



ACSM Information On...

Sprains, Strains and Tears

A sprain is an injury to a ligament, while a strain is an injury to a muscle or tendon. Both can result in significant lost time from sports.

A COMPLETE PHYSICAL ACTIVITY PROGRAM

A well-rounded physical activity program includes aerobic exercise and strength training exercise, but not necessarily in the same session. This blend helps maintain or improve cardiorespiratory and muscular fitness and overall health and function. Regular physical activity will provide more health benefits than sporadic, high intensity workouts, so choose exercises you are likely to enjoy and that you can incorporate into your schedule.

ACSM's physical activity recommendations for healthy adults, updated in 2011, recommend at least 30 minutes of moderate-intensity physical activity (working hard enough to break a sweat, but still able to carry on a conversation) five days per week, or 20 minutes of more vigorous activity three days per week. Combinations of moderate- and vigorous-intensity activity can be performed to meet this recommendation.

Examples of typical aerobic exercises are:

- Walking
- Running
- Stair climbing
- Cycling
- Rowing
- Cross country skiing
- Swimming.

In addition, strength training should be performed a minimum of two days each week, with 8-12 repetitions of 8-10 different exercises that target all major muscle groups. This type of training can be accomplished using body weight, resistance bands, free weights, medicine balls or weight machines.

SPRAINS

A sprain is an injury to a ligament, the strong bands of tissue that connect a bone to another at a joint. The severity of a sprain can be classified by the amount of tissue tearing, impact on joint stability, pain and swelling.

DEGREES OF SPRAINS

- **First degree (mildest)** – little tearing, pain or swelling; joint stability is good.
- **Second degree** – broadest range of damage, with moderate instability and moderate to severe pain and swelling.
- **Third degree (most severe)** – ligament is completely ruptured; joint is unstable; severe pain and swelling; other tissues are often damaged.

STRAINS

A strain is damage to muscle fibers and to the other fibers that attach the muscle to the bone. Other names for a strain include "torn muscle," "muscle pull" and "ruptured tendon."

DEGREES OF STRAINS

- **First degree (mildest)** – little tissue tearing; mild tenderness; pain with full range of motion.
- **Second degree** – torn muscle or tendon tissues; painful, limited motion; possibly some swelling or depression at the spot of the injury.
- **Third degree (most severe)** – limited or no movement; pain will be severe at first, but may be painless after the initial injury.

ACUTE TREATMENT

There are several decisions you must make when you injure yourself, including how serious the injury is and whether you should go to a health care provider. Look for deformities, significant swelling and changes in skin color. If there are deformities, significant swelling or pain, you should immobilize the area and seek medical help. Many fractures will not cause a deformity.

TREATING A SPRAIN OR STRAIN

Management of both sprains and strains follows the PRICE principle.

- P – Protect from further injury.
- R – Restrict activity.
- I – Apply Ice.
- C – Apply Compression.
- E – Elevate the injured area.

This PRICE principle limits the amount of swelling at the injury and improves the healing process. Splints, pads and crutches will protect a joint or muscle from further injury when appropriately used (usually for more severe sprains or strains). Activity restriction, usually for 48-72 hours, will allow the healing process to begin. During the activity restriction, gentle movement of the muscle or joint should be started. Ice should be applied for 15 -20 minutes every 60-90 minutes. Compression, such as an elastic bandage, should be kept on between icings. You may want to remove the bandage while



sleeping, but keeping it compressed even during the night is best. Elevating the limb will also keep the swelling to a minimum.

If you suspect more than a mild injury, cannot put weight on the limb, or it gives way, you should consult with a health care provider.

REHABILITATION

The next stage of rehabilitation begins following the first 48 to 72 hours. The second stage focuses on gentle movement of the muscle or joint, mild resistive exercise, joint position training and continued icing. During this stage, you may gradually return to more strenuous activities, such as strengthening. Pain should remain low during rehabilitation. If pain increases, it usually means you have attempted to do too much. Throughout your recovery you can still maintain an aerobic training program. Options for training include stationary bicycling, swimming, walking or running in the water. If the injury is more than mild sprain or strain, it is best to consult your health care provider.

EXAMPLE: PROGRESSION OF ANKLE REHABILITATION EXERCISES

RANGE OF MOTION

- Towel pull with toes
- Draw the alphabet with ankle
- Stretching with towel (advanced)

MILD RESISTIVE EXERCISES (REGAINING STRENGTH)

- Foot press against a solid object – up, down and side-to-side
- Tubing exercises in all motions (pain free)
- Toe raises (advanced)
- Hops – start forward and back, short hops (advanced)
- Weights – Heavy tubing or cuff weights (advanced)

JOINT POSITION (REGAINING BALANCE)

- Standing with eyes closed – partial squats and side-to-side shifts
- One-legged stand with eyes closed (advanced)

FUNCTIONING RETURN TO SPORT

- Performing sport-specific exercise such as figure 8 or shuttle runs.

STAYING ACTIVE PAYS OFF!

Those who are physically active tend to live longer, healthier lives. Research shows that moderate physical activity – such as 30 minutes a day of brisk walking – significantly contributes to longevity. Even a person with risk factors like high blood pressure, diabetes or even a smoking habit can gain real benefits from incorporating regular physical activity into their daily life.

As many dieters have found, exercise can help you stay on a diet and lose weight. What's more – regular exercise can help lower blood pressure, control blood sugar, improve cholesterol levels and build stronger, denser bones.

THE FIRST STEP

Before you begin an exercise program, take a fitness test, or substantially increase your level of activity, make sure to answer the following questions. This physical activity readiness questionnaire (PAR-Q) will help determine if you're ready to begin an exercise routine or program.

- Has your doctor ever said that you have a heart condition or that you should participate in physical activity only as recommended by a doctor?
- Do you feel pain in your chest during physical activity?
- In the past month, have you had chest pain when you were not doing physical activity?
- Do you lose your balance from dizziness? Do you ever lose consciousness?
- Do you have a bone or joint problem that could be made worse by a change in your physical activity?
- Is your doctor currently prescribing drugs for your blood pressure or a heart condition?
- Do you know of any reason you should not participate in physical activity?

If you answered yes to one or more questions, if you are over 40 years of age and have recently been inactive, or if you are concerned about your health, consult a physician before taking a fitness test or substantially increasing your physical activity. If you answered no to each question, then it's likely that you can safely begin exercising.

PRIOR TO EXERCISE

Prior to beginning any exercise program, including the activities depicted in this brochure, individuals should seek medical evaluation and clearance to engage in activity. Not all exercise programs are suitable for everyone, and some programs may result in injury. Activities should be carried out at a pace that is comfortable for the user. Users should discontinue participation in any exercise activity that causes pain or discomfort. In such event, medical consultation should be immediately obtained.



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