

# Static vs Dynamic Warm-Up

## Move Well Physiotherapy



## WHAT IS A WARM-UP?

A warm-up generally consists of a GRADUAL increase in intensity in physical activity, joint mobility exercise and stretching followed by the activity. The warm-up should be a combination of light rhythmic exercise and stretches which begins to raise the heart rate and muscular temperature of an athlete. An adequate warm-up will help reduce the risk of injury

## BENEFITS OF WARM-UP

- Faster, more forceful muscular contractions
- Improved muscle control
- Improved joint ROM
- Leads to efficient calorie burning by increasing your core body temperature
- Psychologically prepare you for higher exercise intensities by gradually preparing the body and mind

## Mechanics of Warm-up

### 1. Metabolic Related

- Increases baseline O<sub>2</sub> Consumption

### 2. Heat Related

- Decreases resistance of muscles and joints
- Faster contraction & relaxation
- Improves economy

### 3. Cognitive & Psychological

- Feel “more ready”
- May act as a pre-match routine

# WHAT TYPE OF STRETCHING SHOULD YOU PERFORM?

**Static stretching** as part of warm-up prior to exercise has been shown detrimental to dynamometer-measured muscle strength and performance in running and jumping. The loss of strength resulting from acute static stretching has been termed “stretch-induced strength loss.” Therefore, stretching programs may need to be individualized. In general, it appears that static stretching is most beneficial for athletes requiring flexibility for their sports (e.g., gymnastic, dance, etc.).

**Dynamic stretching** may be better suited for athletes requiring running or jumping performance during their sport such as hockey players or sprinters. (ACSM Introduction To Exercise Science, American College of Sports Medicine September 2013)

## DIFFERENT TYPES OF STRETCHING

- Static (improves flexibility but does not prevent injury)
  - o A slow extension to a hold.
    - E.g., progressive stretch for 20-30 seconds.
- Dynamic (most beneficial effects)
  - o Moving different parts of the body gradually with control, and progressively increasing movement range with repetition.
    - E.g., walking lunges, high knees
- Ballistic (ineffective for muscular relaxation)
  - o Uses the momentum of the moving body in an attempt to force it beyond its normal ROM.
    - E.g., bouncing, jumping
    - Lower back / Hamstrings – Stand upright with legs straight, bend over and repeatedly reach down and relax.
- Proprioceptive Neuromuscular Facilitation (PNF)
  - o Contract – relax.
    - E.g., hamstring stretching
    - Passive stretch held for ~10 sec, isometric contraction stretched for ~5 sec, passive stretch held ~30 sec.
  - o Contract – relax, agonist contraction
    - E.g., same initial phase as above, following isometric hold, individual actively moves the joint to a new stretched position.

# Move Well Physiotherapy Warm up guide

Exercise drill and Description	Picture
<p><b>1. Ladder drills:</b></p> <p>Sets up a ladder on an even surface (Ideally grass) perform high knees, butt kicks through the ladder.</p> <p>For High knees; stand up straight. Quickly drive your right knee up to meet your left hand and visa-versa on the other side.</p> <p>For Butt Kicks; stand with your legs shoulder-width apart. Flex your right heel up towards your glutes as soon as you right foot touches the ground you lift your left foot up towards your glutes.</p> <p>Repeat 4 times each</p>	
<p><b>2. Side Shuffle:</b></p> <p>The side shuffle increased coordination while increasing hip and ankle mobility. The exercise also improves cardiovascular endurance and stamina. Set up two cones about 10m apart. Stand with your feet a little wider than hip-width apart, bend your hips and knees back and point your toes forward. Take quick steps to the left until you reach the cone and then perform the same exercise to the right. Repeat 4 times.</p>	
<p><b>3. Open and Close the gate:</b></p> <p>Stand on your left leg while you lift your right leg up. Raise your right knee to hip level, turn it out and open away from your body- you will feel a stretch in your groin. Bring your right knee back in towards your midline and repeat the same action with your left leg.</p>	

#### 4. Grapevine:

Stand with your feet shoulder width apart, step your right foot out and pick your left foot up and step behind your right foot so that your right foot is in front of your left foot. Step with your right foot to the right again, uncrossing the stance. Perform this until you get to the cone and repeat it on the other side. Repeat 4 times each side



#### 5. Diagonal Side Touches:

Start at the cone and then step diagonally with your right foot and touch the ground with your right hand and then do the same on the left hand side. Repeat this 4 times



#### 6. High Knees:

Stand up straight. Quickly drive your right knee up to meet your left hand and visa-versa on the other side. Repeat this 4 times



## DYNAMIC STRETCHES

### 1. Dynamic Squats

Stand with your feet shoulder width apart, keep your back straight, chest up and push your hips backward into a squat position. Hold this for 2 seconds and then jog and then face the other way and perform another squat until you get to the cone. Repeat 4 times each



### 2. Dynamic Lunges:

Keep your body straight, with your shoulders back and relaxed and chin up. Step forward with one leg, lowering your hips until both knees are bent at 90-degree angle. Hold this position for 2 seconds then jog for a couple of steps then perform this with your other leg. Repeat this 4 times on each side



### 3. Dynamic Calf stretch:

Start down on all fours; raise the hips up in the air so the body forms an upside-down "V". Lift one foot off of the ground at a time and very gently, lower the heel of the planted foot down as close to the ground as possible and then push up off your toes. Once you have completed 10 'pumps' stand up and run through to the cone. Repeat 4 times.



### 4. Dynamic Hamstring stretch:

This exercise is also known as 'shoo the chickens' you stand and step out with your right leg and lift your toes up off the ground, lean your torso forward and bring your arms forward as you 'shoo the chickens' you will feel your hamstrings stretch then take a couple of steps forward and perform the same exercise with your left leg.



# MOVE WELL PHYSIOTHERAPY STRETCHING GUIDE

Stretching elongates your muscles, increasing your flexibility. Increased flexibility gives you a wider range of motion between your joints. It's important to hold the stretches for the right amount of time as holding them for too short a period defeats the purpose and holding them too long increases your chance of injury. Stretching falls into 7 main categories: static, dynamic, active, passive, isometric, ballistic and proprioceptive neuromuscular facilitation. Static, passive and isometric stretching all involve non-movement during the stretch.

Hold each stretch for 30 seconds; you should perform each stretch 2-3 times per week.

<b>Type of stretch and description</b>	<b>Picture</b>
<p><b>1. Calves and Achilles:</b> Tight muscles and tendons will reduce your ROM. Start this stretch by going on all fours and gently drop your heel so that it is just touching the ground hold this stretch for 30 seconds. To add weight to your stretch you can rest your one leg on top of the other one. Repeat on the other leg.</p>	
<p><b>2. Hamstring stretch</b> Sit on the ground; fold 1 leg with the other straight. Reaching for your toes of the straight leg feel the hamstring stretch as tension is applied by reaching further. This should be held for 30 seconds before switching legs.</p>	
<p><b>3. Hip flexor stretch</b> In the half kneeling position, reach the up with the arm of the kneeling side. Shift weight forward and backward slightly until the stretch is felt in the hip flexor. Hold for 30 seconds before switching sides.</p>	
<p><b>4. Sitting Glute stretch</b> Lying face down bring one leg up under the chest, the stretch can be further intensified by bring the foot across the body until the knee nears a 90 degree angle. Lean further forward with the body the increase the stretch. Hold for 30 seconds before switching sides.</p>	

### 5. Kneeling groin stretch

In a half kneeling position bring the forward leg out the side of the body with the knee straight. Intensify the stretch of the groin by gently rocking forward and backward with the hips. Hold stretch for 30 seconds before switching sides.



### 6. Lying cat stretch

Lying face down bring the hands back to a push up position. Pushing up while allowing the back to arch, feel the stretch through the abdomen. Hold this stretch for 30 seconds.



### 7. Standing Deltoid stretch

Bring the arm across the body; pull the outstretched arm back at the elbow with the opposite arm to intensify the stretch. Hold the stretch for 30 seconds before switching sides.



### 8. Latissimus Dorsi stretch

Reach up above the head then down the back. With the opposite arm, pull the elbow downwards to further intensify the stretch. Hold for 30 seconds before switching sides.



### 9. Chest stretch

Supporting your hand against a fixed structure, move the body past the hand so that the chest is under tension. Intensify the stretch by further leaning past the arm. Hold for 30 seconds before switching sides.

