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Weight Bearing Exercises Preventing Osteoporosis with Exercise for Bone Health

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Jun 16, 2007

The best cure for osteoporosis is prevention. Weight bearing exercises are the only exercises that enhance bone growth and stop bone loss.

Osteoporosis also known as the "silent disease" is characterized by low bone density and decreased bone tissue. The bones become brittle, porous and vulnerable to fractures, especially of the hip, spine and wrist.

There is no cure for osteoporosis, but medication and exercise is used to help maintain bone mass. Bone is a living tissue that reacts to exercise by becoming stronger and denser. Our bones gain strength by having weight or resistance placed on them. Performing weight bearing and resistance exercises at least three times a week can help maintain current bone mass.

One of the best ways to prevent osteoporosis is weight bearing exercises. Exercises known as weight bearing exercises enhances bone growth and increases bone density. Weight bearing exercises are the only type of exercise that stimulates the cells to grow new bone and prevent osteoporosis. Weight bearing exercises not only prevent bone loss, but some studies suggest that it can also replace current bone loss.

Weight bearing exercises are exercises forcing the muscles to work against gravity or working against some resistance. The bones gain strength when a force is added and allows the bones to absorb more calcium.

Weight bearing exercises can include :

- Fast Walking (walking with weights around your ankles or in your hands also provide resistance)
- Jogging (jogging or running on concrete is not recommended)
- Running
- Jumping
- Jumping Jacks
- Step Aerobics
- Dancing
- Weight Lifting
- Hiking
- Stair Climbing
- Push Ups

Daily activities such as gardening, vacuuming, mowing the lawn and snow shoveling also provide resistance.

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Before beginning your weight bearing osteoporosis prevention exercise program, remember these important guidelines :

- Check with your doctor before you start any exercise program.
- If you have osteoporosis, you may not be allowed to do all weight bearing exercises. You may need to perform **exercises for osteoporosis**. Individuals with osteoporosis are at risk for fractures, regular exercise may cause too much force for some people with osteoporosis. If you suspect you have osteoporosis, talk with your physician about a bone mineral (density) test to determine if you have osteoporosis.
- If you are not familiar with weight bearing exercises, a physical therapist can easily help you develop an appropriate exercise program.

To help prevent osteoporosis, the National Osteoporosis Foundation recommends :

- Weight Bearing Activities
- Get the recommended doses of vitamin D and calcium
- Do not smoke or drink alcohol (tobacco and alcohol decrease calcium intake)

Bone mineral density tests should be performed on all women over 65, postmenopausal women who have had a fracture and younger postmenopausal women who have more than one **risk factor**.

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Getting Muscles

Ever wish you could be as muscular as a superhero or your favorite professional athlete? Well, the big muscles you're thinking about aren't possible for kids. Superheroes, of course, aren't real, and professional athletes are grown-ups, whose bodies are different from kids' bodies in many ways.

Boys, especially, might wish for bigger muscles, but their bodies can't build that kind of grown-up muscle until they're older. On the bright side, both boys and girls can do a lot to build strong, healthy muscles. Let's find out how.

Playing Makes Muscles

* It sounds too simple, but it's true. Playing, running, jumping, and riding your bike can make your muscles stronger. Any physical activity you like to do - from dancing to playing football - can make you stronger. Why? Because you're using your muscles when you do it.

Eat Strong


What should you eat if you want strong muscles? You might think you need a lot of foods that contain protein (such as meat and eggs) or foods that contain iron. But there's no one magical food that helps build muscles. Your muscles - and your entire body - will be strong and healthy if you eat a variety of nutritious foods.

Should You Pump Iron?

* Some kids want to lift weights so they can look bigger and stronger. But lifting weights won't produce big muscles in kids who haven't gone through puberty yet, and lifting heavy weights can be dangerous to kids' muscles and tendons.

With supervision from a coach or trainer, kids can do some light weight lifting or exercise with resistance bands (large rubber bands). This kind of exercise can improve muscle tone, meaning a kid's muscles will be leaner and stronger, but not really bigger.

* Push-ups, sit-ups, and chin-ups also help build strong muscles. But so can plain old running, jumping, and climbing. Get the message? More play time means stronger muscles. Now that's something to get pumped up about!

 **A Quick Fix?**

You might have heard about athletes who use illegal drugs called steroids to get muscles fast. Sports officials have started to punish athletes who use them. Not only is it unfair to other players, these artificial hormones can cause serious health problems. In other words, don't try them!

Reviewed by: Larissa Hirsch, MD

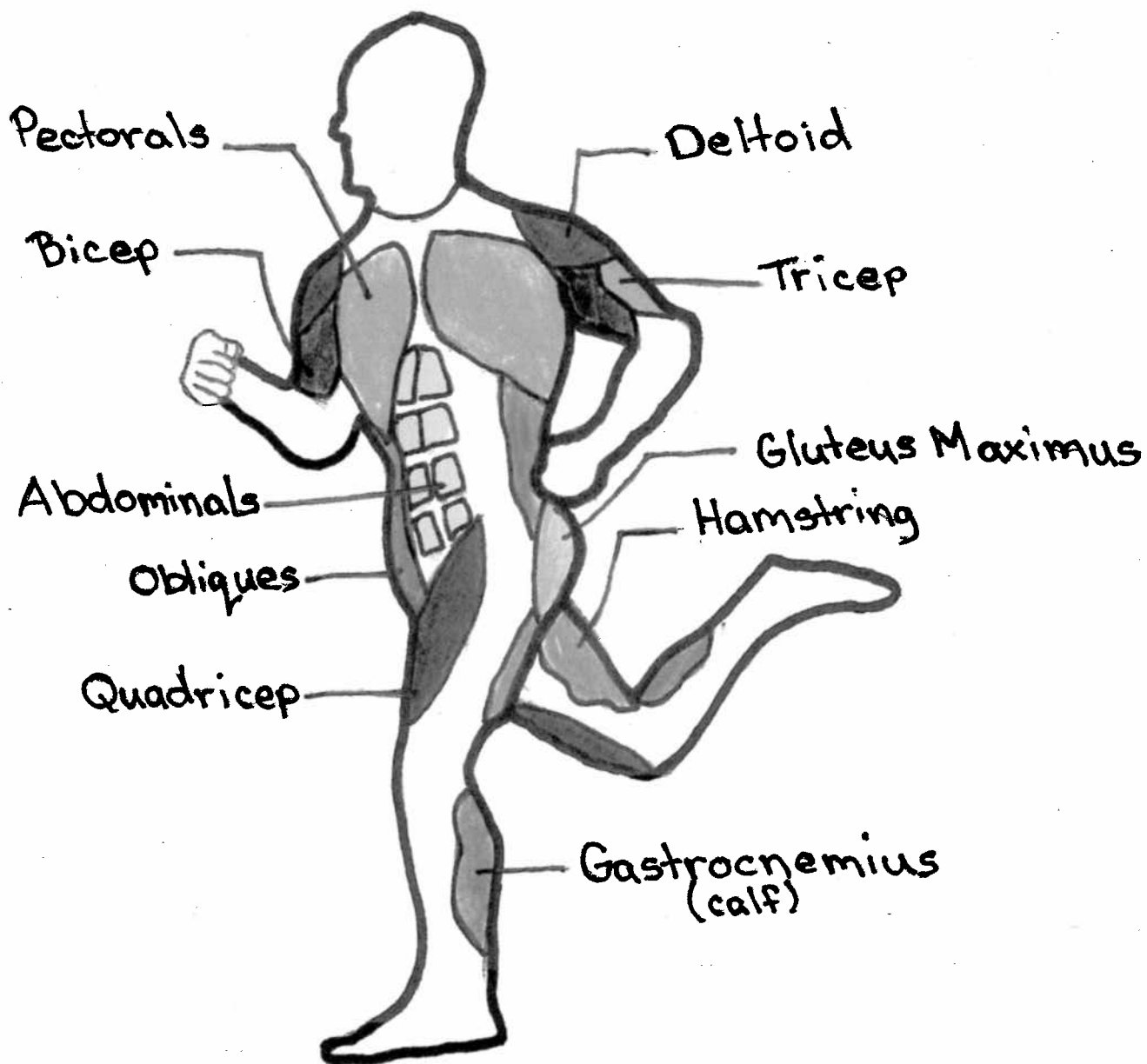
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MAJOR MUSCLES OF THE BODY



Directions – Color the muscle and muscle name the same color.

Deltoid

Gastrocnemius

Abdominals

Tricep

Pectorals

Obliques

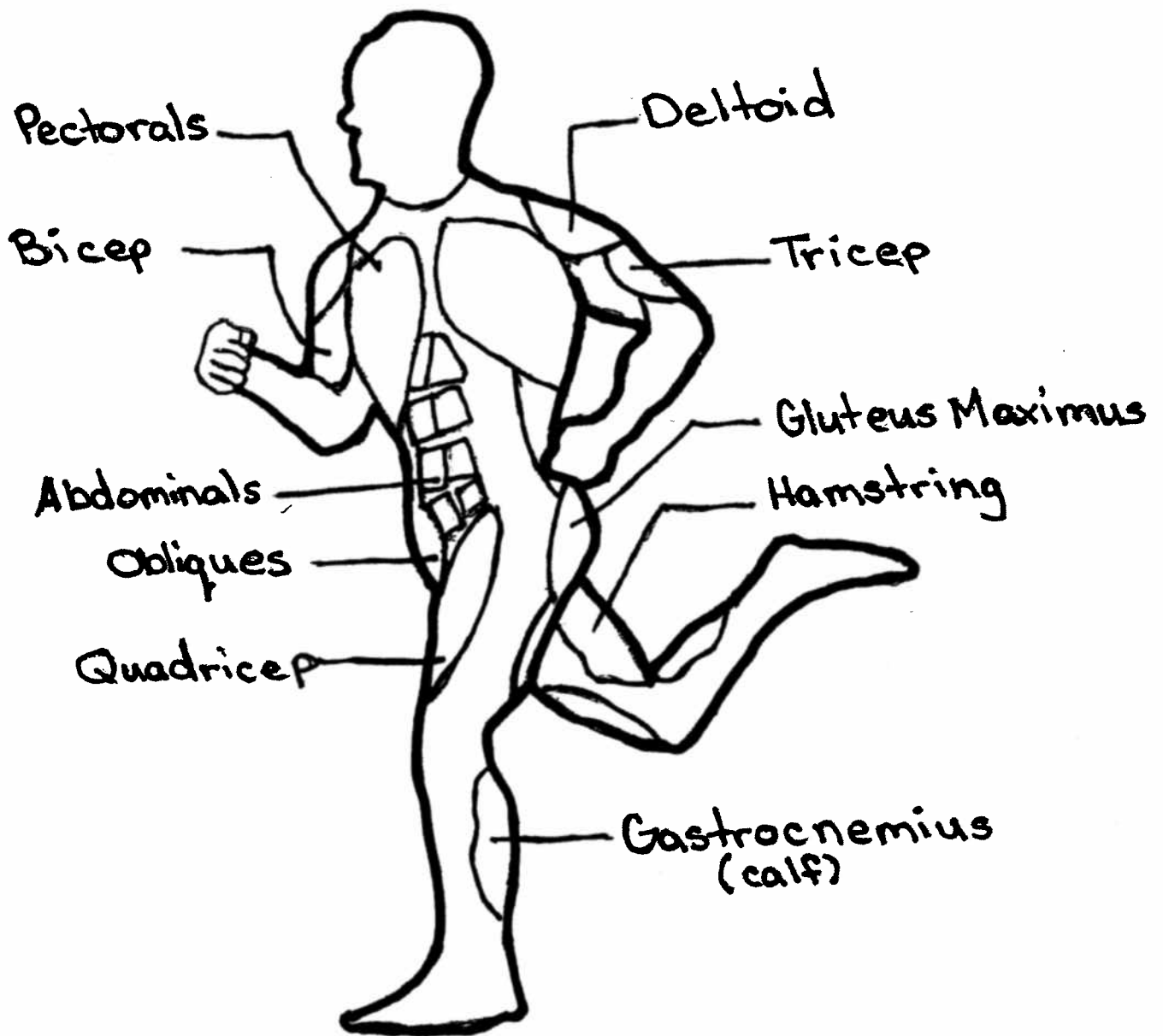
Gluteus Maximus

Bicep

Quadricep

Hamstring

MAJOR MUSCLES OF THE BODY



Directions – Color the muscle and muscle name the same color.

Deltoid	Gastrocnemius	Abdominals
Tricep	Pectorals	Obliques
Gluteus Maximus	Bicep	Quadricep
Hamstring		

This lesson idea is from PE Central (pecentral.org), the premier Web site for Physical Education Teachers. *Sponsored by S&S Worldwide (ssww.com)*

Name/Title: Word Association Muscles

Purpose of Event: To learn the names and locations of major muscles in the body

Suggested Grade Level: K-5

Materials Needed: Diagram of human muscles

Description of Idea

This is a simple exercise to teach students the basic muscle groups with word association. These are the muscle groups and the words used to help remember them:

- Trapezius -- The muscle that "traps" your head onto your shoulders.
- Deltoids -- The airplane muscles. Students put their hands out like an airplane. Then they remember DELTA AIRLINES.
- Abdominals -- These are our DOMINOS PIZZA muscles. Students remember this is where the Dominos Pizza goes.
- Obliques -- These are the muscles where they put their hands on their waist and say "OH BOY, that pizza was good."
- Latissimus Dorsi -- These are our DINOSAUR MUSCLES. The muscle sounds like the name of a dinosaur. Dinosaurs sometimes have those BUMPS on their backs.
- Gluteus Maximus -- Students remember this with the phrase, "Glue your bottoms to your seat."
- Gastrocnemius -- This is the place where your legs store the GAS to run faster.

Students may go through the rest of the major muscles and come up with interesting and unique associations to help learn them more easily and remember them.

Submitted by Debbie Wilson who teaches at Oakwood Elementary School in Preston , IN . Thanks for contributing to PE Central! **Posted on PEC: 5/18/2000.** Printed 3129 times since 8/24/2001.

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This lesson idea is from PE Central (pecentral.org), the premier Web site for Physical Education Teachers. *Sponsored by S&S Worldwide (ssww.com)*

Name/Title: Sing Along with the Muscles Song

Academic content: Science

Purpose of Event: To understand the actions and locations of different muscles.

Activity cues: visual picture of muscles used in song

Prerequisites: Students should have a basic understanding of muscle locations, and working in personal space.

Suggested Grade Level: 2-5

Materials Needed: copies of the song for students to read; poster of muscles displayed for visual aid

Physical activity: bending & stretching

Description of Idea

Students should learn the song and perform the motions of each muscle.

(to the tune of Rudolph the Red Nosed Reindeer)

Oh you know biceps, and triceps, but what do they do?
They bend and they straighten your elbow for you.

But wait there are much more than two
There are 650 muscles in you.

Brachioradialis-- helps to lift my cup
And my trapezius-- helps me shrug my shoulders up.

Further on out my shoulders-- my deltoids help to flap my arm
Exercising daily-- will not do you any harm.

(Then one foggy...) Gluteus maximus, on it I will sit
After I have exercised, just to rest my legs a bit

Core muscles in the middle-- help me to sit up straight
Latissimus dorsi, obliques-- abdominals in groups of eight.

My quadriceps are the biggest--and help me when I run
Hamstrings, gastroc, soleus-- help out, too, and make it fun.

There are so many more-- and lots with funny names
But flexor digiti minimi-- really makes me sound insane.

(then one foggy...)One muscle that I must say, works hard from the start
The muscle that I need the most, is the one I call my heart.

Now that you know your muscles-- be sure to use them every day
Running, jumping, playing-- keep you healthy all the way.

Variations:

More advanced students can be given an assignment of making their own songs either for more muscles, bones, how to play different sports, identifying types of exercise, etc.

Younger students can do the movements as they listen to the song.

Assessment Ideas:

See if children can sing the song on their own.

Give the students a picture of the body and have the students label the muscles.

Adaptations for Students with Disabilities:

The song is easily used with blind/visually impaired students.

Students may learn best if the song is presented in stages, one line at a time - adding on each time until they've learned the entire song.

Submitted by Mary Collins who teaches at Georgia Academy for the Blind in Macon, GA. Thanks for contributing to PE Central! **Posted on PEC: 12/13/2005**. Printed 2325 times since 11/18/2005.

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How to Eliminate Muscle Cramps

You Can Prevent this Problem

-- By Liz Noelcke, Staff Writer

Muscle cramps can be a very painful side effect of exercise. You work out to benefit your body and overall health, and are punished with a sharp pain in your muscles. It's easy to get frustrated and even apprehensive when a "charley horse" occurs, but they are usually harmless and there are several tricks to help alleviate the pain.

Cramps occur when a muscle contracts and doesn't relax. They are involuntary and you can often see or feel your muscle twitching. Even after the muscle does relax, it will remain fatigued and possibly sore. Cramps can last anywhere from a few seconds to 25 minutes or more. While some people experience cramps during exercise, they can also happen while sitting or even sleeping. They most commonly occur in the leg, especially in the calf, hamstring and quadricep.

Why me?

There are many reasons why cramps may occur. Inadequate stretching and overexertion might lead to a build up of lactic acid in your muscles. Muscle fatigue and dehydration may also contribute. Cramps are also more likely to happen in hot weather since you tend to lose more fluids.

Make it stop!

When cramps do strike, instead of grimacing in pain, try a few tricks to help the muscle relax. Start by gently stretching the area. Don't reach too far; just lightly push the muscle until you feel a stretch. Learn [specific stretches](#) to use. Another way to reduce the pain is to delicately massage the cramped muscle, without rubbing too hard. You might also try to ice the affected area for 15 minutes at a time. This will increase the circulation to the muscle.

An ounce of prevention

For prevention, include stretching in every workout. You'll not only gain a wider range of flexibility, but you'll also help keep muscles healthy. Take control over your breathing, especially while you are stretching. Deep breaths will deliver much needed oxygen to your muscles. Also make sure to warm up before heavy exercise so that your muscles are not shocked. Gradually ease into the exercise. Increase your training intensity slowly over time. Too much too soon will only result in injury.

Avoid eating a big meal too close to your work out. You'll be taking blood flow away from your digestive system and towards your working muscles. That can cause nausea and stomach cramping for some people. And as always, drink water. Your muscles are made up of mostly water, and you need even more water to keep them exercising at their best. Staying hydrated will keep your joints moving fluidly and help electrolyte imbalances than can cause muscle cramps.

Although not usually worrisome, if you get cramps on a regular basis, be sure to consult your doctor.



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Muscle Pain
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Muscle Cramp Relief

Muscle cramps are no fun. They are painful and can occur any time, while walking, sitting, or even sleeping. Therefore, for muscle cramp relief, here are some muscle cramps remedies that are simple yet highly effective.

A muscle cramp is a painful spasm or contraction of a muscle in the body, caused due to prolonged tightening of the muscle. The cramp may last for few seconds to few minutes and the intensity of the pain may vary from a slight to severe painful contraction. When a muscle cramp occurs, the muscle tenses underneath the skin and is unable to relax. Although muscle cramps affect people of all age groups, it is more common in adults, especially in elderly people.

Causes of Muscle Cramps

Though the actual cause of muscle cramps is not known, here are some common probable reasons for muscle cramps.

- The most common cause for a muscle cramp is inadequate intake of water. Since water carries minerals, vitamins and other substances to different parts of the body, low water intake can cause deficiency of nutrients in the body.
- Dehydration in the body as a result of heavy exercises and sweating can cause cramping or muscle twitching while sleeping or after exercising.
- Another cause is mineral deficiencies, i.e. depleted levels of calcium, potassium and magnesium in the body. These minerals help in various muscle activities and maintain the body's fluid balance, hence, their deficiencies cause muscle tremors and twitching which eventually leads to muscle cramps.
- Muscle fatigue, vigorous exercising or exercising in an unusual manner can also be the reasons for muscle cramps.
- Electrolyte imbalances or unusual body fluid distribution can also cause muscle cramps in the body.
- Lying or sitting in the same position or in an awkward position for a long time, can cause fatigue of muscles which eventually leads to muscle cramps.
- Shortening of the muscles, especially the calf muscles while sleeping (when the person moves a limb), causes rest muscle cramps
- Medications, like, statins, prednisone, etc. can also lead to muscle cramps in the body.



Read more on medical causes for leg cramps.

Home Remedies for Muscle Cramps

Following are natural remedies for muscle cramps that will provide you substantial muscle cramp relief and ease from muscle pain.

- **Be Hydrated:** One of the best ways to prevent muscle cramp is to keep your body hydrated. Drinking 6-8 glasses of water or any other form of fluid is strongly recommended to compensate for the fluid loss while exercising or sweating.
- **Massage:** Rubbing or massaging the part of the body where cramps have occurred, with essential oils, generates heat which relaxes the contracted muscle, loosens the muscle tension beneath the skin and relieves the pain. Read more on massage.
- **Exercises:** Another way to relieve muscle cramp pain is to perform immediate stretching exercises and applying pressure on the main points of the cramp.
 1. If you had a leg cramp in the middle of the night, stretch your leg straight and bend your toes towards your head.
 2. Stand in an upright position, apply pressure on the heel of the leg and stretch your toes upwards. Another technique to ease the pain is to stand at a three feet distance from the wall and lean on the wall or while sitting on the bed, bend your leg and go down to hold the sole of your foot.
 3. Put your hands at the main point of the cramp and with your thumb or the heel of your hand, apply pressure on that point and hold the pressure for 8 to 10 seconds.

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4. Keep your thumb on the top of your foot, the flip side of your sole, and using your fingers as a resistance, slowly press your foot down for 5 to 6 seconds and relax for another 5 to 6 seconds. Straighten your leg and bend your ankle towards you, stretching out your calf muscles for 5 to 6 seconds. Now return to the initial position and using thumb as a resistance, stretch your leg upward for 5 to 6 seconds and then relax. Again, straighten your leg and bend your ankle towards you, stretching out your calf muscles for 5 to 6 seconds. Relax for few seconds and repeat the exercise. These were some best leg muscle cramps remedies. Read more on:
 - Leg Cramps Remedy
 - Preventing Leg Cramps: How to Prevent Calf Muscle Cramps
 5. Even a tennis ball can provide significant relief from muscle cramps especially in your back or buttocks. Keep the tennis ball on the ground and cover it with a towel. Lie on your back on top of the ball and try moving around to find the sore spots. Allow the ball to glide over the sore aches in your back or bottom and as you find the sore spots let the ball sink into the muscles. Hold on to the position for few seconds or until the cramps or spasms go away. Of many back muscle cramps remedies, this exercise works the best.
- **Healthy Diet:** Since mineral or vitamin deficiency is one of the main reasons for muscle cramps, ensure that your diet comprises food items, like, bananas, tomatoes, potatoes, broccoli, critic fruits, etc. which are rich in minerals and nutrient components.
 - **Other Remedies:** These are some other remedies for muscle cramps which are simple, safe and can be tried at home.
 1. Quinine, a bitter alkaloid extracted from chinchona bark, can be used for curing muscle cramps. However, it should be taken under a doctor's supervision as it has been reported with some side effects, like, dizziness, nausea and ringing in the ears.
 2. As apple cider vinegar has high level of potassium, mixing two tsp of apple cider vinegar with a tsp of honey in warm water and drinking regularly can give instant relief to muscle cramps arising from potassium deficiency.
 3. Having pickle tonic or mustard containing acetic acid increases the production of acetylcholine in the body, which loosens the muscle tension underneath the skin and relaxes the cramped muscles.

Drinking chamomile tea, limiting the intake of caffeine and sugar, having a hot water shower, drinking a hot glass of water before sleeping and applying a hot water bag or ice pack massage on the cramped muscle area are also some other effective home remedies for muscle cramp relief. If the muscle cramps become persistent and recurring, it's recommended to consult a doctor for diagnosing the actual causes behind the cramps.

By [Kanika Khara](#)

Published: 10/28/2009

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About.com Orthopedics

How To Lift

By Jonathan Cluett, M.D., About.com Updated: October 26, 2009

About.com Health's Disease and Condition content is reviewed by the [Medical Review Board](#)

Improper lifting technique can lead to back, leg and arm pain. Poor technique can cause both acute injury, and serious chronic effects. Learning the right way to lift will help you avoid these problems.

Difficulty: Easy

Time Required: 5 minutes

Here's How:

1. **Plan ahead before lifting.**

Knowing what you're doing and where you're going will prevent you from making awkward movements while holding something heavy. Clear a path, and if lifting something with another person, make sure both of you agree on the plan.

2. **Lift close to your body.**

You will be a stronger, and more stable lifter if the object is held close to your body rather than at the end of your reach. Make sure you have a firm hold on the object you are lifting, and keep it balanced close to your body.

3. **Feet shoulder width apart.**

A solid base of support is important while lifting. Holding your feet too close together will be unstable, too far apart will hinder movement. Keep the feet about shoulder width apart and take short steps.

4. **Bend your knees and keep your back straight.**

Practice the lifting motion before you lift the object, and think about your motion before you lift. Focus on keeping your spine straight--raise and lower to the ground by bending your knees.

5. **Tighten your stomach muscles.**

Tightening your abdominal muscles will hold your back in a good lifting position and will help prevent excessive force on the spine.

6. **Lift with your legs.**

Your legs are many times stronger than your back muscles--let your strength work in your favor. Again, lower to the ground by bending your knees, not your back. Keeping your eyes focused upwards helps to keep your back straight.

7. **If you're straining, get help.**

If an object is too heavy, or awkward in shape, make sure you have someone around who can help you lift.

8. **Wear a belt or back support.**¹

If you are lifting in your job or often at home a back belt can help you maintain a better lifting posture. For ideas on [inexpensive back supports](#)² that can help support the low back while lifting, [click here](#)³.

Tips:

1. **Never bend your back to pick something up.**

It's just not worth the damage that improper lifting technique can cause.

2. **Hold the object close to your body.**

You are a much more stable lifter if you're not reaching for an object.

3. **Don't twist or bend.**

Face in the direction you are walking. If you need to turn, stop, turn in small steps, and then continue walking.

4. **Keep your eyes up.**

Looking slightly upwards will help you maintain a better position of the spine.

5. **References:**

- "[Safe Lifting and Carrying Techniques](#)⁴" National Ag Safety Database, Copyright 2000.
- Giorelli RJ, et al. "[The effect of wearing a back belt on spine kinematics during asymmetric lifting of large and small boxes](#)⁵ *Spine* 2001 Aug; 26(16):1794-1789
- "[Back Belts - Do They Prevent Injury?](#)⁶" DHHS (NIOSH) Publication No. 94-127

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