



Medicine Ball for All Kids

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A compelling body of evidence indicates that strength-building activities can be a safe and effective method of conditioning for school-aged youth provided that appropriate training guidelines are followed. While weight machines and free weights (i.e., barbells and dumbbells) are traditionally used to enhance youth fitness, medicine balls are becoming increasingly more popular in schools and youth sport training centers. Originally used to help restore muscle function in older patients, medicine balls are now being used to improve health-related fitness, performance-related fitness, and participatory self-efficacy in school-aged youth. Although the popularity of medicine balls has declined somewhat in the United States since the 1950's, physical educators and youth coaches are now rediscovering the many benefits that can be achieved by utilizing medicine balls in their classes and after-school programs. This article will provide an overview of medicine ball training and will describe our "Medicine Ball for All" program.

Why Medicine Ball Training?

Regular participation in a medicine ball training program has the potential to positively influence many health and fitness measures. Medicine ball training can be used to enhance muscle strength, muscle power, flexibility, endurance, coordination, agility, balance and speed. Unlike weight machines that isolate and train individual muscles or muscle groups, medicine balls

exercises train the body to function as a unit instead of separate parts. For example, when you swing a tennis racquet you don't think about each individual muscle, but rather all the muscles involved in creating a fluid swing. It is the creation of these so-called 'functional' movements that mimic natural body positions and movement speeds that occur in daily life and game situations that make medicine ball training so valuable. Since medicine balls come in a variety of shapes and sizes, each student can start at safe levels and gradually progress as needed.

Med Ball for All Kids

Depending upon class time, lesson objectives and the student's fitness abilities, teachers and coaches can modify their lesson plan in order to incorporate some type of medicine ball training into each session. We 'activate' our classes by incorporating medicine ball training into the first ten to 15 minutes of nearly every lesson. During this time students perform a variety of medicine ball exercises that progress from simple to complex as their competence and confidence improve. Although our "Medicine Ball for all" program is designed as a six-week lesson, teachers and coaches can continually modify the program in order to incorporate some aspect of medicine ball training into every physical education class. For example, teachers can incorporate the medicine warm-up activities into each class or they can focus on developing upper or lower body strength with medicine balls. Our program simply gives teachers a model from which they can use their own creativity and ideas to enhance the health and fitness of their students.

We begin with teacher directed activities and lightweight medicine balls (about 1 kg) so that students can train their neuromuscular system to perform quality movements. Even though there

is no established age requirement for medicine ball training, most 7 and 8 year olds should have the coordination and maturity to use lightweight medicine balls safely and effectively in developmentally appropriate activities.

Our warm-up sessions generally last for about three to five minutes and involve eight to ten different movements. Students hold and move a lightweight medicine ball as they jog and move the ball in different positions. Each exercise is performed for about 30 seconds. For a little variety, you can create a medicine ball warm-up using cones, agility ladders or whatever else is available. When students feel warm and start to sweat, they are ready to begin the training phase of the ‘Medicine Ball for All’ workout. Remember that the goal of the dynamic warm-up is not to fatigue the students, but rather to prepare the students for the demands of medicine ball training.

Medicine Ball Training

While there are literally thousands of exercises that can be performed with medicine balls, our “Medicine ball for All” program follows a simple progression so students experience small successes every class. The idea is for all students to gain confidence in their abilities to be physically active while exercising with medicine balls. Instead of complex exercises in which most students will fail, we begin with relatively easy movements that most children can master with a few simple coaching cues. We generally begin with about 15 exercises during the first week and add a few exercises every other week as the class progresses.

Over the course of the six-week program students may perform up to 40 different medicine ball exercises each class. Depending upon the week of the program, students perform one to three sets of 7 to 10 repetitions of each exercise. If multiple sets of an exercise are performed, a recovery period of about 30 seconds between sets is suggested. During every class we explain, demonstrate, then have the students perform a new exercise while we watch and provide constructive feedback. The goal is for all students to develop quality movement patterns characterized by proper exercise technique and movement speed. The idea is for students to ‘teach’ their muscles how to perform each movement correctly. Thus students should understand the skills to be learned and classes should be designed to maximize the student’s opportunities to perform the skills and experience success. In our medicine ball training programs, success is not measured simply by assessing gains in muscular strength, but rather by mastering tasks and moving forward in difficulty levels.

We group our medicine ball conditioning exercises into the following seven categories: 1) lower body (e.g., underhand squat), 2) upper body (e.g., chest push), 3) stability (e.g., single leg toss), 4) reaction (e.g., wall chest pass), 5) core (e.g., V-sit on ball), 6) specialty movements (e.g., lateral taps), and 7) flexibility (e.g., straddle ball roll). Examples of selected medicine ball exercises are in figures 1 to 6. Within each category, the exercises progress from the least challenging to the most challenging. Level one and level two exercises are the easiest to perform whereas level five and level six exercises are the most complex and are specifically designed to elicit maximum muscle fiber recruitment while challenging cognitive abilities. For example, the straddle ball roll is a level one exercise that requires students to sit in a straddle position and roll the medicine ball as far forward as possible.

Each group of exercises focuses on a specific fitness parameter, with specialty movements designed to enhance spatial awareness, reaction time and speed. An example of a speciality exercise we like to use is the medicine ball partner toss combined with random questioning. To perform this exercise, two students chest pass a medicine ball to each other as they ask each other random questions. This type of activity keeps the students moving, thinking and reacting just like in real life situations and sport (e.g., walking down a busy street or running for a touchdown). A summary of medicine ball training guidelines is noted below. A more detailed description of all exercises is available in *Medicine Ball for All Kids* (Monterey, CA: Healthy Learning. 2007).

- The exercise environment should be safe and free of hazards
- Every class should begin with dynamic warm-up activities
- Start with one set of 7 to 10 repetitions with a light weight ball (1-2 kg)
- Begin with simple exercises and gradually progress to more challenging exercises over time.
- Gradually increase the number of sets, exercises and weight of the ball
- Two to three nonconsecutive training sessions per week are recommended
- Focus on proper exercise technique with controlled movements
- Vary the training program to optimize adaptations and reduce boredom

Choosing the Right Medicine Ball

Medicine balls come in a variety of weights (from 1 kg to over 10 kg) and sizes (from the size of a baseball to a basketball). Some medicine balls have a textured surface or handle for easier gripping and others are inflatable and bounce. Leather balls do not bounce but can be used as a base to stand on for balance training. While college athletes may use relatively heavy medicine balls (e.g., five to 10 kg) for training, we suggest that children begin with one kg balls and adolescents begin with two kg balls. Depending on body size and fitness level, heavier balls may be appropriate for some students. Once students have developed proper exercise technique, gradually increase the weight of the medicine ball (by about 0.5 – 1 kg), the distance between training partners, and, when appropriate, the movement speed of selected medicine ball exercises. Remember, the quality of the movement is far more important than the weight of the ball.

By using medicine balls of different weights and sizes, you can develop a fitness program consisting of throwing, catching and rotational movements. In our programs, we use color-coded balls so the teachers and the students can easily keep track of the loads they are using.

Obviously, it is desirable to have medicine balls of different weights and sizes to accommodate the needs and abilities of all students. Also, you will need smaller and lighter balls for one-arm exercises and leather balls if you want a base on which to stand or sit for balance and/or core training (e.g, V-sit on ball exercise).

With qualified instruction and an appropriate progression of training loads, “Medicine Ball for All” can be a safe, effective and fun method of developing and enhancing health-related fitness,

physical competence, and positive attitudes about physical activity in school-aged youth. With a little creativity, different exercises can be created for students with differing needs, goals and abilities.

Selected References

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