

Shoulder Stretching vs. Dynamic Warm-up

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Let's take a poll..

- Who here stretches?
- When do you typically stretch?
- What kinds of stretches do you normally do?
- What types of equipment do you use, if any?

Quick definitions

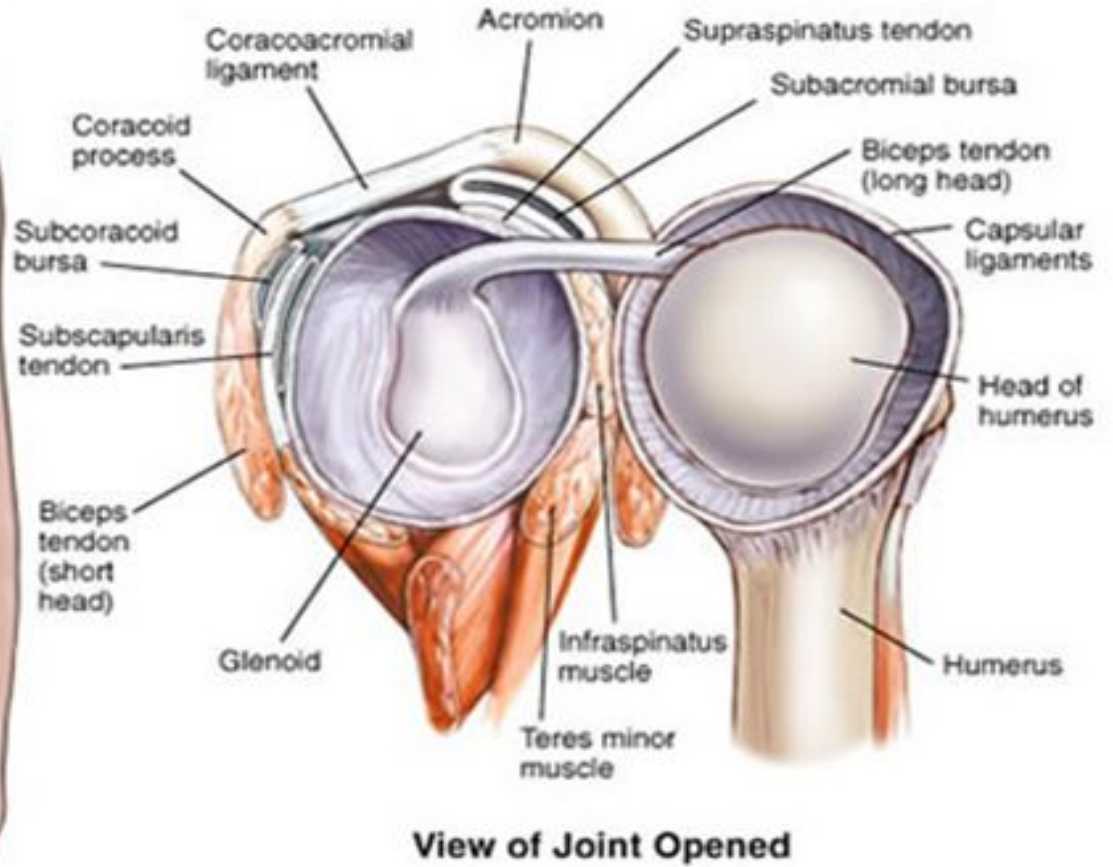
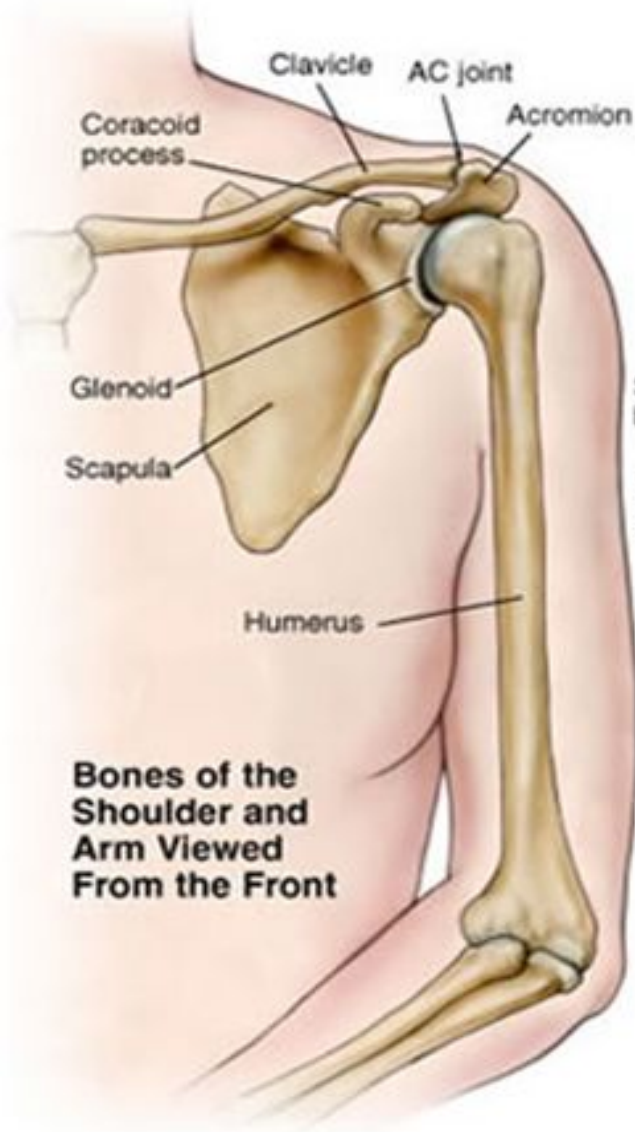
- **Static Stretching** – holding a position for a sustained amount of time. Research has shown that 30-60 seconds is ideal and found no better results holding longer, and not enough change if held shorter. Static stretching produces mild to moderate discomfort. Has been shown to increase range of motion (ROM).
- **Dynamic Stretching** – involves going through movements. You are always moving and never hold any position. This is least effective for increasing ROM long-term, but great for increasing blood flow and not ever supposed to cause discomfort.

Shoulder basics

- Unique – allows multiple planes of motion (think golf ball on tee) but because of this it's not very stable
- Stability is provided by
 - Ligaments
 - Muscles
 - Neuromuscular Feedback Mechanisms (self-corrections)

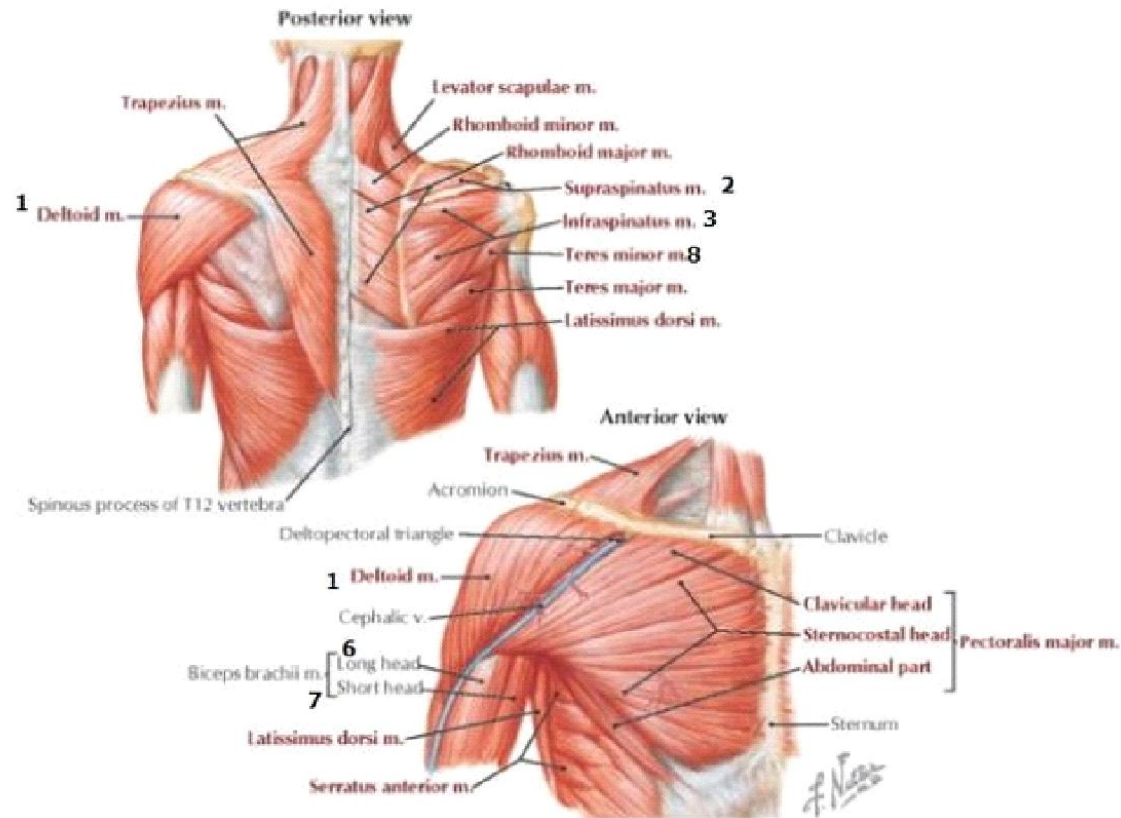
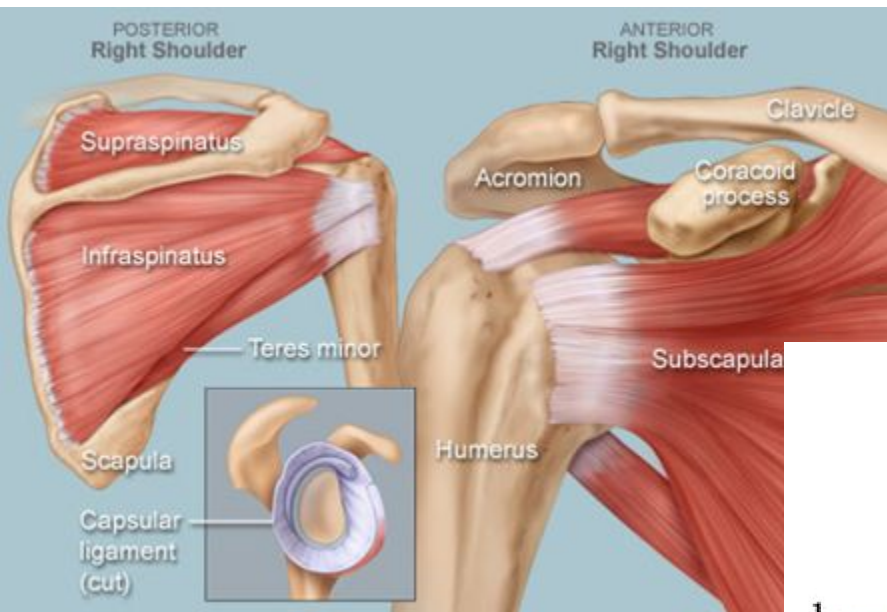
**Swimmers NEED Stable Shoulders,
Not Loose Ones!**

Shoulder Anatomy



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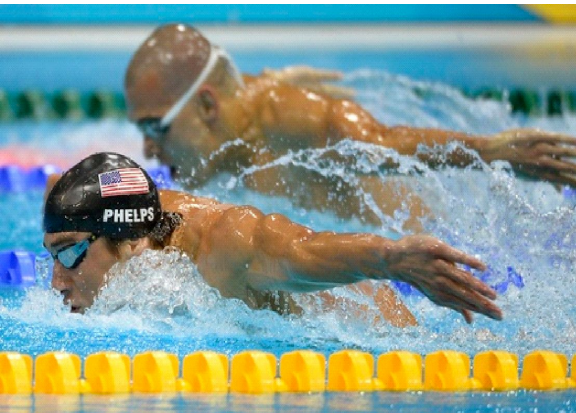


Biomechanical stroke analysis confirms...

A swimmer DOES NOT need to have excessive range of motion to perform ANY of the four strokes!

When we incorrectly/over- stretch our shoulders, we actually can overstretch the much needed ligaments that keep us stable





Therefore...

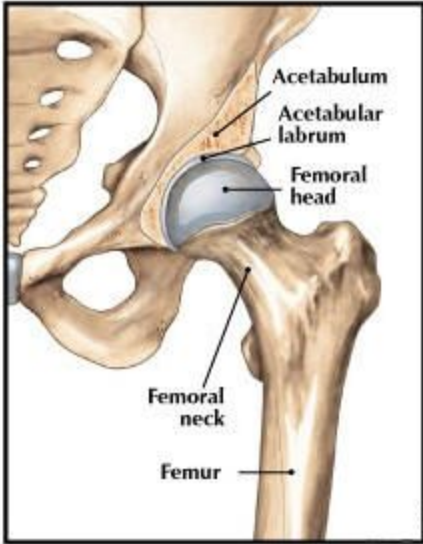
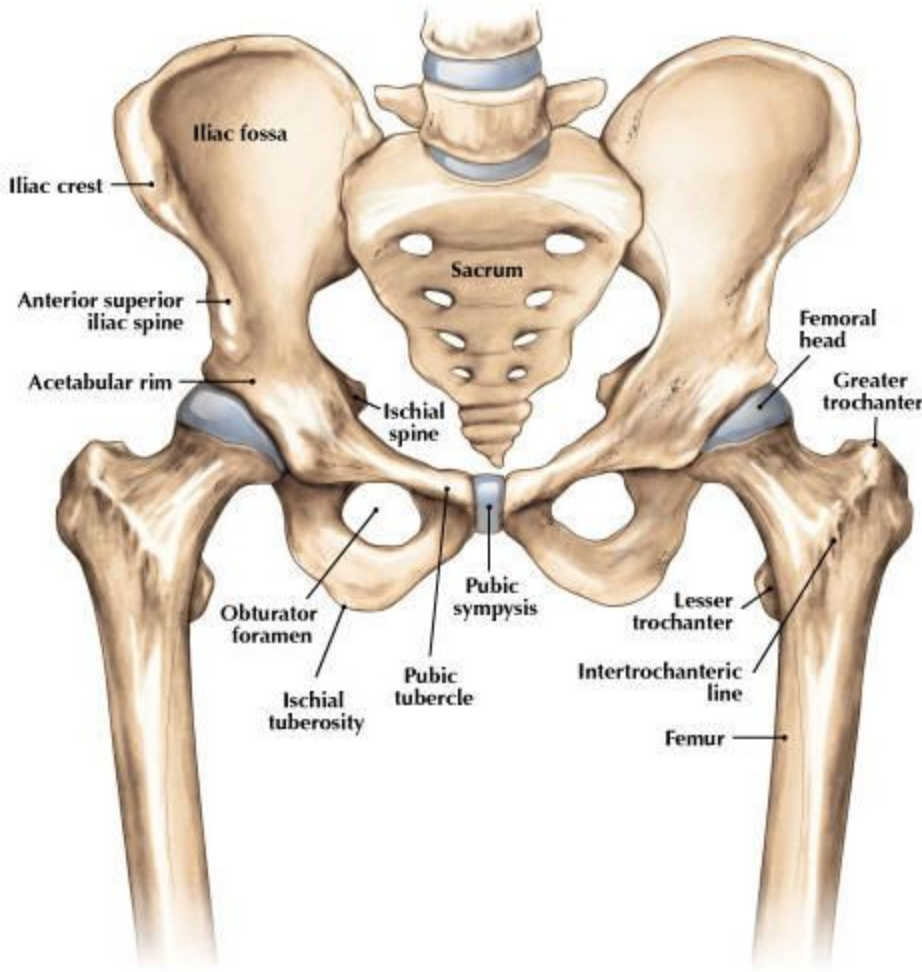
We don't need to do this stretch (and others like it) because we are gaining strength in this position and we are creating more unstable joints!!

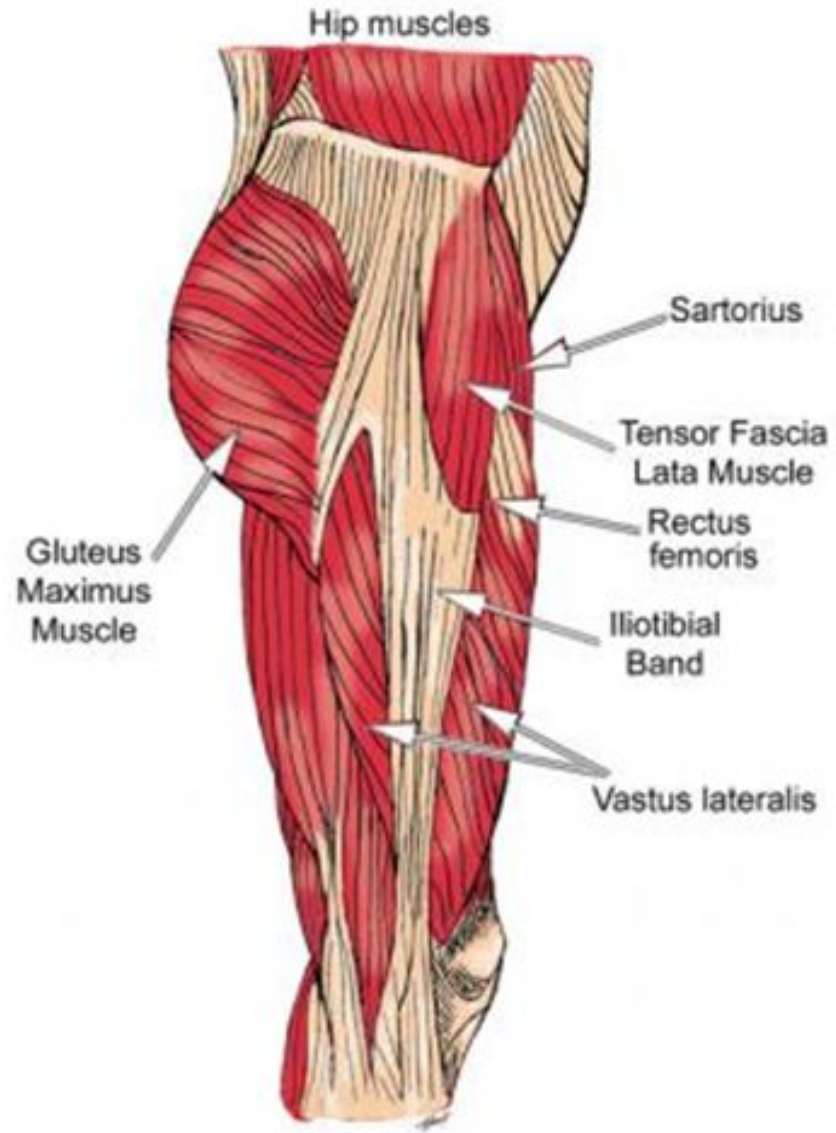


Hip basics

- Joint is more stable than shoulder but has less range of motion due to bigger musculature and natural bony blocks.
- Therefore, needs consistent ROM work because it won't come on its own.

ANATOMY OF THE HIP





So what's the deal with static stretching?

In general, research has shown that it may **negatively impacts performance** when completed before workout and competition

In other words...it may cause performance deficits!
YIKES!

Decreases Muscle Strength
Reduces Power
Impacts Balance
Impacts Reaction
Impacts Sprint Performance

So let's rethink this...

What is our goal?

- Warm-up joints?

 - Use dynamic warm up

- Increase Range of Motion?

 - Can use many forms of stretching including static, PNF and/or mobility work.

Dynamic warm-up

- Requires same, if not less, time as static stretching
- **Prepares body for activity by:**
 - Improving Muscle Temperature
 - Enhancing Nervous System Function
 - Improving Power and Agility
 - Improving Sprinting Performance
 - Improving Vertical Jump

Dynamic Warm-up videos

- Everybody Stand up!
- Perform each position 30 times. Repeat as needed.











Resources

- [Dynamic Warm-up Handout](#)
- <http://www.usaswimming.org/DesktopDefault.aspx?TabId=1920&Alias=Rainbow&Lang=en>
- Perform each of these 30 times.
- Be mindful during the warm-up. Focus on gaining further range of motion with each rep.
- Can be done before and during workout or competition



Lower body dynamic warm-up

KNEE TUCK: WALKING



Stand on balls of feet. Head and chest up. Lift one knee up. Clasp leg, pull to chest. Toe up, foot parallel to ground.

Step forward with raised leg and repeat exercise with the other leg. Continue in the same direction.

Left then right is one repetition. Perform 15 repetitions.

POWER KICK: WALKING



Stand on balls of feet, arms forward shoulder level parallel to ground. Keeping legs straight, kick one leg up to hands. Head and chest up.

Step forward with raised leg and repeat exercise with other leg. Continue in the same direction.

Left then right is one repetition. Perform 15 repetitions.

FORWARD WALKING - TWIST OUT



Forward walking lunge, twist torso away from extended leg.

Left then right is one repetition. Perform 15 repetitions.

SIDWAYS WALK WITH SQUAT



Start in athletic stance. Side step to RIGHT and drop hips. Head and chest up, shin vertical. Lunge foot pointing forward. Lift from hips and back goot to standing position.

Repeat in walking motion in same direction.

Left then right is one repetition. Perform 10 repetitions.



Lower body dynamic warm-up



**Perform 15
reps each, on
each leg**



Need to increase ROM?

- Static stretching is best done in the morning or at night **ON YOUR OWN** and outside of practice/competition.
- Hold these positions for at least 30-60 seconds
- If you are seeing a healthcare professional regarding an injury, you may be prescribed ROM exercises before or after practice/competition. Perform these according to your specific guidelines from your healthcare provider.



What do swimmers need to focus on when static stretching?

Swimmer's Shoulders tend to show shortening in...

- Upper Trapezius/Levator Scapula (think looking down at cell phone all day)
- Pectoralis Major and Minor
- Latissimus Dorsi

Lower body tends to show shortening in...

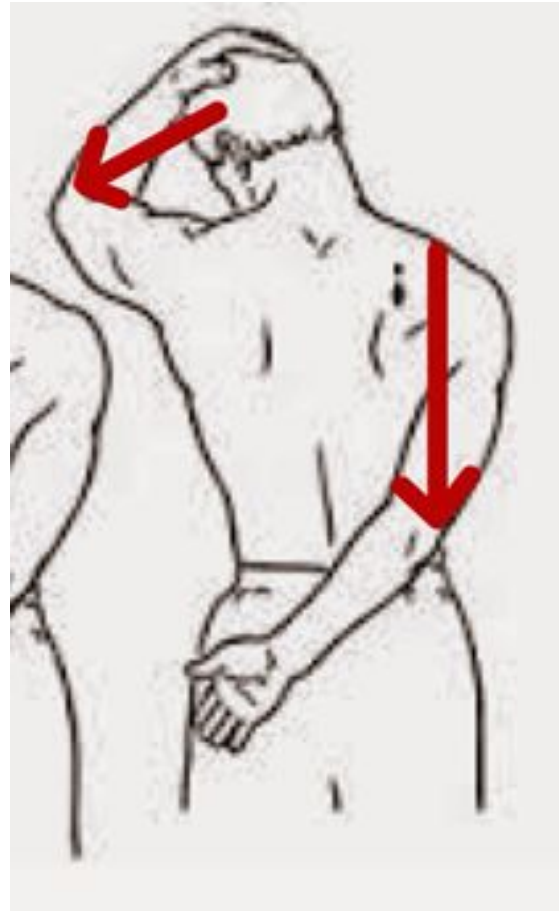
- Hip flexors
- Hamstrings
- Glutes
- Calves

Trunk generally tends to show shortening in...

Thoracic rotators

Remember: Unless you are told by a medical professional, perform these away from activity. Any exceptions are noted in the following slides.

Example of safely stretching levator scapula and upper trapezius



Examples of safely stretching pectoralis group (pecto)



Partner Stretch for Pect group



Corner Pect stretch



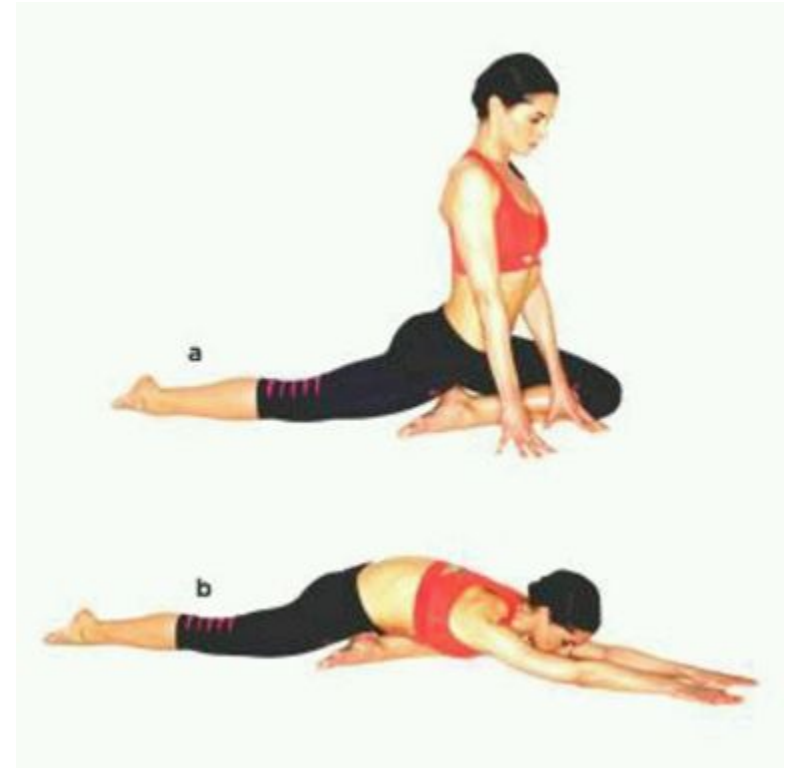
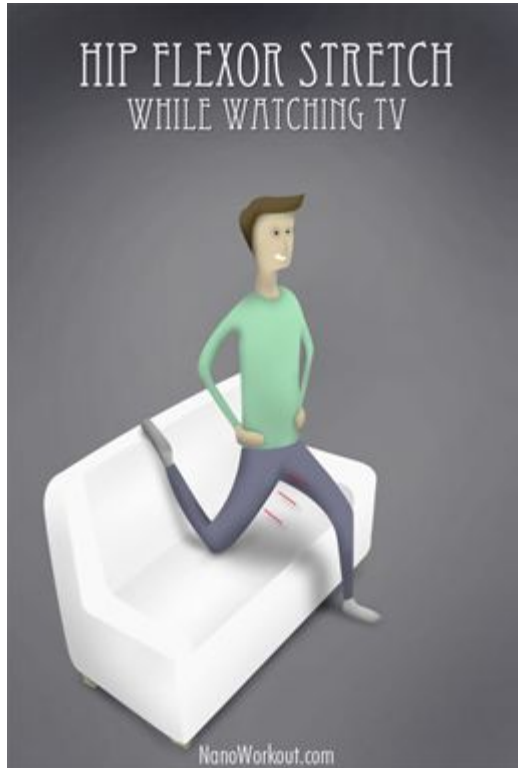
Safest way to stretch pecto and protect shoulder

Examples of safely stretching latissimus dorsi (lats)

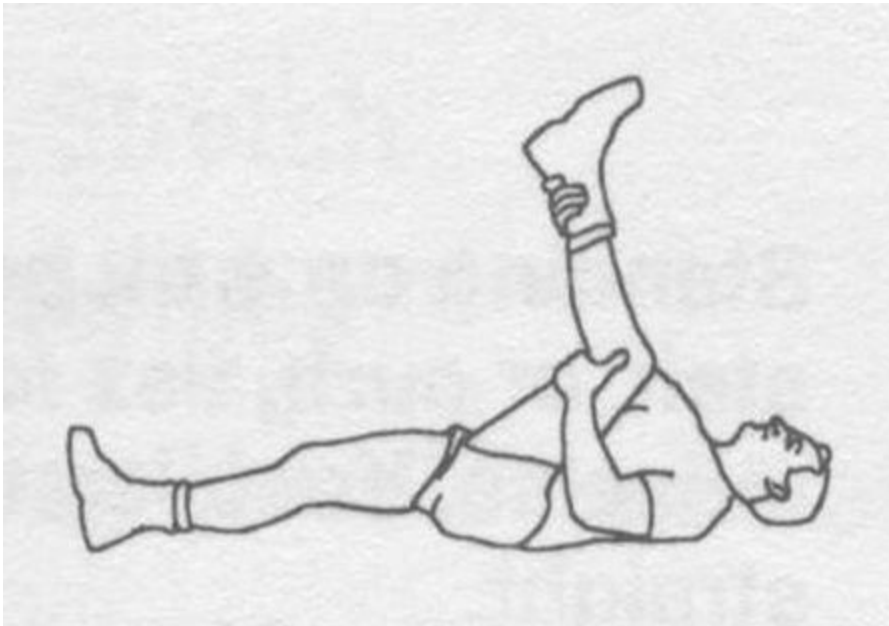


This can be done pre-, during and post-activity

Examples of safely stretching hip flexors



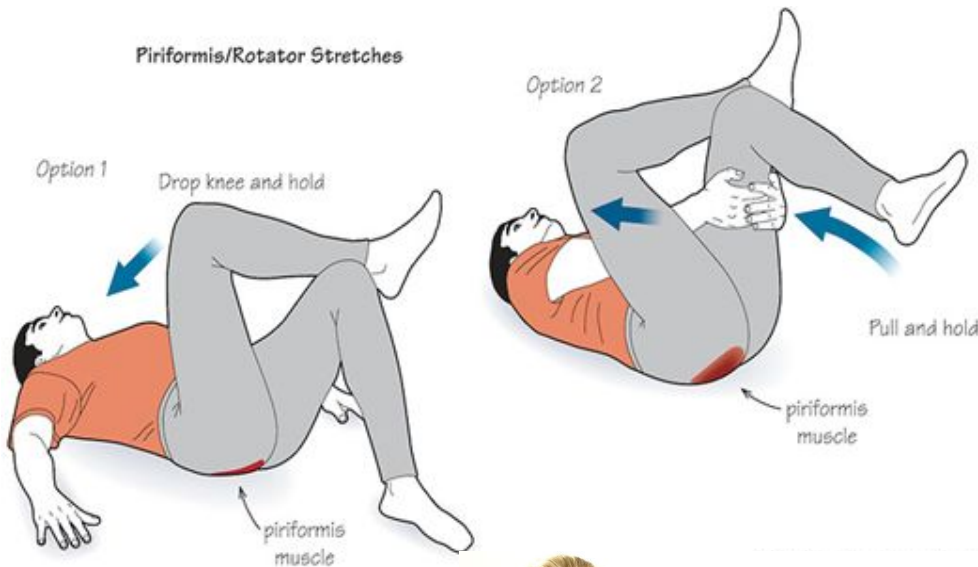
Example of safe hamstring stretch



Veer away from straight leg stretching as much as possible. When you feel a “stretch” behind the knee during a straight leg stretch, you are most likely stretching the sciatic nerve and NOT the hamstring. We don’t want to stretch nerves...

This is a much better partner stretch. If you are with a partner, the one being stretched would benefit from putting both hands under low back to keep hips from tilting and getting a more “pure hamstring” stretch.

Examples of safely stretching glutes



Examples of safely stretching hips, calves and thoracic spine

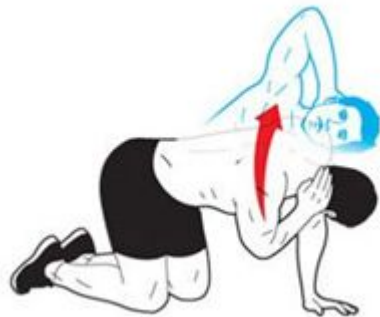


This sit stretch becomes harder as you bring your feet closer together. Sit in this for 1-2 mins/day



Above: This can be done during warm up since this is a dynamic movement. Foam roller can be placed under top knee for comfort.

Left: This one can also be done during dynamic warm up. There should be a 3 sec hold at the top movement and pushing into further rotation.





hip flexors



quads



ITB



hamstrings



adductors



calves



peroneals



tibialis anterior



Take home points

- Swimming does NOT need excessive range of motion to be effective
- Static stretching before activity can negatively effect performance
- When you are getting ready to start a workout: **Use dynamic warm-up, foam roller, mobility work (which we did not cover here)**
- When you are done with your workout: **Foam roller, mobility work (which we did not cover here)**
- When you are wanting to increase Range of Motion on your own time: **Static stretch or mobility work (which we did not cover here)**

Please note: If you have been prescribed stretches, exercises or other warm-up/cool-down workouts by a Doctor, Physical Therapist or Athletic Trainer, please follow their instructions!



Reading further...

A portion of this presentation was used by permission from a presentation by: **George Edelman, DPT, OCS, MTC**
Member, USA Swimming High Performance Network

Find his full presentation and more at these links:

[Static Stretching & Dynamic Warm-up](#)

[Mechanics of Swimming: Treating Swimmers with Painful Shoulders](#)

If you would like to have further instruction at your pool, let us at **Children's Healthcare of Atlanta Sports Medicine** assist you!



Questions?

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