



The longer we spend developing young shooters the more likely we are of having success at the elite level

Coaching Column

Progressions and loads for fitness programs

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Long term fitness and skill development requires progressive adjustments to training loads.

Each program should include exercises and training loads that match a shooter's specific needs and goals. Exercise and training loads should:

1. be chosen to make up the basis of the program and provide long term benefits for the athlete.
2. balance the athlete's strengths and weaknesses, and
3. increase the athlete's flexibility, posture, strength, and shooting skill.

The challenge for the coach is to prescribe a program that each athlete finds interesting and challenging yet achievable without boredom or extreme difficulty. After selecting the exercises for a program the coach decides on the training loads that will allow the athlete to develop the required skills and fitness. The selection of the appropriate load ultimately determines the level of success gained from the training program. With too large a load the athlete will not be able to complete the training schedule and/or cause injury. Alternatively, training loads that are too low will stifle the athlete's development.

Once loads are selected, the coach must consider the amount of rest required between each exercise routine. The options here are many and the coach should allocate rest periods based on the shooter's technique, training experience and long term goals.

Fatigue and an eventual decrease in performance is the result of too little rest whereas too much rest may not give the athlete a positive training response. As an example, the dry firing strengthening drill is aimed at developing strength in the shoulder girdle region:

- ▶ **Too little rest** – 6 x 10 shots (holding 8 seconds per shot before firing) with 2 seconds rest after the shot and 1 minute rest after each group of 10 shots. Due to limited rest of only 1 minute between the 10 shots in 100 seconds, fatigue is likely to develop quickly. As a result the shooter's posture will change after the first or second set of 10 shots. New movement patterns may be initiated to accommodate muscle fatigue in those muscles that normally maintain the correct position.
- ▶ **Too much rest** – 6 x 10 shots (holding 8 seconds per shot before firing) with 22 seconds rest after the shot and 5 minutes rest after each group of 10 shots. In this case the shooter will not develop the strength in the shoulder girdle because the rest period allows almost complete recovery before the next shot and very little fatigue occurs. Fatigue demands a change in strength by adapting to the stress of that fatigue. Therefore the lack of an adequate level of fatigue means that strength is not challenged and ultimately not developed.

Each shooter's program should therefore encompass the very basic principles of training with the influence of each training

principle on the individual shooter taken into account. Thus training loads and program design will be more effective and generate better long term results.

The Law of Individual Differences

We all have different abilities and weaknesses and, to a degree, we all respond differently to any given training system. These differences should be taken into consideration when training loads are assigned. Beginners respond differently to advanced shooters when given the same training loads. Therefore different loads, different rest periods and different recovery rates for each shooter should be considered.

The Over-Compensation Principle

The body responds to increased training by gaining fitness to the specifically trained areas resulting in less stress in the future. The body over compensates on its recovery so as to attempt to respond to and cope better with subsequent stresses or training loads. If training stresses are too close and too intense i.e. too little rest, over-training will occur. If training stresses are too low or too far apart i.e. too much rest, the shooter won't over-compensate progressively and will not build on his/her development.

The Overload Principle

In order to gain this over-compensation the body must be placed under stress above and beyond its comfort level. Generally a shooter can be overloaded between 5-10% more in each progressive block of training than the last training period. All training should be progressed in blocks followed by recovery periods to allow the shooter to adapt to the training loads. If the increase is too sudden or occurs in too short a time, overtraining can occur and development will decrease.

The Specific Adaption to Impose Demands Principle

The SAID principle simply means that the body responds in a very specific way to the specific training completed. In other words, choose exercises that will benefit the shooting posture and/or the performance. For example, if the shooter needs to get stronger, choose specific strengthening drills to achieve that goal.

The Use/Disuse Principle

"Use it or lose it" means that if certain aspects of a training program are ignored or not trained for long periods of time the body will gradually lose or decline in its ability to perform that function. In order for shooters to improve they must consistently work at their specific skill and fitness level. The basic skills of balance, posture and coordination are often left untrained to the long term detriment of shooters.

he General Adaption Syndrome Principle

The GAS principle states that there must be a period of low intensity training or complete rest following periods of high intensity training. The body cannot cope continually with high training loads and, in fact, the body only responds to training when it is unloaded or rested. Ensure that shooters do the work needed and then allow time for recovery before going onto the next training session, which may be harder again.

The Specificity Principle

This simply means that the more you shoot, the better your fitness for shooting becomes. If you have a postural problem with your stance, the more you practice the correct position the better you will become at maintaining the correct position. Always ensure that when you increase your level of a particular exercise, you maintain the same degree of control in that stance and/or posture.

Developing a program that incorporates all of these principles is challenging. It may be necessary to determine where the shooter is with regards to these concepts by assessing his/her skills, fitness and attitude to shooting. Once the shooter's fitness level has been determined a suitable loading pattern can be established to assist the shooter to achieve his/her goal(s). If this program is monitored in a young shooter over the course of a few years it will look something like this.

Phase 1 - Develop Fundamental Shooting Techniques

- ▶ The program will have high volume but low intensity. The young shooter will do lots of shooting with varying amounts of rest between shots to allow more complete recovery during new skill development, time to be coached and technique to be developed. Periods of high intensity shooting will not be included, but more frequent shorter sessions will allow the shooter to recover and enjoy the experience.
- ▶ The shooter will develop a high level of physical conditioning specific to shooting. Developing postural control, balance, coordination, core control and shoulder stability will be the main aim.
- ▶ The coach will aim to improve the technical elements of the shooter's performance and the shooter will allow time to practice these skills individually.
- ▶ Low intensity training in this phase allows for more selective adaptation to a stimulus such as new skill development for shooting.
- ▶ Any obvious individual weaknesses observed, such as simple postural imbalances or strength deficiencies will be developed in this phase.

Phase 2 - Develop Specific Shooting Techniques

- ▶ As the shooter develops his/her skills, training intensity is increased and training becomes more specific to pistol shooting events.
- ▶ The shooter will develop skill combinations specific to each event and to his/her ability to prepare and recover from training sessions.
- ▶ The coach works on perfecting the shooter's skills and identifies opportunities where these skills can be practiced in competition.
- ▶ The coach develops the shooter's training skills and identifies the type of training loads and training sessions that produce the best results.



Phase 3 - Develop Competition Techniques

- ▶ This phase is typified by fluctuating periods of high intensity, low volume and recovery.
- ▶ The shooter is encouraged to participate in many competitions to practice and assess performance and make minor adjustments to preparation programs and competition techniques.
- ▶ This is the phase where all the aspects of development such as physical, tactical and psychological training components are brought together to draft a schedule/program that includes tapers and peaking procedures.
- ▶ Maintaining fitness levels achieved in previous phases is very important and training is very specific to shooting.

If a program is developed with these aspects in mind, the young shooter will take several years to develop his/her skills and gain confidence in his/her abilities. The longer we spend developing young shooters the more likely we are of having success at the elite level. If this development process is rushed, young shooters will always fall short of their true potential. 🔄