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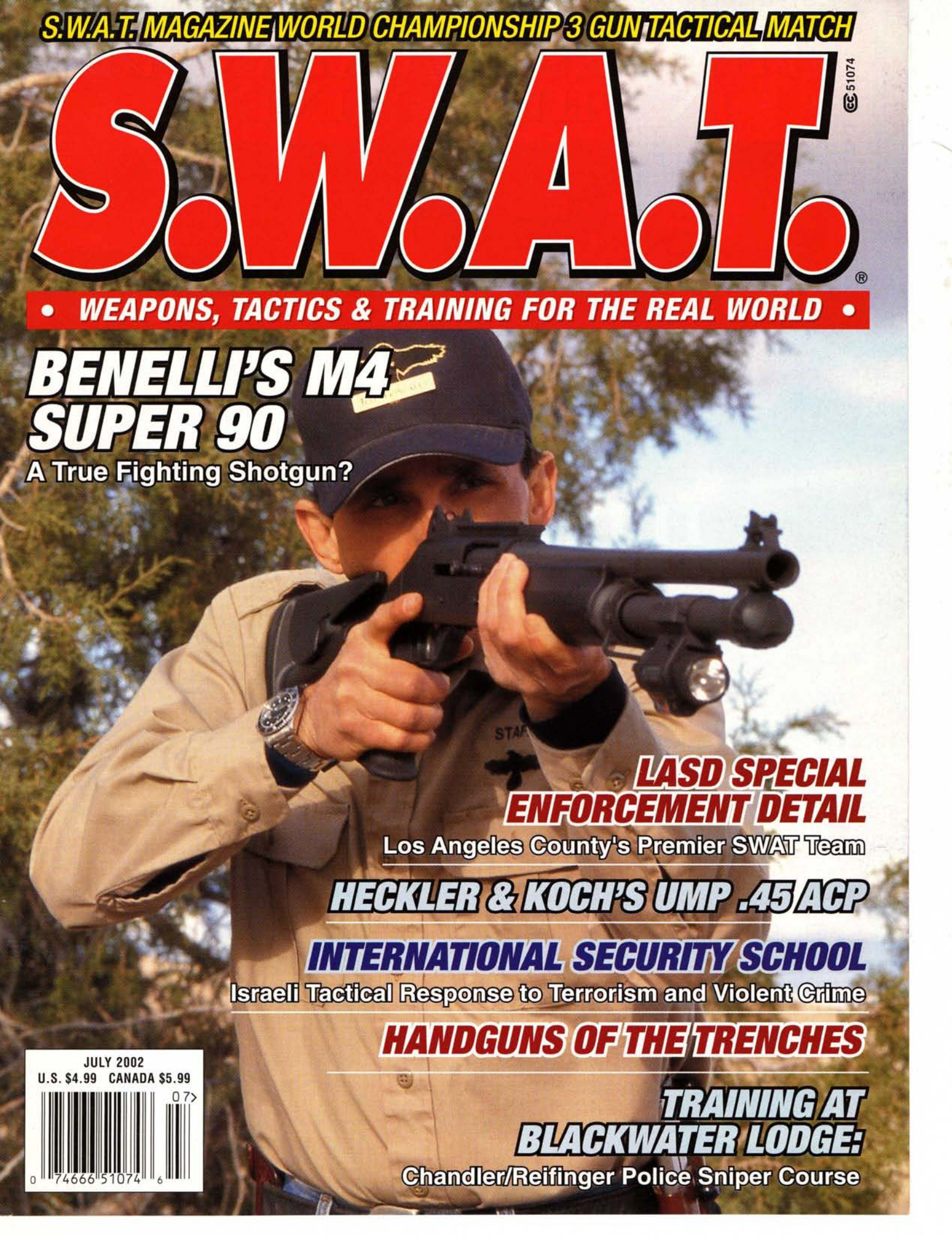

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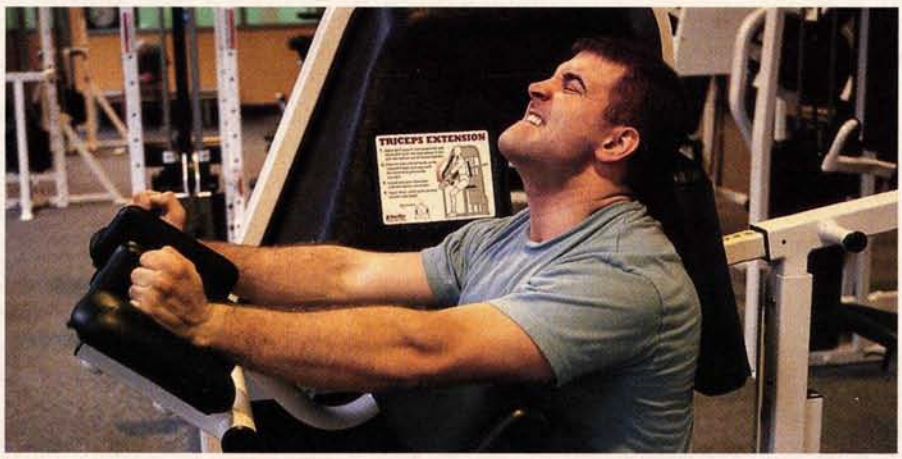
TACTICAL STRENGTH: THE BASICS

By Matt Brzycki

You can obtain numerous benefits from a strength-training program. For starters, you will be able to perform your everyday tasks more easily and be less susceptible to injury. In addition, you will improve your bone density as well as your metabolism, which will cause your body to expend a greater amount of calories.

But a strength-training program can also provide several advantages in the area of self-protection. First, engaging in strength-training activities will increase your mental alertness. In other words, you will be more aware of your surroundings. Strength training will also better your self-confidence. In brief, you will feel more secure about yourself in a given situation.

Moreover, a strength-training program will increase your muscle mass and decrease your fat mass. This favorable shift in your body composition will greatly improve your physical appearance, which may help you avoid a confrontation or discourage a predator from making you a target. Finally, if a physical altercation does occur, an increased level of strength will make you a more aggressive and effective combatant who is capable of delivering a blow with greater force and is less likely to be overpowered.



An increased level of strength will make you a more aggressive and effective combatant.

CHOOSING A PROGRAM

There is no consensus as to the optimal way of developing muscular strength. Nor is there any shortage of opinions. The fact of the matter is that many programs—despite being, in some cases, polar opposites—can be effective. When deciding upon which program to implement, consider the following five questions:

1. Is it productive? It makes little sense to use a particular strength-training program if it does not produce meaningful results. A program will be productive as long as it is based upon several fundamental principles (which will be discussed shortly).

2. Is it practical? The program should be easy to understand. In some instances, strength-training programs have become grossly overcomplicated and correspondingly confusing. As you will soon see, strength training can actually be quite simple.

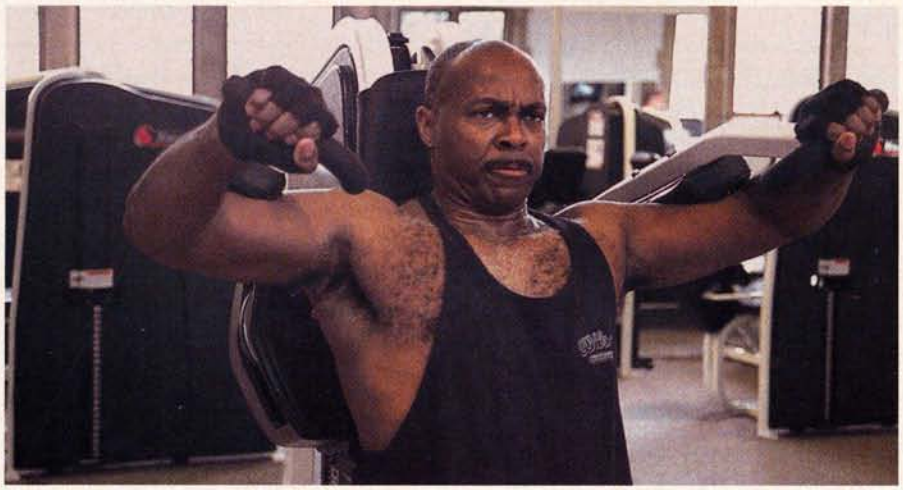
3. Is it efficient? A strength-training program should produce the maximum possible benefits in the least amount of time. By utilizing a program that is time-efficient, you will have more time available to pursue other activities. You should *invest* time in lifting weights, not *spend* time.

4. Is it comprehensive? A strength-training program should be comprehensive, addressing all of the major muscle groups in your body—not just the "showy" ones. All too often, relatively larger muscles that are sometimes hidden get overlooked (such as the hips and the legs) while relatively smaller muscles that are more noticeable get over trained (such as the biceps and the triceps).

5. Is it safe? At first glance, a program may look great. Closer inspection, however, may reveal that it is highly questionable in terms of safety. Things to avoid include exercises that carry an unreasonable amount of orthopedic risk, "maxing out" and high-speed repetitions.

OUTLINE FOR STRENGTH

A strength-training program that is productive, practical, efficient, comprehensive and safe can be designed—using virtually any type of equipment—by applying certain fundamental concepts.



Incorporating a strength-training program will improve your physical preparedness and can provide you with a tactical advantage.

Intensity

Your level of intensity (or effort) is the most important factor that will determine your results from a strength-training program. In order for you to get stronger, you must produce a certain level of muscular fatigue. Your effort must exceed this "threshold" in order to trigger an adaptive response by your muscles, namely an increase in strength (and size). Simply, exercise that does not produce enough muscular fatigue will not stimulate muscular growth. When lifting weights, an appropriate level of effort is characterized by performing each exercise to the point of muscular fatigue (when you have exhausted your muscles to the extent that you literally cannot perform any more repetitions).

Progression

The term "Progressive Resistance Exercise" was coined more than fifty years ago. Unfortunately, little of what is done in most weight rooms can be considered "progressive." Suppose that today you did a set of the bench press for ten repetitions with 150 pounds and one month later you are still doing ten repetitions with 150 pounds. Did you increase your strength? Probably not. On the other hand, what if you were able to do twelve repetitions with 165 pounds one month later? In this case, you were able to perform twenty percent more repetitions with ten percent more weight.

If a muscle is to continually increase in strength (and size) it must be forced to do progressively harder work. Your muscles must be challenged with a workload that is increased steadily and systematically throughout the course of your program. Try to progress by either increasing the amount of resistance that you use or improving upon the number of repetitions that you do with the same resistance in comparison to a previous workout.

When you increase the resistance, do so in an amount with which you are comfortable. Your muscles will respond better if the progressions in resistance are about five percent or less.

Sets

Science has been unable to determine exactly how many sets of each exercise are necessary to produce optimal increases in muscular strength (and size). But

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the overwhelming majority of scientific evidence indicates that single-set training is at least as effective as multiple-set training. An exhaustive literature review in 1998 performed by Drs. Carpinelli and Otto of Adelphi University (NY) and later reviews by Carpinelli examined all studies that compared different numbers of sets (dating back to 1956). Collectively, their research found five studies that showed multiple-set training was superior to single-set training and fifty-six that did not.

So it appears as if single-set training is at least as effective as multiple-set training. This, then, represents a more time-efficient option.

Repetitions

Most of the population will benefit from the following repetition ranges: 15-20 for the hips, 10-15 for the lower body and 6-12 for the upper torso. Performing repetitions that are significantly less than this has a greater risk of injury. Performing repetitions that are significantly higher than this is a greater test of aerobic endurance rather than muscular strength.

That said, it is safer for certain populations—such as older adults—to perform slightly higher repetitions in order to reduce orthopedic stress. The higher repetition ranges will necessitate using somewhat lighter weights, which will, in turn, reduce the stress placed upon their bones and joints.

Technique

A repetition is the most integral aspect of your program. You can make your repetitions as effective as possible by using these techniques:

•When raising a weight, refrain from using an excessive amount of momentum. It is safer and more efficient to raise a weight in a controlled manner.

•After you raise the weight, pause briefly in the position of full muscle contraction. Pausing in this "mid-range" position emphasizes your muscles when they are fully contracted.

•Lower the weight in a deliberate fashion. This makes the exercise more effective because the same muscles that are used to raise the weight are also used to lower it.

•Perform your repetitions throughout the greatest possible range of motion that safety allows. This will allow you to maintain (or perhaps increase) your flexibility and ensure that the entire muscle is being exercised—not just a portion of it—thereby making the movement more efficient.

Duration

More is not necessarily better when it comes to strength training. In fact, you can complete a comprehensive workout in about an hour or less.

You can make your workouts more efficient by taking as little recovery as possible between exercises/sets. The length of your recovery interval depends upon your present level of fitness. Initially, you may require several minutes of recovery between efforts. With improved fitness, your pace should be quickened to the point where you are moving as rapidly as possible between exercises/sets. (The speed with which you do your repetitions should not be quickened—just the pace between exercises/sets.

Volume

A comprehensive workout can be comprised of seventeen exercises or less. The focal point for most of these exercises should be the major muscle groups - that is, your hips, legs and upper torso. Include one exercise for your hips, hamstrings, quadriceps, calves/dorsi flexors, biceps, triceps, forearms, abdominals and lower back. Because the shoulder joint allows movement at many different angles, two exercises should be selected for your chest, upper back (the "lats") and shoulders. In addition, you should perform two exercises for your neck to strengthen and protect your cervical area.

Sequence

Begin your program with exercises that influence your larger muscles and proceed to those that involve your smaller ones. You should perform exercises for your hips first, followed by your upper legs (hamstrings and quadriceps), lower legs (calves or dorsi flexors), upper torso (chest, upper back and shoulders), arms (biceps, triceps and forearms), abdominals and finally your lower back. Even though the neck is not a large muscle, it should be exercised early in your workout when you are fresh mentally and physically. (Note: The sequence listed here assumes a total-body workout.)

Frequency

Lifting weights with a high level of effort is very demanding. Your muscles must receive an adequate amount of recovery between workouts in order to adapt to those demands. Muscles do not get stronger during a workout—muscles get stronger during the *recovery* from a workout. When you lift weights, your muscle tissue is literally torn and the recovery process allows it time to rebuild. Think of this as allowing a wound to heal. If you had a scab and picked at it every day, you would delay the healing process. But if you left it alone, you would permit the damaged tissue time to heal.

A period of about 48-72 hours is usually necessary for muscle tissue to recover sufficiently from an intense strength-training workout. Therefore, it is suggested that you perform your strength training 2-3 times per week on nonconsecutive days (such as on Monday, Wednesday and Friday). This is consistent with the recommendation of the American College of Sports Medicine.

Documentation

The importance of accurate record keeping cannot be overemphasized. Your records are logs of what you accomplished during each and every exercise of each and every workout. This can be used to monitor your progress and make your workouts more meaningful. It can also be used to identify exercises in which you may have reached a plateau.

You should record the weight used for each exercise, the number of repetitions performed for each exercise and the order in which the exercises were completed, as well as the date of each workout and your bodyweight.

BE PREPARED!

To increase your chance of success in any situation, it is best to be prepared. Incorporating a strength-training program will improve your physical preparedness and can provide you with a tactical advantage. ●

[Matt Brzycki is the Coordinator of Recreational Fitness and Wellness Programs at Princeton University. A former Marine Drill Instructor, he has authored more than 200 articles on strength and fitness as well as three books including *A Practical Approach to Strength Training*. He is also the editor of *Maximize Your Training*, a 455-page book that features chapters written by more than 30 strength and fitness professionals.]