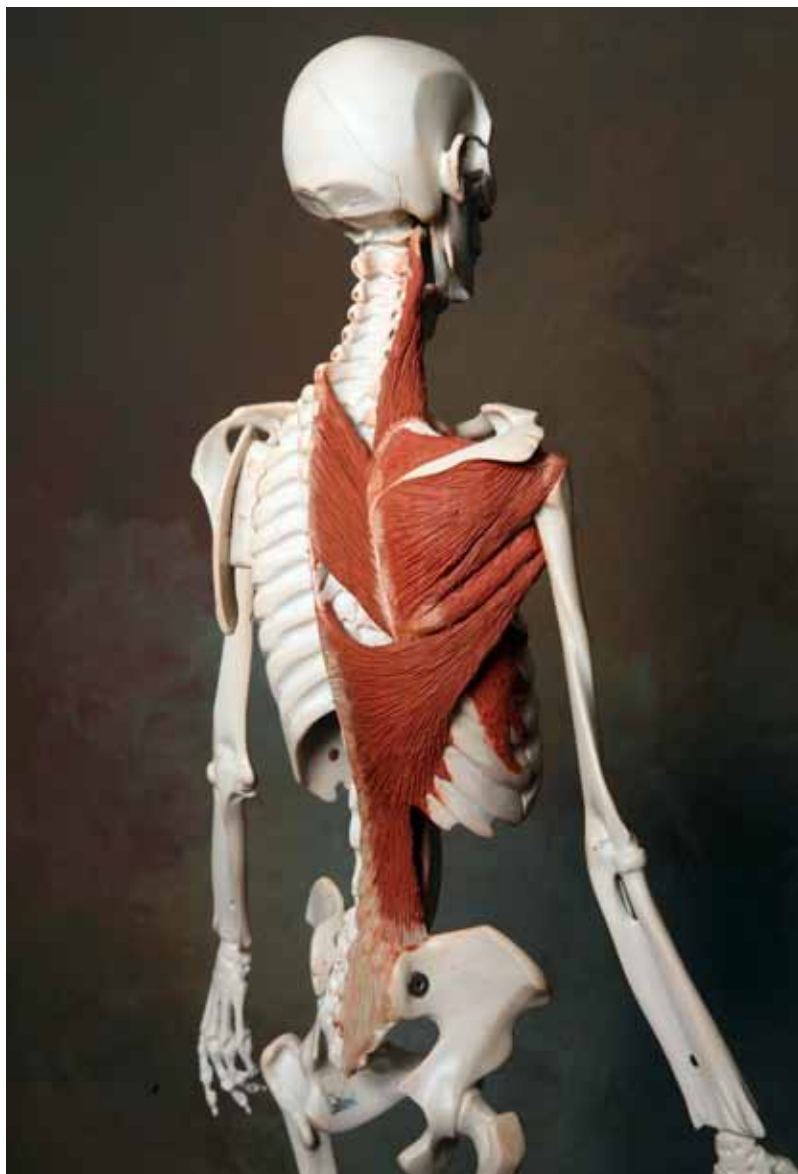


# Body Mechanics

by Joseph E. Muscolino



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## Learning Muscles with Clay

Thoroughly understanding anatomy is integral to massage therapy, and learning muscles by constructing them in clay can be a great way to deepen your understanding of the subject.

It can be argued that the fundamental basis for all clinical orthopedic manual and movement therapies is a solid understanding of anatomy. After all, if you know anatomy (structure), you can figure out physiology (function). And if you know physiology, you can understand what pathophysiology (altered physiology of a condition) is. And if you know pathophysiology, you can figure out how to assess that condition. And if you know assessment, you can critically think to determine what treatment is appropriate for that condition. In other words, knowing anatomy can be the key that allows for the critical thinking that empowers you to creatively apply the appropriate treat-

ment techniques for the condition with which your client presents.

The irony is that many students look at anatomy as a course that must be endured and passed in order to move on to the more “important” courses on assessment and treatment. To these students, anatomy is nothing more than a dry and abstract subject that is an exercise in putting Latin-derived names on all the many structures of the body. As a result, they do not learn their anatomy well. And much of what they do learn is soon forgotten after leaving school.

Not knowing anatomy then requires them to have to work much harder in their physiology, pathophysiology, assessment and treatment technique classes because, without the fundamental basis of anatomy, instead of learning to understand the content, they must memorize it. This results in them having to memorize cookbook routines instead of learning how to critically think and appropriately apply treatment techniques to best treat the various orthopedic conditions with which their clients present.

So why do so many students resist spending the time and effort to learn anatomy well? I believe the problem is often two-fold. First, their instructor may not have applied the concepts of anatomy to the conditions that they would encounter once they are out in practice, so

they were not taught to see how relevant and important anatomy is to clinical massage. Second, the manner in which they were taught anatomy may have been dry and abstract, often auditory lecture at best supplemented with visual illustrations.

What’s unfortunate about this method is that the body is a three-dimensional marvel of engineering, and teaching and learning the structure of the body—especially the muscles—should stem from an appreciation of the beauty of its architecture.

This beauty can be best appreciated if the teaching approach is dynamic and kinesthetic. Massage therapy, and indeed every manual and movement therapy, is a kinesthetic field, and for this reason attracts students and therapists who often learn best with kinesthetic methods. One such method that is effective for teaching muscles (and all myofascial tissues) is palpation. Being taught how to palpate the muscles as they are being learned can make the learning process more accessible. However, as excellent as palpation is, it is still a somewhat indirect way to learn the muscles of the body. After all, the muscles must be palpated through the skin, making a true sense of their location challenging to appreciate—especially for the deeper muscles.

A more direct and creative kinesthetic approach for learning muscles is to actually design and create them in

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clay and then place them on a miniature skeleton (usually approximately 30 inches tall).

### Learning Muscles with Clay

Learning muscles with clay involves actually creating in clay the muscles (and other myofascial tissues) that are being learned, and then placing them on the model skeleton. By doing this, the student becomes both an artist and engineer as they design and form each muscle by hand and place it on the skeleton. This method of learning is more time intensive, but the time spent is not wasted. Rather, taking the time to work with each muscle creates an enriching experience that enhances familiarity with and knowledge of the muscles of the body.

**Step one: Forming the muscle.** First, by creating and forming a muscle from clay, the student comes to understand and appreciate its shape. Is the muscle round or flat? Is it strap-shaped, square or triangular? Is it thick or thin? What is its width and length? Working with these factors creates an intimacy with the three-dimensional structure of the muscle that cannot be gained from auditory lecture, flat two-dimensional illustrations or even palpation. And this intimate knowledge of the muscle's form will enhance the student's/therapist's ability to assess and treat the muscles in their practice.

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**Step two: Placing the muscle on the skeleton.** After the muscle is formed, it must then be placed on the skeleton. This requires that the student work with and learn the actual bony attachments of the muscle, and allows for a deeper understanding of where and how the muscle crosses the joint. Does it cross the joint anteriorly, posteriorly, laterally or medially? Is it oriented vertically or horizontally? This is the fundamental knowledge needed to reason out the joint actions of the muscle and understand its role in posture and movement.

**Step three: Placing successive muscles on the skeleton.** Third, as successive muscles are formed and placed on the skeleton, the student begins to see the relationship between the sizes, shapes and locations of these muscles. Having to fit a second muscle on the skeleton next to the one placed before it also often brings to light errors made in the creation of the first or second muscle.

For example, one of the muscles might have been formed too large, not allowing sufficient space to fit the other muscle. Or perhaps one of the muscles was formed too small, leaving too much space between the two muscles. Students are better informed about the size and shape of the muscles being formed, and then required to revisit and amend them.

Placing muscles next to each other on the skeleton also allows for a deeper appreciation of the myofascial meridian continuities from one muscle to another because the student can blend the fibrous attachments

of adjacent muscles into each other. This results in a richer and deeper appreciation of the structure of the myofascial system of the body.

#### Inside Out

Based on the logistics of learning muscles with clay, the muscles of the body must be created and placed on the skeleton from deep to superficial. Therefore, the muscular system is recreated from the inside out. This results in more attention being placed on learning the deeper muscles of the body.

Deeper muscles may be poorly learned in lecture-format classes because lecture classes usually begin by teaching and spending their time on the larger superficial muscles, often relegating the smaller deeper muscles to the last few minutes of class. Deeper muscles also tend to be more poorly learned because they are not seen in superficial illustrations of the body, and their contours are not visible or palpable through the skin. Given the crucial role of these deeper muscles in stabilizing joints, however, focusing on them from the outset—as is done when working with clay—is especially valuable.

#### Learning Experiences

Learning muscles with clay is also beneficial for a number of other reasons. There are different model skeletons available and each one is in a different posture so that the student can gain an appreciation of the placement and location of muscles in various postures of





the body. Also, when creating the muscles in clay and placing them on the skeleton, students can work cooperatively in groups. This fosters camaraderie, dialogue and an exchange of ideas, further enriching the learning experience. It also tends to create a unified class experience in which students circulate around the classroom to view the other students' skeleton models and discuss and compare how their muscles look.

Building muscles in clay is also a creative process. Accessing creativity while learning the science of anatomy can help to blend linear and nonlinear thought, marrying together proverbial right-brain and left-brain thinking. And last but not least, it is fun!

Given the kinesthetic nature of manual and movement therapies, and the importance of learning anatomy, it only makes sense that teaching and learning anatomy should not be confined to the classroom lecture format. For a deeper and fuller appreciation of the musculature of the body, kinesthetic learning methods should be included. Whether you are a manual or movement therapy student, or a seasoned therapist, learning muscles with clay can enrich your knowledge and understanding of the musculoskeletal system. ■

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