

ADDING A STRETCHING PROGRAM TO YOUR WORKOUT

A flexibility training program is a planned, deliberate, and regular program of exercises that can permanently and progressively increase the usable range of motion of a joint or set of joints over time (Aten and Knight 1978). In the arena of athletics, training in general is a multisided process to influence the development of an athlete and ensure the necessary level of preparation. Stretching exercises comprise just one essential component of an athlete's total training program.

Warming Up

A warm-up consisting of exercises performed immediately before an activity to increase circulation and heart rate is an essential part of a good conditioning program. Warm-up exercises provide an athlete with time to adjust from rest to exercise. These exercises are designed to improve performance and reduce the chance of injury by preparing the athlete mentally as well as physically for his or her sport. Physiologically, a warm-up elevates body temperature and increases blood flow.

Stretching is often incorrectly considered synonymous with warm-up because it is commonly done during the warm-up portion of a training program. In addition, static and passive stretching exercises do virtually nothing to increase core or peripheral temperatures and blood flow; hence, these stretching techniques do not serve as a warm-up. In fact, stretching should always be preceded by a warm-up because the elevated tissue temperature enhances connective tissue and muscular extension, thereby reducing the risk of injury from stretching.

Warm-up routines are typically classified into three categories. A passive warm-up involves raising the body temperature by some external means such as heating pads and hot showers. A general warm-up is probably the most commonly used technique. It employs various movements not directly related to those employed in the activity itself. These include joint rotations and gentle twisting and bending movements. This is usually followed by light calisthenics, brisk walking, jogging, or jumping rope. Here the goal is to increase muscle blood flow and raise core body temperature. A formal or specific warm-up includes movements that either mimic or are employed in the actual activity, performed at a reduced level of intensity.

The intensity and duration of a warm-up must be suited to the athlete's physical capabilities and adjusted to the existing conditions. Generally, an athlete's warm-up should be intense enough to increase body temperature and cause some sweating but not so intense as to cause fatigue. A warm-up should be more intense in cold weather.

BENEFITS OF A GOOD WARM-UP

- Increase in body and tissue temperature
 - Increase of blood flow through the active muscles
 - Increase in heart rate, which prepares the cardiovascular system for work
 - Increase in the rate of energy release in the body (the metabolic rate)
 - Increase in the exchange of oxygen from hemoglobin
 - Increase in speed at which nerve impulses travel, facilitating body movements
 - Increase in reciprocal innervation efficiency (allowing muscles to contract and relax faster and more efficiently)
 - Decrease in muscular tension
 - Enhanced ability of connective tissue to elongate
 - Help in preparing the athlete psychologically
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once a day, three to five days per week, to maintain flexibility. Depending on their sport, dedicated and serious athletes may require two to three stretching sessions per day for six or seven days per week.

When within a workout session should stretching exercises be done? Research refutes that specific placement of stretching exercises within a workout session makes a difference in increasing range of motion (Cornelius, Hagemann, and Jackson 1988). However, Sapega et al. (1981) recommend incorporating stretching immediately after the main part of a workout and cool-down period because tissue temperatures are highest, making stretching both safer and more productive.

Another question then arises: How intense should a stretch be to develop flexibility? Because intensity is based on subjective factors (tension, discomfort, pain), there is no way for coaches or trainers to determine this level for their athletes; the intensity of the stretch must be up to the athlete. In general, stretch to the point of tension but not pain. For athletes who are undergoing rehabilitation and have healing tissues, the point before pain is reached may be sufficient to rupture already weakened tissues. Remember, the best advice is to use common sense: Train, don't strain.

Improving and retaining flexibility depend on numerous variables, including genetic factors, age, and the state of training. Thus, your muscles' responses to regular stretching are a function of these factors and are dependent on which muscle group you stretch. Generally, for healthy individuals, the longer, more frequently, and more intensely you stretch, the faster and more significant your improvement in flexibility will be. If you are healthy, uninjured, and just starting a stretching program, you may feel increased muscle tightness and some muscle soreness the first week. But as your body adapts to regular stretching, you'll begin to see increases in your flexibility. Likewise, once you stop your stretching program, the flexibility gains will be lost over time.

Cooling Down

Cooling down is defined as performing a group of light exercises immediately after an activity to provide the body with a period of adjustment from exercise to rest. The cool-down period is valuable for athletes who want to maintain or enhance their flexibility. As tissue temperatures rise, stiffness decreases and extensibility increases. Because tissue temperatures will be highest immediately after a workout and during the cool-down phase, stretching is thought to be both safer and more productive.