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S C H O L A S T I C

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# FIVE GUIDELINES TO QUALITY REPS

**Remember, how your athletes lift is more important than how much they lift.**

REGARDLESS OF THE TYPE of strength-training program utilized by your athletes, a quality program must begin with a quality repetition. Indeed, repetition is the most basic aspect of a strength program.

A repetition consists of raising the weight to the mid-range position, pausing briefly, and then returning the weight to the starting/stretched position. The following guidelines will help your athletes perform quality repetitions.

## **1. Raise the weight in a deliberate, controlled manner.**

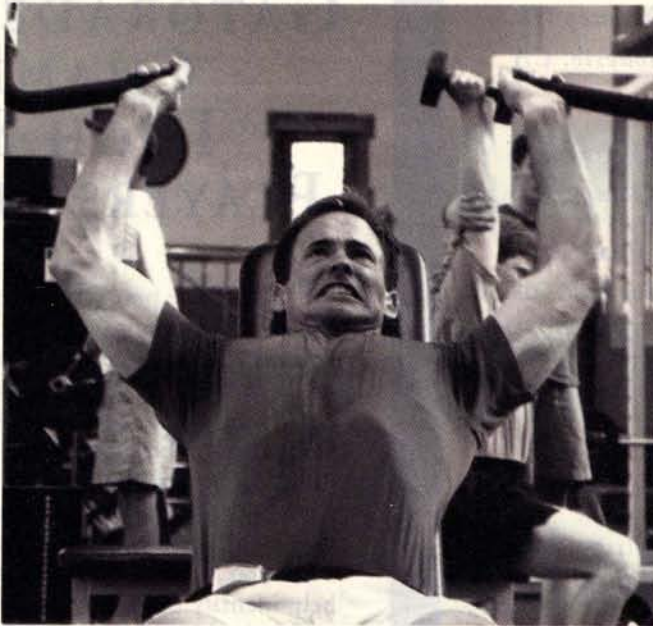
A quality repetition starts with the raising of the weight, or resistance. The athletes should lift the weight concentrically in a deliberate, controlled manner without any jerking movements.

Lifting a weight in a rapid, explosive fashion is ill-advised for two reasons. First of all, explosive lifting introduces momentum into the movement, which makes the exercise less productive and less efficient.

To illustrate the effects of momentum on muscular tension: Imagine that you pushed a 100-lb. cart a distance of 50 yards at a steady, deliberate pace. In this instance, you maintained a constant tension on your muscles for the entire 50 yards.

Now, suppose you had to push the same cart another 50 yards, but that this time you accelerate your pace to the point where you were running as fast as possible. If you were to stop pushing the cart after 35 yards, the cart would continue to move by itself because you gave it momentum. So, your muscles had resistance for the first 35 yards ... but not for the final 15 yards.

The same effect occurs in the weight room. When weights are lifted explosively, there is tension on the muscles for the initial part of the movement ... but not for the last part. In effect,



the requirement for muscular force is lessened and the potential strength gains are reduced accordingly.

Secondly, explosive lifting is also potentially dangerous. Dr. Fred Allman, a past president of the American College of Sports Medicine, states: "Many injuries may be the result of weakened connective tissue caused by explosive training in the weight room."

Here's why: Using momentum to lift a weight increases the internal forces encountered by a given joint. The faster a weight is lifted, the greater these forces are amplified, especially at the point of

explosion. When the forces exceed the structural limits of a joint, an injury occurs in the muscles, bones or connective tissue.

Lifting a weight in about 1-2 seconds will guarantee that your athletes are exercising in a safe, efficient manner.

## **2. Pause briefly in the position of full muscle contraction.**

Most people are very weak in the mid-range of exercise movements because they rarely, if ever, emphasize that position. Pausing momentarily in this position will focus attention on the muscles once they are fully contracted.

## **3. Lower the weight under control.**

It should take about 3-4 seconds to lower the weight eccentrically back to the starting/stretched position. Because you can lower more weight than you can raise, it stands to reason that the lowering portion of the movement should be accentuated for a longer time.

The lowering action should also be emphasized because it makes the exercise more efficient: The same muscles that are used to raise the weight concentrically are also used to lower it eccentrically. The only difference is that when a weight is *raised*, the muscles are shortening against tension; and when the weight is *lowered*, the muscles are lengthening against tension.

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So, by emphasizing the lowering of a weight, each repetition becomes more efficient and each set becomes more productive.

In effect, a quality repetition should be roughly 4-6 seconds in length. Most strength coaches who are opposed to explosive, ballistic movements in the weight room consider a 4-6 second rep as a general guideline for lifting "under control" or "without momentum."

#### **4. Exercise throughout the greatest range of motion that safety allows.**

A quality rep is done throughout the greatest possible range of motion that safety allows — from a position of full stretch to a position of full muscular contraction and back to a position of full stretch. Exercising throughout a full range of motion will allow your players to maintain (or perhaps increase) their flexibility, which will reduce their potential for injury.

It also ensures the athletes of exercising their entire muscle, not just a portion of it, thereby making the movement more efficient. Indeed, studies have shown that full-range exercise is necessary for a full-range effect. This does not imply that limited range movements should be avoided altogether.

#### **5. Reach concentric muscular failure within a prescribed number of repetitions.**

Research suggests that the level of intensity is the most important factor in determining the results from strength training. The *harder* you train, the *better* your response.

In the weight room, a high intensity level is characterized by the performance of each exercise to the point of *concentric*

muscular failure: when the muscles are exhausted to the extent that no further repetitions are possible.

Failure to reach a desirable level of intensity, or muscular fatigue, will result in little or no strength gains. Evidence for this "threshold" is suggested in the literature by the "Overload Principle." Essentially, this principle states that a muscle, to increase in size and strength, must be stressed, or "overloaded," with a workload beyond its present capacity.

The intensity of effort must be great enough to exceed this threshold level so that a sufficient amount of muscular fatigue is produced. Given proper nourishment and an adequate amount of recovery between workouts, a muscle will adapt to these demands by increasing in size and strength.

The extent to which this occurs then becomes a function of the individual's inherited characteristics (i.e., muscle length, predominant muscle fiber type, etc.).

If concentric muscular failure occurs before the lower level of the prescribed repetition range is reached, the weight is too heavy and should be reduced for the next workout.

If the upper level of the prescribed repetition range is exceeded before muscular exhaustion is experienced, the weight is too light and should be increased for the next workout by five percent or less.

If an athlete is just beginning an exercise program, or if the exercises are changed in routine, it may take several workouts before a challenging weight is found. That's okay; simply continue to make progressions in the resistance as needed.

Remember, how your athletes lift a weight is more important than how much weight they lift. ■

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