


*Long  
and  
Limber*

**Stretching  
Exercises  
for Rowers**

By **David G. Gentry, M.D.**  
and **Andrew Linn, P.T., A.T.C.**



**L**ike pianists tuning their instruments before striking the ivory, rowers who stretch before a workout are better prepared for practice and training.

Long, pliable muscles and joints, warmed by stretching and flexibility work, respond better to training and resist injury more effectively than tight, stiff muscles left "cold" before exercise. Stretched and flexed muscles move more fluidly and comfortably through the rowing stroke and allow athletes to have a longer, more efficient reach at the catch.

"If I sit on an ergometer without stretching, it takes me five to 10 minutes to get maximum length. That's not much of a problem on the erg, but it can be when you only have a limited time on the water," explained Norm Thetford, chair of USRowing's Masters Committee.

Stretching and flexibility work hand in hand — exercises that stretch muscles, ligaments and tendons increase flexibility, which is defined as the range of motion available to a joint or group of joints. Joints need to be worked through a full range of motion to function effectively and develop strength, endurance and skill.

Different coaches and athletes may rely on different regimens for stretching. Boston University head women's coach Anna Considine has developed a stretching regimen for her crew based on recommendations from BU's swimming coach. "We're doing swimming stretches because their sport uses the shoulders a lot," said Considine, explaining that shoulder and lower back flexibility are especially important to rowers because of the rotation and body swing required to make a stroke.

"We spend 20 minutes before each practice doing stretching, with one person leading," she added, noting that while stretching improves flexibility, it should always be done in conjunction with weight lifting. "The stronger you are, the better flexibility you have; the two cannot be isolated."

By increasing their flexibility, athletes can strengthen their muscles through a greater arc of motion. Thus, their overall strength is greater and they can ward off injury when mistakes occur, such as catching a crab, which would push a joint past its normal range of motion.

Whatever specific exercises you prefer, focus on the areas that are key to rowing, including: 1) lower back — to include

flexion, rotation and side bending; 2) quadriceps, including both hip extension and knee flexion; 3) hamstrings, with attention to hip flexion (bending forward) and knee extension; 4) the calf and ankle to improve flexibility; 5) posterior shoulder; 6) forearm and wrist.

Each area should be stretched in a slow, careful manner without pain, with the "hold" position maintained 10-20 seconds for four repetitions. Breathe normally and stop if you encounter pain rather than tightness.

The book *Stretching*, by Bob Anderson (1980, Sheltner Publications Inc.), talks about two phases of a stretching workout: easy (the first phase) and developmental stretching. Both involve holding a stretch position until tension wears off and the athlete feels comfortable, but the developmental stretch takes the movement a bit further to increase flexibility and agility — which is the whole reason for stretching.

Two types of stretching include passive and active exercises. Passive refers to muscle relaxation with the force applied from outside the muscle — such as your left arm stretching your right arm. Active stretching involves muscle contraction by the athlete — such as bending your knee, which stretches the quadriceps muscle in front of the thigh.

## Passive Stretching

Passive stretching is good for making muscles long and elastic. Two variations are ballistic and static.

Ballistic stretching uses rapid "bouncing" to achieve the "hold position," but it's not very safe because the motion can cause excessive force — and eventual injury — to muscles. In addition, ballistic stretches also may initiate reflex contractions in muscles, which defeats the whole purpose and can wind up injuring muscles. The bouncing motions of ballistic stretching may work for people who want to loosen muscles that are not functioning normally or that have become abnormally tight from immobilization or lack of use. In general, however, this bouncing stretching is dangerous and is not recommended, despite its all-too-often occurrence at health spas and gyms.

Static stretching uses slow (10-20 seconds), controlled lengthening of relaxed muscles and is usually most effective in the

*Continued on pg. 45*

first four repetitions. (You'll benefit most during those first four repetitions; after that, you'll get diminishing returns on your effort.) Athletes should feel a "stretch" but no pain. With static stretching, the muscles are elongated, range of motion is expanded and the risk of injury is minimal.

## Active Stretching

Active stretching is a low-level stretch done in the early stages of a warm-up when muscles may be sensitive and sore from injuries or previous workouts. In a technical sense, active stretching means lengthening, or elongating, a muscle by contracting, or shortening, the opposing one. For example, bending your leg at the knee shortens the hamstring muscle in back of your thigh and lengthens the quadriceps muscle in front, so this motion actively stretches the quad.

## A Basic Stretching Program

Alone, a stretching program has little value. It should be a part of a total conditioning program, including proper rest, nutrition, warm-up and cool-down periods, strengthening and endurance exercises and exercises that stretch the muscles used in rowing as well as the areas most susceptible to rowing injuries, such as the back, forearms and knees. A useful program should go past mere maintenance and push muscles and tendons so that flexibility increases.

Before beginning your hard core stretching regimen, it's helpful to warm up muscles with light activity, such as jogging, riding a bicycle or even getting on the erg for five minutes. This will make muscles and tendons more pliant and stronger during the stretch. It's also important to cool down with flex work after a workout. For example, Considine has her BU crews repeat 20 minutes of stretching after they leave the water.

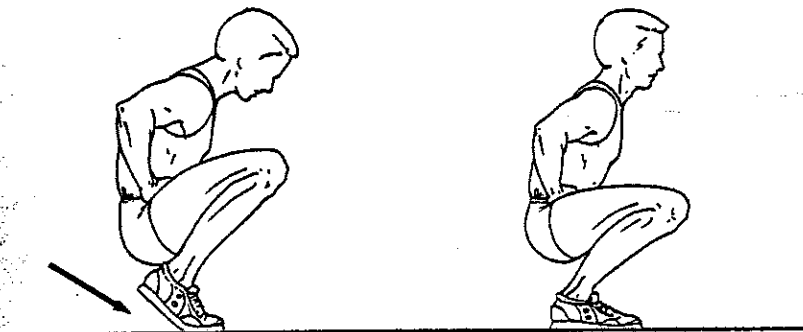
Factors such as age, general conditioning, or previous injury mean some people will require more frequent and lengthy stretching than others. If in doubt, it doesn't hurt to repeat a stretching exercise until you feel sufficiently "warmed up." Remember, however, that over-aggressive stretching can actually impede function by pinching and stretching tissues in the excessively mobile joints, such as the shoulder — especially in a highly repetitive activity such as rowing.

*Gregg Sampson and Seth Ahlbom contributed to this article.*

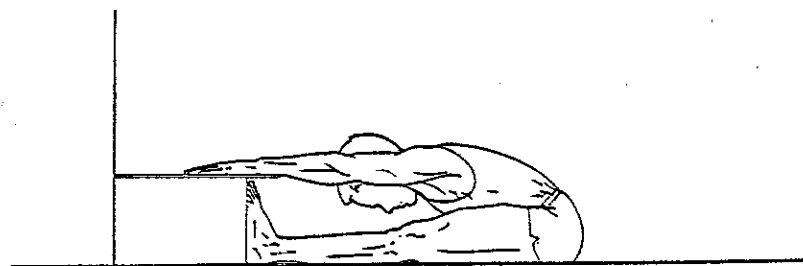
# How Do You Measure Flexibility?

These tests provide a gauge for athletes to measure their progress during flexibility training. Rather than being quantitative tests, these exercises are meant to show changes, or increases, in flexibility over time.

- 1. Assume a full squat position with both feet flat on the ground. If the heels rise up, you may need to work on ankle flexibility.**



- 2. Stand on a step, or sit on the floor, with legs extended and feet together. Bend forward and try to reach past your toes with your fingers, keeping your feet at right angles to your legs. If you can't touch your toes, you need to work on flexibility in your hips and lower lumbar region. Some of the most flexible rowers are able to reach their fingertips 10 inches past their toes.**



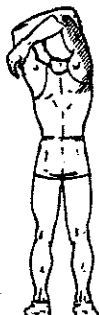
— From USRowing's Level I Coaching Education Manual

However, coaches and rowers should remember to take into account that different people have different abilities to stretch — for example, someone with excessively long arms may be able to put their palms on the ground and still have poor back flexibility.

## SAMPLE STRETCHING EXERCISES

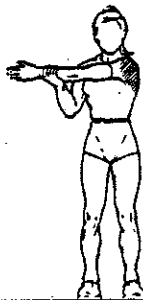
**Fig. 1 TRICEPS**

Reach over your head and gently pull your elbow with your opposite hand.



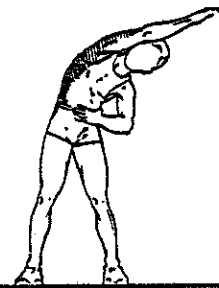
**Fig. 2 POSTERIOR (BACK) OF THE SHOULDER**

Pull one arm across the front of your body gently and hold.



**Fig. 3 TRUNK**

Bend to the side and hold, and then bend to the opposite side.



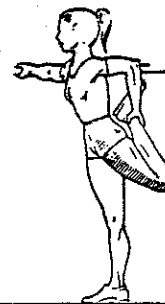
**Fig. 4 LOWER BACK**

Lying on your back with your knees bent up, bring both knees to your chest and gently stretch by grasping the legs BEHIND the knees with your arms, and hold.



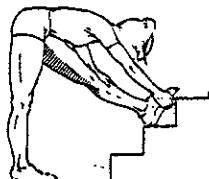
**Fig. 5 QUADRICEPS**

Standing on one leg, grab the other ankle and pull upward and backward. Keep the leg in line with the trunk.



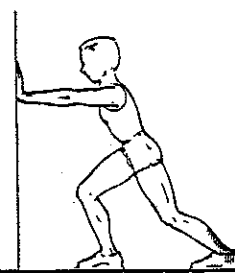
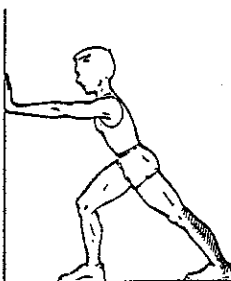
**Fig. 6 HAMSTRINGS**

Prop one foot on a step and bend forward toward your toes. The supporting leg (the one on the floor) should be rotated inward.



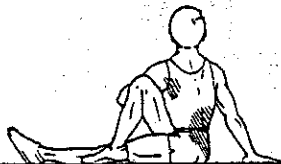
**Fig. 7 CALF**

Stand facing the wall, approximately 2 to 3 feet away from it. Place the leg to be stretched behind the other, with the back foot rotated inward. With hands against the wall, lean forward, keeping back straight and back heel flat on the ground. Perform with back knee straight, then slightly bent.



**Fig. 8 ILIOTIBIAL BAND  
(OUTER THIGH)**

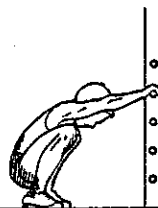
Sitting on the floor with your legs extended, bend your right leg and place your right foot on the outside of your left knee. Reach across your body with your left arm so that your left elbow is on the outside of your right knee. Push your elbow into your knee, turning your head to the right until stretch is felt in the right hip area. Repeat from the other side.



**Fig. 9A BUTTOCKS AND UPPER  
BACK**

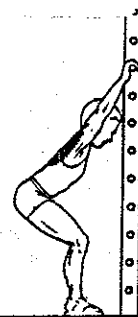
From a standing position, squat down with feet flat and toes pointed out at approximately a 15 degree angle. Heels should be four to 12 inches apart. Arms should be fully extended while the hands grasp a pole or rail for support.

*NOTE: If for any reason you have experienced previous knee pain or injury, this stretch may cause a problem due to the extreme compression placed on the knee — so be careful! Refer to Fig. 9B for an alternate exercise.*



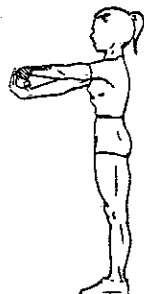
**Fig. 9B UPPER BACK**

Starting position as in Fig. 9A, however, do not bend knees past 45 degrees. This activity will stretch the upper back without stressing the knee joints.



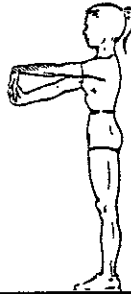
**Fig. 10 WRIST EXTENSOR**

Extend your elbow and forearm in front of you. With your palm facing down, make a fist. Using your other hand, stretch your wrist down as far as you can and hold.



**Fig. 11 WRIST FLEXOR**

Extend your elbow and forearm in front of you. With palm facing up and fingers extended, and using your other hand, stretch your wrist down as far as you can and hold.



Illustrations by James H. Stephenson

