

Regional/compartmental stretching: The StretchFit and Yin Pilates approach to categorizing stretches, learning repertoire and creating classes.

Key terms

- Regional/compartmental stretching
- "Role reversal" stretching
- Nuanced stretching

With around 660 muscles in the human body, designing a class with the intention of stretching all of them is not an easy task. The good news is that you don't need to stretch one muscle at a time. Yes, you can discriminate to some extent, and targeting particular muscle groups, or muscles within groups, and fibers within muscles is necessary for remedial purposes, in addition to managing the sheer number of them. But how do you decide which muscles to prioritize? Well, you don't, at least not initially. You don't start by prioritizing muscles; you start by prioritizing muscle groups. Muscle groups are found in compartments, also called regions.

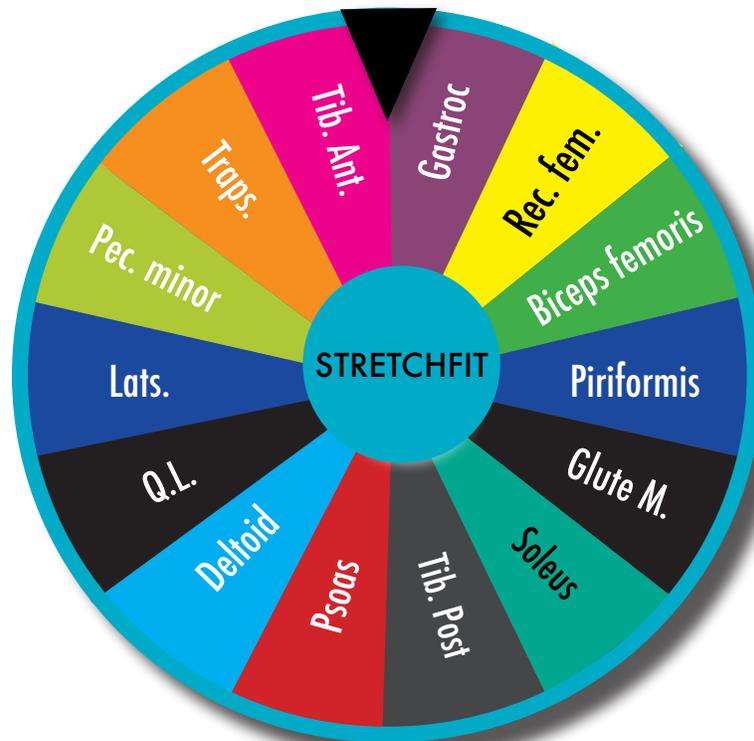


Image 1-The "Spin and stretch" approach is not the best way to navigate your way around the body-it's way too random.

Regional anatomy and compartmental stretching

The StretchFit and Yin Pilates approach is to use the surgical and medical anatomy teaching methodology called "regional anatomy" as the basis for arranging classes and learning repertoire. When studying regional anatomy (topographical anatomy) as opposed to systemic anatomy, the body is divided into major parts, (e.g. the lower limb) and then further subdivided into areas, regions and compartments. There is focused attention on a specific compartment including examination of the arrangement and relationships of the various systemic structures (muscles, nerves, arteries, etc.) within it.

Within a compartment there are groups of muscles, for example the adductors, with similar lines of force and, therefore, similar actions and functions. Consequently, when you stretch a compartment you stretch all of the muscles within it to a large extent. Of course, you can learn to shift the locus of the stretch to certain muscles within the compartment as you become more experienced, and this is important, but as a starting point, the generalist compartmental approach makes sense. As you become more aware through practice of particular sensations and tight spots within a compartment, you can explore a more nuanced approach, adjusting and feeling for particular muscles or fibers within the muscles of a compartment.

Missing anything?

A particular advantage of the compartmental approach is that with good instruction precise regions are easy to locate and no muscle groups are glossed over. In many exercise systems, exercises are named after animals e.g. the Pigeon pose in Yoga, or the Swan Dive in Pilates, without attention to the compartments or tissues being affected. An analysis of many of the movements in many exercise systems reveals continual stress of the same tissues, in similar planes of movement, even when practicing a variety of exercises with a variety of names. If your concern is more about you, or your client i.e. -the person, than the pose, the compartmental approach provides a methodology that might be right up your alley, (or compartment!) Compartmental stretching avoids highly choreographed and often repetitive exercises in favor of simplicity and precision.

The compartmental approach also guards against injury. A wise Yogi once said to me that injury inevitably results from "too much movement, in too few places, repeated too often." This can be avoided with the compartmental approach because you don't stress the same tissues repeatedly, and you don't stretch the ones that don't need it either!.

As attractive as the regional/compartmental approach sounds, it comes with one caveat-you've got to find a teacher who is able to identify and teach you how stretch each one effectively. (Some very well-designed equipment comes into play here, but more on that later!) You have also got to find a teacher with a degree of irreverence-one willing to give precedence to an approach that is guided by the logic of science instead of historical dogma.

Compartmental Stretching of the Leg and Thigh

The leg and thigh provide good examples of the compartmental approach to stretching. The region of the Leg is the area below the knee and above the ankle. It has 3 compartments-posterior, lateral and anterior. Each compartment has a number of muscles with similar functions. With three basic stretches, and some variations, you can devise a seriously effective stretching regimen for the entire leg region.



Image 1, shows just some of the muscles in the posterior compartment of the leg. Rather than trying to isolate all 5 of them or taking the hit and miss “spin and stretch” approach, stretching the posterior compartment and adding some variations will effectively target each of them.

Summary

Learning compartmental stretching provides a systematic approach that effectively targets the whole body and can also be nuanced to ensure individual patterns of flexibility are attended to.

If you are interested in learning about regional anatomy, we have an entire online Certificate in Musculoskeletal Anatomy that follows this approach. It comes with an interactive anatomy app, working skeleton for you to make muscles on at home, and a 350-page interactive manual! Reply to us and mention this article for a 10% discount on the entire course!

Here’s a link to the course: [https:](https://www.pilateskinesiology.com/onlinecourses)

<https://www.pilateskinesiology.com/onlinecourses>

Email

info@stretchFit.studio

Compartmental Stretching of the lower limb

As mentioned in the previous post, when studying regional anatomy, the body is divided into major parts, (e.g. the lower limb) and then further subdivided into regions and compartments. (The terms regions and compartments are used interchangeably, which can sometimes be confusing.) There is focused attention on a specific compartment including examination of the arrangement and relationships of the various systemic structures (muscles, nerves, arteries, etc.) within it. Each compartment is enclosed in deep fascia. (See Image 1.) For the purposes of stretching a medical level of examination of each compartment is probably not necessary (although it is never unhelpful). A knowledge of the muscles within a compartment, their origin, insertion, action, and fibre direction are adequate and perhaps more relevant to stretching.

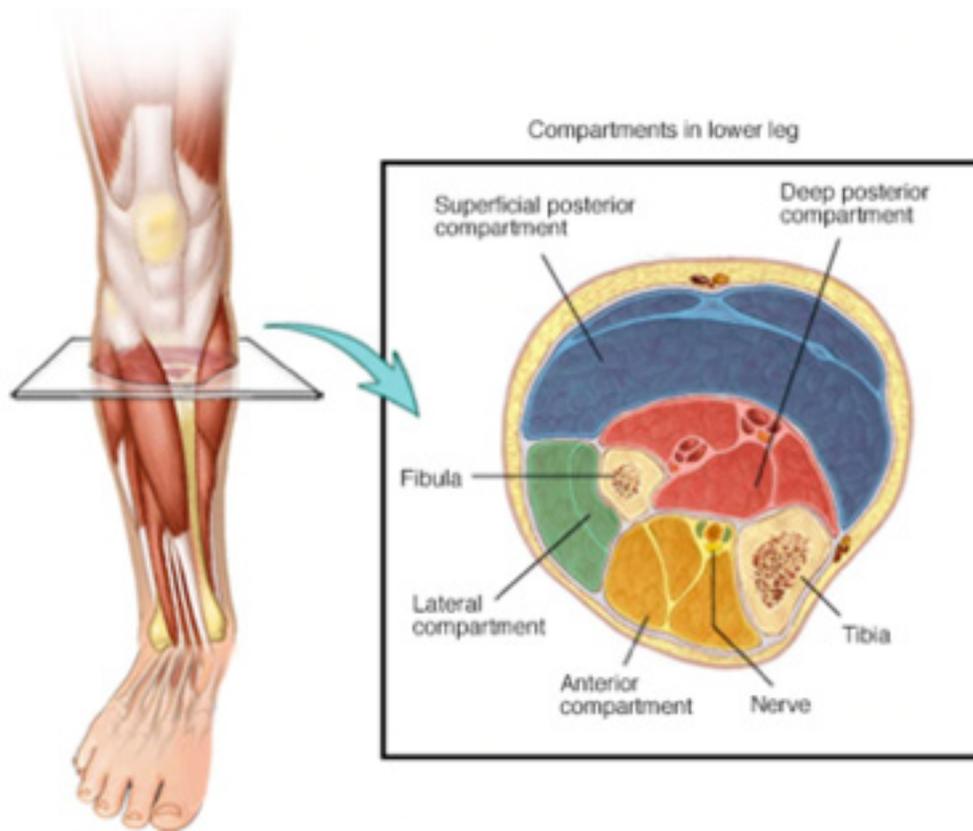


Image one. A transverse section of the right leg clearly shows the posterior compartments (superficial and deep), the lateral and the anterior compartment. The whiteish borders that separate each compartment is comprised of deep fascia.

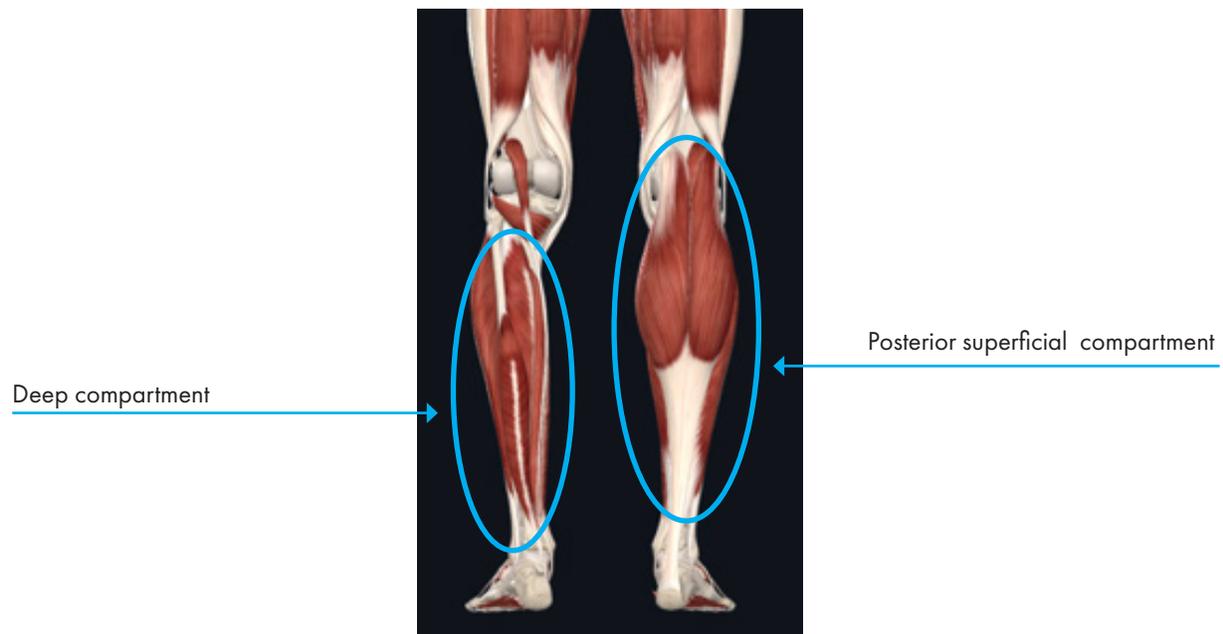
The lower limb

In the lower limb, there are 7 relevant compartments for stretching at this stage.

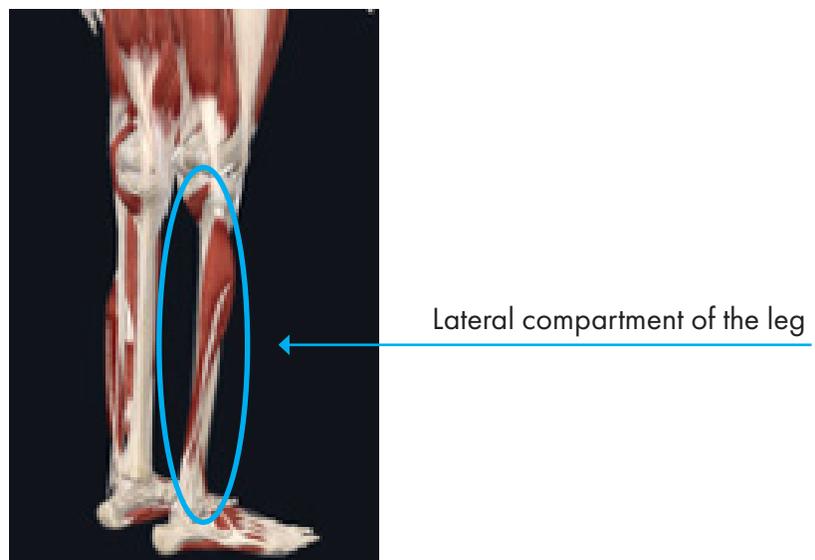
The simple seven include:

Region: The leg- between the knee and ankle has 3 compartments

1. The posterior superficial and deep compartment



2. The lateral compartment of the leg



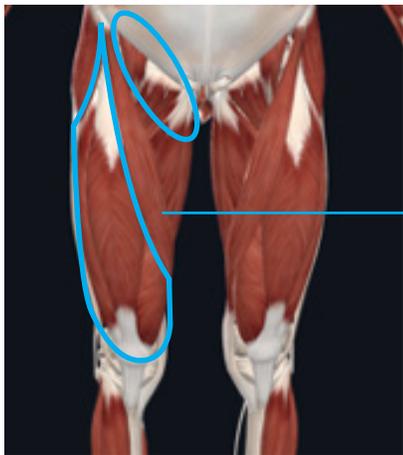
3. The anterior compartment



Anterior compartment of the leg

Region: The thigh-between the knee and hip has four compartments

1. The anterior compartment of thigh



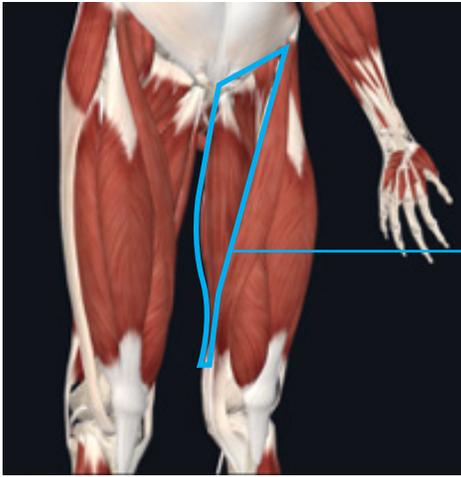
The anterior compartment of thigh

2. The posterior compartment of thigh



The posterior compartment of thigh

3. The medial compartment of thigh



The medial compartment of thigh

4. The gluteal compartment



The gluteal compartment

In image two below, the thigh is about to be cut across at its midpoint to expose the anterior and posterior compartments.

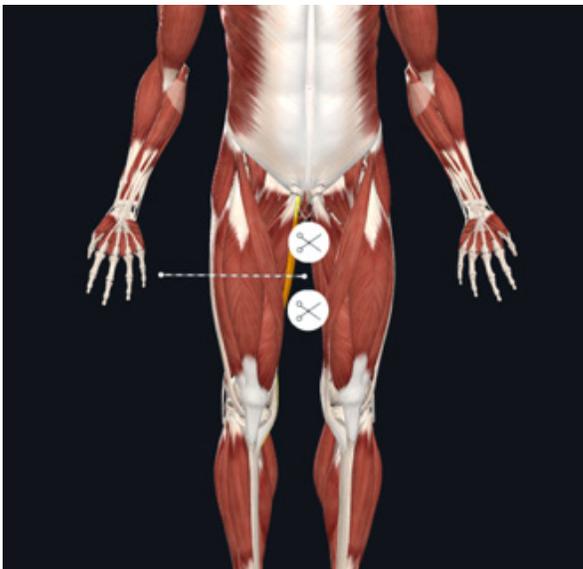


Image 2

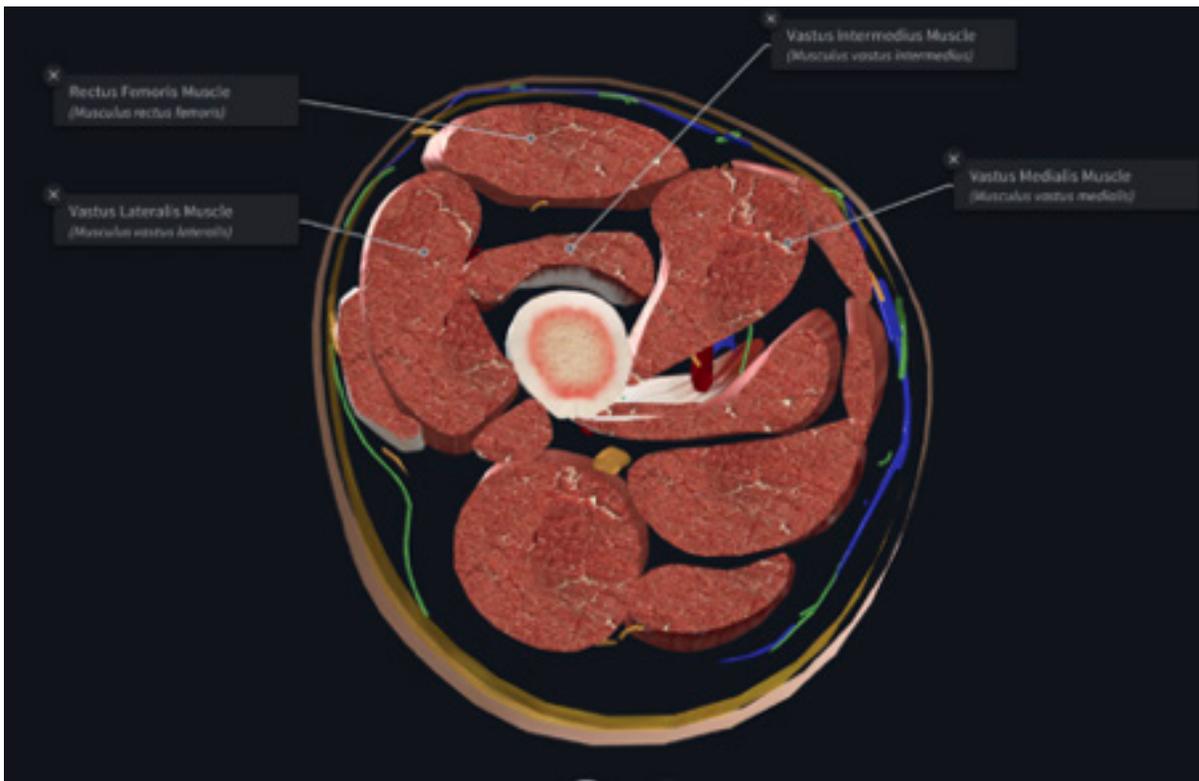


Image 3

Image three shows a transverse section that has been cut at the mid-thigh, as indicated in image two. The four muscles that have been labelled are known collectively as the quadriceps femoris and are found in the anterior compartment of the thigh. The “quads” can be stretched by reversing their concentric action-knee extension. Combining knee flexion and a posterior pelvic tilt will effectively stretch the four muscles and the compartment in its entirety.

Nuancing stretches

In the examples above, we can see that simply reversing the concentric actions of muscle groups and/or compartments will provide a stretch for the entire compartment. (This is why a degree of anatomical knowledge is essential. Without fundamental understanding of the action of a group of muscles and its origins and insertions, you can't know how to reverse them.) At the beginning stages of stretch teaching and practice, this “role reversal” will do the job safely and effectively. If done well, it will be exceedingly effective. As you or your students practice continues, a degree of exploration in each stretch can be encouraged. Indeed, in our training courses this is strongly encouraged. In the StretchFit and Yin Pilates repertoire, there are also specific stretches that focus on muscles within groups, like the biceps femoris in the hamstring compartment for example. Just like compartmental stretching, this process is simple too. While in the midst of a stretch, simply leaning or rotating a body part in a particular direction will change the line of pull on a particular muscle within a compartment and the locus of the stretch will change. If this nuanced shift is done with awareness and the sensations increase, it is likely that the affected muscle, or the fibers within it are extra tight. More attention in subsequent classes is then indicated. “That which hurts, instructs,” as the saying goes.

The benefit of this approach is that first a compartment is stretched thoroughly, ironing out many flexibility deficiencies. In due time some deeper, more focused examination can reveal important individual patterns. This is what the compartmental approach is all about too-finding individual issues in a simple step by step process and attending to them. “This issue are in the tissues” as the saying goes!

In our next post we will look at the regions of the spine and discuss which approach serves us best when trying to figure out how to stretch the multitude of muscles and joints in this region.

Stretching the trunk and neck

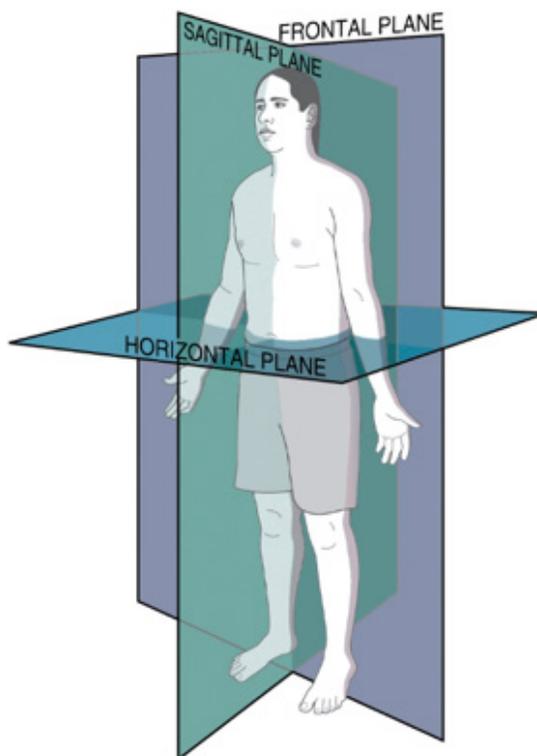
Think movements, not muscles

There are many compartments in the trunk/spine and neck. There are also a large number of muscles that can contribute to a large range of movements. For example, in the trunk the external oblique is a rotator, flexor, and lateral flexor of the trunk. In the neck, the SCM muscle does the same. Some of the back muscles can produce extension, lateral flexion, and rotation too. Consequently, placing them into a compartment with a specific function probably won't work. In the spine therefore, it is easier to think, and stretch, according to the 4 main movements-flexion, extension, lateral flexion and rotation. With this approach, and some nuanced exploration during the basic stretches, all of the muscles of the spine will be stretched effectively.

Spinal & neck movements

The spine and neck move in 3 planes-sagittal, coronal/frontal and transverse/horizontal. (See image 1) Flexion and extension occur the sagittal plane. Lateral flexion in the coronal plane, and rotation in a transverse plane. According to our "role reversal" principle, flexing the spine and neck muscles will stretch the extensor muscles, and extending the spine and neck will stretch the flexor muscles. Lateral flexion will stretch the contralateral lateral flexors (lateral flexors on the other side) and rotation will do the same.

Image one, the planes of movement



Of course, we are not robots and most of our movements are multi planar. However, if will follow the "nuanced" principle, eventually we will stretch everything.

Lateral flexion provides an example.

The stretch in image 2 begins with lateral flexion, with “strictish” attention to form. Whilst in the stretch, the student is encouraged to explore moving the shoulder and hips relative to each other. This nuanced movement changes the line of pull from medial, to posterior, to anterior oblique abdominal fibers for example, ensuring nothing is untouched, (or “unstretched” to be more specific,) in the process. See Image below.

Variations

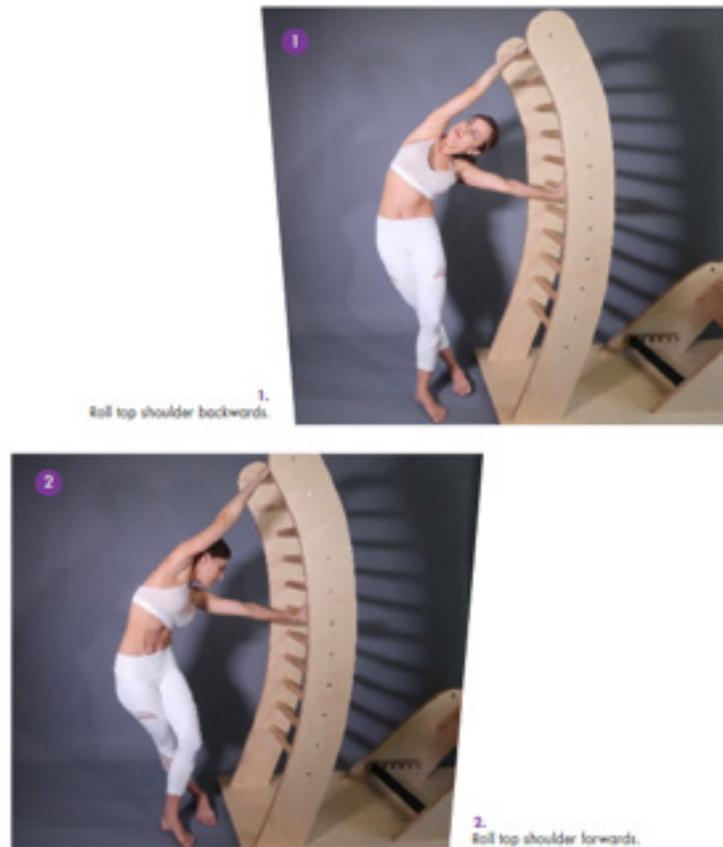


Image 2, lateral flexion of the trunk with nuanced exploration to target specific parts of the external obliques for example (The Quadratus Lumborum also has 3 sheets of fibers and will be affected by this approach.)

Similarly, in the neck, a range of movements can be explored within the 3 planes. In image 3 below, flexion is combined with rotation to reach the large number of muscles in the lateral and suboccipital regions.



Image 3 combines flexion and rotation to reach specific muscles within the region.

Summary

The muscles of the spine and neck can be addressed by thinking about planes of movement instead of muscles. Exploring “role reversal” and nuanced movement variations within these planes will effectively target all of the muscles in these regions.

Stretching the muscles of the shoulder region

The muscles of this region are not as easily grouped into compartments as the muscles of legs or arms. There are numerous ways that they can be categorized too. A functional categorization could be based around the muscles that elevate and depress the scapula for example. We are going to take the approach used in traditional anatomy teaching and divide them into three groups. Take a look at the three and then read through the explanation below.

Don't be put off by the medical terminology.

1. Posterior axio-appendicular muscles
2. Intrinsic shoulder muscles
3. Anterior axioappendicular muscles.

While the 3 groups above sound complicated, they make logical sense.

Group one

The Axioappendicular muscles extend between the axial and appendicular skeletons. The axial skeleton comprises the spine and rib cage, (and a few other bits) and the appendicular skeleton is everything else. For example, the scapula and clavicle sit on the ribcage and are part of the appendicular skeleton.

So, posterior axio-appendicular muscles are the ones at the back that extend between the two. They include the following muscles:

- latissimus dorsi
- levator scapulae
- rhomboids
- trapezius

The posterior axio-appendicular muscles can perform quite distinct actions but cooperate to produce strong actions around the scapula, shoulder, and arm. They can be stretched collectively to some extent, and isolated with our nuanced approach.

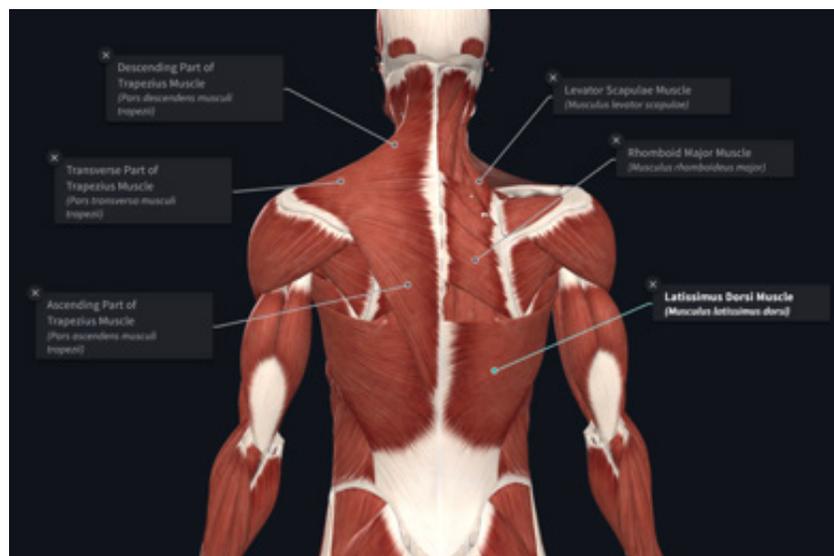


Image one, the posterior axioappendicular muscles

Group two- the intrinsic shoulder muscles

The relatively short muscles that pass from the scapula to the humerus and act on the glenohumeral joint are known technically as the intrinsic six scapulohumeral muscles

The group consists of

- Deltoid
- Teres major
- Supraspinatus
- Infraspinatus
- Subscapularis
- Teres minor

The deltoid is a powerful prime mover, providing strength and power across the shoulder joint.

The remainder includes the four muscles of the rotator cuff group and the teres major. Although these muscles assist with various actions, their major role appears to be as important stabilizers of the humeral head in the glenoid cavity – that is, they steady the head in its socket. A variety of stretches are necessary to effectively target all of the muscles in this region.

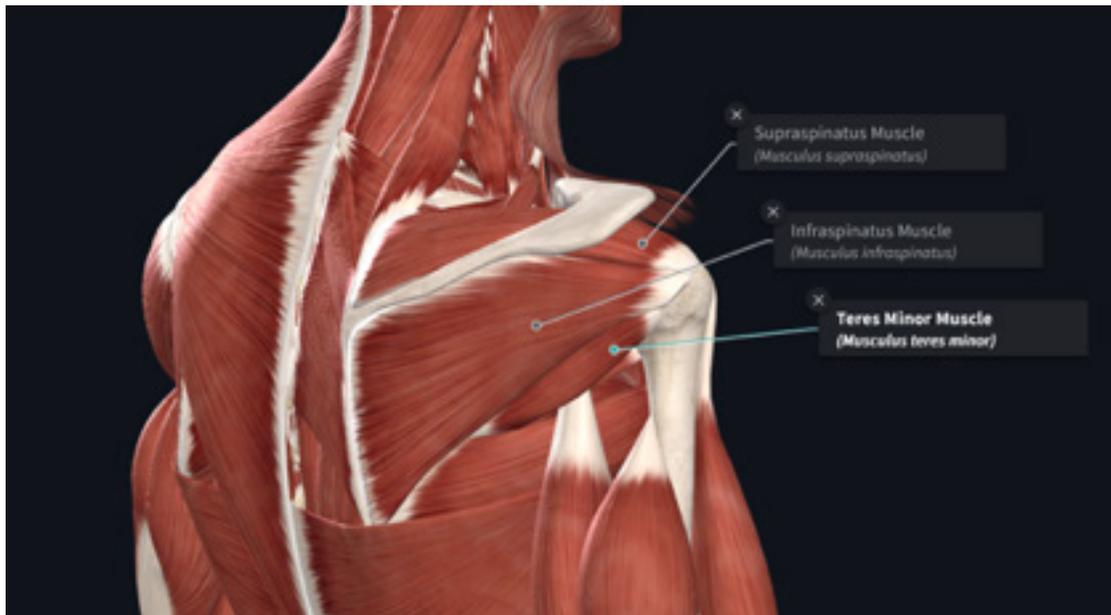


Image two, some of the intrinsic scapulohumeral muscles.

Group Three- Anterior axioappendicular muscles.

The four anterior Axioappendicular muscles extend/join between the axial and appendicular skeletons at the front of the chest. They are also referred to as the pectoral muscles, or muscles of the pectoral region. The anterior group includes:

- pectoralis major
- pectoralis minor
- subclavius
- serratus anterior

Although the muscles of this group have a variety of functions, they can be stretched effectively as a group and isolated with our nuanced approach also.



Image 3, the four Axioappendicular muscles

Summary

The posterior axioappendicular muscles can be mistaken for the muscles of the back, however they don't play a direct role in movement of the spine itself. They are stretched to some extent when stretching the spine but do warrant attention as a discrete group when planning a session. The intrinsic shoulder muscles require a number of different stretches, and the anterior axioappendicular muscles can be stretched effectively collectively and more precisely with our nuanced approach.

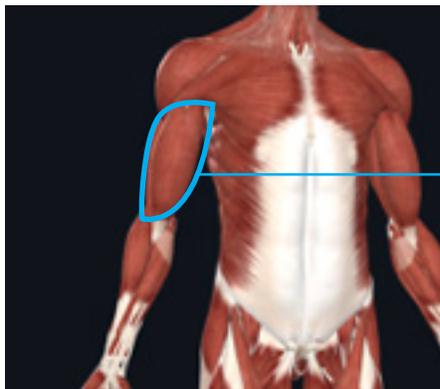
Stretching the muscles of the upper limb

In the upper limb, there are 4 relevant compartments for stretching at this stage. The four compartments include:

- The anterior arm between the shoulder and elbow
- The posterior arm between the shoulder and elbow
- The anterior forearm arm between the elbow and wrist
- The posterior forearm between the elbow and wrist

Like the intrinsic muscles of the foot, there are numerous muscles intrinsic to the region of the hand. Many of the major muscles of the hand and foot lie in the compartment of the leg and forearm respectively and will be stretched by focusing on these compartments.

The anterior compartment of the arm contains the flexor muscles -coracobrachialis, biceps brachii, brachialis. This group can be stretched collectively with a "role reversal" approach, and more precisely with some nuanced variations.



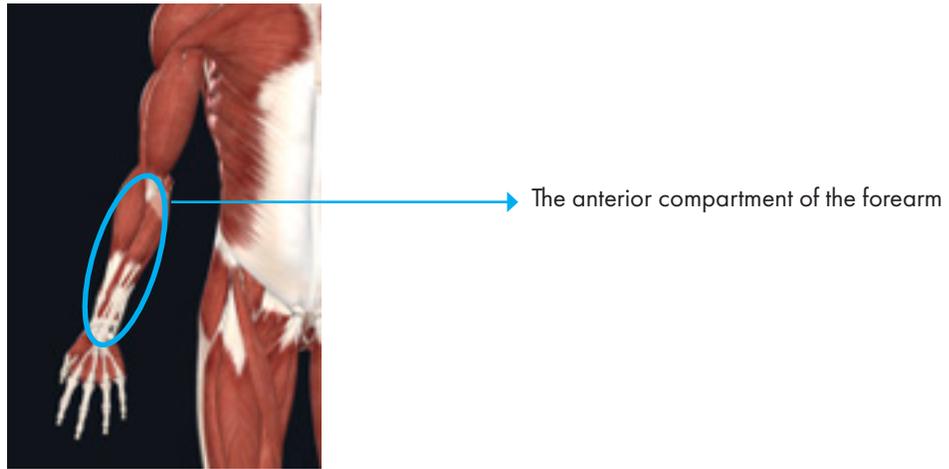
The anterior compartment of the arm

The posterior compartment of the arm contains the extensor muscles-the three heads of the triceps. Although it is unusual to find stiffness in this compartment, they can be stretched collectively, and the long head can be affected more precisely with some nuanced variations.

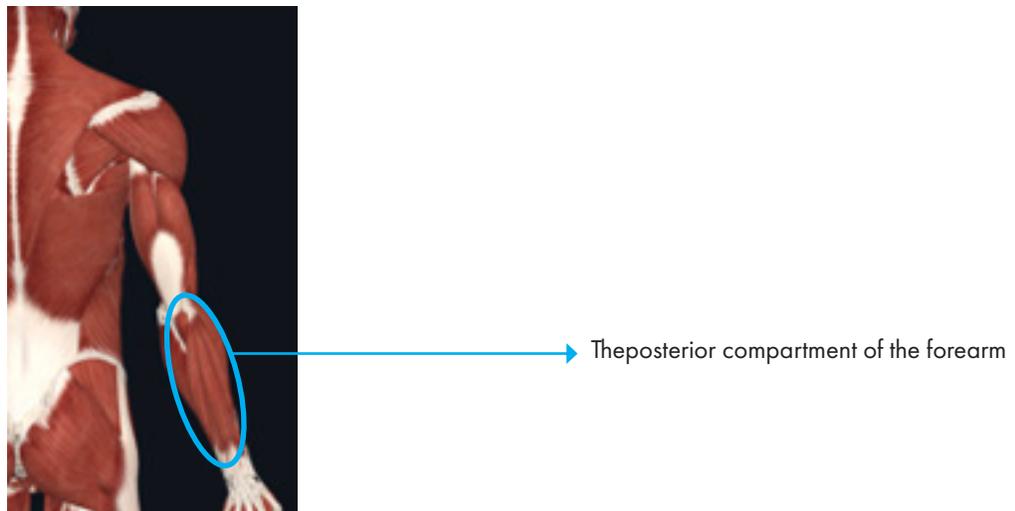


The posterior compartment of the arm

The anterior compartment of the forearm between the elbow and wrist contains the flexor muscles of the wrist, hand and fingers. They can be stretched collectively, and more precisely with some nuanced variations

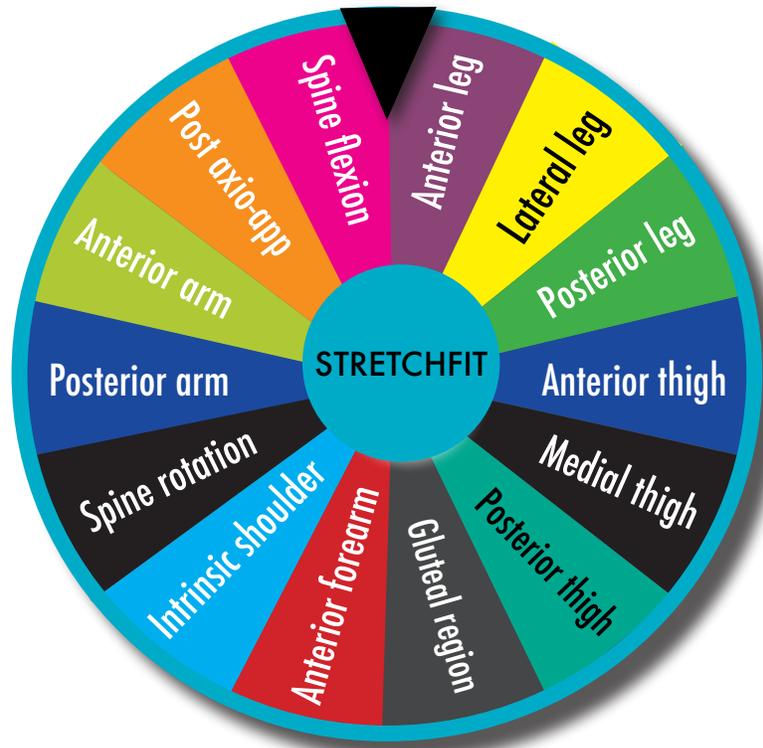


The posterior compartment of the forearm between the elbow and wrist contains the extensor muscles of the wrist, hand and fingers. They can be stretched collectively, and more precisely with some nuanced variations



Putting it all together

The random “spin and stretch” approach of the spinning wheel is no match for stretching muscle compartments. You can still use the wheel, but individual muscles need to be replaced with compartments. This ensures that the entire body is stretched in a systematic way.



Creating lessons plans

Given the range of compartments, fitting all of them into a class is a challenge. There are really only 3 options available.

Option one is to conduct exceptionally long classes. I have tried it in my studio with some success. The difficulties are that a) people lack the time for 90 to 120 minutes of stretching, b) people lack the discipline for 90 to 120 minutes of stretching c) people lack the finances for 90 to 120 minutes of stretching!

Option two is to leave out some compartments. Commercial and other realities prevail with this option. On the plus side, clients and students may attend shorter classes more often.

Option three is to conduct our Range of Movement Assessments (ROMA) before creating a program for your clients. If possible, this is the preferred option. Time is not wasted stretching muscles that don't particularly need to be stretched, and compartments or muscles within them with less desirable levels of flexibility can be the focus.

What's next?

Moving on, your next tasks are as follows:

- Memorise the compartments.

This isn't difficult. The legs and arms only have anterior, posterior, medial and lateral compartments as possibilities. The spine and neck have 3 planes, and the shoulder has posterior, intrinsic and anterior groups. Voila!

- Make some sample plans and send them to me for comments
- Learn our ROMA guide

- Learn how to nuance stretches by practicing the material that you are teaching and deepening your anatomy knowledge. Developing both of these ways of knowing, the experiential and the theoretical, will do wonders for your work. For example, you might find through experience that nuancing a stretch for the posterior compartment of the thigh can be achieved by rotating the hips with respect to the lower limb. This will move the locus of the stretch to either the medial or lateral hamstrings, depending on the direction of your rotation. You could also have come to this realisation because you became aware, through your study of anatomy, that there are three hamstring running down the posterior thigh and a posterior head of adductor magnus, all of which can be stretched more strongly depending on the alignment of your pelvis and its angular relationship to the lower limb.

If you love your work, this won't be a chore. In fact, you might find the entire process extremely rewarding. Learning about your body by combining both experiential practice and theoretical learning is eternally interesting. The opportunity to share this knowledge with your students will bring a broad smile of satisfaction to your face, and theirs! Go for it!

Anterior leg

Lateral leg

Posterior leg

Anterior thigh

Medial thigh

Posterior thigh

Gluteal region

Spine flexion

Spine extension

Spine lateral flexion

Spine rotation

Post axio-app muscles

Anterior axio-app muscles

Intrinsic shoulder muscles

Anterior arm

Posterior arm

Anterior forearm

Posterior forearm