

THE ULTIMATE ARM PROGRAM

Introduction

In the first volume of *Winning the Arms Race*, I covered some of the nuts and bolts of arm training: goal setting, exercise technique, and equipment. In this second volume, I present my Ultimate Arm Program—a six-month prescription for maximal gains in arm size and strength. The program is difficult, but it works. It is a product of my 19 years of experience writing weight training routines for many hundreds of individuals. You will curse me more than a few times during your training, but if you stick diligently to the program, in the end you will thank me.

Long before you finish the program, you will have achieved record gains. Unlike many bodybuilding routines, the Ultimate Arm Program will ensure that your arms grow strong as well as large. Many bodybuilders are weak—sometimes pathetically weak—for their size. When you have completed this program, you will *be* as strong as you look.

In the chapters that follow, I take you step-by-step through all aspects of the program, including loading parameters (sets, repetitions, tempo, and rest intervals) and proper technique for the various exercises. First, though, I want to give you an overview and cover some fundamentals.

Overview of the Ultimate Arm Program

The Ultimate Arm Program consists of six 30-day cycles. In each cycle, you will do six workouts using a particular training method. After six workouts, you will switch to a new routine; the training method, the exercises, and the loading parameters will change. You will train arms once every five days.

Each 30-day cycle is either an “accumulation phase” or an “intensification phase.” In accumulation phases, the primary training stressor is volume. In intensification phases, the primary training stressor is intensity. The total workload is greater during accumulation phases, but the heaviest weights tend to be used during intensification phases.

Volume and Intensity

Volume is a measure of total workload. The total number of repetitions per workout is one way to measure volume. The total time that muscles are under tension during a workout is another. Intensity is the percentage of maximal load represented by the working load. For example, if your one-repetition maximum on a particular lift is 300 pounds, and you are working with 270 pounds, then you are training at an intensity level of 90%. Specific training effects are associated with different levels of intensity.

I alternate accumulation and intensification phases to maximize your rate of progress. If your training volume is always high, you will become overtrained metabolically. If your training intensity is always high, your nervous system will be overtaxed. If instead you alternate high volume and high intensity, you will take full advantage of the body’s ability to adapt to increasing loads. For example, testosterone levels will rise during an intensification phase, but only if you have done an accumulation phase previously. The effect lasts only for so long, however, and it again becomes necessary to train with higher volume and lower intensity.

Table 1. Program Design			
Phase		Duration	Method
1	Accumulation	30 Days (6 Workouts)	Double Tri-Sets
2	Intensification	30 Days (6 Workouts)	Maximal Weights Method
3	Accumulation	30 Days (6 Workouts)	Uni-Angular Tri-Sets
4	Intensification	30 Days (6 Workouts)	Maximal-Tension Drop Sets
5	Accumulation	30 Days (6 Workouts)	Multi-Grip/-Pathway System
6	Intensification	30 Days (6 Workouts)	Four-Percent Solution/ Broad Pyramid Combination

How to Read The Workouts

To make sure that we're using a common language when I take you through the workouts, we'll look at an example and review the terminology and notation that I use. This example is from Phase 2.

Table 2. Workout Example: Maximal Weights Routine					
Order	Exercise	Sets	Reps	Tempo	Rest
A-1	Close-Grip Barbell Scott Curls	6	2-4	5010	120
A-2	Dips	6	2-4	5010	120
B-1	Seated Hammer Curls	6	2-4	5010	120
B-2	Seated Half Presses in Power Rack	6	2-4	2210	120

“A-1” and “A-2” denote exercises performed in *double stations*. Perform one set of exercise A-1, then one set of exercise A-2. Repeat until you have completed the prescribed number of sets for each of the two exercises. This workout consists of two pairs of exercises performed in double stations. A *tri-set*, three exercises done in consecutive sets, would be denoted by “A-1, A-2, A-3.”

Do the prescribed number of sets, and make sure that you stay within the specified repetition bracket. Select the weight so that you will reach momentary muscular failure in that range.

The notation that I use for tempo consists of four numbers. The first is the duration (in seconds) of the eccentric (lowering) phase of the movement. The second is the duration of the pause in the fully stretched position. The third is the duration of the concentric (raising) phase. The fourth is the duration of the pause in the fully contracted position. The tempo is always written in this order. Whether it is performed in this order depends on the exercise. For example, if you were to do 5010 bench presses, you would lower the weight for five seconds, immediately push the weight back up on a one-count, and then immediately begin the next rep. However, if you were to do 5010 chin-ups, you would first raise yourself on a one-count and then lower for five seconds. Note in these examples that there is no pause in either the stretched or contracted positions. The letter “X,” as in a 30X1 tempo prescription, indicates that the concentric phase should be performed as explosively as possible, while keeping the weight under control. In this example, the weight is lowered for three seconds, lifted explosively, and then held for a one-second pause in the contracted position.

The rest interval is given in seconds. If the rest is “0,” it’s not a typo. It means that you take no rest; proceed immediately to the next exercise. If I tell you to do this, it’s for your own good. Really.

Progressive Overload and Planned Variation

Long-term, sustained training progress has two fundamental requirements: progressive overload and planned variation. The body has no reason to improve unless it is given a challenge. The stress imposed on the body must constitute an “overload.” That is, it must be greater than the load to which the body is already accustomed. In order to elicit ongoing adaptation, it is necessary to increase loads continually. As everyone discovers, however, you can’t just keep adding more and more weight to the bar, week after week. Progress eventually stalls, because a routine is effective only for the amount of time it takes the body to adapt to it. In general, the body will adapt to a given routine in six workouts or fewer. It is therefore necessary to vary the routine periodically.

Ways to Achieve Progressive Overload

Increasing the amount of weight on the bar is only the most obvious way to achieve progressive overload. In fact, there are quite a few ways to do so, through increases in volume (e.g., more sets and reps), intensity (e.g., more weight on the bar, eccentric training), or density (e.g., shorter rest intervals between sets, exercises, or workouts).

There are a number of ways to manipulate training variables in order to achieve progressive overload and vary the training stimulus. From phase to phase, the program I am giving you provides for optimal manipulation of these variables. From workout to workout and from set to set, progressive overload will be your responsibility, since you are the one putting the weight on the bar. In the next section, I give you some tips on how to load weights to get the most mileage from your workouts. (If you have read Volume I, you will already be familiar with this material.)

Some Tips on Loading

Increasing the weight is easier, physically and psychologically, if you can do so in small increments. Unfortunately, the smallest plate available in most gyms is two and a half pounds, so the smallest weight increment on a barbell is five pounds. That's usually the smallest increment on dumbbells as well, so it's actually ten pounds when you're using them in pairs. You can easily see how a five-pound increase is too big a jump if you're using, say, a single 20-pound dumbbell to work the rotator cuff muscles of the shoulder. It's a 25-percent increase in load. It would be like trying to jump straight to 500 pounds on a lift where you can do 400. You need ways to coax, not force, your muscles to adapt to greater loads.

The best way to coax your muscles into adaptation is through application of the Kaizen Principle. In Japanese, "Kaizen" means "constant and never-ending improvement." It is a philosophy that small, incremental improvements made consistently will, over the long term, produce large gains. As practical advice for loading, this translates to "increase the weight at every opportunity, even if the increase is very small."

There are several ways to increase the weight in small increments:

1. PlateMates
2. Small discs
3. Combinations of pound and kilogram plates
4. Assorted weight collars

One approach is to use PlateMate magnetic weights. The principal advantage of PlateMates is that they attach easily to dumbbells as well as to barbells. The manufacturer, Benoit Built, Inc., offers them in 2½-, 1⅞-, 1¼-, and ⅝-pound sizes in two shapes: donut and hexagon. I recommend the donut-shaped weights since they fit both circular and hexagonal dumbbells. To order PlateMates, call 1-800-877-3322.

Alternately, you can use Eleiko Olympic small discs of 0.5 and 0.25 kilograms. They fit on Olympic-size bars and dumbbells. You can order them from Dynamic Fitness by calling 1-734-425-2862. For Imperial system weights (pounds), your best bet is Ivanko 1¼-pound plates. You can purchase them by calling 1-800-759-6399 or 1-925-253-0323 or by going on-line at www.ivanko.com.

You can also use combinations of kilogram and pound plates along with the EZ bar solid collars. For example, 1.25- and 2.5-kilogram plates weigh 2.75 and 5.5 pounds respectively. An EZ bar collar weighs about 1.5 pounds. If the base weight on the bar is 225 and your personal best for one rep is 240, you could apply the Kaizen principle to increase the weight in the following manner:

$225 + 2(5) + 2(2.5)$	$= 240.0$
$225 + 2(5) + 2(2.75)$	$= 240.5$
$225 + 2(5.5) + 2(2.5)$	$= 241.0$
$225 + 2(5.5) + 2(2.75)$	$= 241.5$
$225 + 2(5) + 2(2.5) + 2(1.5)$	$= 243.0$
$225 + 2(5) + 2(2.75) + 2(1.5)$	$= 243.5$
$225 + 2(5.5) + 2(2.5) + 2(1.5)$	$= 244.0$

Finally, you can use collars of various weights. Former Olympic thrower Bruno Pauletto's company, Power Systems, sells assorted collars. The Olympic Okie Grip Collars weigh 2 pounds each, the Olympic Metal Quicklee Collars weigh 1 pound each, and the Olympic Muscle Clamps weigh 0.5 pounds each. Combinations of these collars allow you to increase the weight by 1, 2, 3, or 4 pounds at a time. I particularly like the Okie grips if I am going to work with my customized, thick-grip Olympic bar. The rubber inner lining of the Okie grips prevents slipping. I bought my first pair in 1986, and they still hold tightly on the bar, even with very heavy loads. These collars can be purchased by phone at 1-800-321-6975 or by fax at 1-800-298-2057.

The Training Diary

You will need to keep a training diary in which you record the weight and the number of repetitions for every set of every exercise. Because you will be adjusting the weight in small increments, such record keeping will be necessary for keeping track of where you are and how much you should lift next on any given exercise. Since this will enable you to monitor your progress, you will find a training diary to be useful motivationally as well.

Technical Limit

In the effort to handle progressively heavier loads, there is a temptation to use the heaviest weight possible without regard for technique. Classic technical errors are the use of excessive momentum to lift the weight, deviation from the correct movement pattern, and shortening of the range of motion. Keep in mind that the actual training load—the one that determines results—is determined both by the weight you are using and how you are using it.

I explain in detail how to perform each exercise in the Ultimate Arm Program. On a given set, do as many repetitions as you can *within technical limit*. When you reach momentary muscular failure within technical limit *or* go outside of technical limit, you are done for the set. The use of cheating movements to get more repetitions is actually counterproductive; it teaches bad motor patterns and interferes with the recovery of the motor units (functional units of nerve and muscle) that were trained properly up until that point in the set.

You have gone outside technical limit if you:

1. Use more momentum to lift the weight than is allowed by the concentric tempo prescription.

2. Deviate from the prescribed movement pattern.

3. Lose full range of motion.

Your concentric tempo may slow down as you fatigue. This is not a problem, as long as your *intent* is to lift the weight at the prescribed speed.

Increases in load should not come at the expense of technique. To get the full benefit of the program, respect technical limit.

How to Warm Up

It's imperative that you warm up. The warm-up should consist of doing reps with the first pair of exercises listed for the workout. If you do this properly, you will not need to warm up for the remaining exercises. For each of the first two exercises, use a 5, 3, 2, 1, 1, . . . repetition scheme. Let's use the routine from Phase 2 again as an example. The first two exercises are Close-Grip Barbell Scott Curls and Dips. Each is to be done for 6 sets of 2-4 reps. Let's say your first work set will be with 120 pounds for the Scott Curls and 80 pounds for the Dips. The following would be a suitable warm-up:

1. Scott Curls: 5 reps with 50 pounds
2. Dips: 5 reps with body weight
3. Scott Curls: 3 reps with 85 pounds
4. Dips: 3 reps with body weight plus 20 pounds
5. Scott Curls: 2 reps with 95 pounds
6. Dips: 2 reps with body weight plus 40 pounds
7. Scott Curls: 1 rep with 105 pounds

8. Dips: 1 rep with body weight plus 55 pounds
9. Scott Curls: 1 rep with 115 pounds
10. Dips: 1 rep with body weight plus 70 pounds

The rest interval between warm-up sets should be only the amount of time needed for changing the weight and moving between stations. After you have completed all warm-up sets, rest for three minutes. Then begin the workout.

You can take up to as many as eight “steps” to get near your starting weight for a given exercise. While it’s acceptable to do many warm-up *sets*, it’s not acceptable to do many warm-up *repetitions*. The body needs to know only two things from a warm-up: what the range of motion will be and roughly how heavy the weight will be. Any work beyond what is required for this is counterproductive. Most people do too many repetitions, resulting in lactate accumulation. This compromises the workout.

How to Combine This Program with Your Existing Program

If you have read Volume I, then you understand the importance of a program that produces balanced development—*even if* all you want to do is build up your arms. Train in five-day cycles, as shown in Tables 3 and 4. Your arm workout will fall on the first or second day of the cycle, depending on whether arms or legs are a higher priority for you. After training arms and legs on days 1 and 2, rest on day 3. Train chest and back on day 4, rest again on day 5, and then repeat the cycle.

Table 3. Five-Day Split with Priority Given to Arms

Day 1	Day 2	Day 3	Day 4	Day 5
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Arms	Legs		Chest & Back	
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Table 4. Five-Day Split with Priority Given to Legs				
Day 1	Day 2	Day 3	Day 4	Day 5
Legs	Arms		Chest & Back	

That should give you the foundation you need to start this program. Now, let's take a look at Phase 1.

Phase I
Workouts 1-6

Double Tri-Sets

The Double Tri-Sets routine could also be called “the Pre-/Post-Exhaustion Training Routine from Hell.” I was first exposed to the concept of “doublés” by former Canadian National Weightlifting Coach Pierre Roy, who produced a host of champions, including Olympic silver medalist Jacques Demers. “Double” is a French word that means “done twice.” Pierre would have his athletes do the same lift twice in a workout if he wanted rapid improvement in that particular lift. So, for example, if one of his Olympic lifters needed more leg strength, Pierre would have him squat at the beginning of the workout and again at the end. Dr. Mauro Di Pasquale used the same training principle in his successful quest to become World Powerlifting Champion. Already convinced of the value of doublés for building strength, I came across a book by the French physiologist Gilles Commetti, in which he extols the virtues of doublés for building mass. I decided to apply the double method to arm training. After training arms in this way, many of my clients report unbelievable muscle soreness—indication of the method’s effectiveness for eliciting a growth response.

As shown in table 5, the workout you will do in this phase consists of two double tri-sets. The first (Exercises A-1 to A-3) targets the triceps. The second (Exercises B-1 to B-3) targets the elbow flexors. You will begin with a set of Lying EZ Bar Triceps Extensions, proceed without resting to a set of Close-Grip Bench Presses, and then proceed without resting to another set of Lying EZ Bar Triceps Extensions. You will rest for two minutes and then repeat this sequence twice. It will probably be necessary to drop the weight 5-10 percent each time you repeat the tri-set. You will then move to double tri-sets of Reverse-Grip EZ Bar Curls and Zottmann Curls. Here again, you will probably need to lower the weight on successive tri-sets. This second part of the routine will give your

brachialis muscle a good trashing. Because the brachialis lies mostly under the biceps, and therefore cannot easily be seen, few bodybuilders ever pay it any direct attention. On a very large, muscular arm that is flexed, it is visible on the lateral aspect and resembles a golf ball. When the brachialis is fully developed, it helps push the biceps brachii upward, which improves the so-called “biceps peak.” Many of my bodybuilder clients report large size increases after they start isolating the brachialis.

Table 5. Double Tri-Sets Routine

Order	Exercise	Sets	Reps	Tempo	Rest
A-1	Lying EZ Bar Triceps Extensions to Forehead	3	6-8	3110	0
A-2	Close-Grip Bench Presses	3	4-6	3110	0
A-3	Lying EZ Bar Triceps Extensions to Forehead	3	4-6	3110	120
B-1	Paused, Standing, Narrow-Reverse-Grip EZ Bar Curls	3	4-6	5010	0
B-2	Seated Dumbbell Zottmann Curls	3	4-6	4020	0
B-3	Paused, Standing, Narrow-Reverse-Grip EZ Bar Curls	3	3-5	5010	120

Make sure that all weights are pre-loaded and within reach so that you can move immediately from set to set. Having a training partner hand you the weights will further enhance the effectiveness of this routine.

How to Perform the Exercises

Lying EZ Bar Triceps Extensions to Forehead

There is plenty of debate over the merits of various bar pathways for Lying Triceps Extensions. The possibilities include bringing the bar to the forehead (a.k.a. Skull Crushers), to the bridge of the nose, or to the chin. The search for a best pathway is futile, however, since the body will adapt to any particular pathway in a matter of just a few workouts. I am of the opinion, therefore, that one should use a variety of pathways, switching to a new one every six workouts or so. For this first cycle, I want you to lower the bar to the top of your forehead.

From a supine position on a flat bench, reach back and grasp a loaded EZ bar. Lift it over your head in bench-press fashion. You are now ready to begin the exercise. Keeping your elbows pointed toward the ceiling, lower the bar to your forehead. Lift the bar back up to the starting position by extending your elbows, keeping their position in space fixed. Your elbows should be the only active joints during this exercise. Be sure to keep your wrists in a neutral position to prevent elbow problems.

Close-Grip Bench Presses

“Close-Grip” is actually a misnomer, since I advise most individuals to use a 14-inch grip. I do not believe in the very narrow grip (4 to 6 inches) that is commonly used, as it creates enormous strain on the wrists and elbows. Small-framed females may find an 8- to 10-inch grip to be optimal for their bone structure.

From a supine position on a flat bench, lift the barbell off the rack and hold it at arm's length. On the descent, bring the bar to the lower portion of the sternum. On the ascent, as soon as the bar is 4 to 6 inches above the chest, concentrate on pushing the bar back toward the uprights and moving your elbows under the bar for greater leverage. Extend your elbows only to about 95% of lock-out in order to keep precious muscle-building tension on the triceps.

I strongly suggest that you have a partner help you to unrack and rack the barbell. Beside the obvious safety considerations, this is important for ensuring the longevity of your rotator cuff muscles.

Paused, Standing, Narrow-Reverse-Grip EZ Bar Curls

Use a semi-pronated (overhand) grip on the narrow position of an EZ bar (the first “bend” away from the center of the bar.) When you are gripping the bar, your little fingers should be lower than your thumbs. Using a pronated or semi-pronated grip for curls puts the biceps brachii at a mechanical disadvantage and increases the load on the brachialis and brachioradialis.

Support your shoulder blades with a 45- or 55-cm Swiss ball. This will maximize isolation without putting stress on your lower back or shortening the range of motion (as you might experience if you just did the movement with your back against a wall).

Begin to curl the bar. Complete the concentric phase of the lift by continuing to curl the bar until the tops of your forearms make contact with your biceps. Do not swing the bar or allow your elbows to flare in order to get through the full range of motion. If you need to do either of these, the weight is too heavy. Begin the eccentric part of the movement, but when you have lowered the bar through the first 30 degrees of the range of motion, pause for a full two seconds. This pause increases the load on the brachialis as it is involved preferentially in keeping the elbow flexed under tension

If your elbows flare during the eccentric phase of these or any other type of reverse curls, it is also possible that you have adhesions in the elbow flexors. Due to their high volume of elbow flexor work, bodybuilders often develop adhesions at the following sites: between the biceps and brachioradialis, between the brachialis and triceps, or in the brachial intermuscular septum. Such adhesions can be easily removed by a health professional trained in Active

Release Techniques. To locate an Active Release Techniques practitioner in your area, call 719-473-7000.

Seated Dumbbell Zottmann Curls

It may take a few workouts to become comfortable with this movement. Grasp two dumbbells, and sit at the edge of a flat bench. Better still, use a bench that supports your lower back and allows you to lock your feet into place. With your arms fully extended downward and the dumbbells in the bottom position, your palms should face forward. To prevent recruitment of the forearm flexors during the concentric phase of the movement, curl the dumbbells with your palms up and your wrists cocked back. Once you reach the top position (forearms in contact with biceps), pronate your forearms. That is, rotate your hands so that your palms face away from you. At the same time, straighten your wrists. From this point, the exercise is identical to doing the eccentric portion of a reverse dumbbell curl. Keeping your wrists in a neutral position and palms facing away, lower the dumbbells in a controlled manner. Throughout the exercise, keep your elbows glued to your sides. If your elbows tend to flare out, that means that your brachialis muscles are weak in relation to your biceps brachii. Decrease the weight so that you can do the exercise correctly, keeping the upper arms close to the trunk.

In my opinion, Zottmann Curls are one of the best exercises for thickening the upper arms, as they thoroughly stress all the elbow flexors. The biggest advantage of this exercise is that it allows you to overload the brachialis muscle eccentrically. The supinated grip on the concentric portion allows you to handle a greater load than if the grip were pronated for both the concentric and eccentric portions. Since you pronate for the lowering of the dumbbells, you expose the brachialis to a greater load, as the biceps brachii have an ineffective line of pull when the forearm is pronated. You could think of this exercise as doing self-spotted negatives for the brachialis.

Phase II
Workouts 7-12

The Maximal Weights Method
(a.k.a. The Patient Lifter's Routine)

The muscular physique, obviously, should connote power. When you look at the hypertrophied thigh of a weightlifter or powerlifter, it's usually the case that, "what you see is what you get." There are also plenty of strongman contest competitors who are every bit as strong as they look. Yet, with many bodybuilders—particularly those who use massive doses of anabolics—their size rarely reflects their strength. Believe it or not, I've seen at least three Mr. Olympia contestants who couldn't even bench press 315 pounds for 6 reps—and that was in the off-season, when they're supposed to be at their biggest and strongest! One of them even asked me to open up a peanut butter jar for him. Okay, I'm kidding about the peanut butter jar, but you get my point.

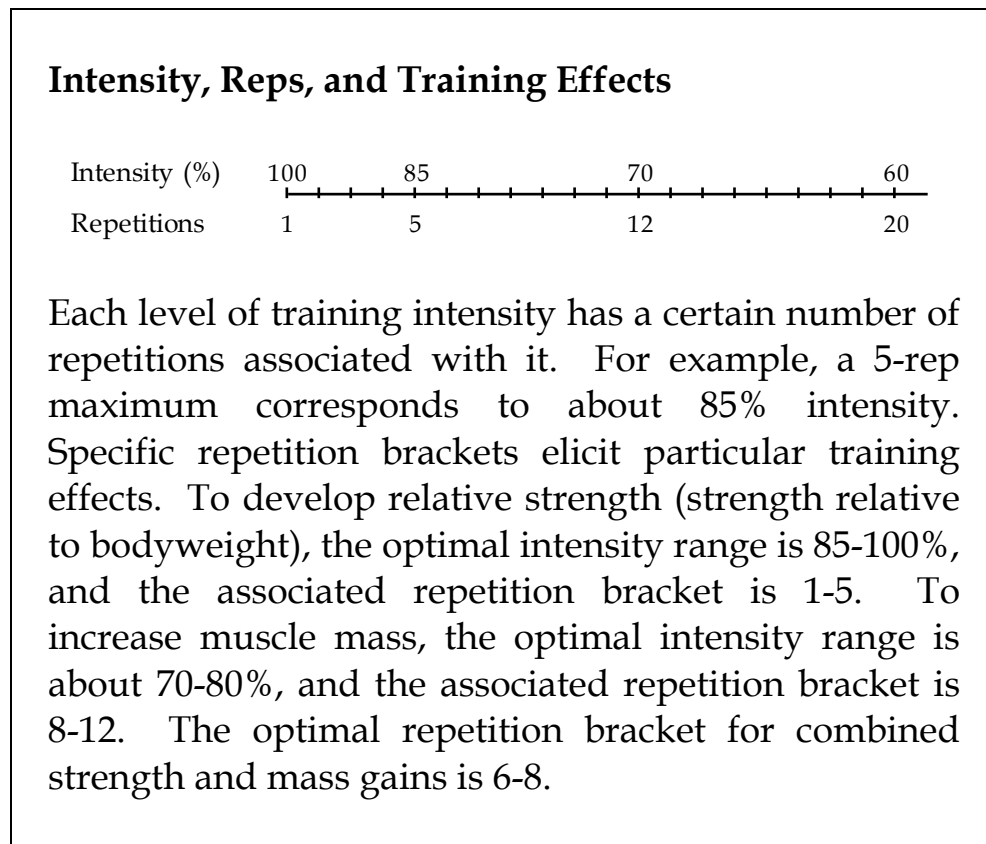
What explains the difference? Is it drugs? No. Many strength athletes also use anabolics. I believe that the main difference is in the choice of training methods. As a general rule, strength athletes and strongman competitors train using few exercises, done for multiple sets of low reps with long rest intervals between sets.

I recently used an IFBB pro as a guinea pig to test my theory. Milos Sarcev, a well-known and very popular professional bodybuilder was stuck on a major plateau in muscle development. When I convinced him to start using heavier loads in his workouts, his development skyrocketed. As a result, he was only narrowly edged out of first place at the prestigious Night of Champions competition. Maybe he took solace in the fact that he knew he could easily beat the winner in an arm-wrestling contest.

The trouble is, most bodybuilders stick religiously to the 6 to 12-rep range when training arms. In general, this *is* the best rep range for building up the arms. Like anything else, however, it only works for

a while. I'm utterly convinced that one of the reasons bodybuilders fail to achieve their growth potential is that they're simply too weak for their muscle cross-sectional area.

The following table helps explain the relationship between reps and training effects:



Given the information above, you can see that relative strength is best built doing sets of less than 5.

Well, this phase of the program is based on that fact.

The method you will use in this phase requires you to start off with a weight that you can handle for 6 sets of 2 reps. Depending on how neurologically efficient you are, the weight will be anywhere from 82 to 90% of your 1-rep maximum. The goal is to be able to use that same weight to do 6 sets of 4 reps. You don't get to increase the load

until you can do all 6 sets for 4 reps, using the weight that you could initially lift for 6 sets of only 2 reps. That's why it's called the "Patient Lifter's Method." You'll either get stronger or bore yourself to death by using the same weight over and over. Don't worry, though. You'll get stronger quickly and graduate to a heavier weight.

The method works according to the Law of Repeated Efforts. Repeated efforts that target the same pool of motor units force the nervous system to accept the new, heavier loads as being "normal." The method requires longer rest (4 minutes) to allow sufficient recovery of the nervous system. You maximize the return on your training time by pairing exercises for agonists and antagonists and separating those exercises by 2-minute intervals. That is, if you do a set of a biceps exercise, you can do a set of a triceps exercise 2 minutes later and return to the biceps exercise sufficiently rested 2 minutes after that.

Here's the routine for workouts 7 through 12:

Table 6. Maximal Weights Routine					
Order	Exercise	Sets	Reps	Tempo	Rest
A-1	Close-Grip Barbell Scott Curls	6	2-4	5010	120
A-2	Dips	6	2-4	5010	120
B-1	Seated Dumbbell Hammer Curls	6	2-4	5010	120
B-2	Seated Half Presses in Power Rack	6	2-4	2210	120

How to Perform the Exercises

Close-Grip Barbell Scott Curls

In the United States, the Scott Curl is generally known as the Preacher Curl, because the exercise bench resembles a preaching lectern. Throughout the rest of the world, the exercise is known as the Scott Curl, in honor of two-time Mr. Olympia Larry Scott, who helped popularize this bench by slaving on it for years to develop his massive arms.

The Scott Bench was designed to enforce strict curling technique, particularly on the eccentric portion of the movement. All too often, though, I see trainees using form reminiscent of a penguin having an epileptic seizure. One Mr. Olympia finalist tore his biceps because he failed to use proper technique on this bench.

Most curling exercises involve some assistance and stabilization work by muscle groups other than the elbow flexors. The Scott Bench isolates the elbow flexors by making it difficult to use “Body English” to recruit other muscles. Scott Curls isolate the brachialis and the medial (short) head of the biceps brachii. Since fewer muscles are involved in performing Scott Curls, it is generally necessary to use less resistance than on standard curls.

Bodybuilding’s gym-jock kinesiologists will say that a 90-degree inclination on the padded surface works the “upper biceps” and that a 45-degree inclination works the “lower biceps.” Where did they learn anatomy? There are no such things as upper and lower biceps. When you experience “lower-biceps” soreness two days after a Scott bench workout, you simply have soreness in the short head of the biceps brachii and in the brachialis. Since the distal insertions of these muscles are in the crook of the elbow, people have invented the term “lower biceps.”

I prefer the seated version of the Scott Bench because it minimizes cheating. The bench should not be too high; otherwise, it puts stress on the lower back. Set the height of the seat so that the tops of your thighs are parallel to the floor. It is best if the seat is angled downward toward the curling post. This puts the lower back in a more ergonomic position for curling. The padding on the

arm support should be soft yet firm; when you are lifting the weight, your elbows should not dig into the padding. While Larry Scott recommends a convex surface, I prefer a flat one. I find that trainees who have used a convex surface have often hyperextended their elbows and/or injured their tendons as a result.

Sit on the Scott bench. Grasp the barbell using a supinated (palms-up) grip with your little fingers four to six inches apart. Your arms should be outstretched so that your triceps are in contact with the padded surface. Initiate the movement by bending your elbows. Curl the barbell to the point where your elbow flexors are just about to lose tension. Then, reverse the movement. Make sure that your elbow flexors are fully stretched in the bottom position. Keep your wrists cocked back throughout the full range of motion.

Dips

In my opinion, this exercise is the king of triceps builders. Yet, like other ever-demanding movements such as squats and chins, it is rarely found in a *Men's Fitness* pulley-artist type of routine.

You can use parallel or V-shaped dipping bars. The V-shaped bar is preferable. If you have access to one, use as narrow a grip as possible without compromising shoulder integrity. Grasp the bars and boost yourself until you are stabilized over them at arm's length. Lower yourself until your biceps make contact with your forearms—your triceps must get fully stretched. Once you reach the bottom position, press yourself back up by extending your elbows. Try to stay as upright as possible throughout the range of motion. If you lean too far forward, you will increase pectoralis recruitment.

If you can't lower yourself under control until your biceps make contact with your forearms, go back to collecting stamps, or perform the Decline Close-Grip Bench Press until you have sufficient arm strength. If you have incomplete range of motion on triceps dips, they are a complete waste of time. Along the same lines, don't cheat

yourself by doing chopped reps (not going down all the way and coming up only three-quarters of the way). By the same token, your elbows should go only to 98% of full elbow extension to maintain maximal tension on the triceps. And please, don't resort to the geek version, where you put your feet on a bench in front of you and your hands on another bench behind you. This exercise (along with Smith Machine pressing exercises) is one of the major causes of shoulder impingement syndrome among bodybuilders.

At first, your bodyweight will probably suffice as the means of resistance. As you get stronger, you can progressively increase the resistance by holding a dumbbell between your legs. A better alternative is to hook a plate or dumbbell onto a specialized chin/dip belt. There are many models on the market, but I prefer the ones that are standard leather lifting belts with hooks sewn in.

Seated Dumbbell Hammer Curls

Hammer Curls are done with a semi-supinated grip—as if you were holding a pair of hammers. This exercise has the advantage of shifting the overload in elbow flexion to the brachioradialis and brachialis at the expense of the biceps brachii.

To prevent cheating, try resting your upper back against the chest rest pad of the Scott bench. Be sure to keep the position of your lower back fixed. The Atlantis Scott bench is excellent for this purpose, as the footrest allows you to lock yourself into position. Seated Hammer Curls can also be done on a flat bench or an incline bench.

Seated Half Presses in Power Rack

The Seated Half Press in Power Rack is a favorite of powerlifting coach extraordinaire Louie Simmons. This exercise is excellent for packing meat onto the lateral head of triceps, which is

underdeveloped in most individuals. You can tell when it's developed, though; it makes the back of the triceps look like an "X" and makes you appear considerably wider.

Set up an adjustable incline bench inside a power rack. (For safety and effectiveness, the ideal choice for this exercise is the Atlantis bench B-178.) The angle of inclination should be 80-90 degrees. The seat portion should be angled upward so that you will not slip off when executing the exercise. Set the pins at hairline level. Unrack the bar. Lower the bar onto the pins, but maintain slight tension on the working muscles. Hold the bar in this dead-stop position for the duration of the pause. Do not release the tension. Press the bar upward to complete the movement. All the while, your elbows should be pointing outward.

I have found that using dead stops ranging from two to four seconds in the bottom position is best with this exercise. Recommended tempo is 2210 or 3210, depending on arm length. Training with dead stops will develop your ability to overcome inertia.

Phase III
Workouts 13-18

Uni-Angular Tri-Sets

I learned about the Uni-Angular Tri-Sets method from the writings of the late bodybuilding author Don Ross. Don was keen on developing training methods to jolt muscles into new growth. He was the Master of Plateau Busting. Although the physiological underpinnings of his methods left something to desired, his programs worked.

Many top bodybuilders known for their monstrous arm development—Larry Scott and Ehrling Walgren, for example—were staunch advocates of this method. Tri-sets are effective simply because they extend the training stimulus to a wider pool of motor units and increase the total time under tension for the associated muscle fibers.

The method entails the performance of three different exercises in a tri-set format, with no rest between sets. I have used findings from modern exercise physiology to improve this method. Simply adding a 10-second rest between exercises makes a world of difference in terms of results. This short rest makes it possible to use significantly greater loads than if no rest is taken, thereby putting greater tension on the muscles. Hypertrophy is determined in large part by the product of time under tension and load. If you move immediately from one exercise to another, the reduced loads that must be used produce a sub-optimal training effect.

Table 7. Uni-Angular Tri-Sets Routine

Order	Exercise	Sets	Reps	Tempo	Rest
A-1	Lying Dumbbell Triceps Extensions	3	6-8	3010	10

A-2	Lying EZ Bar Triceps Extensions to Bridge of Nose	3	6-8	2010	10
A-3	Lying EZ Bar Triceps Extensions to Chin	3	12-15	2010	120
B-1	Standing, Narrow-Reverse-Grip EZ Bar Curls	3	5-7	3210	10
B-2	Standing, Mid-Reverse-Grip EZ Bar Curls	3	3-5	3020	10
B-3	Midline Hammer Curls	3	5-7	2020	120

You should expect to reduce the weight by about 10 percent on successive tri-sets. Although 2-minute rest intervals are normally taken between tri-sets, individuals with a high-fast twitch make-up may chose to extend the rest interval to 3 minutes.

How to Perform the Exercises

Lying Dumbbell Triceps Extensions

From a supine position on a flat bench, lift the dumbbells overhead in bench-press fashion. Your grip should be semi-supinated, so that your palms are facing each other. You are now ready to begin the exercise. Keeping your elbows pointed directly upward, lower the dumbbells until your forearms make contact with your biceps. At this point, the dumbbell plates will probably be in contact with your shoulders. Lift the dumbbells back up to the starting position by extending your elbows, keeping their position in space fixed. Your elbows should be the only active joints during this exercise.

Lying EZ Bar Triceps Extensions to Bridge of Nose

Follow the instructions for Lying EZ Bar Triceps Extensions to Forehead (Phase 1), but lower bar to the bridge of your nose. Don't

be overly concerned about keeping the tips of the elbows as close together as possible, as this puts a lot of strain on the supportive structures of the elbow.

Lying EZ Bar Triceps Extensions to Chin

In this variation, lower the bar until it makes very slight contact with the chin. The elbows will have to drop forward slightly. As always, though, keep the position of the elbows fixed in space through the exercise

Standing, Narrow-Reverse-Grip EZ Bar Curls

As with the paused version of this exercise (Phase 1), use a semi-pronated (overhand) grip on the narrow position of an EZ Bar (first bend away from the center of the bar). Curl the bar until the tops of your forearms make contact with your biceps. As with all curling exercises, do not swing the bar or flare your elbows to complete the movement. For maximal isolation, support your shoulder blades with a Swiss Ball.

Standing, Mid-Reverse-Grip EZ Bar Curls

Use the same technique as for the preceding variation of this exercise but with a shoulder-width grip (third bend away from the center of the bar).

Midline Hammer Curls

This exercise is a variation of the basic Hammer Curl (Phase 2). As you curl the dumbbells upward, bring them together in front of your sternum without allowing them to touch.

Phase IV
Workouts 19-24

Maximal-Tension Drop Sets

The routine for Phase 4 is designed to increase maximal strength. There are two reasons for doing maximal-strength training at this point in the program. First, it will ensure that your strength gains are commensurate with your mass gains. Second, it will facilitate ongoing mass development in Phases 5 and 6. As I mentioned in Phase 1, insufficient strength for a given muscle cross-sectional area will inhibit growth.

The body's response to weight training depends in large part on the amount of tension applied to muscles. To activate the highest-threshold motor units, it is necessary to apply maximal tension.

Motor Unit Activation

Motor units are functional units of nerve and muscle. Motor units consist of a nerve cell (motor neuron) and the muscle fibers that it controls. The body of the nerve cell is located in the central nervous system, in the brain stem or spinal cord. Another portion of the cell, the axon, connects the cell body to individual muscle fibers. Motor units have activation thresholds. If your 1-rep maximum for a particular lift is 300 pounds, lifting 150 pounds (50% intensity) will activate only lower-threshold motor units. A higher training intensity (e.g., 90%, or 270 pounds) would be required in order to tap into motor units with higher activation thresholds. Fast-twitch muscle fibers are associated with higher-threshold motor units. These fibers are capable of generating more force than their slow-twitch counterparts, which are more resistant to

fatigue. As their name implies, fast-twitch fibers are also capable of higher rates of force generation. The fast-twitch fibers associated with the highest-threshold motor units are the most difficult to recruit. They also have the greatest potential for growth.

I believe that the best way to maximize muscle tension and motor unit activation is to vary the load during a set. To illustrate this, let's compare two training protocols. First we'll look at a conventional set. Let's say that an individual can bench press 300 pounds for 1 rep and 240 pounds for 7 reps, lowering the weight on a 4-second count. Table 8 shows loading parameters for a conventional set done with 240 pounds.

Table 8. Loading Parameters for Bench Press Conventional Set			
Rep	Load (lbs)	Eccentric Contraction Time (sec)	Concentric Contraction Time (sec)
1	240	4	1.2
2	240	4	1.2
3	240	4	1.3
4	240	4	1.4
5	240	4	1.4
6	240	4	1.8
7	240	4	2.3
<u>Total</u>	1680	28	10.6
Average	240	4	1.5

Now, let's have the same individual perform a 7-rep set, but lift 300 pounds for the first rep, 285 for the second, 270 for the third, and so forth, as shown in Table 9.

Table 9. Loading Parameters for Bench Press Drop Set			
Rep	Load (lbs)	Eccentric Contraction Time (sec)	Concentric Contraction Time (sec)
1	300	4	2.1
2	285	4	2.3
3	270	4	2.5
4	260	4	2.8
5	250	4	2.8
6	240	4	3.1
7	230	4	3.2
<u>Total</u>	1835	28	18.8
Average	262	4	2.6

As you can see, the average load for a 7-repetition set is 7.4% higher with the second protocol. The drop-set protocol therefore produces a higher overall level of muscle tension. Also, the average concentric speed is lower with this protocol (2.6 seconds per rep vs. 1.5 seconds per rep), because each rep is performed at 100% of momentary maximal strength. The combination of heavier loads and slower movements—higher intensity and increased time under tension—makes the second protocol more effective than the first for developing strength. You will use such a system in Phase 4, as shown in Table 10.

Table 10. Maximal-Tension Drop Sets Routine

Order	Exercise	Sets	Reps	Rep Sequence	Tempo	Rest
A-1	One-Arm Dumbbell Scott Curls	5	5	2, 1, 1, 1	31X0	120
A-2	California Presses	5	5	2, 1, 1, 1	30X1	120
B-1	Seated, Offset-Grip Dumbbell Curls	4	7	3, 1, 1, 1, 1	31X0	90
B-2	Decline Dumbbell Triceps Extensions	4	7	3, 1, 1, 1, 1	30X1	90

On all exercises, there is a 10-second rest between weight drops. This will provide enough recovery to allow the reactivation of high-threshold fibers. The weight drops are accomplished most effectively with the help of two partners. They should quickly strip the bar when the weight is at the top position, after you complete the concentric portion of the movement and before you begin to lower the bar for another eccentric contraction.

For each series of exercises A-1 and A-2, begin with a weight that corresponds to your momentary 2-RM. Perform 2 reps and rest 10 seconds. Drop the weight 5%, perform 1 rep, and rest 10 seconds. Drop the weight another 5%, perform 1 rep, and rest 10 seconds. Drop the weight another 5%, perform 1 rep, and rest 10 seconds. That gives a total of 5 gut-wrenching reps.

For each series of exercises B-1 and B-2, begin with a weight that corresponds to your momentary 3-RM. Perform 3 reps and rest 10 seconds. Drop the weight 5%, perform 1 rep, and rest 10 seconds. Do three more single reps, dropping the weight 5% on each and resting 10 seconds after each, for a total of 7 reps.

You might expect that your momentary 2- and 3-RMs on the second and third series will be lower than on the first series due to fatigue. In fact, your momentary 2- and 3-RMs could actually be *higher* on the second and third series due to neural facilitation.

The tempo prescription for all exercises has a 3-second eccentric component, an explosive concentric component, and a pause. Although an explosive concentric movement is prescribed, the actual velocity of execution may be considerably slower due to the very heavy loads. Don't worry. As long as you *try* to lift the weight explosively, you will elicit the desired training effect. The Canadian researcher David Behm has demonstrated that the intent of the trainee matters more than the actual velocity of execution. On repetitions where the velocity of execution is in fact explosive, make sure that you keep the weight under control. You should try to accelerate the weight through the concentric range. Near the end of the movement, however, you will need to decelerate the weight to prevent injuries.

Note that the pause is taken where leverage is more favorable (e.g., lock-out position in the bench press) so that the muscles can relax, thereby increasing blood flow. According to Australian strength and biomechanics expert Dr. Greg Wilson, this facilitates recruitment of the higher-threshold fibers.

How to Perform the Exercises

One-Arm Dumbbell Scott Curls

There is strong evidence that muscles may be better activated during single-limb movements. That is why I recommend that Dumbbell Scott Curls be done one arm at a time. I also recommend that you use a thick-handled dumbbell. I have found from experience that it increases motor-unit recruitment.

Position your free hand on the padded surface of the arm support, with the fingertips of your thumb and index finger bracing the medial portion of your triceps. Your upper arm should be locked into a fixed position. Begin the first rep from the stretched position. Curl the dumbbell, but only work in the range of motion in which tension is maintained on the elbow flexors. If you come up too high, elbow flexor tension will be lost, compromising exercise effectiveness. Because working in the bottom portion of the range of motion is much more difficult on Scott Curls than it is on standard curls, many trainees refrain from lowering the weight all the way. Be careful that you do not shorten the range of motion in this way, as it diminishes the effectiveness of the exercise considerably. Throughout the range of motion, keep your neck aligned by looking straight ahead.

California Presses

The California Press is a hybrid movement that is a cross between a Close-Grip Bench Press and a Lying Triceps Extension. It is a very popular assistance movement among powerlifters, particularly those who need to increase their triceps mass and strength to improve their bench press performance.

Assume the same starting position as for a Close-Grip Bench Press. Lower the barbell to your upper chest by bringing your elbows down and forward as you lower the bar. As you complete the range of motion, you will experience a great stretch in your triceps.

In the bottom position, your forearms should be in contact with your biceps, and the bar should be in contact with your upper chest. From this position, reverse the movement, pushing the bar upward from your chest. Extend your elbows to just short of lock-out in order to maintain tension on your triceps.

Your starting weight will be somewhere between the weights you

can lift on Close-Grip Bench Presses and on Lying Triceps Extensions.

Seated, Offset-Grip Dumbbell Curls

For this exercise, sit on a regular bench and hold the dumbbells with an offset grip – that is, an asymmetrical grip where the thumb side of your hand rests against the inside surface of the dumbbell plate. Start the exercise with your wrists semi-supinated (i.e., as if holding a hammer), and curl the weight to about 40 degrees of elbow flexion. Then, supinate your wrists (i.e., turn your palms up), and complete the curling movement. Your forearms should touch your biceps. The purpose of the offset grip is to increase the involvement of the short head of the biceps upon wrist supination.

Decline Dumbbell Triceps Extensions

This exercise has been shown through MRI studies to be among the most effective for recruiting all three heads of the triceps. I find that it allows a greater stretch than most triceps exercises do.

Follow the instructions for Lying Dumbbell Triceps Extensions (as described in Phase 3), but perform the exercise on a decline bench, hooking your feet under the padded rollers.

Phase V

Workouts 25-30

Multi-Grip/-Pathway System

I was first exposed to the elements of this system by reading the articles of Don Ross, who was one of Southern California's most obsessed training methodology fanatics. In this system, different grips and bar pathways are used for a particular type of exercise (e.g., curls) over the course of an extended set (a tri-set, in the case of the routine you'll be doing during this phase.) Grip and pathway changes enhance the training stimulus by enlarging the pool of motor units being recruited, but not by so much as to violate the Law of Repeated Efforts.

For a given muscle performing a particular movement, there is a fixed order of recruitment of motor units. The order of recruitment remains the same at any speed of contraction. However, if the position of the muscle is changed *relative to the load it is acting on*, the order of recruitment changes. That means that certain fibers of the same muscle will have lower recruitment thresholds for some exercises and higher recruitment thresholds for others. This variation in recruitment order according to movement pattern probably accounts in part for the specificity of resistance training effects. It also tends to support the notion long held by strength training practitioners that full development of a muscle is possible only when all its possible movements are trained.

The order of motor unit recruitment for specific movements is related to the location of particular fibers within a muscle. For illustration, we'll consider the long head of the biceps brachii. Medial fibers are preferentially recruited in forearm supination. Lateral fibers are preferentially recruited in elbow flexion. Fibers recruited in all movements are located centrally and medially. In elbow flexor training, the weakest to strongest grips go from pronated to

supinated to semi-supinated. The elbow flexor exercises for the routine below follow this progression.

The routine for Phase 5 consists of two tri-sets. The first targets the elbow flexors. The second targets the elbow extensors.

Table 11. Multi-Grip/-Pathway Routine					
Order	Exercise	Sets	Reps	Tempo	Rest
A-1	Paused, Standing, Mid-Reverse-Grip EZ Bar Curls	3	4-6	3210	10
A-2	Standing Barbell Curls	3	4-6	3020	10
A-3	Seated Dumbbell Hammer Curls	3	6-8	2010	120
B-1	Lying Barbell Triceps Extensions to Forehead	3	6-8	2210	10
B-2	California Presses	3	AMRAP	3010	10
B-3	Lying Dumbbell Triceps Extensions	3	6-8	2210	120
AMRAP = as many repetitions as possible					

Make sure that you take the prescribed amount of rest between changes in grip or bar pathway. Longer or shorter rest intervals will compromise the training effect. To avoid delays, you will need to have all weights pre-loaded and within reach. You will probably need to reduce the weight for each exercise by 5-10% on successive tri-sets.

How to Perform the Exercises

Paused, Standing, Mid-Reverse-Grip EZ Bar Curls

Follow the instructions for Paused Standing Narrow-Reverse-Grip EZ Bar Curls (described in Phase 1) using a shoulder width-grip.

Standing Barbell Curls

The Standing Barbell Curl has long been regarded as the king of mass builders for the elbow flexors. I beg to differ, as there is some EMG evidence that Scott Curls and Incline Curls better recruit the elbow flexors. I suspect that, because the arms are stabilized in these two exercises, neural drive can be concentrated on the elbow flexors.

In the starting position, you should be standing erect with your feet shoulder width apart and your knees slightly bent. Hold the bar using a supinated grip (palms facing away) with your hands shoulder width apart. To minimize cheating and maximize isolation, many authors recommend having your back and gluteal muscles pressed against a wall and your elbows touching the sides of your torso. As with the other types of standing curls, you can instead use a 45- to 55-cm Swiss ball to brace your upper back. Position the ball between your rhomboids and a wall. This will provide greater comfort for your upper back, avoid putting stress on your lower back, and allow full range of motion.

On the ascent, curl the bar until your forearms come in contact with your biceps. On the descent, lower the bar until your elbows are fully extended. Perform the movement in a controlled manner. There should be no bouncing in the bottom position.

It is essential that your elbow flexors do all the work raising and lowering the barbell. When you initiate the movement, you should use only your elbow flexors to overcome inertia. To enforce isolation of the elbow flexors, keep the following points in mind:

Do not allow your body to sway. Keep your neck aligned with your torso. Do not allow your pelvis to move forward to initiate the movement. On the ascent, do not shrug your shoulders, and do not

bend your knees if you come to a sticking point. Throughout the movement, keep your upper arms as perpendicular to the ground as possible, and keep your wrists in a neutral position. Do not allow your elbows to flare. Although your elbows need to remain behind the bar at all times, you should not draw them back; they should remain in fixed position at your sides. Initiating the curl with your elbows drawn back and already bent will shorten the range of motion and reduce your strength gains.

As you initiate the lift, inhale, but you can hold your breath momentarily if you come to a sticking point. Once the bar passes that point, exhale. Your mouth should be kept open.

Seated Dumbbell Hammer Curls

This movement was described in Phase 2.

Lying Barbell Triceps Extensions to Forehead

Follow the instructions for Lying EZ Bar Triceps Extensions to Forehead (Phase 1), but perform the exercise with a barbell using a pronated grip. The grip width should be 10-12 inches.

California Presses

This movement was described in Phase 4.

Lying Dumbbell Triceps Extensions

This movement was described in Phase 3.

Phase VI

Workouts 31-36

Four-Percent Solution/Broad Pyramid Combination

There are lots of very effective set and rep schemes, but they're good only for the amount of time that it takes the body to adapt to them. The more advanced the trainee, the faster adaptation will occur. Also, the more talented (i.e., neurologically gifted) the trainee, the faster adaptation will occur. The faster adaptation occurs, the more frequently routines need to be modified. Since beginners generally require more time to adapt to a routine, they can get away with using the same routine for longer than an advanced trainee.

For beginners, a particular routine might guarantee progress for four to six weeks—up to eight weeks in the case of a less talented beginner. Advanced athletes, on the other hand, might have to change their routines every week. Some even have to change their program *every workout*. This is true for exceptionally gifted individuals such as Pierre Lueders, who became the first non-European Olympic gold medalist in the Two-Man Bobsleigh.

There is simply no such thing as a routine that allows you to make progress for eternity. Using the same training routine over and over is like trying to master a foreign language by perpetually repeating the first ten pages of a phrase book. There are some self-appointed experts who claim that certain training methods will assure eternal progress. One such “expert” contends that there is only one way to train: *his*. He is referred to in strength training circles as “His Pomposity.” He advocates minute training volume and extremely low training frequency. Adherents of his training system are easily recognized, because they generally share the following traits:

- They are mentally disturbed.

- They have elevated cortisol levels as a result of their failure to make gains on a consistent basis. This accounts for their constant irritability, pissing and moaning, and, of course, cortisol-induced fatty deposits on the umbilical wall.
- They are addicted to pre-workout stimulants. Liberal use of stimulants is the only way they can handle increases in load.
- They have an abundance of muscle tears. One proponent of this system is a former Mr. Olympia, whose career was short-changed by tears in one or more of the following: quads, lats, biceps, and triceps.

In the routine for Phase 6, I combine two of my favorite training protocols: the Four-Percent Solution and the Broad Pyramid. While each protocol is effective in its own right, my hybrid system will allow you to reap the benefits of both protocols simultaneously. The hybrid system will propel your arm size and strength to new levels. First, let's take a look at each of the two protocols on which it is based, and then I will show you how I have combined them.

The Four-Percent Solution

The Four-Percent Solution requires you to follow a predetermined weight/rep progression over six workouts. After the first workout, you increase the load by 4-5% per workout for two workouts. Simultaneously, you reduce the target number of reps per set by 1 for each 4-5% increase in load. Then, after the third workout, you reduce the weight by 4-5% but bring the number of reps back up to the starting number. For the next two workouts, you again increase the load by 4-5% per workout and reduce the target number of reps per set by 1 per workout. After you recover from the sixth workout, you will have increased your strength in each lift by approximately 10%!

If you're confused at this point, I don't blame you, so let me offer an example.

Let's say that you have a weak brachialis muscle and you want to improve your reverse curl strength. For the sake of this example, we'll say that your best performance for a particular type of reverse curl is 100 pounds for 7 reps. Table 12 shows what your rep and weight progression would look like over six workouts using the Four-Percent Solution.

Table 12. Progression Example for the Four-Percent Solution			
Workout	Sets	Reps	Weight
1	4-5	7	100
2	4-5	6	105
3	4-5	5	110
4	4-5	7	105
5	4-5	6	110
6	4-5	5	115

In workout 1, you would try to do 4-5 sets of 7 reps at 100 pounds. From the first workout to the second, you would increase the weight by 4-5% and decrease the number of reps per set by 1. In workout 2, you would try to do 4-5 sets of 6 reps at 105 pounds. From the second workout to the third, you would again increase the weight by 4-5% and decrease the number of reps per set by 1. In workout 3, you would try to do 4-5 sets of 5 reps at 110 pounds.

In workout 4, you would use the same load that you used in workout 2 and shoot for the number of reps that you did in workout 1. Your goal, then, would be to do 4-5 sets of 7 reps at 105 pounds. If you achieve this goal, you would already be 5% stronger! From the

fourth workout to the fifth, you would increase the weight by 4-5% and decrease the number of reps per set by 1. (This would result in your using the same load that you used in workout 3 and trying to do the same number of reps that you did in workout 2.) From the fifth workout to the sixth, you would once again increase the weight by 4-5% and decrease the number of reps per set by 1.

If you were to do a seventh workout, you'd be able to do 7 reps at 110 pounds. That's a 10% increase in strength over six workouts, and that's excellent! You won't do the seventh workout, though, because it's optimal to move on to another type of routine after six workouts.

Neuromuscular fatigue will prevent you from reaching your target number of reps on every set in a given workout. As long as you hit your target on the first set of every workout, you're doing fine.

The Broad Pyramid System

The pyramid system is a classical training system that has been criticized by a number of strength training experts, such as Vladimir Zatsiorski of the former Soviet Union. A classical pyramid scheme, as most of us would recognize it, would look something like the following.

Table 13. Classical Pyramid	
Reps	% of 1-RM
12	70
10	75
8	80
5	85
3	90

2	95
1	100

Critics of the classical pyramid system assert that the intensity spread of 70 to 100% of maximum is far too wide. They argue that the 30% intensity spread crosses too many borders to be effective so that the body has a hard time figuring out what exactly is the training stimulus. These critics generally favor set/rep schemes that obey the Law of Repeated Efforts at a given intensity—for example, 6 sets of 3 reps at 90% of maximum.

Romanian strength expert Tudor Bompa does not reject the pyramid system entirely, but instead argues for using only a 20% intensity spread (i.e., 60-80%, 70-90%, or 80-100%). I take this line of thought a step further and argue that it is even more effective to limit the intensity spread to 10-12%, while keeping the bottom end of the range at not less than 70% of maximum. This is in agreement with the thinking of my colleagues Hartmann and Tunnemann from the former East Germany. So, possible intensity spreads using this approach would be 70-80%, 75-80%, etc. By keeping the intensity spread at 10-12%, workouts will respect the Law of Repeated Efforts; the body's adaptive mechanisms will not be confused by wide variation in training intensity. At the same time, the 10-12% spread is sufficiently wide to keep the training interesting.

There are many possible variations of the broad pyramid, depending on the training objective. Two examples are shown in Tables 14 and 15.

Table 14. Broad Pyramid for Hypertrophy

Reps	% of 1-RM
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8	78
6	82
4	87.5
4	87.5
6	82
8	78

Table 15. Broad Pyramid for Relative Strength

Reps	% of 1-RM
5	85
3	90
2	95
2	95
2	95
3	90
5	85

The broad pyramid system has been a staple of strength routines in the German-speaking nations. There it has been used in the training routines of bobsledders, throwers, jumpers, strongmen, powerlifters, and weightlifters. I have used the broad pyramid system successfully with many athletes who compete in short-duration, power events. I have also used the system successfully with hockey defensemen. It works especially well when combined

with the Four-Percent Solution, which I have used successfully for over 15 years. Six years ago, I decided to combine the systems for their respective advantages.

Combining the Two Systems

I have combined the two systems by prescribing a broad pyramid for each workout and varying the reps and load between workouts according to the Four-Percent Solution. Here is the Routine for Phase 6:

Table 16. Four-Percent Solution/Broad Pyramid Routine					
Order	Exercise	Workout	Reps	Tempo	Rest
A-1	One-Arm Dumbbell Scott-Zottmann Curls	1	8, 6, 4, 4, 6, 8	5010	120
		2	7, 5, 3, 3, 5, 7		
		3	6, 4, 2, 2, 4, 6		
		4	8, 6, 4, 4, 6, 8		
		5	7, 5, 3, 3, 5, 7		
		6	6, 4, 2, 2, 4, 6		
A-2	10-Degrees Decline Close-Grip Bench Presses	1	8, 6, 4, 4, 6, 8	3110	120
		2	7, 5, 3, 3, 5, 7		
		3	6, 4, 2, 2, 4, 6		
		4	8, 6, 4, 4, 6, 8		
		5	7, 5, 3, 3, 5, 7		
		6	6, 4, 2, 2, 4, 6		
B-1	Paused, Seated, Offset-Grip Dumbbell Curls	1	8, 6, 4, 4, 6, 8	3210	100
		2	7, 5, 3, 3, 5, 7		
		3	6, 4, 2, 2, 4, 6		
		4	8, 6, 4, 4, 6, 8		
		5	7, 5, 3, 3, 5, 7		
		6	6, 4, 2, 2, 4, 6		

B-2	Incline Barbell Triceps Extensions	1	8, 6, 4, 4, 6, 8	4120	100
		2	7, 5, 3, 3, 5, 7		
		3	6, 4, 2, 2, 4, 6		
		4	8, 6, 4, 4, 6, 8		
		5	7, 5, 3, 3, 5, 7		
		6	6, 4, 2, 2, 4, 6		

To illustrate how you should apply the loading progression of the Four-Percent Solution to this routine, Table 17 shows what the rep and weight progression for the 10-Degrees Decline Close-Grip Bench Press might look like.

Table 17. Progression Example for Exercise A-2

Workout 1		Workout 2		Workout 3		Workout 4		Workout 5		Workout 6	
Rep s	Wt.	Rep s	Wt.	Rep s	Wt.	Rep s	Wt.	Rep s	Wt.	Rep s	Wt.
8	200	7	210	6	220	8	210	7	220	6	230
6	210	5	220	4	230	6	220	5	230	4	240
4	220	3	230	2	240	4	230	3	240	2	252. 5
4	220	3	230	2	240	4	230	3	240	2	252. 5
6	210	5	220	4	230	6	220	5	230	4	240
8	200	7	210	6	220	8	210	7	220	6	230

Let me give you another example. Let's say your poundage for 8 reps on Zottman curls is 30 lbs. So, what should you use for the next set of 6? Well, add between 4-5 percent (per the 4% solution program), which would translate into 1.25 to 1.5 lbs. You could accomplish that by putting a 5/8 of a pound Plate Mate at each end of the dumbbell. That would give you a 31.25 lb. Dumbbell. For the

next 4 reps, you would add another 4-5% (2 x 1 ¼ lb. Plate Mates) to make a 32.5 lb. dumbbell. Keep the same weight for the fourth set, and then use the 31.25 lb. setup for the fifth set and 30 lb. dumbbells for the last 8 reps.

So, here's your progression for the above example:

Set 1: 30 lbs. x 8 reps

Set 2: 31.25 lbs. x 6 reps

Set 3: 32.5 lbs. x 4 reps

Set 4: 32.5 lbs. x 4 reps

Set 5: 31.25 lbs. x 6 reps

Set 6: 30 lbs. x 8 reps

How to Perform the Exercises

forearms should make contact with the padded surface of the Scott bench at the end of the eccentric range.

10-Degrees Decline Close-Grip Bench Presses

Follow the instructions for Close-Grip Bench Presses (Phase 1), but perform the exercise on a decline bench with your feet hooked under the padded rollers. The angle of declination should be set at 10 degrees. As with Close-Grip Bench Presses on a flat bench, I advise you to have a partner help you to unrack and rack the weight.

One-Arm Dumbbell Scott-Zottmann Curls

It is best to use a seated Scott bench for this exercise, as it minimizes the opportunity for cheating. I prefer to use the Atlantis version. Ideally, you should have a partner hand you the dumbbell. Using a supinated grip (palms facing the ceiling), curl the dumbbell to the point just before tension on the elbow flexors is lost. At this point, pronate the forearm completely, so that your palm is facing away from you. When you lower the weight, the biceps brachii will have

an ineffective line of pull, shifting the load to the underlying brachialis and the brachioradialis. Make sure that your elbow flexors are fully stretched in the bottom position of the eccentric range before you supinate your wrist to begin the next rep. To enforce this, your

Paused, Seated, Offset-Grip Dumbbell Curls

Follow the instructions for Seated Offset-Grip Dumbbell Curls (Phase 4), but pause for a count of two seconds after you reach 40 degrees of elbow flexion and before you supinate your wrists to complete the concentric phase. Expect high intramuscular tension as a result of the pause.

Incline Barbell Triceps Extensions

For this exercise, use an incline bench set at 45 degrees. Grip width should be slightly narrower than shoulder width. Unrack the barbell and hold it at arm's length. Make sure that the seat is low enough in relation to the uprights so that when you lower the barbell it does not come in contact with them. Lower the barbell under control until it makes very slight contact with your forehead. At that point, pause for one second. Lift the weight back up to the starting position. Keep your wrists in a neutral position throughout the movement.

GETTING THE MOST FROM YOUR ARM STRENGTH WORKOUTS

GENERAL TIPS AND NOTES FOR TRAINING WITH MAXIMAL WEIGHTS

Although training with maximal weights is fairly straightforward, there are various things to keep in mind so that you can make the most of this 12-week period.

1. If possible, train in groups of two or three athletes. This will make it easier to load and unload plates, as well as serve as a natural “clock.” In other words, when lifter B and lifter C finish their sets, it’s time for you to do your next set. Training partners also serve to motivate you and help cut down the risk of injury.

2. Anyone who has been training for a long time eventually reaches a point of diminishing returns, making it difficult to produce even a 5-pound increase in a particular exercise. Given the standard weights increases given by commercial gym dumbbells and barbells, it is hard to achieve such a small increase. Most gyms don’t carry ANY small disks, but

you can buy Eleiko Olympic disks of 0.5 kilograms and 0.25 kilograms from Sports Strength (1-800-285-9634). For dumbbells I strongly suggest that you buy Plate Mates. They're magnetized weights that fit on the end of a bar. They are sold in 17/8, 1 1/4 pound weights and 5/8 pound weights. They're a great thing to have anyhow, as they also attach to dumbbells for making intermediate jumps in weight. I recommend you buy the donut-shaped ones, as they also fit on hexagon dumbbells. Their number is 1-800-877-3322. Imagine if you could increase the weight for reps by half a pound a week--that would represent a 26-lb gain a year from now! Gets you psyched, eh?

3. Record all sets, reps, and rest intervals for purposes of motivation, monitoring, and program evaluation. Invest a few bucks in a training diary and keep meticulous records. The more high-tech approach is to use an Apple Newton, of course, like one of my clients. Unfortunately, this method has inherent disadvantages. For some reason, training partners "inadvertently" drop weights on them to see how far the computer chips fly. A great way to keep records is to make recording sheets that you print and put in a three hole binder. Those sheets can be made easily with any spreadsheet software such as Excel.

4. Try to pair agonists and antagonists together. This helps with muscle recovery. The ability of a muscle to produce full motor-unit activation may be enhanced when preceded immediately by a contraction of the muscle's antagonist. (Grabiner 1994) It's also effective to alternate agonist/antagonist exercises to increase motor unit activation, as long as you allow for enough rest in-between sets.

5. Don't overdo it. Keep the workouts under 1 hour, as working out longer will deplete androgen levels. There is a very strong correlation between one's strength and its androgen profile, particularly the ratio of testosterone cortisol (Häkkinen et al. 1989; Busso et al. 1990; Häkkinen & Pakarinen, 1994...) There is strong evidence that your serum testosterone and free testosterone can be lowered for up to two days after a strenuous lifting session (Häkkinen & Pakarinen, 1993) There are two ways you can accomplish that:

a) boosting your endogenous androgen production by using a tribulus terrestris based product like Tribex (Biotest Laboratories)

b) by keeping your cortisol low by ingesting 800 mg of Phosphatidyl serine post-workouts (i.e. Cortistat, Champion Nutrition, 1-800-225-4831).

c) There is evidence to suggest that prior vitamin C supplementation may exert a protective effect against eccentric exercise-induced muscle damage (Jakeman & Maxwell, 1993).

6. Make sure that you're motivated before you begin to work out. Showing up at the gym just to go through the motions is a complete waste of time. The name of the game is progressive overload. As Charlie Francis, coach of Ben Johnson used to say « If you are not going to improve this workout, no point showing up ». In weight room lingo that be translated into « Go heavier, or go home »!.

In order to use heavier loads and to have more drive in the gym, people have been a variety of stimulants. One of the most effective and popular being ephedra

derivates like the Thermadrol Extreme from Champion Nutrition. The instant strength increases of ephedra can be magnified by using a designer product called Power Drive. It was formulated by a very successful European powerlifting coach. It contains a unique blend of brain nutrients which synergistically work with ephedra in allowing one to tap into high threshold motor units.

7. Keep in mind that, contrary to popular bodybuilding methodology, maximal weight training imposes lower energy requirements per time unit. To put it simply, you won't burn as many calories and your caloric requirements will be less during this training period. You may want to adjust your carbohydrate downward in that case, while of course making sure that you keep your intake of quality protein high like ProScore from Champion Nutrition and ingesting good fats such as flax and olive oil.

In closing, let me say that maximal weight training isn't for everyone. People who are only interested in having arms that aren't the least bit functional should avoid them like the plague and work out with Kate Moss.

Functional isometrics

Increasing Arm Training Poundages with Functional Isometric Contractions.

From the earliest start of my career as a strength & conditioning coach, I have been a strong believer of using the power rack to promote rapid strength and mass gains after applying my readings of authors Don Ross, Rasch, Bill Starr and Anthony Ditillo. This program is most effective. The average intermediate bodybuilder can expect to beat his personal records in the curl by 10 to 25 pounds, and in the close grip bench press by 30 to 45 pounds. This is rather impressive since those gains are made in the time frame of only 3-4 weeks.

This routine's physiological basis is what sport scientists Fleck & Kraemer (1997) and O'Shea (199x) call « functional isometric contractions » (F.I.C.) Over thirty years ago, players of the Iron Game were introduced to this training method under the term isometronics » which was a

contraction of the term isometrics and isotonics. The German strength experts like Letzelter & Letzelter (1986) and Hartmann and Tünnemann (199x) prefer to use the term auxotonics to describe this training method. The concept behind this training method is to use the best of what the isometric method can offer and combine it to the regular type of lifting still known as isotonics. With F.I.C. you make use of the specific joint-angle strength gains of isometrics after pre-fatiguing the muscles involved by using heavy short-range repetitions in the power rack.

In both the elbow flexors and triceps workout, you shall select three ranges of motion: start range, mid-range and end range. In all three ranges, you will select a specific weight that you can move from the bottom of the range of motion to its top position. In all ranges, the amplitude of the movement will be regulated by sets of pins. Here is how it is to be done:

1. Perform four to six partial reps in the normal fashion on a 202 tempo.

2. When you come to the end of the last concentric repetition, make contact with the bar against the top pins. Apply as much force as hard as possible for 6-8 seconds, trying to blast through the pins! Do not hold your breath during the isometric contraction; instead, use a very brief cycle of breathing, alternating rapidly between short inhaling and short exhaling.

3. If you've performed this set properly, you should not be able to perform another concentric repetition after lower the barbell-if you still can, the weight you used was simply too light.

The Isometronic Biceps Workouts

The two following isometronic biceps workout involves nine sets of rack work: three sets of four to six reps of isometronics at three different ranges. Do not be surprised if you're prone to intense shaking upon completion of the routine--this is evidence that your nervous system is shot. Due to the severity of the stress this workout imposes, it should only be performed once every two biceps workouts.

LOW-RANGE BARBELL CURL: Adjust the pins in the power rack so that they are set at a point where the barbell will travel for 45-50 degrees of your range of motion, starting from the bottom position (arms extended). At this angle the range is quite limited, so only lower the barbell for a count of two seconds. This exercise will improve the power of the start in all curling exercises.

MID-RANGE BARBELL CURL: Adjust the pins so that they are set at a point where the barbell will travel for 80-90 degrees of elbow flexion. For this range, lower the barbell for a count of three seconds. For the Barbell Curl performed in the conventional manner, this is where most individuals encounter sticking points--functional isometric contractions will help you blast through it!

TOP-RANGE BARBELL CURL: Adjust the pins so that they are set at a point where the barbell will travel for 130-140 degrees of elbow flexion. This is the hardest position to maintain proper ergonomics. As you fatigue you will have the tendency to lean back, a technique fault that creates trauma in the lower back that can cause injury. To prevent you from swinging the weight, you can have a training partner support you with their back against you. You will perform three sets of four to six reps of isometronics at this range, resting three minutes between each set.

Once you have completed these nine sets in the power rack, finish off your routine by performing any of the following:

OPTION A

- 1 x 6-8 R.M., Barbell Curl (full range), tempo 401
- 3 x 6-8 R.M., EZ Bar Reverse Curl, tempo 402, rest interval 3 minutes (pause in bottom position)

OPTION B

- 1 x 6-8 R.M., Barbell Curl (full range), tempo 401
- 3 x 6-8 R.M., Incline Dumbbell Curl, tempo 313, rest interval 3 minutes (pause in bottom position)

OPTION C

- 1 x 6-8 R.M., Barbell Curl (full range), tempo 401

- 3 x 6-8 R.M., Scott Close Grip Curl, tempo 511, rest interval 3 minutes (pause in bottom position)

Instead of the power rack training on your alternate biceps workout, perform four sets of four to six reps of Barbell Curls (full range), tempo 401, followed by option A, B, or C.

The Isometronic Triceps Workout

In this routine you will need two sets of pins, one for the start position and one for the end position. You will perform three sets of four to six reps of isometronics at each one of these ranges, starting from the bottom position. Rest three minutes between each set. Due to the severity of this workout, it should be performed only once every two triceps workouts, or about once every ten days.

LOW RANGE CLOSE GRIP BENCH PRESS: Adjust the pins so that they are set a point where the bar will travel from an inch off the chest to four inches above the chest. This should be your weakest position; in fact, some 300+ bench pressers will have to start off with as low as 165-185 pounds! At this angle the range is quite limited, so lower the bar for a count of two seconds. You will find that training in this range will give you an explosive start off the chest in the Bench Press. Perform three sets of four to six reps of isometronics at this range, resting three minutes between each sets.

MID-RANGE CLOSE GRIP BENCH PRESS: Adjust the pins so that they are set a point where the bar will travel from four inches off the chest--your previous set end position--to eight inches above the chest. For this exercise lower the bar for a count of two seconds. You will find that maintaining the groove in this particular exercise requires considerable mental concentration.

TOP-RANGE CLOSE GRIP BENCH PRESS: Adjust the pins so that they are set a point where the bar will travel from 8 inches off the chest--your previous set end position--to 95 percent of lock-out. At this range you should be able to handle loads above your Mid-range Bench Press.

Once you have completed these nine sets in the power rack, finish off your routine by performing any of the following:

OPTION A

- 1 x 6-8 R.M., Close Grip Bench Press (full range), tempo 401
- 3 x 6-8 R.M., Decline BB Triceps Extension, tempo 402, rest interval 3 minutes (pause in the bottom position)

OPTION B

- 1 x 6-8 R.M., Close Grip Bench Press (full range), tempo 401
- 3 x 6-8 R.M., Low Pulley Rope French Presses, tempo 221, rest interval 3 minutes (pause in the bottom position)

OPTION C

- 1 x 6-8 R.M., Close Grip Bench Press (full range), tempo 401
- 3 x 6-8 R.M., Parallel Bar Dip, tempo 311, rest interval 3 minutes (pause in the bottom position)

Instead of the power rack training on your alternate triceps workout, perform four sets of four to six reps of the Close Grip Bench Press (full range), tempo 401, followed by option A, B, or C.

- A muscle can produce 10-15 percent more force during isometric contractions than during concentric contractions.
- A muscle will gain at the point of an isometric contraction, plus-or-minus 15 degrees. That is, if you train at 45 degrees of elbow flexion, you gain strength from 30 to 60 degrees of elbow flexion (45 plus-or-minus 15 degrees).
- Isometric contractions should last between six to eight seconds and be maximal. However, to avoid injury there should be a gradual "tensing-up" of the muscle followed by progressive relaxation.

