

Stretching and Flexibility: Dispelling myths

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When it comes to flexibility and stretching people have mixed feelings. Most athletes endure stretching if they have to and very few see it as a necessity. A phrase we often hear at physio when we encourage people to stretch is “I’ve never been a very flexible person”. These people seem to think that flexibility is set in stone and if you have never been flexible you never will be. Flexibility just like strength and fitness can change and definitely improve at any stage in life. We just have to spend some time doing it and doing it right.

Why Stretch?

Hyper and hypomobility (too much or too little range) puts the athlete at risk. Hypermobility for joint and ligament injuries while hypomobility can predispose the athlete to muscular or tendinous injuries. It can also affect performance. Decreased range can lead to faults in technique and reduced accuracy. Increased range without sufficient control may lead to fatigue and clumsy movement. Because of the repetitive nature of training- we repeat the same actions and drills to become better at our sport- certain muscles are used more than others and tend to tighten. If we want to excel at our specific sport we have to allow this to happen. But without proper stretching and recovery we could reach a tipping point where the muscle shortening affects our performance negatively or injury occurs.

What is ideal flexibility?

Flexibility is used as a synonym for range of movement around a joint or series of joints. It is the size and ease of our movement patterns. It has a passive and active component. Passively it includes the myofascial system, the joints and joint capsule, tendons, bursae, skin and neural structures. Actively it includes all the above as well as an intact nervous system. Good passive flexibility is a prerequisite for good active flexibility but just being bendy (good passive flexibility) does not ensure good movement (good dynamic flexibility). Ideal flexibility is where the range of movement meets the demands of the sport and where there is sufficient control over the range.

Age and Flexibility

Contrary to popular believe aging is not equal to stiffness. Decreased mobility is mostly due to decreased activity levels as we grow older and adopt a more sedentary lifestyle. If you don't get down on a mat and sit cross legged regularly eventually it will be hard to do so. If you don't use it you lose it!

The more we use certain muscles, the shorter they become over time. If you have been running road races and marathons for the past 20 years without stretching, your muscle will be a lot tighter than when you started out. You have repetitively use them in a specific way and they have shortened in that range.

Other factors that definitely impact our individual potential for flexibility are previous injury and our posture and build. Some people are born hypermobile meaning that their joints can naturally move more than the norm. These people don't need to stretch a lot and also struggle to feel stretches. They generally lack stability and would have to work more on strength and core stability.



Beighton Hypermobility Test		
Can your pinkies bend backwards 90 degrees?	One point for each one that can	/2
Can you touch your thumb to the inside of your forearm?	One point for each	/2
Can you hyperextend your elbows?	One point for each	/2
Can you hyperextend your knees?	One point for each	/2
Can you touch the floor with straight legs with palms flat?	One point	/1
Total Score		/9

The higher you score the more hypermobile you are. A score as low as three can be considered hypermobile.

Relative flexibility

Another very important factor to consider when stretching is the principle of relative flexibility. Relative Flexibility means that stiffness in one muscle group or joint will cause compensatory movement at adjoining joints that are controlled by muscles and soft tissue that exhibit less stiffness.

Easier said: To achieve a certain range or functional requirement an individual will rely on available movement and your body won't demand movement from tight or resistant structures. Your body chooses the route of least resistance. If you pull on a rope with a knot in it, the rope will stretch on either side of the knot eventually long before the knot or tight area. Stretching has to be done very precisely to challenge the tight muscles. If you don't feel it stretching at the correct muscle, you probably aren't stretching that muscle. If you feel it at a different place or at a joint, change, adjust or stop. For example it is not ok to feel pain in your knee while stretching your piriformis.



Types of stretching

Stretching can roughly be divided into Active stretching-where movement happens, and Passive stretching where the muscle is held in a position for a designated period of time.

All stretches are the same in that a person purposefully attempts to increase range of movement by applying a longitudinal force to the muscle. Stretching allows lengthening to happen in a muscle through the following properties. **Creep** describes the ability of tissue to elongate over time if a constant load is applied to it. **Load relaxation** describes how less force is needed to maintain a tissue at a set length over time. **Hysteresis** describes how much lengthening or deformation will be maintained after a cycle of stretch. So less force is needed to maintain length than to achieve length. After initial resistance it will become easier to stretch.



Active Stretching

Active or dynamic stretches describe stretches where movement happens. This should however never be done without control or with using momentum. This is ballistic stretching and can cause injury. Ballistic stretching triggers the stretch reflex in our muscle spindle. This is a protective contraction in response to a rapid stretch. The contraction prevents the muscles ability to lengthen and injury can occur.

Dynamic stretches is used to maintain range of movement and not to increase it. It doesn't decrease power or torque and can form part of our warm up routine. These stretches should have a high carry over to the sport. It should look like parts of functional movement.



Passive stretching

Passive stretches are our traditional long hold stretches. These stretches can decrease force and torque and should only be done after training or competing. They do not improve performance but aid in recovery and injury prevention. Passive stretches are used to increase range of movement. Literature suggests 30 seconds of stretching, however if you are very resistant to stretch or if the muscle is particularly tight you can increase this hold. Please also remember to stretch according to your body's needs. If your one hamstring is tighter stretch it longer or more regularly than the more flexible hamstring. Hold the position precisely and avoid any pain. These stretches can lead to short term joint instability if done incorrectly.



Enhancing my stretching routine

Stretching can be improved by using neuromuscular reflexes.

- **Contract relax:** This technique uses the Golgi tendon organ to increase length. After maximal contraction, maximal relaxation occurs. Position the muscle in a position of stretch, contract the stretched muscle for a few seconds gradually increasing in force and then allow relaxation and lengthening to occur.
- **Reciprocal Inhibition:** A technique triggering the muscle spindle reflex. It uses a natural occurring phenomenon in our body to stretch. When you straighten your knee, your quadricep works and the opposite muscle the hamstring, relaxes to allow this movement to happen. While the specific muscle is in a position of stretch, contract the opposite muscle and then move further into stretch. So to improve the hamstring stretch, contract the quadricep to use the natural reflexes of your body to stretch further.

Yoga and Pilates are fantastic ways to increase range of movement because they strengthen at the same time and maintain the new range much easier. Assisted stretch is also very helpful where someone can help align the body while stretching and prevent relative flexibility compensations.

In Conclusion:

Use dynamic stretches as a part of your warm up to prepare your body and to maintain range of movement. Use static stretches after training and competing to recover and increase range to meet the demands of your sport and life. Always stretch precisely and do not stretch into pain.

Stretching correctly will give you freedom of movement and protect your joints and body from wear and tear caused by not moving them through full range. Stretching helps combat the effects of our modern sedentary lifestyle. Don't blame your lack of movement on age or your supposed inherent tightness. Stretching works at any age and on anyone if done correctly.



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General sports physiotherapy practice which also offer:

Biomechanical Analysis

- Functional movement analysis to identify :
muscle length- and strength imbalances
movement impairments
areas at risk for injury
- Correction of the above and injury prevention
- Stretching programmes
- Strengthening programmes
- Identification of incorrect muscle recruitment patterns with correction

Massage

Includes sports, pre-event, recovery & pregnancy
Massage therapist also available

Individual and group Pilates classes

Rehabilitation which improves:

- Posture
- Strengthens stabilisers
- Flexibility
- Circulation
- Skill-based conditioning

Spinal alignment, postural correction and Leno Method

