

## Staying Active Pays Off!

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

As many dieters have found, exercise can help you stay on a diet and lose weight. Regular exercise can also 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, and make sure to answer the following questions. This physical activity readiness questionnaire (PAR-Q) will help determine your suitability for beginning 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 because of 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 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 fitness testing and training.

## About Medicine Balls

Medicine balls provide an effective means of improving muscular power, endurance, and functional fitness. Anyone can use medicine balls to help improve his or her fitness.

Medicine balls are used in a variety of settings — in health clubs, to accommodate the health and fitness goals of novice exercisers, and by advanced athletes to achieve sports-specific conditioning goals.

## History

Earliest descriptions of what is known as a “medicine ball” can be traced to ancient Greek and Egyptian writing nearly 3,000 years ago. In ancient Greece, the physician Hippocrates was rumored to have used heavy padded balls sewn out of animal skins and stuffed with sand to treat and rehabilitate his patients. The treatment, or “medicine,” involved exercises that required throwing and catching these weighted balls, which is perhaps where the name “medicine ball” arose.

Medicine ball training reappeared in the scientific literature beginning in the early 1900s. However, as weight training grew in popularity, interest in medicine ball training diminished in the United States. Sports like boxing and martial arts continued to utilize medicine balls to simulate blows to the body during this period of decline.

## Selecting and Effectively Using

# Medicine Balls



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## Why Use a Medicine Ball?

The resurgence of medicine balls has come with the advent of plyometric training and the need for upper body exercises. Medicine ball training can be effective in improving muscular power. Movement velocity is a critical factor in power development. Plyometrics increase the power of the movement by harnessing the natural elastic components of the muscles and tendons as well as the stretch reflex. These quick movements develop explosive power through powerful muscular actions. When training for power, acceleration of the resistance without deceleration is

important. Therefore, as a load is lifted, it would be ideal to avoid slowing the weight down at the end of the exercise movement. This can be avoided by releasing or throwing the weight at the end of the movement rather than controlling it. Considering that it is safer and more feasible to throw a weighted, padded ball than a loaded barbell, medicine balls are frequently used in power training to allow acceleration without deceleration.

As with any training method, medicine ball training is one of the many “tools” in an individual’s routine. Medicine ball exercises promote variety by introducing a novel stimulus for physiological adaptation. Training with a medicine ball helps to develop total body power, muscular endurance, and flexibility. Medicine ball exercises involving tossing and catching the ball are typically classified as a plyometric exercise (a specific type of exercise utilizing the stretch-shortening cycle of the muscle to produce power). Plyometric training is important to improve power development – the combination of strength and speed.

Although used as part of strength and conditioning programming, typically medicine balls do not provide a sufficient load to produce

the overload needed to create strength gains in certain exercises. However, they do provide a more comfortable and feasible means of safely increasing the load for certain exercises. For instance, a medicine ball can be used as added resistance when held on the chest for a weighted crunch, as a more comfortable alternative to a rigid and awkward 45-pound plate.

## Selecting a Medicine Ball

Medicine balls can be found in a variety of sizes and weights, usually ranging from a few inches in diameter (baseball sized) to larger than a basketball and from 1 to 30 pounds (1/2 kg to 14 kg). They also come in different shapes and constructed from different materials. Most medicine balls are round, but they are also available with built-in handles to offer improved grip and shaped as footballs for sport-specific training. In addition, some medicine balls have been designed with single or double handles or ropes in order to increase specificity to training. Usually medicine balls are constructed of either leather, nylon, or some rubberized material. Size does not always determine the weight of the medicine ball. Not all medicine balls are constructed the same. Some are denser than others, so consider both the size and weight of the ball when selecting the medicine ball.

Choosing the ball’s weight and size is specific to the training goals of the individual. In general, smaller and lighter balls should be used for training speed, while heavier medicine balls would be utilized for strength-speed and/or power training. When selecting a medicine ball consider the following questions:

### ***What exercises will I perform with the medicine ball?***

This will help you determine the weight, shape, size and construction of the ball you need. Determine whether the ball will be used for

throwing, catching, or added resistance. This will help determine whether or not you should select a standard ball or a specialty ball with handles or ropes.

### ***How heavy should the medicine ball be?***

People tend to choose a heavier ball than required. The general rule when selecting a medicine ball is that the “ball must be heavy enough to visibly slow the motion, but not so heavy that control, accuracy, or range of motion are lessened.” Keep in mind that fatigue at the end of a workout will diminish motor skills; therefore, if you lose control then the ball is too heavy.

For added resistance exercises and local muscular endurance exercises such as weighted sit-ups, select a weight that allows you to perform the desired amount of repetitions without sacrificing technique and control. For power training, it is recommended that the medicine ball’s weight corresponds to about 30-50 percent of the one-repetition maximum of a similar weight training exercise.

### ***When should I increase the weight?***

Following the principle of progressive overload, as you become stronger and more economical in your movement, then you will need to progress to the next size.

### ***Should I use a leather or a rubber medicine ball?***

Again, this depends on the exercises that will be done. If the exercises require bouncing the ball, a rubber ball should be selected. As a guide when selecting a rubber ball, it should bounce about two to three times when dropped. If the ball will be used for throw-and-catch, a leather or nylon ball may be preferred.

### ***Is it better to start with a heavy or lighter ball?***

When debating between two weights, it is better to start light and gradually work up to greater resistance. This will ensure that proper movement technique and form is not compromised.

### ***Can I use one medicine ball for all exercises?***

The size and shape of the medicine ball used will vary depending on the exercise being performed. It is important to remember that power and multi-joint exercises, such as the backward overhead medicine ball throw or the overhead medicine ball squat, might require a larger size ball in order to work muscles sufficiently. However, exercises done with the ball at arms' length that seem manageable when held close to the body may be too heavy when held away from the body.

## **Using a Medicine Ball**

### ***Workout Area***

Before using a medicine ball, ensure there is adequate space available to perform the selected exercise. The amount of space will vary depending on the drill. Many medicine ball exercises involve throwing and catching; therefore, individuals must have spacious and clutter-free area. For most exercises, the minimum recommended area is about 20 square yards, especially when performing throwing exercises. When utilizing an indoor facility such as a gymnasium, ensure the ceilings are high enough for all overhead throws. Medicine ball throws against the wall should only be done against concrete or reinforced walls. If the weather allows, training outdoors in a field or grassy area is also recommended.

Exercises should follow the principle of specificity with movements and drills mimicking those used in the sport. Medicine ball exercises can be used for a variety of drills, such as:

***Backward Overhead Medicine Ball Throw*** – Begin in a squat position holding the medicine ball in both hands between the legs. In a quick movement, bring the arms upward and over the head releasing the ball at chest level and following through. Repeat for the desired number of repetitions.

***Chest Pass*** – With a partner, position your feet shoulder-width apart, in a power stance, knees slightly flexed, and abdominals tight. Pass the ball to your partner at chest level. Receive the ball with a strong core and legs while retaining your balance. Repeat for the desired number of repetitions.

***Depth Push-Up*** – Lie in the push-up position with both hands on the medicine ball and elbows extended. Quickly remove the hands from the medicine ball and drop down. Contact the ground with hands slightly farther than shoulder width apart and elbows slightly flexed allowing chest to almost touch the medicine ball. Immediately and explosively push up by fully extending the elbows and putting your palms back onto the medicine ball. Repeat for the desired number of repetitions.

***Medicine Ball V-Ups*** – Lie supine, on your back with legs straight and arms extended straight overhead holding the medicine ball. Simultaneously raise your legs and trunk into a seated V position, bringing the medicine ball and legs upright overhead. Return to start position and repeat for the desired number of repetitions.

### ***Training Partners***

Although not necessary for every exercise, a number of medicine ball exercises require a partner to assist in throwing and catching the

medicine ball. Training partners should match in approximate size and strength. Remember to practice each exercise before attempting to perform at a more intense pace or rhythm. Practice will provide partners a chance to learn proper execution of the movement while ensuring accuracy and coordination.

Like a good spotter, training partners should pay attention at all times throughout the execution of the movement to ensure safety. Establish a smooth rhythm of motion to reduce surprises and accidents. When throwing the medicine ball, determine whether your partner is ready to receive the ball. When receiving, ensure that you keep your eyes on the ball. Catch the ball with extended and open hands kept close together, and at contact, let the arms flex, absorbing the impact.

## **Safety Precautions**

Although medicine ball training is a safe form of resistance training, as with any exercise, injuries may occur if performed incorrectly. It is important to always use good movement technique and control. In addition, it is important to follow proper exercise progression to reduce your risk of injury and gain optimal training benefits.

### **A Complete Physical Activity Program**

A well rounded program of physical activity includes aerobic exercise and strength training exercise, but not necessarily in the same session. This blend helps to 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 2007, 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. Typical aerobic exercises include walking and running, stair climbing, cycling on a stationary or moving bike, rowing, cross-country skiing, and 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.

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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 in fact 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.