



### BRING A FRIEND TO WORKOUT DAY

Offer a "Bring a friend to workout day." Many people have friends and family whom they would love to invite to the gym, but they can't offer them anything due to the restrictions. Simply put, make your trainees feel that they can offer a simple date where they can just bring someone in, and the gym will allow them to work out, after signing waivers. Give your trainees something that they can actually hand to someone else. A guest pass with a specific date on it is always best. Once someone gets to know you, then they are more likely to hire you. Plant some seeds and watch them grow.

### STRETCHING CLASS

Have a free stretching class for families. One night a week, present a "mother-daughter" or some simple format of a class. Make it just 40 minutes long and enjoy it. Your liability is low with this type of activity, so the gym should kick back on this event. If you are like most people, you will need to stretch, and so it is beneficial for you, too.

# THE SCIENCE OF STRETCHING: WHEN AND HOW

**WARNING:** A STUDY PUBLISHED IN 2000 ABOUT STRETCHING IS BEING CITED IN MANY ARTICLES TODAY, AND THE CONCLUSIONS REACHED BY SOME WRITERS MAY BE HARMFUL TO THE MUSCLE, LIGAMENTS AND JOINTS OF YOUR ATHLETES. **BY PHIL CAMPBELL**

### IS STRETCHING BEFORE PRACTICE HARMFUL?

**S**tretching before athletic training and general-fitness-improvement exercise is being made out to be a time-waster, not needed and even harmful. This is not true. In fact, there's a recent study that evaluates all the research on stretching, and the study concludes:

*Due to the paucity (small number), heterogeneity (dissimilar study subjects) and poor quality of the available studies, no definitive conclusions can be drawn as to the value of stretching for reducing the risk of exercise-related injury. ("The efficacy of stretching for prevention of exercise-related injury: a systematic review of the literature," 2003, Weldon).*

Essentially, the researchers are saying that there are not enough quality studies to draw conclusions about this issue.

### STUDY IN QUESTION

The study that is generating all the hoopla was performed by the Kapooka Health Centre, New South Wales, Australia on 1,538 army recruits. It's a creditable study designed to show the occurrence of lower limb injury on a group of young army recruits. Despite what you may have heard about stretching before training, this is what the researchers actually reported:

*A typical muscle stretching protocol performed during pre-exercise warm-ups does not*

*produce clinically meaningful reductions in risk of exercise-related injury in army recruits. Fitness may be an important, modifiable risk factor. ("A*

*randomized trial of preexercise stretching for prevention of lower-limb injury," 2000, Pope).*

*The statement, Fitness may be an important, modifiable risk*



factor, is very important. It simply means that age, weight and conditioning of the study subjects may be an important factor in preventing or facilitating the injuries experienced in this study.

Three years after the Kapooka study, another study involving military recruits was conducted and the researchers in this study showed that pre-training static stretching can **prevent** injury involving muscle, but not joint or bone injury. The researchers report, *Static stretching decreased the incidence of muscle-related injuries but did not prevent bone or joint injuries* ("Effect of static stretching on prevention of injuries for military recruits," 2003, Amako).

#### APPROPRIATE CONCLUSIONS

Based on the way some have written about this study, it's okay to run a 100 meter sprint full speed without stretching beforehand. Now, this may be possible for a small number of lean, young army recruits. However, does anyone believe that a powerful, muscled-up athlete or a middle-aged or older adult can go out and run a sprint — cold, with no warm-up — without increased risk of injury? I don't think so...

**Use common sense ... and the full body of research.** Think about it: If an out-of-shape, untrained young army recruit performs high intensity exercise, he may get injured, pre-stretched or not. And this is why researchers evaluating all

the research on stretching conclude, *No definitive conclusions can be drawn...*

In short, there needs to be a body of research based on age, weight, conditioning, and the study needs to be performed functionally for the specific sport and type of exercise before life-changing conclusions are drawn.

New research shows that stretching can aid in the prevention of injury of stress fractures that plague distance runners. Researchers conclude:

*Prevention of stress fractures is most effectively accomplished by increasing the level of exercise slowly, adequately warming up and stretching before exercise, and using cushioned insoles and appropriate footwear.* ("Common stress fractures," 2003, Sanderlin).

Stretching offers many benefits. Researchers show that prolonged stretching (in the form of yoga) with moderate aerobic exercise and diet control will reduce cholesterol and significantly reverse hardening of the arteries (20 percent regression) in adults with proven coronary atherosclerotic disease.

After one year in a yoga program, participants lost weight, reduced cholesterol and improved their exercise capacity ("Retardation of coronary atherosclerosis with yoga lifestyle intervention," 2000, Manchanda).

Stretching offers many benefits, but there is an issue about the type of stretching and the timing of stretching before athletic competitions.

#### USE DYNAMIC STRETCHING BEFORE GAMES AND KEY PRACTICE SESSIONS

There are two main types of stretching: static (holding a stretching exercise in one position without movement) and dynamic stretching, which means moving while stretching (arm swings, knee rotations, neck circles).

Researchers show that athletes should not perform prolonged static stretching

before the big game or a key practice session because this slows muscle activation for around an hour afterwards ("Reduced strength after passive stretch of the human plantar flexors," 2000, Fowles).

Using dynamic stretching is a wise pre-competition strategy. Static stretching builds flexibility and should be performed regularly, just not immediately before a big game or a key practice session.

Warming up prior to a high intensity, ballistic, athletic event is an absolute rule — never to be broken, and stretching can be combined (multi-tasked) as part of the warm-up. The goal of the warm-up is to get the blood flowing and raise body temperature (one degree) prior to athletic competitions and high intensity training.

It's desirable to have the athlete's muscle, ligaments and joints experience the functional range of motion required of the sport during the warm-up.

**Do static stretching with 30-second stretch-holds away from practice.** Gains in flexibility are dependent on the "duration" of the stretch-hold position, and researchers show the best stretch-hold position (for time spent) to increase flexibility is 30 seconds ("The effect of time on static stretch on the flexibility of the hamstring muscles," 1994, Bandy). "Best" means optimal results for time spent. You can get positive results with 2-minute stretch-holds, but 30 seconds yields equal results.

This type of stretching is positive for athletes and adults of all ages. Researchers show in one study that longer-hold stretching positions are of great benefit for adults over age 65:

*Longer hold times during stretching of the hamstring muscles resulted in a greater rate of gains in range of motion (ROM) and a more*



## GROUP EXERCISE

Begin having classes that offer exercise to large groups. This obviously takes more room, but many of the simple classes can be geared towards children or senior citizens. Some groups are willing to pay for your additional certifications to allow you to work with their special needs. They pay you directly for the group classes and it is a huge marketing boost that often grabs the local media's attention.

Another purpose of the group class is to make fitness affordable to the general public. Several individuals cannot afford the cost of personal training, but the benefits of general group exercise classes are far-reaching. Obtaining a group of 20 individuals at ten bucks a head, quickly makes it worth your time. The classes are fun and many times lead to individuals who will re-think their original commitment and sign up for individual classes.

*sustained increase in ROM in elderly subjects.* ("The effect of duration of stretching of the hamstring muscle group for increasing range of motion in people aged 65 years or older," 2001, Feland).

Adults ages 21 to 45 with tight hamstrings also get the best results from static stretching with 30-second stretch-hold positions. Researchers report that static stretching is two times more effective than dynamic range of motion (DROM) for this group of non-competitive athletes. Researchers report:

*The results of this study suggest that, although both static stretch and DROM (dynamic stretching) will increase hamstring flexibility, a 30-second static stretch was more effective than the newer technique, DROM, for enhancing flexibility.* ("The effect of static stretch and dynamic range of motion training on the flexibility of the hamstring muscles," 2001, Bandy).

Keep in mind there are important lessons in these studies, but the studies apply to a specific age group (over 65, and ages 21-45,) and a specific physical condition (tight hamstrings). If we apply the results of a study with these variables to young athletes, we may be wrong.

While it's reasonable to conclude (as I have for training purposes) that static stretching away from practice is an effective strategy for athletes with tight hamstrings, this study doesn't specifically prove that point. It's clearly a mistake to take the findings of one study and create an absolute fact. Look at the whole body of research about a topic before making a life-changing training decision.

### THE TAKE-HOME ABOUT STRETCHING

**1:** Use dynamic stretching and static stretching at the correct times in the training plan.

**2:** Dynamic stretching (arm swings, hip rotations, knee rotations) will aid in the pre-competition, pre-practice warm-up process by increasing flexion in the joints and increasing body temperature. This method is preferred before athletic competition.

**3:** Static stretching can be used as part of a warm-up for training. However, static stretching will slightly slow down athletes for an hour afterwards, so examine training goals. Early in the season, static stretching before practice may be a wise strategy.

The best way to improve overall flexibility is static stretching with 30-second stretch-holds performed away from events requiring peak performance. Personally, I recommend that athletes use a 10-minute static stretching routine targeting hamstrings, Achilles, hip flexors and quads four days a week. 🏋️