by-Layer

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with our thanks

The images from the anatomy lab would not have been possible without the gracious gifts of the donors and their families to whom we are deeply grateful.

- Rochelle and Nicole





## Anatomy explorations for Bodyworkers

Dear Anatomy Lover,

We're so excited to collaborate on AnatomySCAPES together and share this work with YOU. We want more bodyworkers and movers to have access to both the anatomy lab *and* the latest research on fascia.

For us personally, studying anatomy — and fascial anatomy in particular — has taken our understanding of the human body so much deeper. And more importantly to us as bodyworkers, our touch skills have been taken to the next level. And our clients have noticed.

The anatomy lab has been the domain of a select few for centuries. That is shifting. And we get to be part of a generation that is changing who gets to do anatomy. We're committed to creating online and in lab educational opportunities that make this work more available. We hope you'll join us!

Love, Rachelle & Nicole

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## **TISSUES FAMILIES** Where does fascia fit?

Gross anatomy focuses on the macro anatomical structures that can be seen with the naked eye, while histology zooms in on the micro and cellular structures of the body. Going micro helps us gain insight into how the cells do their work and how they relate to one another and interact with their environment.

At the level of tissues, histology recognizes **four distinct tissue types in the body**. Each one has specific characteristics. They include the following:

**Epithelial tissue.** The cells of epithelial tissue are tightly adhered together and they line free surfaces which provides a protective barrier. The outer layer of our skin is epithelial, as is the lining of our blood vessels, heart, and even our gut from the mouth all the way to the other end.

Muscle tissue. Muscle tissue cells all have the ability to contract thanks to the presence of the specialized proteins actin and myosin. Muscle tissue includes skeletal muscle, cardiac muscle, and smooth muscle.

Nerve tissue. Zap! Nerve cells are highly specialized to transmit electrical impulses from one part of the body to another. They're pretty smart. They receive and process information from our internal and external environments and help us respond.

**Connective tissue.** Did you notice that the first three tissues are categorized by the characteristics of their *cells*? Here's where the story shifts. **Connective tissues are characterized by the part of** them that is *not cellular*! The non-cellular components of connective tissue are collectively called the *extracellular matrix*. ("extra" meaning "outside of" the cells).

Fascia fits in this last category of connective tissue. Let's dive in and get a sense of why fascia lovers swoon over the extracellular matrix. **To be continued...** 

(This excerpt is from our What is Fascia? Online Course.)

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*Tissues of the upper arm, layered in cross-section.* At the surface, the skin strongly roots into the subcutaneous fat. Through the center of the image, the collagen-rich brachial fascia envelopes the entire upper arm. At the bottom, the epimysium tightly adheres to the biceps brachii muscle below.

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## WHAT IS HISTOLOGY?

Histology is the study of tissues. If you've ever explored histology in an Anatomy class, you might have looked at endless slides under the microscope. While the classic tool of Histology is the microscope, technology is constantly developing new imaging tools to explore cells and tissues in different ways. Histology is regularly used in research, as well as in medical settings. Pathologists have extensive training in histology, analyzing biopsies and tissue samples under the microscope.

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# Analomy of a MASSAGE STROKE

In a massage, we are never touching just one tissue type. Our massage stroke addresses all of the tissues together from the skin through the subcutaneous fat to the deep fascia to the muscle. Let's follow a massage stroke layer-by-layer from the surface to discover how all four tissue types exist under our hands.

### **Epidermis:**

The skin's protective epidermis is made primarily of **epithelial tissue**. The highly sensitive barrier is well-supplied with sensory **nervous tissue** gathering information about our external environment.

#### Dermis:

As the client's skin gets warm under our hands, it's thanks to the blood vessels throughout the skin's tough dermis, made of connective tissue, nervous tissue, as well as epithelial-lined vascular tissues).

#### Subcutaneous Tissues:

At first glance, the bright yellow subcutaneous layer seems to be all fat. A closer look reveals different types of fibrous connective tissue, nervous tissue, and epithelial-lined blood vessels.

### Deep Fascia:

As we approach the deep muscle body, we arrive at the deep fascia, a **connective tissue** richly supplied with **nervous tissue**.

### Epimysium & Muscle:

When we work with a muscle, there's a lot more at play than just **muscle tissue** because **muscle tissue** can never be separated from its enveloping and interpenetrated **connective tissue** (epimysium, perimysium, and endomysium) and **nervous tissues**.

### **Tissue Types**

Epithelial Tissue Muscle Tissue Nervous Tissue Connective Tissue



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# YOU'VE GOT SOME NERVE!

We often study the organization of the nerves at the macro level, exploring where they originate, where they travel and branch, and what they innervate. As touch therapists, our understanding of nerve anatomy is further enhanced by adding more details through a **tissue lens**.

### Nerves: It's not all Nervous Tissue

Nerves are composed of **nervous tissue** — the specialized tissue type that rapidly transmits electrochemical impulses, enabling the nervous to communicate. When we look at a peripheral nerve in cross-section, we expect to see **nervous tissue** — neurons and their supporting glial cells. But we also see the other tissue families that make up a nerve and help it do its job, most notably **connective tissues**.



This cross-section of a nerve highlights the connective tissue from endoneurium to perineurium to epineurium.

Nerves are made up of **nervous tissue**, as well as a whole lot of **connective tissue**, which helps get the job done.



Connective tissue helps organize the nervous tissue, bundling around fascicles of neurons in a hierarchy of endoneurium around individual fibers and perineurium surrounding bundles of nerve fibers, and finally, the tougher, outer epineurium, which encases the bundles of bundles. These connective tissues stabilize the nervous tissue and allow bundles within the nerve to slide in relation to each other.

### **Tissue Relationships Matter**

The epineurium creates a sheath that surrounds the nerve, separating it from surrounding tissues by slippery loose connective tissue. The interface of these two connective tissues allows the nerve to slide and glide as needed in relation to its neighbors. This tissue relationship is at the heart of nerve flossing (or gliding). Flossing aims to restore the gliding relationship along a particular nerve's path, reducing any restrictions that might be irritating the nerve or causing pain.



from the authors

Congratulations on going on an adventure in human anatomy! We are thrilled to be a part of your education and learning process.

Here at AnatomySCAPES, we are dedicated to providing you with resources that will make your learning and understanding of human anatomy a rich and stress free experience. That's why we have plenty of amazing images and colorful writing to ensure that your journey is as informed and exciting as possible! We have created the educational materials we wish we had when we began our journey. Welcome!

Nicole Rachelle Clauson



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