

Warm-up and Stretching

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Most Ultimate players understand that warming up before exercise is important and this has been confirmed in numerous research studies. Warming up prepares you mentally and physically for the game. In the past there was a strong focus on stretching, but that mindset has changed somewhat. Over the past twenty years there have been mixed reviews and research regarding the benefits of stretching muscles.

First, it is important to understand the following terms used in this article:

Warm-up – the sequence of activities you do prior to full speed game play, scrimmage or practice.

Static stretching – traditional stretching exercises that put tension on muscles in a lengthened position and are held statically (not moving) for 30-60 seconds.

Dynamic stretching – movements that take joints (and therefore muscles) through the full range of motion and are not held but performed in a controlled manner, gradually progressing in speed and intensity until optimal force can be generated without injury.

Plyometrics – exercises that focus on improving balance and muscles strength (Note: “Plyos” should never be done without a proper warm-up!)

The following describes an optimal warm-up for Ultimate:

Jog/run until sweating

Dynamic stretching (5-10 minutes)

Plyos (do not do on tournament day) (5-10 minutes)

Exercises that simulate your game, increasing in intensity (5-10 minutes)

The focus of warming up should be to gradually increase your heart rate and circulation to deliver oxygen to muscles, to increase core body temperature, and to prepare your joints and muscles for participation in your sport.

Traditionally, static stretching has been an integral part of warm-up routines. However, recent studies and reviews in sports medicine research have suggested that static stretching before exercise does not prevent injury and does not improve performance. Due to insufficient and conflicting data it is unclear at this time whether static stretching decreases performance. If you enjoy static stretching and would like to continue using it in your warm-up, it most likely will not hurt your performance unless you are stretching excessively (more than a minute per muscle).

Dynamic stretching is the most important part of warming up because it prepares your joints and muscles for the movements required in your sport while increasing heart rate, circulation, and core body temperature. In Ultimate, dynamic stretching means preparing your body for just about everything including lunging, bending, reaching, jumping, landing, running, twisting, pivoting, and shuffling.

Rules for Dynamic Exercises

- 1) Always warm-up with jogging or running before dynamic stretching.
- 2) Start with smaller movements, progressing to bigger movements.
- 3) Start with lower intensity, progressing to higher intensity.
- 4) Start with slower speeds, progressing to more rapid speeds.
- 5) Do not push to strain the muscles.

The following is an example dynamic stretching routine adapted from the Santa Monica ACL Tear Prevention Program (PEP Program) and modified for Ultimate by Dr. Jamie Nuwer MD. A video of this warm-up along with more information can be found at our website injurytimeout.org

DYNAMIC STRETCHING

Exercise	Form tips	Muscle groups stretched
Heel to toe raise	Rise up on toe	Calves
Heel walk		Shins
High knees (Forward, Backward)	Drive knees up	Hamstrings
Butt kicks (F, B)	Heel to butt	Quads
Slides (F, B)	Butt low	Groin and Hips
Special lunges	Pull leg up to chest then step out into a lunge. Twist to both sides fully. Lastly, reach back far enough to feel it in your hip flexor (make sure you lean to the same side as your front leg)	Butt, lower back, abs, hip flexor, upper back, lats
If you are <i>not</i> doing plyos, i.e. at a tournament, then add these:		
Grapevine (F, B)	Fast feet	Full body
High jumps (F, B)	3 step and explode, land on 2 feet with correct form	Full body

PLYOMETRICS (skip these on tournament day)

Balancing

Exercise	Form tips	Muscle groups worked
2 x 20 Lunges (10 forward, 10 backward)	Align knee with ankle (no wobbling or caving), must be able to see your toes in front (never less than 90 degree angle)	Quads (F), Hamstrings (B)
2 x 10 Kickbacks each leg	Stationary leg is slightly bent with good hips-knee-ankle alignment (no wobbling or caving), Kick straight back as high as you can, use your arms to balance	Hamstrings
2 x 30 Calf raises each leg	Slowly rise up with good hips-knee-ankle alignment	Calves

Jumping

For all of these emphasize a soft landing where you land on the ball of your foot with knees slightly bent and roll back to your heel. NEVER snap your knees straight. Emphasize good hips-knee-ankle alignment (no wobbling or caving).

Exercise	Form tips	Muscle groups worked
20 lateral hops	Focus on landing (not speed or height)	Legs and core
20 F,B hops F = Forward B= Backward	Focus on landing (not speed or height)	Legs and core
20 single leg F,B hops	Focus on landing and alignment (not speed or height) – extra careful not to snap knee back to straight	Legs and core
20 scissor jumps	Focus on landing and alignment: align knee with ankle (no wobbling or caving), must be able to see your toes in front (never less than 90 degree angle)	Legs and core

Running

Exercise	Form tips	Skill worked
Shuttle runs for 60 s – forward and backward 2.5 yards at the cones set up	Fast feet, short steps, just tap lines with one leg and push off with other leg	Agility – forward to backward
Diagonals – 3 times through each, work on form, NOT speed	Sprint facing cone and at last step turn sideways to prepare for the turn, accelerate hard off the turn, just tap lines with one leg and push off with other leg, maintain good hip-knee-ankle alignment (no caving or wobbling)	Agility - diagonal
Bounding 40 yards x 2	Drive knee up. Focus on landing and alignment.	Sprinting form – “pistons”

When to Use Static Stretching

After a workout is the ideal time to use static stretching. You can increase your flexibility and help your muscles relax after an intense workout. Stretching also increases your awareness of your muscles and joints. For example, if a muscle on the left doesn't feel the same as the muscle on the right when you stretch it, something may be tight. Stretching can also make you aware of an injury needing treatment. Unfortunately, there is no conclusive evidence indicating that stretching decreases post-exercise soreness.

Rules for Static Stretching

- 1) Static stretching is best done after exercise, or on your off-days after a brief warm-up.
- 2) Stretching should be done without need to maintain balance. Hold onto a chair or bench or sit on the floor.
- 3) Ease into the stretch slowly and with control. Do not bounce.
- 4) Breathe deeply and exhale to relax into the stretch.

5) Hold each stretch for 30 seconds. Relax 10 seconds. Repeat 1-3 times per muscle.

Check your Flexibility

A general rule of thumb is not to stretch anything unless it feels tight. A couple simple tests can tell you whether you need to stretch or not.

Can you bend over, knees straight, and touch your toes easily? If not, stretch your hamstrings and lower back.

Can you touch your fingertips behind your back with one arm overhead and one arm behind your back? If not, stretch your shoulders and back muscles.

Can you touch your knee to the wall, keeping your heel on the ground, with your toes starting 3 inches away from the wall? If not, stretch your calves.

Can you bend your trunk sideways such that your fingertips, sliding down your leg, go past your knee? If not, work on improving your trunk flexibility with side bends and twists.

Can you lie on your stomach, bend your knee, thighs parallel, and reach your heel to your buttock easily using your hand to hold your ankle? If not, stretch your quadriceps and hip flexors.

Example set

Hamstrings - standing, foot on low sturdy object, knee straight, stick chest out and lean forward

Hip flexors – Kneel in exaggerated lunge, tuck pelvis, and press hips forward over thigh

Gluteal/piriformis – Lie on your back, bend and hold knee and above ankle, pull both toward opposite shoulder

Quads – Lie on your side, grab upper leg above ankle, extend thigh at least flush with trunk, tighten abs, bend knee bringing heel to buttock

Calves – Stand in wide stride stance, one foot forward one back, feet pointed straight ahead, back knee straight, forward knee slightly bent, and shift weight into back heel while lunging forward.

Side bends – Cross arms over chest and bend to the side as far as possible

Twists – Sit on floor, bend one knee up and rotate trunk in same direction using shoulder to twist further

Shoulders- Find a friend or a tree and put your hand on their shoulder (or body at your shoulder height) and turn your trunk away from your arm (Stretching pecs)

Neck rolls – Over 20 seconds Roller your chin from 3 o'clock to 9 o'clock, pretending your face is a clock

References:

For more information and past articles go to injurytimeout.org

Rubini EC, Costa ALL, Gomes PSC. The Effects of Stretching on Strength Performance. Sports Med 2007;37(3):213-224

Ryan ED, Beck TW, Herda TJ, Hull HR, Hartman MJ, Stout JR, Cramer JT. Do Practical Durations of Stretching Alter Muscle Strength? A Dose-Response Study. Med Sci Sports Exerc. 2008 Aug;40(8):1529-37.

Santa Monica ACL Tear Prevention Program (PEP Program)
<http://www.aclprevent.com/aclprevention.htm>