

# STRETCHFIT

## Combination station

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[www.Stretchfit.Studio](http://www.Stretchfit.Studio)

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## Biomechanics of stretching

Since bone shape cannot be changed, and ligaments will not come to the party either, we are left to work with muscles and some types of fascia. Let's have a look at the basic biomechanics of stretching.

All muscles have an origin on one part of the skeleton and an insertion on another part. Stretching a muscle involves moving these two ends away from each other. Muscles can be stretched by anchoring one end and moving the other, or by moving both ends away from each other. [Image 3](#) illustrates this concept.

The quadriceps contract to straighten the knee. This tightens one end of the hamstrings running across the back of the knee onto the lower leg. This end of the hamstrings is usually described as the insertion.

In addition, leaning forward to hold the bar and contracting the rectus femoris to straighten the leg pulls the pelvis toward the thigh bone or femur. This action, called hip flexion, moves the other end of the hamstrings (usually described as the origin) at the back of the pelvis on the sit bones, or ischial tuberosities, further from the insertion.

The result: the origin and insertion

of the hamstrings are moved apart and you will experience this as the sensation of stretching.

## Stretching physiology

When we stretch, as in the example above, receptors within joints, tendons and muscles detect movement and changes in muscle length and tension. These receptors alert the central nervous system (CNS) to this event for an appropriate response. If you stretch too fast, for example, your muscles will contract to prevent damage.

Aside from stretching, receptors alert your CNS to events such as jumping and landing, leaning, or touching something hot. Reflex signals travel to the spinal cord and back in what is called a reflex 'arc'. This enables a speedy response. It takes a second or two for messages to reach the brain itself – too long in this instance. Often, it is only after the reflex has occurred and the message arrives in the brain that you become aware of it.

We have a complex array of receptors and reflex arcs linking our muscles to our central nervous system. Two stretch receptors are most relevant to us. The muscle spindle stretch receptor detects changes in length and the speed of those changes. Basically,

The section below explains the anatomical thinking behind the StretchFit approach. It's a reductionist approach that is "all about the person, not the pose." Our work is to isolate each muscle group, stretch it, and move on to the next. It's thorough and you won't be guessing "am I doing it right." Try to work through the article below. It will help you to make sense of what you're doing.

GEEK  
ALERT!

## Regional/compartmental stretching: The StretchFit 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.



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.

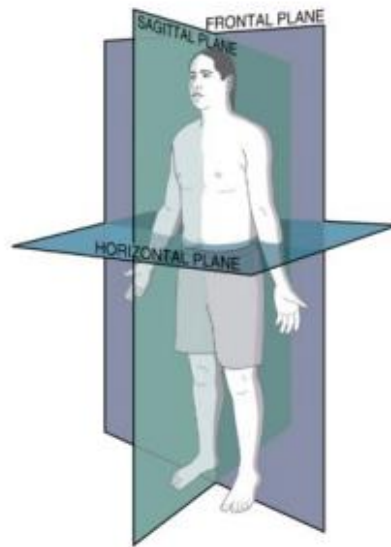
### Stretching the trunk and neck

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.



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

### 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.

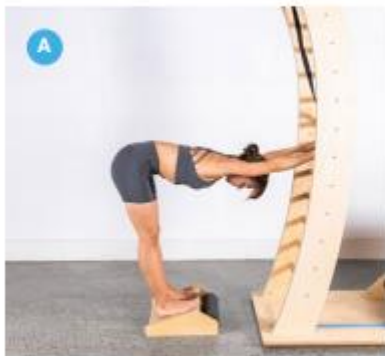


Image 3. The four Axioappendicular muscles

### 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.

## Posterior Stretch Standing



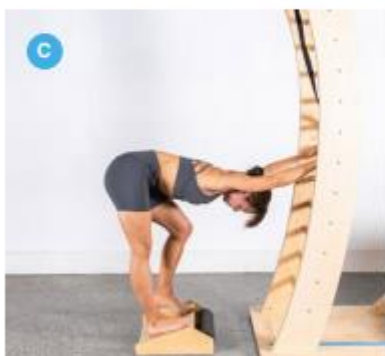
### A. How to perform

- Stand as pictured
- Lean backward
- Lower arms if shoulders uncomfortable
- Start by holding bar at ring height. Take lower grip for more intensity, higher to make it easier.



### B.

- Bend one knee and move weight above straight leg.
- Alternate 5 times each leg, very slowly

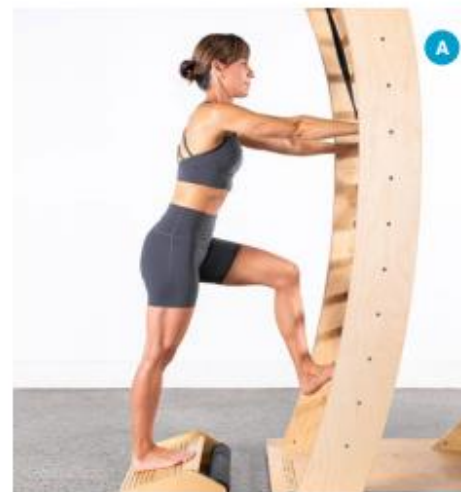


### C.

- Be sure to alternate legs and hold each position for several breaths.

## The Standing Calves

• **Standard:** Any • **Muscle Emphasis:** Entire superficial and deep group



### A. How to stretch

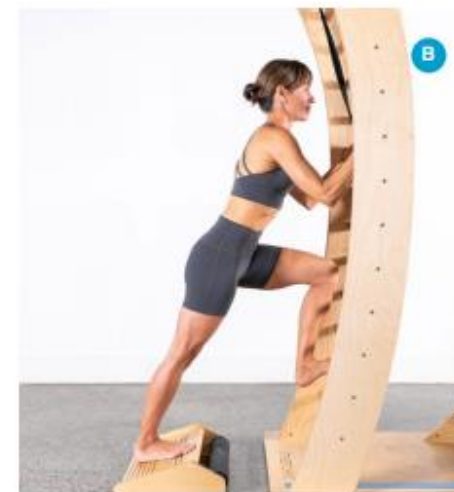
- Lean hips toward ladder to POT.
  - Bend one knee, tighten quads in straight leg.
- Note: The leg on the ladder is not stretching.

### A. How to contract

- Press ball of foot that is stretching into slant board as if accelerating.

### What to watch out for:

- Gripping with toes
- Moving into stretch too quickly -“bouncing”.
- Allowing knee to bend.
- Don't drop arches, lift heel or turn out foot.



### B. How to restretch

- Lean hips further toward ladder.

C

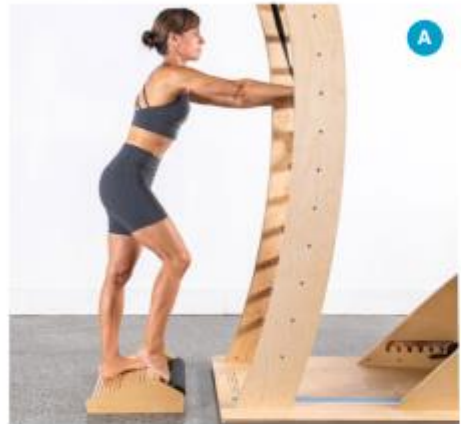






# Standing Toe Flexion with Box

• **Standard:** Any • **Muscle Emphasis:** Toe extensors, anterior compartment.



**A. How to stretch**

- Place dorsal metatarsals into slot.
- Try to straighten leg to POT

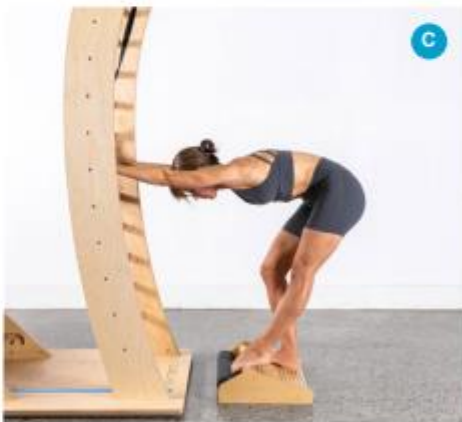
**A. How to contract**

- Press toes up into pad.



**B. How to restretch**

- Try to straighten leg that is stretching.



**C. How to restretch**

- Lean backwards and bend other knee.

Bending one leg will transfer the effect to one leg entirely. By leaning hips across to the straight leg side, **the abductors, piriformis, lateral head of gastrocnemius, biceps femoris** and peroneals will be stretched further.

# Rec Fem & Quads

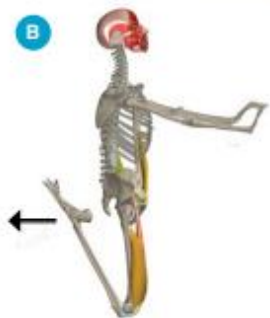
- **Standard:** Any
- **Setting:** Roller closer to the front, the easier the stretch. Recommended slot 2 or 3.
- **Muscle Emphasis:** Iliopsoas, rectus femoris, quadriceps
- **Note:** This stretch can be done with minimal Rectus Femoris involvement by performing without posterior tilt.



## A. How to stretch

- Place shin on mat and slide knee and hips down behind bar.
- Tuck bottom under.

B



## B. How to contract

- Press back foot back into support, press front knee into roller.



## C. How to restretch

- Tuck tail under further, lean back further.
- Place front foot onto ladder and push it into the ladder to lever yourself back further.
- Place foot higher on ladder for stronger effect.

## Variation (Not shown)

- Try the stretch with both legs at the same time.



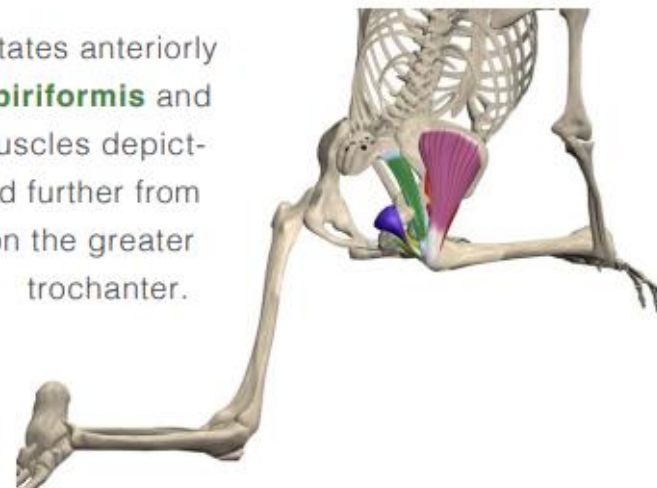
- Maintain a straight spine and reach center of chest toward foot.



## What to watch out for:

- Posterior pelvic tilt with forward lean.

As the pelvis rotates anteriorly the insertions of **piriformis** and the **obturator** muscles depicted will be moved further from their insertions on the greater trochanter.

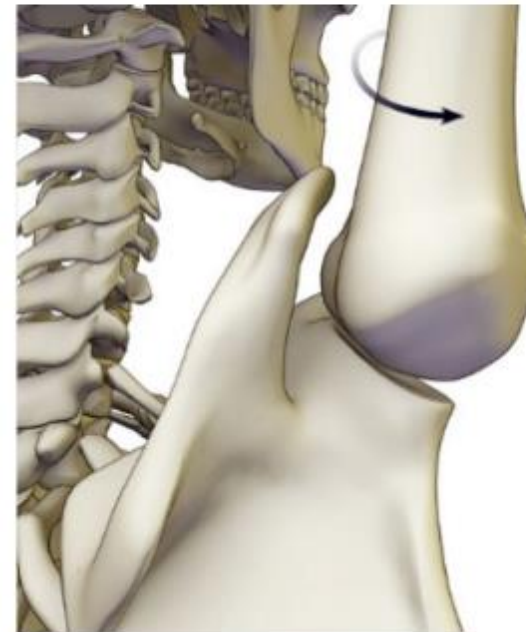
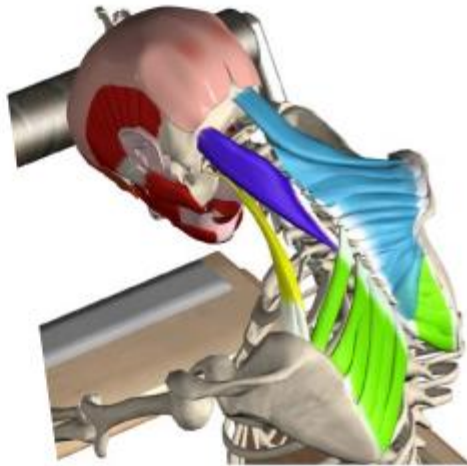




## Variation



Contract **abdominals**  
To deepen the flexion of  
the trunk and increase  
the posterior pelvic tilt.  
The **psoas minor** may  
also assist with  
this action.



External rotation  
will create space  
under the shoulder  
bone/acromion to  
alleviate painful joint  
impingement.



# Lying Backbend

- **Standard:** Any
- **Muscle Emphasis:** Psoas, rectus femoris, abdominals, pectorals, lats, anterior neck, triceps long head, rotator cuff, anterior surfaces of disks of spine



## A & B. How to stretch

- Sit on back bender as pictured.
- Sitting lower down will give less lumbar stretch.
- Support head if necessary. As body relaxes straighten legs further.



## B. How to contract

- Press hands and thighs up toward ceiling.



## C. How to restretch

- Allow pelvis, legs and arms to drop/flop.
- Partner can pull arms downward and alternately pull one side more.

## What to watch out for:

- Unnecessary tension in arms, neck, stomach.
- Dizziness is a strong sign to stop immediately.
- Remove head support if neck is comfortable.

# Pec Major

- **Standard:** Any
- **Muscle Emphasis:** Pectoralis major, pectoralis minor, anterior deltoid, Serratus anterior



## A & B. How to stretch

- Stand as pictured. Do one arm or both, as preferred.
- Lift elbows to shoulder height.
- Elbow angle approx 100 degrees.
- Take small steps forward to POT.



## B. How to contract

- Press hand/s into ring as if to pull across body.

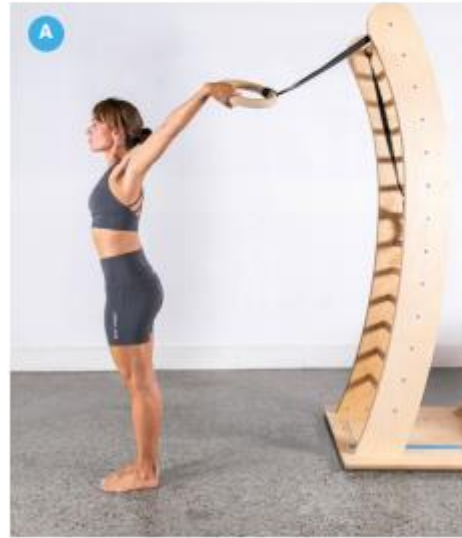


## C. How to restretch

- Walk further away from wall bars.
- Turn chest away from tighter side, moving origins on chest wall further from insertion on arm.

# Biceps Brachii & Others

- **Standard:** Any
- **Muscle Emphasis:** Biceps brachii, brachialis, anterior deltoid
- **Note:** this is the same stretch as the one above. Try both and use the one you prefer.

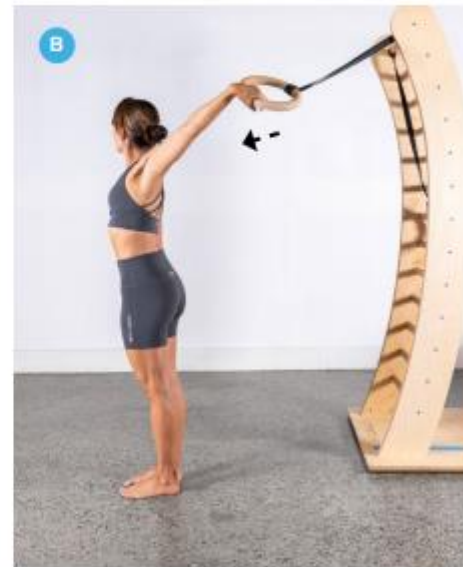


## A. How to stretch

- Stand as pictured.
- Lift and straighten arm.
- Pronate forearm (turn thumb down).
- Lean away from ring.

## A. How to contract

- Attempt to pull on ring and bend elbow.



## B. How to restretch

- Lean further from ring.
- Rotate chest away from ring.

# Lateral Flexion

## Background

Let's begin with lateral flexion, or side-bending of the neck. Tightness in side-bending ability is common and may contribute to abnormal scapulohumeral rhythm, shoulder impingement syndrome, tension headache and various other complaints.

'Normal' range of movement here is between 40 and 45 degrees from the neutral position. The neutral position is where your head is positioned precisely between your shoulders without any deviation.

## How to stretch (Image A)

Sit up tall and feel the weight of both sit bones (ischial tuberosities) on the seat. Sit so that you can reach through the slot with your arm, keeping both sit bones on the deck.

Lean away from the restraining hand, ensuring that when you do so the shoulder is drawn down away from your ear. If you are sitting too close to the restraining hand, the side of your bottom will lift. If this occurs, adjust your sitting position.

Lean away and reach your free hand up and over your head. Spread your fingers around behind your ear and pull gently on your scalp. Relax!

Make a body scan: draw your awareness from your restraining hand, up your arm, through the biceps to the shoulder. How much tension can you let go of? Can you relax the grip a little, and let your shoulders drop? I bet you can. Hold this position for five breaths and try not to move.

