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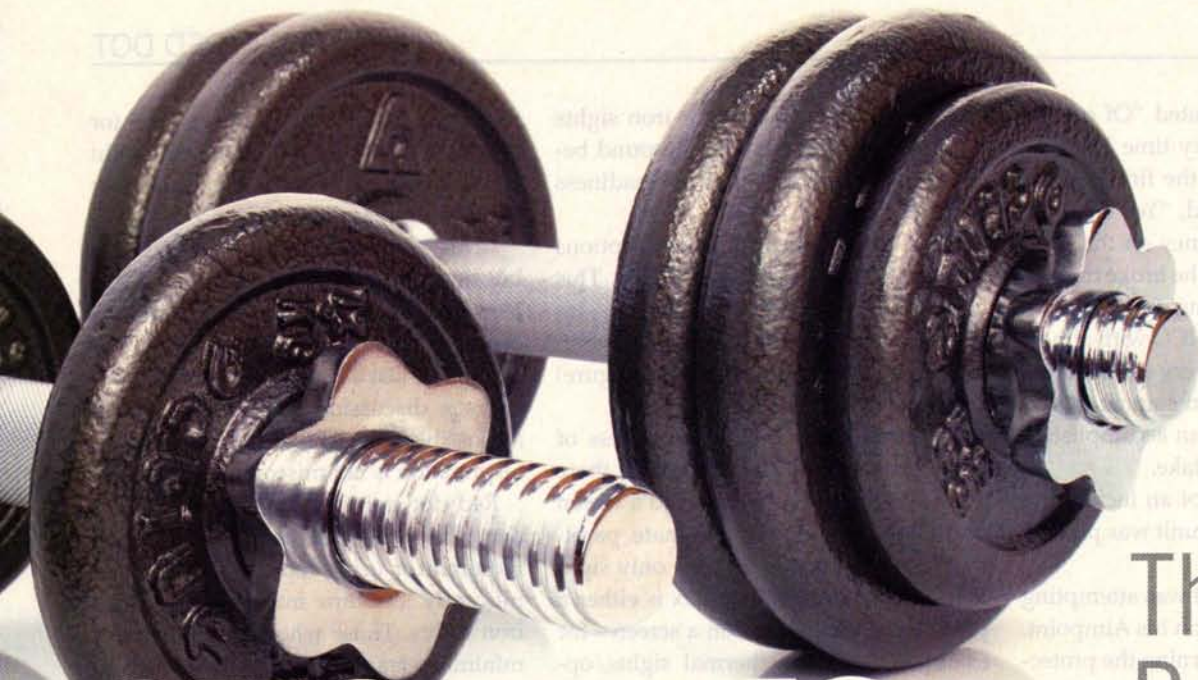
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SHOOTING ACCURACY

The Role Of Physical Training

» BY MATT BRZYCKI

The ability to shoot with a high degree of accuracy is obviously an extremely vital component for those concerned with self-defense.

No doubt, this can dictate the outcome of an incident.

In seeking ways to improve shooting accuracy, an area that's often underemphasized—or overlooked altogether—is the role of physical training. But before we discuss how physical training can be advantageous, it's important to first examine several factors that contribute to shooting accuracy.

WHAT THE RESEARCH SAYS

A recent study published in the *Scandinavian Journal of Medicine & Science in Sports* looked at the relationship between shooting accuracy and "behavioral performance" (which was defined as the ability of a shooter to sustain a balanced or stable posture and maintain a steady rifle). The study involved 58 conscripts (average age 20.3 years) from the Finnish Air Force Communications School. The subjects had completed standard military shooting training that consisted of

250 shots—100 under simulated combat conditions and 150 at a shooting range.

In the study, the subjects shot a SAKO 7.62mm assault rifle (which is used by the Finnish Defense Forces). Shots were taken at an indoor range from the standing (offhand) position at a stationary target that was located ten meters away. The subjects took five sighting shots followed by ten sets of 30 shots (a total of 300 shots). They were allowed to rest for three minutes between sets in the sitting position. It's unclear whether there was a time limit for getting off each set of 30 shots.

Not surprisingly, the researchers found that maintaining a stable posture and holding the rifle steady were related to shooting accuracy. It's thought that having a stable posture might help to maintain the rifle in a more stable position, thereby improving shooting accuracy.

The findings of this study shouldn't

come as much of a shock to readers of this magazine. Clearly, two elements of marksmanship that are associated with shooting accurately are keeping your body in a stable position and having minimal movement of the rifle barrel. The fact of the matter is that highly skilled shooters produce less body movement than poorly skilled shooters. And highly skilled shooters keep their rifles more stable than poorly skilled shooters.

PHYSICAL TRAINING

Physical training can provide you with many benefits. For one thing, you'll be less likely to succumb to fatigue. In addition, you'll increase your self-confidence and self-esteem.

Physical training can also improve your potential to shoot more accurately. Understand, though, that simply because you engage in physical training doesn't automatically mean that you'll become a better marksman. Physical training will

Being stronger will help you to sustain a more stable position and, therefore, enable you to hold a handgun or long gun steadier.

certainly improve your potential, but you must still practice your marksmanship skills by going to the range and firing literally thousands and thousands of shots with perfect technique.

The two areas of physical training that have the greatest influence on your marksmanship potential are aerobic training and strength training. Let's take a more detailed look at why both types of physical training are important, as well as learn some basic guidelines.

AEROBIC TRAINING

With respect to shooting accuracy, a highly important ingredient of physical training is aerobic training. How does aerobic training figure into the mix? As you breathe in and out, the rifle barrel will rise and fall. This, of course, affects your shooting accuracy. To prevent the barrel from rising and falling, you must be able to regulate your breathing. You'll maintain better control of your breathing by improving your aerobic fitness.

Also ponder this scenario: Suppose that as part of an op, you had to run up several flights of stairs while wearing all of your tactical gear. Yes, many buildings have elevators, but they're not always operational nor are they always the best option from a tactical standpoint. As you know, the mission isn't likely to end when you reach the intended floor. There's a very real possibility that you'll have to fire your weapon. If you have a low level of aerobic fitness, your heart could be beating very rapidly. This will make it more difficult for you to control your breathing and get off accurate shots.

In order to enhance your aerobic fitness, you must consider four variables of training. These variables can be grouped under the acronym FITT: Frequency, Intensity, Time and Type.

Frequency

According to the American College of



Sports Medicine (ACSM), you should do aerobic training three to five times per week. In reviewing the relevant research on this topic, the ACSM found that performing aerobic training less than three times per week doesn't do as much to encourage improvements; performing aerobic training more than five times per week produces negligible improvements and, thus, isn't worth the amount of time spent.

Intensity

For your aerobic training to be as effective as possible, you need to maintain a certain level of intensity or effort. Specifically, you should use a "training zone" of about 60-90% of your age-predicted maximum heart rate.

To find a rough estimate of your age-predicted maximum heart rate, simply

subtract your age from 220. For a 30-year-old individual, this would be 190 beats per minute ($220 - 30 = 190$). To find your training zone, multiply your age-predicted maximum by 0.60 and 0.90. In this example, the person would need to maintain a heart rate of between 114 and 171 beats per minute.

Like all other forms of physical training, your aerobic training must be made more challenging over time in order to encourage further improvements in your aerobic fitness. To do so, try to (1) complete the same distance in a shorter duration; (2) cover a greater distance in the same duration; or (3) maintain the same pace for a greater distance or duration. This also implies that you should keep track of your efforts to monitor your progress.

Time

The ACSM recommends that aerobic training be done for about 20-60 minutes. The best way is to do continuous activity, though intermittent (or discontinuous) activity can also improve your aerobic fitness. Among other things, this means that multiple—but briefer—sessions can be done on the same day. As an example, two 15-minute workouts in one day would equal 30 minutes of aerobic training. This is especially helpful for individuals who don't always have a block of 30 minutes available for aerobic training.

Type

To obtain optimal results, you should use activities that require a continuous effort, are rhythmic in nature and involve large amounts of muscle mass. Your heart doesn't "know" what type of aerobic activity you're doing.

There's no single activity that's "best" for everyone. Popular indoor activities include jumping rope, swimming and doing stationary exercises on specialized equipment such as a cross-country ski machine, elliptical machine, rowing machine, stairclimber/stepper, stationary bicycle (upright or recumbent) and treadmill; popular outdoor activities include bicycling, cross-country skiing, jogging/running and rowing.

For the most part, perform activities that you find enjoyable and appropriate for your level of skill and orthopedic health. For instance, rowing is a good activity if you have sufficient upper body strength; swimming is a good activity if you possess adequate skills or if you want to maintain aerobic fitness while recovering from a spinal or lower-body injury; and jumping rope is a good activity if you can tolerate the stress on your ankles, knees and lower back.

STRENGTH TRAINING

Another important area of physical training as it pertains to your shooting accuracy is strength training. What does strength training bring to the proverbial table? Well, being stronger will help you to sustain a more stable position and, therefore, enable you to hold your weapon steadier. As a result, you'll be better able to maintain sight alignment and sight picture.

Remember the hypothetical situation in which you might have to run up a few flights of stairs on a tactical op? If you have a low level of strength in your hips and legs, running up the stairs will require much effort and result in a higher heart rate. And getting off accurate shots will be more difficult to do.

In order to improve your muscular strength, you must employ the same four variables of training that were mentioned earlier.

Frequency

Everyone has different tolerances for exercise, but a period of about 48 to 72 hours is usually necessary for your muscles and energy systems to recover sufficiently from an intense bout of strength training. Effectively, then, you should do strength training two or three times per week on nonconsecutive days (assuming total-body workouts). This is consistent with the current recommendations of the ACSM.

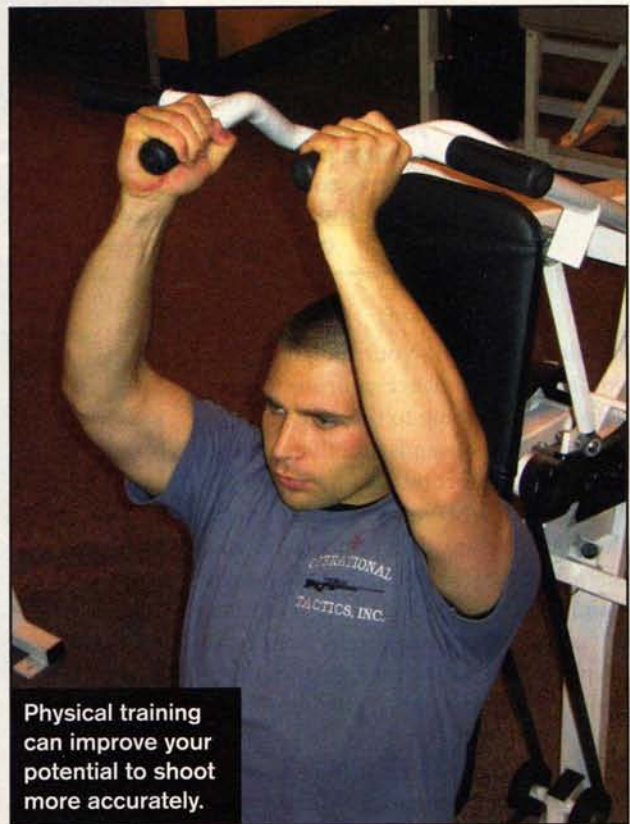
Intensity

Strength training must be challenging. Your effort should produce or approach muscular fatigue. This means that you should exercise to the point where you can no longer do any more repetitions. If you don't achieve an adequate level of muscular fatigue, your improvements in strength will be less than optimal.

It's also important to make your efforts progressively more demanding in subsequent workouts. To accomplish this, try to (1) do more repetitions with the same resistance; (2) do the same number of repetitions with more resistance; or (3) do more repetitions with more resistance. Here again, you should keep a record of your performances to track progress.

Time

Workouts in the weight room need not be marathon efforts. If you're using a high level of intensity in the weight



Physical training can improve your potential to shoot more accurately.

room, about 45-60 minutes of training will be enough to produce significant increases in your muscular strength. Remember, the ultimate goal is to produce an ample amount of muscular fatigue, not to see how long you can stay in the weight room.

Finally, your workout must be comprehensive. You should address all of your major muscle groups: hips, legs, torso and mid-section.

Type

Strength training can be equally effective using either free weights or machines. Indeed, studies have found similar responses between groups that used free weights and groups that used machines. In one study, for example, 22 subjects were randomly assigned to do a bench press and seated press with either free weights or machines three times per week for five weeks. The subjects who used free weights increased the strength of their triceps and shoulders by 22% and 12%, respectively. The subjects who used machines increased the strength of their triceps and shoulders by 24% and 13%, respectively.

The point is that your muscles don't know what type of strength-training equipment you're using. You can get stronger using barbells, dumbbells, se-

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TRAINING THE "CORE"

Exercising on a stability ball or other unstable objects—such as "balance discs" and "wobble boards"—is a recent fad and, therefore, merits some discussion. Supposedly, the instability of the object increases the stability of the "core" (essentially, the muscles that affect the mid-section). While that certainly sounds intriguing, scientific research tells a different tale.

In one study, eight physically active men did a leg extension under conditions that were unstable (sitting on a Swiss ball) and stable (sitting on a bench). In the unstable condition, their force output was 70.5% less than in the stable condition. And in the unstable condition, the activation of the quadriceps was 44.3% less than in the stable condition. So, more instability correlated to less force production and less muscle activation. Needless to say, this isn't desirable when it comes to strength training. And to date, there's no scientific evidence to support the contention that instability training improves coordination or balance.

That said, exercising on stability balls can be used to provide variety to workouts. Just be aware that their use is relatively ineffective for improving muscular strength, and any purported advantages are purely speculative.

THE BOTTOM LINE

As you can see, physical training plays an integral role in shooting accuracy. The importance of physical training is even more crucial in adverse environmental conditions such as heat, cold and altitude. Whether you are a professional, competitive or self-defense shooter, you should stack the odds in your favor by engaging in a regular program of physical training. ©

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