

A Simple Guide to Stretching

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We all know that flexibility is a critical component to our health, but do we know which stretches are the best, or which are the most beneficial? Do we know the correct technique? Do we know how long to hold each stretch? Do we even know when to do what stretch? Do all these questions sound puzzling and make flexibility training sound confusing? This article will answer these questions while attempting to *STRETCH* your thought process. Please join us for a fun exploration of flexibility training.

FIRST AND FOREMOST...WHAT IS FLEXIBILITY?

Not to be confused with stretching, flexibility is defined as the normal extensibility of all soft tissues that allow full range of motion of a joint. In other words, when recruited your muscles have the extensibility to move in all directions under the control of your central nervous system. It is important not to forget that flexibility and function are *interdependent* components; therefore, to gain desired flexibility, the stretching program must progress to multi-planar soft tissue techniques with optimal levels of neuromuscular control throughout a full range of motion. As you can now see flexibility is not stretching; various *progressive* stretching techniques make-up flexibility.

WHAT TYPE OF STRETCHING DO I NEED?

There are many stretching techniques, all of which are useful *if* applied correctly. Through progressive research and application, the NASM Performance Team has developed an Integrated Flexibility Training System[™] for health professionals to gain the appropriate flexibility and apply the right stretch, in the right region, at the right time.

INTEGRATED FLEXIBILITY TRAINING SYSTEM

CORRECTIVE FLEXIBILITY	ACTIVE FLEXIBILITY	FUNCTIONAL FLEXIBILITY
Static Stretching	Active Isolated Stretching	Dynamic Stretching
Self-Myofascial Release Stretching	Neuromuscular Stretching	
Neurodynamic Stretching		
Neuromuscular Stretching		

As shown in the IFT System[™] there are three categories of flexibility:

1. ***Corrective flexibility*** applies appropriate stretching techniques to improve muscle imbalances, postural distortions and altered neural tissue dynamics.

2. **Active flexibility** applies two stretching techniques designed to improve soft tissue extensibility and neural muscular control by utilizing the principles of reciprocal inhibition and autogenic inhibition.
3. **Functional flexibility** applies dynamic stretching techniques to improve soft tissue extensibility by using the body's muscles to control the speed, direction and intensity of the stretch.

WHY ARE THERE SO MANY STRETCHING TECHNIQUES?

...because they all work! All stretching techniques are based on neurophysiological and mechanical principals, once understood, the assessment and stretching program can become individualized.

WHAT PRINCIPLES ARE APPLIED & HOW DO I PERFORM THE DIFFERENT TECHNIQUES?

Static Stretching: Passively taking a muscle(s) to the point of first resistance and holding the stretch for at least 20 seconds. Repeat 3 times.

Main Principle: *Autogenic inhibition*

Self-Myofascial Release Stretching: Utilizing an individual's body weight and bio-foam roll, deep pressure is created and applied to tender areas within the soft tissue complex. Deep prolonged pressure should be held until tenderness is reduced by 50-75%.

Main Principle: *Autogenic inhibition*

Neurodynamic Stretching: Stretching techniques applied to neural structures, which improve neural extensibility. Any motion of the kinetic chain produces concomitant movement of the nervous system; therefore, optimal neural extensibility is required during functional activities to prevent abnormal movement patterns. Neurodynamic stretches are held for 1-2 seconds and applied 6-10 times.

Main Principle: *Mechanical elongation*

Special Note: Neurodynamic stretches are for qualified individuals only. Please see contraindications in the NASM Integrated Training for the New Millennium Textbook before attempting any neurodynamic stretches!

Neuromuscular Stretching: Stretching techniques involving active assisted stretching. The professional passively moves the limb to the first resistance barrier without compensations. The client then applies an agonistic contraction of approximately 25% effort for 7-10 seconds. After brief relaxation of this isometric contraction, the limb is moved into the newly acquired range of motion by the client's antagonist contraction and the professional's assistance (slight). The stretch is then held for 20 seconds and repeated 3-5 times.

Main Principle: *Reciprocal inhibition*

Active Isolated Stretching: The process of using agonists and synergists to dynamically move the joint(s) through a range of motion. This form of stretching establishes dynamic extensibility and neuromuscular control. Each stretch is performed under complete control and held for 2-5 seconds over 10 repetitions.

Main Principle: *Reciprocal inhibition*

Dynamic Stretching: Uses the force production of a muscle and the body's momentum to take a joint through a full range of functional movement patterns. Dynamic stretching is the recommended form of stretching prior to exercise or performance as it improves motor unit recruitment, motor unit synchronization, rate of force production and overall neuromuscular efficiency. The client should perform each exercise for 1 set of 10 reps at a *controlled* speed.

Main Principle: *Reciprocal inhibition*

WITH ALL THE DIFFERENT TECHNIQUES, HOW DO I PLAN A STRETCHING PROGRAM?

Any program, be it core training, balance training, plyometric training, speed training, agility training, strength training, flexibility training or all of the above depends on an individualized assessment. An example of one the many “tools” to assess functional flexibility is the overhead squat total body profile.

OVERHEAD SQUAT TOTAL BODY PROFILE

The objective of this exercise is to assess *total kinetic-chain neuromuscular efficiency, integrated-functional strength and functional flexibility.*

To begin the exercise:

Have the client place their feet shoulder-width apart with their arms straight over their head, with elbows *fully* extended. They can hold something above their head such as a dowel rod, tubing or even a towel (the goal of having them place their arms overhead is to put their back muscles in a lengthened position).

Instruct the client to slowly squat down to a position that is comfortable to them. If they are unsure of a squat position, a simple analogy of sitting down onto a chair should suffice.

Trainer Tip: Do not let the client know what you are specifically looking for, as they tend to “correct” themselves as they perform the recommended repetitions.

Position client to compare all four views (front, right side, back, left side)

In a “perfect training world” the client would be barefoot, wear shorts and a t-shirt. Keep in mind; comfort level is always a priority.

Next, we have provided you with a common movement abnormality chart. Listed are common compensations, probable muscles that need extensibility and beneficial stretches.

OVERHEAD SQUAT TOTAL BODY PROFILE

Gross Movement Abnormality	Primary Muscles to Stretch	Beneficial Stretching Types & Techniques	When to Use Stretch
Feet flatten out	Peroneals Lateral gastrocnemius	Self Myofascial Release on Foam Roll (SMFR): Peroneals, Lateral Gastrocnemius Static: Standing Wall Stretch Active: Standing Wall Stretch w/Hip Rotations Dynamic: Mountain climbers, Multi-Planar Lunge, Prisoner Squats	<i>Note: The exact order will depend on the kinetic chain assessment. Use the order below as a guideline.</i> SMFR: Before active and dynamic warm-up and post-workout Static Stretching:
Feet externally rotate	Soleus Lateral gastrocnemius	SMFR: Soleus, Lateral Gastrocnemius, Lateral Hamstring, Piriformis, Peroneals, ITB	

	Biceps femoris Piriformis	Static: Standing Wall Stretch w/Knee Bent Active: Standing Wall Stretch w/hip rotations: Knee bent Dynamic: Mountain Climbers, Multi-Planar Lunge, Prisoner Squats	Before active and dynamic warm-up and post-workout Active Stretching: Pre-workout and post-workout
Increased low back extension	Psoas Tensor fascia latae (TFL) Erector spinae (ES) Latissimus dorsi	SMFR: Latissimus Dorsi, TFL, ITB, Thoracic Spine Static: Psoas Standing-Stride Stretch 1. Variations: Lying, Kneeling Static: TFL Wall Stretch Static: ES Cross Leg Stretch Static: Lat Ball Stretch Active: Psoas Standing Stride Active: Lat Ball Stretch Active: Ball Russian Twist Dynamic: Walking Lunge w/Twist, Med Ball Flexion-Extension-Rotation	Dynamic Stretching: Directly preceding exercise or performance program Neuromuscular Stretching: Health & fitness professionals can replace static stretching IF the appropriate skills and enough time can be dedicated to the proper techniques.
Protruding abdomen	Psoas	SMFR: TFL, ITB, Adductors, Quads, Calves, Lats Static: Psoas Standing-Stride Stretch 1. Variations: Lying, Kneeling Active: Psoas Standing Stride Dynamic: Walking Lunge w/Twist	
Arms migrate forward	Latissimus dorsi Pectorals	SMFR: Lats, Thoracic Spine Static / Active: Pectoral Wall or Ball Stretch Static / Active: Lat Ball	

		Stretch Dynamic: Arm Swings, Overhead Squat, Squat Thrusts	
Elbows flex while moving	Pectoralis major	Static / Active: Wall or Ball Stretch (multi-angles) Dynamic: Arm Swings (various angles)	
Heads juts forward	Superficial neck muscle s	Static / Active: Sternocleidomastoid, Levator Scapulae, Scalenes	

Please note: Due to the extensive hands-on knowledge require, not all stretching techniques are listed.

For specific instructions on all stretches listed, please see the NASM Integrated Flexibility video series. For specific overhead squat profiling, see the NASM Kinetic Chain Assessment video and/or home study course @ www.nasm.org or call 866.292.NASM.

CONCLUSION

As described, there are many stretching techniques to improve flexibility. A glance at all the available techniques may be overwhelming when deciding which stretch to use and when to use it. The IFT™ System was designed to take the guesswork out of choosing a stretching technique. A look at basic neurophysiological and mechanical principles demonstrates *Corrective® Active® Functional* flexibility as an important progressive continuum. By applying a systematic flexibility approach, along with teaching your clients how to control their bodies, you will drastically increase function and improve their life. Good luck and thank you for your time.

ARTICLE GLOSSARY

Agonist: Muscles that act as prime movers.

Antagonist: Muscles that act in direct opposition to prime movers.

Autogenic Inhibition: Inhibition of a muscle spindle resulting from the Golgi tendon organ stimulation.

Integrated Functional Strength: The ability of the neuromuscular system to perform dynamic eccentric, isometric and concentric contractions efficiently in a multi-planar environment.

Inhibition: To stop something from developing - *not to be confused with inactivity.*

Functional Flexibility: Integrated multi-planar soft tissue extensibility with optimum neuromuscular control through a full range of motion.

Function: Integrated functional movement that requires deceleration, dynamic stabilization and acceleration.

Neuromuscular Efficiency: The ability of the neuromuscular system to allow agonists, antagonists, stabilizers, and neutralizers to work synergistically to produce force, reduce force and dynamically stabilize the entire kinetic chain in all planes of motion

Reciprocal Inhibition: The concept of muscle inhibition caused by a tight agonist, which inhibits its functional antagonist.

*Please see your textbook *Integrated Training for the New Millennium* for an extensive list of definitions.*

For a complete list of references please see the National Academy of Sports Medicine Integrated Flexibility Manual @ www.nasm.org

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