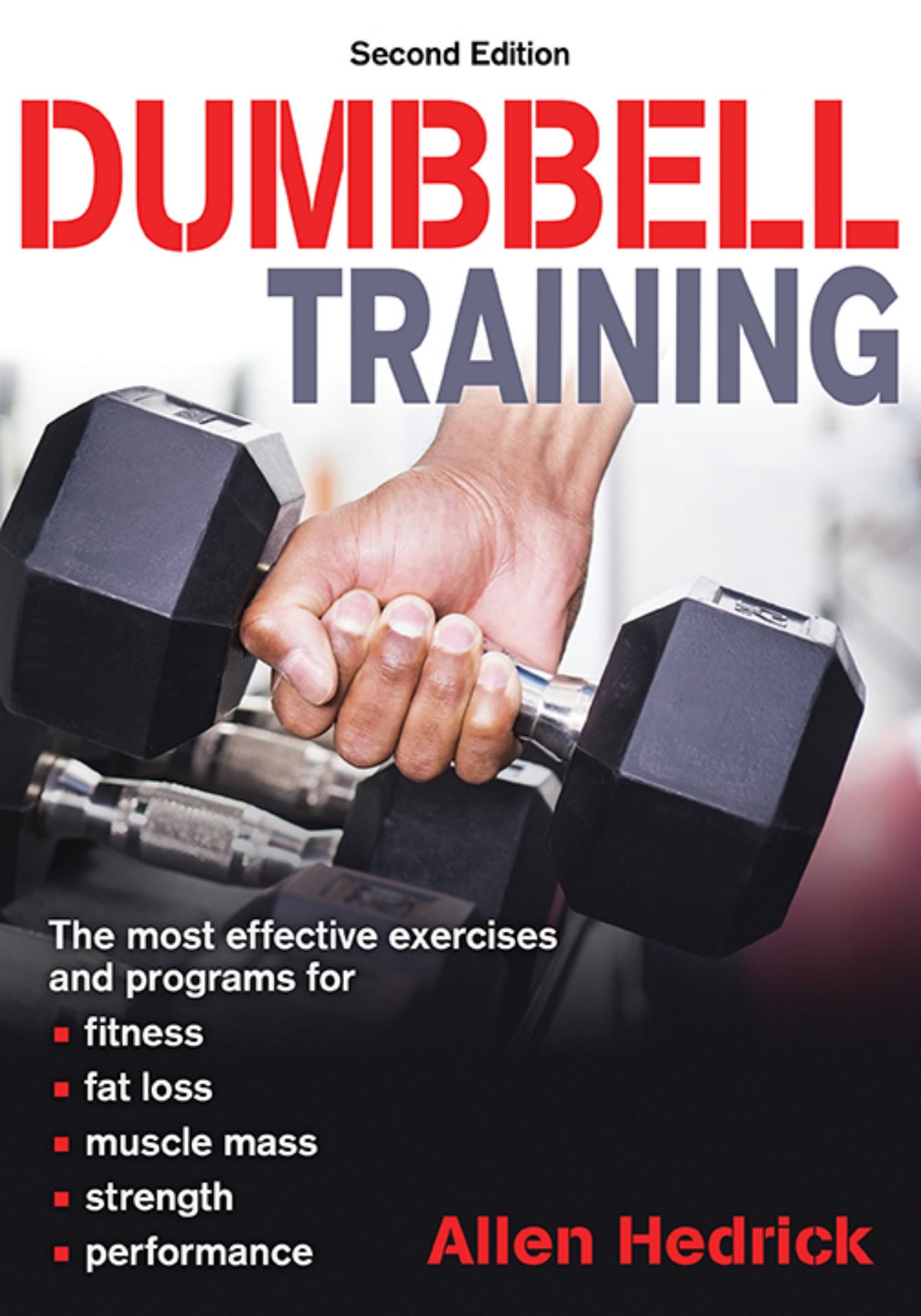
Second Edition

DUMBBELL TRAINING



The most effective exercises and programs for

- fitness
- fat loss
- muscle mass
- strength
- performance

Allen Hedrick

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Dumbbell Training

SECOND EDITION

Allen Hedrick

HUMAN KINETICS

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Exercise	Primary muscles worked	Other muscles worked	Single joint or multijoint	Page number
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Exercise	Primary muscles worked	Other muscles worked	Single joint or multijoint	Page number
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Introduction

The use of dumbbells as a resistance training modality has a long history. After a brief review of that history, we will look at the types of dumbbells and their uses and the equipment needed to perform the exercises in this book.

The earliest predecessors of the dumbbell were halteres (shown in figure 1), used in ancient Greece similarly to how we use dumbbells today. Halteres were made of stone or metal and weighed between two and nine kilograms (4.4 and 19.8 lb). The halteres were shaped or carved to include a handle that made it easier to grip the implement. Although the ancient Egyptians, Chinese, Indians, and many other people practiced resistance training, credit traditionally has been given to the Greeks for producing the predecessor of modern weight training equipment. In addition to using halteres for resistance training, the ancient Greeks also used them when performing their version of the long jump. The individuals held an implement in each hand in an attempt to increase the distance of their jumps. Interestingly, some ancient texts also use the term *halteres* to describe the weapon used by David to slay Goliath (Todd 2003).

Indian clubs, similar in form to dumbbells, were used in India for more than a thousand years. Indian clubs were also popular in the late 19th and early 20th centuries in Europe, the British Commonwealth, and the United

Figure 1 Stone halteres, typically attributed to ancient Greece, were the predecessor to modern strength equipment.

States. Because the implement is shaped like a club, it became known as an Indian club. The bowling pin–shaped wooden club came in various sizes and weights. During training, individuals swung the Indian clubs in specific patterns. Clubs ranged from a few pounds (about 1 kg) each to as much as 50 pounds (22.6 kg) for special clubs. Indian clubs were normally used in pairs during training in carefully choreographed routines in which a group of exercisers, led by an instructor, swung the clubs in unison. The routines varied based on ability and the weight of the clubs.

The term *dumbbells* may have originated in Tudor, England, and referred to equipment simulating the action of ringing a church bell used by people learning the technique and building the strength required for English bell ringing. The clapper in the bell was tied back so that no sound was produced. As a result, the equipment was referred to as *dumb-bells*. When individuals started to make their own equipment for strength training, they kept the name *dumbbell*, even though the shape of the equipment had changed. In the early 17th century, dumbbells that began to resemble the dumbbell we are familiar with today were manufactured.

The three primary types of dumbbells are adjustable, fixed, and selectorized. Adjustable dumbbells consist of a metal handle and weight plates. Often the center of the handle is engraved to create a knurling effect to improve grip. Weight plates slide onto the ends of the handle and are secured with clips or collars. The advantage of this system is that it requires only two handles and the required weight plates to create two evenly loaded dumbbells, producing a variety of weights.

The disadvantage of this system is that nearly every time you perform a different exercise (e.g., dumbbell lateral raises, dumbbell squats) the weight needs to be changed. Further, especially for individuals with an extensive training background, a large range of loading capabilities will be required as strength increases and it becomes necessary to increase the training load.

Fixed-weight dumbbells are often made of cast iron, either molded in the shape of a dumbbell or consisting of individual weight plates permanently attached to a handle. Sometimes the weight plates are coated with rubber or neoprene, which offers padding and protects the floor. A less expensive (and less durable) type of fixed-weight dumbbell is made of concrete and coated with rubber.

The primary advantage of fixed-weight dumbbells is that you do not have to change the load on the dumbbell when you start the next exercise. Instead, you simply grab the dumbbells of the desired weight and you are ready to go. The disadvantage of fixed-weight dumbbells, in comparison to adjustable dumbbells, is that you need many dumbbells to cover the weight range required to perform a variety of exercises. A relatively new model of dumbbell, at least in comparison to the other types, is the selectorized dumbbell. Individuals select the weight on the dumbbell by turning a dial or moving a selector pin to a specific weight rather than changing weight

plates. A selectorized dumbbell is a set of weights sitting in a dumbbell holder. The dumbbell handle sits inside a series of weighted plates. The person turns a knob or slides a pin into the dumbbell holder to select the desired weight. Only the selected weight is attached to the handle when the handle is removed from the dumbbell holder. Selectorized dumbbells have an advantage similar to that of adjustable dumbbells: Only two dumbbells are required rather than a pair of dumbbells of each weight. A disadvantage of selectorized dumbbells is that every time you want to adjust the weight, you need to add or remove weights. This is not a major issue, but it does add to training time.

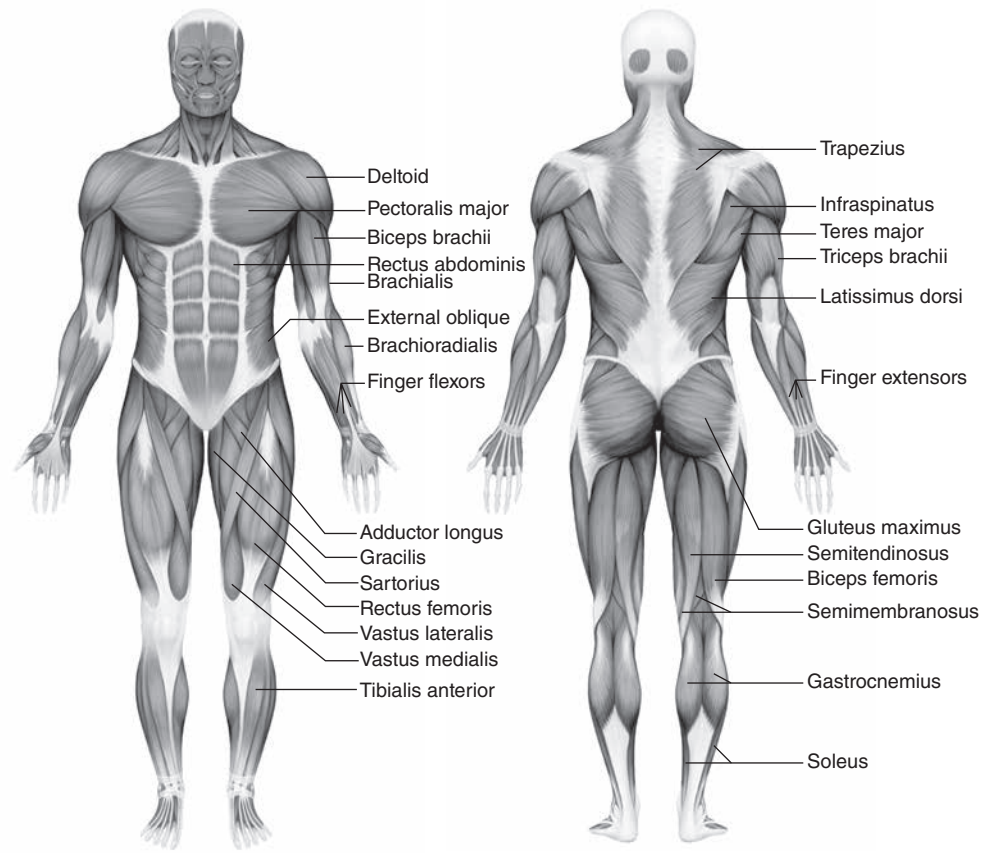
Besides the dumbbells themselves, not a lot of additional equipment is required for most dumbbell exercises. One piece of equipment that is helpful is an exercise bench that can adjust from flat to both incline and decline. This allows you to perform, for example, dumbbell bench presses, dumbbell incline presses, and dumbbell decline presses. You can use the same bench when performing single-leg squats and dumbbell rows. An attachment that anchors your legs when the bench is declined is useful when performing decline abdominal exercises.

During some exercises, such as bench press and incline press, it is difficult to place the dumbbells gently on the floor after performing a heavy set. Because it is important that setting down the dumbbells does not damage the floor, another useful piece of equipment is a four-by-eight-foot (1.2- × 2.4 cm) rubber mat or other product such as three-quarter-inch (2 cm) plywood. It is also recommended that you perform the total-body exercises on a mat or sheet of plywood to protect the floor. These explosive total-body movements can be fatiguing, which can make it difficult to place the dumbbells gently on the floor at the completion of the set.

Other than the dumbbells, an adjustable bench, and a rubber mat or piece of plywood to protect the floor, no other equipment is required to perform the dumbbell exercises in this book. This means, for those training at home, dumbbells are a great tool for a home gym. Chapters 1 to 3 discuss the benefits of training with dumbbells and how to design an appropriate plan using dumbbells or incorporate them into your current plan.

After reviewing the correct technique for an extensive list of exercises performed with dumbbells in chapters 4 to 7, chapters 8 through 10 provide information when the goal of training is fitness (chapter 8), weight loss (chapter 9), or increasing muscle size (chapter 10). Moving on, sample workouts for a variety of sports are found in chapters 10 to 13. Next, chapter 11 looks at training for power sports, and chapter 12 focuses on training for speed sports. Chapter 13, the final chapter, is aimed at training for agility and balance sports (e.g., wrestling, soccer, ice hockey, downhill skiing). Obviously, not every sport can be covered in this book, but the example workouts provide the information needed to allow you to design an effective workout for whatever sport you may participate in.

Key to Muscles



PART

TRAINING WITH DUMBBELLS

Training with dumbbells can be a lot of hard work. Most people, before engaging in rigorous exercise, want to know what the benefits will be before agreeing to participate in a challenging training program. The reality is that including dumbbells in your training program reaps significant benefits.

Some of the benefits are practical: The equipment is low cost and does not take up much space. Some of the benefits are physiological: Research has shown that activation of the pectoral muscles during a dumbbell bench press is similar to activation when performing the same exercise with a barbell. Further, activation of the core muscles is greater when training with dumbbells than when training with a barbell because of the need to control two separate implements.

It may seem that writing a resistance training program emphasizing dumbbell training would be difficult, but the process is quite easy. The vast majority of barbell exercises—or machine exercises for that matter—can be performed with dumbbells. For example, turning a barbell squat into a dumbbell squat is primarily a matter of using different equipment. Converting a machine leg press requires finding a dumbbell exercise that trains the same muscle groups. In this case, it is dumbbell squats. Similarly, barbell bent rows or machine seated rows become dumbbell rows.

Let us take a more thorough look at those benefits so you have a greater understanding of what training with dumbbells can do for you. The more you know and understand about these potential benefits, the better you will be able to create an effective training program.

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CHAPTER 1

Benefits of Training With Dumbbells

Training with dumbbells provides a variety of advantages. Some of the advantages are practical and some are physiological, but without a doubt, dumbbells will be a good addition to your training program.

PRACTICAL ADVANTAGES OF DUMBBELLS

Let us start by looking at the practical advantages. One significant benefit of training with dumbbells is their relative low cost and adaptability in comparison with other modes of training. Most exercise machines are expensive and typically can be used to perform only one exercise. Dumbbells, on the other hand, provide the opportunity to perform a huge range of exercises. Plus, nearly every barbell exercise you can think of can also be performed with dumbbells. But that is not the end of the list. Add all the exercise variations that are possible with dumbbells that are not possible with barbells (e.g., single-arm and alternating-arm exercises) and you quickly see that the number of potential dumbbell exercises is quite large.

Another benefit of dumbbell training over machine training is that most machines do not lend themselves well to explosive training, the importance of which is discussed in chapter 7. Dumbbells are well suited to explosive training, which is the focus of most of the dumbbell exercises my athletes perform.

While barbells and weight plates are less expensive than exercise machines, they cost more than dumbbells. Further, many exercises performed with barbells require specialized equipment, such as a bench press or squat rack, or, in the case of the snatch and the clean and jerk Olympic lifts (exercises), an Olympic bar, bumper plates, and a platform that creates a safe area on which to perform the exercises. In contrast, most dumbbell exercises require only an open space for training, a rubber mat or piece of plywood to protect the floor, and an adjustable exercise bench.

Another practical benefit of dumbbell training is that little training space is required, both for storing the dumbbells and for exercising with them. Compare this to machine training, where multiple machines are required to train the entire body, and barbell training, where training occurs with an over-seven-feet-long (2.1 m) barbell and a recommended two-foot (0.6 m) cushion of space on either end of the barbell. Because of their small size, dumbbells require very little space during training. While you do want a safe buffer around a person training with dumbbells, it is possible to simultaneously train more people in a smaller area than you could train on either machines or with barbells, and you can do so efficiently with minimal risk of injury. For example, it is possible to have 20 to 25 individuals training with dumbbells in a relatively small area (i.e., 500 square feet) during a training session (broken into groups of two, with one person lifting and a partner spotting while waiting to perform a set).

A relatively small number of dumbbells is required to train the entire body. For most people, a weight range from 5 pounds (2.3 kg) to 70 pounds (31.8 kg) in 5-pound (2.3 kg) increments will provide the resistance required to perform most exercises, although some trained athletes may need dumbbells weighing 125 pounds (56.7 kg) or more. With this limited number of dumbbells, it is possible to train all of the major muscle groups of the body performing only dumbbell exercises. For fixed-weight dumbbells (nonadjustable), a weight range from 5 pounds to 70 pounds would require 14 pairs of dumbbells with the weight increasing at 5-pound increments. For adjustable-weight dumbbells, having six 10-pound plates, two 5-pound plates, and two 2 1/2-pound (4.6, 2.3, or 1.1 kg, respectively) plates would be sufficient to cover a weight range of 5 to 70 pounds (the exact combination would depend on the weight of both the handle and the clamps).

Did You Know?

One advantage of training with dumbbells is their low space requirements compared to training with a barbell. With dumbbells, the only accessory piece of equipment likely required is a utility bench. Other exercises, such as dumbbell power cleans or dumbbell squats, require no additional equipment and limited space. In contrast to that, when training with a barbell, a platform area will be needed to perform any of the power exercises, a bench with supports will be required for any bench press or incline press exercise, and a squat rack will be needed to perform back or front squats. Further, adequate space to safely train with a bar that is over seven feet long is a must.

Another benefit of dumbbells is that they are safer than barbells when performing certain exercises, such as single-leg squats or lateral box crossovers because dumbbells are easier to drop safely than a barbell. Say you are performing single-leg squats and you lose your balance—it is easy to safely drop dumbbells held at arm's length in either hand to regain your balance. However, with a barbell across your back, it is more difficult to drop the

barbell safely without risking injury to yourself or to someone standing nearby or damaging the equipment.

Dumbbell training also makes it easier for people with injuries to continue to train without aggravating the injury site. An individual with an arm or shoulder injury would not be able to train the upper body using a barbell. However, it is possible to perform single-arm dumbbell training using the uninjured arm and continue to train. Similarly, a lower-body injury would prevent a person from performing Olympic lifts with a barbell. However, by using just one dumbbell, stabilizing the body by holding onto something stable with the opposite hand, and lifting the injured leg off the floor, it is possible to perform the Olympic lifts to work around the injured leg.

A final practical benefit of dumbbell training is that, generally, dumbbell exercises are easier to learn than barbell exercises. For example, most strength and conditioning coaches or personal trainers would agree that on average it is much easier to teach someone how to correctly catch a dumbbell power clean than to teach that same person how to catch a barbell power clean. (To catch the dumbbell means that the dumbbells are brought to a complete stop under control and in good position.) This means you can get through the teaching process and on to productive training more rapidly when training with dumbbells. This is especially important when working with large groups.

PHYSIOLOGICAL ADVANTAGES OF DUMBBELLS

Several physiological advantages of dumbbell training contribute to its effectiveness. Because barbell training is much more common than dumbbell training, the belief exists that barbell training is superior. A study comparing muscle activation while performing a barbell bench press and a dumbbell bench press found that the pectoralis major appeared to reach approximately the same peak activation level during the lifting phase of these two chest exercises. While greater muscle recruitment was not demonstrated in the dumbbell movement as compared with the barbell movement as has been suggested by some, this may have occurred because of the low number of repetitions and the low weight used in the study (subjects performed three repetitions with a resistance representing a six-repetition maximum) did not result in fatiguing contractions in the recruited muscles (Welsch, Bird, and Mayhew et al. 2005).

Perhaps one of the most significant benefits to dumbbell training is that you have to control two independent implements rather than controlling a barbell with both arms simultaneously. This makes dumbbell training a more complex motor activity when performing many exercises.

Because you are working with two independent implements, you have the opportunity to perform either alternating movements (e.g., alternating bench press, with one arm pressing a dumbbell up while the opposite arm is lowering a dumbbell) or single-arm movements (e.g., single-arm bench press, doing all the repetitions with the same arm). For many individuals, alternating-arm exercises and single-arm exercises provide a more specific way to train for activities in sports involve single-arm movements (e.g., throwing a punch, spiking a volleyball, or swinging a racket) (Behm et al. 2011), or for activities of daily living, such as opening a door or using a paintbrush. Both alternating and single-arm movements provide a different training stimulus compared with typical barbell training (Lauder and Lake 2008).

As a result of controlling two independent implements and the added balance requirement, the stabilizing muscles, which protect the joints, are more active when performing dumbbell training than barbell or machine training. Think of the muscles surrounding the shoulder joint when performing a dumbbell bench press. The stabilizing muscles have to keep the dumbbells in the correct position while preventing them from entering any of the possible incorrect planes of movement. Therefore, dumbbell training can reduce the potential for injury by enhancing joint stability.

Further, keeping the dumbbells stable during an exercise requires increased core muscle activity. It is well accepted that a strong trunk is required for optimal athletic performance. Therefore, training with dumbbells provides an advantage over training with equipment that requires less stabilization and therefore less core muscle recruitment (Koshida et al. 2008).

Did You Know?

Muscles do not know what type of resistance they are working against when performing resistance training movements or physical labor. They simply respond to a given task based on the intensity required to complete that task. As a result, increases in strength and muscle size can occur through a variety of methods, including training with dumbbells. The intensity of the activity is the guiding factor, not the method used to supply the resistance the body has to work against.

For many individuals, monotony is one of the aspects of training they find most difficult to overcome. This is compounded by performing the same exercises with the same equipment day after day and week after week. Adding dumbbells to the training program increases training variation significantly and reduces psychological staleness.

Working with two separate implements rather than a barbell increases the potential range of motion on certain exercises. For example, when performing a bench press with a bar, the range of motion stops once the bar touches the chest. When using dumbbells, the hands can move lower than the chest because there is no bar to limit the movement.

Dumbbells also add variation to the training program. This is important for both physiological and psychological reasons. Physiologically, variation can help keep the level of stress to the body high during training. The body learns to adapt to the stress of exercise, becoming better able to tolerate physical stressors. Because the body adapts quickly to stress, the goal is to keep the level of stress at the optimal level, and one way to accomplish this is to provide variation in the training program. Frequent variation in exercises requires the body to adapt to a variety of regularly changing stresses applied to the body.

CONCLUSION

Incorporating dumbbells into your training program offers several advantages. Some of these advantages are practical (e.g., cost, efficient use of space), while some of the advantages have more to do with physiological and psychological benefits. As a result, when all of the benefits are considered, there is little doubt that both athletes and people training for general fitness should include dumbbells in their training programs.

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CHAPTER 2

Designing a Program

Designing effective resistance training programs is critical for achieving optimal results. You can use great technique and train with great intensity, but unless you follow a program that has been well thought out, you will never achieve the best results. Writing a well-designed resistance training program may seem like a daunting task at first. This is, at least in part, because there are so many options and variables to consider. However, with some thought and planning, you can simplify the process into a manageable task.

DETERMINING YOUR PHILOSOPHY OF TRAINING

Although there are several considerations, the most important step in designing training programs is to first establish a philosophy of training, which will be based on your goals. For example, the training goals of an elite athlete will differ dramatically from a weekend warrior or someone wanting to decrease excess body fat. You must determine which training approach best matches your beliefs, based on available research, and then design your training programs based on these beliefs. For example, my training philosophy centers around resistance training to develop explosiveness and athleticism, so my resistance training approach is based on free-weight training, emphasizing the Olympic-style exercises such as the snatch and clean and jerk, which use nearly all of the major muscle groups in the body. In addition to traditional barbell training, I also integrate extensive dumbbell training into my clients' workouts, taking advantage of the benefits dumbbells provide, which were discussed in chapter 1. I continue to adjust and tweak the workouts every year, even after close to 30 years of working as a strength and conditioning coach. I have used this approach for most of my career. I have found an approach I believe in and have stayed with it while continuously trying to improve the product I provide to my clients. Let me add that I take a vastly different approach when working with individuals who have a goal other than improving athletic performance, and this will be discussed in more depth in later chapters.

BASING TRAINING PROGRAMS ON BOTH SCIENCE AND EXPERIENCE

Develop a philosophy you believe in, one that is based both on science and practical experience. This may sound odd, but the science of strength and conditioning is not at a point where anyone can say that their approach is correct and everyone else is incorrect. As evidence of this, if you were to ask five strength and conditioning coaches or five personal trainers to write a program for a specific sport, you would get five different programs. They might be similar in many ways, but they would not be identical.

This is the interesting part of designing training programs because it is part science and part art—art in the sense that you can use your creativity to design what you believe is the best approach to improving athletic performance. Although the art aspect provides room for creativity, the vast majority of a training program should be based on science. A tremendous amount of scientific literature is available to provide you with solid guidelines on developing effective training programs, and it is your responsibility to become familiar with this information so that you can be confident that the training programs you design are scientifically sound.

Basing your workouts on science requires regularly reading peer-reviewed journals and textbooks that are primarily aimed toward the field of exercise science. This eliminates most sources of information that you would find online (unless it is a website for a professional journal) or magazines that you would purchase in a grocery store, for example.

PERIODIZATION

Periodization is the practice of dividing training into specific cycles, with each cycle targeting a specific physiological adaptation. While periodization is most commonly used in the training programs of athletes, it can also be effectively used in training programs for the general population. The topic of periodization by itself could make up a textbook, so what follows is a short review. There are various approaches to periodization. Classical periodization, which is used for a power sport, typically uses the following sequence of training cycles:

1. ***Introduction***—Low-volume, low-intensity training prepares individuals for the more demanding training to follow.
2. ***Hypertrophy***—High-volume, moderately intense training increases muscle size and muscle endurance. Increasing muscle size is important because of the positive relationship between muscle size and strength.
3. ***Strength***—Moderate-volume, high-intensity training begins to bring strength to a peak because of the relationship between strength and power.

4. ***Power***—Low-volume, high-intensity training shifts the increases in strength to increases in power.
5. ***In-season***—Low-volume, high-intensity training maintains gains in muscle size, strength, and power during the competitive season.

Periodization for a power and endurance sport (e.g., soccer) takes a slightly different approach from the classical style. For example, after the power cycle, a power and endurance cycle of high-volume, moderately intense training that focuses on explosiveness to increase power and endurance simultaneously should be added. The in-season cycle maintains muscle size, strength, power, and endurance through low-volume, high-intensity training.

1. ***Introduction***—Low-volume, low-intensity training prepares individuals for the more demanding training to follow.
2. ***Hypertrophy***—High-volume, moderately intense training increases muscle size and muscle endurance. Increasing muscle size is important because of the positive relationship between muscle size and strength.
3. ***Strength***—Moderate-volume, high-intensity training begins bringing strength to a peak because of the relationship between strength and power.
4. ***Power***—Low-volume, high-intensity training shifts the increases in strength to increases in power.
5. ***Endurance and power***—High-volume, moderately intense training puts an emphasis on explosiveness to increase power and endurance simultaneously.
6. ***In-season***—Low-volume, high-intensity training maintains the increases in muscle size, strength, power, and endurance during the competitive season.

The specific cycles, sequences of cycles, and the length of each cycle vary based on training goals, age and training background, physiological needs of the individual, and so on. To achieve specific physiological adaptations in each cycle requires carefully manipulating rest times, intensity, exercise selection, exercise order, number of sets, number of repetitions, and frequency of training. These training variables are discussed in the following pages.

Did You Know?

Periodization is most commonly used in the training programs of athletes, with the goal being to bring the person to a peak level of physical performance for competition by taking him or her through a sequence of training cycles meant to result in specific physiological adaptations. However, periodization can also be effectively used when designing the training program of those training for other goals, such as fitness or weight loss. Examples of this will be provided in chapters 8 and 9.

Rest Times

The length of the rest taken between sets and exercises significantly affects the adaptations that occur through training. Rest times are largely based on the training load. The heavier the load, the longer the rest needs to be. Rest times should be based on the goals of training as illustrated next:

Training goal	Rest time
Strength	2-5 min
Power	2-6 min
Hypertrophy	30-90 sec
Muscular endurance	60 sec or less

Intensity

Training intensity, or the amount of weight lifted, is based on the training goal. For example, when training for hypertrophy, a higher number of repetitions (e.g., typically 8-12) are typically performed. Therefore, training intensity must be reduced to allow the individual to complete the repetitions. In contrast, when training for strength, fewer repetitions (e.g., typically 1-6) are performed and intensity increases. Training intensity is most frequently expressed as a percentage of a one-repetition maximum (1RM), the most weight a person can lift at one time. Training intensity guidelines are provided in table 2.1.

Exercise Selection

A variety of resistance training exercises are available, so it is important to choose the exercises best suited to helping you achieve your performance goals. Exercise selection is based on age and maturity, training background, injury status, training goals, and equipment availability.

Age

To develop strength and exercise technique, younger or less mature individuals should start with simple exercises that are less technically

Table 2.1 Training Intensity Guidelines

Training goal		Load (% 1RM)	Goal repetitions
Strength		≥85	≤6
Power	Single-effort event	80-90	1-2
	Multiple-effort event	75-85	3-5
Hypertrophy		67-85	6-12
Muscular endurance		≤67	≥12

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demanding. While initially you might consider using exercise machines, be aware that children may be too small to correctly fit the equipment. You might also consider using a barbell, but often the barbell is too heavy for younger individuals, so they are unable use correct technique to perform some exercises. Therefore, dumbbells make a great training tool. There is no concern about proper fit, and the lightest dumbbells often weigh less than 5 pounds (2.3 kg).

Dumbbell training is also appropriate at the opposite end of the age spectrum. Although elderly people usually fit an exercise machine, they may find even the lightest weights too heavy to safely and correctly perform the exercise. The same is true of barbells. Dumbbells, again, are a safe and effective alternative.

Training Background

Individuals with little or no background in resistance training should begin by performing simple exercises. Gradually, as a person becomes more experienced, he or she can choose exercises that are more technically demanding or challenging and allow more weight to be lifted. More advanced exercises typically train multiple muscle groups across several joints, and some can work nearly the entire body. The trade-off, however, is that they also can more easily result in injury if performed incorrectly.

Injury Status

Exercise choice is affected by injury status. An injured person will choose exercises that avoid aggravating the injury site during training. Depending on the severity of the injury, this may dramatically affect exercise selection.

Training Goals

Exercise selection is largely based on training goals. For example, someone training for general fitness may choose machine-based exercises, a bodybuilder may choose single-joint isolation exercises (e.g., biceps curls) to maximize muscle size, and a competitive athlete may choose standing, free-weight, multiple-joint exercises that emphasize speed of movement because the movements found in sports take place across several joints (e.g., running, jumping, throwing), and power is a key to success.

Equipment Availability

Equipment availability also affects exercise selection. The equipment available in your place of training determines the exercises you can perform.

Exercise Order

Although there are exceptions, the following guidelines determine exercise order:

- Perform explosive, multiple-joint exercises (e.g., power clean) before exercises performed at a slower speed (e.g., back squat). Explosive, multiple-joint exercises require the most energy and emphasis on technique, so they need to be performed before fatigue sets in.
- Perform multiple-joint exercises that target large muscle groups (e.g., deadlift) before single-joint exercises that target smaller muscle groups (e.g., leg extension). Exercises that target large muscle groups require greater energy and focus on technique than do exercises that train small muscle groups.
- Perform single-joint exercises that target small muscle groups (e.g., triceps extension) last. These exercises require the least amount of energy and are less technically difficult.

Number of Sets

Someone with little or no training background can make significant increases in strength by performing a single-set program. However, as training continues, this same person will gain even more strength by performing multiple sets. Multiple sets are beneficial when maximal increase in strength and power is the goal. However, the value of performing more than three sets is minimal; increase in strength when performing four to six sets is not much greater than when performing three sets. On the other hand, when small differences in performance can make a significant difference in competitiveness, performing more than three sets can still be of value. Most highly trained strength and power athletes (e.g., weight lifters, power lifters) routinely perform four sets or more during the majority of their training.

Number of Repetitions

The number of repetitions directly affects both the intensity of training and the energy system called on during training. As the assigned number of repetitions decreases, the training load can increase. As a result, when training for power (typically 1-5 repetitions) or strength (typically ≤6 repetitions) a low number of repetitions is performed to allow high-intensity training. In contrast, as the number of repetitions increases, the emphasis can shift to hypertrophy (typically 6-12 repetitions) or muscular endurance (typically ≥12 repetitions).

Frequency of Training

The frequency of training depends on the needs of the individual and the goals of training and varies depending on the goals of the specific training cycle. For example, during the off-season, a football offensive lineman

might perform resistance training four or five times a week while a person training for general fitness, because of the lower strength demands compared to those of a football player, might perform resistance training just twice a week. During the season, when the goal of training shifts from building strength and power to maintaining those qualities, the lineman's training frequency may decrease to twice a week.

SAMPLE PROGRAM

Let us use collegiate soccer as an example as I take you through the step-by-step process of designing a training program. Programs for other types of goals, such as weight loss, are discussed later in this book, but this information will provide the individual training for reasons other than improved performance in sport with a starting point for program design. Soccer is a fall sport at the collegiate level, with practice beginning in early August and the season running into November or December as teams advance into the playoffs.

This information about the length of the season provides important details. First, it indicates the start date for off-season training. It is generally recommended to provide individuals with at least two weeks off from training to recover physically and psychologically from the demands of competition. At the collegiate level, the individuals will have difficultly training consistently during finals and winter break. So, rather than resuming off-season training in November, only to face interruptions during finals and winter break, it makes more sense to resume training early in January. The start of practice in August signals the end of the off-season phase. With the start and end dates of off-season training established, the number of weeks devoted to off-season training can be determined. Using a typical academic calendar and accounting for a week off at spring break, approximately 28 weeks of off-season training will be available.

Energy Demands

The next variable to determine is the energy demands of the sport. Soccer, except for the goalies, is an endurance and power sport. This is in contrast, for example, to throwing a discus, which is predominantly a power sport, and running a marathon, which is primarily an endurance sport. Studies have shown that, depending on the level of play, the distance covered during a typical soccer game can range from 1.1 to 6.2 miles (1.8-10 km) based on the age, competition level, and position of the person (Wang 1995). Because the game involves minimum stoppages of play for brief intervals, the endurance component is quite high.

But rather than requiring continuous, slow running, the game is made up of a series of sprints, followed by slower running or walking. This is

where the power component is important. At critical times, the soccer player needs to be able to perform with speed and power to make the plays that will determine the outcome of the match.

Determining Sequence of Training Cycles

In collegiate soccer, each match is of equal importance (in contrast to a sport like track or swimming, where individuals peak for a specific meet). Therefore, it is important to try to bring the soccer players to a peak in endurance and power just before the start of the season so that they are ready to play at a high level from game one and then maintain that peak for the duration of the season. I know that I have 28 weeks of off-season training and that off-season training will conclude with a cycle designed to maximally increase endurance and power because of the need to peak physically for the start of the competitive phase.

After completion of the in-season phase, the individuals have several weeks off from organized resistance training. As a result, they begin off-season training in a detrained state. The off-season training should begin with a brief introduction cycle made up of low-volume, low-intensity training to minimize muscular soreness. So, the off-season training begins with an introduction cycle and concludes with an endurance and power cycle.

It is advantageous to first increase strength levels when the goal of training is to develop maximum power because of the positive relationship between strength and power. Further, to increase strength, it is most effective to first increase muscle mass because of the positive relationship between muscle size and strength. The introduction cycle is followed by a hypertrophy cycle to increase muscle mass before attempting to increase strength levels. After increasing muscle mass, you need to increase strength (because of the relationship between strength and power), so you will place a strength cycle at this point. After increasing strength, you focus on increasing power to improve performance. After increasing power, you conclude off-season training with a cycle to increase endurance and power. The sequence of cycles and the length of each cycle could look like this:

Introduction: Four weeks
Hypertrophy: Six weeks
Strength: Six weeks
Power: Six weeks
Endurance and power: Six weeks

Improving the Plan

This progression will accomplish the goal of increasing endurance and power and makes use of the 28 weeks of off-season training. But some

aspects of this plan could be improved. First, the goal of training is to provide a constant stress to the body. The body attempts to minimize this stress through adaptation, and the body is proficient at adapting rapidly. Thus, shorter training cycles will provide more frequent adjustments in the training protocol, providing a more consistent level of stress to the body. The advantage of this is that the body is forced to continue to adapt to the stress of training.

Another potential problem with this sequence of cycles is that each cycle (excluding the introduction cycle) is six weeks long, which would indicate that each physiological adaptation (e.g., hypertrophy, strength) is of equal importance in achieving optimal performance in soccer. But I do not believe this is an accurate reflection of the demands of the sport. For example, is increasing muscle mass in a soccer player as important as increasing endurance and power? Increasing muscle mass is of value so that strength can be more effectively increased. But for soccer players, I want to place more emphasis on increasing endurance and power than on increasing muscle mass.

Because of these two factors, I want to emphasize the cycles that will have a greater impact on performance. Thus, I prefer the following sequence of cycles:

Introduction: One week
Hypertrophy: Three weeks
Strength 1: Three weeks
Strength 2: Three weeks
Power: Four weeks
Hypertrophy (repeated): Three weeks
Strength 2 (repeated): Three weeks
Endurance and power 1: Four weeks
Endurance and power 2: Four weeks

Sample Workouts

This adjusted cycle sequence provides more frequent adjustments in the training protocol, keeps the stress on the body high, and also places the greatest emphasis on increasing power and endurance. Now that I have the length and sequence of each cycle organized, I can go back and manipulate the training variables in each cycle to help achieve the desired goal. The first cycle of the training year is a brief introductory cycle. Remember that this training program is based on my own philosophy of training and that a variety of effective techniques can be used to train individuals.

Introduction Cycle

Length 1 week

Goals Reintroduce individuals to the demands of resistance training and emphasize exercise technique.

Intensity Complete the full number of repetitions in good form on each set before increasing resistance.

Pace Perform total-body exercises as explosively as possible. For all other exercises, lift explosively and lower under control.

Rest Take 2:00 between sets and exercises.

Sets and Reps

Week	Introductory cycle
1	TB = 3 × 6 CL = 3 × 8

Tuesday	Thursday
TOTAL BODY	
Power clean TB	Push press TB
LOWER BODY	
Squat CL	Lunge CL
Leg curl CL	Lateral squat CL
TRUNK	
Crunch 3 × 12	Side bend 3 × 12
Back extension 3 × 12	SLDL 3 × 12
UPPER BODY	
Bench press CL	Incline press CL
Row CL	Upright row CL

Note: The following abbreviations are used in the workout tables: TB = total body, one of the Olympic-style lifts or related training exercises. CL = core lift, a multiple-joint exercise such as a squat. TL = timed lift; the person completes the required reps in a specified time. AL = auxiliary lift, a single-joint exercise such as a biceps curl. WT = weighted; the exercise uses external resistance to increase training intensity. MB = medicine ball; the exercise is performed with a medicine ball (medicine balls are often used in training programs when the goal of training is to develop power, because medicine balls are designed to be thrown explosively). RDL = Romanian deadlift. SLDL = straight-leg deadlift. Alt = the exercise is performed by alternating legs, feet, or arms. Starting a dumbbell exercise from the floor means beginning the movement from the same position as when using full-size weight plates attached to a barbell that is resting on the floor. It is basically a mid-shin position.

The introduction cycle reacquaints the individuals with the demands of resistance training. The full number of repetitions in each set determines the intensity. Individuals select a resistance that allows them to complete the full number of repetitions in each set using good form, forcing them to use a moderate resistance. In some of the later cycles, the first set determines the intensity. The person selects a resistance he or she can lift for the full number of repetitions on the first set and perhaps the second set, but if the resistance is selected correctly, the person should not be able to complete the full number of repetitions in subsequent sets. The pace, or speed of movement, used during the introduction cycle is relatively slow; whereas, the rest periods between sets and exercises are fairly long.

Exercise selection should be based on training movements, not muscle groups. When resistance training, the increases in strength and power are specific to the movements used to perform the exercise. The more similar the exercise activity is to the movements that make up the sport or activity, the more carryover there will be from the weight room to the playing field. With soccer players, I use the resistance training program to increase athleticism instead of simply increasing strength. Therefore, I limit nearly every exercise to dumbbell training. Dumbbells require more balance and body control than machine or barbell exercises do. The goal of training is to improve athletic performance, not improve the ability to demonstrate strength in the weight room.

Exercise selection, similar to program design, should progress from general to specific. As the off-season progresses, exercises should become more and more specific to the movements that occur during competition. For example, it makes sense to perform a basic Olympic-style exercise such as the push press during the introductory cycle to develop strength and teach correct movement patterns. But as the off-season progresses, exercises should also progress. So in the endurance and power cycle that occurs just before the start of practice, the individuals perform split alternating-foot, alternating-arm jerks, which develop power, coordination, and balance.

In terms of exercise order, the Olympic-style exercises are always performed first for two reasons. First, these exercises are performed quickly. Training speed is compromised if individuals go into these exercises fatigued. Second, these exercises involve complex movement patterns, and the ability to perform complex movement

Did You Know?

One of the most common mistakes people make when they first start designing resistance training programs is trying to do too many exercises within each workout. In general, most resistance training programs should include a total of six to eight exercises. The key is to emphasize exercises that are multiple joint in nature (e.g., squats) so that several muscle groups are being recruited at the same time rather than emphasizing exercises that train only one muscle group at a time (e.g., biceps curls).

patterns diminishes as fatigue sets in. Following those exercises, it is best to perform exercises for the largest muscle groups. In these workouts, the lower body is trained on both training days, so the lower-body exercises are performed after the total-body exercises. These lower-body exercises require lots of energy, so it makes sense to perform these exercises while energy levels are still high.

After individuals have performed the lower-body exercises, they train the trunk. Typically, trunk exercises come at the end of the workout. But a strong trunk is critical for optimal athletic performance, and it has been my experience that if individuals perform trunk training at the end of the workout, many of them will not perform the exercises with the desired intensity. People tend to more effectively perform these trunk exercises with the desired intensity if they do them in the middle of the workout rather than at the end.

People perform the exercises for smaller muscle groups (e.g., chest, shoulders) at the end of the workout, when energy levels are lower. These exercises can be performed safely in a fatigued state. After individuals complete the introduction cycle, they begin the hypertrophy cycle.

To emphasize increases in muscle size, several variables have been manipulated. First, we increased the number of repetitions. Next, we reduced the rest periods because performing resistance training with high repetitions and short rest intervals increases testosterone and human growth hormone levels, both of which are important in muscle growth. Note that the number of repetitions performed varies each week. For example, during weeks one and three, the individuals perform core lifts (i.e., primary exercises) of 3 sets of 12 repetitions (written as 3×12), but during week two they perform 3×10. Because they select their resistance based on the required number of repetitions, adjusting the repetitions forces them to vary the training resistance and thus vary the intensity of their training. In addition, supersets were introduced into the training protocol because of their positive effect on hypertrophy.

Hypertrophy Cycle

Length 3 weeks

Goal Increase muscular hypertrophy because of the positive relationship between muscle size and strength.

Intensity Complete the full number of repetitions in good form on each set before increasing resistance.

Pace Perform total-body exercises as explosively as possible. For all other exercises lift explosively and lower under control.

Rest Take 1:30 between total-body exercises and 1:15 between all other sets and exercises.

Sets and Reps

Week	Hypertrophy cycle
1	TB = 3 × 6 CL = 3 × 12
2	TB = 3 × 4 CL = 3 × 10
3	TB = 3 × 6 CL = 3 × 12

Tuesday	Thursday
TOTAL BODY	
Power clean/squat TB	Front squat/push press TB
LOWER BODY	
Lunge CL	Front squat CL
Superset[a]: side lunge and leg curl CL	Superset[a]: sumo deadlift and reverse lunge CL
Stabilization 1 × 60 sec (each leg)[b]	
TRUNK	
WT V-up 3 × 25	Twisting crunch 3 × 25
CHEST AND UPPER BODY	
Superset: bench press CL and incline press CL	Superset: reverse wide-grip bench press and valley press CL
Superset: row CL and upright row CL	Superset: row CL and upright row CL

a. A superset occurs when two resistance training exercises are performed back-to-back, without rest.

b. In the stabilization exercise, the individual stands on one leg and closes his or her eyes. A partner pushes or pulls the individual with enough force that he or she is forced to hop to regain balance. The partner will circle the person and push or pull him or her for the entire 60 seconds of the exercise. The person should regain body control and stability before being pushed or pulled each time. Note that this exercise is categorized in a variety of ways within the sample programs.

After the hypertrophy cycle, I have scheduled two consecutive strength cycles. Plyometric exercises are also included in this training cycle. Plyometric exercises are movements that emphasize muscle lengthening (*eccentric contraction*) followed immediately by muscle shortening (*concentric contraction*) and are used to help develop muscular power. For example, a common plyometric exercise involves stepping off a box and dropping into a semisquat position (resulting in an eccentric contraction of the quadriceps) and then immediately jumping off the floor as high and as quickly as possible (resulting in a concentric contraction of the quadriceps). Plyometric exercises have been shown to be effective at helping to develop muscular power.

Strength Cycle 1

Length 3 weeks

Goal Increase muscular strength because of the positive relationship between strength and power.

Intensity Complete the full number of repetitions in good form on the first set before increasing resistance.

Pace Perform total-body exercises as explosively as possible. In all other exercises, lift explosively and lower under control.

Rest Take 2:00 between all sets and exercises.

Sets and Reps

Week	Strength cycle 1
1	TB = 3 × 4 CL = 3 × 6
2	TB = 3 × 2 CL = 3 × 4
3	TB = 3 × 4 CL = 3 × 6

Tuesday	Thursday
COMPLEX	
Power clean TB	Split alt-foot jerk TB
Pyramid box jump 3 × 3	Pyramid lateral box jump 3 × 3
LOWER BODY	
Goblet squat CL	Lunge CL
SLDL CL	Side lunge CL
TRUNK	
MB decline crunch throw 3 × 12	MB decline twist 3 × 12
Stabilization 1 × 60 sec (each leg)	
CHEST AND UPPER BODY	
Bench press CL	Seated row CL

Note: In a complex exercise, the individual first performs a resistance training movement (e.g., clean), followed immediately without rest by a plyometric movement. The individual then rests the prescribed time prior to initiating the next set.

Strength Cycle 2

Length 3 weeks

Goal Increase muscular strength because of the positive relationship between strength and power.

Intensity Complete the full number of repetitions in good form on the first set before increasing resistance.

Pace Perform total-body exercises as explosively as possible. In all other exercises, lift explosively and lower under control.

Rest Take 2:00 between all sets and exercises.

Sets and Reps

Week	Strength cycle 2
1	TB = 3 × 3 CL = 3 × 4 AL = 3 × 5
2	TB = 3 × 2 CL = 3 × 2 AL = 3 × 5
3	TB = 3 × 3 CL = 3 × 4 AL = 3 × 5

Tuesday	Thursday
COMPLEX	
Split alt-foot snatch TB	Hang clean TB
Pyramid box jump 3 × 3	Pyramid lateral box jump 3 × 3
LOWER BODY	
Single-leg front squat CL	Lunge CL
RDL CL	Leg curl AL
Stabilization 1 × 60 sec (each leg)	
TRUNK	
Twisting crunch 3 × 12	Ab wheel 3 × 12
CHEST AND UPPER BACK	
Bench press CL	Row CL

These two strength cycles maximize increases in strength before initiating the first power cycle. To switch the emphasis from hypertrophy to strength, we reduced the number of repetitions. This manipulation allows a greater training intensity. Plyometric drills, introduced during these strength cycles, assist in increasing speed, quickness, and agility. During the first two strength cycles, plyometric drills are performed before resistance training movements, so the emphasis can be on high-intensity, high-quality work.

Beginning with strength cycle 1, plyometric training is complexed, meaning the individual moves immediately from a resistance training movement to a plyometric movement without rest. During a soccer match, players compete in a fatigued state and yet must have the ability to move explosively during the critical moments of the game. Complexed training mimics the demand of moving explosively while fatigued.

The primary manipulations to the workout during the power cycle are the introduction of percentage and timed exercises. Power is a combination of speed and force development or the performance of work expressed per unit of time. Because power is a combination of speed and force, we emphasize speed development during the first workout of the week and force development during the second workout of the week.

Percentages are assigned to the total-body exercises to allow faster movement. It has been determined that highest power outputs occur at 30 percent of one-repetition maximum. The percentages assigned gradually decrease during the power cycles to allow a gradual increase in movement speed. During timed exercises, the person must complete the exercise in a specified amount of time. They lift as much as they can while still completing the required number of repetitions in good form within the time allotted. This shifts the emphasis away from how much they can lift to how quickly they can lift it.

After this power cycle, individuals repeat the hypertrophy cycle and strength cycle 2. This allows them further gains in muscle size and strength before starting the two consecutive endurance and power cycles that complete off-season training.

To bring the individuals to a peak before the competition phase, I scheduled two consecutive endurance and power cycles. The energy demands of soccer combine the need for endurance and power. To shift the training emphasis to building endurance, we increased the number of repetitions and reduced the rest period between sets and exercises. To maintain the emphasis on power development, we continued the timed exercises to stress the rate of force development.

The exercises mimic movements that make up a soccer game. At the end of the second endurance and power cycle, the individuals are at their peak of physical preparedness. With the start of practice, the focus in the weight room shifts to maintaining this physical peak. Because the players are spending a great deal of time and energy in practice, we reduced the number of exercises within the workout and the number of repetitions per set.

Plyometric training is eliminated; the players are running, jumping, cutting, stopping, and starting as a part of practice and competition. Attempting to practice daily, compete twice per week, perform resistance training twice per week, and participate in plyometric training twice per week has the potential to lead to overtraining. The emphasis must be directed to on-field activities during this time, and other forms of training become secondary.

Power Cycle

Length 4 weeks

Goal Increase muscular power because of the positive relationship between power and performance.

Intensity On all exercises, complete the full number of repetitions in good form on the first set before increasing resistance.

Pace Perform total-body exercises as explosively as possible. Perform timed exercises at a pace that allows completion of the full number of required repetitions in the specified time.

Rest Take 2:00 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 3 × 4 @ 70% TB = 3 × 4 TL = 3 × 8 @ 10 sec CL = 3 × 8
2	TB = 3 × 6 @ 60% TB = 3 × 6 TL = 3 × 10 @ 13 sec CL = 3 × 10
3	TB = 3 × 4 @ 70% TB = 3 × 4 TL = 3 × 8 @ 10 sec CL = 3 × 8
4	TB = 3 × 6 @ 60% TB = 3 × 6 TL = 3 × 10 @ 13 sec CL = 3 × 10

Tuesday	Thursday
COMPLEX	
Hang clean TB	Split alt-foot jerk TB
Pyramid box jump 3 × 3	Pyramid lateral box jump 3 × 3
LOWER BODY	
Sumo deadlift TL	Side lunge TL
TRUNK	
Decline twisting crunch 3 × 12	Press crunch 3 × 12
SLDL CL	Back extension 3 × 10
CHEST AND UPPER BACK	
Incline press TL	Wide-grip row CL

Endurance and Power Cycle 1

Length 4 weeks

Goal Increase muscular power because of the positive relationship between power and performance.

Intensity On all exercises, complete the full number of repetitions in good form on each set before increasing resistance.

Pace Perform total-body exercises as explosively as possible. Perform timed exercises at a pace that allows completion of the full number of required repetitions in the specified time.

Rest Take 1:30 between all sets and exercises.

Sets and Reps

Week	Endurance and power cycle 1
1	TB = 3 × 4 @ 70% TB = 3 × 4 TL = 3 × 8 @ 10 sec
2	TB = 3 × 6 @ 60% TB = 3 × 6 TL = 3 × 10 @ 13 sec
3	TB = 3 × 4 @ 70% TB = 3 × 4 TL = 3 × 8 @ 10 sec
4	TB = 3 × 6 @ 60% TB = 3 × 6 TL = 3 × 10 @ 13 sec

Tuesday	Thursday
COMPLEX	
Split alt-foot, alt-arm snatch TB	Split alt-foot, alt-arm jerk TB
Pyramid box jump 3 × 3	Pyramid lateral box jump 3 × 3
LOWER BODY	
Lunge TL (total reps)	Jump lunge TL
Lateral squat TL	Side lunge TL
TRUNK	
Twisting crunch 3 × 18	V-up 3 × 18
Stabilization 1 × 60 sec	SLDL 3 × 12
CHEST AND UPPER BACK	
Incline press TL	Wide-grip row TL

Endurance and Power Cycle 2

Length 4 weeks

Goal Increase muscular power because of the positive relationship between power and performance.

Intensity On all exercises, complete the full number of repetitions in good form on each set before increasing resistance.

Pace Perform total-body exercises as explosively as possible. Perform timed exercises at a pace that allows completion of the full number of required repetitions in the specified time.

Rest Take 1:30 between all sets and exercises.

Sets and Reps

Week	Endurance and power cycle 2
1	TB = 3 × 5 @ 60% TB = 3 × 5 TL = 3 × 12 @ 12 sec CL = 3 × 12
2	TB = 3 × 7 @ 50% TB = 3 × 7 TL = 3 × 15 @ 18 sec CL = 3 × 15
3	TB = 3 × 5 @ 60% TB = 3 × 5 TL = 3 × 12 @ 12 sec CL = 3 × 12
4	TB = 3 × 7 @ 50% TB = 3 × 7 TL = 3 × 15 @ 18 sec CL = 3 × 15

Tuesday	Thursday
COMPLEX	
Alt power clean	Split alt-foot, alt-arm jerk TB
Pyramid box jump 3 × 4	Pyramid lateral box jump 3 × 4
LOWER BODY	
Single-leg front squat TL	Side lunge TL
Leg curl CL	Stabilization 1 × 60 sec
TRUNK	
Russian twist 3 × 20	Ab wheel 3 × 20
WT back extension 3 × 15	SLDL 3 × 12
UPPER BODY	
Wide-grip row TL	Bench press TL

Competition

Length 6 weeks

Goal Maintain increases in muscular endurance and power because of their positive relationship with performance.

Intensity Complete the full number of repetitions in good form on each set before increasing resistance.

Pace Perform total-body exercises as explosively as possible. Perform timed exercises at a pace that allows completion of the full number of required repetitions in the specified time.

Rest Take 1:30 between total-body exercises and 1:00 between all other sets and exercises.

Sets and Reps

Week	Competition
1	TB = 3 × 4 TB = 3 × 4 TL = 3 × 10 @ 10 sec
2	TB = 3 × 6 TB = 3 × 6 TL = 3 × 7 @ 9 sec
3	TB = 3 × 4 TB = 3 × 4 TL = 3 × 10 @ 10 sec
4	TB = 3 × 6 TB = 3 × 6 TL = 3 × 7 @ 9 sec
5	TB = 3 × 4 TB = 3 × 4 TL = 3 × 10 @ 10 sec
6	TB = 3 × 6 TB = 3 × 6 TL = 3 × 7 @ 9 sec

Monday	Wednesday
TOTAL BODY	
Alt hang clean TB	Split alt-foot, alt-arm jerk TB
LOWER BODY	
Squat TL	Side lunge TL
Leg curl TL	
TRUNK	
Decline twisting crunch 3 × 10	Decline press crunch 3 × 10
WT twisting back extension 3 × 8	
Stabilization 1 × 60 sec	
CHEST AND UPPER BACK	
Close-grip incline press TL	Row TL

CONCLUSION

Designing effective resistance training programs is a critical task. For individuals to reach their peak performance capabilities, they need a scientifically based strength and conditioning program. The same holds true for any training program, regardless of the goals. It is the responsibility of the person designing the training program to give those individuals following the program the best opportunity to achieve their performance goals. Although designing a high-quality training program is a time-consuming process, those following it deserve the time and effort it takes to design a superior program for them. Designing an effective resistance training program is critical if you are to reach your peak performance capabilities.

CHAPTER 3

Incorporating Dumbbells Into an Existing Program

Taking an existing program and incorporating dumbbells into it is normally an easy process because nearly every barbell- or machine-based exercise can also be performed with dumbbells. What is more difficult is deciding how much of the existing program you want to convert to dumbbell-based training and which dumbbell-specific variations you want to introduce into the training program once the option exists.

Determining how much of an existing program you want to convert to dumbbell training should be based on several factors. First, what are your training goals? If you are training for a sport, what sport do you play? Within that sport, what position do you play? An offensive lineman in football might want to keep the emphasis on barbell training while adding variety through dumbbell training. This is because, quite simply, you can use more weight in a barbell exercise than you can with a dumbbell exercise. For example, an offensive lineman may be able to bench press 300 pounds (136 kg). To lift an equal amount of weight with dumbbells would require the individual to use 150-pound (68 kg) dumbbells, which would be considered highly extraordinary. In some training facilities, 150-pound dumbbells might be available, but their use, especially when performing a dumbbell bench press, would be far out of the norm. If you are training in a sport that requires less maximal strength, or training for general fitness or weight loss, then including a large number of dumbbell exercises in the training program is perfectly acceptable.

This is not to suggest that an offensive lineman should avoid dumbbell training altogether. Dumbbells provide unique advantages over other forms of training. However, the person would emphasize barbell training while still taking advantage of the benefits that dumbbells provide. In my own situation as the head strength and conditioning coach at Colorado State University at Pueblo, I design the resistance training program for the football

team so that the players in the big skill positions (offensive and defensive line, tight ends, and linebackers) perform resistance training three times per week. Two of those weekly workouts are barbell orientated while one workout per week emphasizes dumbbell training. Success in these positions requires a high level of strength and power, so we emphasize barbell training to maximize the increases in muscle size and strength while supplementing this with a dumbbell-training day.

In contrast, the skill position players (quarterbacks, running backs, wide receivers, defensive backs, and kickers) also train three times per week, but the emphasis is reversed. These groups train with dumbbells twice per week and train with barbells once per week. While strength and power are important for success in these positions, movement skills and athleticism are also important. Therefore, I emphasize dumbbell training with these people (while still including barbell training) to develop the coordination, balance, and motor skills their positions require. Both the big skill and skill positions perform barbell power cleans, squats, and bench press (or associated training exercises) twice a week, once with a barbell and once with dumbbells.

My soccer players, on the other hand, train exclusively with dumbbells. The strength demands for soccer are less than they are for football. However, the technical demands in soccer are extremely high. It is definitely a sport that requires a high level of balance, coordination, agility, and motor skills. Emphasizing dumbbell training exclusively with this group makes sense.

For athletes, program design and exercise selection vary based not only on the sport and the position played but also on the frequency that dumbbell training is performed. For example, with football players in big skill positions, who train with dumbbells just once per week, each dumbbell training day provides a full-body workout. Players perform a dumbbell Olympic lift to start the workout, then they train the lower body with dumbbell exercises and perform a trunk exercise, and then they train the upper body with dumbbells. Because they only train with dumbbells once per week, I want them to receive the benefits of training with dumbbells in both the lower and upper body. In contrast, the skill position players

Did You Know?

I have been using dumbbells extensively in the training programs of individuals since being introduced to the idea in the early 1990s. Since then, I have used dumbbells in the programs I have written for collegiate- and Olympic-level athletes with great success. Dumbbells can be used to perform nearly every exercise that can be performed with a barbell and offer the opportunity to also perform both alternating and single-arm movements—something that cannot typically be performed when training with a barbell.

emphasize the lower body on one of their dumbbell-training days, emphasize the upper body on the other dumbbell-training day (while starting both workouts performing a dumbbell Olympic lift), and train both the lower and upper body on their barbell day. Using this method, both groups train the lower body and upper body twice per week, once with a barbell and once with a dumbbell. Soccer players, because the strength demands for their sport are lower, perform resistance training just twice per week and train all of the major muscle groups in the body during both workouts.

The training program of an individual training for something other than improved performance in a sport would also be based on such things as specific goals, equipment availability, and personal preferences. For those training in a home gym, dumbbells make a great choice because of some of the benefits previously discussed, such as cost, limited space requirements, and the wide variety of exercises that can be performed using this mode of training. More detail on these types of programs is provided in later chapters in this book.

I also periodize exercise selection, progressing from basic exercises early in the off-season to more demanding and complex exercises as the off-season progresses. This emphasizes motor skills as the competitive season draws nearer. So, for example, individuals begin off-season training by performing a dumbbell push press, advance to a power jerk during the next cycle, progress to a split alternating-foot jerk, and then finish the off-season by performing an alternating-arm, alternating-foot split jerk. This type of approach can also be used for the person training for general fitness. One of the primary benefits of this approach is that it provides a high degree of exercise variation that can be of value in avoiding monotony in the training program.

Although the process of taking an existing workout and converting it to a dumbbell workout is fairly straightforward, a lot of thought goes into developing the workout plan based on the goals of training. The goals of the training program will have a major influence on how the training variables (i.e., exercise selection, rest times, sets, repetitions, and so on) are manipulated.

SAMPLE WORKOUTS WITH BARBELLS

The first example workout presented is for softball players who predominantly use barbells. The primary emphasis of this training plan is to increase muscle size (i.e., hypertrophy) and the secondary emphasis is to increase strength. The training variables (e.g., rest times, pace, intensity) are manipulated based on the training goal. For example, the rest times when the goal is hypertrophy are shorter than when the goal is to build strength, because shorter rest times are recommended for increasing muscle size and longer rest times are recommended for increasing strength.

You will also notice that the pitchers perform more repetitions than the field players on a majority of the exercises. This difference is because the endurance demands are greater for the pitchers than for the field players. As a result, to better emphasize muscle endurance, pitchers perform more repetitions than do field players.

Hypertrophy and Strength Cycle: Barbells

Monday

Length 5 weeks

Goal Begin increasing muscle size because of the positive relationship between muscle size and strength.

Intensity Hypertrophy and strength: Select a resistance that allows completion of all the repetitions in each set before increasing resistance.

Pace Perform total-body exercises as explosively as possible.

Hypertrophy and strength: Lift explosively; lower under control.

Rest Take 2:00 between sets and exercises.

Sets and Reps

Week	Strength: field players*	Strength: pitchers*
1	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
2	TB = 4 × 2 CL = 3 × 5	TB = 4 × 2 CL = 3 × 7
3	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
4	TB = 4 × 2 CL = 3 × 5	TB = 4 × 2 CL = 3 × 7
5	TB = 4 × 2 CL = 3 × 5	TB = 4 × 2 CL = 3 × 5

*Strength: Perform all reps in each set.

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Power clean TB	4 × 4 + 4 × 4	4 × 2 + 4 × 2	4 × 4 + 4 × 4	4 × 2 + 4 × 2	4 × 2
Weight lifted					
LOWER BODY					
Squat CL	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 5-4-3
Weight lifted					
SLDL CL	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 5-4-3
Weight lifted					
UPPER BODY					
Valley press CL	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 5-4-3
Weight lifted					
TRUNK					
Twisting crunch	3 × 15	3 × 15	3 × 15	3 × 15	3 × 12
Weight lifted					

Note: The following abbreviations are used in the workout lists: TB = total body; alt = the exercise is performed alternating legs, feet, toes, or arms; CL = core lift; SLDL = straight-leg deadlift; AL = auxiliary lift—a single-joint exercise such as a biceps curl.

Wednesday

Length 5 weeks

Goal Begin increasing muscle size because of the positive relationship between muscle size and strength.

Intensity Hypertrophy and strength: Select a resistance that allows completion of all the repetitions in each set before increasing resistance.

Pace Perform total-body exercises explosively. Hypertrophy and strength: Lift as explosively as possible and lower under control.

Rest Take 2:00 between sets and exercises.

Sets and Reps

Week	Strength: field players*	Strength: pitchers*
1	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
2	TB = 4 × 2 CL = 3 × 5	TB = 4 × 2 CL = 3 × 7
3	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
4	TB = 4 × 2 CL = 3 × 5	TB = 4 × 2 CL = 3 × 7
5	TB = 4 × 2 CL = 3 × 5	TB = 4 × 2 CL = 3 × 5

*Strength: Perform all reps in the first set.

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Power clean TB	4 × 4 + 4 × 4	4 × 2 + 4 × 2	4 × 4 + 4 × 4	4 × 2 + 4 × 2	4 × 2
Weight lifted					
LOWER BODY					
Squat CL	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 5-4-3
Weight lifted					
Leg curl CL	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 5-4-3
Weight lifted					
UPPER BODY					
Bench press CL	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 5-4-3
Weight lifted					
TRUNK					
Russian twist	3 × 15	3 × 15	3 × 15	3 × 15	3 × 12
Weight lifted					

Friday

Length 5 weeks

Goal Begin increasing muscle size because of the positive relationship between muscle size and strength.

Intensity Hypertrophy and strength: Select a resistance that allows the completion of all the repetitions in each set before increasing resistance.

Pace Perform total-body exercises explosively.

Hypertrophy and strength: Lift as explosively as possible and lower under control.

Rest Hypertrophy: Take 1:30 between total-body sets and exercises and 1:15 between all other sets and exercises.
Strength: Take 2:00 between sets and exercises.

Sets and Reps

Week	Hypertrophy: field players*	Hypertrophy: pitchers*	Strength: field players	Strength: pitchers
1	TB = 4 × 5 CL = 3 × 10	TB = 4 × 5 CL = 3 × 12	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
2	TB = 4 × 3 CL = 3 × 8	TB = 4 × 3 CL = 3 × 10	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
3	TB = 4 × 5 CL = 3 × 10	TB = 4 × 5 CL = 3 × 12	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
4	TB = 4 × 3 CL = 3 × 8	TB = 4 × 3 CL = 3 × 10	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
5	TB = 4 × 2 CL = 3 × 6	TB = 4 × 2 CL = 3 × 6	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9

*Hypertrophy: Perform all reps in each set.

Hypertrophy*	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Power jerk TB	4 × 5	4 × 3	4 × 5	4 × 3	4 × 2
Weight lifted					
CHEST					
Incline press CL	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 6
Weight lifted					
Row CL	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 6
Weight lifted					
TRUNK					
Decline twisting crunch	3 × 15 + 3 × 20	3 × 15 + 3 × 20	3 × 15 + 3 × 20	3 × 15 + 3 × 20	3 × 12
Weight lifted					

*This table only includes sets and reps for hypertrophy. Follow the table above for the sets and reps assignments for the strength workouts.

SAMPLE WORKOUTS WITH DUMBBELLS

The next three workouts are nearly identical to the previous three. The goals and the variables that make up the training plan are the same. However, the exercises in the following workouts have been adjusted so that the training is done mostly with dumbbells rather than barbells.

Did You Know?

There is a large number of dumbbell exercises included in this book. Some of them are quite easy to learn to perform correctly (e.g., dumbbell bench press) while others are far more complicated (e.g., dumbbell split alternating-foot, alternating-arm snatch). If you have little to no experience training with dumbbells, I suggest starting out by performing the more basic exercises included in this book and gradually adding the more complex exercises into your training program as you gain strength and experience training with dumbbells.

Hypertrophy and Strength Cycle: Dumbbells

Monday

Length 5 weeks

Goal Begin increasing muscle size because of the positive relationship between muscle size and strength.

Intensity Select a resistance that allows completion of all of the repetitions in each set before increasing resistance.

Pace Perform total-body exercises explosively. In all other exercises lift as explosively as possible and lower under control.

Rest Take 2:00 between all sets and exercises.

Sets and Reps

Week	Strength: field players*	Strength: pitchers*
1	TB = 4 × 5 CL = 3 × 10	TB = 4 × 5 CL = 3 × 12
2	TB = 4 × 3 CL = 3 × 8	TB = 4 × 3 CL = 3 × 10
3	TB = 4 × 5 CL = 3 × 10	TB = 4 × 5 CL = 3 × 12
4	TB = 4 × 3 CL = 3 × 8	TB = 4 × 3 CL = 3 × 10
5	TB = 4 × 2 CL = 3 × 6	TB = 4 × 2 CL = 3 × 6

*Strength: Perform full reps in each set.

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Hang clean TB	4 × 5	4 × 3	4 × 5	4 × 3	4 × 2
Weight lifted					
LOWER BODY					
Goblet squat CL	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 6
Weight lifted					
Lateral squat CL	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 6
Weight lifted					
TRUNK					
Alt-toe touch	3 × 15 + 3 × 20	3 × 15 + 3 × 20	3 × 15 + 3 × 20	3 × 15 + 3 × 20	3 × 12
Weight lifted					
UPPER BACK					
Row CL	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 6
Weight lifted					

Wednesday

Length 5 weeks

Goal Begin increasing muscle size because of the positive relationship between muscle size and strength.

Intensity Select a resistance that allows completion of all repetitions in each set before increasing resistance.

Pace Perform total-body exercises explosively.
Hypertrophy and strength: Lift as explosively as possible and lower under control.

Rest Take 2:00 between sets and exercises.

Sets and Reps

Week	Strength: field players*	Strength: pitchers*
1	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
2	TB = 4 × 2 CL = 3 × 5	TB = 4 × 2 CL = 3 × 7
3	TB = 4 × 4 CL = 3 × 8	TB = 4 × 4 CL = 3 × 9
4	TB = 4 × 2 CL = 3 × 5	TB = 4 × 2 CL = 3 × 7
5	TB = 4 × 2 CL = 3 × 5	TB = 4 × 2 CL = 3 × 5

*Strength: Perform full reps in first set.

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Power clean TB	4 × 4 + 4 × 4	4 × 2 + 4 × 2	4 × 4 + 4 × 4	4 × 2 + 4 × 2	4 × 2
Weight lifted					
LOWER BODY					
Squat CL	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 5-4-3
Weight lifted					
SLDL CL	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 5-4-3
Weight lifted					
UPPER BODY					
Close-grip incline press CL	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 8-7-6 + 3 × 9-8-7	3 × 5-4-3 + 3 × 7-6-5	3 × 5-4-3
Weight lifted					
TRUNK					
Twisting crunch	3 × 15	3 × 15	3 × 15	3 × 15	3 × 12
Weight lifted					

Friday

Length 5 weeks

Goal Begin increasing muscle size because of the positive relationship between muscle size and strength.

Intensity Hypertrophy and strength: Select a resistance that allows completion of all repetitions in each set before increasing resistance.

Pace Perform total-body exercises explosively.
Hypertrophy and strength: Lift as explosively as possible and lower under control.

Rest Hypertrophy: Take 1:30 rest between total-body sets and exercises and 1:15 between all other sets and exercises.

Strength: Take 2:00 between sets and exercises.

Sets and Reps

Week	Hypertrophy: field players*	Hypertrophy: pitchers*	Strength: field players	Strength: pitchers
1	TB = 4 × 5 CL = 3 × 10 AL = 3 × 10	TB = 4 × 5 CL = 3 × 12 AL = 3 × 12	TB = 4 × 4 CL = 3 × 8 AL = 3 × 8	TB = 4 × 4 CL = 3 × 9 AL = 3 × 10
2	TB = 4 × 3 CL = 3 × 8 AL = 3 × 10	TB = 4 × 3 CL = 3 × 10 AL = 3 × 12	TB = 4 × 4 CL = 3 × 8 AL = 3 × 8	TB = 4 × 4 CL = 3 × 9 AL = 3 × 10
3	TB = 4 × 5 CL = 3 × 10 AL = 3 × 10	TB = 4 × 5 CL = 3 × 12 AL = 3 × 12	TB = 4 × 4 CL = 3 × 8 AL = 3 × 8	TB = 4 × 4 CL = 3 × 9 AL = 3 × 10
4	TB = 4 × 3 CL = 3 × 8 AL = 3 × 10	TB = 4 × 3 CL = 3 × 10 AL = 3 × 12	TB = 4 × 4 CL = 3 × 8 AL = 3 × 8	TB = 4 × 4 CL = 3 × 9 AL = 3 × 10
5	TB = 4 × 2 CL = 3 × 6 AL = 3 × 10	TB = 4 × 2 CL = 3 × 6 AL = 3 × 12	TB = 4 × 4 CL = 3 × 8 AL = 3 × 8	TB = 4 × 4 CL = 3 × 9 AL = 3 × 10

*Hypertrophy: Perform full reps in each set.

Hypertrophy*	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Power jerk TB	4 × 5	4 × 3	4 × 5	4 × 3	4 × 2
Weight lifted					
CHEST					
Incline press CL	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 10 + 3 × 12	3 × 8 + 3 × 10	3 × 6
Weight lifted					
Bent-over lateral raise AL	3 × 10 + 3 × 12	3 × 10 + 3 × 2	3 × 10 + 3 × 12	3 × 10 + 3 × 12	3 × 10 or 12
Weight lifted					
Stabilization	1 × 45 sec	1 × 45 sec	1 × 45 sec	1 × 60 sec	1 × 45 sec
Each leg					
TRUNK					
Side bend	3 × 15 + 3 × 20	3 × 15 + 3 × 20	3 × 15 + 3 × 20	3 × 15 + 3 × 20	3 × 12
Weight lifted					

*This table only includes sets and reps for hypertrophy. Follow the table above for the sets and reps assignments for the strength workouts.

CONCLUSION

In reviewing and comparing the workouts with barbells to the workouts with dumbbells, you can see how easy it is to shift the workouts from predominantly barbell exercises to predominantly dumbbell exercises. Because most barbell exercises can also be performed with dumbbells, in most instances you simply have to indicate that the exercise will be done with dumbbells rather than prescribing a different exercise. The emphasis of the training plan, in this case training for hypertrophy as the primary goal and strength as the secondary goal, does not change when emphasizing dumbbell exercises. The only change is in the equipment. The same emphasis can be taken when training for general fitness, where the primary mode of training becomes more dumbbell oriented, and less emphasis is placed on barbell training.

PART II

EXERCISES

Dumbbells can be used to train all the major muscle groups in the body. Further, dumbbells provide some different advantages than strictly training with a barbell. As a result, it makes sense to include dumbbells in your training program. Chapters 4 through 7 provide descriptions of a variety of dumbbell exercises. The chapters are broken into upper-body exercises, lower-body exercises, core exercises, and total-body exercises.

In my job as a collegiate strength and conditioning coach, I stress that exercise technique takes priority over intensity. While I expect my athletes to work very hard, and they do, being able to perform the exercise correctly is always more important than how much weight they use. Technique is priority number one; intensity is priority number two. Therefore, it is important for you to carefully read the exercise descriptions and make sure the positions you use when performing the exercises match the positions shown in the pictures. This is the best way to maximize the time and effort you put into your training program.

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CHAPTER

4

Upper Body

The muscles of the upper body are responsible for, or contribute to, a variety of movements involved in athletics, such as throwing, pushing, pulling, and swinging. It is important to remember that many of the movements that occur in the upper body (e.g., throwing, swinging) originate in the lower body, are transferred through the core, and are expressed in the upper body. Therefore, it is important to train both the lower body and the core to maximize many upper-body movements.

Many athletes and people involved in resistance training make the mistake of emphasizing upper-body training while neglecting the trunk and lower body. This may be because they associate strength and improved appearance with the size of the biceps and pecs. Training the upper body is important, but, unless there are special circumstances, everyone involved in a resistance training program should also train the major muscle groups in the trunk and lower body. The body functions most efficiently when sufficient strength has been developed in all of the major muscle groups.

In our discussion of dumbbell exercises to train the upper body, we have divided the upper body into five areas: shoulders, chest, upper back, biceps, and triceps.

Did You Know?

Strengthening the upper body is important, both for performance and aesthetic reasons. However, sometimes people place too great of an emphasis on training the upper body while ignoring the muscles of the core and the lower body. To achieve the optimal benefits of resistance training, the entire body needs to be trained. A strong core and lower body are important both in activities of daily living and sports performance.

SHOULDERS

The primary shoulder muscles are the deltoids. Secondary muscles are the supraspinatus, trapezius, pectoralis major and minor, and latissimus dorsi.

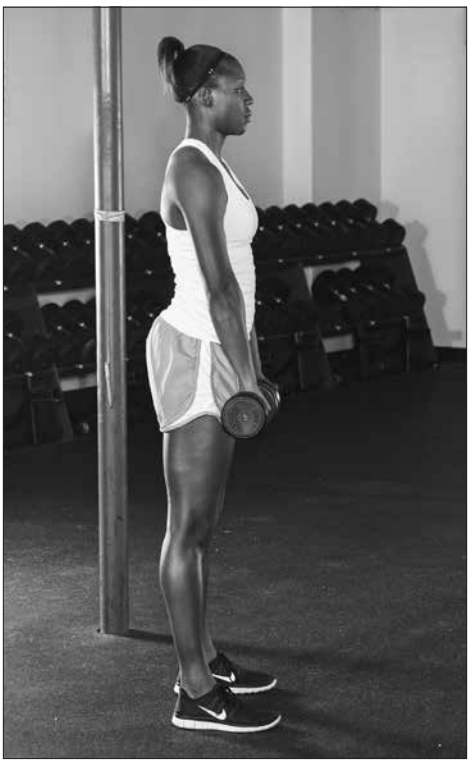
Front Raise

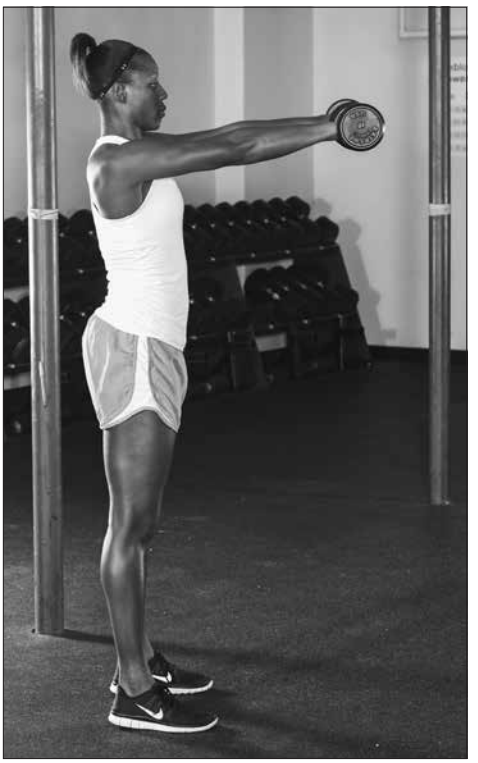
Instructions

1. Hold the dumbbells with palms down and with arms straight so that the dumbbells are resting against the top of the thighs.
2. Keeping the elbows locked, and without using a rocking motion at the torso, maintain a palms-down position and lift the dumbbells to shoulder height.
3. Pause for a count of one and then lower the dumbbells under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy can cause poor technique, such as lifting or lowering too quickly, bending the elbows, or reducing the range of motion. Always emphasize technique over the amount of weight lifted. If you are unable to lift using correct technique, select lighter dumbbells.
- Using a rocking motion at the torso to generate momentum to assist in the lifting action decreases the training effect on the target muscles.





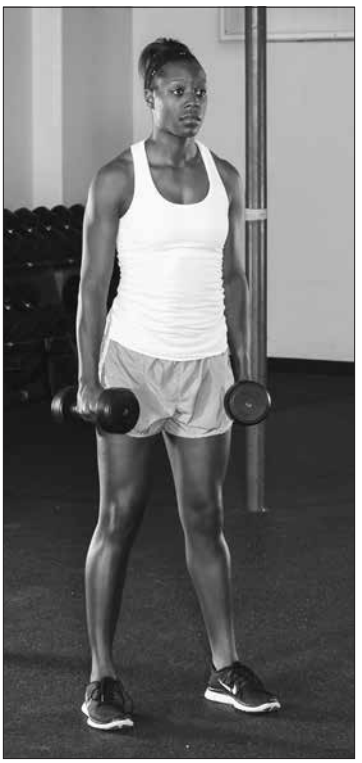
Lateral Raise

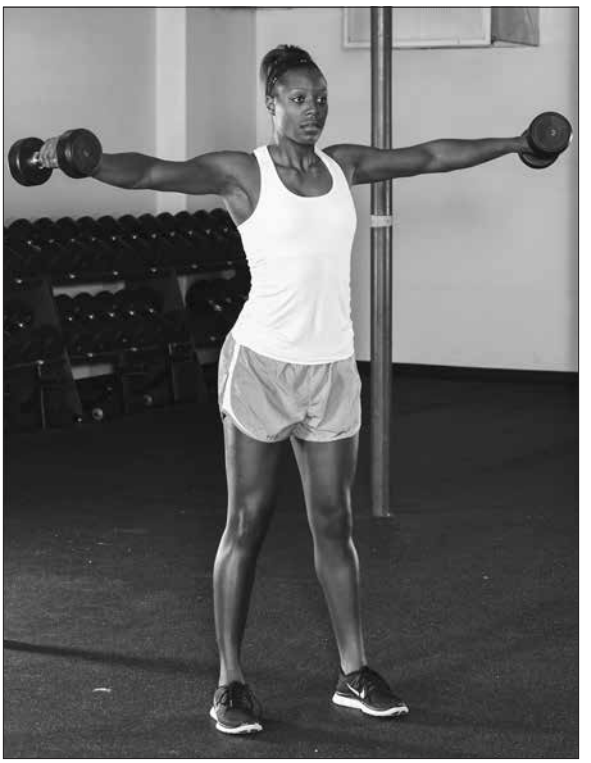
Instructions

1. Hold the dumbbells at your sides with a slight bend at the elbow and the palms facing inward so that the dumbbells are resting against the top of the outside of the thighs.
2. Keeping the elbows slightly bent and without rocking at the torso, maintain a palms-down position and lift the dumbbells laterally to shoulder height.
3. Pause for a count of one and then lower the dumbbells under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, excessive bending at the elbows, and reduced range of motion.
- Using a rocking motion at the torso to generate momentum and assist in the lifting action decreases the training effect on the target muscles. Do not rock your body to create momentum and make the exercise easier.





Arm Circle

Instructions

1. Hold a dumbbell in each hand, palms down against the sides of the body.
2. Lift the arms directly lateral of the shoulders, with just a slight bend at the elbow.
3. From this position, perform a circular motion with the arms. The circle should about 12 to 16 inches (30.5 cm-41 cm) in diameter. You can alternate between forward and reverse circles each set.
4. The exercise should be performed using a slow, controlled movement.

Common Errors

- Bending the elbows excessively. There should be just a slight bend at the elbow.
- Using a rocking motion of the torso to assist the circular motion. The movement should be generated completely at the shoulders.
- Performing the movement through too small of a range of motion, which decreases the muscle mass required to perform the exercise.
- Performing the exercise too quickly, decreasing the effectiveness of the exercise.

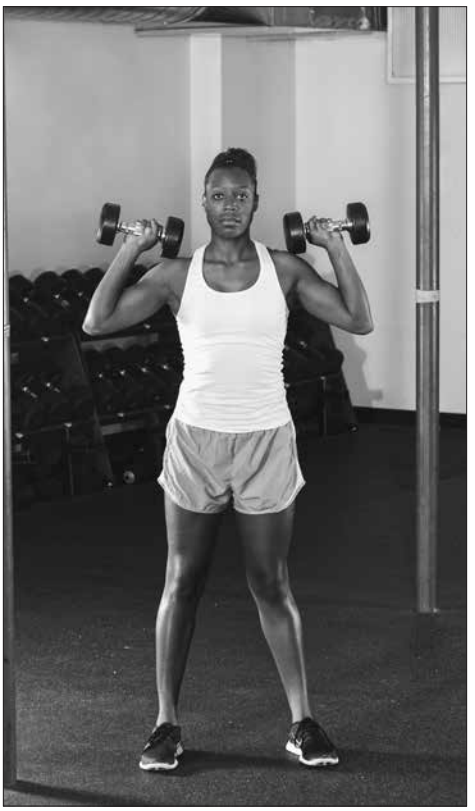
Shoulder Press

Instructions

1. Hold the dumbbells at the shoulders so that the palms face forward and the elbows point toward the ground.
2. Press the dumbbells directly up so that the elbows are completely extended.
3. Do not use the lower body to assist in the lifting action.
4. Do not lean back as you press the dumbbells up. At the top of the movement the shoulders should be directly over the hips.
5. Pause for a count of one and then lower the dumbbells under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Using the lower body to generate momentum assists in the lifting phase of the movement and decreases the training effect on the target muscles.
- Leaning back at the torso while pressing the dumbbells up increases the stress on the lower back. The ankle, knee, hip, and shoulder should all be in a straight line.



Alternating Shoulder Press

Instructions

1. Hold the dumbbells at the shoulders so that the palms face forward and the elbows point toward the ground.
2. Press the left dumbbell directly upward so that the elbow is completely extended.
3. Do not use the lower body to assist in the lifting action.
4. Do not lean back as you press the dumbbell up. At the top of the movement the shoulders should be directly over the hips.
5. Lower the left dumbbell to the starting point while simultaneously pressing the right dumbbell overhead to a fully extended position.
6. Pause for a count of one and then lower the right dumbbell to the start position while raising the left dumbbell.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Using the lower body to generate momentum to assist in the lifting phase of the movement can decrease the training effect.
- Leaning back at the torso while pressing the dumbbells can create stress on the lower back. The ankle, knee, hip, and shoulder should all be in a straight line.
- Leaning away from the side that is lifting the dumbbell can reduce the training effect. Keep the body in a straight line.



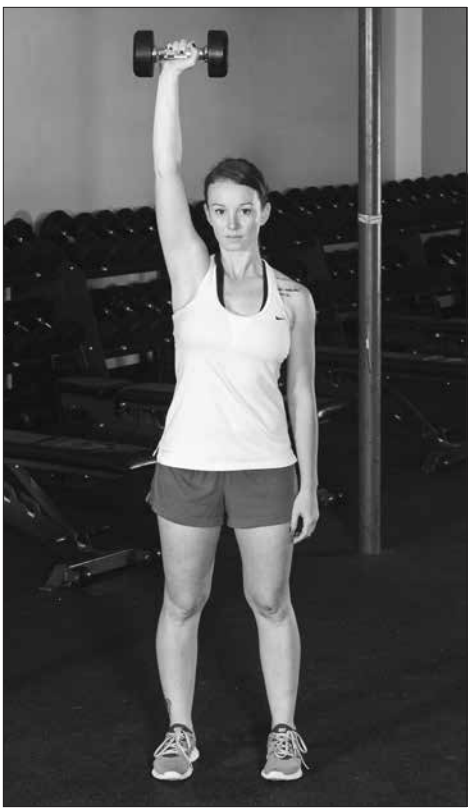
Single-Arm Shoulder Press

Instructions

1. Hold one dumbbell at the shoulder so that the palm faces forward and the elbow points toward the ground.
2. Press the dumbbell directly up until the elbow is completely extended.
3. Do not use the lower body to assist in the lifting action.
4. Do not lean back as you press the dumbbell up. At the top of the movement, the shoulders should be directly over the hips.
5. Pause for a count of one and then lower the dumbbell under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Using the lower body to generate momentum and assist in the lifting phase of the movement can decrease the training effect.
- Leaning back at the torso while pressing the dumbbells can cause stress on the lower back. The ankle, knee, hip, and shoulder should be in a straight line.
- Leaning away from the side that is lifting the dumbbell can decrease the training effect. Keep the body in a straight line.



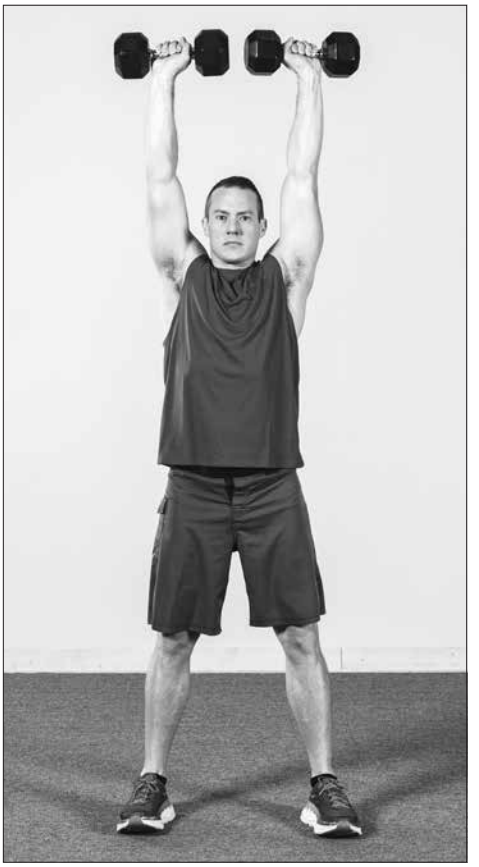
Arnold Press

Instructions

1. Rest a pair of dumbbells on the upper chest and shoulders with the palms facing the body. This movement is similar to a typical shoulder press.
2. As you begin pressing the dumbbells straight up, rotate the palms so that you transition from a position where the palms are facing toward the body to a position where the palms are facing away from the body by the time the arms have been fully extended overhead.

Common Errors

- Performing the movement too quickly, decreasing the time under tension.
- Using dumbbells that are too heavy. This causes improper technique, such as moving the weight too quickly, improper position of the body and or the dumbbells, and reduced range of motion.
- Generating momentum in the lower body to assist in the lifting phase and thus decreasing the training effect.
- Leaning back while pressing the dumbbells, potentially resulting in stress on the lower back. The ankles, knees, hips, and shoulders should be in a straight line.



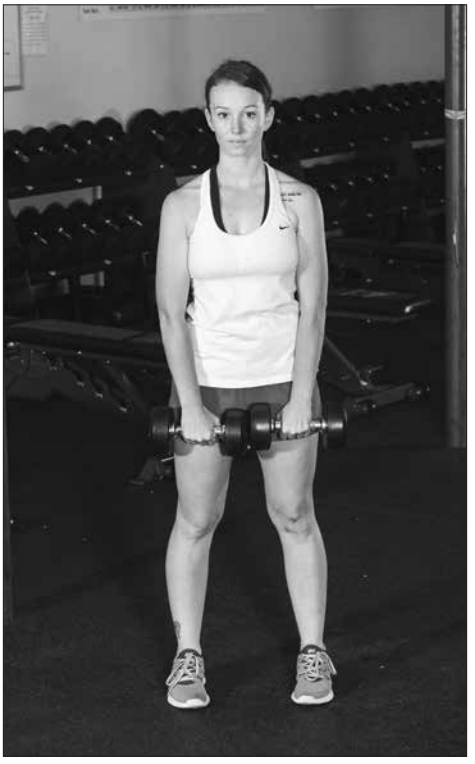
Upright Row

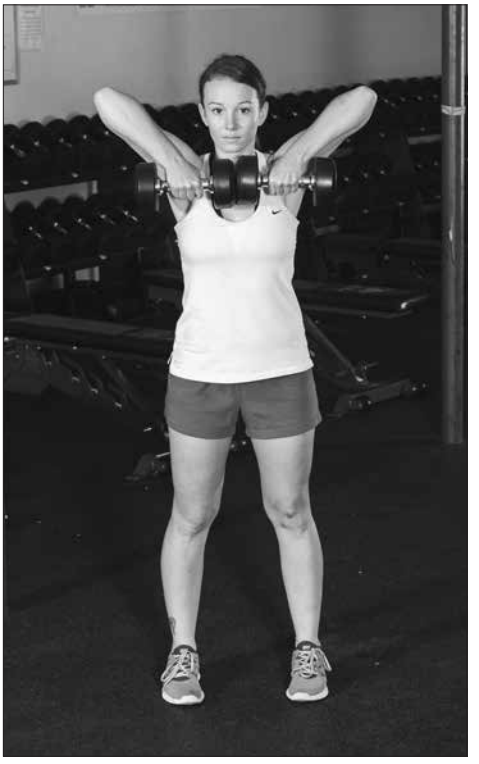
Instructions

1. Hold the dumbbells with straight arms and the palms facing down so that the dumbbells are resting against the top of the thighs.
2. Keeping the elbows above the wrists and the dumbbells orientated laterally, lift the dumbbells to shoulder height.
3. Do not rock the upper body to generate momentum and assist in lifting the dumbbells.
4. Pause for a count of one and then lower the dumbbells under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Allowing the wrist to elevate above the elbow rather than keeping it under the elbow reduces the training effect on the shoulder muscles.
- Using the lower body or a rocking motion of the torso to assist in the lifting of the dumbbells reduces the training effect.





CHEST

The primary muscle of the chest is the pectoralis major. The pectoralis minor is a secondary muscle.

Dumbbell Push-Up

Instructions

1. Place yourself in a normal push-up position so that you are in a prone position, with the toes and hands touching the floor and the body held in a straight line.
2. Rotate the arms so that the palms are facing each other about shoulder width apart.
3. Move the hands from the floor to the handles of the dumbbells one at a time and maintain that position for the duration of the exercise. This elevated position allows the body to be lowered through a larger range of motion than what is possible when the hands are on the floor.
4. Do push-ups, fully extending the elbows in the up position and lowering the chest and hips nearly to the floor in the down position.

Common Errors

- Not moving the body through a full range of motion. The movement should go from the arms being fully extended to a position where the chest and hips are just off the floor.
- Allowing the body to move out of a straight-line position by either lifting or sagging the hips, either during the movement or between repetitions.

Pullover

Instructions

1. Position yourself on an exercise bench so that the upper back and shoulders are supported by the bench.
2. Bend the knees and place the feet flat on the floor so that the knees, hips, and shoulders are all in a straight line.
3. Turn the dumbbell top to bottom and grasp the dumbbell on the inside face of the weight stack at the top of the dumbbell.
4. Extend the arms so that the dumbbell is positioned at arms' length directly over the face.
5. With just a slight bend at the elbows, lower the dumbbells through a full, comfortable range of motion until the dumbbell is positioned over the top of the head.
6. Keeping a slight bend at the elbows, return the dumbbell to the starting position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in the use of improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Too much bend in the elbows shifts the emphasis away from the muscles of the chest.

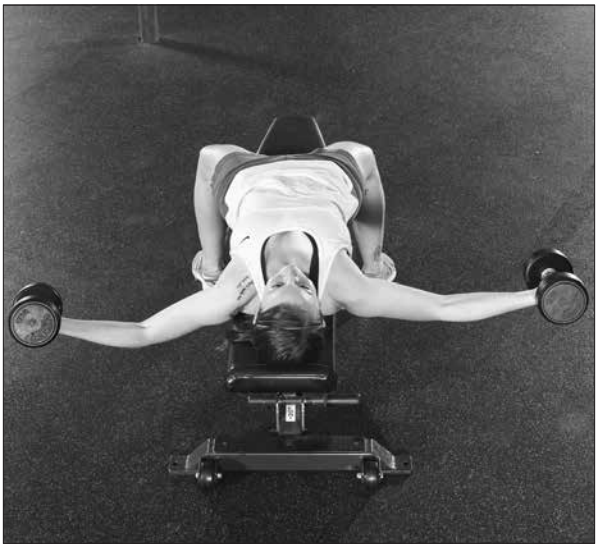
Fly

Instructions

1. Lie faceup on an exercise bench and place the feet flat on the floor.
2. Hold a dumbbell in each hand, straight above the chest, with palms facing each other.
3. With the elbows slightly bent, lower the dumbbells laterally to the level of the rib cage.
4. Maintaining a slight bend in the elbows, lift the dumbbells back to the starting position.

Common Errors

- Performing this movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Too much bend in the elbows reduces the training effect on the chest.
- Completing less than a full range of motion limits the recruitment of the target muscle group.



Incline Fly

Instructions

1. Set an exercise bench at an incline of 20 to 30 degrees. This tends to shift the emphasis of this exercise to the upper portion of the pectoralis, as compared to performing the exercise on a flat bench.
2. Lie faceup on the exercise bench and place the feet flat on the floor.
3. Hold a dumbbell in each hand, straight above the chest, with palms facing each other.
4. With the elbows slightly bent, lower the dumbbells laterally to the level of the rib cage.
5. Maintaining a slight bend in the elbows, lift the dumbbells back to the starting position.

Common Errors

- Performing this movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Allowing too much bend in the elbows reduces the training effect on the chest.
- Completing less than a full range of motion limits the recruitment of the target muscle group.

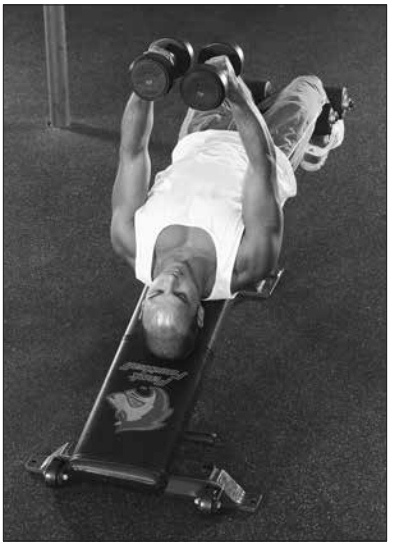
Decline Fly

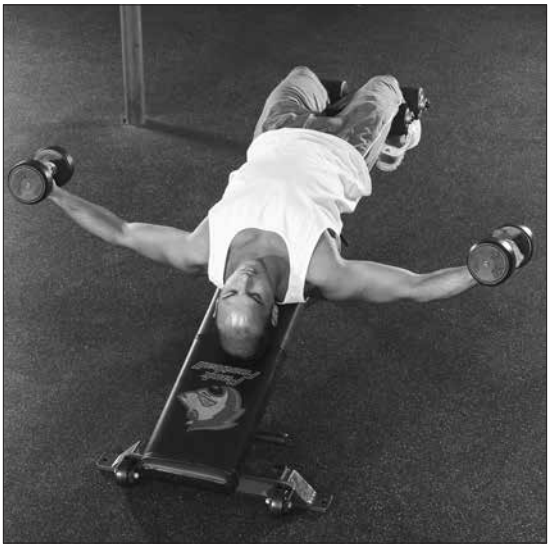
Instructions

1. Set an exercise bench at a decline of 20 to 30 degrees. This tends to shift the emphasis of this exercise to the mid to lower portion of the pectoralis, compared to performing the exercise on a flat bench
2. Lie faceup on the decline exercise bench.
3. Hold a dumbbell in each hand, straight above the chest, with palms facing each other.
4. With the elbows slightly bent, lower the dumbbells laterally to the level of the rib cage.
5. Maintaining a slight bend in the elbows, lift the dumbbells back to the starting position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, and improper body position.
- Excessive bending at the elbows reduces the training effect on the chest muscles.
- Completing less than a full range of motion limits the recruitment of the target muscle group.





Standing Upward Fly

Instructions

1. In a standing position, hold a dumbbell in each hand with the palms facing forward. The inside edge of the dumbbell should be outside the width of the thighs.
2. With just a slight bend at the elbows, and maintaining that position, lift the dumbbells up to just above shoulder height.
3. At the top of the range of motion, allow the dumbbells to gently come in contact with each other.
4. Lower slowly under control.

Common Errors

- Bending the elbows excessively; there should be just a slight bend at the elbows.
- Using a rocking motion to assist in lifting the dumbbells; there should be little to no movement other than at the shoulder joints.
- Using too heavy of a weight, resulting in a reduced range of motion. The dumbbells should move from outside the hips to shoulder height in each repetition.

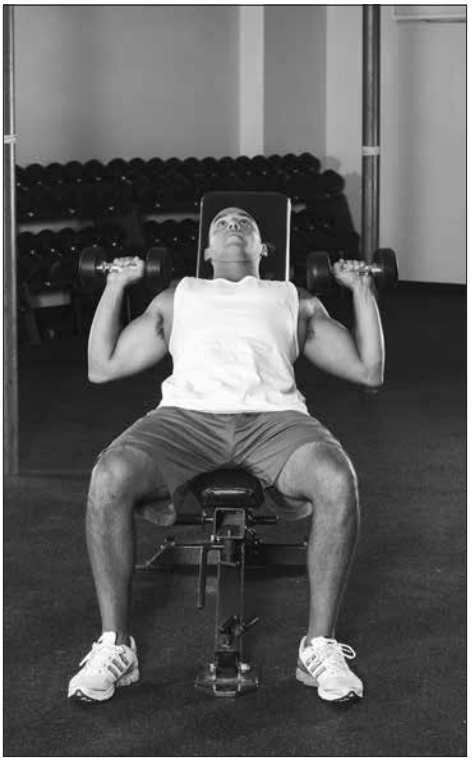
Incline Press

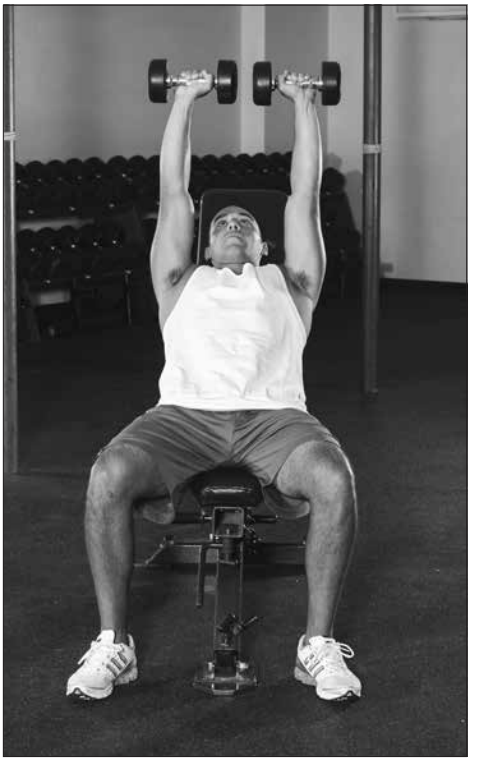
Instructions

1. Lie faceup on an incline exercise bench and place the feet flat on the floor.
2. Hold the dumbbells laterally at chest height.
3. Simultaneously press both dumbbells up until both arms are fully extended directly above the shoulders.
4. Lower the dumbbells under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Elevating the hips off the bench and excessively arching the lower back increase the stress placed on the lower back and decreases the emphasis on the muscles of the chest.
- Completing less than a full range of motion limits the recruitment of the target muscle group.





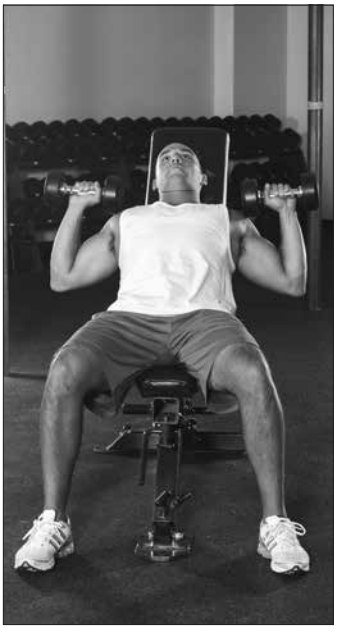
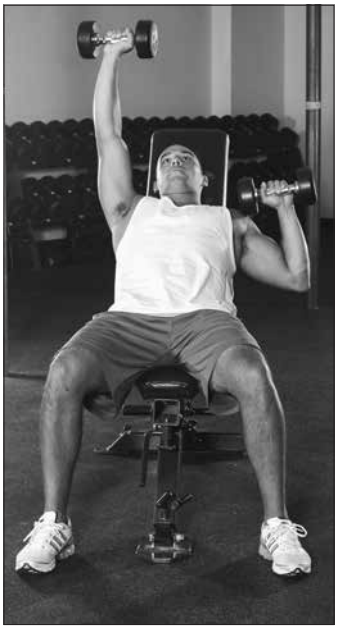
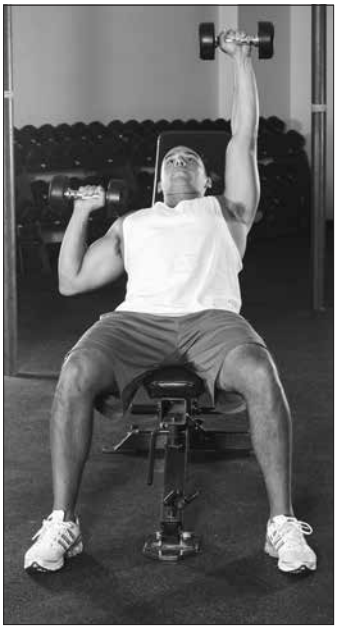
Alternating Incline Press

Instructions

1. Lie faceup on an incline exercise bench and place the feet flat on the floor.
2. Hold the dumbbells laterally at chest height.
3. Press the right dumbbell up until the right arm is fully extended directly above the right shoulder. Hold the dumbbell in the left arm motionless.
4. As you lower the right arm, repeat the movement with the left arm.
5. On each repetition, lower the dumbbell under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Elevating the hips off the bench excessively arches the lower back.
- Twisting the upper body as a means to gain leverage when lifting the dumbbell increases the opportunity for injury to the lower back. Keep the hips and shoulders flat on the bench during the exercise.

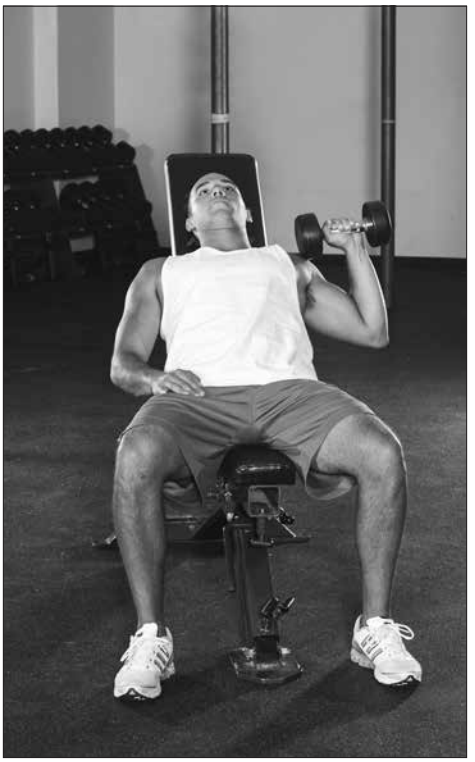
Single-Arm Incline Press

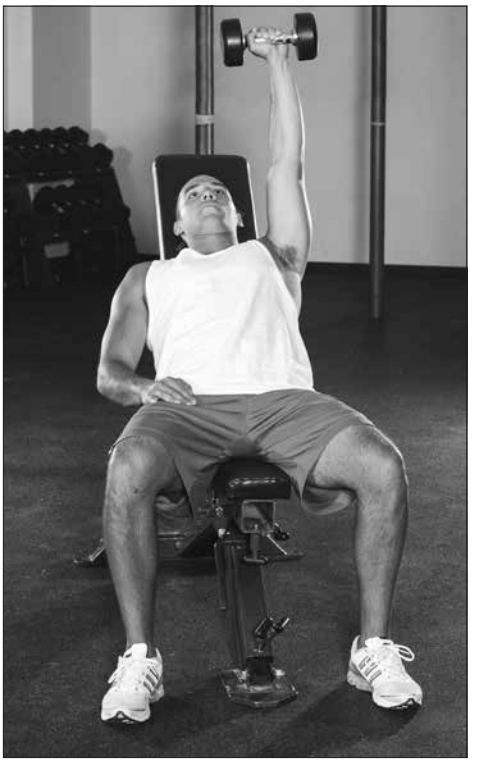
Instructions

1. Lie faceup on an incline exercise bench and place the feet flat on the floor.
2. Hold one dumbbell laterally at chest height.
3. Press the dumbbell up until the arm is fully extended directly above the shoulder.
4. Complete the required number of repetitions and then repeat the movement on the other arm.
5. On each repetition, lower the dumbbell under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in the use of improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Elevating the hips off the bench excessively arches the lower back.
- Twisting the upper body to gain leverage when lifting the dumbbell stresses the lower back.





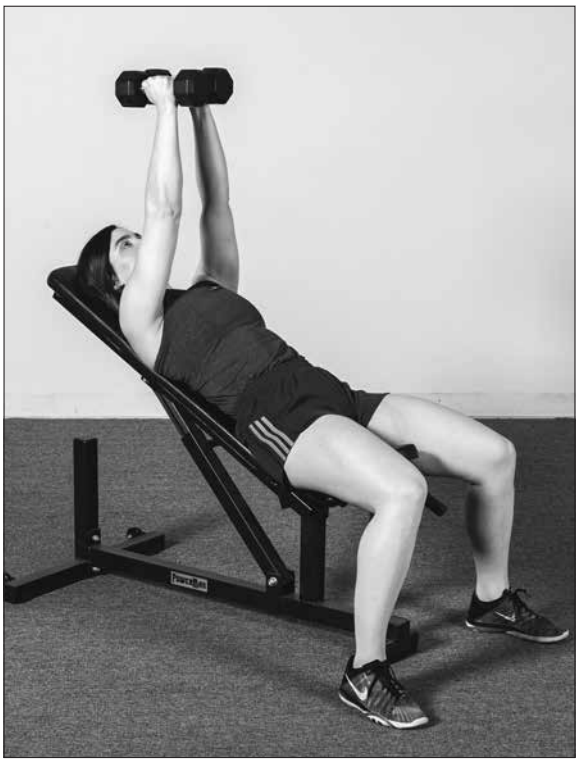
Close-Grip Incline Press

Instructions

1. Position yourself on an exercise bench so that your hips and head are fully supported by the bench.
2. Grasp a pair of dumbbells and position them at arm's length over the chest, using a palms-in position so that the dumbbells are held butted together side by side.
3. Keeping the dumbbells butted against each other, lower the dumbbells to the chest and then return the arms to full extension.
4. Keep the buttocks in contact with the bench and the feet on the floor.

Common Errors

- Lifting the hips off the bench or the feet off the floor.
- Lifting and lowering the dumbbells too quickly. The movement should be controlled.
- Not moving through a full range of motion. The arms should move from full extension to full flexion, with the dumbbells touching the chest at the bottom of the range of motion.



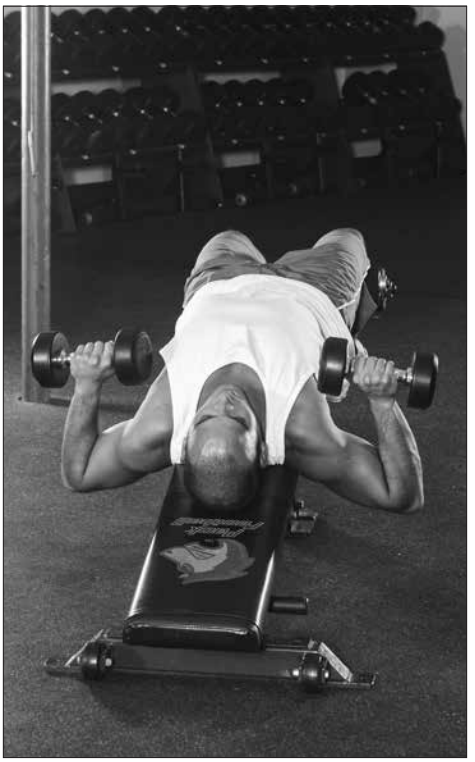
Decline Press

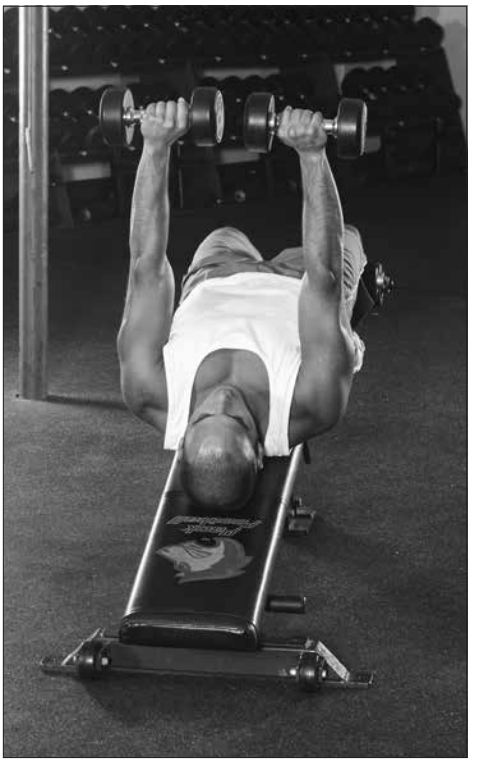
Instructions

1. Lie faceup on a decline exercise bench.
2. Hold the dumbbells laterally at chest height.
3. Simultaneously press both dumbbells up until both arms are fully extended directly above the shoulders.
4. Lower the dumbbells under control to the start position.

Common Errors

- Performing the movement too quickly, which reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in the use of improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Elevating the hips off the bench excessively arches the lower back.
- Limiting the range of motion reduces the training effect.





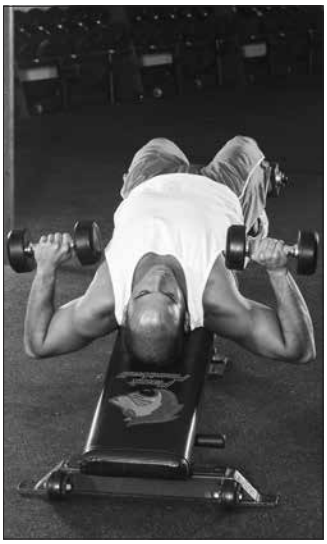
Alternating Decline Press

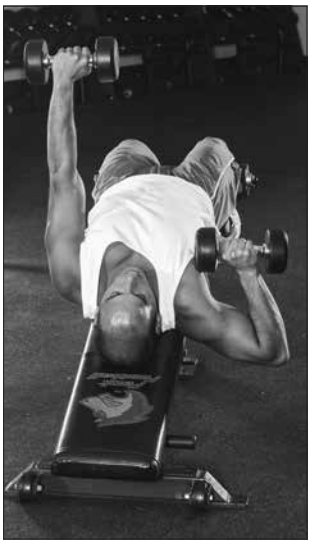
Instructions

1. Lie faceup on a decline exercise bench.
2. Hold the dumbbells laterally at chest height.
3. Press the right dumbbell up until the right arm is fully extended directly above the right shoulder.
4. As you lower the right arm, repeat the movement with the left arm.
5. On each repetition, lower the dumbbell under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Elevating the hips off the bench excessively arches the lower back.
- Twisting the upper body to gain leverage when lifting the dumbbell can stress the lower back.





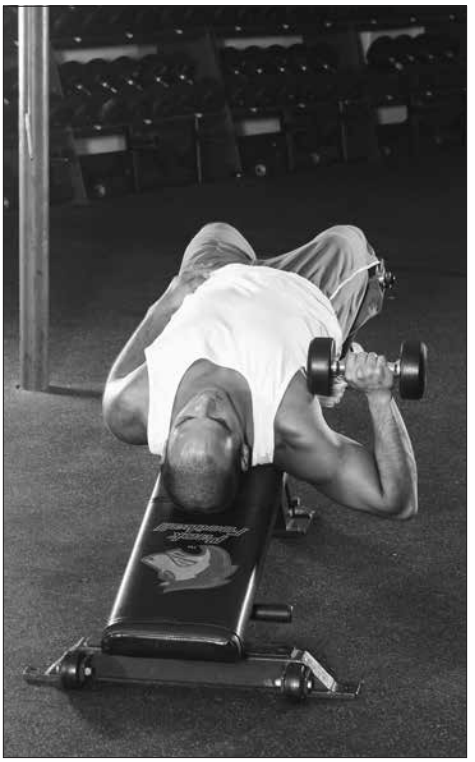
Single-Arm Decline Press

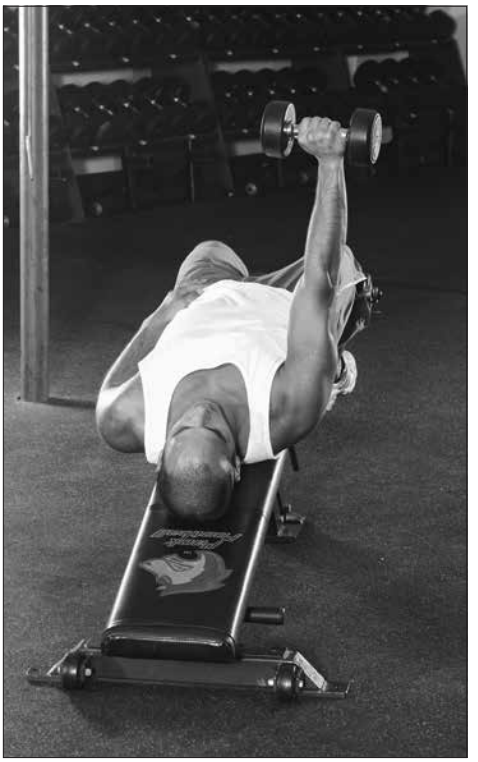
Instructions

1. Lie faceup on a decline exercise bench.
2. Hold one dumbbell laterally at chest height.
3. Press the dumbbell up until the arm is fully extended directly above the shoulder.
4. Complete the required number of repetitions and then repeat the movement on the other arm.
5. On each repetition, lower the dumbbell under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Elevating the hips off the bench excessively arches the lower back.
- Twisting the upper body to gain leverage when lifting the dumbbell can stress the lower back.





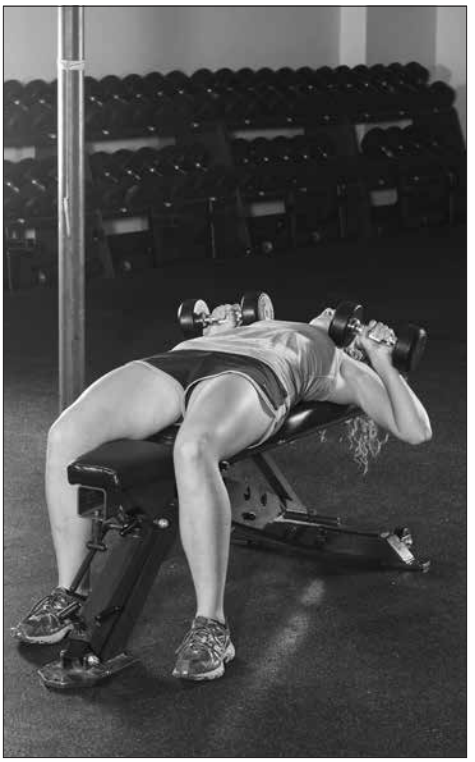
Bench Press

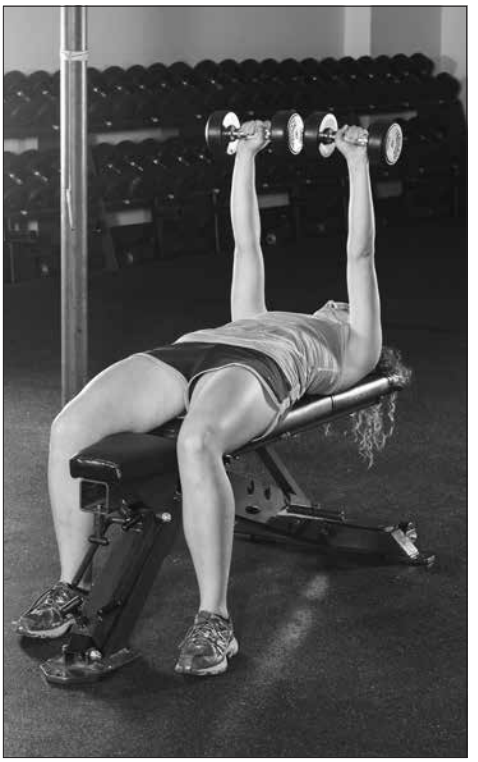
Instructions

1. Lie faceup on an exercise bench and place the feet flat on the floor.
2. Hold the dumbbells laterally at chest height.
3. Simultaneously press both dumbbells up until both arms are fully extended directly above the shoulders.
4. Lower the dumbbells under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly or improper body position.
- Limiting the range of motion reduces the training effect.





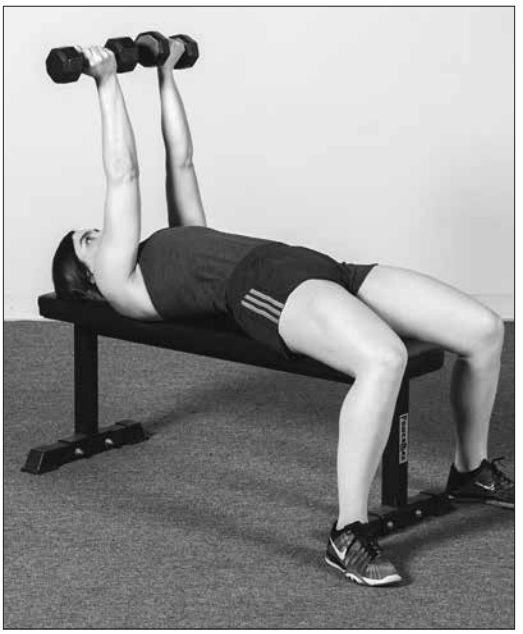
Reverse Wide-Grip Bench Press

Instructions

1. Position yourself as you normally would to perform dumbbell bench press repetitions. However, rather than using a palms down grip, rotate the arms into a palms up position.
2. Position the dumbbells so the inside sections of the dumbbells are farther apart than the chest is wide.
3. Lower the dumbbells through a comfortable range of motion, and then lift the dumbbells to full extension.

Common Errors

- Using dumbbells that are too heavy causes you to lower the dumbbells too quickly or reduce the range of motion.
- Lowering the dumbbells out of control or through an incomplete range of motion.
- Elevating the buttocks off the bench causes excessive arching of the back.



Alternating Bench Press

Instructions

1. Lie faceup on an exercise bench and place the feet flat on the floor.
2. Hold the dumbbells laterally at chest height.
3. Press the right dumbbell up until the right arm is fully extended directly above the right shoulder.
4. As you lower the right arm, repeat the movement with the left arm.
5. On each repetition, lower the dumbbell under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Elevating the hips off the bench excessively arches the lower back.
- Twisting the upper body to gain leverage when lifting the dumbbell can stress the lower back.



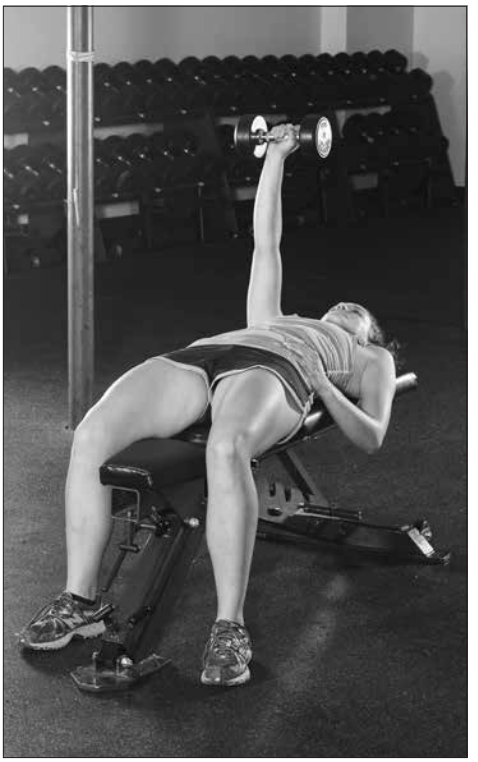
Single-Arm Bench Press

Instructions

1. Lie faceup on an exercise bench and place the feet flat on the floor.
2. Hold one dumbbell laterally at chest height.
3. Press the dumbbell up until the arm is fully extended directly above the shoulder.
4. Complete the required number of repetitions and then repeat the movement on the other arm.
5. On each repetition, lower the dumbbell under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Elevating the hips off the bench excessively arches the lower back.
- Twisting the upper body to gain leverage when lifting the dumbbell can stress the lower back.



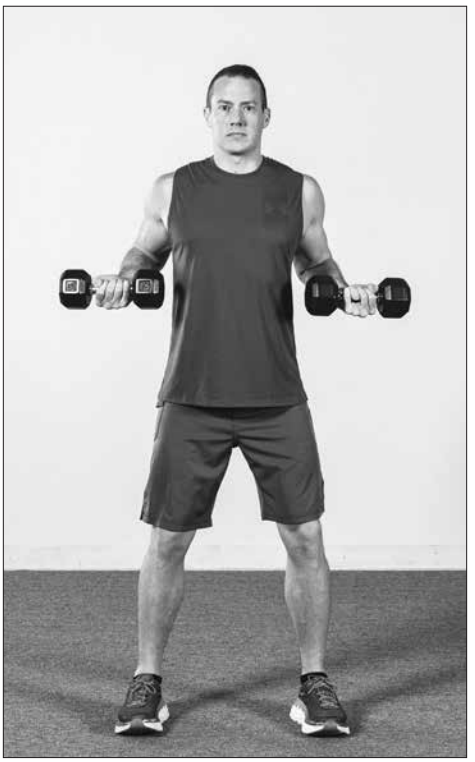
Valley Press

Instructions

1. Grasp a dumbbell in each hand with a palms-up grip.
2. In a standing position, start with the dumbbells held at chest height and the elbows outside of the rib cage.
3. Press the dumbbells straight out from the chest with the dumbbells held at chest height. The inside edges of the dumbbells should be butted together.

Common Errors

- Not fully extending the arms or not bringing the dumbbells fully to the chest leads to decreased range of motion.
- Using dumbbells that are too heavy prevents the correct position from being maintained. The dumbbells must be kept butted together at chest height.



UPPER BACK

The primary muscles of the upper back are the latissimus dorsi, rhomboids, and trapezius. The secondary muscles are the rhomboids and teres minor.

Shrug

Instructions

1. Grasp a pair of dumbbells and hold the dumbbells at the sides of the body with the palms facing the body.
2. Shrug both shoulders forward, then straight up, and then backward in one continuous full, comfortable range of circular motion.

Common Error

- Rocking the upper body to gain momentum when performing this exercise. Make sure each of the movements (forward, straight up, and then backwards) are taken through a full, comfortable range of motion.

Single-Arm Pullover

Instructions

1. Lie across a bench so that just the upper back and head are supported on the bench, the knees are bent, and the feet are on the floor supporting the lower body.
2. Grasp the handle of one dumbbell with the right arm and lift it directly over the right shoulder to move into the starting position.
3. With a slight bend at the right elbow, and movement only occurring at the right shoulder, lower the dumbbell over the head and then return to the starting position through a full, comfortable range of motion.
4. Perform the required number of repetitions with the right arm and then repeat the movement with the left arm.

Common Errors

- Bending the elbow excessively.
- Moving both the shoulder and the elbow.
- Using a weight that is too heavy could cause the exercise to be performed through a limited range of motion or too fast.

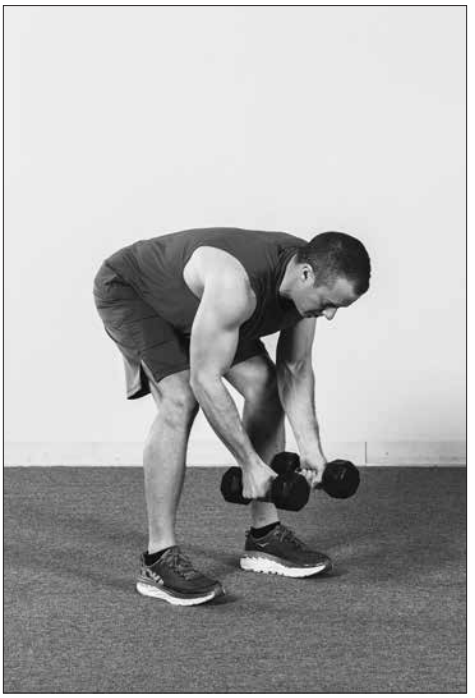
Bent-Over Lateral Raise

Instructions

1. Grasp a pair of dumbbells and hold them at your sides with your palms facing your body.
2. Bend over at the waist, keeping the back flat, until the shoulders are 6 to 8 inches (15-20 cm) higher than the hips; allow the dumbbells to hang straight down.
3. Allow a slight bend at the elbows.
4. Lift both arms outward until the dumbbells are as high as the shoulders.
5. Lower until the dumbbells are directly under the chest.

Common Errors

- Bending the elbows excessively.
- Using a rocking motion to develop momentum and assist in elevating the dumbbells.
- Using a weight that is too heavy could result in a limited range of motion or lifting the dumbbells too quickly.



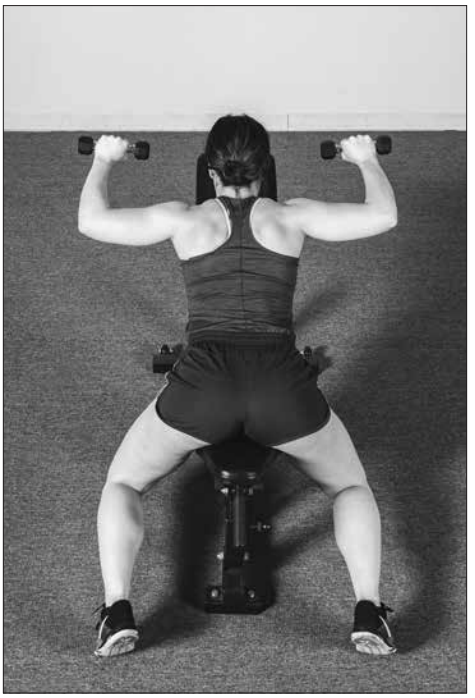
Reverse Incline Trap Press

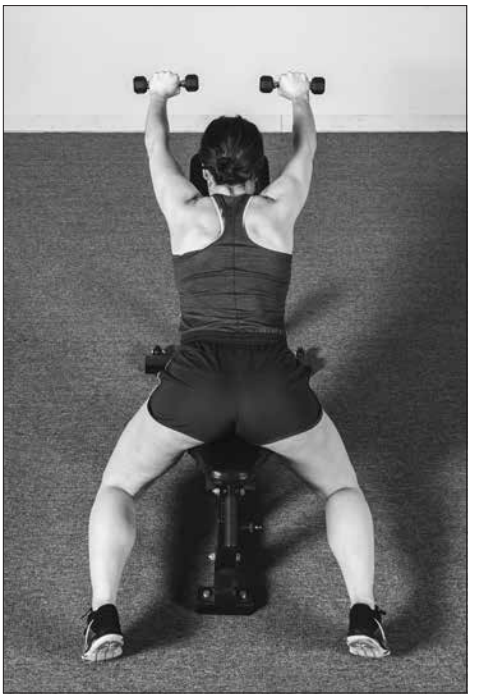
Instructions

1. Lie facedown on an incline bench that is angled at about 45 degrees. The head and shoulders should be above the top end of the bench.
2. Grasp a pair of dumbbells and hold them just above the shoulders using a palms-down grip.
3. Press the dumbbells at about the same degree of inclination as the bench is positioned. The elbows should be beside the shoulders as you press the arms into full extension.
4. Return to the start position, with the dumbbells lowered to just above the shoulders.

Common Errors

- Moving the dumbbells too quickly**.** The movement should be controlled.
- Not training through a full range of motion. The arms should move from full extension at the top to the dumbbells being held just above the shoulders at the bottom of the movement.
- Using a weight that is so heavy that the correct degree of inclination cannot be maintained.





Row

Instructions

1. Place the left knee on a flat exercise bench, positioned directly under the left hip.
2. Bend at the hips and lower the trunk until the back is flat and the head is up.
3. With the left palm flat on the bench, fully extend the left arm.
4. Grasp a dumbbell with the right hand, the palm facing the body and the dumbbell directly below the right shoulder.
5. Shrug the shoulder toward the ceiling, attempting to lift the dumbbell as high as possible without bending the right elbow.
6. At the top of the shrug bend the right elbow and pull the dumbbell to the outside of the rib cage.
7. Lower the dumbbell under control.
8. Perform the required number of repetitions and then adjust the body position so that the movement can be performed with the left arm.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Using a jerking or twisting movement to lift the dumbbell keeps the lifting action from being smooth and controlled.
- Failing to hold the dumbbell in a straight line under the shoulder so that the dumbbell can contact the body toward the outside of the rib cage.

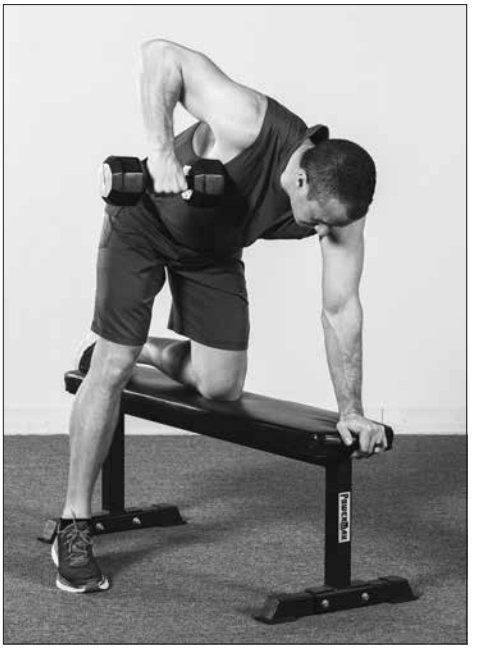
Wide-Grip Row

Instructions

1. Using a flat utility bench, place the left knee on the bench, directly under the left hip, with the left foot resting on the bench. Place the right foot on the floor directly underneath the hip.
2. Place the left hand on the bench, forward of the left shoulder, so that the back is nearly flat.
3. Grasp a dumbbell with the right hand directly below the right shoulder so that the palm is turned facing toward your feet and the inside edge of the dumbbell is outside the rib cage.
4. Initiate the movement in the upper back, attempting to lift the dumbbell as high as possible without bending the right arm.
5. After the dumbbell has been lifted as high as possible without bending the elbow, finish pulling with the arm by allowing the elbow to bend until the inside edge of the dumbbell is elevated to a position outside of the rib cage.
6. Lower the dumbbell under control to the starting position.
7. Repeat for the required number of repetitions and then alternate your position and perform the movement on the left arm.

Common Errors

- Initiating the movement by bending the elbow immediately rather than initiating the movement with the upper back.
- Lifting and lowering the dumbbell too quickly. The movement, especially during the lowering phase, should be controlled.
- Pulling the dumbbell to the chest, rather than outside the rib cage, reducing the potential range of motion.



BICEPS

The primary muscle of the front of the upper arm is the biceps. The secondary muscle is the brachialis.

Did You Know?

Typical barbell exercises require each arm to move symmetrically, as when performing a curl. Dumbbells provide the opportunity to perform both single-arm and alternating-arm movements. Because many activities in sports and daily life involve both single-arm and alternating-arm movements, training with dumbbells provides the opportunity for your training to more closely match the movements you perform on a regular basis, whether that is serving a volleyball with one hand or holding a bag of groceries in one arm while opening a door with the other.

Curl

Instructions

1. Grasp a pair of dumbbells with a palms-up grip.
2. Extend the arms so that the dumbbells are held at thigh height.
3. Without rocking the upper body, curl the arms to a fully flexed position with the dumbbells at shoulder height.
4. Lower the dumbbells under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Using a rocking motion of the torso to assist in the lifting action decreases the workload on the target muscle group. Although you can lift more weight when you rock, less work is required of the target muscle group, reducing the effectiveness of the exercise.

Hammer Curl

Instructions

1. Hold a pair of dumbbells next to the thighs so that the palms face each other and thumbs are up. The feet are shoulder-width apart.
2. Maintaining the thumbs-up position, flex at the elbow without rocking the upper body until the dumbbells reach the highest position you can reach just by flexing the elbows.
3. Lower the dumbbells under control.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Using a rocking motion at the torso to assist in lifting reduces the effectiveness of the exercise on the targeted muscle group.

Reverse Curl

Instructions

1. Grasp a pair of dumbbells with a palms-down grip.
2. Extend the arms so that dumbbells are held at thigh height.
3. Without rocking the upper body and maintaining a palms-down position, curl the arms to a fully flexed position with the dumbbells at shoulder height.
4. Lower the dumbbells under control to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, improper body position, and reduced range of motion.
- Using a rocking motion at the torso to assist in the lifting reduces the effectiveness of the exercise.

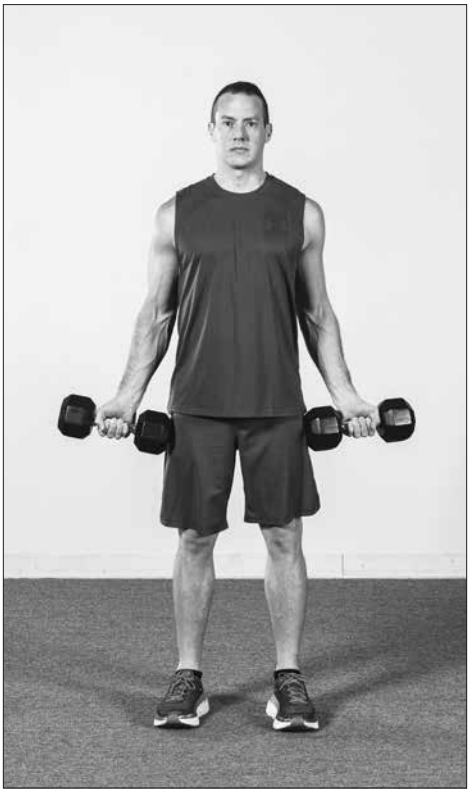
Dumbbell Drag Curl

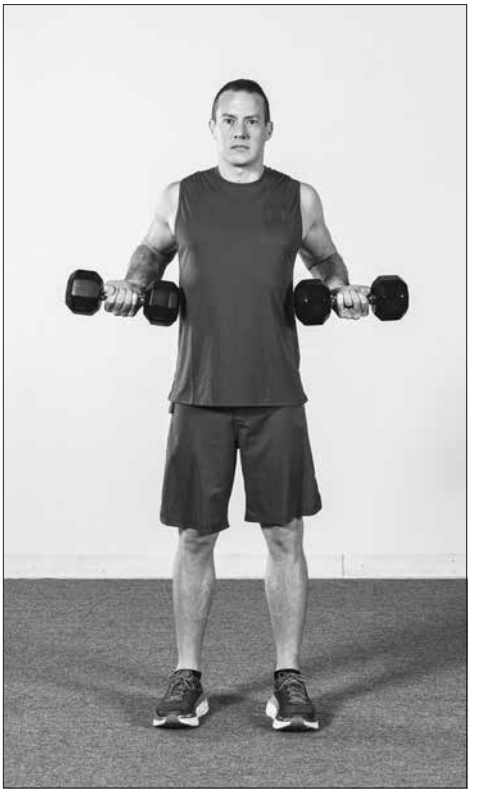
Instructions

1. Hold a dumbbell in each hand at the sides of the body, with palms up.
2. Lift the dumbbells simultaneously, and as you do so, curl the arms and slide the elbows back so that the elbows move from being directly under the shoulders to a position where the elbows are behind the shoulders as much as possible.

Common Error

- Too heavy of a weight will cause the person to move the weight too fast. The exercise will be completed with a less-than-optimal range of motion, or the person will use a rocking motion to assist in lifting the weight.





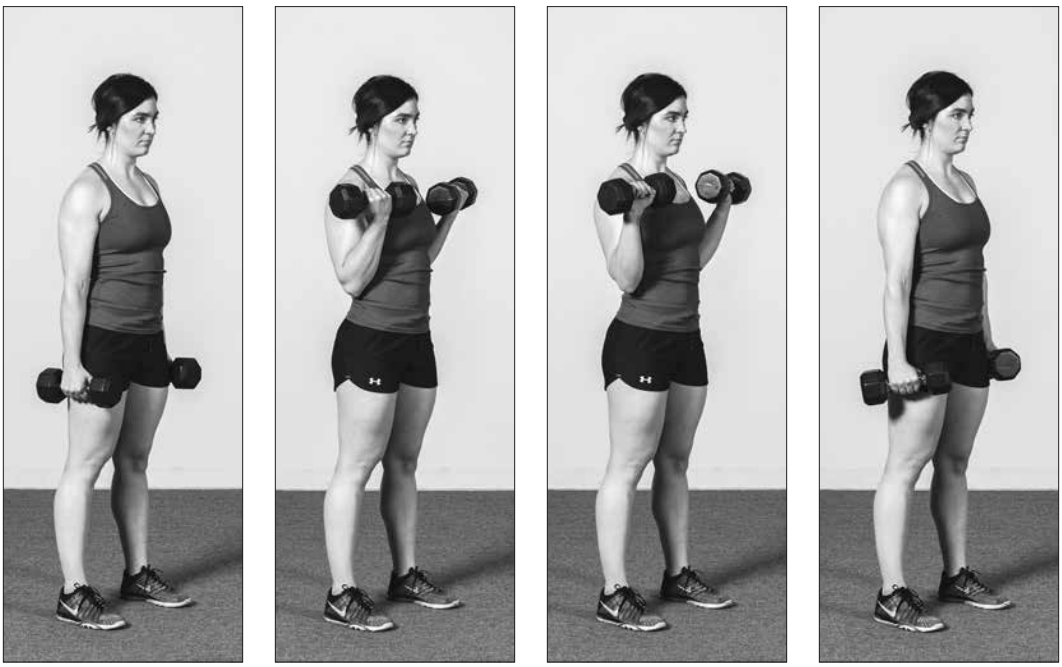
Zottman Curl

Instructions

1. Using a dumbbell in each hand, start the movement in a standing position with the dumbbells held near the thighs with the palms facing the sides of the body.
2. As you lift the dumbbells, transition the grip so the palms move from a position where they are facing the body to a position where the palms are turned toward the ceiling and curl the arms to full flexion.
3. At the top of the movement, with the dumbbells at about shoulder height, rotate the wrists so the palms are facing forward and lower the dumbbells so the arms are fully extended and the dumbbells are held at either side of the body.
4. Move back into the starting position before performing the next repetition.

Common Errors

- Lifting a weight that is too heavy, forcing the person to lift the weight too fast. The movement should be smooth and controlled. Further, the weight selected should allow the dumbbell to be moved though the full potential range of motion.
- Rocking of the upper body to assist in lifting the weight.



Concentration Curl

Instructions

1. Sit on a utility bench, legs spread wider than hip width, holding a dumbbell in the right hand.
2. Lean over so that the triceps of the right arm is braced against the inside of the right thigh.
3. Hold the dumbbell in a palm-up position.
4. Move the arm from a position of full extension to full flexion so that the dumbbell is nearly touching the chest.
5. Continue for the required number of repetitions and then repeat on the opposite arm.

Common Errors

- Lifting too fast rather than in a smooth and controlled movement.
- Not going through the full potential range of motion. The arm should move from full extension to full flexion.
- Using extra movement to assist in lifting the dumbbell reduces the effectiveness of the exercise on the targeted muscle group. The movement should occur strictly as a result of the biceps contracting.

TRICEPS

The primary muscle of the back of the upper arm is the triceps. The secondary muscle is the anconeus.

Triceps Extension

Instructions

1. Turn a dumbbell on its side.
2. Grasp the dumbbell with both hands. Fully extend the arms upward so that the dumbbell is held top to bottom directly over the head.
3. Fully flex the elbows to lower the dumbbell under control behind the head.
4. Extend the elbows and return to the start position.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, using improper body position, and reduced range of motion.
- Rocking the torso to assist in the lifting action reduces the effectiveness of the exercise.
- Letting the elbows drift away from each other instead of keeping them just outside the width of the head decreases the training effect on the target muscles.

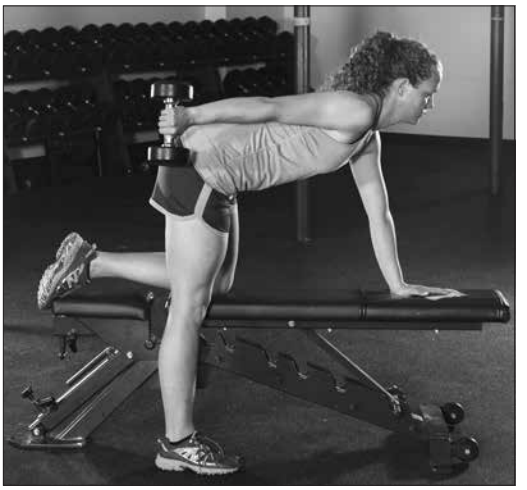
Kickback

Instructions

1. Place the left knee on a flat exercise bench, positioned directly under the left hip.
2. Bend at the hips and lower the trunk until the back is flat. The head is up.
3. Straighten the left arm so that it is fully extended, the left palm flat on the bench supporting the upper body.
4. Grasp a dumbbell with the right hand so that the palm of the right hand faces the body and the right hand is directly below the right shoulder.
5. Flex at the right elbow and shoulder until the right forearm is lifted to the height of the hip.
6. Bend the elbow at a right angle so that the right hand is in a straight line below the elbow and is parallel to the right leg.
7. Keeping the upper arm in this position, extend the forearm at the elbow toward the hip until the dumbbell is lifted to the same height as the elbow.
8. Lower the dumbbell under control.

Common Errors

- Performing the movement too quickly reduces the amount of time the muscles are under tension, potentially decreasing the training effect.
- Using dumbbells that are too heavy results in improper technique, such as lifting or lowering too quickly, using improper body position, and not completing the movement through a full range of motion.
- Rocking the torso to assist in the lifting action reduces the effectiveness of the exercise.



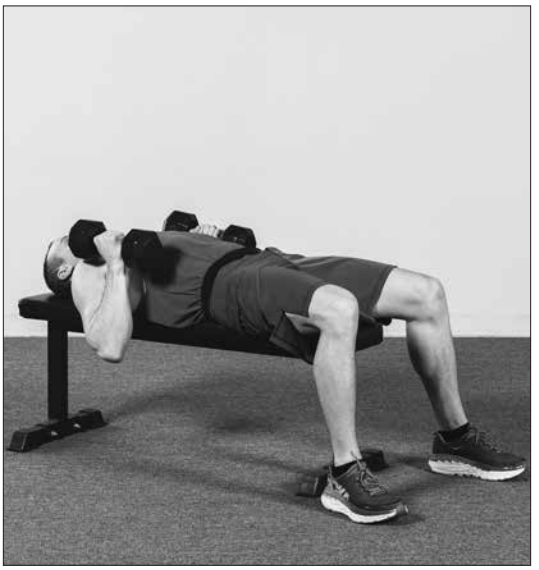
Close-Grip Dumbbell Press

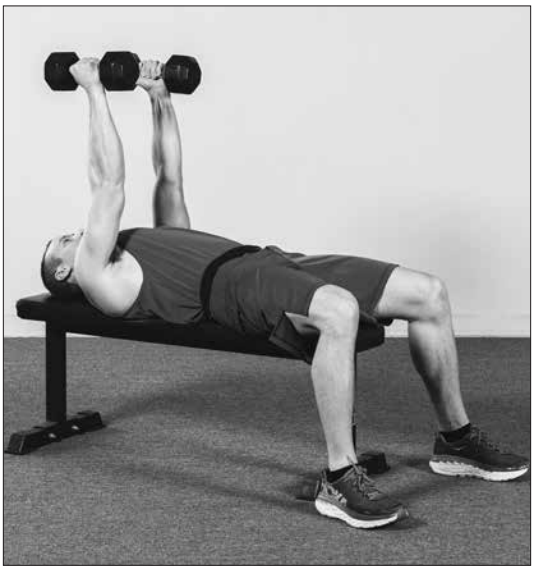
Instructions

1. Lie faceup on a flat utility bench, with a dumbbell in each hand resting on the outside of the chest.
2. Turn the palms so they are facing the body.
3. Maintaining the palms in that position, fully extend the arms, then lower the dumbbells to the starting position.
4. Lower the dumbbells outside the width of the chest while keeping the elbows close to the body, which helps emphasize the triceps being recruited during performance of the exercise.

Common Errors

- Allowing the elbows to drift away from the body reduces the emphasis on the triceps.
- Lowering the dumbbells to the chest, rather than outside the chest, decreases the range of motion of the exercise.
- Arching the back/butt off the bench. This must be avoided.
- Moving the weight too quickly or using a less than full range of motion.





Skull Crusher

Instructions

1. Lie flat, faceup, on a utility bench, feet on the floor.
2. Hold a dumbbell in each hand, with the palms facing each other and the arms fully extended over the shoulders.
3. Maintaining that position at the wrists, and moving only at the elbows and not the shoulders, lower the dumbbells to each side of the head, and then return to the starting position.

Common Errors

- Allowing the elbows to move wider than shoulder-width apart. Do not allow them to move wider than that position.
- Not fully extending or flexing at the elbow. The exercise should be performed through the full, comfortable range of motion.
- Lifting or lowering the weight too fast. The movement should be performed lifting and lowering the weight under control.

CHAPTER

5

Lower Body

People sometimes tend to emphasize the upper body in resistance training programs because they often equate being strong and powerful with having big arms or a big chest. In reality, however, most sports and activities of daily living are lower-body dominant. That is, a strong and powerful lower body has much more to do with success in most sports, even as a weekend warrior, or simply maintaining mobility, than do big biceps. This chapter discusses a variety of exercises for the lower body. The primary muscles in the lower body are the glutes, hamstrings, adductors, quadriceps, and gastrocnemius.

Did You Know?

Performance in most sports is more dependent on the ability to generate power than the ability to develop high levels of force. Jumping, sprinting, swinging a baseball bat, and throwing a football are all examples of movements that require high levels of power. However, there are also activities of daily living that require the need to generate power. One of the most important is the ability to recover when you trip or slip when walking. The ability to avoid a fall requires a quick movement and can be the deciding factor if you are able to avoid a fall or fall and end up with an injury.

Squat

Instructions

1. Grasp a dumbbell in each hand with the arms fully straightened along the sides of the body.
2. Assume a shoulder-width stance.
3. Arch the back, and keep the head up.
4. Maintaining an arched back, initiate the squat movement by sitting back at the hips.
5. Continue to sit back until the thighs are parallel with the floor. The center of the hip joint should be at the same height or below the center of the knee joint.
6. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
7. Leading with the head (as opposed to lifting the hips first), return to the starting position. Keep the back arched and the head up.

Common Errors

- Allowing the back to round (rather than arching it) during the exercise, which places more stress on the low back and can lead to injury.
- Failing to achieve a thigh position that is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knees forward rather than by sitting back at the hips, which lifts the heels off the floor.
- Lowering the weight too quickly rather than controlling the movement during the descent.

Jump Squat

Instructions

1. Grasp a dumbbell in each hand with the arms fully straightened along the sides of the body.
2. Assume a shoulder-width stance.
3. Arch the back, and keep the head up.
4. Maintaining an arched back, initiate the movement by sitting back at the hips.
5. Continue to sit back until your thighs are at the same depth as in a typical maximal vertical-jump attempt.
6. Keep the heels on the floor during this phase of the movement. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
7. Leading with the head (as opposed to lifting the hips first), use a jumping action to elevate off the floor. The back should remain arched and the head should be up during this jump phase. Return to the starting position upon landing.
8. Repeat for the required number of jumps.

Common Errors

- Allowing the back to round (rather than arching it) during the exercise, which places more stress on the low back and can lead to injury.
- Failing to achieve the depth of a typical maximal vertical-jump attempt.
- Initiating the movement by moving the knee forward rather than sitting back at the hips, which lifts the heels off the floor.
- Spending too much time on the floor between repetitions rather than executing each jump as quickly as possible.



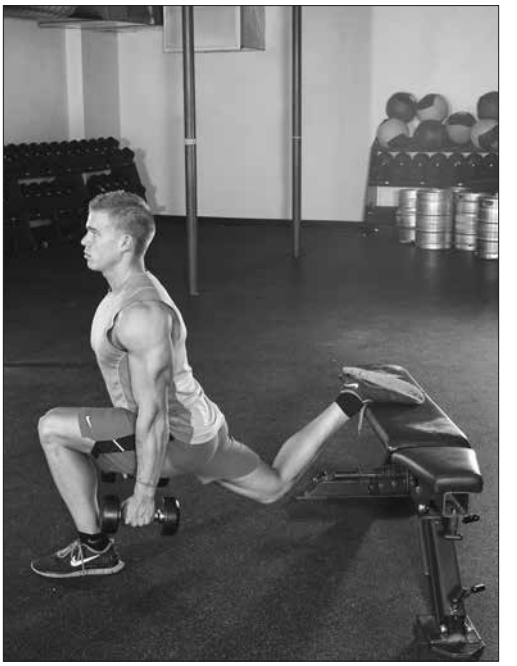
Single-Leg Squat

Instructions

1. Grasp a dumbbell in each hand with the arms straight along the sides of the body.
2. Assume a shoulder-width stance.
3. Arch the back, and keep the head up.
4. Reach back with the right leg and place the right foot on a bench or plyometric box that is approximately knee height.
5. Position the left foot far enough in front of the bench that you are in a lunge position.
6. Maintaining an arched back, initiate the movement by sitting back at the hips.
7. Continue to sit back until your left thigh is parallel to the floor. The center of the hip joint should be at the same height as the center of the knee joint.
8. Keep the front heel on the floor. The front knee can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
9. Leading with the head (as opposed to lifting the hips first), return to the starting position. The back should remain arched and the head should be up.

Common Errors

- Allowing the back to round rather than maintaining an arch during the exercise.
- Failing to lower until the thigh is parallel to the floor, which is especially common in this exercise.
- Initiating the movement by moving the knee forward rather than sitting back at the hip, which can cause the heels to lift off the floor.
- Lowering the weight too quickly rather than controlling the descent.



Single-Leg Jump Squat

Instructions

1. Grasp a dumbbell in each hand with the arms up at approximately shoulder height.
2. Assume a shoulder-width stance.
3. Arch the back and keep the head up.
4. Reach back with the right leg and place the right foot on a bench or plyometric box that is approximately knee height.
5. Position the left foot far enough in front of the bench that you are in a lunge position.
6. Maintaining an arched back, initiate the movement by sitting back at the hips.
7. Continue to sit back until your left thigh is at the same depth as in a typical maximal vertical-jump attempt.
8. Keep the left heel on the floor.
9. Allow the lead knee to drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
10. Keep the back arched and the head up.
11. Repeat quickly for the required number of repetitions.

Common Errors

- Allowing the back to round rather than maintaining an arch during the exercise.
- Failing to lower the body until the thigh is parallel to the floor.
- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can raise the heels off the floor.
- Failing to achieve the depth of a typical maximal vertical jump.
- Spending too much time on the floor between repetitions, rather than jumping as quickly as possible.



Front Squat

Instructions

1. Grasp a dumbbell in each hand with the arms at the sides.
2. Raise the dumbbells to the shoulders, with the back end of the dumbbells resting on the shoulders. Hold the elbows high so that the dumbbells are level. The front end should not be lower than the back end.
3. Assume a shoulder-width stance.
4. Arch the back, and keep the head up.
5. Maintaining an arched back, initiate the movement by sitting back at the hips.
6. Continue to sit back until the thighs are parallel to the floor. The center of the hip joint should be at the same height as the center of the knee joint.
7. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
8. Leading with the head (as opposed to lifting the hips first), return to the starting position. The back should remain arched, and the head should be up.

Common Errors

- Allowing the back to round rather than arching it during the exercise. (Keep the elbows high to eliminate this problem.)
- Failing to lower the body until the thigh is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can lift the heels off the floor.
- Squatting down too quickly rather than controlling the descent.

Single-Leg Front Squat

Instructions

1. Grasp a dumbbell in each hand with the arms at the sides.
2. Raise the dumbbells to the shoulders, with the back of the dumbbells resting on the shoulders. Hold the elbows high so that the dumbbells are level. Do not let the front of the dumbbells sit lower than the back.
3. Assume a shoulder-width stance.
4. Arch the back, and keep the head up.
5. Reach back with the right leg and place the right foot on a bench or plyometric box that is approximately knee height.
6. Position the left foot far enough in front of the bench that you are in a lunge position.
7. Maintaining an arched back, initiate the movement by sitting back at the hips.
8. Continue to sit back until the thigh is parallel to the floor. The center of the hip joint should be at the same height as the center of the knee joint.
9. Keep the heel on the floor. The knee can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
10. Leading with the head (as opposed to lifting the hips first), return to the starting position. The back should remain arched, and the head should be up.

Common Errors

- Allowing the back to round rather than arching it during the exercise.
- Failing to lower until the thigh is parallel to the floor.
- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can lift the heels off the floor.
- Squatting down too quickly rather than controlling the descent.

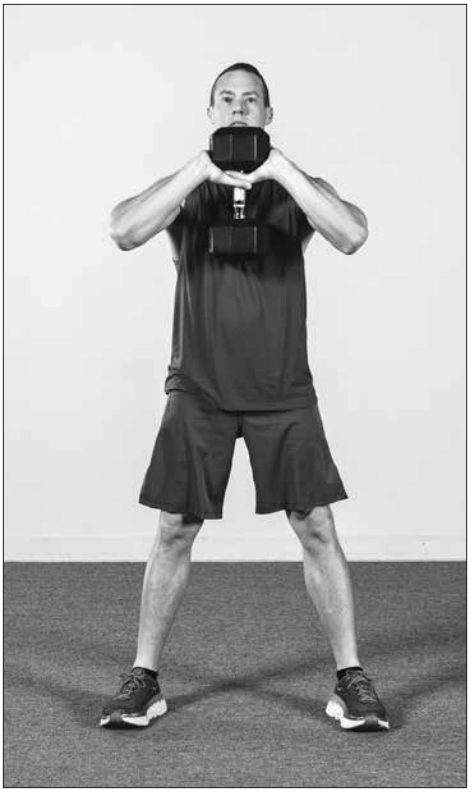
Goblet Squat

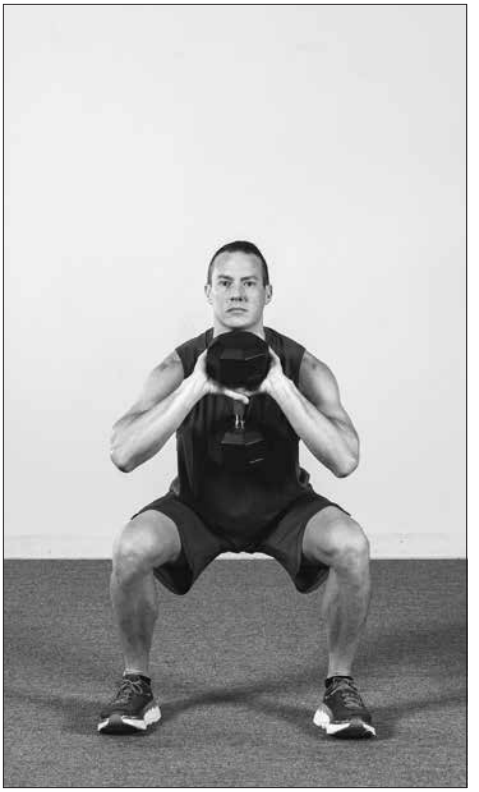
Instructions

1. Stand with the feet about hip-width apart.
2. Turn one dumbbell on end.
3. Securely grasp the inside edge of the top end of a dumbbell with both hands, lift it to the upper chest, and hold it there.
4. Initiate the movement by lowering the hips towards the ankles.
5. Lower to a position where the thighs are parallel to the floor or the hips are lower than the knees.
6. Arch the back, with the shoulders staying in a position where they are nearly over the hips during the entire movement.
7. Keep the dumbbell held tightly to the upper chest during performance of the exercise.

Common Errors

- Allowing the back to round, either during the lifting or lowering phase.
- Not reaching a depth of thighs parallel to the floor or hips lower than the knees.
- Allowing the dumbbell to move away from the body, which can cause the back to round.
- Squatting down too quickly, especially during the descent phase.





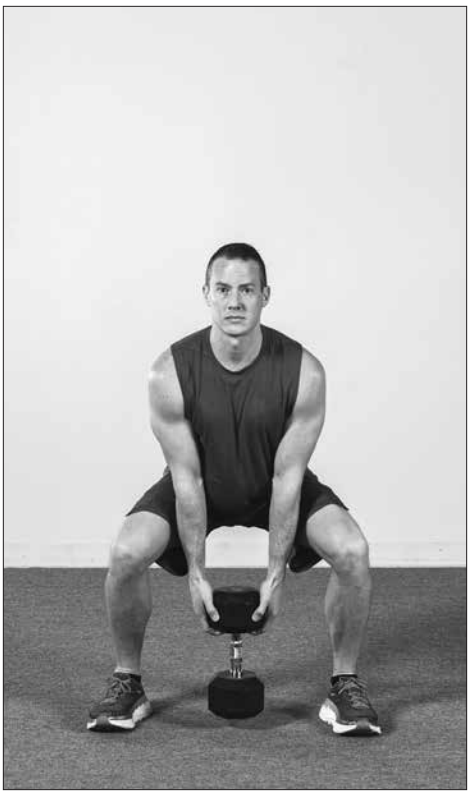
Sumo Deadlift

Instructions

1. Place one dumbbell on end on the floor.
2. Establish a stance with the feet several inches wider than shoulder width, the dumbbell in line with the center of the body.
3. Keeping the head up and the back flat, squat down and grasp the top end of the dumbbell. Maintaining the correct back angle, pull and hold the dumbbell tight to the body and stand fully upright, the top edge of the dumbbell elevating to nearly waist height.
4. Slowly lower under control to the starting position, reversing the movement pattern described above.

Common Errors

- Allowing the back to round, either during the lifting or lowering phase.
- Not reaching a depth where the bottom end of the dumbbell lightly touches the floor or not achieving full extension at the knees and hips at the top of the range of motion.
- Moving the weight too quickly, especially during the descent phase.



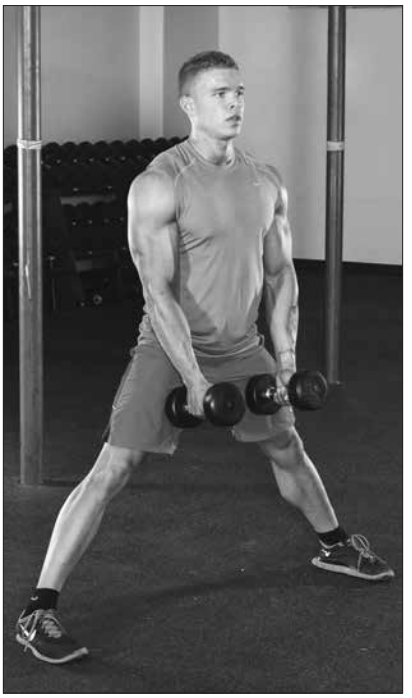
Lateral Squat

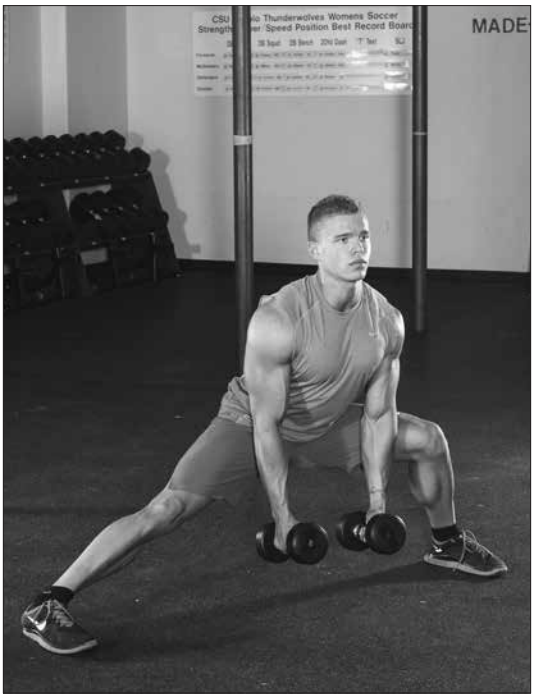
Instructions

1. Grasp a dumbbell in each hand, arms straight at the sides and the dumbbells directly under the shoulders.
2. Assume a stance that is substantially wider than the shoulders.
3. Keeping the right leg straight and to the side, squat back and to the left.
4. Lower the hips through a full, comfortable range of motion.
5. Allow the left knee to drift slightly in front of the left foot, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
6. Keep the back arched and the head up.
7. Return to the starting position and then repeat in the opposite direction until the desired number of repetitions has been completed.

Common Errors

- Allowing the back to round rather than maintaining an arch.
- Failing to lower the hips through a full, comfortable range of motion.
- Allowing the knee of the leg that is supposed to remain straight to bend. (For example, when lowering to the left, the right knee should remain fully extended.)





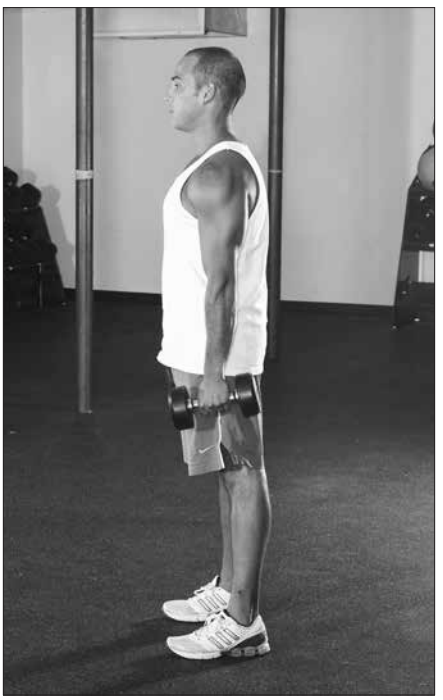
Lunge

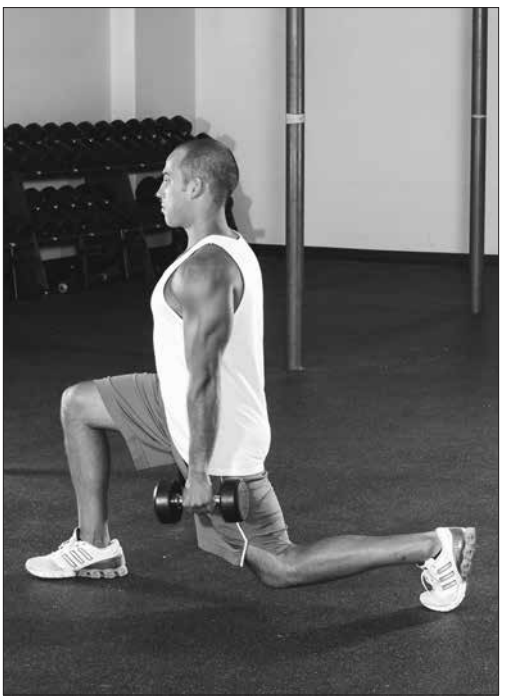
Instructions

1. Grasp a dumbbell in each hand, with the arms at the sides.
2. Assume a shoulder-width stance.
3. Keeping the left foot stationary, step directly forward through an exaggerated range of motion with the right leg.
4. At the forward position, allow the right knee to be over or slightly in front of the right foot and the left leg to be bent and the left knee just off the floor. Keep the back arched and the head up.
5. Return to the starting position with the right leg in one aggressive step and repeat the movement with the left leg.

Common Errors

- Allowing the back to round rather than maintaining an arch.
- Failing to take a full stride as you step forward.
- Allowing the knee of the rear leg to touch the floor.
- Taking more than one step to return to the starting position, which minimizes the intensity of the exercise.





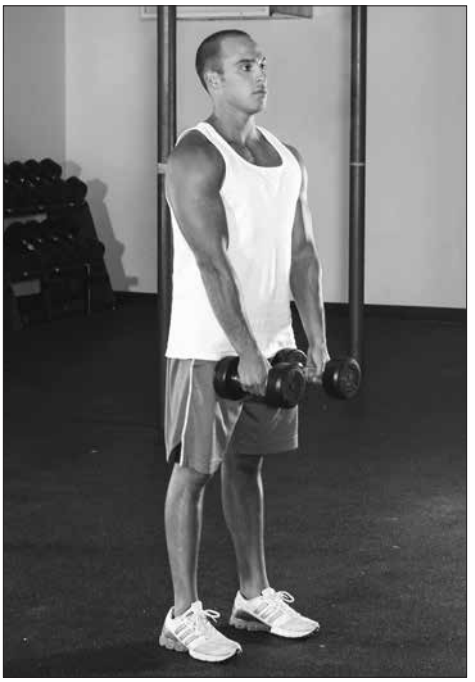
Side Lunge

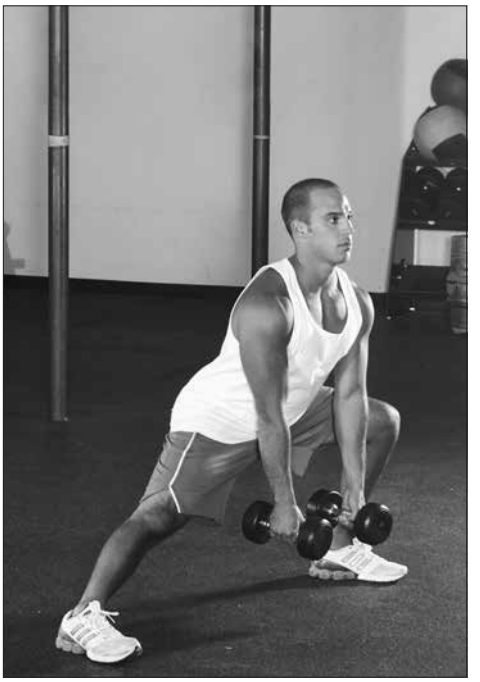
Instructions

1. Grasp a dumbbell in each hand, with the arms at the sides and the dumbbells directly under the shoulders.
2. Assume a shoulder-width stance.
3. Keeping the right leg straight like a post, take a long step directly to the left.
4. Once you plant your left foot, shift the hips back to achieve a full, comfortable depth and range of motion.
5. Keep the back arched and the head up.
6. Return to a shoulder-width stance with one aggressive step.
7. Alternate directions of the lunge step each repetition.

Common Errors

- Allowing the back to round rather than maintaining an arch in the back.
- Allowing the knee of the post leg to bend rather than keeping it fully extended.
- Taking an incomplete recovery step that does not return to the shoulder-width stance before initiating the next lateral step. (One aggressive step should return the person to a shoulder-width stance before initiating the next repetition.)





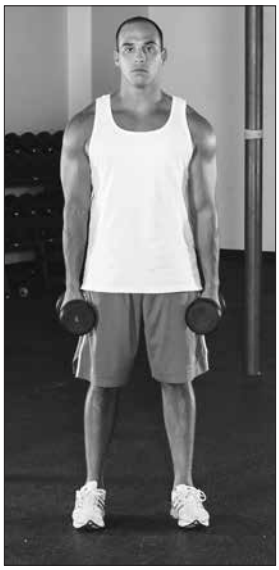
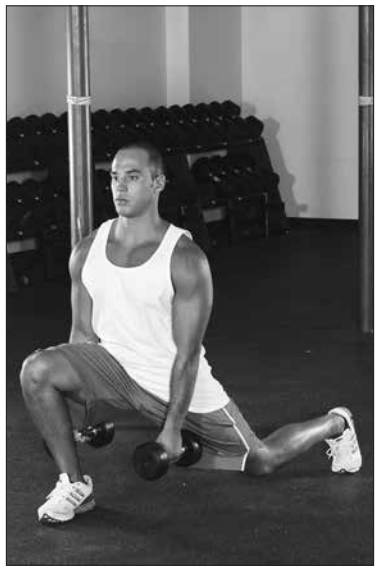
Hockey Lunge

Instructions

1. Grasp a dumbbell in each hand with the arms hanging straight at the sides.
2. Assume a shoulder-width stance.
3. Keeping the right leg stationary, step out at a 25- to 30-degree angle that places the left foot 18 to 24 inches (46-61 cm) wider than shoulder width (depending on leg length) through an exaggerated range of motion with the left leg.
4. At the forward position, move the left knee over or slightly in front of the left foot, bend the right leg, and position the right knee just off the floor. Keep the back arched and the head up.
5. Return to the starting position with the left leg and repeat the movement with the right leg, taking that same step 18 to 24 inches (46-61 cm) wider than shoulder width with the right leg.
6. Return to the starting position in one aggressive step.

Common Errors

- Allowing the back to round rather than maintaining an arch.
- Failing to take a full stride as you step forward at a 25- to 30-degree angle.
- Taking a lateral step that is too narrow.
- Allowing the knee of the rear leg to touch the floor.
- Taking more than one step to return to the starting position.

Arc Lunge

Instructions

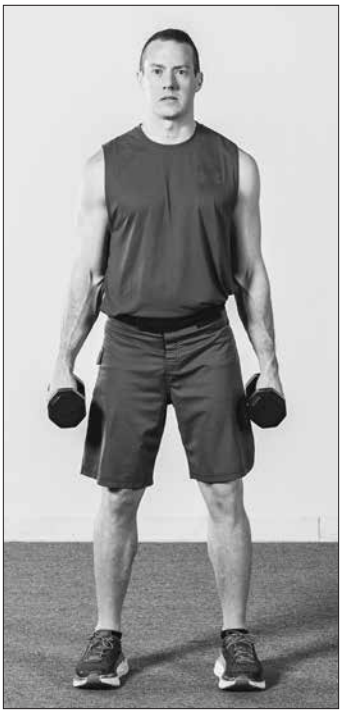
1. Grasp a dumbbell in each hand with the arms straight at the sides.
2. Assume a shoulder-width stance.
3. Imagine an arc on the floor in front of you. Each point of the arc is a stride length away from you.
4. Divide the arc into sections based on the number of repetitions you will perform. The first repetition will be to the left end of the arc, and the last repetition will be to the right end of the arc. Each step is a progression across the arc, starting at the left end and ending at the right.
5. Keeping the right leg straight, take a long, lateral step to the left end of the arc with your left leg.
6. Once you plant your left foot, shift the hips back to achieve a full, comfortable depth and range of motion.
7. Keep the back arched and the head up.
8. Return to a shoulder-width stance with one aggressive step.
9. Alternate stepping with the left and right leg each repetition.
10. The next step will start a gradual progression toward the other end of the arc. With each of the first steps, you move closer to the center, and then you continue across to the opposite end of the arc. None of the steps should be directly forward of the body.
11. Continue until you have completed the required number of repetitions and have progressed from one end of the arc to the other.

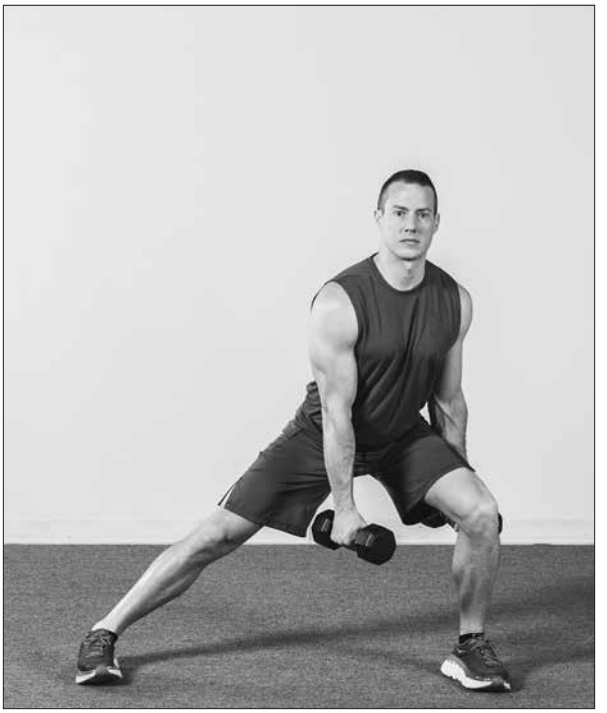
Common Errors

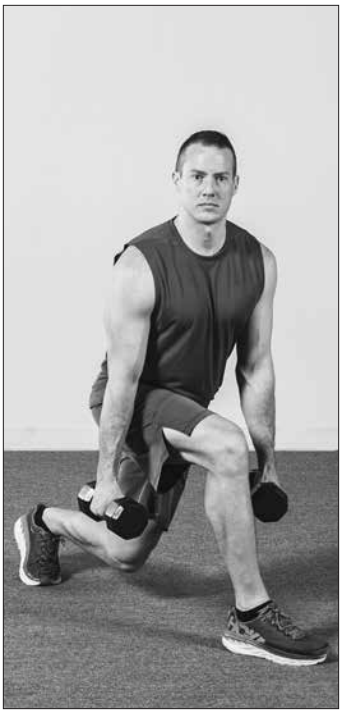
- Allowing the back to round rather than maintaining an arch in the back.
- Failing to return to a shoulder-width stance before initiating the next step.
- Failing to progress from one end of the arc to the other with each step.
- Taking a step directly forward to the center of the arc instead taking every step at an angle.
- Failing to move through a full range of motion with every lunge.

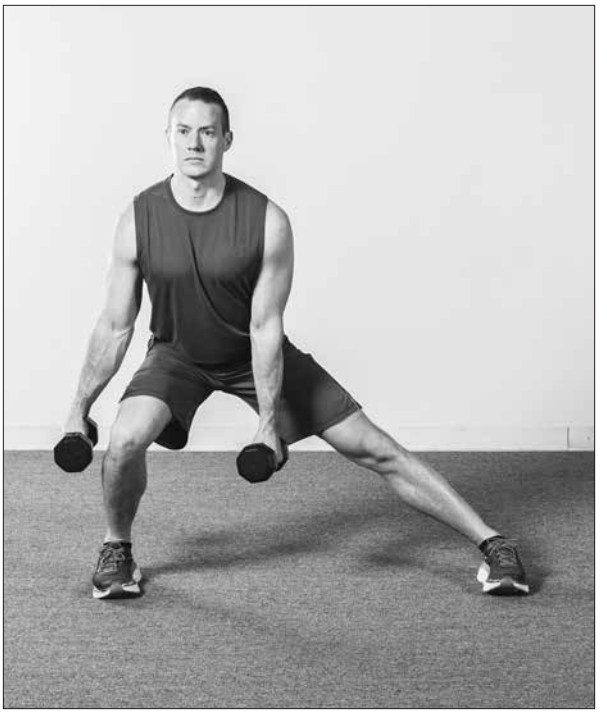
Did You Know?

The loss of mobility as we age is a prevalent problem in our society. One of the leading factors contributing to this loss of mobility is a decrease in strength in the lower body. Beginning a resistance training program in your younger years, and maintaining that program as you age, will go a long way in eliminating or reducing this loss of mobility. However, even if you are already in your senior years, increasing strength in your lower body is still possible, and this can have a positive effect at increasing or maintaining your mobility.









Reverse Lunge

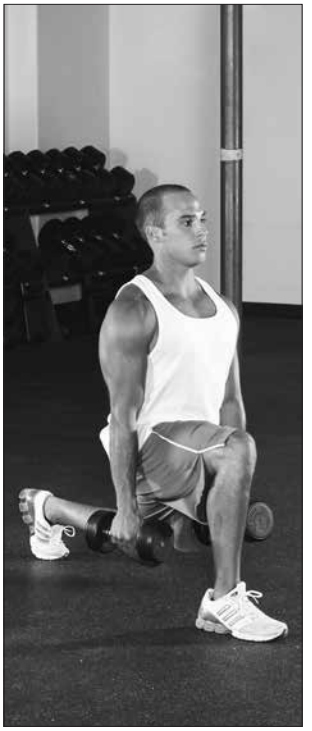
Instructions

1. Grasp a dumbbell in each hand with the arms straight at the sides.
2. Assume a shoulder-width stance.
3. Keeping the left leg stationary, step directly back through an exaggerated range of motion with the right leg.
4. At the back position, move the left knee over or slightly in front of the left foot, bend the right leg, and position the right knee just off the floor. Keep the back arched and the head up.
5. Take one aggressive step with the right leg to return to the starting position and repeat the movement with the left leg.

Common Errors

- Allowing the back to round rather than maintaining an arch.
- Failing to take a full stride backward.
- Allowing the knee of the rear leg to touch the floor.
- Taking more than one step to return to the starting position.





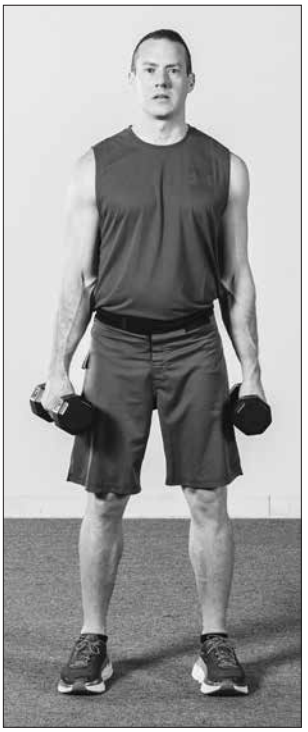
Pivot Lunge

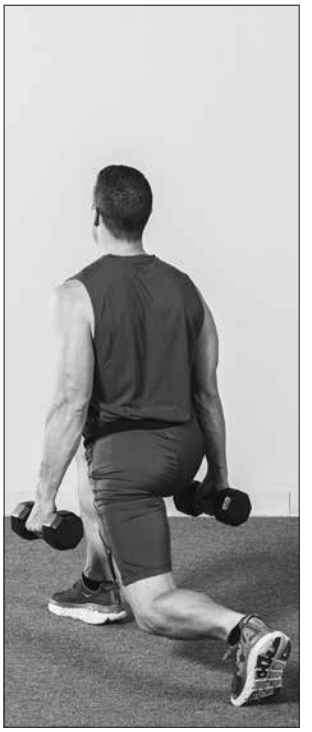
Instructions

1. Grasp a dumbbell in each hand with the arms straight at the sides.
2. Assume a shoulder-width stance.
3. Use an imaginary clock to plot the feet, with both feet in the center and pointing to 12 o'clock at the start. Pivot on the left foot, twisting the body to the right, and lunging with the right foot to a point between 4 o'clock and 6 o'clock. The body should twist toward the right while stepping behind and to the right with the right foot.
4. Position the right knee over or slightly in front of the right foot, bend the left leg, and position the left knee just off the floor. Arch the back and keep the head up.
5. Return to a shoulder-width stance with one aggressive step.
6. Repeat in the opposite direction.
7. The angle of the pivot and foot placement can vary on each repetition.

Common Errors

- Allowing the back to round rather than maintaining an arch.
- Failing to take a full stride as you step to the pivot position.
- Allowing the knee of the rear leg to touch the floor.
- Taking more than one step to return to the starting position.





Straight-Leg Deadlift

Instructions

1. Grasp a dumbbell in each hand with the arms fully straightened at the sides.
2. Assume a shoulder-width stance.
3. Lock and then unlock the knees. This is the easiest way to assure the correct start position. Maintain this slightly bent knee position during the exercise.
4. Arch the back, lift the head, and maintain this position during the exercise.
5. Hinge at the hips and slide the dumbbells down the sides of the legs. Knees should remain only slightly bent through a full, comfortable range of motion. Range of motion is largely determined by the flexibility of the lower back and hamstrings. Because flexibility differs greatly from person to person, a full and comfortable range of motion is different for each person. Remember to keep the knees unlocked but nearly straight. The movement occurs at the hips, not the knees.
6. Return to the starting position while maintaining the position of the knees and back.

Common Errors

- Allowing the back to round rather than maintaining an arch.
- Allowing the knees to flex beyond the just-unlocked position.
- Allowing the dumbbells to drift forward as if suspended on a line while lowering them rather than keeping them on the sides of the legs.
- Failing to perform the movement through a complete range of motion.

Single-Leg Straight-Leg Deadlift

Instructions

1. Hold a dumbbell in each hand, the palms facing inward.
2. Elevate the left foot off the ground.
3. With just a slight bend of the right knee, slowly lower the dumbbells through the full, comfortable range of motion toward the floor. All of the movement should occur at the hips. This means the right knee should remain just slightly bent and there should be no rounding of the back in an attempt to lower the dumbbells towards the floor.
4. Return to the starting position, allowing the foot of the elevated leg to briefly touch the ground before initiating the next repetition.
5. Complete the required number of repetitions on the right leg.
6. Repeat for the required number of repetitions on the left leg.

Common Errors

- Excessive bending at the knee of the supporting leg. The knee should remain just slightly bent during performance of the exercise.
- Rounding the back, rather than pivoting at the hip joints, to lower the dumbbells toward the floor. The back should remain flat, with the chest up, as you perform the movement.
- Allowing the dumbbells to drift forward away from the body while lowering them toward the floor. The dumbbells should move in a straight line as they are lowered and lifted rather than moving forward away from the body.

Leg Curl

Instructions

1. Place a dumbbell between your feet, with one end of the dumbbell facing the ceiling and the opposite end facing away toward the floor. Lay face down on a utility bench with your knees just off the edge of the bench, your hands holding onto the bench for stability.
2. Slowly flex at the knee joint so the dumbbell is lifted toward the glutes; at the top of the range of motion, slowly lower the dumbbell to full extension.

Common Errors

- Lifting your hips off the bench. Your hips should stay in contact with the bench while performing this exercise.
- Not completely flexing the knees through a full, comfortable range of motion. The dumbbell should be lifted through the full potential range of motion.
- Not achieving full extension. Full extension should occur at the bottom of the range of motion.
- Moving the weight too fast. There should be no momentum involved in the exercise.

Step-Up

Instructions

1. Grasp a dumbbell in each hand with the arms straight at the sides.
2. Stand behind a plyometric box or exercise bench with your left foot on the box or bench. This surface should be high enough that your left knee is 1 to 2 inches (2.5-5 cm) higher than the right hip.
3. Using the muscles of the left leg, elevate the body and place the right foot at a shoulder-width distance from the left foot.
4. Keep the right foot in place and step down with the left foot. You are now in a shoulder-width stance with the right foot elevated and the left foot on the floor.
5. Continue alternating stepping up with each leg until you have completed the required number of repetitions.

Common Errors

- Using the leg on the floor to help elevate the body. Only the leg on the bench should be used to lift the body.
- Rounding the back or bending forward at the trunk rather than maintaining an upright position.
- Failure to lift and lower the body under control.



Calf Raise

Instructions

1. Grasp a dumbbell in the left hand with the left arm hanging straight at the side.
2. Place the left foot on an elevated surface, such as a stair or plyometric box. The surface should be at least 2 inches (5 cm) high. For the right foot, only the toes and ball of the foot are in contact with the surface.
3. Bend the right leg at the knee to elevate the right foot off the floor. It should remain elevated without contacting the floor during performance of the exercise.
4. Hold onto something stable with the right hand. Use the right arm only for balance. It should not assist in performance of the movement.
5. Using the muscles of the left foot only, elevate onto the toes as high as you can.
6. Lower the left foot so that the heel of the foot drops below the surface you are standing on.
7. Lift and lower under control. Once the required repetitions have been completed, repeat the exercise on the right foot.

Common Errors

- Failing to achieve a full range of motion, either not going as high as possible or as low as possible.
- Using the support arm to assist in the movement rather than only for balance
- Performing the movement too quickly and using momentum to help perform the exercise. Both the lifting and lowering phases should be controlled.



CHAPTER 6

Core

Many people associate training the core with improved aesthetics and want to improve their appearance by developing flat, "six-pack" abs. For people training for general fitness or improved appearance, this is a reasonable goal. For both athletes and nonathletes, core training is also about enhancing physical performance, either in sport or activities of daily living.

Despite the fact that most people associate core training with strengthening the abs, the core also includes the muscles of the lower back. A strong lower back, in conjunction with strong abdominals, is important for optimal performance and physical health. Further, a strong core helps transfer forces developed in the lower body through the midsection and to the upper body in activities such as bending over to pick a child off the ground, throwing a baseball, or swinging a golf club.

Increases in strength occur as a result of providing overload and progression during training. Unfortunately, many people make the mistake of attempting to strengthen the core by using low-intensity, high-repetition training, like doing one set of 100 repetitions. While the core is predominantly made up of type I (slow-twitch) endurance fibers (because of the need to support the trunk in an upright position for most of the day), higher-intensity training is still required to bring about maximal increases in strength in the core. All of the exercises presented here use dumbbells to overload the musculature. The typical repetition range for the exercises is 8 to 25, and the resistance should be high enough to be challenging for the number of repetitions performed. One would not perform one set of 100 squats to get stronger; the same is true when training the core.

Did You Know?

People oftentimes think only in term of developing six-pack abs when it comes to training the core. A strong core, which involves both the abdominals and the lower back muscles, is much more than just having a six-pack. A strong core is necessary for efficient movement and helping to avoid injury or pain in the lower back.

ABDOMINALS

The primary abdominal muscles are the rectus abdominis, obliques, and transverse abdominis.

Crunch

Instructions

1. Lie faceup on the floor, bend the knees, and place the soles of the feet flat on the floor.
2. Holding both ends of the dumbbell, turn it sideways so it is lying across the upper chest.
3. Keeping the dumbbell high on the upper chest, crunch straight up as if trying to touch the chin to the ceiling. Elevate the upper back off the floor as high as possible while maintaining correct technique. Remember that this is a crunch and not a sit-up. There should be no flexion of the spine. Remember to emphasize lifting the head and chest straight up towards the ceiling.
4. As you lower, touch the upper back to the floor before starting the next repetition.
5. Try to set a pace of two seconds up and two seconds down.

Common Errors

- Allowing the dumbbell to roll down the chest as you crunch. (The position of the dumbbell should be constant during the exercise.)
- Pointing the chin toward the wall rather than elevating it toward the ceiling during the crunch. (The crunching motion should be straight up.)
- Pausing in the low position with the upper back resting on the floor between repetitions.
- Failing to move through the full range of motion.

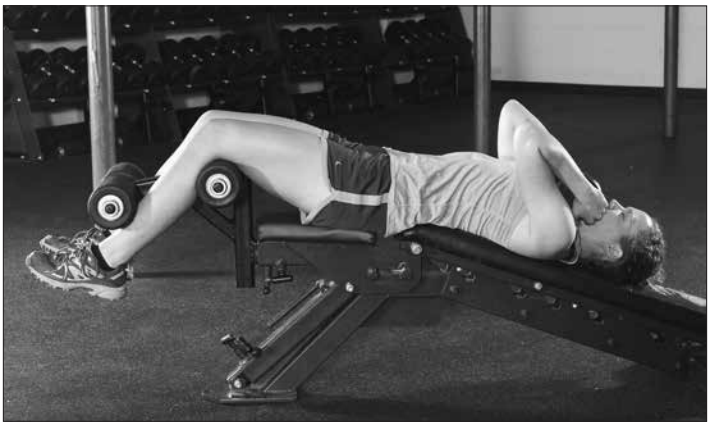
Decline Crunch

Instructions

1. Lie on your back on a decline bench. Start with a decline of 15 degrees and gradually increase the degree as you build strength, making sure to maintain correct technique when increasing the degree of decline used.
2. Bend the knees and place the legs through the pads or rollers to secure yourself on the bench.
3. Holding both ends of a dumbbell, turn it sideways so it is lying across the upper chest.
4. Keeping the dumbbell high on the upper chest, crunch straight up as if trying to touch the chin to the ceiling. Remember this is a crunch and not a sit-up.

Common Errors

- Allowing the dumbbell to roll down the chest as you crunch rather than holding it in place.
- Pointing the chin toward the wall rather than elevating it toward the ceiling during the crunch. (The crunching motion should be straight up.)
- Pausing in the low position with the upper back resting on the bench between repetitions.
- Failing to move through a full range of motion and elevating the chin toward the ceiling as high as possible.



Twisting Crunch

Instructions

1. Lie faceup on the floor.
2. Holding both ends of a dumbbell, turn it sideways across the upper chest.
3. Keeping the dumbbell high on the chest, crunch up and twist simultaneously as if trying to touch the left shoulder to the ceiling.
4. Elevate the chin and shoulder toward the ceiling as high as possible while remembering this is a crunch and not a sit-up.
5. Lower to the start position and repeat the movement in the opposite direction.

Common Errors

- Allowing the dumbbell to roll down the chest as you crunch rather than holding it steady.
- Crunching in a motion that lifts the chin toward the wall rather than the ceiling.
- Failing to crunch straight up and twist simultaneously.
- Pausing in the low position and resting the upper back on the floor between repetitions.
- Failing to move through the full range of motion.

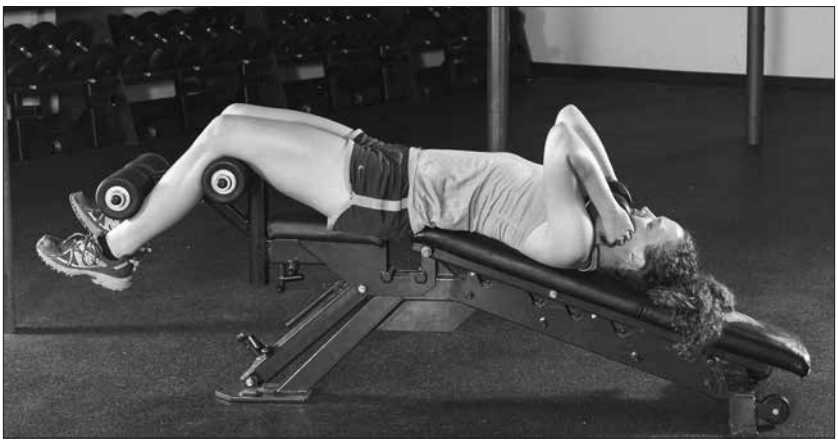
Decline Twisting Crunch

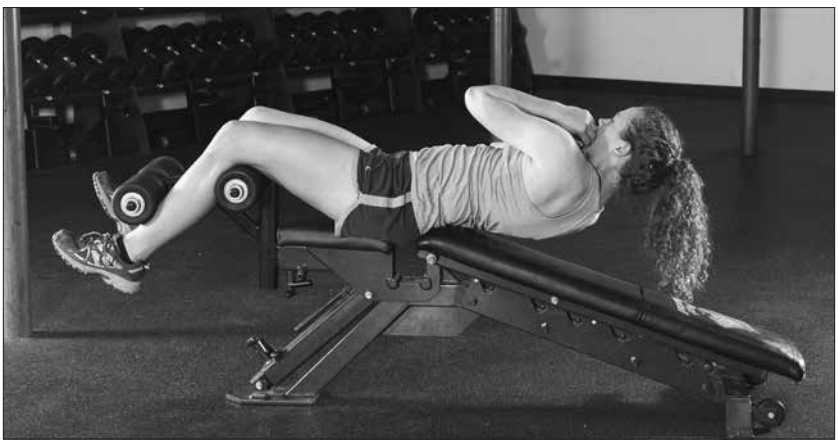
Instructions

1. Lie faceup on a decline bench. Start with a decline of 15 degrees. The degree of decline can be increased gradually to 30 degrees or more.
2. Bend the knees and place the legs through the pads or rollers to secure yourself on the bench.
3. Holding both ends of the dumbbell, turn it sideways across the upper chest. Keeping the dumbbell high on the upper chest, crunch up and twist simultaneously as if trying to touch the left shoulder to the ceiling.

Common Errors

- Allowing the dumbbell to roll down the chest as you crunch rather than holding it steady.
- Crunching in a motion that lifts the chin toward the wall rather than the ceiling.
- Failing to crunch straight up and twist simultaneously.
- Pausing in the low position and resting the upper back on the bench between repetitions.
- Failing to move through the full range of motion.





Toe Touch

Instructions

1. Lie faceup on the floor.
2. Turn a dumbbell on end and grasp the inside edge of its top end.
3. Fully extend the arms to press the dumbbell up directly above the face.
4. Keeping the legs straight, lift them until they are *nearly* at a 90-degree angle to the floor.
5. Crunch up, bringing the dumbbell up toward the toes. The ability to touch the dumbbell to the toes depends on limb length and flexibility.
6. Lower until the upper back touches the floor and then immediately repeat the movement; there should be no pause in the bottom position.

Common Errors

- Not fully straightening the knees.
- Positioning the feet directly over the hips. (The feet should be 4 to 6 inches [10-15 cm] short of being directly over the hips.)
- Pausing at the bottom of the movement and resting the back on the floor.
- Failing to crunch up through the full range of motion.

Alternating Toe Touch

Instructions

1. Lie faceup on the floor.
2. Turn a dumbbell on end and securely grasp the inside edge of its top end with both hands.
3. Fully extend the arms to press the dumbbell up over the chest.
4. With the legs fully extended, lift them until the feet are 4 to 6 inches (10-15 cm) short of being directly over the hips.
5. Crunch up and twist, bringing the dumbbell up toward the outside of the left toes. The ability to touch the dumbbell to the toes depends on limb length and flexibility.
6. Lower until the upper back touches the floor and then immediately repeat the movement; there should be no pause in the bottom position.
7. Repeat on the other side, bringing the dumbbell up toward the outside of the right leg.

Common Errors

- Failing to keep the legs straight.
- Positioning the feet directly over the hips rather than raising the legs just short of a 90-degree angle.
- Pausing at the bottom of the movement and resting the back on the floor.
- Failing to crunch up through the full range of motion.
- Failing to twist enough that the dumbbell touches the outside of the leg on each repetition.

V-Up

Instructions

1. Lie faceup on the floor and fully extend the legs.
2. Grasp the inside edge of the top the dumbbell.
3. Fully extend the arms behind the head, keeping the bottom of the dumbbell on the floor.
4. Keeping the arms and legs straight, lift them simultaneously until the dumbbell touches, or nearly touches, the legs.
5. Lower until the upper back touches the floor and then immediately repeat the movement; there should be no pause in the bottom position.

Common Errors

- Failing to keep the arms and legs straight.
- Not crunching as high as possible. (The dumbbell should touch the legs as close to the feet as possible.)
- Pausing at the bottom of the movement and resting the back on the floor.

Alternating V-Up

Instructions

1. Lie faceup on the floor and fully extend the legs.
2. Grasp the inside edge of the top of the dumbbell and fully extend the arms behind the head, keeping the bottom of the dumbbell on the floor.
3. Keeping the arms and legs straight, simultaneously lift them while twisting the trunk to touch the dumbbell to the outside of the left leg. Raise the legs until they are just short of a 90-degree angle.
4. Simultaneously lower the legs and upper back to the floor before initiating the next repetition.
5. Lower until the upper back touches the floor and then immediately repeat the movement; there should be no pause in the bottom position.
6. Repeat, bringing the dumbbell to the outside of the right leg.

Common Errors

- Failing to keep the arms and legs straight.
- Not crunching as high as possible. (The dumbbell should touch the legs as close to the feet as possible.)
- Pausing at the bottom of the movement and resting the back on the floor.



Press Crunch

Instructions

1. Lie faceup with knees bent and feet flat on the floor.
2. Turn a dumbbell on end and grasp the inside edge of the top.
3. Straighten the arms and press the dumbbell up over the chest.
4. Crunch up, pressing the dumbbell toward the ceiling.
5. Lower until the upper back touches the floor and then immediately repeat the movement; there should be no pause in the bottom position.

Common Errors

- Failing to fully extend the arms.
- Pausing at the bottom of the movement and resting the back on the floor.
- Not crunching up through the full range of motion.

Did You Know?

People sometimes make the mistake of thinking that they can reduce body fat in the abdominal area by performing exercises for that area of the body. Performing exercises for the abdominal muscles will certainly strengthen them, but it will not cause a loss of body fat in that area of the body. To lose body fat requires a combination of good nutritional practices and exercise that results in caloric expenditure.

Decline Press Crunch

Instructions

1. Lie faceup on a decline bench. Start with a decline of 15 degrees. Gradually increase the degree of the decline as you build core strength.
2. Bend the knees and place the legs through the pads or rollers to secure yourself.
3. Grasp the inside edge of the top of the dumbbell and straighten the arms to press the dumbbell over the chest.
4. Crunch up, pressing the dumbbell toward the ceiling.
5. Lower until the upper back touches the bench and then immediately repeat the movement; there should be no pause in the bottom position.

Common Errors

- Not fully extending the arms.
- Pausing at the bottom of the movement and resting the back on the bench.
- Failing to crunch through the full range of motion.

Alternating Press Crunch

Instructions

1. Lie faceup and bend the knees so the feet are flat on the floor.
2. Grasp the inside edge of the top of the dumbbell and straighten the arms to press the dumbbell over the chest.
3. Crunch up, pressing the dumbbell toward the ceiling and the outside of the left leg.
4. Lower until the upper back touches the floor and then immediately repeat the movement; there should be no pause in the bottom position.
5. Repeat the movement, pressing the dumbbell toward the ceiling and the outside of the right leg.

Common Errors

- Not fully extending the arms.
- Pausing at the bottom of the movement, resting the back on the floor.
- Failing to crunch through the full range of motion.
- Not moving the dumbbell to the outside of the leg.

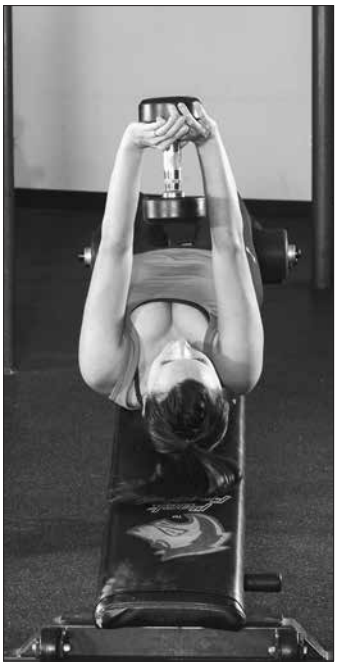
Decline Alternating Press Crunch

Instructions

1. Lie faceup on a decline bench. Start with a decline of 15 degrees. Gradually increase the degree of the decline as you build core strength.
2. Bend the knees and place the legs through the pads or rollers to secure yourself.
3. Grasp the inside edge of the top of the dumbbell and straighten the arms to press the dumbbell over the chest.
4. Crunch up, pressing the dumbbell toward the ceiling and the outside of the left leg.
5. Lower until the upper back touches the bench and then immediately repeat the movement; there should be no pause in the bottom position.
6. Repeat the movement, this time pressing the dumbbell toward the ceiling and the outside of the right leg.

Common Errors

- Not fully extending the arms.
- Pausing at the bottom of the movement and resting the back on the bench.
- Failing to crunch up through the full range of motion.
- Not moving the dumbbell to the outside of the leg.



Leg Raise

Instructions

1. Lie with your back flat on the floor, legs fully extended, arms fully extended at your sides, and your palms down.
2. Hold one dumbbell between your feet.
3. Turn the dumbbell so that one end of the dumbbell rests on the soles of your shoes and the other end of the dumbbell is resting against the shoelaces.
4. Keeping the legs just slightly bent, elevate them so that the dumbbell moves to a position where it is directly over the hips.
5. Lower under control until the dumbbell is just short of touching the floor.
6. Repeat the required number of times.

Common Errors

- Bending the legs excessively at the knee joint; there should be just a slight bend at the knees.
- Not elevating the dumbbell to a position directly over the hips.
- Lowering the dumbbell to a position where it is resting on the floor between repetitions.

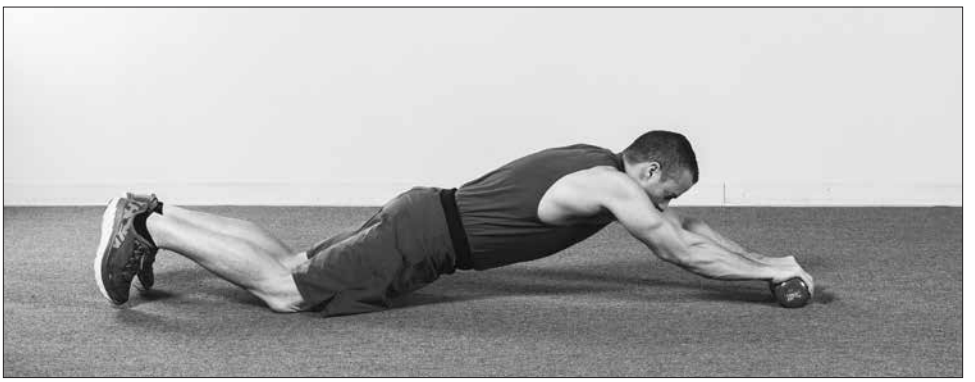
Ab Wheel

Instructions

1. Kneel on the floor with one dumbbell positioned on the floor just forward of the knees.
2. Grasp the dumbbell with both hands side-by-side on the handle of the dumbbell.
3. Keeping the arms straight, roll the dumbbell so that it moves forward of the starting position and the body transitions from a kneeling position to a position where the stomach and chest are nearly touching the floor, then return to the starting position.
4. The core should be held tight, with the back flat and not rounded.

Common Errors

- Stopping short of achieving a position where the chest, stomach, and thighs are nearly touching the ground.
- Not returning completely to the starting position.
- Allowing the back to round or sag during performance of the exercise.



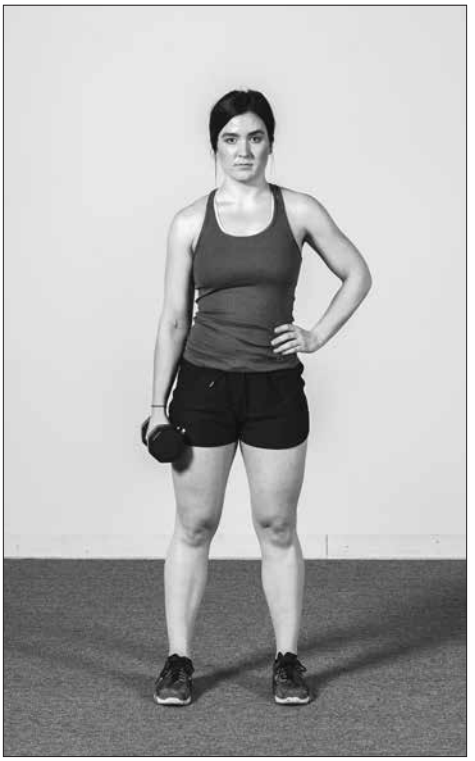
Side Bend

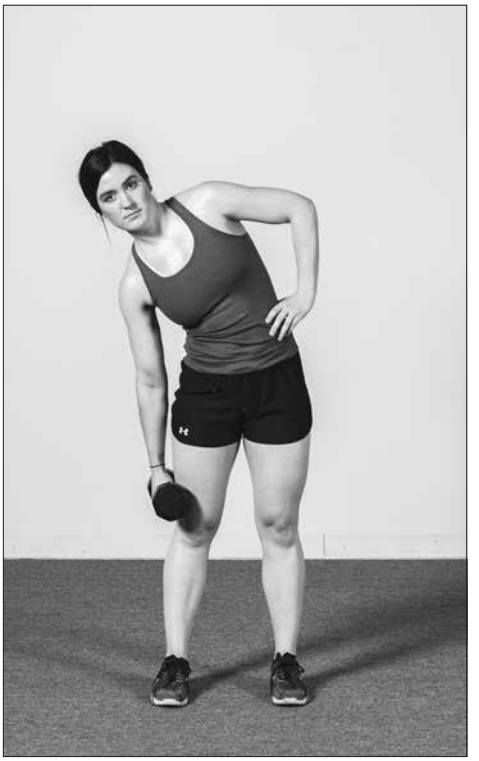
Instructions

1. From a standing position, grasp one dumbbell.
2. Hold the dumbbell with the arm fully extended, the dumbbell positioned on the lateral portion of the thigh directly under the shoulders.
3. Place the opposite hand on the lateral portion of the trunk at waist height, palm down.
4. Bend laterally so the dumbbell slides down the thigh through a full range of motion and then return to the starting position. Complete the required number of repetitions and then repeat to the opposite side.
5. Keep the dumbbell against the body during the entire range of motion.

Common Errors

- Not moving through a full range of motion.
- Allowing the dumbbell to drift away from the side of the body.
- Bending both forward and laterally at the spine.
- Moving too quickly; the movement should be performed under control.





Russian Twist

Instructions

1. Sit on the floor, knees bent, heels resting on the floor.
2. Lean back slightly.
3. Hold a dumbbell sideways, the hands holding each end of the dumbbell, high against the chest.
4. Twist the core side-to-side through a full, comfortable range of motion.
5. As your strength improves in this exercise, you can extend your arms to move the dumbbell away from the body to increase the degree of difficulty.

Common Errors

- Allowing the back to round. A flat or arched back position should be maintained.
- Not twisting through a full, comfortable range of motion.
- Holding the dumbbell too low. The dumbbell should be held against the chest or, as you progress, at chest height.

LOWER BACK

The primary lower back muscles are the erector spinae, obliques, gluteus maximus, and adductor magnus.

Back Extension

Instructions

1. Position yourself on a back extension bench. You can also use an incline bench by lying facedown so that the body from the waist up is hanging off the bench. Have a partner anchor your legs to the bench.
2. Hold a dumbbell sideways across your upper chest.
3. Start in the bottom position bent at the waist so that the head is near the floor and the shoulders are nearly directly under the hips.
4. Keeping the back flat and extending at the hip, lift the trunk without using momentum.
   - When using a back extension bench, lift the trunk until the center of the shoulder joint is at the same height as the center of the hip joint.
   - When performing the movement on an incline bench, lift the trunk until the center of the shoulder joint is in a straight line with the center of the hip, knee, and ankle joints.
5. Lower the trunk under control until the shoulder joints are directly under the hip joints. You should attempt to lower the head as close to the floor as possible while keeping the back flat.

Common Errors

- Not fully lowering to the bottom position.
- Failing to achieve the desired height at the top of the movement. (The shoulder joint should be in a straight line with the hip joint. The individual should stop in this straight-line position and go no higher.)
- Using momentum to assist in lifting the trunk.
- Failing to control the rate of descent.

Twisting Back Extension

Instructions

1. Lie facedown on a back extension bench or an incline bench so that the body from the waist up is hanging off the bench. Have a partner anchor your legs to the bench.
2. Hold a dumbbell sideways across your upper chest.
3. Start in the bottom position bent at the waist so that the head is near the floor and the shoulders are nearly directly under the hips.
4. Keeping the back flat and without using momentum, extend at the hips and simultaneously lift and twist the trunk so that at the top position the right shoulder points toward the ceiling.
5. Controlling the descent, slowly lower the body to the starting position.
6. Repeat the movement, twisting in the opposite direction.
   - When using a back extension bench, lift the trunk until the center of the shoulder joint is at the same height as the center of the hip joint.
   - When performing the movement on an incline bench, lift the trunk until the center of the shoulder joint is in a straight line with the center of the hip, knee, and ankle joints.

Common Errors

- Not fully lowering to the bottom position.
- Rising too high or not high enough at the top of the movement. (The shoulder joint should be in a straight line with the hip joint. Achieve this straight-line position and no higher.)
- Using momentum to assist in lifting the trunk.
- Not controlling the rate of descent.

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CHAPTER 7

Total Body

Total-body exercises, those using the major muscles groups in both the lower and upper body, are the weightlifting movements—better known as the Olympic lifts—and consist of cleans, jerks, and snatches, plus all of their associated training exercises.

Performing weightlifting movements provides significant benefits. Most importantly, these types of exercises are performed explosively and result in high power outputs because of the acceleration phase. Research has shown that the power resulting from the weightlifting exercises is significantly greater than the power that results from more traditional exercises, such as the bench, squat, and deadlift.

In activities of daily living and most sports, the ability to generate power is more important than developing maximal strength. For example, recovering from a slip to regain your balance to avoid falling requires a quick explosive correction of body position and not maximal strength. Similarly, moving your foot from the accelerator pedal to the brake pedal does not require strength; it requires quickness.

One significant advantage of performing the weightlifting movements with dumbbells is that the variety of exercises is increased because dumbbell training allows both alternating- and single-arm movements, which obviously cannot be performed with a barbell. Another advantage of performing these exercises with dumbbells is that there is no need for an expensive Olympic lifting bar and bumper plates. All you need is a pair of dumbbells and a small, safe, training area.

Although it is beyond the scope of this book, another training method that increases power is plyometric training. This type of training uses a variety of explosive exercises that take advantage of the stretch-shortening cycle that occurs when a muscle is stretched. This stretch-shortening cycle

Did You Know?

As you age, there is a decrease in the ability to move powerfully. Because the weightlifting movements are performed explosively, and because maintaining or developing power requires high-speed movements, performing these types of movements can be of great benefit as we age. Maintaining both strength and power are very important as we age.

results in a more explosive subsequent muscular contraction. Similar to what was stated earlier about the benefits of the weightlifting in activities of daily living, plyometric training also has potential benefits for athletes and nonathletes alike.

It is possible to combine some of the exercises in this chapter with some of the exercises described in previous chapters. For example, you could perform a squat to a power clean or a front squat to a split alternating-foot jerk. The combinations are endless and only limited by your creativity. One of the benefits of combining these exercises is their positive effect on muscular endurance. Further, performing combination exercises during a hypertrophy cycle is beneficial because of the additional muscle mass recruited during each repetition. Some of these potential combinations are described in this chapter.

In many of the exercise descriptions throughout the chapter, you will see the phrases *catch the dumbbells* or *catch the dumbbell*. The dumbbells are not literally leaving the hands so that they need to be caught. However, in many of the exercises, the dumbbells will be moving explosively at a high rate of speed. To catch the dumbbells means that the dumbbells are brought to a complete stop under control and in good position. So, for example, in a dumbbell power clean, the lifter aggressively jumps, shrugs, and explosively pulls the dumbbells along the rib cage to just under the arm pits and then actively pulls the dumbbells around while quickly sitting at the hips so that the dumbbells can be racked, or come to a secure resting position, on the shoulders.

SINGLE EXERCISES

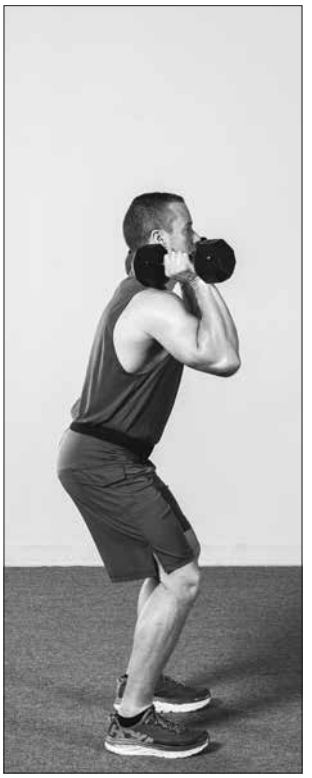
Push Press

Instructions

1. Stand with the feet about shoulder-width apart and rest a pair of dumbbells in the hands on the shoulders.
2. Sit back at the hips to the depth you would normally achieve when performing a vertical-jump attempt. Keep the heels on the floor during this portion of the movement. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body.
3. This jumping action will cause the heels to come off the floor briefly before the lifter quickly reestablishes a stable base with the heels back on the floor. This momentum will cause the dumbbells to lift off the shoulders slightly.
4. When the dumbbells have lifted off the shoulders, fully extend the arms to press the dumbbells straight up over the shoulders.
5. Pause in this position for a second and then lower the dumbbells to the starting position prior to initiating the next repetition.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the exercise rather than changing direction as quickly as possible.
- Pressing the dumbbells off the shoulders too soon rather than waiting until they have risen off the shoulders as a result of the action in the lower body.
- Pressing the dumbbells too quickly. Once the dumbbells leave the shoulders as a result of the movement at the lower body, the movement is no faster than in a dumbbell shoulder press.
- Not pausing at the top of the movement for a second to demonstrate control before lowering the dumbbells.

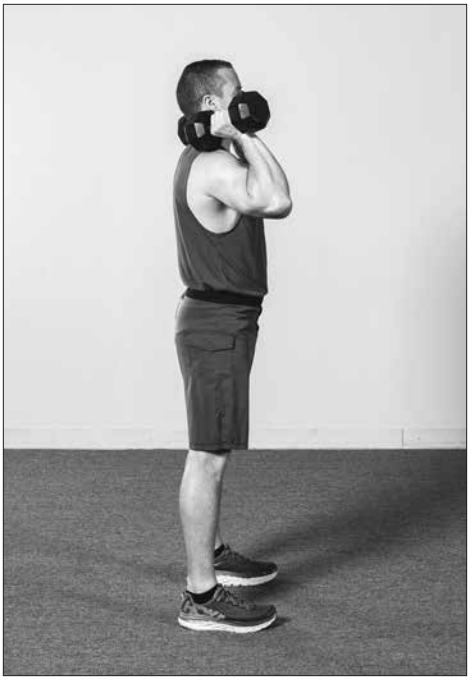

Alternating Push Press

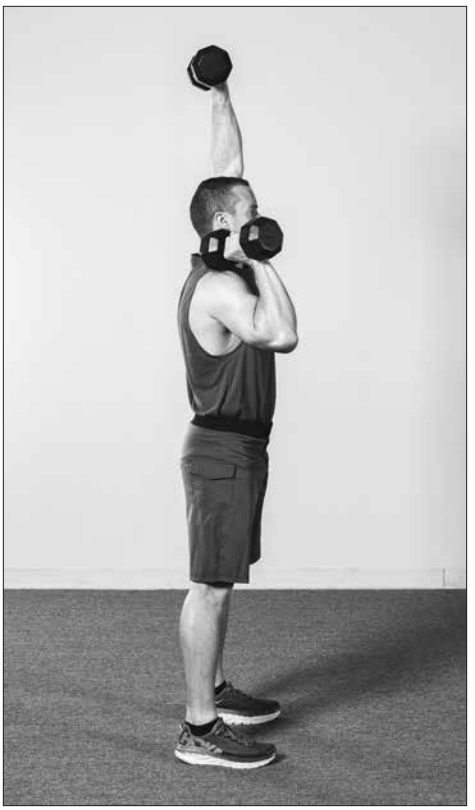
Instructions

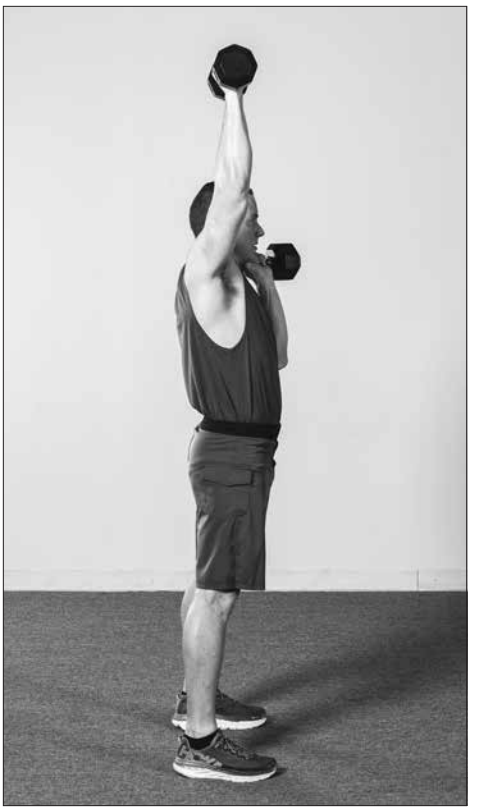
1. Stand with the feet about shoulder-width apart and rest a pair of dumbbells in the hands on the shoulders.
2. Sit back until you are at the depth of a vertical-jump attempt while keeping the heels on the floor.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. This momentum will cause the dumbbells to lift off the shoulders slightly. During this jump action, the heels will elevate off the floor briefly before the lifter quickly reestablishes a stable base with both heels firmly on the floor.
4. When the dumbbells have risen off the shoulder, fully extend the right arm to press the dumbbell over the right shoulder.
5. Pause in this position for a second, and then lower the dumbbell in the right arm back to the starting position.
6. Repeat the movement, performing the movement with the left arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Starting the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the motion rather than changing direction as quickly as possible.
- Pressing the dumbbell over the shoulder before it has risen off the shoulder as a result of the action in the lower body.
- Pressing the dumbbell too quickly. Once the dumbbell leaves the shoulder as a result of the movement at the lower body, the movement is no faster than in a dumbbell shoulder press.
- Not pausing at the top of the movement for a second to demonstrate control before lowering the dumbbell.







Single-Arm Push Press

Instructions

1. Stand with the feet about shoulder-width apart.
2. Grasp a dumbbell in the right hand and rest it on the right shoulder.
3. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor during this portion of the movement.
4. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. During this jump action, the heels will elevate off the floor briefly before the lifter quickly reestablishes a stable base with both heels firmly on the floor.
5. Your momentum will cause the dumbbell to lift off the shoulder slightly.
6. Fully extend the right arm to press the dumbbell over the right shoulder.
7. Pause in this position for a second and then lower the dumbbell to the starting position.
8. Complete the required number of repetitions and then repeat the exercise with the left arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position rather than changing direction as quickly as possible.
- Pressing the dumbbell over the shoulder before it has risen off the shoulders as a result of the action in the lower body.
- Pressing the dumbbell too quickly. Once the dumbbell leaves the shoulder as a result of the movement at the lower body, the movement is no faster than in a dumbbell shoulder press.
- Not pausing at the top of the movement for a second to demonstrate control before lowering the dumbbell.

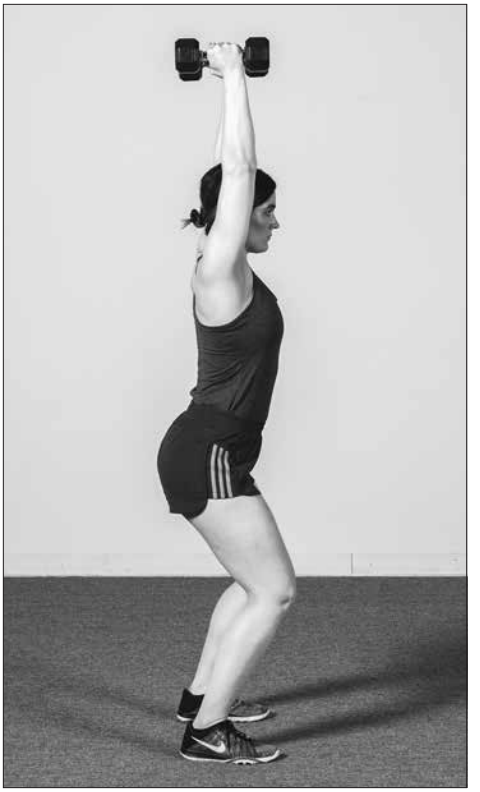
Power Jerk

Instructions

1. Stand with the feet about shoulder-width apart and rest a pair of dumbbells in the hands on the shoulders.
2. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor during this phase of the movement.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor. The force generated in the lower body should cause the dumbbells to lift off of the shoulders.
4. When the dumbbells are lifted off the shoulders, quickly extend the arms until they are straight and the dumbbells are directly over the shoulders. The arms steer the dumbbells to the correct position. Very little pressing action should be involved.
5. Pause in this position for a second and then lower the dumbbells to the starting position.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position rather than changing direction as quickly as possible.
- Using the arms too soon to press the dumbbells off the shoulders.
- Pressing the dumbbells too quickly. The movement is no faster than when performing a dumbbell shoulder press.
- Not pausing at the top of the movement for a second to demonstrate control before lowering the dumbbells.



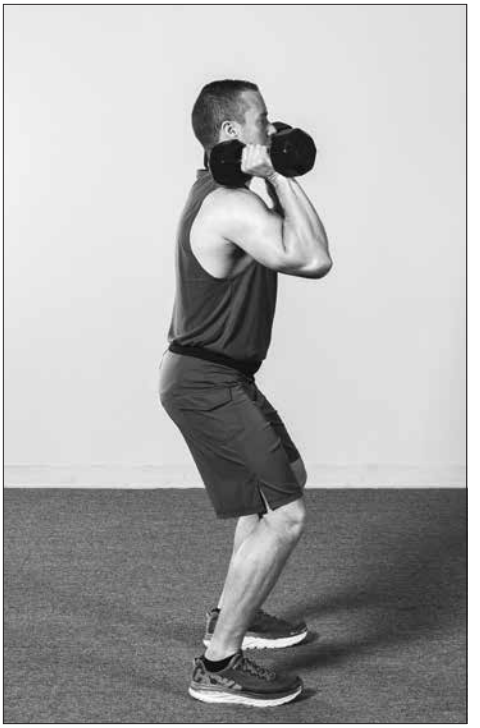
Alternating Power Jerk

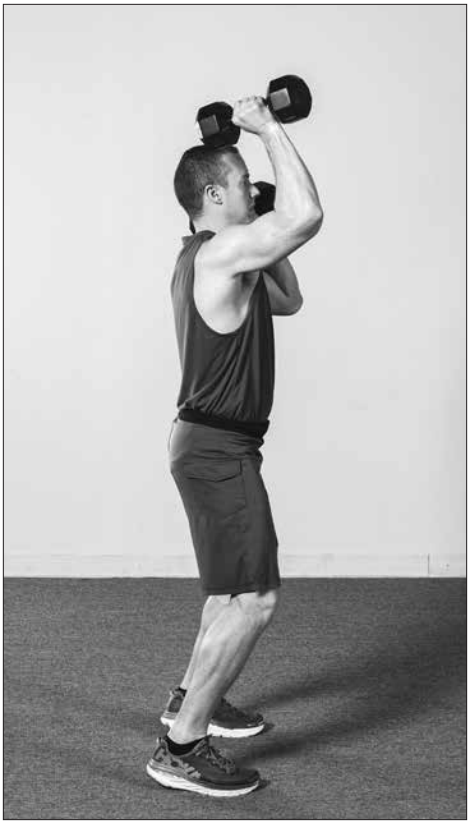
Instructions

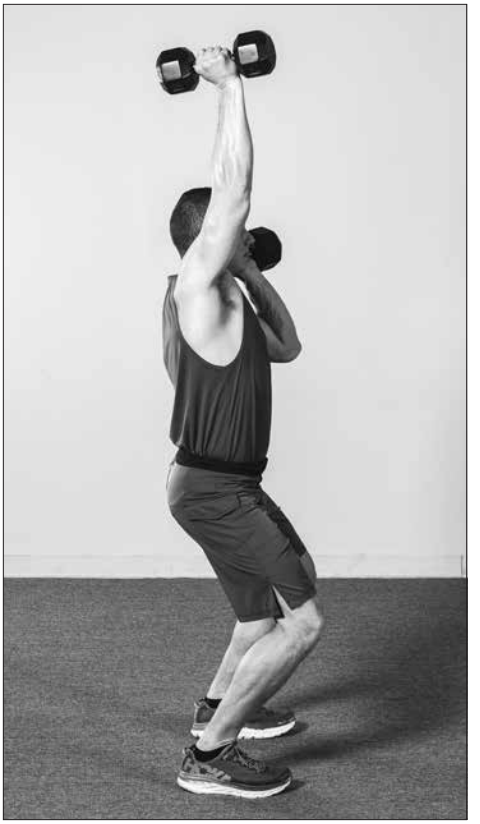
1. Stand with the feet shoulder-width apart and rest a pair of dumbbells in the hands on the shoulders.
2. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor during this phase of the movement.
3. At the bottom of the jump position, quickly rise and transfer the momentum by lifting off your heels and pushing against the floor through the lower body and core to the upper body. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor. The heels stay on the floor during the dipping phase and elevate off the floor briefly during the jumping phase. The force generated in the lower body should lift the dumbbells off of the shoulders.
4. Quickly extend the right arm until it is straight and the dumbbell is directly over the right shoulder. The arm steers the dumbbell to the correct position. Very little pressing action should be involved.
5. Pause in this position for a second and then lower the dumbbell to the starting position.
6. Repeat the movement with the left arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position rather than changing direction as quickly as possible.
- Using the arm before the dumbbell has risen off the shoulder as a result of the action in the lower body.
- Lifting the dumbbell with the arm instead of letting the lower-body momentum lift it.
- Not pausing at the top of the movement for a second to demonstrate control before lowering the dumbbell.







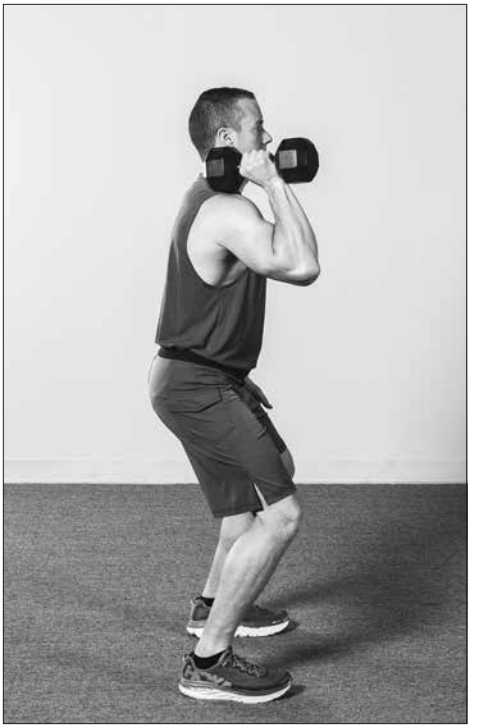
Single-Arm Power Jerk

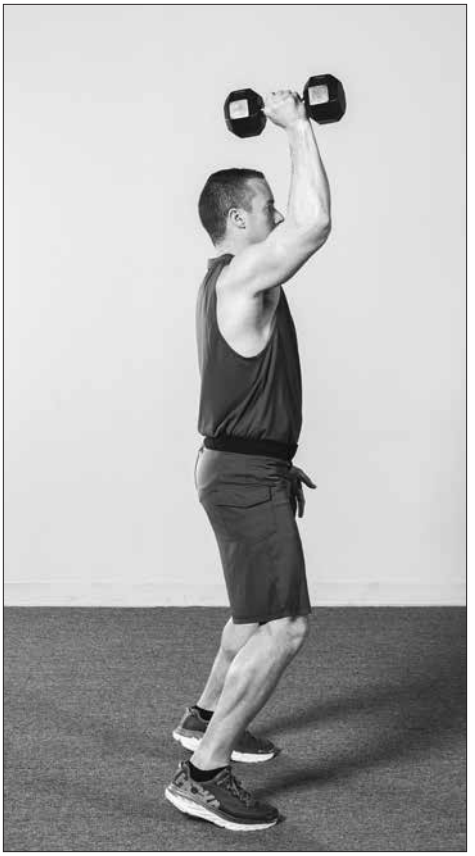
Instructions

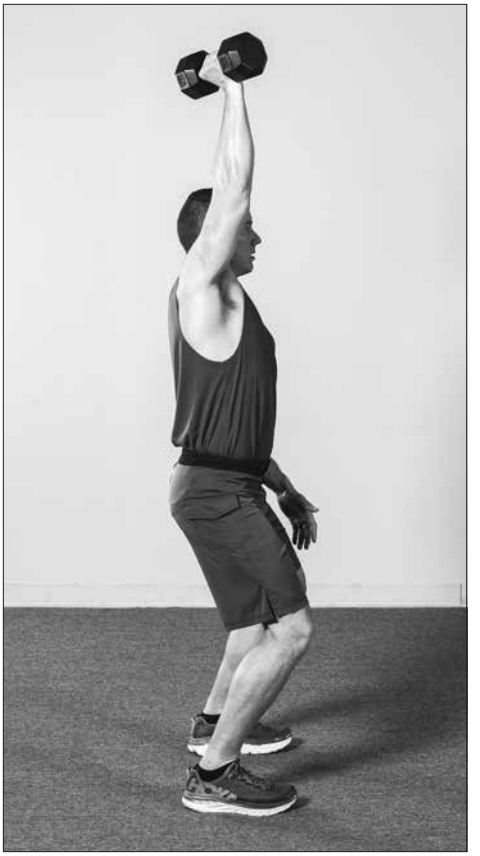
1. Stand with the feet about shoulder-width apart and hold a dumbbell in the right hand, resting it on the right shoulder.
2. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor during this phase of the movement.
3. At the bottom of the jump position, quickly rise and transfer the momentum by lifting the heels and pushing against the floor through the lower body and core to the upper body. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor. This momentum will cause the dumbbell to quickly lift off the shoulder.
4. Continue raising the dumbbell until the right arm is fully extended. The right arm steers the dumbbell to the correct position. Very little pressing action should be involved.
5. Pause in this position for a second and then lower the dumbbell back to the starting position. Resume the initial starting position before initiating the next repetition.
6. Complete the required number of repetitions and then repeat the exercise with the left arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position instead of changing direction as quickly as possible.
- Using the arm too soon to press the dumbbell off the shoulder. The arm should not come into play until the dumbbell has risen off the shoulders as a result of the action in the lower body.
- Using the arm to lift before the dumbbell has risen off the shoulder as a result of the action in the lower body.
- Not pausing at the top of the movement for a second to demonstrate control before lowering the dumbbell.







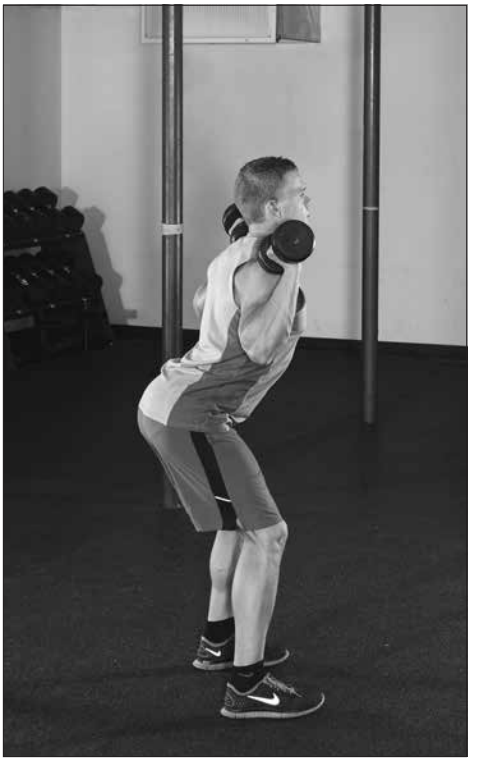
Split Alternating-Foot Jerk

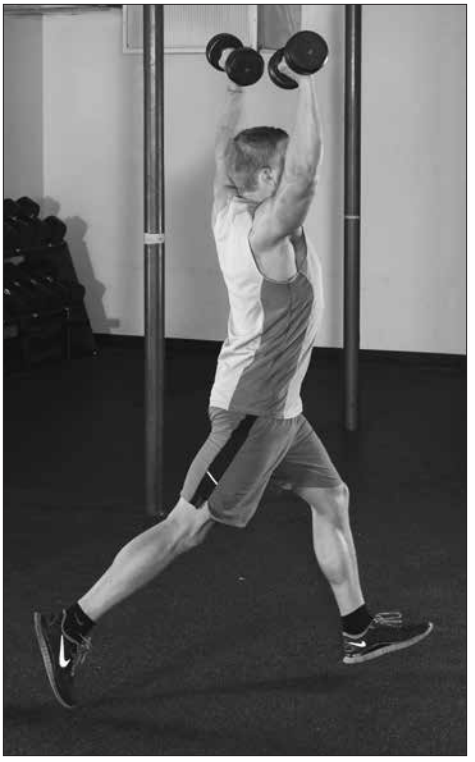
Instructions

1. Stand with the feet about shoulder-width apart and rest a pair of dumbbells in the hands on the shoulders.
2. Sit back until the lifter is at the depth of a vertical-jump attempt. Keep the heels on the floor during this phase of the movement.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor. The force generated in the lower body should cause the dumbbells to quickly lift off of the shoulders.
4. When the hips are fully extended, quickly split the feet, with the left foot moving forward and the right foot moving back so you catch the dumbbells in what could be called a slight lunge position.
5. While splitting under the dumbbells, continue to press them until the elbows are fully extended and locked. The arms steer the dumbbells to the correct position. Very little pressing should be involved.
6. Return the feet to the starting position by stepping forward with the right foot and stepping back with the left foot.
7. Pause in this position for a second and then lower the dumbbells to the starting position.
8. Resume the initial starting position before initiating the next repetition.
9. Alternate the split position each repetition.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position instead of changing direction as quickly as possible.
- Using the arms to lift the dumbbells off the shoulders instead of using them only to steer the dumbbells to the correct catch position.
- Lowering the dumbbells before the feet are fully recovered to the start position.





Split Alternating-Foot, Alternating-Arm Jerk

Instructions

1. Stand with the feet about shoulder-width apart and rest a pair of dumbbells in the hands on the shoulders.
2. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor during this phase of the movement.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor. The force generated in the lower body should cause the dumbbells to quickly lift off of the shoulders.
4. When the hips are fully extended, quickly split the feet, with the right foot moving forward and the left foot moving back so you catch the dumbbells in what could be called a high lunge position.
5. While splitting under the dumbbells, continue to lift the dumbbell in the left hand until the elbow is fully extended and locked. The arm steers the dumbbell to the correct position. Very little pressing action should be involved.
6. Return the feet to the starting position, stepping forward with the left foot and stepping back with the right foot.
7. Pause in this position for a second and then lower the dumbbell back to the starting position.
8. Resume the initial starting position before initiating the next repetition.
9. Alternate the split position and the arm assisting the lift of dumbbell each repetition. In the lunge position, the arm that has been raised will always be on the opposite side of the foot that has moved forward (e.g., right foot forward, left arm up).

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position instead of changing direction as quickly as possible.
- Using the arms to press the dumbbells off the shoulders instead of to steer the dumbbells to the correct catch position.
- Lowering the dumbbells before the feet are fully recovered to the start position.
- Lifting the arm on the same side as the forward leg.

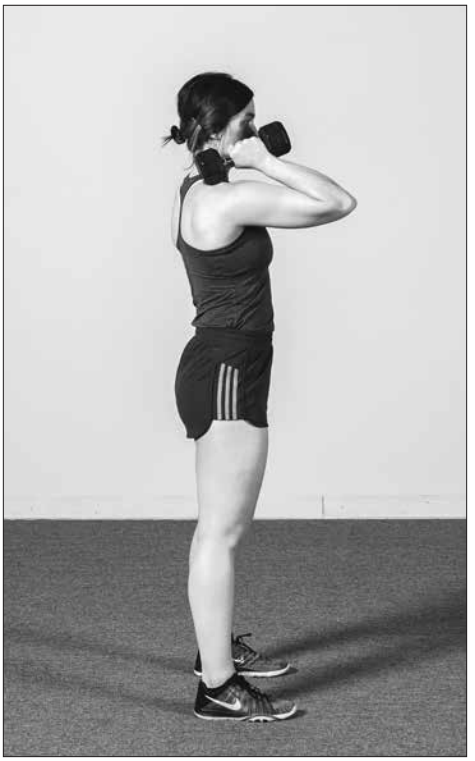
Split Alternating-Foot, Single-Arm Jerk

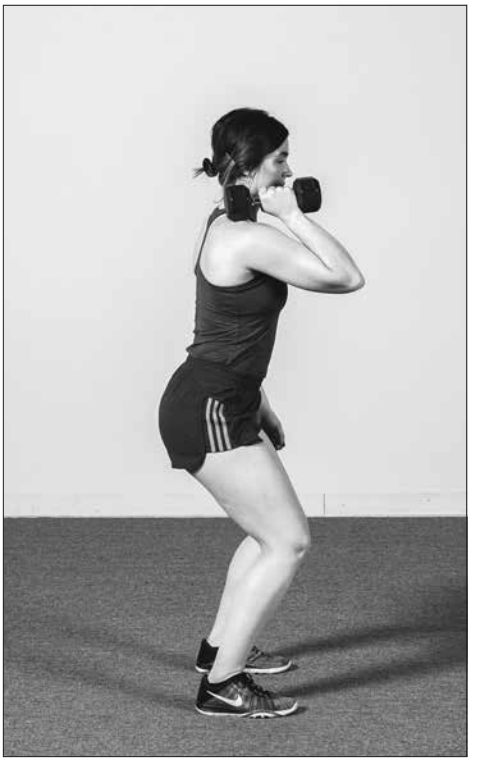
Instructions

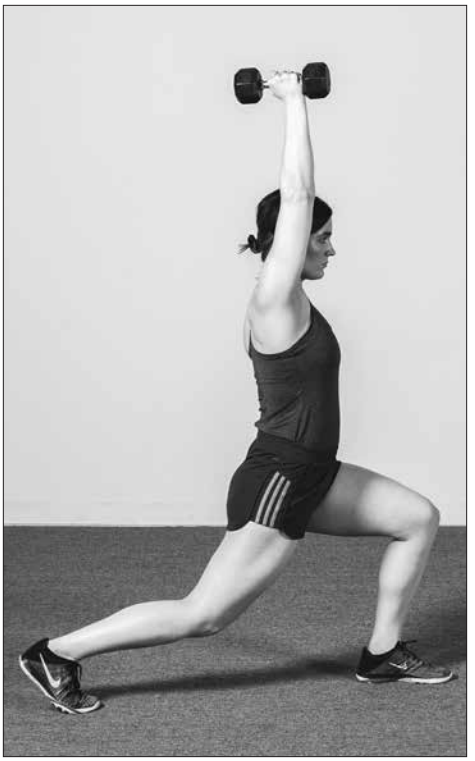
1. Stand with the feet about shoulder-width apart and rest a dumbbell in the hand on the right shoulder.
2. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor during this phase of the movement.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. This jumping action will cause the heels to briefly come off the ground before the lifter reestablishes a stable base with both heels back on the ground. The force generated in the lower body should cause the dumbbell to quickly lift off of the shoulder.
4. When the hips are fully extended, quickly split the feet, with the left foot moving forward and the right foot moving back so you catch the dumbbell in what could be called a high lunge position.
5. While splitting under the dumbbell, continue to press it until the elbow is fully extended and locked. The arm mainly steers the dumbbell to the correct position. Very little pressing action should be involved.
6. Pause in this position for a second, return the feet to the start position by stepping one half-step back with the front foot and a half-step forward with the back foot so that the feet are brought back to the starting position.
7. Alternate the split position with each repetition while completing the full number of repetitions on the right arm.
8. Once you have completed the repetitions on the right arm, switch the dumbbell to the left hand.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position instead of changing direction as quickly as possible.
- Using the arm to press the dumbbell off the shoulder instead of to steer the dumbbell to the correct catch position.
- Lowering the dumbbell before the feet are fully recovered to the start position.
- Lifting the arm on the same side as the forward leg.







Note: All of the following dumbbell clean and dumbbell snatch exercises can be performed both from a hang position and by performing the full movement. The full movements are performed with a start position holding the dumbbells at approximately mid-shin height, or replicating the position achieved when performing the movement with a barbell and full-sized weight plates positioned on the bar. Otherwise, the movement from the hang position and from mid-shin are very similar to each other.

Because the mid-shin start position involves a greater range of motion in which to perform the exercise, typically more weight can be used from this lower start position. However, the hang start position typically is easier to learn than the full movement, so the recommendation is to learn the movement using the hang position and then, once that movement has been perfected, move to the mid-shin start position.

Power Clean

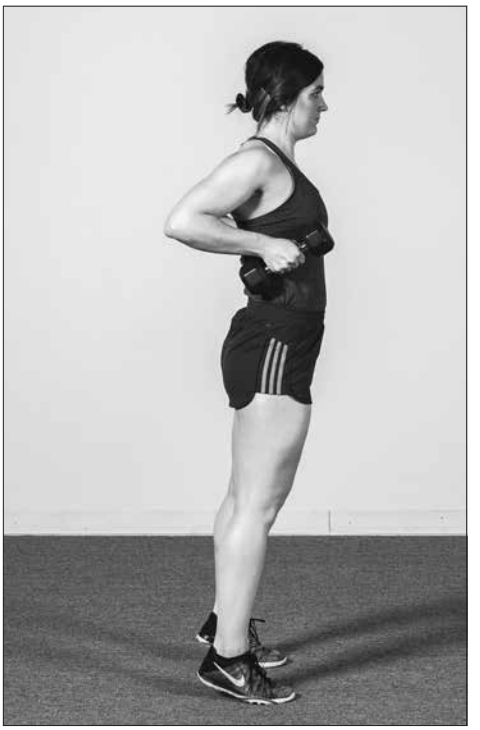
Instructions

1. Stand with the feet about shoulder-width apart.
2. With the arms hanging at the sides, hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are positioned at mid-shin. **NOTE:** When first learning the exercise, start with the handles at knee height as seen in the first photo. Progress over time to the full power clean starting at mid-shin.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until you achieve this position.
5. Push against the floor to extend the hip, knee, and ankle joints.
6. After achieving full extension, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbells along the rib cage to the lower portion of the armpits. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor.
8. From this position, pull the body under the dumbbells by flexing at the hips and aggressively bringing the elbows around to rack the back half of the dumbbells on the shoulders while catching the dumbbells in a quarter-squat position.
9. In this racked position, keep the head up, the back arched, the elbows high, and the knees behind the toes.
10. Once the dumbbells are on the shoulders, extend the knees and hips so you are in a fully upright position.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells to the shoulders in an arced movement rather than straight up to the armpits.
- Sitting under the dumbbells by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.

- Catching the dumbbells with the elbows pointing toward the floor rather than toward the wall.
- Sitting too deep in the catching action rather than just deep enough to rack the dumbbells on the shoulders.

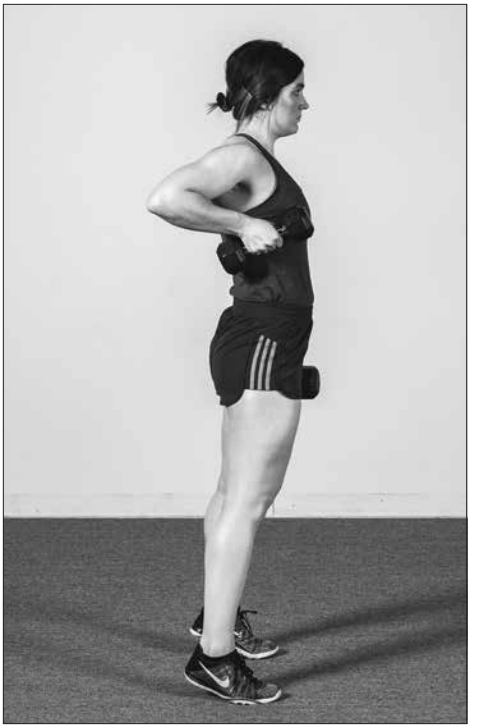
Alternating Power Clean

Instructions

1. Stand with the feet about shoulder-width apart.
2. With the arms hanging at the sides, hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keep the back arched and the head up, and lower the dumbbells until the handles are positioned at mid-shin. **NOTE:** When first learning the exercise, start with the handles at knee height as seen in the first photo. Progress over time to the full movement starting at mid-shin.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until you achieve this position.
5. Push against the floor to extend the hip, knee, and ankle joints. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor.
6. After achieving full extension, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbell in the right hand along the rib cage to the lower portion of the armpit.
8. From this position pull the body under the dumbbell by flexing at the hips and aggressively bringing the right elbow around to rack the back half of the dumbbell on the right shoulder while catching the dumbbells in a quarter-squat position.
9. In this racked position, keep the head up, the back arched, the elbow high, and the knees behind the toes.
10. Once the dumbbell has been racked on the shoulder, extend the knees and hips until you are fully upright.
11. Lower the dumbbell to the starting position and repeat with the other arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbell to the shoulder in an arced movement rather than straight up to the armpits.
- Sitting under the dumbbell by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Catching the dumbbell with the elbow pointing toward the floor rather than toward the wall.
- Sitting too deep in the catching action rather than just deep enough to rack the dumbbells on the shoulders.



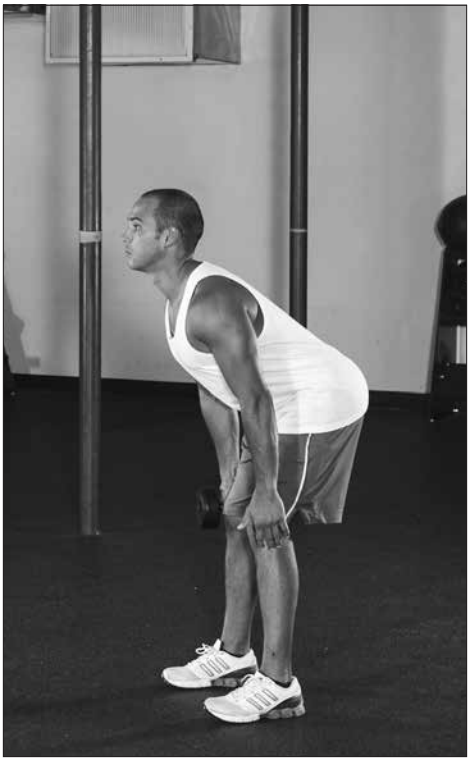
Single-Arm Power Clean

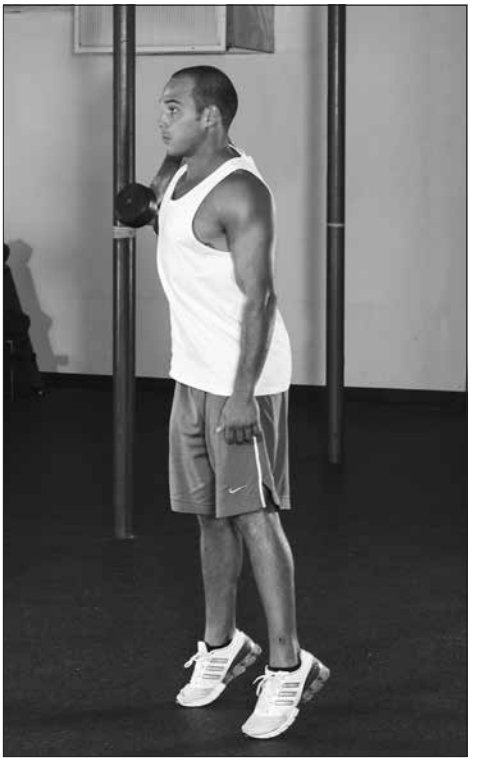
Instructions

1. Stand with the feet about shoulder-width apart.
2. With the arms hanging at the sides, hold a dumbbell in the right hand at the side of the right leg.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbell until the handle is positioned at mid-shin. **NOTE:** When first learning the exercise, start with the handle at knee height as seen in the first photo. Progress over time to the full movement starting at mid-shin.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until you achieve this position.
5. Push against the floor to extend the hip, knee, and ankle joints. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor.
6. After achieving full extension, aggressively shrug the right shoulder to elevate the dumbbell slightly.
7. Once the shrug is complete, pull the dumbbell along the rib cage to the lower portion of the armpit.
8. From this position, pull the body under the dumbbell by flexing at the hips and aggressively bring the right elbow around to rack the back half of the dumbbell on the right shoulder while catching the dumbbell in a quarter-squat position.
9. In this racked position, keep the head up, the back arched, the elbow high, and the knees behind the toes.
10. Once the dumbbell has been racked on the shoulder, extend the knees and hips so that you are fully upright.
11. Lower the dumbbell to the starting position and complete the required number of repetitions.
12. Repeat the exercise on the left arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbow before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbell to the shoulder in an arced movement rather than straight up to the armpit.
- Sitting under the dumbbell by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Catching the dumbbell with the elbow pointing toward the floor rather than toward the wall.
- Sitting too deep in the catching action rather than just deep enough to rack the dumbbells on the shoulders.





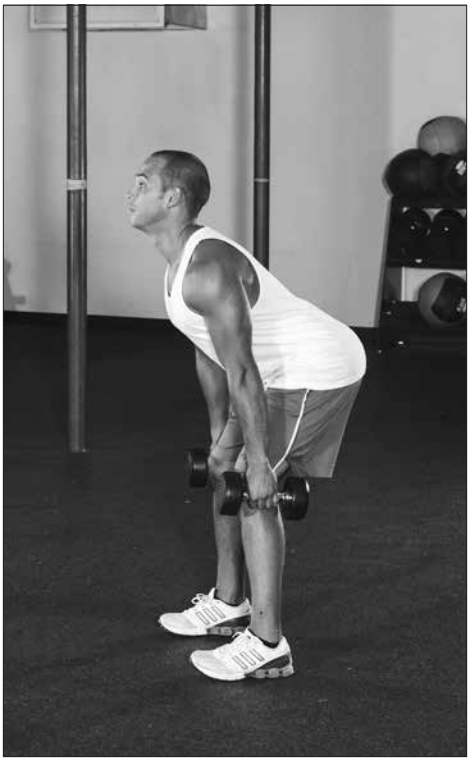
Hang Clean

Instructions

1. Stand with the feet about shoulder-width apart.
2. With the arms hanging at the sides, hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are centered with the knee joint in the hang position.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until you achieve this position.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor.
6. After achieving full extension, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbells along the rib cage to the lower portion of the armpits.
8. From this position, pull the body under the dumbbells by flexing at the hips and aggressively bringing the elbows around to rack the back half of the dumbbells on the shoulders.
9. Continue to sit back at the hips until you are in a parallel squat position (thighs parallel to the floor), keeping the heels on the floor.
10. In this racked position, keep the head up, the back arched, the elbows high, and the knees behind the toes.
11. From the full squat position, extend the knees and hips until you are fully upright, keeping the head up and the back arched.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells rather than slightly in front of the dumbbells in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells to the shoulders in an arced movement rather than straight up to the armpits.
- Sitting under the dumbbells by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Catching the dumbbells with the elbows pointing toward the floor rather than toward the wall.
- Sitting too deep in the catching action rather than just deep enough to rack the dumbbells on the shoulders in a semisquat position.
- Failing to achieve a full parallel squat position.



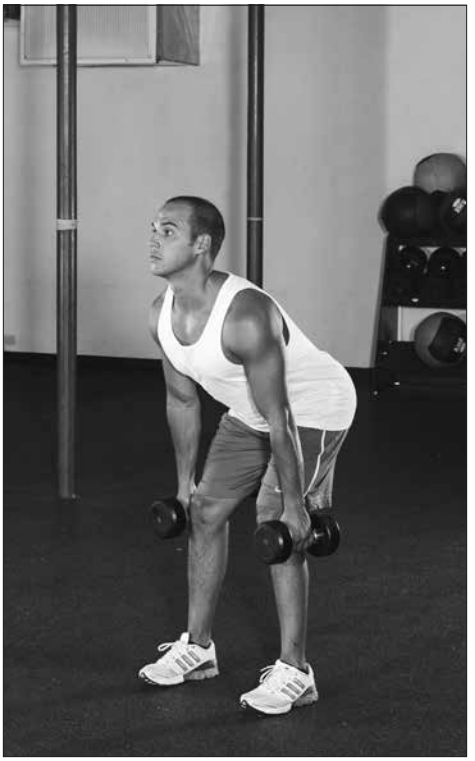
Alternating Hang Clean

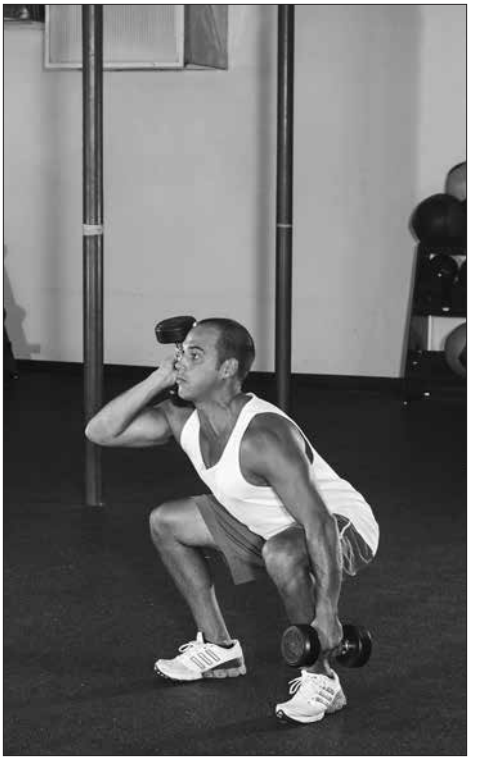
Instructions

1. Stand with the feet about shoulder-width apart.
2. With the arms hanging at the sides, hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are centered with the knee joint.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until you achieve this position.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor.
6. After achieving full extension, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull one of the dumbbells along the rib cage to the lower portion of the armpit. Alternate this pulling action with each repetition between the right and left arms.
8. From this position, pull the body under the lifted dumbbell by flexing at the hips and aggressively bringing the elbow around to rack the back half of the dumbbell on the shoulder.
9. Sit back at the hips until you are in a parallel squat position, keeping the heels on the floor.
10. In this racked position, keep the head up, the back arched, the elbow high, and the knees behind the toes.
11. From the full squat position, extend the knees and hips until you are fully upright, keeping the head up and the back arched.
12. Repeat the exercise on the other arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of the dumbbells in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells to the shoulders in an arced movement rather than straight up to the armpits.
- Sitting under the dumbbells by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Catching the dumbbells with the elbows pointing toward the floor rather than toward the wall.
- Sitting too deep in the catching action instead of in a semisquat position just deep enough to rack the dumbbells on the shoulders.
- Failing to achieve a full parallel squat position.





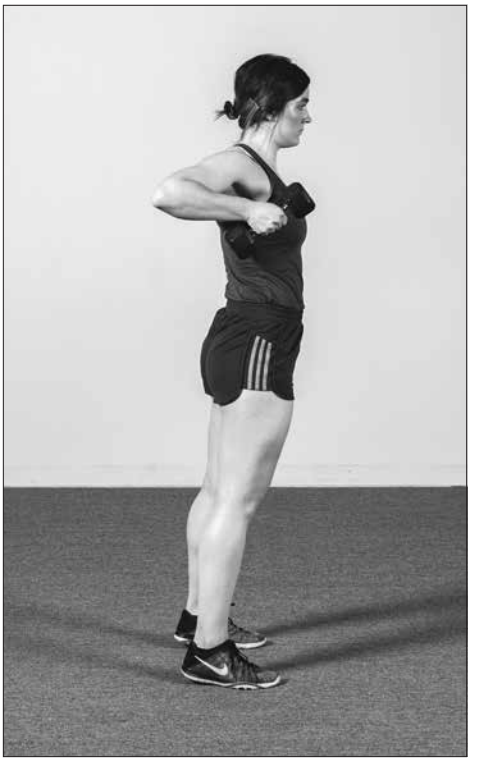
Single-Arm Hang Clean

Instructions

1. Stand with the feet about shoulder-width apart.
2. Hold a dumbbell in the right hand at the side of the leg.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbell until the handle is centered with the knee joint.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until you achieve this position.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. This jumping action will cause the heels to briefly come off the floor before the lifter reestablishes a stable base with both heels back on the floor.
6. After achieving full extension, aggressively shrug the shoulders to elevate the dumbbell slightly.
7. Once the shrug is complete, pull the dumbbell along the rib cage to the lower portion of the armpit.
8. From this position, pull the body under the dumbbell by flexing at the hips and aggressively bringing the elbow around to rack the back half of the dumbbell on the shoulder.
9. Sit back at the hips until you are in a parallel squat position, and keep the heels on the floor.
10. In this racked position, keep the head up, the back arched, the elbows high, and the knees behind the toes.
11. From the full squat position, extend the knees and hips until you are fully upright, keeping the head up and the back arched.
12. Repeat the movement with the left arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbell instead of slightly in front it in the start position.
- Bending the elbow before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbell to the shoulder in an arced movement rather than straight up to the armpit.
- Sitting under the dumbbell by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Catching the dumbbell with the elbow pointing toward the floor rather than toward the wall.
- Sitting too deep in the catching action instead of in a semisquat position just deep enough to rack the dumbbells on the shoulders.
- Failing to achieve a full parallel squat position.



Power Snatch

Instructions

1. Stand with the feet shoulder-width apart.
2. Hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are positioned at mid-shin. **NOTE:** When first learning the exercise, start with the handles at knee height as seen in the first photo. Progress over time to the full power snatch starting at mid-shin.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until they are.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After fully extending, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbells along the rib cage to the lower portion of the armpits.
8. Continue pulling the dumbbells up in one fluid movement until they are caught directly over the shoulders with the arms fully extended. At the same time, flex the hips to lower the body slightly into a semisquat position when catching the dumbbells.
9. Once the dumbbells have been caught in the fully extended position above the shoulders, extend the knees and hips so you are in a fully upright position and control the dumbbells for a full second before lowering them back to the start position.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells overhead in an arced movement rather than straight up past the hips, shoulders, and ears.
- Sitting under the dumbbells by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Failing to control the dumbbells and bring them to a complete stop before lowering them to the start position.

Alternating Power Snatch

Instructions

1. Stand with the feet shoulder-width apart.
2. Hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are positioned at mid-shin. **NOTE:** When first learning the exercise, start with the handles at knee height as seen in the first photo. Progress over time to the full movement starting at mid-shin.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until they are.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After fully extending, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete pull the dumbbell in the left hand along the rib cage to the lower portion of the armpit.
8. Continue pulling the dumbbell up in one fluid movement until it is caught directly over the left shoulder with the left arm fully extended. At the same time, flex the hips to lower the body slightly into a semisquat position when catching the dumbbell.
9. Once the dumbbell has been caught in the fully extended position above the left shoulder, extend the knees and hips so you are fully upright. Control the dumbbell for a full second before lowering it to the start position.
10. Repeat the movement with the right arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbow before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbell overhead in an arced movement rather than straight up past the hip, shoulder, and ear.
- Sitting under the dumbbell by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Failing to control the dumbbell and bring it to a complete stop before lowering it to the start position.

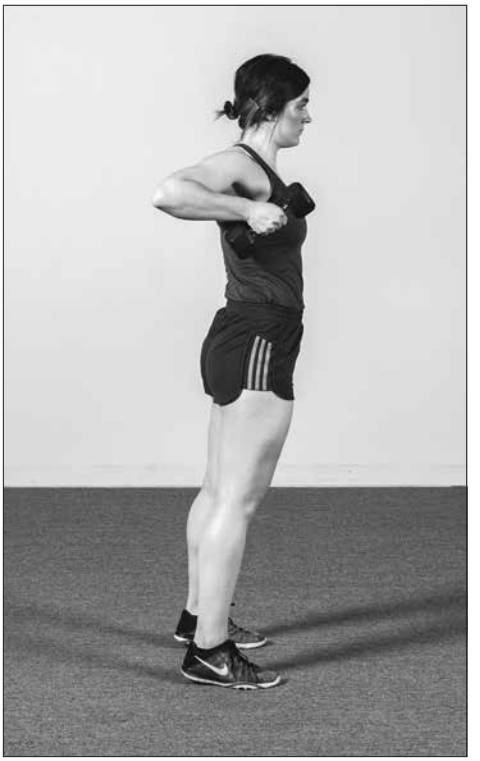
Single-Arm Power Snatch

Instructions

1. Stand with the feet shoulder-width apart.
2. Hold a dumbbell in the right hand at the side of the right leg.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are positioned at mid-shin. **NOTE:** When first learning the exercise, start with the handles at knee height as seen in the first photo. Progress over time to the full movement starting at mid-shin.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until they are.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After fully extending, aggressively shrug the right shoulder to elevate the dumbbell slightly.
7. Once the shrug is complete, pull the dumbbell in the right hand along the rib cage to the lower portion of the armpit.
8. Continue pulling the dumbbell up in one fluid movement until it is caught directly over the right shoulder with the right arm fully extended. At the same time flex the hips to lower the body slightly into a semisquat position upon catching the dumbbell.
9. Once the dumbbell has been caught in the fully extended position above the right shoulder, extend the knees and hips so you are fully upright. Control the dumbbell for a full second before lowering it to the start position.
10. Repeat the movement with the left arm.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbell instead of slightly in front of it in the start position.
- Bending the elbow before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbell overhead in an arced movement rather than straight up past the hip, shoulder, and ear.
- Sitting under the dumbbell by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Failing to control the dumbbell and bring it to a complete stop before lowering it back to the start position.



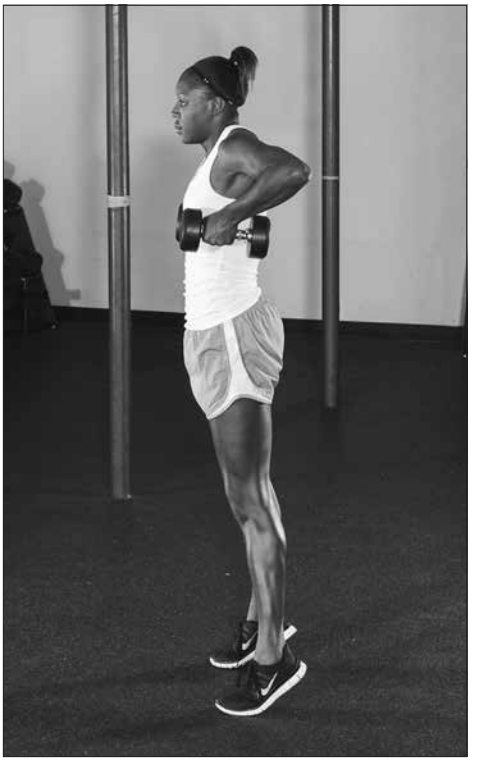
Split Alternating-Foot Snatch

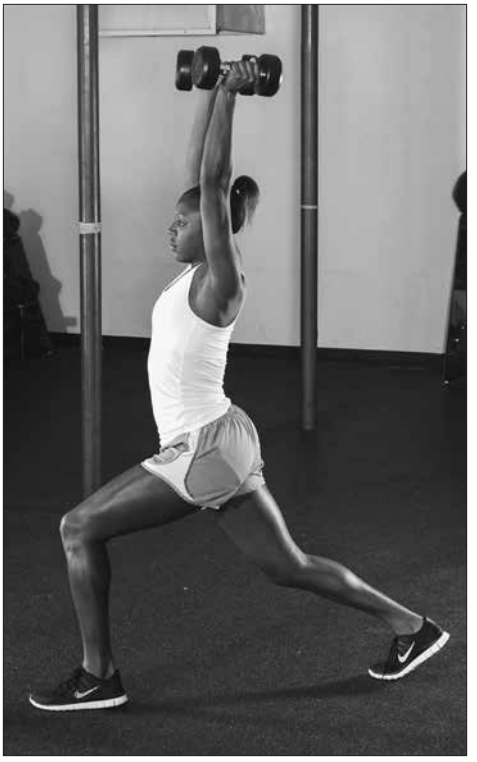
Instructions

1. Stand with the feet shoulder-width apart.
2. Hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are positioned at the desired start position height (i.e., with the handle of the dumbbell centered with the knee joint when performing from the hang start position, and from mid-shin when performing the full movement).
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until they are.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After fully extending, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbells along the rib cage to the lower portion of the armpits.
8. Continue pulling the dumbbells up in one fluid movement until they are caught directly over the shoulders with the arms fully extended. At the same time, split the legs in a high lunge position, with the left foot moving forward and the right foot moving back.
9. Once the dumbbells have been caught in the fully extended position above the shoulders, return the feet to the start position, stepping forward with the right foot and back with the left foot to bring the feet together. Pause briefly in this position.
10. Once the feet have been brought together, lower the dumbbells to the start position and repeat, alternating the feet in the split position each repetition.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Holding the dumbbells either above or below the knee joint in the hang version of the exercise.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells overhead in an arced movement rather than straight up past the hips, shoulders, and ears.
- Failing to move the front foot far enough forward in the split to lower the body under the dumbbells.
- Failing to control the dumbbells and bring them to a complete stop before lowering them to the start position.
- Lowering the dumbbells before fully recovering the feet to the start position.





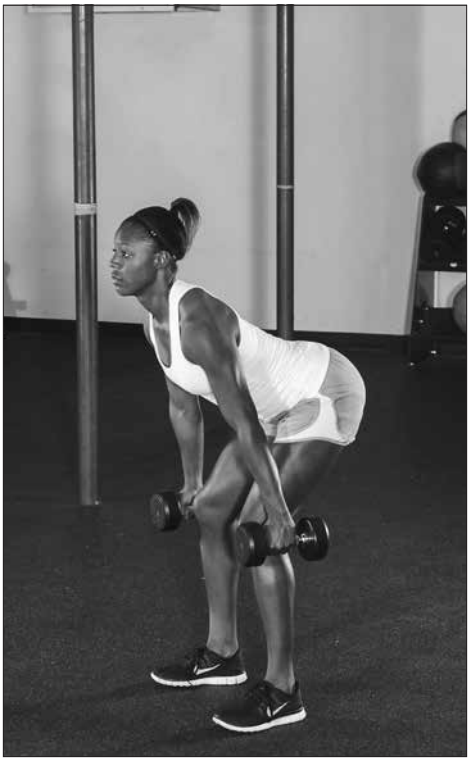
Split Alternating-Foot, Alternating-Arm Snatch

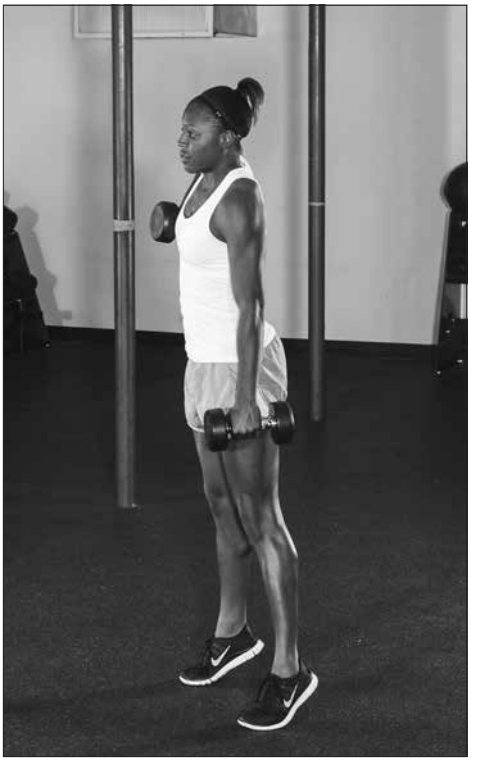
Instructions

1. Stand with the feet shoulder-width apart.
2. Hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are positioned at the desired start position height (i.e., with the handles of the dumbbells centered with the knee joint when performing from the hang start position, and from mid-shin when performing the full movement).
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until they are.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground. After fully extending, aggressively shrug the shoulders to elevate the dumbbells slightly.
6. Once the shrug is complete, pull the dumbbell in the right hand along the rib cage to the lower portion of the armpit.
7. Continue pulling the dumbbell up in one fluid movement until it is caught directly over the right shoulder with the right arm fully extended. At the same time, split the legs in a high lunge position, with the left foot moving forward and the right foot moving back.
8. Once the dumbbell has been caught in the fully extended position over the shoulder, return the feet to the start position, stepping forward with the right foot and stepping back with the left foot to bring the feet together. Pause briefly in this position.
9. Once the feet have been brought together, lower the dumbbell to the start position and repeat, alternating arms and the feet in the split position each repetition.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Holding the dumbbells either above or below the knee joint in the hang version of the exercise.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbow before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbell overhead in an arced movement rather than straight up past the hip, shoulder, and ear.
- Failing to move the front foot far enough forward in the split to lower the body under the dumbbells.
- Failing to control the dumbbell and bring it to a complete stop before lowering it back to the start position.
- Lowering the dumbbell before fully recovering the feet to the start position.





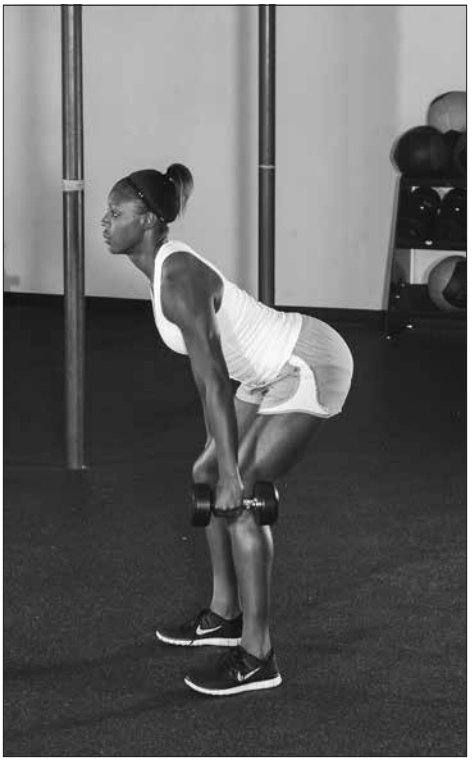
Single-Arm Split, Alternating-Foot Snatch

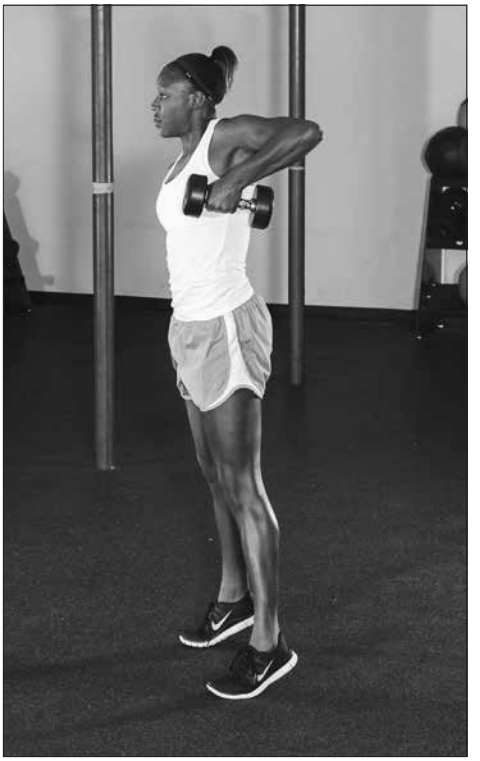
Instructions

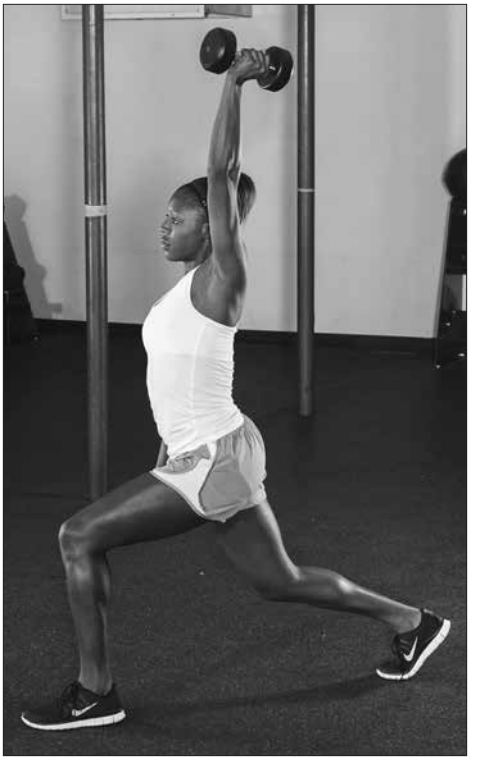
1. Stand with the feet shoulder-width apart.
2. Hold a dumbbell in the left hand with the arm hanging down along the side of the leg.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbell until the handle is at the desired start position height (i.e., with the handle of the dumbbell centered with the knee joint when performing from the hang start position, and from mid-shin when performing the full movement).
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until they are.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground. After fully extending, aggressively shrug the shoulder to raise the dumbbell slightly.
6. Once the shrug is complete, pull the dumbbell in the left hand along the rib cage to the lower portion of the armpit.
7. Continue pulling the dumbbell up in one fluid movement until it is caught directly over the left shoulder with the arm fully extended. At the same time, split the legs in a high lunge position, with the left foot moving forward and the right foot moving back.
8. Once the dumbbell has been caught in the fully extended position above the shoulder, return the feet to the start position, stepping forward with the right foot and stepping back with the left foot to bring the feet together. Pause briefly in this position.
9. Once the feet are together, lower the dumbbell to the start position and repeat, alternating the split position each repetition.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Holding the dumbbell either above or below the knee joint in the hang start position.
- Positioning the shoulders either over or behind the knees instead of slightly in front of them in the start position.
- Bending the elbow before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbell overhead in an arced movement rather than straight up past the hip, shoulder, and ear.
- Failing to move the front foot far enough forward in the split to lower the body under the dumbbells.
- Failing to control the dumbbell and bring it to a complete stop before lowering it to the start position.
- Lowering the dumbbell before fully recovering the feet to the start position.







COMBINATION (COMPOUND) EXERCISES

As mentioned previously, it is possible to combine some of the exercises, described both in this chapter and previous chapters, into a compound exercise, where two or more movements are fused into a single exercise. For example, you can perform a dumbbell hang clean, stand fully upright, and then, with the dumbbells resting on your shoulders, perform a dumbbell front squat. Another example is performing a dumbbell squat, lower to a hang position, and then perform a dumbbell hang power snatch. It is also possible to build on these compound movements to increase the degree of difficulty. For example, you could perform a squat, transition to performing a power clean, and then finish the repetition by performing a front squat. The number of possible combinations is quite large and is limited only by your creativity.

What are some of the potential benefits of performing these compound exercises? For one, you can recruit a significant amount of muscle mass in one exercise rather than having to perform multiple exercises to involve the same amount of muscle mass. As a result, it becomes a very time-efficient way to train. Second, these compound movements are an efficient method to enhance anaerobic endurance because multiple muscle groups are being recruited to perform these compound exercises. As a result, if you want to enhance muscle size, strength, and endurance, and you do not have a lot of time to devote to training, using compound exercises is an efficient approach.

Remember that all of the total-body movements (e.g., the push press, power jerk, power clean, and power snatch) can be performed with both arms simultaneously, alternating arms, or one arm at a time. Further, both cleans and snatches can be performed from a starting position from mid-thigh, a hang (the dumbbell starts at knee height) or below the knee (the dumbbell starts at mid-shin). Not all of these combinations are described in this chapter but be aware that all of these options exist.

One point that needs to be mentioned about performing compound exercises is that when you select a weight to lift, it has to be based on the more challenging of the combination movements that are performed. For example, if you are going to perform the front squat to push press compound exercise, less weight can be handled when performing the push press portion of the movement than what can be used when performing a front squat. As a

DID YOU KNOW?

Including weightlifting exercises in your training program is an efficient way to train the body because they involve (recruit) most of the major muscle groups. As a result, rather than having to perform a variety of exercises, you can perform a few weightlifting exercises to get a total body workout.

result, the load has to be based on the weight that can be lifted for the push press. The same holds true for a majority of the compound exercises. Exercise descriptions for some of the more common compound exercises are provided in the following section.

Front Squat to Push Press

Instructions for the Front Squat

1. Grasp a dumbbell in each hand with the arms at the sides.
2. Raise the dumbbells to the shoulders, with the back end of the dumbbells resting on the shoulders. Hold the elbows high so that the dumbbells are level. The front end should not be lower than the back end.
3. Assume a shoulder-width stance.
4. Arch the back, and keep the head up.
5. Maintaining an arched back, initiate the movement by sitting back at the hips.
6. Continue to sit back until the thighs are parallel to the floor. The center of the hip joint should be at the same height as the center of the knee joint.
7. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
8. Leading with the head (as opposed to lifting the hips first), return to the starting position. Keep the back arched and the head up.
9. Once you have performed a front squat repetition, flow into the push press portion of the exercise (next exercise).

Common Errors

- Allowing the back to round rather than arching it during the exercise. Keep the elbows high to eliminate this problem.
- Failing to lower the body until the thigh is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can lift the heels off the floor.
- Squatting down too quickly rather than controlling the descent.

Instructions for the Push Press

1. Stand with the feet about shoulder-width apart and the dumbbells in the hands on the shoulders.
2. Sit back at the hips to the depth you would normally achieve when performing a vertical-jump attempt. Keep the heels on the floor.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground. This momentum will cause the dumbbells to lift off the shoulders slightly.

4. When the dumbbells have lifted off the shoulders, fully extend the arms to press the dumbbells straight up over the shoulders.
5. Pause in this position for a second and then lower the dumbbells to the starting position of the front squat exercise.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the exercise rather than changing direction as quickly as possible.
- Pressing the dumbbells off the shoulders too soon rather than waiting until they have risen off the shoulders as a result of the action in the lower body.
- Pressing the dumbbells too quickly. Once the dumbbells leave the shoulders as a result of the movement at the lower body, the movement is no faster than in a dumbbell shoulder press.
- Not pausing at the top of the movement for a second to demonstrate control before lowering the dumbbells.

Front Squat to Power Jerk

Instructions for the Front Squat

1. Grasp a dumbbell in each hand with the arms at the sides.
2. Raise the dumbbells to the shoulders, with the back end of the dumbbells resting on the shoulders. Hold the elbows high so that the dumbbells are level. The front end should not be lower than the back end.
3. Assume a shoulder-width stance.
4. Arch the back, and keep the head up.
5. Maintaining an arched back, initiate the movement by sitting back at the hips.
6. Continue to sit back until the thighs are parallel to the floor. The center of the hip joint should be at the same height as the center of the knee joint.
7. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
8. Leading with the head (as opposed to lifting the hips first), return to the starting position. Keep the back arched and the head up.
9. Once you have performed a front squat repetition, flow into the power jerk portion of the exercise.

Common Errors

- Allowing the back to round rather than arching it during the exercise. Keep the elbows high to eliminate this problem.
- Failing to lower the body until the thigh is parallel to the floor at the bottom of the movement.

- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can lift the heels off the floor.
- Squatting down too quickly rather than controlling the descent.

Instructions for the Power Jerk

1. Stand with the feet about shoulder-width apart and the dumbbells in the hands on the shoulders.
2. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground. The force generated in the lower body should cause the dumbbells to lift off of the shoulders.
4. Quickly extend the arms until they are straight and the dumbbells are directly over the shoulders. The arms steer the dumbbells to the correct position. Very little pressing action should be involved.
5. Pause in this position for a second and then lower the dumbbells to the starting position of the front squat exercise.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position rather than changing direction as quickly as possible.
- Using the arms too soon to press the dumbbells off the shoulders.
- Pressing the dumbbells too quickly. The movement is no faster than when performing a dumbbell shoulder press.
- Not pausing at the top of the movement for a second to demonstrate control before lowering the dumbbells.

Front Squat to Split Alternating-Foot Jerk

Instructions for the Front Squat

1. Grasp a dumbbell in each hand with the arms at the sides.
2. Raise the dumbbells to the shoulders, with the back end of the dumbbells resting on the shoulders. Hold the elbows high so that the dumbbells are level. The front end should not be lower than the back end.
3. Assume a shoulder-width stance.
4. Arch the back, and keep the head up.
5. Maintaining an arched back, initiate the movement by sitting back at the hips.
6. Continue to sit back until the thighs are parallel to the floor. The center of the hip joint should be at the same height as the center of the knee joint.

7. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
8. Leading with the head (as opposed to lifting the hips first), return to the starting position. Keep the back arched and the head up.
9. Once you have performed a front squat repetition, flow into the split alternating-foot jerk portion of the exercise (next exercise).

Common Errors

- Allowing the back to round rather than arching it during the exercise. Keep the elbows high to eliminate this problem.
- Failing to lower the body until the thigh is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can lift the heels off the floor.
- Squatting down too quickly rather than controlling the descent.

Instructions for the Split Alternating-Foot Jerk

1. Stand with the feet about shoulder-width apart with the dumbbells in the hands on the shoulders.
2. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground. The force generated in the lower body should cause the dumbbells to quickly lift off of the shoulders.
4. When the hips are fully extended, quickly split the feet, with the left foot moving forward and the right foot moving back so you catch the dumbbells in what could be called a slight lunge position.
5. While splitting under the dumbbells, continue to press them until the elbows are fully extended and locked. The arms steer the dumbbells to the correct position. Very little pressing should be involved.
6. Return the feet to the starting position by stepping forward with the right foot and stepping back with the left foot.
7. Pause in this position for a second and then lower the dumbbells to the starting position of the front squat exercise. Alternate the split position for the split alternating-foot jerk portion of each compound exercise repetition.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position instead of changing direction as quickly as possible.
- Using the arms to lift the dumbbells off the shoulders instead of using them only to steer the dumbbells to the correct catch position.
- Lowering the dumbbells before the feet are fully recovered to the start position.

Front Squat to Split Alternating-Foot, Alternating-Arm Jerk

Instructions for the Front Squat

1. Grasp a dumbbell in each hand with the arms at the sides.
2. Raise the dumbbells to the shoulders, with the back end of the dumbbells resting on the shoulders. Hold the elbows high so that the dumbbells are level. The front end should not be lower than the back end.
3. Assume a shoulder-width stance.
4. Arch the back, and keep the head up.
5. Maintaining an arched back, initiate the movement by sitting back at the hips.
6. Continue to sit back until the thighs are parallel to the floor. The center of the hip joint should be at the same height as the center of the knee joint.
7. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
8. Leading with the head (as opposed to lifting the hips first), return to the starting position. Keep the back arched and the head up.
9. Once you have performed a front squat repetition, flow into the split-feet, alternating-arm jerk portion of the exercise.

Common Errors

- Allowing the back to round rather than arching it during the exercise. Keep the elbows high to eliminate this problem.
- Failing to lower the body until the thigh is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can lift the heels off the floor.
- Squatting down too quickly rather than controlling the descent.

Instructions for the Split Alternating-Foot, Alternating-Arm Jerk

1. Stand with the feet about shoulder-width apart and rest the dumbbells in the hands on the shoulders.
2. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground. The force generated in the lower body should cause the dumbbells to quickly lift off of the shoulders.
4. When the hips are fully extended, quickly split the feet, with the left foot moving forward and the right foot moving back so you catch the dumbbells in what could be called a high lunge position.

5. While splitting under the dumbbell, continue to lift the dumbbell in the right hand until the elbow is fully extended and locked. The arm steers the dumbbell to the correct position. Very little pressing action should be involved. In the top position, the arm that has been raised will always be on the opposite side of the foot that has moved forward (e.g., when the right foot is forward, the left arm is up).
6. Return the feet to the starting position, stepping forward with the right foot and stepping back with the left foot.
7. Pause in this position for a second and then lower the dumbbell back to the starting position of the front squat exercise.
8. Alternate the split position and the arm assisting the lift of the dumbbell for the split alternating-foot, alternating-arm jerk portion of each compound exercise repetition.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position instead of changing direction as quickly as possible.
- Using the arms to press the dumbbells off the shoulders instead of to steer the dumbbells to the correct catch position.
- Lowering the dumbbells before the feet are fully recovered to the start position.
- Lifting the arm on the same side as the forward leg.

Power Clean to Front Squat

Instructions for the Power Clean

1. Stand with the feet about shoulder-width apart.
2. With the arms hanging at the sides, hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are at mid-shin.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until you achieve this position.
5. Push against the floor to extend the hip, knee, and ankle joints. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After achieving full extension, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbells along the rib cage to the lower portion of the armpits.
8. From this position, pull the body under the dumbbells by flexing at the hips and aggressively bringing the elbows around to rack the back half of the dumbbells on the shoulders while catching the dumbbells in a quarter-squat position.

9. In this racked position, keep the head up, the back arched, the elbows high, and the knees behind the toes.
10. Once the dumbbells are on the shoulders, extend the knees and hips so you are in a fully upright position. Once you have moved into a fully upright position, transition into performing a front squat.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells to the shoulders in an arced movement rather than straight up to the armpits.
- Sitting under the dumbbells by flexing at the knees and bringing them in front of the toes instead of sitting back at the hips.
- Catching the dumbbells with the elbows pointing toward the floor rather than toward the wall.
- Sitting too deep in the catching action rather than just deep enough to rack the dumbbells on the shoulders.

Instructions for the Front Squat

1. Position the dumbbells so the back ends are resting on the shoulders. Hold the elbows high so that the dumbbells are level. The front end should not be lower than the back end.
2. Assume a shoulder-width stance.
3. Arch the back, and keep the head up.
4. Maintaining an arched back, initiate the movement by sitting back at the hips.
5. Continue to sit back until the thighs are parallel to the floor. Position the center of the hip joint at the same height as the center of the knee joint.
6. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
7. Leading with the head (as opposed to lifting the hips first), return to the starting position of the power clean. Keep the back arched and the head up.

Common Errors

- Allowing the back to round rather than arching it during the exercise. Keep the elbows high to eliminate this problem.
- Failing to lower the body until the thigh is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can lift the heels off the floor.
- Squatting down too quickly rather than controlling the descent.

Hang Clean to Front Squat to Power Jerk

Instructions for the Hang Clean

1. Stand with the feet about shoulder-width apart.
2. With the arms hanging at the sides, hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are centered with the knee joint.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until you achieve this position.
5. Push against the floor to extend the hip, knee, and ankle joints. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After achieving full extension, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbells along the rib cage to the lower portion of the armpits.
8. From this position, pull the body under the dumbbells by flexing at the hips and aggressively bringing the elbows around to rack the back half of the dumbbells on the shoulders while catching the dumbbells in a quarter-squat position.
9. In this racked position, keep the head up, the back arched, the elbows high, and the knees behind the toes.
10. Once the dumbbells are on the shoulders, extend the knees and hips so you are in a fully upright position. Once you have moved into a fully upright position, transition into performing a front squat.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells to the shoulders in an arced movement rather than straight up to the armpits.
- Sitting under the dumbbells by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Catching the dumbbells with the elbows pointing toward the floor rather than toward the wall.
- Sitting too deep in the catching action rather than just deep enough to rack the dumbbells on the shoulders.

Instructions for the Front Squat

1. Position the dumbbells so the back ends are resting on the shoulders. Hold the elbows high so that the dumbbells are level. The front end should not be lower than the back end.

2. Assume a shoulder-width stance.
3. Arch the back, and keep the head up.
4. Maintaining an arched back, initiate the movement by sitting back at the hips.
5. Continue to sit back until the thighs are parallel to the floor. The center of the hip joint should be at the same height as the center of the knee joint.
6. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
7. Leading with the head (as opposed to lifting the hips first), return to the starting position. Keep the back arched and the head up.
8. Once you have completed the squat, perform a power jerk.

Common Errors

- Allowing the back to round rather than arching it during the exercise. Keep the elbows high to eliminate this problem.
- Failing to lower the body until the thigh is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can lift the heels off the floor.
- Squatting down too quickly rather than controlling the descent.

Instructions for the Power Jerk

1. Stand with the feet about shoulder-width apart and the dumbbells on the shoulders.
2. Sit back until you are at the depth of a vertical-jump attempt. Keep the heels on the floor.
3. At the bottom of the jump position, quickly rise and transfer the momentum by pushing against the floor through the lower body and core to the upper body. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground. The force generated in the lower body should cause the dumbbells to lift off of the shoulders.
4. When the dumbbells are lifted off the shoulders, quickly extend the arms until they are straight and the dumbbells are directly over the shoulders. The arms steer the dumbbells to the correct position. Very little pressing action should be involved.
5. Lower the dumbbells and return to the starting position of the hang clean.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Initiating the movement by flexing the knees forward rather than flexing the hips back.
- Pausing at the bottom of the jump position rather than changing direction as quickly as possible.
- Using the arms too soon to press the dumbbells off the shoulders.
- Pressing the dumbbells too quickly. The movement is no faster than when performing a dumbbell shoulder press.
- Not pausing at the top of the movement for a second to demonstrate control before lowering the dumbbells.

Hang Clean to Front Squat

Instructions for the Hang Clean

1. Stand with the feet about shoulder-width apart.
2. With the arms hanging at the sides, hold a pair of dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are centered with the knee joint.
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until you achieve this position.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After achieving full extension, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbells along the rib cage to the lower portion of the armpits.
8. From this position, pull the body under the dumbbells by flexing at the hips and aggressively bringing the elbows around to rack the back half of the dumbbells on the shoulders.
9. Continue to sit back at the hips until you are in a parallel squat position, keeping the heels on the floor.
10. In this racked position, keep the head up, the back arched, the elbows high, and the knees behind the toes.
11. From the full squat position, extend the knees and hips until you are fully upright, keeping the head up and the back arched. From here, continue into the starting position for performing a front squat.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Positioning the shoulders either over or behind the dumbbells rather than slightly in front of the dumbbells in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells to the shoulders in an arced movement rather than straight up to the armpits.
- Sitting under the dumbbells by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Catching the dumbbells with the elbows pointing toward the floor rather than toward the wall.
- Sitting too deep in the catching action rather than just deep enough to rack the dumbbells on the shoulders in a semisquat position.
- Failing to achieve a full parallel squat position.

Instructions for the Front Squat

1. Position the dumbbells so the back ends are resting on the shoulders. Hold the elbows high so that the dumbbells are level. The front end should not be lower than the back end.
2. Assume a shoulder-width stance.
3. Arch the back, and keep the head up.
4. Maintaining an arched back, initiate the movement by sitting back at the hips.
5. Continue to sit back until the thighs are parallel to the floor. The center of the hip joint should be at the same height as the center of the knee joint.
6. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
7. Leading with the head (as opposed to lifting the hips first), return to the starting position of the hang clean. Keep the back arched and the head up.

Common Errors

- Allowing the back to round rather than arching it during the exercise. Keep the elbows high to eliminate this problem.
- Failing to lower the body until the thigh is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knee forward rather than by sitting back at the hips, which can lift the heels off the floor.
- Squatting down too quickly rather than controlling the descent.

Squat to Hang Power Snatch

Instructions for the Squat

1. Grasp a dumbbell in each hand with the arms fully straightened along the sides of the body.
2. Assume a shoulder-width stance.
3. Arch the back, and keep the head up.
4. Maintaining an arched back, initiate the squat movement by sitting back at the hips.
5. Continue to sit back until the thighs are parallel with the floor. The center of the hip joint should be at the same height or below the center of the knee joint.
6. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
7. Leading with the head (as opposed to lifting the hips first), return to the starting position. Keep the back arched and the head up.
8. Move into the hang position to initiate the hang power snatch portion of the exercise.

Common Errors

- Allowing the back to round rather than arching it during the exercise, which places more stress on the low back and can lead to injury.

- Failing to achieve a thigh position that is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knees forward rather than by sitting back at the hips, which lifts the heels off the floor.
- Squatting down too quickly rather than controlling the movement during the descent.

Instructions for the Hang Power Snatch

1. Stand with the feet shoulder-width apart.
2. Hold the dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are positioned with the handle of the dumbbell centered with the knee joint. **Alternate**: Start from mid-shin when performing the full movement).
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until they are.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After fully extending, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbells along the rib cage to the lower portion of the armpits.
8. Continue pulling the dumbbells up in one fluid movement until they are caught directly over the shoulders with the arms fully extended. At the same time, flex the hips to lower the body slightly into a semisquat position when catching the dumbbells.
9. Once the dumbbells have been caught in the fully extended position above the shoulders, extend the knees and hips so you are in a fully upright position and control the dumbbells for a full second before lowering them back to the start position of the squat exercise.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Holding the dumbbells either above or below the knee joint in the hang version of the exercise.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells overhead in an arced movement rather than straight up past the hips, shoulders, and ears.
- Sitting under the dumbbells by flexing at the knees and bringing them in front of the toes instead of by sitting back at the hips.
- Failing to control the dumbbells and bring them to a complete stop before lowering them to the start position.

Squat to Split Alternating-Foot Snatch

Instructions for the Squat

1. Grasp a dumbbell in each hand with the arms fully straightened along the sides of the body.
2. Assume a shoulder-width stance.
3. Arch the back, and keep the head up.
4. Maintaining an arched back, initiate the squat movement by sitting back at the hips.
5. Continue to sit back until the thighs are parallel with the floor. The center of the hip joint should be at the same height or below the center of the knee joint.
6. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
7. Leading with the head (as opposed to lifting the hips first), return to the starting position. Keep the back arched and the head up.
8. After completing one full squat repetition, lower the dumbbells to mid-shin height prior to initiating the split alternating-foot snatch portion of this exercise.

Common Errors

- Allowing the back to round rather than arching it during the exercise, which places more stress on the low back and can lead to injury.
- Failing to achieve a thigh position that is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knees forward rather than by sitting back at the hips, which lifts the heels off the floor.
- Squatting down too quickly rather than controlling the movement during the descent.

Instructions for the Split Alternating-Foot Snatch

1. Stand with the feet shoulder-width apart.
2. Hold the dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are positioned at the desired start position height (i.e., with the handle of the dumbbell centered with the knee joint when performing from the hang start position, and from mid-shin when performing the full movement).
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until they are.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After fully extending, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbells along the rib cage to the lower portion of the armpits.

8. Continue pulling the dumbbells up in one fluid movement until they are caught directly over the shoulders with the arms fully extended. At the same time, split the legs in a high lunge position, with the left foot moving forward and the right foot moving back.
9. Once the dumbbells have been caught in the fully extended position above the shoulders, return the feet to the start position, stepping forward with the right foot and back with the left foot to bring the feet together. Pause briefly in this position.
10. Once the feet have been brought together, lower the dumbbells to the starting position of the squat. Alternate the split position for the split alternating-foot snatch portion of each compound exercise repetition.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Holding the dumbbells either above or below the knee joint in the hang version of the exercise.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbows before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.
- Bringing the dumbbells overhead in an arced movement rather than straight up past the hips, shoulders, and ears.
- Failing to move the front foot far enough forward in the split to lower the body under the dumbbells.
- Failing to control the dumbbells and bring them to a complete stop before lowering them to the start position.
- Lowering the dumbbells before fully recovering the feet to the start position.

Squat to Split Alternating-Foot, Alternating-Arm Snatch

Instructions for the Squat

1. Grasp a dumbbell in each hand with the arms fully straightened along the sides of the body.
2. Assume a shoulder-width stance.
3. Arch the back, and keep the head up.
4. Maintaining an arched back, initiate the squat movement by sitting back at the hips.
5. Continue to sit back until the thighs are parallel with the floor. The center of the hip joint should be at the same height or below the center of the knee joint.
6. Keep the heels on the floor. The knees can drift slightly in front of the toes, directly over the toes, or slightly behind the toes, depending on what is most comfortable.
7. Leading with the head (as opposed to lifting the hips first), return to the starting position. Keep the back arched and the head up.
8. After completing one full squat repetition, lower the dumbbells to mid-shin height prior to initiating the split alternating-foot, alternating-arm snatch portion of this exercise.

Common Errors

- Allowing the back to round rather than arching it during the exercise, which places more stress on the low back and can lead to injury.
- Failing to achieve a thigh position that is parallel to the floor at the bottom of the movement.
- Initiating the movement by moving the knees forward rather than by sitting back at the hips, which lifts the heels off the floor.
- Squatting down too quickly rather than controlling the movement during the descent.

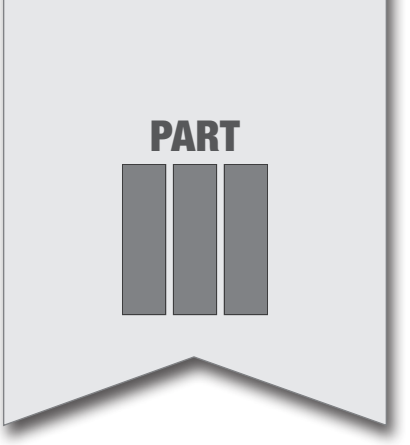
Instructions for the Split Alternating-Foot, Alternating-Arm Snatch

1. Stand with the feet shoulder-width apart.
2. Hold the dumbbells at the sides of the legs.
3. Sit back at the hips, keeping the back arched and the head up, and lower the dumbbells until the handles are positioned at the desired start position height (i.e., with the handle of the dumbbell centered with the knee joint when performing from the hang start position, and from mid-shin when performing the full movement).
4. Position the shoulders slightly in front of the knees. If the shoulders are not in front of the knees, straighten the knees until they are.
5. Initiate the movement by forcefully pushing against the floor to extend the hips, knees, and ankles. The heels will briefly come off the floor during this phase of the movement before the lifter reestablishes a solid base with both heels on the ground.
6. After fully extending, aggressively shrug the shoulders to elevate the dumbbells slightly.
7. Once the shrug is complete, pull the dumbbell in the right hand along the rib cage to the lower portion of the armpit.
8. Continue pulling the dumbbell up in one fluid movement until it is caught directly over the right shoulder with the right arm fully extended. At the same time, split the legs in a high lunge position, with the left foot moving forward and the right foot moving back.
9. Once the dumbbell has been caught in the fully extended position over the shoulder, return the feet to the start position, stepping forward with the right foot and stepping back with the left foot to bring the feet together. Pause briefly in this position.
10. Once the feet have been brought together, lower the dumbbells to the start position of the squat exercise.
11. Alternate the split position and the arm assisting the lift of the dumbbell for the split alternating-foot, alternating-arm snatch portion of each compound exercise repetition.

Common Errors

- Placing the feet either wider or narrower than shoulder-width apart.
- Holding the dumbbells either above or below the knee joint in the hang start version of the exercise.
- Positioning the shoulders either over or behind the dumbbells instead of slightly in front of them in the start position.
- Bending the elbow before the ankles, knees, and hips are fully extended and the shoulders are at the top of the shrug.

- Bringing the dumbbell overhead in an arced movement rather than straight up past the hip, shoulder, and ear.
- Failing to move the front foot far enough forward in the split to lower the body under the dumbbell.
- Failing to control the dumbbell and bring it to a complete stop before lowering it back to the start position.
- Lowering the dumbbell before fully recovering the feet to the start position.



PROGRAMMING

Once you understand the benefits of dumbbell training and are familiar with the exercises that can be performed using this mode of training, you can initiate the process of designing a resistance training program meant to achieve your specific goals. The final six chapters look at programming.

Chapters 8 to 10 look at non–sport-specific goals, fitness, weight loss, and muscle size. Chapters 8 and 9 are new to this edition; fitness is an important aspect of maintaining quality of life, as is achieving a desirable body weight. These are areas where many people struggle.

The sport-specific portion of this part (chapters 11-13) are grouped into the categories of power, speed, and balance sports. Because it would be impossible to discuss every sport, the workouts for each of the three categories are examples for sports that share similar characteristics. For example, the power sport chapter includes training programs for throwers in track and field events and for basketball and volleyball players. Although each of these activities requires different physiological attributes, they all require a high level of muscular power for optimal performance. By reviewing the information on training for power and then seeing how that information has been applied in the sample workouts, you should be able to design a training program for other sports that require power, such as football or pole vaulting. The same process can be applied to speed or balance sports and for fitness or weight loss. For these sports or goals, begin by writing the program based on the requirements of the sport or goal using the information provided, implement the program, and then revise it based on the results.

Revising workouts is a never-ending process of working towards developing the best program possible. As you continue to refine a program, make sure you make programming decisions based on the current training status and not where you or your trainee wants to be. Put another way, if you are at step one and you want to get to step three, don't skip step two. Progressions in training need to occur gradually so that the individual has time to adapt to the stressors of training over time. This approach will help to avoid designing workouts that are too advanced and that could lead to potential injury and frustration.

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CHAPTER

8

Training for Fitness

Training for fitness should be a regular part of your lifestyle, whatever your age. Performed regularly, physical activity can result in lifelong benefits, both improving health and reducing the risk for a number of health problems. One component of your fitness plan, and the focus of this chapter, is resistance training. Greater detail on resistance training and example programs will be provided later in this chapter. Additional components of fitness include aerobic exercise, flexibility training, and sound nutritional habits, but these components are not discussed in this book.

There are a number of benefits that can occur as a result of participating in a resistance training program on a consistent basis. These benefits, which, hopefully, will motivate you to participate, include the following (State Government of Victoria, Australia 2018):

- Prevention of chronic diseases
- Weight control
- Increased strength
- Fat reduction
- Increased bone density and joint integrity
- Improved heart and lung function
- Increased muscular and aerobic endurance
- Better sleep
- Decreased risk of depression
- Increased energy and self-esteem
- Stress reduction
- Potential increase in longevity

Did You Know?

Finding or making time for fitness activities is a matter of priorities. Participating in fitness activities on a regular basis must be made a priority. One good way to do that is to find a person or group of people who will hold you accountable and train with them. It is easier to show up and train when there are people expecting you to do so!

In contrast, a lack of physical activity can increase the risk of the following:

- Elevated blood pressure
- Elevated blood cholesterol
- Stroke
- Type 2 diabetes
- Heart disease
- Cancer

RESISTANCE TRAINING GUIDELINES

You can develop an effective resistance training program meant to enhance fitness using the information provided in the previous chapters, along with the information provided in this chapter. Example workouts are provided later in this chapter.

Sets and Reps

Depending on your initial fitness level, a beginning resistance training program should consist of six to eight different exercises, performed for one to two sets of 6 to 10 repetitions for each exercise. Initially, you should select a weight that allows the desired number of repetitions to be completed relatively easily. You should gradually increase the resistance so that the level of intensity is increased. The most common mistake when beginning a resistance training program is trying to do too much too soon. Avoid making that mistake! Gradually increase the volume and intensity of your training as well.

Frequency of Training

When first starting a resistance training program, or if you have not trained consistently for a sustained time, a training frequency of twice per week is sufficient for the first two to four weeks. After that, if you are interested, frequency can be increased to three times per week or more.

Choosing Exercises

The majority of the exercises chosen to include in your workout should involve

DID YOU KNOW?

The most common mistake when starting a fitness program is trying to do too much too soon. The downside of that is, in most cases, the result will be extreme muscle soreness, which can be quite discouraging. Start slowly, be patient, and make gradual increases in the volume and intensity of training. In the long term, this is the best approach.

movement at more than one joint. This is because exercises that involve movement at more than one joint require more muscle mass to be recruited than do exercises that involve movement at just one joint. Single-joint exercises can be included in the training program; however, the focus should be on multiple-joint exercises. Examples of single-joint exercises include biceps curls and flys. Multiple-joint exercises include movements like power cleans, squats, and bench presses.

Learning Technique

Learn the proper technique for each exercise. Do not use momentum or jerky motions to move a weight. Start with lighter weights and increase the resistance over time as you become stronger. Another common mistake is to focus more on the intensity of training and less on the technique used during training. The resistance used in every exercise you perform should never have a negative effect on your ability to perform the exercise properly.

SAMPLE WORKOUT SCHEDULES

Presented in this chapter are three cycles, meant to be performed consecutively, for the person coming off a lengthy period of not participating in, or just starting, a resistance training program. The first cycle, with low volume and intensity, is meant to act as an introduction to the demands of resistance training, with a gradual increase in volume and intensity over the four weeks of the cycle.

With the start of the second cycle, there is an increase in frequency of training, moving from twice a week to three times a week. There is also a change in the volume of training, with the number of sets and repetitions, along with the number of exercises performed, increasing. During this cycle, there is an emphasis on training for hypertrophy twice per week (on Monday and Friday) and training for strength once per week (on Wednesday). Because this cycle is following an introduction cycle, which is occurring after an extended period of performing little to no resistance training, the volume could be considered a bit low for a typical hypertrophy cycle, but this is intentional in an effort to not make the mistake of doing too much too soon.

Following this second cycle is a strength and hypertrophy cycle with strength days on Monday and Friday and a hypertrophy focus on Wednesday. The primary focus is on increasing strength while maintaining hypertrophy. The number of repetitions decreases in contrast to the strength day during cycle two to allow for a heavier training weight on the two strength days. In contrast, on the hypertrophy day during this third training cycle, the repetitions are elevated from those of the hypertrophy days during the second cycle. This is done to place a greater emphasis on hypertrophy on this training day.

General Fitness Cycle 1

Monday (Introduction)

Length 4 weeks

Goal Introduction to the technique and demands of resistance training.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 3 seconds.

Rest Take 2:00 between all sets and exercises.

Set and Reps

Week	Introduction
1	TB = 1 × 3 CL = 1 × 5 AL = 1 × 5
2	TB = 1 × 5 CL = 1 × 7 AL = 1 × 7
3	TB = 2 × 3 CL = 2 × 5 AL = 2 × 5
4	TB = 2 × 5 CL = 2 × 7 AL = 2 × 7

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Push press TB	1 × 3	1 × 5	2 × 3	2 × 5
Weight lifted				
LOWER BODY				
Squat CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
Leg curl AL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
TRUNK				
Side bend	1 × 10	1 × 10	2 × 7	2 × 7
Weight lifted				
UPPER BODY				
Bench press CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
Wide-grip row CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				

Note: The following abbreviations are used in the workout tables: TB = total body, one of the Olympic-style lifts or related training exercises. CL = core lift, a multiple-joint exercise such as a squat. AL = auxiliary lift, a single-joint exercise such as a biceps curl. DB = dumbbell; the exercise is performed with a dumbbell. SLDL = straight-leg deadlift. Alt = the exercise is performed alternating legs, feet, or arms.

General Fitness Cycle 1

Thursday (Introduction)

Length 4 weeks

Goal Introduction to the technique and demands of resistance training.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 3 seconds.

Rest Take 2:00 between all sets and exercises.

Set and Reps

Week	Introduction
1	TB = 1 × 3 CL = 1 × 5 AL = 1 × 5
2	TB = 1 × 5 CL = 1 × 7 AL = 1 × 7
3	TB = 2 × 3 CL = 2 × 5 AL = 2 × 5
4	TB = 2 × 5 CL = 2 × 7 AL = 2 × 7

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Power clean TB	1 × 3	1 × 5	2 × 3	2 × 5
Weight lifted				
LOWER BODY				
Front squat CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
SLDL CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
TRUNK				
Twisting crunch	1 × 10	1 × 10	2 × 7	2 × 7
Weight lifted				
UPPER BODY				
Incline press CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
Bent-over lateral raise AL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				

General Fitness Cycle 2

Monday (Hypertrophy)

Length 4 weeks

Goal Gradual increase in the volume and intensity of training with an emphasis on hypertrophy.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 3 seconds.

Rest Take 1:30 between all sets and exercises.

Set and Reps

Week	Hypertrophy
1	TB = 3 × 5 CL = 3 × 7 AL = 3 × 8
2	TB = 3 × 4 CL = 3 × 6 AL = 3 × 8
3	TB = 3 × 6 CL = 3 × 8 AL = 3 × 8
4	TB = 3 × 4 CL = 3 × 7 AL = 3 × 8

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Front squat to power jerk TB	3 × 5	3 × 4	3 × 6	3 × 4
Weight lifted				
LOWER BODY				
Lunge CL	3 × 7	3 × 6	3 × 8	3 × 7
Weight lifted				
Lateral squat CL	3 × 7	3 × 6	3 × 8	3 × 7
Weight lifted				
TRUNK				
Toe touch	3 × 15	3 × 15	3 × 15	3 × 15
Weight lifted				
UPPER BODY				
Incline press CL	3 × 7	3 × 6	3 × 8	3 × 7
Weight lifted				
Wide-grip row CL	3 × 7	3 × 6	3 × 8	3 × 7
Weight lifted				
DB drag curl AL	3 × 8	3 × 8	3 × 8	3 × 8
Weight lifted				

General Fitness Cycle 2

Wednesday (Strength)

Length 4 weeks

Goal Gradual increase in the volume and intensity of training with an emphasis on strength.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 2 seconds.

Rest Take 2:00 between all sets and exercises.

Set and Reps

Week	Strength
1	TB = 3 × 3 CL = 3 × 5 AL = 3 × 6
2	TB = 3 × 2 CL = 3 × 4 AL = 3 × 6
3	TB = 3 × 3 CL = 3 × 5 AL = 3 × 6
4	TB = 3 × 2 CL = 3 × 4 AL = 3 × 6

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Power jerk TB	3 × 3	3 × 2	3 × 3	3 × 2
Weight lifted				
LOWER BODY				
Squat CL	3 × 5	3 × 4	3 × 5	3 × 4
Weight lifted				
SLDL CL	3 × 5	3 × 4	3 × 5	3 × 4
Weight lifted				
TRUNK				
V-up	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted				
UPPER BODY				
Dumbbell push-up CL	3 × 5	3 × 4	3 × 5	3 × 4
Weight lifted				
Upright row CL	3 × 5	3 × 4	3 × 5	3 × 4
Weight lifted				
Triceps extension AL	3 × 6	3 × 6	3 × 6	3 × 6
Weight lifted				

General Fitness Cycle 2

Friday (Hypertrophy)

Length 4 weeks

Goal Gradual increase in the volume and intensity of training with an emphasis on strength.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 3 seconds.

Rest Take 1:30 between all sets and exercises.

Set and Reps

Week	Hypertrophy
1	TB = 3 × 5 CL = 3 × 7 AL = 3 × 8
2	TB = 3 × 4 CL = 3 × 6 AL = 3 × 8
3	TB = 3 × 6 CL = 3 × 8 AL = 3 × 8
4	TB = 3 × 4 CL = 3 × 7 AL = 3 × 8

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Power clean to front squat TB	3 × 5	3 × 4	3 × 6	3 × 4
Weight lifted				
LOWER BODY				
Goblet squat CL	3 × 7	3 × 6	3 × 8	3 × 7
Weight lifted				
Leg curl AL	3 × 7	3 × 6	3 × 8	3 × 7
Weight lifted				
TRUNK				
Ab wheel	3 × 15	3 × 15	3 × 15	3 × 15
Weight lifted				
UPPER BODY				
Decline press CL	3 × 7	3 × 6	3 × 8	3 × 7
Weight lifted				
Bent-over lateral raise AL	3 × 8	3 × 8	3 × 8	3 × 8
Weight lifted				
DB drag curl AL	3 × 8	3 × 8	3 × 8	3 × 8
Weight lifted				

General Fitness Cycle 3

Monday (Strength)

Length 4 weeks

Goal Gradual increase in the volume and intensity of training with an emphasis on strength.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 2 seconds.

Rest Take 2:00 between all sets and exercises.

Set and Reps

Week	Strength
1	TB = 4 × 4 CL = 4 × 5 AL = 3 × 6
2	TB = 4 × 3 CL = 4 × 4 AL = 3 × 6
3	TB = 4 × 4 CL = 4 × 4 AL = 3 × 6
4	TB = 4 × 3 CL = 4 × 3 AL = 3 × 6

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Hang power snatch TB	4 × 4	4 × 3	4 × 4	4 × 3
Weight lifted				
LOWER BODY				
Single-leg squat CL	4 × 5	4 × 4	4 × 4	4 × 3
Weight lifted (each leg)				
Side lunge CL	4 × 5	4 × 4	4 × 4	4 × 3
Weight lifted				
TRUNK				
Decline twisting crunch	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted				
UPPER BODY				
Reverse wide-grip bench press CL	4 × 5	4 × 4	4 × 4	4 × 3
Weight lifted				
Wide-grip row CL	4 × 5	4 × 4	4 × 4	4 × 3
Weight lifted				
Zottman curl AL	3 × 6	3 × 6	3 × 6	3 × 6
Weight lifted				

General Fitness Cycle 3

Wednesday (Hypertrophy)

Length 4 weeks

Goal Gradual increase in the volume and intensity of training with an emphasis on hypertrophy.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 3 seconds.

Rest Take 1:30 between all sets and exercises.

Set and Reps

Week	Hypertrophy
1	TB = 4 × 6 CL = 4 × 10 AL = 3 × 12
2	TB = 4 × 4 CL = 4 × 8 AL = 3 × 12
3	TB = 4 × 6 CL = 4 × 12 AL = 3 × 12
4	TB = 4 × 4 CL = 4 × 8 AL = 3 × 12

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Front squat to power jerk TB	4 × 6	4 × 4	4 × 6	4 × 4
Weight lifted				
LOWER BODY				
Lunge CL	4 × 10	4 × 8	4 × 12	4 × 8
Weight lifted				
SLDL CL	4 × 10	4 × 8	4 × 12	4 × 8
Weight lifted				
TRUNK				
Alt toe touch	3 × 20	3 × 20	3 × 20	3 × 20
Weight lifted				
UPPER BODY				
Single-arm bench press CL	4 × 10	4 × 8	4 × 12	4 × 8
Weight lifted (each arm)				
Row CL	4 × 10	4 × 8	4 × 12	4 × 8
Weight lifted				
Triceps extension AL	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted				

General Fitness Cycle 3

Friday (Strength)

Length 4 weeks

Goal Gradual increase in the volume and intensity of training with an emphasis on strength.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 2 seconds.

Rest Take 2:00 between all sets and exercises.

Set and Reps

Week	Strength
1	TB = 4 × 4 CL = 4 × 5 AL = 3 × 6
2	TB = 4 × 3 CL = 4 × 4 AL = 3 × 6
3	TB = 4 × 4 CL = 4 × 5 AL = 3 × 6
4	TB = 4 × 3 CL = 4 × 4 AL = 3 × 6

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Power jerk TB	4 × 4	4 × 3	4 × 4	4 × 3
Weight lifted				
LOWER BODY				
Front squat CL	4 × 5	4 × 3	4 × 5	4 × 3
Weight lifted				
TRUNK				
Back extension AL	3 × 6	3 × 6	3 × 6	3 × 6
Weight lifted				
Alt V-up	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted				
UPPER BODY				
Decline press CL	4 × 5	4 × 3	4 × 5	4 × 3
Weight lifted				
Upright row CL	4 × 5	4 × 3	4 × 5	4 × 3
Weight lifted				
Reverse curl AL	3 × 6	3 × 6	3 × 6	3 × 6
Weight lifted				

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CHAPTER 9

Training for Weight Loss

Based on information from the World Health Organization, the prevalence of obesity around the world has nearly tripled since 1975, and this problem exists across the generations (WHO 2018). For example, if increases in obesity continue at current rates, functional obesity will soon become the most commonly encountered cause of frailty in the elderly (Beavers et al. 2017). Further, the World Health Organization has seen an increase in obesity in the pediatric population over the last two decades.

This increase in overweight and obesity can lead to several health issues, including

- increased risk of heart disease and stroke,
- high blood pressure,
- diabetes,
- some forms of cancer,
- gallbladder disease and gallstones,
- gout,
- breathing problems,
- osteoarthritis,
- fatty liver disease, and
- kidney disease.

Because evidence exists that both overweight and obesity increase the risk for diabetes, cardiovascular disease, and cancer, this dramatic increase in the prevalence of obesity and being overweight represents a serious issue. Most training programs meant to assist in reducing body fat emphasize aerobic exercise. Typically this aerobic exercise is performed either in a steady-state, continuous movement format for the selected duration or in interval training, where periods of lower intensity recovery periods are distributed between periods of higher intensity training.

In contrast to this, resistance training is typically not as commonly prescribed when the goal of training is a reduction in body fat despite the

benefits that resistance training might have on weight control. Typically, resistance training is prescribed when the goals of training include increases in muscular size, strength, and power.

However, recent guidelines on exercise for weight loss and weight maintenance have begun to include resistance training as part of the training plan. Often, when resistance training is combined with aerobic training, the addition of resistance training does not consistently enhance weight loss. However, dieting, without including resistance training as a part of a weight loss program, often results in the loss of both fat and muscle mass. This decrease in muscle mass can have the effect of reducing your metabolic rate. In contrast, including resistance training in a weight loss program may reduce the decline in, or even increase, resting metabolic rate because of the preservation or addition of lean mass. This is important because your metabolic rate represents the number of calories required to keep your body functioning at rest, which obviously has a significant impact on the total number of calories you burn each day.

Did You Know?

It is important to include resistance training during a weight loss program. Dieting alone, without resistance training, will often result in the loss of both body fat and muscle mass. Decreases in muscle mass result in a decrease in daily caloric expenditure, which further increases the difficulty in losing weight. Maintaining, or better yet, increasing muscle mass when attempting to lose weight is the most effective approach.

The question then becomes, *What is the most effective resistance program design to prescribe when the goal is a reduction in body fat?* An effective program involves manipulating several variables, including frequency, load, number of sets and repetitions, rest intervals, exercise order, movement velocity, and type of equipment. At this point, the optimal program design to maximize energy expenditure remains unclear. However, based on the current available research, the following guidelines for resistance training can be suggested when the goal of the overall training program is a decrease in body fat.

First, evidence seems to suggest that resistance training should be performed in a circuit fashion, moving from exercise to exercise at the completion of each set. During the circuit training, three sets of 10 to 12 repetitions should be completed, performing eight exercises. Initially, a resistance that allows completion of the required number of repetitions at a moderate intensity should be selected. Gradually, the intensity of training can be increased. When you are able to complete all of the required repetitions in good form on the third set for two consecutive training days, the resistance can be increased to ensure progressive overload.

In terms of movement speed, again based on research, it seems that the greatest amount of energy expenditure, when including the recovery period postworkout, will occur when a moderate load (e.g., 50 percent 1RM) is used while performing maximally explosive contractions. The use of explosive movements may need to be something that is worked toward gradually, depending on your age, orthopedic concerns, and initial fitness level.

Did You Know?

Patience is key when attempting to lose weight. There is no such thing as a safe, quick weight loss method. Losing weight has to be accomplished with a combination of sound nutritional practices and well-planned regular exercise maintained over a period of weeks, months, and sometimes years to reach and maintain a goal for a lifetime.

While specific rest times between exercises and between circuits are typically provided, it can be suggested based on research to allow rest times to be self-directed based on your own recovery between sets and circuits (Roberson et al. 2017). There tends to be better compliance when this method is used with circuit training, and the goal is to make this a permanent part of your lifestyle.

The other recommendation that can be made is to emphasize selecting resistance training exercises that involve movement at more than one joint. The reason for this is that exercises that involve movement at two or more joints require a greater amount of muscle mass to be recruited than do exercises that involve movement at just one joint, increasing the caloric expenditure. So, for example, squats would be a better choice than leg extensions, and bench presses would be a better choice than flys. The following example workouts are based on this information.

SAMPLE WORKOUT SCHEDULES

The sequence of workouts presented is based on the assumption that you are in a deconditioned state with no resistance training having been performed for several months, or perhaps not at all. As has been stated previously, the most common mistake people make when starting a resistance training program is attempting to do too much too soon, resulting in extreme muscle soreness and thus becoming discouraged. Be patient, start off slowly, and progress through each sequence of workouts as they are presented here.

Weight Loss Cycle 1

Monday (Introduction)

Length 4 weeks

Goal Introduction to the technique and demands of resistance training.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 3 seconds.

Rest Self-select rest times as desired.

Set and Reps

Week	
1	TB = 1 × 3 CL = 1 × 5 AL = 1 × 5
2	TB = 1 × 5 CL = 1 × 7 AL = 1 × 7
3	TB = 2 × 3 CL = 2 × 5 AL = 2 × 5
4	TB = 2 × 5 CL = 2 × 7 AL = 2 × 7

	Week 1	Week 2	Week 3	Week 4
			Circuit training	Circuit training
TOTAL BODY				
Push press TB	1 × 3	1 × 5	2 × 3	2 × 5
Weight lifted				
LOWER BODY				
Squat CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
Leg curl AL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
TRUNK				
Crunch	1 × 10	1 × 10	2 × 7	2 × 7
Weight lifted				
UPPER BODY				
Bench press CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
Row CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				

Note: The following abbreviations are used in the workout tables: TB = total body, one of the Olympic-style lifts or related training exercises. CL = core lift, a multiple-joint exercise such as a squat. AL = auxiliary lift, a single-joint exercise such as a biceps curl. DB = dumbbell; the exercise is performed with a dumbbell. SLDL = straight-leg deadlift. Alt = the exercise is performed alternating legs, feet, or arms.

Weight Loss Cycle 1

Thursday (Introduction)

Length 4 weeks

Goal Introduction to the technique and demands of resistance training.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower in 3 seconds.

Rest Self-select rest times as desired.

Set and Reps

Week	
1	TB = 1 × 3 CL = 1 × 5 AL = 1 × 5
2	TB = 1 × 5 CL = 1 × 7 AL = 1 × 7
3	TB = 2 × 3 CL = 2 × 5 AL = 2 × 5
4	TB = 2 × 5 CL = 2 × 7 AL = 2 × 7

	Week 1	Week 2	Week 3	Week 4
			Circuit training	Circuit training
TOTAL BODY				
Power clean TB	1 × 3	1 × 5	2 × 3	2 × 5
Weight lifted				
LOWER BODY				
Front squat CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
SLDL CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
TRUNK				
Twisting crunch	1 × 10	1 × 10	2 × 7	2 × 7
Weight lifted				
UPPER BODY				
Incline press CL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				
Bent-over lateral raise AL	1 × 5	1 × 7	2 × 5	2 × 7
Weight lifted				

Weight Loss Cycle 2

Monday

Length 4 weeks

Goal Gradual increase in the volume and intensity of training.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower under control.

Rest Self-select rest times as desired.

Set and Reps

Week	
1	TB = 3 × 5 CL = 3 × 8
2	TB = 3 × 4 CL = 3 × 6
3	TB = 3 × 6 CL = 3 × 9
4	TB = 3 × 4 CL = 3 × 7

	Week 1	Week 2	Week 3	Week 4
	Circuit training	Circuit training	Circuit training	Circuit training
TOTAL BODY				
Front squat to push press TB	3 × 5	3 × 4	3 × 6	3 × 4
Weight lifted				
LOWER BODY				
Squat CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
SLDL CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
TRUNK				
Press crunch	3 × 15	3 × 18	3 × 20	3 × 20
Weight lifted				
UPPER BODY				
Bench press CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
Shoulder press CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
Wide-grip row CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				

Weight Loss Cycle 2

Wednesday

Length 4 weeks

Goal Gradual increase in the volume and intensity of training.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower under control.

Rest Self-select rest times as desired.

Set and Reps

Week	
1	TB = 3 × 5 CL = 3 × 8
2	TB = 3 × 4 CL = 3 × 6
3	TB = 3 × 6 CL = 3 × 9
4	TB = 3 × 4 CL = 3 × 7

	Week 1	Week 2	Week 3	Week 4
	Circuit training	Circuit training	Circuit training	Circuit training
TOTAL BODY				
Power clean to front squat TB	3 × 5	3 × 4	3 × 6	3 × 4
Weight lifted				
LOWER BODY				
Lunge CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
Lateral squat CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
TRUNK				
Twisting crunch	3 × 15	3 × 18	3 × 20	3 × 20
Weight lifted				
UPPER BODY				
Incline press CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
Upright row CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
Valley press CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				

Weight Loss Cycle 2

Friday

Length 4 weeks

Goal Gradual increase in the volume and intensity of training.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight in 2 seconds; lower under control.

Rest Self-select rest times as desired.

Set and Reps

Week	
1	TB = 3 × 5 CL = 3 × 8
2	TB = 3 × 4 CL = 3 × 6
3	TB = 3 × 6 CL = 3 × 9
4	TB = 3 × 4 CL = 3 × 7

	Week 1	Week 2	Week 3	Week 4
	Circuit training	Circuit training	Circuit training	Circuit training
TOTAL BODY				
Squat to hang power snatch TB	3 × 5	3 × 4	3 × 6	3 × 4
Weight lifted				
LOWER BODY				
Goblet squat CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
Hockey lunge CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
TRUNK				
Alt V-up	3 × 15	3 × 18	3 × 20	3 × 20
Weight lifted				
UPPER BODY				
Decline press CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
Wide-grip row CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				
Reverse incline trap press CL	3 × 8	3 × 6	3 × 9	3 × 7
Weight lifted				

Weight Loss Cycle 3

Monday

Length 4 weeks

Goal Gradual increase in the volume and intensity of training.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight quickly; lower under control.

Rest Self-select rest times as desired.

Set and Reps

Week	
1	TB = 4 × 6 CL = 4 × 12 AL = 4 × 12
2	TB = 4 × 5 CL = 4 × 10 AL = 4 × 12
3	TB = 4 × 6 CL = 4 × 12 AL = 4 × 12
4	TB = 4 × 5 CL = 4 × 10 AL = 4 × 12

	Week 1	Week 2	Week 3	Week 4
	Circuit training	Circuit training	Circuit training	Circuit training
TOTAL BODY				
Power clean to front squat to power jerk TB	4 × 6	4 × 5	4 × 6	4 × 5
Weight lifted				
LOWER BODY				
Squat CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
SLDL CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
TRUNK				
Side bend	4 × 20	4 × 20	4 × 20	4 × 20
Weight lifted				
UPPER BODY				
Reverse wide-grip bench press CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
Row CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
Zottman curl AL	4 × 12	4 × 12	4 × 12	4 × 12
Weight lifted				
Triceps extension AL	4 × 12	4 × 12	4 × 12	4 × 12
Weight lifted				

Weight Loss Cycle 3

Wednesday

Length 4 weeks

Goals Gradual increase in the volume and intensity of training with an emphasis on strength.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight quickly; lower under control.

Rest Take 2:00 between all sets and exercises.

Set and Reps

Week	
1	TB = 4 × 6 CL = 4 × 12 AL = 4 × 12
2	TB = 4 × 5 CL = 4 × 10 AL = 4 × 12
3	TB = 4 × 6 CL = 4 × 12 AL = 4 × 12
4	TB = 4 × 5 CL = 4 × 10 AL = 4 × 12

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Front squat to power jerk TB	4 × 6	4 × 5	4 × 6	4 × 5
Weight lifted				
LOWER BODY				
Reverse lunge CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
Side lunge CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
TRUNK				
Ab wheel	4 × 20	4 × 20	4 × 20	4 × 20
Weight lifted				
UPPER BODY				
Close-grip incline press CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
Upright row CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
DB drag curl AL	4 × 12	4 × 12	4 × 12	4 × 12
Weight lifted				
Standing French press AL	4 × 12	4 × 12	4 × 12	4 × 12
Weight lifted				

Weight Loss Cycle 3

Friday

Length 4 weeks

Goals Gradual increase in the volume and intensity of training with an emphasis on hypertrophy.

Intensity Complete the full number of required repetitions on each set.

Pace Lift the weight quickly; lower under control.

Rest Take 2:00 between all sets and exercises.

Set and Reps

Week	
1	TB = 4 × 6 CL = 4 × 12 AL = 4 × 12
2	TB = 4 × 5 CL = 4 × 10 AL = 4 × 12
3	TB = 4 × 6 CL = 4 × 12 AL = 4 × 12
4	TB = 4 × 5 CL = 4 × 10 AL = 4 × 12

	Week 1	Week 2	Week 3	Week 4
TOTAL BODY				
Hang clean to front squat to power jerk TB	4 × 6	4 × 5	4 × 6	4 × 5
Weight lifted				
LOWER BODY				
Single-leg front squat CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted (each leg)				
Hockey lunge CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
TRUNK				
Decline press crunch	4 × 20	4 × 20	4 × 20	4 × 20
Weight lifted				
UPPER BODY				
Arnold press CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
Wide-grip row CL	4 × 12	4 × 10	4 × 12	4 × 10
Weight lifted				
Zottman curl AL	4 × 12	4 × 12	4 × 12	4 × 12
Weight lifted				
Skull crusher AL	4 × 12	4 × 12	4 × 12	4 × 12
Weight lifted				

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CHAPTER 10

Training for Increased Muscle Size

Training for increases in muscle size (hypertrophy) is a common goal among people who lift weights, either for aesthetic reasons or as a way to improve athletic performance. When your goal is hypertrophy, it is a good idea to look at the experiences of others in the gym and also to see what science has to say about building muscle mass. This combination of real-world observation backed up with scientific research is a good approach to solving any problem and certainly provides a sound foundation for program design.

If you look at the training programs used by most bodybuilders, who are judged primarily by the amount of muscle mass they have developed, you will find recurring practices. Most bodybuilders perform exercise repetitions in a range of 8 to 12. Yes, some may be a little higher and some a little lower, but in general this is the range. Most bodybuilders perform multiple sets, typically four to six sets per exercise. These four to six sets of 8 to 12 repetitions are generally separated by rests of 60 to 90 seconds. This protocol has been used successfully for years to increase muscle mass.

This approach is supported by science. Research shows that a combination of short rests and high repetitions results in elevated levels of testosterone, human growth hormone, and insulin-like growth hormone when comparing preexercise levels to postexercise levels. Each of these hormones is important in bringing about hypertrophy.

In addition to performing 8 to 12 repetitions over four to six sets and using rest

Did You Know?

Not everyone has the same genetic potential to increase muscle mass. That means that not everyone has the potential for dramatic increases in muscle size. For those attempting to increase muscle mass, the goal should be to attempt to be the best you can be. Set realistic goals and expectations and work towards accomplishing those.

times of 60 to 90 seconds, training must be sufficiently intense to cause adaptation. Rather than using a percentage system, I designate the desired intensity based on the number of repetitions to be performed (i.e., repetition maximum). In the case of developing hypertrophy, where it is advantageous to keep the training volume high, we require a training resistance as high as possible while allowing completion of the full number of repetitions performed using good technique. Because of the short rest times between sets, you may need to slightly reduce the resistance as you progress through the sets to be able to complete the full number of repetitions in each set.

Another consideration is training frequency, typically described as the number of workouts completed in a week. While there will be some hypertrophic response to training two times per week, especially in those who are untrained, in general the minimum training frequency for those serious about training for hypertrophy is three times per week. More frequently, those training specifically to maximize hypertrophy may train four to six days per week.

An additional suggestion when training for hypertrophy is to emphasize multiple-joint exercises (e.g., squats) over single-joint exercises (e.g., leg extensions). This produces two primary advantages. First, the more muscle mass you recruit, the more muscle mass you stimulate to increase in size. Squats primarily recruit the muscles of the quadriceps, hamstrings, glutes, and the lower back. In contrast, leg extensions recruit the quads only. Second, the greater the amount of muscle mass recruited, the greater the hormonal response will be. A greater hormonal response increases the opportunity for optimal increases in muscle mass.

Because the Olympic lifts are performed explosively, typically with low repetitions (typically six repetitions or fewer) and extended rest times to emphasize speed of movement and technique, they are not emphasized when the goal of training is hypertrophy. However, these movements can be manipulated to provide a greater hypertrophic response by performing compound exercises. So, for example, you could perform a dumbbell power clean to a squat to a power jerk. First, perform a dumbbell power clean, and at the completion of the movement, rack the dumbbells on your shoulders and then immediately perform a front squat. At the top of the front squat, stop and immediately perform a power jerk. Putting these movements together

Did You Know?

Efficiently training for increased muscle size involves manipulating just a few of the training variables. First, the number of repetitions performed is typically in the range of 8 to 12. Second, the movement speed during training is normally rather slow, in the range of two to three seconds to lift the weight and three to four seconds to lower the weight. In addition, exercises that involve movement at multiple joints and, as a result, a great amount of muscle mass, are emphasized over single-joint exercises that recruit a smaller amount of muscle mass.

significantly increases the amount of muscle mass recruited and thus enhances the potential hypertrophic response. This is just one example of a total-body exercise that can be from a combined group of exercises; for the workout, you would perform four to six sets of 4 to 6 repetitions with a minimum of 90 seconds between sets.

In summary, when training for hypertrophy, perform four to six sets of 8 to 12 repetitions (excluding the Olympic lifts) with 60 to 90 seconds of recovery between sets and exercises. Choose a resistance that is at or just short of repetition maximum and emphasize multiple-joint exercises training three days per week or more.

SAMPLE WORKOUT SCHEDULES

Now let us look at sample workouts. The first workout emphasizes hypertrophy only, so the training variables have been manipulated to achieve that goal. The second sample workout emphasizes hypertrophy as its primary goal but has a second goal of increasing strength. This workout includes two sets of training variables. One set of training variables is manipulated to bring about increases in hypertrophy, and the second set is manipulated to increase strength.

Hypertrophy Cycle

Monday

Length 5 weeks

Goal Increase muscle size.

Intensity Complete the full number of required repetitions on each set.

Pace Perform total-body exercises explosively. On all other exercises, lift as explosively as possible and lower in 3 seconds.

Rest Take 1:30 between total-body exercise sets and 1:00 between all other sets and exercises.

Set and Reps

Week	Hypertrophy
1	TB = 4 × 6 CL = 4 × 8 AL = 3 × 10
2	TB = 4 × 4 CL = 4 × 10 AL = 3 × 10
3	TB = 4 × 6 CL = 4 × 8 AL = 3 × 10
4	TB = 4 × 5 CL = 4 × 12 AL = 3 × 10
5	TB = 4 × 3 CL = 4 × 6 AL = 3 × 10

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Front squat to power jerk TB	4 × 6	4 × 4	4 × 6	4 × 5	4 × 3
Weight lifted					
LOWER BODY					
Squat CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
Leg curl CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
TRUNK					
Toe touch	3 × 20	3 × 20	3 × 20	3 × 20	3 × 20
Weight lifted					
Twisting back extension	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Wide-grip row CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
Bent-over lateral raise AL	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					

Note: The following abbreviations are used in the workout tables: TB = total body, one of the Olympic-style lifts or related training exercises. CL = core lift, a multiple-joint exercise such as a squat. AL = auxiliary lift, a single-joint exercise such as a biceps curl. SLDL = straight-leg deadlift. Alt = the exercise is performed alternating legs, feet or arms.

Wednesday

Length 5 weeks

Goal Increase muscle size.

Intensity Complete the full number of required repetitions on each set.

Pace Perform total-body exercises explosively. In all other exercises lift as explosively as possible and lower in 3 seconds.

Rest Take 1:30 between total-body exercise sets and 1:00 between all other sets and exercises.

Sets and Reps

Week	Hypertrophy
1	TB = 4 × 6 CL = 4 × 8 AL = 3 × 10
2	TB = 4 × 4 CL = 4 × 10 AL = 3 × 10
3	TB = 4 × 6 CL = 4 × 8 AL = 3 × 10
4	TB = 4 × 5 CL = 4 × 12 AL = 3 × 10
5	TB = 4 × 3 CL = 4 × 6 AL = 3 × 10

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Power clean to front squat TB	4 × 6	4 × 4	4 × 6	4 × 5	4 × 3
Weight lifted					
LOWER BODY					
Lunge CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
Side lunge CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
TRUNK					
Decline twisting crunch	3 × 20	3 × 20	3 × 20	3 × 20	3 × 20
Weight lifted					
V-up	3 × 20	3 × 20	3 × 20	3 × 20	3 × 20
Weight lifted					
UPPER BODY					
Valley press CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
Standing upward fly AL	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					

Friday

Length 5 weeks

Goal Increase muscle size.

Intensity Complete the full number of required repetitions on each set.

Pace Perform total-body exercises explosively. In all other exercises lift as explosively as possible and lower in 3 seconds.

Rest Take 1:30 between total-body exercise sets and 1:00 between all other sets and exercises.

Sets and Reps

Week	Hypertrophy
1	TB = 4 × 6 CL = 4 × 8 AL = 3 × 10
2	TB = 4 × 4 CL = 4 × 10 AL = 3 × 10
3	TB = 4 × 6 CL = 4 × 8 AL = 3 × 10
4	TB = 4 × 5 CL = 4 × 12 AL = 3 × 10
5	TB = 4 × 3 CL = 4 × 6 AL = 3 × 10

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Squat to hang power snatch TB	4 × 6	4 × 4	4 × 6	4 × 5	4 × 3
Weight lifted					
TRUNK					
Alt press crunch	3 × 20	3 × 20	3 × 20	3 × 20	3 × 20
Weight lifted					
SLDL	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Decline press CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
Fly AL	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
Arnold press CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
Arm circle AL	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					

Hypertrophy and Strength Cycle

Monday (Hypertrophy)

Length 5 weeks

Goals Increase muscle size and strength.

Intensity Complete the full number of required repetitions on each set.

Pace Perform total-body exercises explosively. In all other exercises, lift as explosively as possible and lower in 3 seconds.

Rest Take 1:30 between total-body exercise sets and 1:00 between all other sets and exercises.

Sets and Reps

Week	Hypertrophy
1	TB = 4 × 6 CL = 4 × 8 AL = 3 × 10
2	TB = 4 × 4 CL = 4 × 10 AL = 3 × 10
3	TB = 4 × 6 CL = 4 × 8 AL = 3 × 10
4	TB = 4 × 5 CL = 4 × 12 AL = 3 × 10
5	TB = 4 × 3 CL = 4 × 6 AL = 3 × 10

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Front squat to split alt-foot jerk TB	4 × 6	4 × 4	4 × 6	4 × 5	4 × 3
Weight lifted					
LOWER BODY					
Goblet squat CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
SLDL CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
TRUNK					
V-up	3 × 20	3 × 30	3 × 20	3 × 20	3 × 20
Weight lifted					
Back extension	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Pullover CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted (each arm)					
Bent-over lateral raise AL	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					

Wednesday (Strength)

Length 5 weeks

Goals Increase muscle size and strength.

Intensity Complete the full number of required repetitions on the first set only.

Pace Perform total-body exercises explosively. In all other exercises lift as explosively as possible and lower in 2 seconds.

Rest Take 2:00 between all sets and exercises.

Sets and Reps

Week	Strength
1	TB = 4 × 3 CL = 4 × 5
2	TB = 4 × 5 CL = 4 × 7
3	TB = 4 × 3 CL = 4 × 5
4	TB = 4 × 5 CL = 4 × 7
5	TB = 4 × 2 CL = 4 × 5

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Power clean to front squat TB	4 × 3	4 × 5	4 × 3	4 × 5	4 × 3
Weight lifted					
LOWER BODY					
Sumo deadlift CL	4 × 5	4 × 7	4 × 5	4 × 7	4 × 5
Weight lifted					
Hockey lunge CL	4 × 5	4 × 7	4 × 5	4 × 7	4 × 5
Weight lifted					
TRUNK					
Decline crunch	3 × 15	3 × 15	3 × 15	3 × 15	3 × 15
Weight lifted					
Twisting back extension	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
UPPER BODY					
Reverse wide-grip bench press CL	4 × 5	4 ×7	4 × 5	4 × 7	4 × 5
Weight lifted					
Alt shoulder press CL	4 × 5	4 × 7	4 × 5	4 × 7	4 × 5
Weight lifted					

Friday (Hypertrophy)

Length 5 weeks

Goals Increase muscle size and strength.

Intensity Complete the full number of required repetitions on each set.

Pace Perform total-body exercises explosively. In all other exercises lift as explosively as possible and lower in 3 seconds.

Rest Take 1:30 between total-body exercise sets and 1:00 between all other sets and exercises.

Sets and Reps

Week	Hypertrophy
1	TB = 4 × 6 CL = 4 × 8
2	TB = 4 × 4 CL = 4 × 10
3	TB = 4 × 6 CL = 4 × 8
4	TB = 4 × 5 CL = 4 × 12
5	TB = 4 × 3 CL = 4 × 6

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Squat to hang power snatch TB	4 × 6	4 × 4	4 × 6	4 × 5	4 × 3
Weight lifted					
UPPER BODY					
Alt bench press CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
Decline press CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
TRUNK					
Decline press crunch	3 × 20	3 × 30	3 × 20	3 × 20	3 × 20
Weight lifted					
Twisting crunch	3 × 20	3 × 30	3 × 20	3 × 20	3 × 20
Weight lifted					
UPPER BODY					
Row CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					
Upright row CL	4 × 8	4 × 10	4 × 8	4 × 12	4 × 6
Weight lifted					

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CHAPTER 11

Training for Increased Power

Before we can talk about training for increased power, we have to establish a working definition of power. Power can be calculated in two ways: as work divided by time or as force multiplied by velocity and measured in watts. In most sports and for most athletes, the ability to generate power is a key to successful performance. Think of a basketball player jumping high over the rim to dunk a basketball, a sprinter exploding out of the starting blocks, or a defensive lineman fighting through a block to sack the quarterback. These are all examples of being able to exert a high amount of force in a short time period that occur in athletics. However, the need to be able to perform powerful movements is not limited to sports. For example, the ability to recover your balance after slipping requires the ability to move powerfully. Falls in the elderly population are more common because they oftentimes lack the power to regain their balance after tripping or slipping. As we age, the ability to stand from a seated position or to walk across the room involves generating enough power to accomplish these movements. As a result, training for power is not limited to athletes but also becomes an important consideration for everyone.

Training for power should be based on the specific needs of the sport or activity you are preparing for. For example, both a volleyball player and a wrestler need to be powerful. However, the physical needs of these two sports are quite different. The only resistance a volleyball player encounters during competition is his or her own body weight and the weight of the ball. In contrast, a wrestler has to overcome not only his or her own body weight but also, because wrestling is a contact sport, the body weight and force generation of the opponent. Therefore, the volleyball player can focus on relatively high-speed training with lighter weight during training cycles leading up to the competitive phase. The wrestler, on the other hand, will emphasize both force generation and high-velocity training to meet the strength and power requirements of the sport. With a person training for

general fitness or to maintain a good level of functional ability as they age, most likely the emphasis will be on lower body power, but the training program should not exclude the musculature of the upper body.

Before designing a training program to increase power, evaluate the requirements of the sport or activity. The two examples provided, volleyball and wrestling, might be on opposite ends of a continuum, with volleyball requiring less force generation and a greater velocity component and wrestling a greater force generation requirement and less velocity. This is further complicated by the fact that you must consider the requirements of the positions within a sport. A wrestler in a light weight class will focus on higher velocity training more than a heavyweight wrestler. Plus, wrestlers in the heavier weight classes will emphasize force generation capability more than lightweights. As a result, there are not only sport-to-sport differences but also differences within a sport.

Did You Know?

Power sports involve very quick, explosive, powerful movements. At times, the best approach when training for these types of sports is to reduce the training load so that the velocity of training is enhanced. Using loads as low as 30 percent of the 1RM is sometimes suggested when training for these type of sports and activities.

To train for power, the workout should consist of one to six repetitions and extended rest times of two to three minutes or longer between sets and exercises. While the reps are fewer and the rest is longer than when training for increased muscle size, the primary difference in programs for developing power is the training load. To continue the example of the volleyball player and the wrestler, the volleyball player might use training loads between 30 and 60 percent of one-repetition maximum (1RM) to emphasize the training velocity, and the heavyweight wrestler might use training loads of 80 to 100 percent of 1RM training to emphasize force generation while still attempting to move the resistance as quickly as possible. An individual training for general fitness power development might take a mixed-methods approach, training for both force development and power, because both components play a role in activities of daily life. In terms of exercise selection, the exercises should mimic the movements of the sport or activity as closely as possible. In most cases, this means selecting exercises that use barbells or dumbbells to perform multiple-joint exercises in a standing position.

Another training component you can use during a power cycle is timed exercises. In a timed exercise, the individual must complete the required number of repetitions in a specified time period. This changes the focus from how much an individual can lift to how quickly he or she can move the weight. When performing a timed exercise, the protocol is to go as heavy as possible while still completing the required number of repetitions in good form. The individual stops the set when the time is up, not

when the required repetitions have been completed. The weight is increased if he or she completes more than the required repetitions. If fewer than the required number of repetitions are completed, the individual is instructed to increase the movement speed and, if the individual is still unsuccessful at completing the full number of required repetitions after attempting to increase the movement speed, the resistance should be decreased. When looking at the workouts, including the timed lifts, you will see, for example, the following information: TL = 3 × 5 @ 9 sec. The TL indicates that this is a timed lift. The individual will be performing three sets of five repetitions. On each of the three sets of five repetitions, the individual will have nine seconds to complete the five repetitions.

Did You Know?

While it is true that athletes want to be powerful, muscular power is also important for the general population. Oftentimes accident avoidance involves the ability to move quickly. As a result, you may not have to have the ability to move powerfully very often, but when you do need to move powerfully, it is often in critical situations.

SAMPLE WORKOUT SCHEDULES

With the protocol for training for power established, let's look at sample workouts emphasizing dumbbells when the training goal is power development. The first workout focuses on power only. The training variables have been adjusted based on the guidelines just described for increasing muscular power. The second sample workout focuses primarily on muscular power but has a secondary goal of increasing muscular endurance. As a result, the second workout contains two sets of training variables. The first set of training variables is manipulated to increase muscular power. The second set of variables is manipulated to increase muscular endurance.

Power Cycle

Monday

Length 5 weeks

Goal Increase muscular power.

Intensity On total-body exercises, complete the full number of required repetitions on the first set only. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. In all other exercises, lift the weight as explosively as possible to complete the required number of repetitions in the specified time.

Rest Take 2:30 between total-body sets and exercises and 2:00 between all other sets and exercises.

Sets and Reps

Week	Power
1	TB = 4 × 2 TL = 4 × 5 @ 9 sec
2	TB = 4 × 3 TL = 4 × 3 @ 5 sec
3	TB = 4 × 2 TL = 4 × 5 @ 9 sec
4	TB = 4 × 3 TL = 4 × 3 @ 5 sec
5	TB = 4 × 2 TL = 4 × 5 @ 9 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
COMPLEX					
Power clean TB	4 × 2	4 × 3	4 × 2	4 × 3	4 × 2
Weight lifted					
Box jump	3 × 6	3 × 6	3 × 6	3 × 6	3 × 6
LOWER BODY					
Jump squat TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted					
Side lunge TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted					
SLDL TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted					
TRUNK					
V-up	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Reverse incline trap press TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted					

Note: The following abbreviations are used in the workout tables: TB = total body, one of the Olympic-style lifts or related training exercises. CL = core lift, a multiple-joint exercise such as a squat. TL = timed lift; the individual completes the required reps in a specified time. MB = medicine ball; the exercise is performed with a medicine ball (medicine balls are often used in training programs when the goal of training is to develop power, because medicine balls are designed to be thrown explosively. SLDL = straight-leg deadlift. Alt = the exercise is performed alternating legs, feet, or arms. Complex = perform the two exercises listed in a row with little to no rest between them.

Wednesday

Length 5 weeks

Goal Increase muscular power.

Intensity On total-body exercises, complete the full number of required repetitions on the first set only. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. In all other exercises, lift the weight as explosively as possible to complete the required number of repetitions in the specified time.

Rest Take 2:30 between total-body sets and exercises and 2:00 between all other sets and exercises.

Sets and Reps

Week	Power
1	TB = 4 × 2 TL = 4 × 5 @ 9 sec
2	TB = 4 × 3 TL = 4 × 3 @ 5 sec
3	TB = 4 × 2 TL = 4 × 5 @ 9 sec
4	TB = 4 × 3 TL = 4 × 3 @ 5 sec
5	TB = 4 × 2 TL = 4 × 5 @ 9 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Power snatch TB	4 × 2	4 × 3	4 × 2	4 × 3	4 × 2
Weight lifted					
UPPER BODY					
Single-arm bench press TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted (each arm)					
TRUNK					
Press crunch	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Arnold press TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted					
Wide-grip row TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted					

Friday

Length 5 weeks

Goal Increase muscular power.

Intensity On total-body exercises, complete the full number of required repetitions on the first set only. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift the weight as explosively as possible to complete the required number of repetitions in the specified time.

Rest Take 2:30 between total-body sets and exercises and 2:00 between all other sets and exercises.

Sets and Reps

Week	Power
1	TB = 4 × 2 TL = 4 × 5 @ 9 sec
2	TB = 4 × 3 TL = 4 × 3 @ 5 sec
3	TB = 4 × 2 TL = 4 × 5 @ 9 sec
4	TB = 4 × 3 TL = 4 × 3 @ 5 sec
5	TB = 4 × 2 TL = 4 × 5 @ 9 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Single-arm power jerk TB	4 × 2	4 × 3	4 × 2	4 × 3	4 × 2
Weight lifted (each arm)					
LOWER BODY					
Front squat TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted					
Lateral squat TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted					
TRUNK					
Alt toe touch	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Incline press TL	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec	4 × 3 @ 5 sec	4 × 5 @ 9 sec
Weight lifted					

Power and Endurance Cycle

Monday (Endurance)

Length 5 weeks

Goals Increase power and muscular endurance.

Intensity Complete the full number of required repetitions on each set.

Pace Perform total-body exercises explosively. In all other exercises, lift as explosively as possible and lower in 3 seconds.

Rest Take 1:30 between total-body exercise sets and 1:15 between all other sets and exercises.

Sets and Reps

Week	Endurance
1	TB = 4 × 6 CL = 4 × 10
2	TB = 4 × 4 CL = 4 × 8
3	TB = 4 × 6 CL = 4 × 10
4	TB = 4 × 4 CL = 4 × 8
5	TB = 4 × 6 CL = 4 × 10

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Split alt-foot, alt-arm jerk TB	4 × 6	4 × 4	4 × 6	4 × 4	4 × 6
Weight lifted					
LOWER BODY					
Goblet squat CL	4 × 10	4 × 8	4 × 10	4 × 8	4 × 10
Weight lifted					
Side lunge CL	4 × 10	4 × 8	4 × 10	4 × 8	4 × 10
Weight lifted					
TRUNK					
Twisting crunch	3 × 15	3 × 15	3 × 15	3 × 15	3 × 15
Weight lifted					
Twisting back extension	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
UPPER BODY					
Upright row CL	4 × 10	4 × 8	4 × 10	4 × 8	4 × 10
Weight lifted					

Wednesday (Power)

Length 4.5 weeks

Goal Increase power and muscular endurance.

Intensity Complete the full number of required repetitions on the first set only.

Pace Power: Perform total-body exercises explosively. In all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 2:45 between all sets and exercises.

Sets and Reps

Week	Power
1	TB = 4 × 2 TL = 4 × 3 @ 4 sec
2	TB = 4 × 3 TL = 4 × 5 @ 6 sec
3	TB = 4 × 2 TL = 4 × 3 @ 4 sec
4	TB = 4 × 3 TL = 4 × 5 @ 6 sec
5	TB = 4 × 2 TL = 4 × 3 @ 4 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
COMPLEX					
Alt power clean	4 × 2	4 × 3	4 × 2	4 × 3	4 × 2
Weight lifted					
Depth jump	3 × 5	3 × 5	3 × 5	3 × 5	3 × 5
LOWER BODY					
Front squat TL	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec
Weight lifted					
SLDL TL	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec
Weight lifted					
TRUNK					
Decline alt press crunch	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
UPPER BODY					
Close-grip incline press TL	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec
Weight lifted					
MB chest pass	3 × 6	3 × 6	3 × 6	3 × 6	3 × 6

Friday (Power)

Length 4.5 weeks

Goals Increase power and muscular endurance.

Intensity Complete the full number of required repetitions on the first set only.

Pace Perform total-body exercises explosively. In all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 2:45 between all sets and exercises.

Sets and Reps

Week	Power
1	TB = 4 × 2 TL = 4 × 3 @ 4 sec
2	TB = 4 × 3 TL = 4 × 5 @ 6 sec
3	TB = 4 × 2 TL = 4 × 3 @ 4 sec
4	TB = 4 × 3 TL = 4 × 5 @ 6 sec
5	TB = 4 × 2 TL = 4 × 3 @ 4 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Alt power clean TB	4 × 2	4 × 3	4 × 2	4 × 3	4 × 2
Weight lifted					
UPPER BODY					
Reverse wide-grip bench press TL	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec
Weight lifted					
Single-arm incline press TL	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec
Weight lifted (each arm)					
TRUNK					
Alt toe touch	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
Back extension	3 × 8	3 × 8	3 × 8	3 × 8	3 × 8
Weight lifted					
UPPER BODY					
Alt shoulder press TL	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec	4 × 5 @ 6 sec	4 × 3 @ 4 sec
Weight lifted					

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CHAPTER 12

Training for Speed Sports

Although success in sprint events requires strength, the greater needs are speed and power. As a result we will explore how to develop the speed and power required in sports such as the sprint events in track, swimming, and cycling and in short-track speed skating. This type of training is applicable for anyone participating in speed events, both at small, local types of events or for those taking part in the highest levels of competition. Although high performance in these sports requires strength, the need is less than it is in football, rugby, and the throwing events in track and field. The greater need is to produce high-velocity movement, which first requires a strength base be developed and then evolves into more speed and power-based training.

Training to achieve high-velocity movement is primarily a matter of adjusting the training load. Whereas training loads of 70 to 100 percent of one-repetition maximum (1RM) are suggested to increase force generation, the opposite approach is recommended for increasing speed. Speed training programs should use loads of 45 to 70 percent of 1RM. These lighter loads shift the emphasis to training velocity rather than training load. This is based on the assumption that a good strength base has already been developed.

Did You Know?

Training for speed requires the development of both strength and power. As a result, the program for speed types of sports or activities must include a mixed method of training so that both strength and power are developed.

Before an individual can train for velocity, force-generation capabilities need to be developed. Sprinters cannot focus only on speed training; they need to develop a strength base before shifting to high-velocity training.

Propelling the body down the track or through the water at maximal speed requires a strength base before shifting the emphasis to speed.

Timed workouts are an important component of speed training. For example, later in this chapter one of the sample workouts instructs the lifter to perform four sets of six repetitions in nine seconds, which allows 1.5 seconds for each repetition. When training for speed sports, a sprinter could perform the same four sets of five repetitions but shorten the time to complete a set to 6 seconds. This allows just 1.2 seconds per repetition, which focuses more on speed than force.

Determining how much rest to take between sets and exercises and deciding how many repetitions to perform in a set depends on the specific event the individual is training for. There are significant differences between the sprint events in track, swimming, skating, and cycling. For example, the world record for the 100-meter freestyle in long-course swimming for men is 46.91; for women it is 51.71. The record for 500 meters in short-track speed skating is 39.584 seconds for men and 42.325 seconds for women. In cycling, the world record for men in the flying 500-meter time trial is 24.758, and for women it is 28.970. In contrast, the world record for the 100 meters on the track for men is 9.58 and 10.49 for women. Although all of these are considered sprint events, the swimmers, cyclists, and skaters have a greater need for endurance than the track sprinters do. This is addressed by manipulating both rest times and the number of repetitions per set. Because the sprint races take longer in swimming, cycling, and short-track speed skating than the 100 meters in track, the rest times between sets and exercises are shorter and the number of repetitions is higher for those participating in these types of events to reflect the greater need for endurance in these activities.

Did You Know?

To best develop speed, you first have to be strong. To best increase strength you first have to increase muscle mass. Have you ever noticed how muscular high-caliber sprinters are? They spend a lot of time increasing muscle size and strength so they can optimally increase speed.

SAMPLE WORKOUT SCHEDULES

The first sample workout is for a track sprinter. The rest times are extended and the number of repetitions decreased to reflect the short duration of this event. Plyometric training is included to enhance power development. This allows a greater emphasis on developing strength and power to better match the demands of the sport.

The second sample workout is for a sprint swimmer. Because of the demands of the sport, the training variables place a greater emphasizes

on endurance, which comes into play more than it does for the 100-meter sprinter on the track. We have decreased the rest times and increased the number of repetitions. Lower body plyometric activities are used to improve the jump from the start position and the kick off the wall. In addition, we have included compound exercises, which combine two exercises into one, such as a dumbbell front squat to power jerk. Compound exercises increase the duration of each repetition, which helps develop endurance.

Water provides greater resistance than air does; however, your body is buoyant, so part of your body weight is supported by the water. Because of the longer duration of the sprint events in swimming the training program for swimmers focuses on increasing power and endurance. This occurs primarily by keeping the percentage of 1RM in the lower range when performing total-body exercises so the number of repetitions can be increased to address the endurance component. Further, compound total-body exercises are included, and rest times are shortened while the required number of repetitions is increased, again to address the endurance aspect of the sport.

The third sample workout is for a cyclist competing in the longer sprint events. Because of the length of these races, we have adjusted the training variables to emphasize endurance. We have reduced the rest times and increased the number of repetitions. Compound exercises are used to help develop muscular endurance, and plyometric exercises are used to develop lower-body power.

A final sample workout is provided for short-track speed skating. Again, the rest times are brief, the repetitions are at a higher count, and compound exercises are used in conjunction with the weightlifting movements. Timed exercises and plyometric activities are also included to meet the needs of power, speed, and muscular endurance.

Power Cycle for Track Sprinters

Monday

Length 5 weeks

Goals Increase power and strength because of the relationship between power, strength, and speed.

Intensity On total-body exercises, complete the full number of repetitions on the first set only. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 2:30 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 6 × 3 @ 50% TL = 4 × 6 @ 9 sec
2	TB = 5 × 2 @ 60% TL = 4 × 3 @ 4 sec
3	TB = 6 × 3 @ 50% TL = 4 × 6 @ 9 sec
4	TB = 5 × 2 @ 60% TL = 4 × 3 @ 4 sec
5	TB = 6 × 3 @ 50% TL = 4 × 6 @ 9 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Alt power clean TB	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%
Weight lifted					
Alt hang clean TB	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%
Weight lifted					
LOWER BODY					
Jump squat TL	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec
Weight lifted					
SLDL TL	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec
Weight lifted					
TRUNK					
Alt V-up	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
UPPER BODY					
Row TL	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec
Weight lifted					

Note: The following abbreviations are used in the workout tables: TB = total body, one of the Olympic-style lifts or related training exercises. CL = core lift, a multiple-joint exercise such as a squat. TL = timed lift; the individual completes the required reps in a specified time. AL = auxiliary lift, a single-joint exercise such as a biceps curl. SLDL = straight-leg deadlift. MB = medicine ball; the exercise is performed with a medicine ball (medicine balls are often used in training programs when the goal of training is to develop power, because medicine balls are designed to be thrown explosively).

Wednesday

Length 5 weeks

Goals Increase power and strength because of the relationship between power, strength, and speed.

Intensity On total-body exercises, complete the full number of required repetitions on the first set only. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 2:30 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 6 × 3 @ 50% TL = 4 × 6 @ 9 sec
2	TB = 5 × 2 @ 60% TL = 4 × 3 @ 4 sec
3	TB = 6 × 3 @ 50% TL = 4 × 6 @ 9 sec
4	TB = 5 × 2 @ 60% TL = 4 × 3 @ 4 sec
5	TB = 6 × 3 @ 50% TL = 4 × 6 @ 9 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Alt power jerk TB	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%
Weight lifted					
Split alt-foot, alt-arm jerk TB	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%
Weight lifted					
LOWER BODY					
Lunge TL	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec
Weight lifted					
TRUNK					
Toe touch	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
UPPER BODY					
Single-arm bench press TL	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec
Weight lifted (each arm)					

Friday

Length 5 weeks

Goals Increase power and strength because of the relationship between power, strength, and speed.

Intensity On total-body exercises, complete the full number of required repetitions on the first set only. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 2:30 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 6 × 3 @ 50% TL = 4 × 6 @ 9 sec
2	TB = 5 × 2 @ 60% TL = 4 × 3 @ 4 sec
3	TB = 6 × 3 @ 50% TL = 4 × 6 @ 9 sec
4	TB = 5 × 2 @ 60% TL = 4 × 3 @ 4 sec
5	TB = 6 × 3 @ 50% TL = 4 × 6 @ 9 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Alt power snatch TB	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%
Weight lifted					
Split alt-foot, alt-arm snatch TB	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%	5 × 2 @ 60%	6 × 3 @ 50%
Weight lifted					
UPPER BODY					
Single-arm incline press TL	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec
Weight lifted (each arm)					
TRUNK					
Crunch	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
UPPER BODY					
Upright row TL	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec	4 × 3 @ 4 sec	4 × 6 @ 9 sec
Weight lifted					

Power Cycle for Swim Sprinters

Monday

Length 5 weeks

Goals Increase power, strength (because of the relationship between power, strength, and speed), and muscular endurance.

Intensity On total-body exercises, complete the full number of required repetitions on each set. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 1:15 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 4 × 6 @ 65% TL = 3 × 30 @ 51 sec AL = 3 × 20
2	TB = 4 × 5 @ 60% TL = 3 × 25 @ 40 sec AL = 3 × 20
3	TB = 4 × 6 @ 65% TL = 3 × 30 @ 51 sec AL = 3 × 20
4	TB = 4 × 5 @ 60% TL = 3 × 25 @ 40 sec AL = 3 × 20
5	TB = 4 × 6 @ 65% TL = 3 × 30 @ 51 sec AL = 3 × 20

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Power clean to front squat TB	4 × 6 @ 65%	4 × 5 @ 60%	4 × 6 @ 65%	4 × 5 @ 60%	4 × 6 @ 65%
Weight lifted					
LOWER BODY					
Jump squat TL	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec
Weight lifted					
SLDL TL	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec
Weight lifted					
TRUNK					
Press crunch	3 × 50	3 × 50	3 × 50	3 × 50	3 × 50
Weight lifted					
UPPER BODY					
Row TL	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec
Weight lifted					
Arm circle AL	3 × 20	3 × 20	3 × 20	3 × 20	3× 20
Weight lifted					

Wednesday

Length 5 weeks

Goals Increase power, strength (because of the relationship between power, strength, and speed), and muscular endurance.

Intensity On total-body exercises, complete the full number of required repetitions on each set. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 1:15 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 4 × 6 @ 65% TL = 3 × 30 @ 51 sec AL = 3 × 20
2	TB = 4 × 5 @ 60% TL = 3 × 25 @ 40 sec AL = 3 × 20
3	TB = 4 × 6 @ 65% TL = 3 × 30 @ 51 sec AL = 3 × 20
4	TB = 4 × 5 @ 60% TL = 3 × 25 @ 40 sec AL = 3 × 20
5	TB = 4 × 6 @ 65% TL = 3 × 30 @ 51 sec AL = 3 × 20

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Squat to alt power jerk TB	4 × 6 @ 65%	4 × 5 @ 60%	4 × 6 @ 65%	4 × 5 @ 60%	4 × 6 @ 65%
Weight lifted					
LOWER BODY					
Goblet squat TL	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec
Weight lifted					
TRUNK					
Alt toe touch	3 × 50	3 × 50	3 × 50	3 × 50	3 × 50
Weight lifted					
UPPER BODY					
Alt incline press TL	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec
Weight lifted					
Arm circle AL	3 × 20	3 × 20	3 × 20	3 × 20	3 × 20
Weight lifted					

Friday

Length 5 weeks

Goals Increase power, strength (because of the relationship between power, strength, and speed), and muscular endurance.

Intensity On total-body exercises, complete the full number of required repetitions on the each set. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 1:15 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 4 × 6 @ 65% TL = 3 × 30 @ 51 sec AL = 3 × 20
2	TB = 4 × 5 @ 60% TL = 3 × 25 @ 40 sec AL = 3 × 20
3	TB = 4 × 6 @ 65% TL = 3 × 30 @ 51 sec AL = 3 × 20
4	TB = 4 × 5 @ 60% TL = 3 × 25 @ 40 sec AL = 3 × 20
5	TB = 4 × 6 @ 65% TL = 3 × 30 @ 51 sec AL = 3 × 20

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Hang clean to front squat to alt power jerk TB	4 × 6 @ 65%	4 × 5 @ 60%	4 × 6 @ 65%	4 × 5 @ 60%	4 × 6 @ 65%
Weight lifted					
UPPER BODY					
Decline press TL	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec
Weight lifted					
TRUNK					
Twisting crunch	3 × 30	3 × 30	3 × 30	3 × 30	3 × 30
Weight lifted					
UPPER BODY					
Bent-over lateral raise TL	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec	3 × 25 @ 40 sec	3 × 30 @ 51 sec
Weight lifted					
Front raise AL	3 × 20	3 × 20	3 × 20	3 × 20	3 × 20
Weight lifted					

Power Cycle for Sprint Cyclists

Monday

Length 5 weeks

Goals Increase power (because of the relationship between power and speed) and muscular endurance.

Intensity On total-body exercises, complete the full number of required repetitions on each set. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 1:15 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 5 × 4 @ 50% TL = 4 × 17 @ 23 sec CL = 3 × 10
2	TB = 5 × 6 @ 55% TL = 4 × 24 @ 29 sec CL = 3 × 8
3	TB = 5 × 4 @ 50% TL = 4 × 17 @ 23 sec CL = 3 × 10
4	TB = 5 × 6 @ 55% TL = 4 × 24 @ 29 sec CL = 3 × 8
5	TB = 5 × 4 @ 50% TL = 4 × 17 @ 23 sec CL = 3 × 10

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Front squat to split alt-foot jerk TB	5 × 4 @ 50%	5 × 6 @ 55%	5 × 4 @ 50%	5 × 6 @ 55%	5 × 4 @ 50%
Weight lifted					
Split alt-foot, alt-arm jerk	5 × 4 @ 60%	5 × 6 @ 55%	5 × 4 @ 60%	5 × 6 @ 55%	5 × 4 @ 60%
Weight lifted					
LOWER BODY					
Single-leg jump squat TL	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec
Weight lifted (each leg)					
SLDL TL	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec
Weight lifted (each leg)					
TRUNK					
Alt press crunch	3 × 25	3 × 25	3 × 25	3 × 25	3 × 25
Weight lifted					
UPPER BODY					
Row CL	3 × 10	3 × 8	3 × 10	3 × 8	3 × 10
Weight lifted					

Wednesday

Length 5 weeks

Goals Increase power (because of the relationship between power and speed) and muscular endurance.

Intensity On total-body exercises, complete the full number of required repetitions on each set. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 1:45 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 5 × 4 @ 50% TL = 4 × 17 @ 23 sec CL = 3 × 10
2	TB = 5 × 6 @ 55% TL = 4 × 24 @ 29 sec CL = 3 × 8
3	TB = 5 × 4 @ 50% TL = 4 × 17 @ 23 sec CL = 3 × 10
4	TB = 5 × 6 @ 55% TL = 4 × 24 @ 29 sec CL = 3 × 8
5	TB = 5 × 4 @ 50% TL = 4 × 17 @ 23 sec CL = 3 × 10

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Squat to power snatch TB	5 × 4 @ 50%	5 × 6 @ 55%	5 × 4 @ 50%	5 × 6 @ 55%	5 × 4 @ 50%
Weight lifted					
Split alt-foot, alt-arm jerk TB	5 × 4 @ 50%	5 × 3 @ 55%	5 × 4 @ 50%	5 × 3 @ 55%	5 × 4 @ 50%
Weight lifted					
LOWER BODY					
Jump squat TL	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec
Weight lifted					
TRUNK					
Alt V-up	3 × 25	3 × 25	3 × 25	3 × 25	3 × 25
Weight lifted					
UPPER BODY					
Single-arm incline press CL	3 × 10	3 × 8	3 × 10	3 × 8	3 × 10
Weight lifted (each arm)					

FRIDAY

LENGTH 5 weeks

GOALS Increase power (because of the relationship between power and speed) and muscular endurance.

INTENSITY On total-body exercises, complete the full number of required repetitions on the first set only. On timed exercises, complete the full number of required repetitions in the specified time.

PACE Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

REST Take 1:45 between all sets and exercises.

SETS AND REPS

Week	Power cycle
1	TB = 5 × 4 @ 50% TL = 4 × 17 @ 23 sec
2	TB = 5 × 6 @ 55% TL = 4 × 24 @ 29 sec
3	TB = 5 × 4 @ 50% TL = 4 × 17 @ 23 sec
4	TB = 5 × 6 @ 55% TL = 4 × 24 @ 29 sec
5	TB = 5 × 4 @ 50% TL = 4 × 17 @ 23 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Hang clean to front squat TB	5 × 4 @ 50%	5 × 6 @ 55%	5 × 4 @ 50%	5 × 6 @ 55%	5 × 4 @ 50%
Weight lifted					
Front squat to power jerk TB	5 × 4 @ 50%	5 × 3 @ 55%	5 × 4 @ 50%	5 × 3 @ 55%	5 × 4 @ 50%
Weight lifted					
UPPER BODY					
Alt incline press TL	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec
Weight lifted					
TRUNK					
Decline alt press crunch	3 × 25	3 × 25	3 × 25	3 × 25	3 × 25
Weight lifted					
UPPER BODY					
Upright row TL	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec	4 × 24 @ 29 sec	4 × 17 @ 23 sec
Weight lifted					

Power Cycle for Short-Track Speed Skaters

Monday

Length 5 weeks

Goals Increase power (because of the relationship between power and speed) and muscular endurance.

Intensity On total-body exercises, complete the full number of required repetitions on each set. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 1:30 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 4 × 4 @ 50%-55% TL = 3 × 28 @ 39 sec
2	TB = 4 × 6 @ 45%-50% TL = 3 × 25 @ 30 sec
3	TB = 4 × 4 @ 50%-55% TL = 3 × 28 @ 39 sec
4	TB = 4 × 6 @ 45%-55% TL = 3 × 25 @ 30 sec
5	TB = 4 × 4 @ 50%-55% TL = 3 × 28 @ 39 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Single-arm power clean to single-arm power jerk TB	4 × 4 @ 55%	4 × 6 @ 50%	4 × 4 @ 55%	4 × 6 @ 45%-50%	4 × 4 @ 50%-55%
Weight lifted (each arm)					
Split alt-foot, alt-arm jerk TB	4 × 4 @ 50%-55%	4 × 6 @ 45%-50%	4 × 4 @ 50%-55%	4 × 6 @ 45%-50%	4 × 4 @ 50%-55%
Weight lifted					
LOWER BODY					
Single-leg jump squat TL	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec
Weight lifted (each leg)					
Leg curl TL	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec
Weight lifted					
TRUNK					
Decline twisting crunch	3 × 25	3 × 25	3 × 25	3 × 25	3 × 25
Weight lifted					
UPPER BODY					
Wide-grip row TL	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec
Weight lifted					

Wednesday

Length 5 weeks

Goals Increase power (because of the relationship between power and speed) and muscular endurance.

Intensity On total-body exercises, complete the full number of required repetitions on each set. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 1:30 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 4 × 4 @ 50%-55% TL = 3 × 28 @ 39 sec
2	TB = 4 × 6 @ 45%-50% TL = 3 × 25 @ 30 sec
3	TB = 4 × 4 @ 50%-55% TL = 3 × 28 @ 39 sec
4	TB = 4 × 6 @ 45%-55% TL = 3 × 25 @ 30 sec
5	TB = 4 × 4 @ 50%-55% TL = 3 × 28 @ 39 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Squat to alt power snatch TB	4 × 4 @ 55%	4 × 6 @ 50%	4 × 4 @ 55%	4 × 6 @ 50%	4 × 4 @ 55%
Weight lifted					
Split alt-foot, alt-arm snatch TB	4 × 4 @ 50%-55%	4 × 6 @ 45%-50%	4 × 4 @ 50%-55%	4 × 6 @ 45%-50%	4 × 4 @ 50%-55%
Weight lifted					
LOWER BODY					
Jump squat TL	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec
Weight lifted					
TRUNK					
Alt toe touch	3 × 25	3 × 25	3 × 25	3 × 25	3 × 25
Weight lifted					
UPPER BODY					
Single-arm bench press CL	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec
Weight lifted (each arm)					
Single-arm pullover TL	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec
Weight lifted (each arm)					

Friday

Length 5 weeks

Goals Increase power (because of the relationship between power and speed) and muscular endurance.

Intensity On total-body exercises, complete the full number of required repetitions on the first set only. On timed exercises, complete the full number of required repetitions in the specified time.

Pace Perform total-body exercises explosively. On all other exercises, lift at a pace that allows completion of the required number of repetitions in the specified time.

Rest Take 1:30 between all sets and exercises.

Sets and Reps

Week	Power cycle
1	TB = 4 × 4 @ 50%-55% TL = 3 × 28 @ 39 sec
2	TB = 4 × 6 @ 45%-50% TL = 3 × 25 @ 30 sec
3	TB = 4 × 4 @ 50%-55% TL = 3 × 28 @ 39 sec
4	TB = 4 × 6 @ 45%-55% TL = 3 × 25 @ 30 sec
5	TB = 4 × 4 @ 50%-55% TL = 3 × 28 @ 39 sec

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Front squat to power jerk TB	4 × 4 @ 50%-55%	4 × 6 @ 45%-50%	4 × 4 @ 50%-55%	4 × 6 @ 45%-50%	4 × 4 @ 50%-55%
Weight lifted					
Alt hang clean to front squat TB	4 × 4 @ 50%-55%	4 × 6 @ 45%-50%	4 × 4 @ 50%-55%	4 × 6 @ 45%-50%	4 × 4 @ 50%-55%
Weight lifted					
UPPER BODY					
Alt incline press TL	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec
Weight lifted					
Upright row TL	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec	3 × 25 @ 30 sec	3 × 28 @ 39 sec
Weight lifted					

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CHAPTER 13

Training for Agility and Balance Sports

Dumbbells lend themselves perfectly to balance sports such as wrestling, soccer, ice hockey, and downhill skiing, regardless of whether these sports are performed at the highest level of competition or recreationally. Although these sports are different from each other, they all require the ability to maintain bodily equilibrium to be able to perform at a high level. Choosing the right dumbbell exercises will not only develop muscle size, strength, power, and endurance, but doing so will also improve balance. Further, the ability to maintain balance as we age increases in importance to reduce the risk of injury from falling. As a result, any of the training programs included in this chapter could also be used with that purpose in mind.

SAMPLE WORKOUT SCHEDULES

Because the balance sports mentioned earlier—ice hockey, wrestling, skiing, and soccer—have unique demands and requirements, we cannot provide one sample workout that will improve balance to those who participate in these sports. Instead, we include a workout for each sport. Any of these programs can also be used if the goal of training is maintaining and improving balance as we age. You will notice that the frequency of training is differentiated by sport. For example, the wrestling

Did You Know?

Creativity is allowed. There is a large number of dumbbell exercises included in this book, but the combinations and variations are endless. This is especially applicable when training for agility and balance. Find new ways to challenge these abilities while increasing muscle size, strength, and power.

The focus on balance when using dumbbells is primarily the result of being able to perform both alternating-arm and single-arm movements when training. However, even moving both dumbbells simultaneously contributes effectively to developing balance because of the need to control two separate implements.

workout is designed to be performed four days per week, while the soccer workout has a strength training frequency of twice per week. This is because wrestling has a greater strength demand for optimal performance than does wrestling.

The soccer workout is broken into two schemes—one for field players and one for goalies. Field players require more muscular endurance than goalies do, so their workout calls for more repetitions. Because goalies use quick, explosive movements, their workout focuses on developing strength and power.

Did You Know?

One advantage of dumbbell exercises when training for agility and balance sports or activities is their ability to allow single-arm and alternating-arm movements. This type of training has the potential to require a bit more coordination, balance, and bodily control than more traditional types of exercises.

Another advantage of dumbbell training is that it is safer to perform single-leg exercises with dumbbells than to perform the same exercises with a barbell. For example, when performing single-leg squats, it is easier to safely drop the dumbbells to the floor from shoulder height than it is to drop a barbell from that height.

Strength Cycle for Wrestlers

Monday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of repetitions on the first set only. Use good form.

Pace Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

Rest Take 2:30 between total-body exercises and 2:00 between all other sets and exercises.

Sets and Reps

Week	Strength cycle
1	TB = 5 × 2 CL = 4 × 2 AL = 3 × 5
2	TB = 5 × 4 CL = 4 × 4 AL = 3 × 5
3	TB = 5 × 2 CL = 4 × 2 AL = 3 × 5
4	TB = 5 × 4 CL = 4 × 4 AL = 3 × 5
5	TB = 5 × 2 CL = 4 × 2 AL = 3 × 5

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Alt power clean TB	5 × 2	5 × 4	5 × 2	5 × 4	5 × 2
Weight lifted					
Alt hang clean TB	5 × 2	5 × 4	5 × 2	5 × 4	5 × 2
Weight lifted					
LOWER BODY					
Single-leg front squat CL	4 × 2	4 × 4	4 × 2	4 × 4	4 × 2
Weight lifted (each leg)					
Back extension CL	4 × 2	4 × 4	4 × 2	4 × 4	4 × 2
Weight lifted					
TRUNK					
Alternating V-up	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Row CL	4 × 2	4 × 4	4 × 2	4 × 4	4 × 2
Weight lifted					
DB drag curl AL	3 × 5	3 × 5	3 × 5	3 × 5	3 × 5
Weight lifted					

Note: The following abbreviations are used in the workout tables: TB = total body, one of the Olympic-style lifts or related training exercises. CL = core lift, a multiple-joint exercise such as a squat. TL = timed lift; the individual completes the required reps in a specified time. DB = dumbbell; the exercise is performed with a dumbbell. AL = auxiliary lift, a single-joint exercise such as a biceps curl. MR = manual resistance, a partner provides resistance.

Tuesday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on the first set only. Use good form.

Pace Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

Rest Take 2:30 between total-body exercises and 2:00 between all other sets and exercises.

Sets and Reps

Week	Strength cycle
1	TB = 5 × 2 CL = 4 × 2
2	TB = 5 × 4 CL = 4 × 4
3	TB = 5 × 2 CL = 4 × 2
4	TB = 5 × 4 CL = 4 × 4
5	TB = 5 × 2 CL = 4 × 2

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Single-arm power jerk TB	5 × 2	5 × 4	5 × 2	5 × 4	5 × 2
Weight lifted (each arm)					
Split alt-foot, alt-snatch TB	5 × 2	5 × 4	5 × 2	5 × 4	5 × 2
Weight lifted					
LOWER BODY					
Reverse wide-grip bench press CL	4 × 2	4 × 4	4 × 2	4 × 4	4 × 2
Weight lifted					
TRUNK					
Decline crunch	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
Back extension	3 × 8	3 × 8	3 × 8	3 × 8	3 × 8
Weight lifted					
UPPER BODY					
Arnold press CL	4 × 2	4 × 4	4 × 2	4 × 4	4 × 2
Weight lifted					

THURSDAY

LENGTH 5 weeks

GOAL Increase strength to improve balance and agility.

INTENSITY Complete the full number of required repetitions on the first set only. Use good form.

PACE Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

REST Take 2:30 between total-body exercises and 2:00 between all other sets and exercises.

SETS AND REPS

Week	Strength cycle
1	TB = 5 × 2 CL = 4 × 2 AL = 3 × 5
2	TB = 5 × 4 CL = 4 × 4 AL = 3 × 5
3	TB = 5 × 2 CL = 4 × 2 AL = 3 × 5
4	TB = 5 × 4 CL = 4 × 4 AL = 3 × 5
5	TB = 5 × 2 CL = 4 × 2 AL = 3 × 5

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Alt power snatch TB	5 × 2	5 × 4	5 × 2	5 × 4	5 × 2
Weight lifted					
Alt power jerk TB	5 × 2	5 × 4	5 × 2	5 × 4	5 × 2
Weight lifted					
LOWER BODY					
Squat CL	4 × 2	4 × 2	4 × 2	4 × 2	4 × 2
Weight lifted					
Side lunge CL	4 × 2	4 × 2	4 × 2	4 × 2	4 × 2
Weight lifted					
TRUNK					
Toe touch	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Alt reverse curl AL	3 × 5	3 × 5	3 × 5	3 × 5	3 × 5
Weight lifted					

Friday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on the first set only. Use good form.

Pace Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

Rest Take 2:30 between total-body exercises and 2:00 between all other sets and exercises.

Sets and Reps

Week	Strength cycle
1	TB = 5 × 2 CL = 4 × 2 AL = 3 × 5
2	TB = 5 × 4 CL = 4 × 4 AL = 3 × 5
3	TB = 5 × 2 CL = 4 × 2 AL = 3 × 5
4	TB = 5 × 4 CL = 4 × 4 AL = 3 × 5
5	TB = 5 × 2 CL = 4 × 2 AL = 3 × 5

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Single-arm power jerk TB	5 × 2	5 × 4	5 × 2	5 × 4	5 × 2
Weight lifted (each arm)					
Split alt-foot, single-arm jerk TB	5 × 2	5 × 4	5 × 2	5 × 4	5 × 2
Weight lifted					
UPPER BODY					
Close-grip incline press CL	4 × 2	4 × 4	4 × 2	4 × 4	4 × 2
Weight lifted					
TRUNK					
Crunch	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
Twisting back extension	3 × 8	3 × 8	3 × 8	3 × 8	3 × 8
Weight lifted					
UPPER BODY					
Arm circle AL	3 × 5	3 × 5	3 × 5	3 × 5	3 × 5
Weight lifted					

Strength Cycle for Soccer Players

Monday and Friday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on each set.

Pace Perform total-body exercises explosively. On all other exercises, lift as explosively as possible and lower in 2 seconds.

Rest Take 2:00 between all sets and exercises.

Sets and Reps

Week	Field players	Goalies
1	TB = 3 × 3 CL = 3 × 5	TB = 3 × 3 CL = 3 × 4
2	TB = 3 × 5 CL = 3 × 8	TB = 3 × 4 CL = 3 × 6
3	TB = 3 × 3 CL = 3 × 5	TB = 3 × 3 CL = 3 × 4
4	TB = 3 × 5 CL = 3 × 8	TB = 3 × 4 CL = 3 × 6
5	TB = 3 × 3 CL = 3 × 5	TB = 3 × 3 CL = 3 × 4

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Split alt-foot, alt-arm snatch TB	3 × 3 + 3 × 3	3 × 5 + 3 × 4	3 × 3 + 3 × 3	3 × 5 + 3 × 4	3 × 3 + 3 × 3
Weight lifted					
LOWER BODY					
Single-leg squat CL	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4
Weight lifted (each leg)					
Lateral squat CL	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4
Weight lifted					
TRUNK					
Press crunch	4 × 15 + 4 × 12	4 × 15 + 4 × 12	4 × 15 + 4 × 12	4 × 15 + 4 × 12	4 × 15 + 4 × 12
Weight lifted					
UPPER BODY					
Alt decline press CL	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4
Weight lifted					

Wednesday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on each set.

Pace Perform total-body exercises explosively. On all other exercises, lift as explosively as possible and lower in 2 seconds.

Rest Take 2:00 between all sets and exercises.

Sets and Reps

Week	Field players	Goalies
1	TB = 3 × 3 CL = 3 × 5	TB = 3 × 3 CL = 3 × 4
2	TB = 3 × 5 CL = 3 × 8	TB = 3 × 4 CL = 3 × 6
3	TB = 3 × 3 CL = 3 × 5	TB = 3 × 3 CL = 3 × 4
4	TB = 3 × 5 CL = 3 × 8	TB = 3 × 4 CL = 3 × 6
5	TB = 3 × 3 CL = 3 × 5	TB = 3 × 3 CL = 3 × 4

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Hang clean TB	3 × 3 + 3 × 3	3 × 5 + 3 × 4	3 × 3 + 3 × 3	3 × 5 + 3 × 4	3 × 3 + 3 × 3
Weight lifted					
LOWER BODY					
Front squat CL	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4
Weight lifted					
Leg curl CL	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4
Weight lifted					
TRUNK					
V-up	3 × 15 + 3 × 12	3 × 15 + 3 × 12	3 × 15 + 3 × 12	3 × 15 + 3 × 12	3 × 15 + 3 × 12
Weight lifted					
UPPER BODY					
Alt incline press CL	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4
Weight lifted					
Pullover CL	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4	3 × 8 + 3 × 6	3 × 5 + 3 × 4
Weight lifted					

Strength Cycle for Ice Hockey Players

Monday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on the first set only before increasing resistance.

Pace Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

Rest Rest 2:15 between total-body sets and exercises and 2:00 between all other sets and exercises.

Sets and Reps

Week	Strength cycle
1	TB = 5 × 2 CL = 4 × 2
2	TB = 5 × 5 CL = 4 × 5
3	TB = 5 × 2 CL = 4 × 2
4	TB = 5 × 5 CL = 4 × 5
5	TB = 5 × 2 CL = 4 × 2

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Alt power jerk TB	5 × 2	5 × 5	5 × 2	5 × 5	5 × 2
Weight lifted					
Single-arm power jerk TB	5 × 2	5 × 5	5 × 2	5 × 5	5 × 2
Weight lifted (each arm)					
LOWER BODY					
Sumo deadlift CL	4 × 2	4 × 5	4 × 2	4 × 5	4 × 2
Weight lifted					
Lateral squat CL	4 × 2	4 × 5	4 × 2	4 × 5	4 × 2
Weight lifted					
TRUNK					
Decline twisting crunch	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
Twisting back extension	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
UPPER BODY					
Wide-grip row CL	4 × 2	4 × 5	4 × 2	4 × 5	4 × 2
Weight lifted					

Wednesday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on the first set only before increasing resistance.

Pace Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

Rest Rest 2:15 between total-body sets and exercises and 2:00 between all other sets and exercises.

Sets and Reps

Week	Strength cycle
1	TB = 5 × 2 CL = 4 × 2 AL = 3 × 6
2	TB = 5 × 5 CL = 4 × 5 AL = 3 × 6
3	TB = 5 × 2 CL = 4 × 2 AL = 3 × 6
4	TB = 5 × 5 CL = 4 × 5 AL = 3 × 6
5	TB = 5 × 2 CL = 4 × 2 AL = 3 × 6

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Squat to hang power snatch TB	5 × 2	5 × 5	5 × 2	5 × 5	5 × 2
Weight lifted					
Split alt-foot, alt-arm snatch TB	5 × 2	5 × 5	5 × 2	5 × 5	5 × 2
Weight lifted					
UPPER BODY					
Standing upward fly CL	4 × 2	4 × 5	4 × 2	4 × 5	4 × 2
Weight lifted					
TRUNK					
Alt V-up	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
Decline press crunch	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Alt shoulder press CL	4 × 2	4 × 5	4 × 2	4 × 5	4 × 2
Weight lifted					
Arm circle AL	3 × 6	3 × 6	3 × 6	3 × 6	3 × 6
Weight lifted					

Friday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on the first set only before increasing resistance.

Pace Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

Rest Rest 2:15 between total-body sets and exercises and 2:00 between all other sets and exercises.

Sets and Reps

Week	Strength cycle
1	TB = 5 × 2 CL = 4 × 2
2	TB = 5 × 5 CL = 4 × 5
3	TB = 5 × 2 CL = 4 × 2
4	TB = 5 × 5 CL = 4 × 5
5	TB = 5 × 2 CL = 4 × 2

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Alt power snatch TB	5 × 2	5 × 5	5 × 2	5 × 5	5 × 2
Weight lifted					
Split alt-foot, alt-arm jerk TB	5 × 2	5 × 5	5 × 2	5 × 5	5 × 2
Weight lifted					
LOWER BODY					
Single-leg squat CL	4 × 2	4 × 5	4 × 2	4 × 5	4 × 2
Weight lifted (each leg)					
Reverse lunge CL	4 × 2	4 × 5	4 × 2	4 × 5	4 × 2
Weight lifted					
TRUNK					
Crunch	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
Twisting back extension	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
UPPER BODY					
Bench press CL	4 × 2	4 × 5	4 × 2	4 × 5	4 × 2
Weight lifted					
Row CL	4 × 2	4 × 5	4 × 2	4 × 5	4 × 2
Weight lifted					

Strength Cycle for Downhill Skiers

Monday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on the first set only before increasing resistance.

Pace Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

Rest Rest 2:00 between total-body sets and exercises and 1:30 between all other sets and exercises.

Sets and Reps

Week	Strength cycle
1	TB = 5 × 3 CL = 4 × 4
2	TB = 5 × 5 CL = 4 × 6
3	TB = 5 × 3 CL = 4 × 4
4	TB = 5 × 5 CL = 4 × 6
5	TB = 5 × 3 CL = 4 × 4

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Single-arm power snatch TB	5 × 3	5 × 5	5 × 3	5 × 5	5 × 3
Weight lifted (each arm)					
Alt power snatch TB	5 × 3	5 × 5	5 × 3	5 × 5	5 × 3
Weight lifted					
LOWER BODY					
Single-leg front squat CL	4 × 4	4 × 6	4 × 4	4 × 6	4 × 4
Weight lifted (each leg)					
Side lunge CL	4 × 4	4 × 6	4 × 4	4 × 6	4 × 4
Weight lifted					
TRUNK					
V-up	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
Twisting back extension	3 × 10	3 × 10	3 × 10	3 × 10	3 × 10
Weight lifted					
UPPER BODY					
Row CL	4 × 4	4 × 6	4 × 4	4 × 6	4 × 4
Weight lifted					

Wednesday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on the first set only before increasing resistance.

Pace Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

Rest Rest 2:00 between total-body sets and exercises and 1:30 between all other sets and exercises.

Sets and Reps

Week	Strength cycle
1	TB = 5 × 3 CL = 4 × 4 AL = 3 × 8
2	TB = 5 × 5 CL = 4 × 6 AL = 3 × 8
3	TB = 5 × 3 CL = 4 × 4 AL = 3 × 8
4	TB = 5 × 5 CL = 4 × 6 AL = 3 × 8
5	TB = 5 × 3 CL = 4 × 4 AL = 3 × 8

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Single-arm power clean TB	5 × 3	5 × 5	5 × 3	5 × 5	5 × 3
Weight lifted (each arm)					
Hang clean TB	5 × 3	5 × 5	5 × 3	5 × 5	5 × 3
Weight lifted					
UPPER BODY					
Bench press CL	4 × 6	4 × 4	4 × 6	4 × 4	4 × 6
Weight lifted					
TRUNK					
Decline crunch	3 × 15	3 × 15	3 × 15	3 × 15	3 × 15
Weight lifted					
Twisting back extension	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Triceps extension AL	3 × 8	3 × 8	3 × 8	3 × 8	3 × 8
Weight lifted					

Friday

Length 5 weeks

Goal Increase strength to improve balance and agility.

Intensity Complete the full number of required repetitions on the first set only before increasing resistance.

Pace Perform total-body exercises explosively. On all other exercises, lift explosively and lower in 2 seconds.

Rest Rest 2:00 between total-body sets and exercises and 1:30 between all other sets and exercises.

Sets and Reps

Week	Strength cycle
1	TB = 5 × 3 CL = 4 × 4
2	TB = 5 × 5 CL = 4 × 6
3	TB = 5 × 3 CL = 4 × 4
4	TB = 5 × 5 CL = 4 × 6
5	TB = 5 × 3 CL = 4 × 4

	Week 1	Week 2	Week 3	Week 4	Week 5
TOTAL BODY					
Single-arm power jerk TB	5 × 3	5 × 5	5 × 3	5 × 5	5 × 3
Weight lifted (each arm)					
Split alt-foot, alt-arm jerk TB	5 × 3	5 × 5	5 × 3	5 × 5	5 × 3
Weight lifted					
LOWER BODY					
Lunge CL	4 × 4	4 × 6	4 × 4	4 × 6	4 × 4
Weight lifted					
Arc lunge CL	4 × 4	4 × 6	4 × 4	4 × 6	4 × 4
Weight lifted					
TRUNK					
Decline press crunch	3 × 15	3 × 15	3 × 15	3 × 15	3 × 15
Weight lifted					
Back extension	3 × 12	3 × 12	3 × 12	3 × 12	3 × 12
Weight lifted					
UPPER BODY					
Single-arm incline press CL	4 × 4	4 × 6	4 × 4	4 × 6	4 × 4
Weight lifted (each arm)					
Row CL	4 × 4	4 × 6	4 × 4	4 × 6	4 × 4
Weight lifted					

References

Introduction

Todd, J. 2003. "The Strength Builders: A History of Barbells, Dumbbells and Indian Clubs." *The International Journal of the History of Sport* 20 (1): 65-90.

Chapter 1

Behm, D.G., E.J. Drinkwater, J.M. Willardson, M. Jeffrey, and P.M. Cowley. 2011. "The Role of Instability Rehabilitative Resistance Training for the Core Musculature." *Journal of Strength and Conditioning Research* 33 (3): 72-81.

Koshida, S., Y. Urabe, K. Miyashita, K. Iwai, and A. Kagimori. 2008. "Muscular Outputs During Dynamic Bench Press Under Stable Versus Unstable Conditions." *Journal of Strength and Conditioning Research* 22 (5): 1584-1588.

Lauder, M.A., and J.P. Lake. 2008. "Biomechanical Comparison of Unilateral and Bilateral Power Snatch Lifts." *Journal of Strength and Conditioning Research* 22 (3): 653-660.

Welsch, E.A., M. Bird, and J.L. Mayhew. 2005. "Electromyography Activity of the Pectoralis Major and Anterior Deltoid Muscles During Three Upper Body Lifts." *Journal of Strength and Conditioning Research* 19 (2): 449-452.

Chapter 2

Wang, J. 1995. "Physiological Overview of Conditioning Training for College Soccer Athletes." *Strength Conditioning* 17: 62-65.

Chapter 8

State Government of Victoria, Australia, Department of Health and Human Services. "Resistance Training—Health Benefits." 2018. www.betterhealth.vic.gov.au/health/healthyliving/resistance-training-health-benefits.

Chapter 9

Beavers, K.M., W.T. Ambrosius, W.J. Rejeski, J.H. Burdette, M.P. Walkup, J.L. Sheedy, B.A. Nesbit, B.J. Gaukstern, B.J. Nicklas, and A.P. Marsh. 2017. "Effect of Exercise Type During Intentional Weight Loss on Body Composition in Older Adults With Obesity." *Obesity* 25 (11): 1823-1829.

Roberson, K.B., K.A. Jacobs, M.J. White, and J.F. Signorile. 2017. "Loads and Movement Speed Affect Energy Expenditure During Circuit Resistance Exercise." *Applied Physiology, Nutrition, and Metabolism* 42 (6): 637-646.

World Health Organization (WHO). "Obesity and Overweight." 2018. www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight.

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About the Author

Allen Hedrick, MA, CSCS,*D, FNSCA, Coach Practitioner, was named the first ever Head Strength and Conditioning Coach at Colorado State University-Pueblo in September, 2009. Hedrick is a graduate of California State University-Chico (B.A.) and California State University-Fresno (M.A.). Following graduation from CSU-Fresno Hedrick was hired as a strength and conditioning coach at the United States Olympic Training Center in Colorado Springs, CO. Initially, Hedrick was hired as a one-year long appointment but that position evolved into a permanent position and Hedrick was moved into that role. After working for three years at the Olympic Training Center, Hedrick was selected to fill the Assistant Strength and Conditioning Coach position at the United States Air Force Academy in Colorado Springs. Hedrick stayed in that position for three years before being named the Head Strength and Conditioning Coach at the Academy, a position he held for nine years. In that position, Hedrick was responsible for the strength and conditioning programs for football and volleyball while overseeing the entire strength and conditioning program.

Hedrick then moved to the National Strength and Conditioning Association's headquarters, also in Colorado Springs, first as the Head Strength and Conditioning Coach position there and then into the Education Department as Education Coordinator. Hedrick stayed in that position until moving into his current position at CSU-Pueblo.

During his career, Hedrick has worked with a variety of athletes, from elementary school age athletes to athletes at the professional and Olympic level, including athletes who have medaled in the Olympic Games (Bonnie Blair, speed skating and Matt Ghaffari, Greco-Roman Wrestling). A frequent writer, Hedrick has been published over 100 times in a variety of publications on a variety of topics related to strength and conditioning and has published a book on strength and conditioning for football along with numerous DVDs on a variety of topics related to strength and conditioning. In addition, Hedrick has presented at numerous conferences and clinics, both nationally and internationally, including Guatemala, Japan, Australia, and China. In 2003, Hedrick was selected by his peers as the National Strength and Conditioning Association's Collegiate Strength and Conditioning Coach of the Year.

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