



Dynamic Warm Up and Stretch Routine (Mobility/Activation)

The following exercises are an example protocol from a recent study on dynamic warm ups. We will discuss the study in more detail below, but it appears that moving through each of these patterns for each leg 3-4 times is sufficient to see improvements in flexibility. These stretches are illustrated by OpenSim models. Remember: smooth, consistent, controlled are the key characteristics to proper dynamic stretching.

1. Walking Knee Raises (Knee to Chest)

- Putting your weight into the non-moving leg, lift your knee up towards your chest and grab it with your hands.
- Continue to pull gently until a light stretch is felt.
- This exercise works to improve knee to chest mobility.
- Try your best to keep your pelvis and lower back from moving; focus on moving the femur only.
- This is a glute stretch and should be felt in your butt.



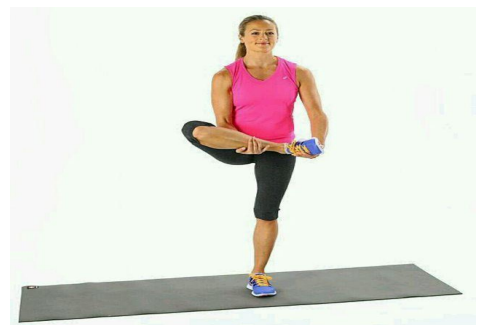
2. Walking Quad Stretch

- Putting your weight into the non-moving leg, bend your knee towards your butt and grab it with your hand.
- Continue to pull gently until a light stretch is felt.
- Try your best to keep your pelvis and lower back from moving, focus on moving the leg only.
- This is a quadricep and hip flexor stretch, it should be felt above the knee or at the front of the hips.



3. Walking Leg Cradle

- Putting your weight into the non-moving leg, lift your knee towards your chest and rotate the foot across the body. Grab the lower leg with your hands.
- Continue to pull gently until a light stretch is felt.
- Try your best to keep your pelvis and lower back from moving, focus on moving the leg only.
- This is a glute stretch and should be felt in your butt.



4. Open-Ended Hip Skips (Hip Openers)

- Putting your weight into the non-moving leg, lift your knee towards your chest and when it's at 90 degrees, rotate the knee outward. Then bring the leg back to the ground.
- This exercise is called "Hip Openers" because the hip is being 'opened' during the stretch.
- There should be no 'stretch' here. The goal is to engage a variety of hip muscles to warm them up and engage them before further exercise.
- Try your best to keep your pelvis and lower back from moving, focus on moving the leg only.
- This exercise uses a variety of muscles from the hip flexors to the glute med and is a great way to get the hips loose.



5. High Knees

- While running in place, lift your knee towards your chest. Return the leg to the ground and continue with the other leg.
- This exercise engages the hip flexors and improves hip mobility.
- Emphasize keeping the pelvis and torso neutral.



6. Butt Kicks

- While running in place, bend your knee towards your butt. Return the leg to the ground and continue with the other leg.
- This exercise engages the hamstrings and warms them up for further exercise.
- Emphasize keeping the pelvis and torso neutral.



7. High Knee Skips (Power Skips)

- While pushing off with one leg, lift the opposite leg's knee towards your chest. After returning to the ground, continue with the other leg.
- This exercise engages the entire lower body and prepares it for further exercise.
- Emphasize keeping the pelvis and torso neutral.



8. Karaoke

- Cross your right foot over and in front of your left foot with your arms out to your sides.
- Step open and out to the side with your left foot.
- Cross your right foot behind your left foot.
- Continue moving laterally then repeat the movement in the opposite direction.



9. Arm Circles (Forward and Backward)

- Stand straight with your feet shoulder-width apart.
- Raise and extend your arms to the sides without bending the elbows.
- Slowly rotate your arms forward, making small circles of about 1 foot in diameter.
- Complete a set in one direction and then switch, rotating backward.



10. Diagonal Arm Swings (Both Directions)

- Stand tall, feet hip width apart. Put arms straight out in front of you.
- Using your hips/core, swing your right arm up and behind your right shoulder; allow left arm to fold across chest, parallel to the ground.
- Then swing both arms all the way to the left, left arm staying parallel, but chopping right arm down so right wrist is at the left hip.
- Get up on the balls of your feet so your feet can rotate as you go side to side.

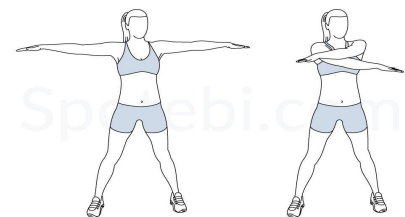


Figure E: On-Deck Active Warmup (Dynamic Arm Movement)

1. Horizontal Rotations
2. Chicken Wings
3. Goal Posts
4. Vertical Rotations
5. Streamlines

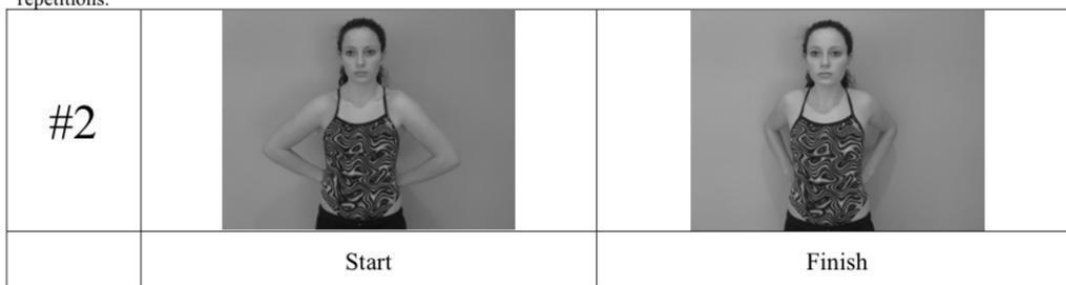
Figure E: On-Deck Active Warm-Up

Complete 2 sets of 15 for each activity

Active Warm-Up #1 – Place your arms by your side, bend your elbows to 90° to assume the start position. Externally rotate your arms to the end range at a comfortable pace and then return to the starting position. As you externally rotate, pinch your shoulder blades together. Do not force the end range. Complete 2 sets of 15 repetitions.



Active Warm-Up #2 – Place the back of your hands on your back at the belt line and bring your elbows forward to assume the start position. Squeeze your elbows and shoulder blades together and then return to the start position. Complete 2 sets of 15 repetitions.



Active Warm-up #3 – Forward elevate your arms to 90° and then bend your elbows to 90° to assume the starting position. Horizontally abduct your arms to a “goal post” position, squeezing your shoulder blades together at the same time. Then return to the starting position. Complete 2 sets of 15 repetitions.





On-Deck Active Warm-Up – Con’t




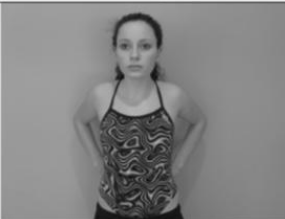
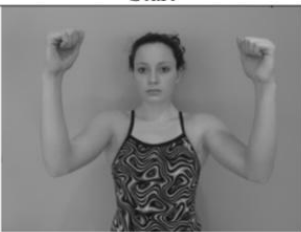





Active Warm-up #4 – Abduct your arms to 90° and bend your elbows to 90° to assume the starting position. Then externally rotate your shoulders to achieve the “goal post” position. Return to the starting position. Complete 2 sets of 15 repetitions.

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|----|---|--|--|--|
| #4 |  | |  | |
| | Start | | Finish | |

Active Warm-up #5 – Assume a tight streamline for the start position. Drop your elbows into your “back pockets”, while squeezing your shoulder blades together and keeping your hands up. Return to the streamline position and complete 2 sets of 15 repetitions.

| | | | | |
|----|--|--|---|--|
| #5 |  | |  | |
| | Start | | Finish | |

On-Deck Active Warm-Up Complete 2 sets of 15 for each activity

| | | |
|----|---|--|
| #1 |  |  |
| | | |
| #2 |  |  |
| | | |
| #3 |  |  |
| | | |
| #4 |  |  |
| | | |
| #5 |  |  |
| | | |

Swimming stretch cord exercises (Mobility/Activation)

1. **Stretch cords (Joint focus)**
2. **Pull motion and alignment focus (Hip, shoulders, elbows)**
 - o Shoulder Stretching
 - o **Chest press**
 - o **Double arm row**
 - o **Double arm pull**
 - o **Chest fly**
 - o **Back fly**
 - o Leg/Hip Rotation

References:

- <https://www.hammondswimming.com/the-definitive-guide-to-dynamic-warm-up-exercises/>
- <https://cdn.filestackcontent.com/iYYXvGRjRmmz10Dw4OQI?policy=eyJleHBpcnkjOjE2MjA0NDYwMTAsImNhbGwiOiJyZWFKliwiaGFuZGxlljoiaVIZWHZHUmSbW16MTBEdzRPUWwifQ==&signature=ac1e3864577dd3f1d9d01291dc91fe2b875a9ff75b21d22b60917e8085c50e>
- <https://www.skimble.com/exercises/50611-diagonal-arm-swings---right-how-to-do-exercise>
- Stretch Cords: <https://www.eatsleepswimcoach.com/swim-stretch-cords/>