



## The Importance of Progressive Overload

In the late 1940s, the term "Progressive Resistance Exercise" was coined by Dr. Thomas L. DeLorme. In fact, DeLorme is often referred to as "the father of progressive resistance exercise." DeLorme started lifting weights in 1932 at the age of 16 in an attempt to increase his size and strength. During World War II he applied the lessons he had learned from his own experience to the rehabilitation of large numbers of wounded soldiers.

Unfortunately, little of what is done in most weight rooms can be characterized as being progressive. It's not uncommon to hear of an athlete who performs the same number of repetitions with the same amount of weight over and over again, workout after workout. Other than not training with a high level of intensity, not making progressions in the weight room is probably the main reason why athletes fail to achieve their physical potential from weight training.

Suppose that today you did a set of leg curls for 10 repetitions with 100 pounds and a month later you're still doing 10 repetitions with 100 pounds. Did you increase your strength? Probably not. On the other hand, what if you were able to do 11 repetitions with 120 pounds a month later? In this case, you performed 10-percent more repetitions with 20-percent more weight — excellent progress over the course of one month.

### THE OVERLOAD PRINCIPLE

One of the oldest and most often cited tenets in exercise science is known as the overload principle. First coined in 1933, this principle states that in order for you to increase your muscular strength, your muscles must be stressed -or "overloaded" — with a workload that is beyond their present capacity.

Continuous employment of the over-

load principle is necessary to stimulate changes in the functional and structural abilities of your muscles. This means that your muscles must be stressed with progressively harder work if they are to continually increase in size and strength. For this reason, your muscles must experience a workload that is increased steadily and systematically throughout the course of your strength-training program — that is, a progressive overload.

Legend has it that Milo of Crotona, an Olympic athlete in ancient Greece, periodically lifted a baby bull

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way to progressively overload your muscles is to incorporate the double progressive technique: Every time you work out, you must attempt to increase either the weight you use or the repetitions you perform in relation to your previous workout. Stated otherwise, you must impose demands upon your muscles that they haven't previously experienced by either using more weight or performing more repetitions. Exposing your muscles to progressively greater demands stimulates compensatory adaptation in response to the unaccustomed workload. Specifically, the adaptations are increases in muscular size and strength.

In brief, the double progressive technique would be used in the weight room these two ways: (1) If you reach concentric muscle fatigue within your prescribed repetition range — say you did 18 repetitions and your range is 15-20 — you should repeat the weight for your next workout and try to improve upon the number of repetitions you did; and (2) If you attain or surpass the maximum number of prescribed repetitions in an exercise — say you did 16 repetitions and your range is 10-15 — you should increase the resistance for your next workout.

### PROGRESSIONS: HOW MUCH?

Your progressions in resistance need not be in Herculean leaps and bounds . . . but the weight you use must always be demanding. You should increase the resistance in an amount with which you are comfortable. Fortunately, this may be accomplished much more systematically than the method used by Milo and his growing bull. Your muscles respond better if the progressions in resistance are five-percent or less—depending



Juan Venturi performing an overhead lat pulldown

h i s shoulders. Milo's strength increased as the bull increased in size and weight. This crude method of progressive overload was responsible for Milo's legendary strength gains.

In modern times, a simple yet effective

upon the degree to which the exercise was challenging. For example, suppose that an exercise has a repetition range of 15-20. If you barely managed to do 20 repetitions, then you should make a slightly smaller progression in resistance than if you reached muscular exhaustion at 21 or 22 repetitions.

When you make smaller progressions, your muscles hardly notice the slightly heavier weight and your repetitions won't decline much if at all. In other words, it's much easier for your muscles to adapt to subtle increases in resistance than larger ones. As an example, imagine that an exercise has a repetition range of 15-20 and you did 200/20 (200 pounds/20 repetitions). If you make a 10-percent increase in resistance the next time you do that exercise (i.e., to 220 pounds), you'll probably notice the heavier weight and it could result in a performance of 220/16. In this scenario, before you can make your next progression in resistance you must improve the number of repetitions you did by 25-percent (from 16 to 20) — which may prove to be a very difficult task. Conversely, if you originally increased the weight by only 2.5 pounds (i.e., to 202.5 pounds), it isn't likely you'll detect the slightly heavier weight and you'd probably get 202.5/20. Another 2.5-pound increase the next time you do that exercise may result in 205/20. Eventually, you might progress to the point where you're doing 220/119. Compared to the previous example, it took you a few more weeks to reach 220 pounds but you allowed your body to adapt gradually. And now, you only need to increase your repetitions by one—from 19 to 20 — to make your next progression in weight.

To make slight progressions in resistance, you can use smaller "Olympic" plates on free-weight movements and plate-loaded machines. Smaller plates are made that weigh as little as 1.25 and 2.5 pounds. If lighter plates aren't available, you can simply hang something from the bar (or movement arm) like a small ankle weight. Ankle weights can also be used to make progressions in dumbbell exercises. Making a progression from 20-to 25-pound dumbbells represents a 25-percent increase in resistance. Instead of making such a large percentage increase, you can use the 20-pound dumbbells and put 1.25-pound ankle weights around your wrists. In effect, you'd be using 21.25 pounds — a more reasonable progression in weight of 6.25-percent.

Most selectorized machines have self-contained weight stacks with plates that usually weigh 10, 12.5, 15, 20 or 25 pounds. When using selectorized machines, you can make smaller progres-

sions by using saddle plates — or "add-on" weights -which can be 1.25 or 2.5 pounds. (MedX selectorized machines have a unique compound weight stack that enables the user to make progressions in 2-pound increments without having to use or search for saddle plates.) If saddle plates aren't available, you can take an Olympic plate and secure it to the weight stack by first inserting a selector pin through the hole in the Olympic plate and then into one of the selectorized plates. This is often referred to as "pinning" an Olympic plate to the weight stack. You can also place any object that weighs about 1 or 2 pounds on top of a weight stack — as long as it won't fall off while you're using the equipment.

### THE WORKOUT CARD


The importance of accurate record keeping cannot be overemphasized. Records are a log of what you've accomplished during each and every exercise of each and every strength session. In a sense, a workout card is a history of your activities in the weight room.

A workout card can be an extremely valuable tool to monitor your application of progressive overload. The card can take

an infinite number of appearances. However, you should be able to record your bodyweight, the date of each workout, the weight used for each exercise, the number of repetitions performed for each exercise, the order in which the exercises were completed and any necessary seat adjustments.

### THE BOTTOM LINE

Remember, the resistance you use must always be challenging. If you're just beginning a strength-training program or you change the exercises in your routine, it may take you several workouts more before you find a challenging weight. That's okay — simply continue to make progressions in the resistance as needed.

Progressive overload has always been, and will always be, of utmost importance in achieving physical potential. The bottom line is that you must place a demand on your muscles that is beyond what they're accustomed. If you did 200 pounds today for 12 repetitions, then your next workout you either must attempt to do more repetitions or increase the weight. Either way, you've taken a step closer to realizing your potential as a wrestler. 

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