

Flexibility 101

Learn basic techniques to improve your flexibility to decrease your pain.

Flexibility is the range of motion in a joint or series of joints and the lengthening of muscles through those joints.

Types of Flexibility

1. **dynamic flexibility**

Dynamic flexibility is the ability to perform dynamic movements of the muscles to bring a limb through its full range of motion in the joints.

2. **static-active flexibility**

Static-active flexibility is the ability to assume and maintain extended positions using only the tension of the agonists and synergists while the antagonists are being stretched. For example, lifting the leg and keeping it high without any external support (other than from your own leg muscles).

3. **static-passive flexibility**

Static-passive flexibility is the ability to assume extended positions and then maintain them using only your weight, the support of your limbs, or some other apparatus (such as a chair or a bar). Note that the ability to maintain the position does not come solely from your muscles, as it does with static-active flexibility. Being able to perform the splits is an example of static-passive flexibility.

Benefits of Flexibility

- **Improved Performance, Decreased Injury Risk**

A safe and effective flexibility training program increases physical performance. A flexible joint greatly decreases your risk of injury--it has the ability to move through a greater range of motion and requires less energy to do so. Stretching decreases resistance in tissue structures; you are, therefore, less likely to become injured by exceeding tissue extensibility (maximum range of tissues) during activity.

- **Reduced Muscle Soreness**

Recent studies show that slow, static stretching helps reduce muscle soreness after exercise. Static stretching involves a slow, gradual and controlled stretch of the muscle through the full range of motion, held for 15-30 seconds, in the furthest comfortable position (without pain).

- **Improved Posture**

Stretching also improves muscular balance and posture. Many people's soft-tissue structures have adapted poorly to either the effects of gravity or poor postural habits. Stretching can help realign soft tissue structures, thus reducing the effort it takes to achieve and maintain good posture in the activities of daily living.

- **Reduced Risk of Low Back Pain**

Stretching reduces the risk of low back pain by promoting muscular relaxation. A muscle in constant contraction requires more energy to accomplish activities. Flexibility in the hamstrings, hip flexors, quadriceps, and other muscles attaching to the pelvis reduces stress to the low back. Stretching causes muscular relaxation, which results in reduction of accumulated toxins, less muscle shortening or tightening, and less fatigue.

- **Increased Blood and Nutrients to Tissues**

Another great benefit: stretching increases blood supply and nutrients to joint structures. Stretching increases tissue temperature, which in turn increases circulation and nutrient transport. This allows greater elasticity of surrounding tissues and increases performance. Stretching also increases joint synovial fluid, which is a lubricating fluid that promotes the transport of more nutrients to the joints' articular cartilage. This allows a greater range of motion and reduces joint degeneration.

- **Improved Muscle Coordination**

Another little-known benefit of stretching is increased neuromuscular coordination. Studies show that nerve-impulse velocity (the time it takes an impulse to travel to the brain and back) is improved with stretching. This helps opposing muscle groups work in a more synergistic, coordinated fashion.

- **Enhanced Enjoyment of Physical Activities**

Flexibility training also means enhanced enjoyment--a fitness program should be fun if you want to stick with it. Not only does stretching decrease muscle soreness and increase performance, it also helps relax both mind and body, bringing a heightened sense of well-being and personal gratification during exercise.

Things that affect Flexibility:

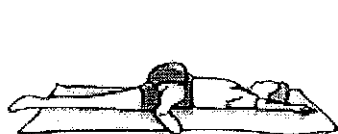
- the type of joint (some joints simply aren't meant to be flexible)
- the internal resistance within a joint
- bony structures which limit movement
- the elasticity of muscle tissue (muscle tissue that is scarred due to a previous injury is not very elastic)
- the elasticity of tendons and ligaments (ligaments do not stretch much and tendons should not stretch at all)
- the elasticity of skin (skin actually has some degree of elasticity, but not much)
- the ability of a muscle to relax and contract to achieve the greatest range of movement
- the temperature of the joint and associated tissues (joints and muscles offer better flexibility at body temperatures that are 1 to 2 degrees higher than normal)
- the temperature of the place where one is training (a warmer temperature is more conducive to increased flexibility)
- the time of day (most people are more flexible in the afternoon than in the morning, peaking from about 2:30pm-4pm)
- the stage in the recovery process of a joint (or muscle) after injury (injured joints and muscles will usually offer a lesser degree of flexibility than healthy ones)
- age (pre-adolescents are generally more flexible than adults)
- gender (females are generally more flexible than males)
- one's ability to perform a particular exercise (practice makes perfect)
- one's commitment to achieving flexibility
- the restrictions of any clothing or equipment

Basic Stretching Protocol

Here are some points to follow for any passive stretching session.

- Always complete a warm-up session prior to stretching.
- Stretch until a mild tension is felt, then hold.
- All stretches should be held for up to 30-60 seconds unless otherwise stated.
- Avoid stretches to the point where numbness or a tingling sensation is felt.
- Focus on the stretch and avoid any distractions.
- Try to relax the muscles throughout the passive movement of the stretch, as this will help to alleviate any unnecessary tension within the muscle.
- Do not hold your breath, breathing freely helps you relax and get the best stretch.

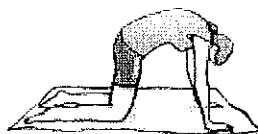
Trunk



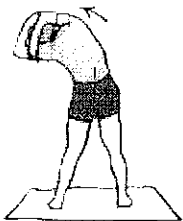
spinal twist



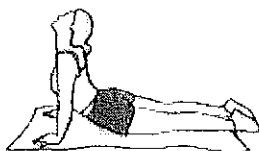
knees to chest



cat stretch

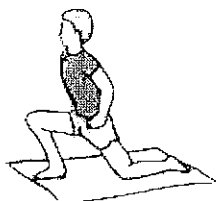


side trunk



back extension

Hips



forward lunge



side lunge

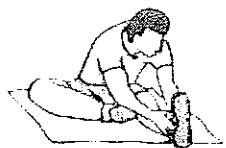


sitting hip stretch

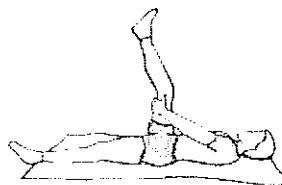
Legs



hamstring (standing)



hamstring (sitting)



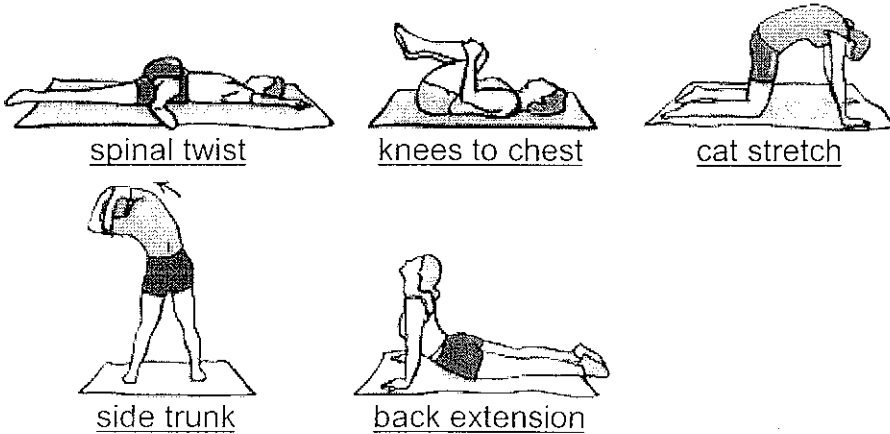
hamstring (supine)

Basic Stretching Protocol

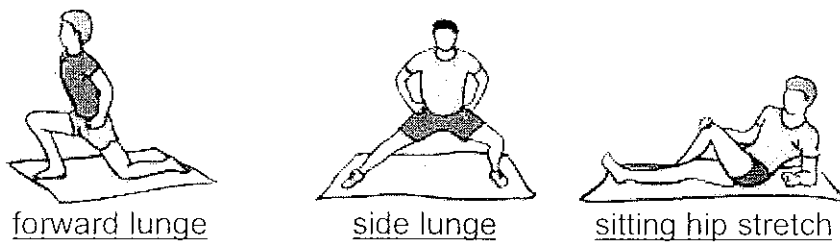
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Trunk



Hips



Legs

