

POSITION REFINEMENT

A. PRONE POSITION.

1. A shooter should work constantly to refine his position and improve his hold. Very slight changes or adjustments in the position can have a noticeable effect. A good method of checking movement in the position (usually from pulse beat) is to use a telescopic sight. Some shooters can keep the crosshairs on a bullethole at 100 yards. Learn to fire and reload without disturbing the position. When reloading, the shooter should insert the round into the chamber with his finger, being careful not to strip any lead from the bullet.

2. The stock of the rifle should be so constructed that when the shooter is in position and places his head on the stock, he is looking through the sights. Some shooters apply more facial pressure against the stock than others. Again, the important point is that the facial pressure be CONSISTENT. The head should be as erect as possible and proper eye relief maintained.

3. The prone position is so steady that it may be said to have a single point of aim. The position should be oriented so the natural point of aim is directly in the 10-ring. Small changes in the point of aim can be affected in several ways. Small horizontal changes may be made by moving the right foot to the right or left. Very fine elevation changes can be made with breath control. Major changes should be made by reorienting the entire position or readjusting the sling, fore-end stop, and butt plate.

4. It is important when analyzing the position to insure the ammunition and rifle is grouping better than ones hold to accurately measure the results of the position.

B. KNEELING POSITION.

1. The shooter has some latitude in building a "tight" or a "loose" position. There are many areas in which a shooter is given a choice of techniques. This is not meant to be evasive. It is to stress that there is no iron-clad method. What works well for one person may not apply at all to another. Some USAMKTU shooters have very loose positions. They describe the rifle as "floating," that is, barely touching the right shoulder and seeming to balance on the left hand. Other shooters have relatively tight positions. They bring the rifle back into the shoulder firmly and grip the stock to some degree with the right hand. They describe the kneeling position tension on the sling as being similar to that which occurs in the prone position. Initially, the kneeling position will be unsteady. The unsteadiness may be caused by a number of factors that are peculiar to that individual's position. Correcting the unsteadiness requires a process of elimination, trial and error.

2. A 10-ring hold is not unusual in the kneeling position. When the shooter develops a 10-ring hold, his greatest problem becomes a trigger control. Dry firing is an excellent way to detect and correct jerks or body movements that accompany the trigger pull.

C. STANDING POSITION.

1. The entire process of developing the standing position is a process of refinement. It should be conducted with the care of a scientific experiment; and by its very nature it must be developed over an extended period of time.

2. A good standing position is beginning to take shape when the rifle is pointed naturally at the target and the body meets the requirements of:

- a. Dome support.

b. Balance, and

c. Slight but equal tension in all body muscles with no excessive strain on any one muscular mass.

3. The beginning shooter should not hesitate to make major changes in adjusting the position of the rifle but make small changes in the initial body position in order to find a satisfactory basic standing position.

4. After the initial period in which he is achieving a basic standing position, the shooter should proceed cautiously in making changes. This is partly due to the fact that in the early stages, his position may actually be correct, but he has not developed sufficient strength of body control to enable him to hold well. Needless to say, to change what would later prove to be a correct position would be harmful.

5. A great many adjustments are possible in the standing position. It is difficult to determine which possible adjustment would best correct a particular problem. The shooter should not make a change until he has carefully analyzed the cause of his problem and the results realized from the various changes he has instituted. Then he should note his present position, make the currently needed change, and note the results over a period of training sessions. If the change is not beneficial, he should return to the position he used originally. From further analysis, he should determine a new approach to the problem. In this way he avoids straying away from his basic standing position. If the change eventually proves to be beneficial, he should adopt it and incorporate it as part of his basic position.

6. The standing position is not built upon measured mechanical distances for the placement of feet, palm rest, hook, etc. The position is built upon the basic fundamentals as described in the standing chapter. The pictures of the shooters should be used as a guide to understand these fundamentals and not necessarily copied in hopes of increasing ones score by the reasoning that what works for one individual works for everyone.

7. A great amount of concentration is required in obtaining good standing scores. Shooting good scores is not as mechanical as in the other shooting positions. Many times a shooter may improve his standing score by exceeding his previous performance several times and upgrading his self confidence. Once this mental barrier of a certain score has been broken, he then becomes more demanding of himself and increases his overall level of concentration.

D. GENERAL REMARKS FOR ALL POSITIONS.

1. There are two things to remember in experimenting with changes in position or technique.

a. Never make more than one change at a time. This allows the shooter to determine the total effect of a specific change.

b. Never evaluate a change on the basis of a single shooting session. The results of a single test are not conclusive. There are too many factors, including the effects of change itself, that can affect performance. Any test should be run until the results are proven conclusive.

2. As a shooter progresses and refines his position, he will make smaller and smaller changes in his position, and his hold will become better and better. No shooter, however, ever assumes that he has finalized his position. Progress grows out of constant (though careful) refinement, and this refinement is a continuing process. Too many changes, too often, can be very detrimental.

3. Use of the Shooter's Diary: Changes in position and techniques should be conducted with great care and should be recorded in the shooter's diary and analyzed. When the shooter finds a steady position, which occurs often and sometimes unexpectedly, he should note all the characteristics of the position in order to "find" it the next time he shoots.

b. The body must be capable of shooting an entire course of fire without fatigue. A full day of shooting requires a great amount of lifting and holding. Obviously, the muscles must be conditioned to perform such work. Since shooting uses a specific set of muscles, shooting practice is the best method of developing strength and endurance in these muscles.

4. Physical Conditioning Exercises - Physical conditioning exercises have been the subject of much discussion. Experiments conducted at USAMKTU have yielded the following conclusions.

a. General physical conditioning, if conducted properly, in no way impairs shooting performance.

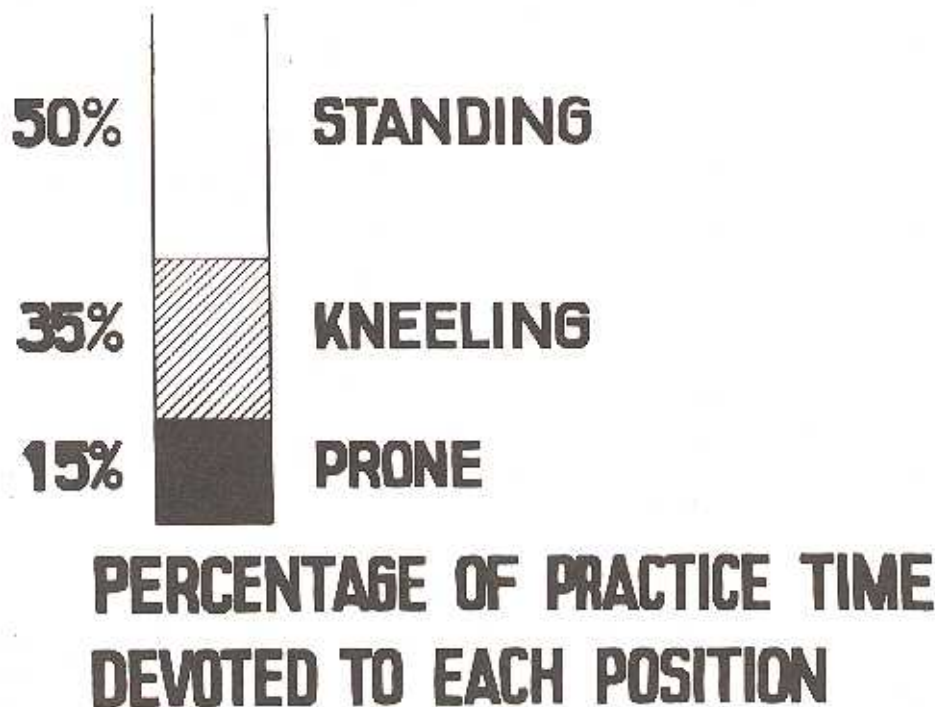


Figure 81.

b. Physical conditioning does not contribute significantly to improving scores except to increase the individual shooter's potential who is in poor physical condition.

c. Before applying these conclusions, we must realize specific facts.

(1) The experiments were conducted with physically mature individuals who lead physically active (though not necessarily strenuous) lives. Individuals who lead sedentary lives and lack muscle tone or strength would certainly benefit from exercises that tone and condition the body.

(2) All conditioning programs, however, must be long-range programs. Crash programs in physical conditioning definitely impair shooting ability.

(3) Physical conditioning may give some shooters a psychological boost by contributing to a feeling of health and well being. The shooter who follows a regular schedule of physical conditioning may acquire the confidence that he is better trained than his competitors.

(4) Some individuals are also capable of using physical conditioning as a form of self-discipline. They force themselves, for example, to run at top speed for 200 yards or more. Forcing themselves beyond easy limits becomes a means of developing will-power and self control. They feel that this discipline increases their ability to control themselves under pressure. It is important to note that this form of training must be self imposed. An individual must impose it upon himself because of a strong desire to excel in shooting and because of a compelling motivation to win. Such rigid discipline should not be imposed by a coach. The shooter who wishes to train this way, will do so. For a coach to force such discipline upon a shooter will only make training a difficult chore and probably cause the shooter to lose interest.

d. There is no one physical training program best suited for shooters. Some of the top world shooters have indicated they feel best when they run a great deal and participate in vigorous sports. Others perform merely enough exercise to maintain muscle tone. Apparently each individual should develop a physical training program that best suits his individual needs and temperament.

(1) MTU shooters have had good results with a light program of dynamic tension exercises as a warm up before shooting. Five or six calisthenics are adequate if taken at the end of the shooting day. Dynamic tension exercises seem to develop muscle control as well as muscle strength.

(2) MTU shooters are also encouraged to run each day. Many shooters feel that this is the most valuable method of conditioning outside of shooting itself.

(3) In addition, almost all shooters participate in softball, basketball, tennis, volleyball, or golf. Generally speaking, any activity that keeps the individual active and fit, and which breaks the monotony of shooting, is considered valuable.

(4) After an individual has reached a level of fitness, additional physical conditioning does not contribute materially to his physical shooting ability.

(5) Exercises such as weight lifting which strengthen the muscles by shortening them are not desirable.

5. Food and Stimulants: Quite often questions arise that pertain to a shooter's diet. There seems to be no particular diet that especially enhances a shooter's performance. It is best, however, to not deviate from one's normal routine of eating time and types of foods consumed as long as the diet is balanced.

a. When the human body consumes food, that food must be digested. The digestive process places a workload upon the heart and the results in a stronger pulse beat. Shooters will find that eating right before (or even worse, during) a match will hamper their performance. Try to eat early enough before a match so that the ability to execute proper techniques will not be impaired. Some shooters will find that particular foods do not agree with them. They should naturally refrain from eating these foods before shooting.

b. Medical authorities, using sensitive measuring devices, have found that alcohol, coffee, tobacco and drugs increase muscle tremors and impair the ability to perform delicate muscular movements. Reflex action is so important in shooting that inducement of any depressant effect is extremely harmful to performance.

c. Most champion shooters are able to "break training" from time to time without causing overly harmful results. But such violations must occur at times when competition is absent from the schedule. Also, these shooters are intelligent enough to realize that over-indulgence is not wise. Championship marksmen often start honing the sharp edge on their performance as much as six months before an important match. During such periods these shooters are careful to stay "in training."

B. MENTAL TRAINING. If the mind is distracted, or if concentration is incomplete, the shooter will lose control of his performance. His score will be considerably affected. There are three broad categories of conditions that can influence the ability to concentrate.

1. Inability to Concentrate for Extended Periods of Time: Almost everyone is capable of intense momentary concentration, but few people can concentrate for relatively longer periods of time.

a. A full course International Match of full day of NRA shooting requires a shooter to concentrate intensely during frequent intervals over a period of several hours. Many shooters complain of being mentally exhausted at the end of one of these day-long matches. They feel that they could not devote full concentration to their shooting if they were required to perform over a longer period.

b. Other shooters cannot maintain intense concentration even this long. They become mentally exhausted before the completion of the day's firing. Their performance deteriorates toward the end of the day because they can no longer concentrate on body control or other factors they consider critical to their performance.

c. The ability to concentrate throughout a course of fire can be developed through practice. A shooter should practice as regularly as possible. During practice he should attempt to make each shot (live or dry) the best he is capable of. He will gradually acquire the ability to concentrate intensely for longer and longer periods, for more and more consecutive shots.

d. This development cannot take place overnight, and must be acquired patiently. Shooting sessions should not continue beyond the point where concentration is completely exhausted, because bad habits are easily acquired unless practice is conducted with great care. The quality of a shooter's practice is far more important than quantity. Shorter practice sessions which are conducted with intense concentration and maximum effort are far more beneficial than much longer sessions of lesser quality.

2. Interference from Physical Pain or Discomfort: Pain distracts the shooter's mind and interferes with concentration. A shooter should not hesitate to alter his clothing or shooting equipment in order to achieve comfort. The only requirement is that the correct shooting position must not be violated.

a. Even a minor discomfort can have a cumulative damaging effect. A thing so small as a pebble underneath a shooting mat may cause mild discomfort. It may distract the shooter for only a single shot, but even this small lapse can easily lose a match. This kind of discomfort and distraction can easily be avoided.

b. Under various circumstances, a certain amount of pain is unavoidable. The kneeling position, for example, places the body weight almost completely upon the ankle. The ankle may eventually become conditioned to carry this weight. However, many people find that even after years of shooting, the ankle still becomes uncomfortable after they have been in position for a period of time. In addition, some shooters find that they can never completely eliminate discomfort in all of the shooting positions.

c. In cases where pain is unavoidable, the shooter must learn to tolerate it and concentrate on performance. However, forcing one's self to endure discomfort requires increased mental effort and hastens the approach of mental fatigue. The shooter, then, should avoid shooting for a long period in an uncomfortable position. A break after a 10-shot string will relieve the pain and allow the shooter to rest his mind and body. In no case should an individual attempt to shoot when pain is so great that he cannot fully concentrate on performance.

3. Nervous or Emotional Reactions to Competition: New shooters, especially, are subject to nervousness when they shoot in competition. They tend to worry about the score they will get. They think about their score so much that they dilute their concentration on performance. Consequently, their match scores may be considerably below their practice score average.

a. Nervousness in most cases is nothing more than a fear of failure. Many new shooters feel that competition "causes" them to be nervous. This is not true. They cause themselves to be nervous. They work themselves into a state of agitation because of fear that they will not shoot the best score they are capable of.

b. It is helpful to a shooter to realize that worrying can only harm his performance. One shooter's anxiety cannot affect the performance of the other shooters in the competition. He cannot control the other shooter's scores by thinking about them. But he can shoot a good score himself by concentrating on his own performance.

c. A new shooter cannot expect to conquer nervousness overnight. It is a reaction of his entire personality. Psychologists have learned that the entire personality determines an individual's every action. For that reason there can be no part of an individual's personality that can be called his shooting personality, and there can be no separate shooting psychology. There is just one psychology pure and simple. Nervousness, as related to the many aspects of the personality, is a highly complex reaction. Because of this complexity, there is no simple, easy solution to overcoming the reaction.

d. The indicated solution to reduce the effects of nervousness is extensive match experience and repeated exposure to competitive stress. The shooter must attempt to exert more control over his nervousness each time he shoots a match. Gradually his personality will change by adjusting to the competitive situation. His complex feelings and attitudes will change, and he will conquer his fears about his performance. He can then approach competition calmly and thoughtfully, and devote full concentration to performance.

e. The body can be trained to near perfection in holding itself motionless. An individual who can shoot a string of tens from any position illustrates this. It is conceivable that anyone who can fire several tens in succession has the ability to fire tens for a complete match course. We have good reason to believe that there are shooters in this country who are physically capable of shooting scores of 1190 or better (ISU). Physical limitations alone have not prevented these scores from being fired. It is apparently because of psychological limitations. When the higher scores become psychologically acceptable, they will appear in record competition. The human body is capable of firing much higher scores than those that appear in competition today.

f. There is an opinion among some people that alcohol or drugs can help the shooter overcome nervousness. This is a false assumption.

(1) Alcohol and drugs give a shooter a false sense of security. They make him feel that even if he makes a mistake it will not really influence the outcome. The individual thus does not try as hard, but feels that he is nevertheless doing quite well. Inevitably he is defeated by a shooter in full control of his body, senses, and will power.

(2) Alcohol and drugs will not aid a shooter in gaining experience in overcoming nervousness. They only blind the shooter to his reactions, and he learns nothing about controlling them. A person learns to overcome nervousness by realistically facing up to it in an intelligent, clear-headed manner.

Most experienced champion shooters concentrate on performance while they shoot a match, and think about scores when the match is over. They learn to do this through self-discipline, gaining competitive experience and refraining from reliance on alcohol and drugs for moral support.

4. Mental Processes Involved in Shooting: In the moment before pulling the trigger, the shooter is attempting to stop the movement of the body and hold the rifle in the 10-ring. He is thinking about stopping all movement in his body muscles and maintaining body control.

a. We usually define "thinking" as a reasoning process involving words and sentences, or some other meaningful symbols such as numbers. But there are times when "thinking" includes neither words nor symbols. The trained athlete who drives a golf ball, shoots a basketball, or throws a baseball does not think with words at the moment he performs these activities.

b. He "concentrates" upon body control. He does not form a verbal plan for each muscle movement, such as "I will continue to grip the club, contract the muscles of my right shoulder and side, break my wrist to the right....." etc. He is aware of these different muscular activities, but he is not thinking about them in words. His mental processes are best defined as a state of heightened awareness of the conditions of his body. This is true in shooting. The trained shooter does not think with words at the moment he attempts to hold the rifle motionless. He is aware of the amount of control he has over his muscles and the degree of steadiness he can expect from them. This awareness of body control should continue through the delivery of the shot to provide follow-through. This is especially necessary in smallbore shooting because of the relatively slow barrel time of the bullet in transit. There are several factors that interrupt the awareness of body control and thereby cause a breakdown of performance. These factors will be considered in the chapter on physical and mental training.

c. We have considered several of the factors involved in the integrated act of shooting. The application of mental awareness may shift noticeably under certain circumstances, and deserves to be mentioned.

(1) In the standing position most shooters must force the rifle to stay within the 10-ring. To do this, they must center their awareness on body control in order to hold the muscles (and rifle) still and motionless. They must overcome the natural tendency of the body to move around its center of gravity. If they shift their attention away from body control, the hold may break out of the 10-ring during the trigger pull, resulting in lost points.

(2) In the most stable positions this may not be the case. Many shooters can hold 10-ring in the prone position without much effort. Some can do this in the kneeling position. A few can do it standing. Because of their stable position, these shooters can dependably hold 10-ring without a great deal of attention to body control. Body control is then no longer the critical factor in the delivery of a ten. Chances are that eye fatigue, wind conditions, or a smoothly controlled trigger pull may emerge as a more important factor. In that case, the center of awareness will shift to this more critical factor. If awareness centers on trigger control, the reflex characteristics of the trigger pull will be modified.

(3) This shifting of awareness may apply to any shooter in any position if the dependable hold is less than the 10-ring in scope. However, if the shooter cannot hold 10-ring, body control must be considered the critical factor. The shooter who fails to realize this is attempting to shoot "on the move" and appreciably limiting his performance.

5. Characteristics to Develop in Mental Training: MTU shooters have dominated the recent World Championships, Pan American Games, Olympics, and the National Matches. The individuals who won these matches feel that a champion shooter must have three characteristics.

a. A champion shooter must be able to analyze his performance. Thinking about his performance is the only way he can determine why he has a specific problem. Analyzing the problem is the only way he can find a cure. Then he must plan how to put the required corrective measure into practice.

(1) Thinking habits are vitally important. A shooter must never form conclusions on the basis of a hunch or a sudden flash of insight. In fact, he should never hold anything more than the results of the test, even if they contradict what he thought was a brilliant opinion. He must also weigh the facts about his performance that are pointed out to him by other experienced shooters. He must never allow pride or personal feelings to blind him to the logical course of action.

(2) A shooter would do well to look upon shooting as a science and to look upon himself as a scientist. He should view shooting as an experiment with a purpose--to shoot the best score possible. With this detached, impersonal approach, he can work strictly within the limits of the scientific method.

(3) Conclusions should not be based purely on the results of practice sessions. The final test of a method is whether it works under match conditions. A shooter should enter a number of minor matches simply to test new methods before using them in a big event. In addition, he will gain valuable match experience.

(4) The further a shooter advances, the more importance he gives to analyzing performance. Our best shooters feel that the ability to analyze performance accounts for at least 75 percent of a champion shooter's ability.

(5) Beginning shooters should keep a shooting diary. As a written analysis of each day's performance, it serves as a permanent record of results. Such a record is invaluable in enabling the shooter to see trends and patterns in his performance. It is an excellent aid to the process of refining positions, techniques, and training methods (See Chapter VIII - Position Refinement).

The most important function of a diary is to force the shooter to analyze. In addition, writing helps to reinforce any learning which took place as a result of the analysis. The shooter's diary is a method of insuring continuing analysis.

(6) One common tendency of all shooters is to analyze performance only in terms of mistakes made. A shooter should actually pay more attention to his good shots than to his poor shots. It is necessary to know why a shot was poor in order to avoid the same mistake on the next shot. But it is even more necessary to know why a shot was good in order to repeat that performance in the future. Analysis is a constant, continuing process: it is not reserved for days when performance is poor.

b. A champion shooter must have confidence. When he goes to the line to shoot, he must feel that he is the man to beat. He must be convinced that if he concentrates on performance, he can shoot a certain score; and he must know that his score will win the match.

(1) The champion never allows himself to be over-confident. He never feels that winning will be easy. He puts a full measure of effort into every shot in every event.

(2) The champion shooter must not tolerate a decline in his feeling of confidence. He must never feel that he is good for only second best. If he thinks of himself as second best, he will shoot for only a second best score. If he gets that score toward the end of the match, he will relax, and he will seldom if ever beat the man who keeps his mind on shooting for first place.

c. A champion shooter must have a compelling desire to win.

(1) A strong desire to win will motivate the shooter to train correctly. It will cause him to analyze the smallest detail to his performance in order to gain an additional point. It will reinforce his determination to give up coffee, tea, alcohol, and tobacco. It will prevail upon him to practice regularly and to make every shot count. It will drive him to perform better than anyone else, and to continue to improve in order to stay out in front of the field. It provides him with the will power to control and discipline himself in the face of intense competition. It instills in him the killer instinct--the desire to beat everyone else on the line, regardless of their ability or reputation. It enables him to be a champion.

(2) Champion shooters are quick to point out, however, that mere desire to win will not in itself win a match. It must be backed up with an ability to shoot a winning score. An intelligent analysis of shooting is necessary to develop this ability. Desire to win is simply useless energy unless harnessed by intelligent planning and self-discipline.

(3) Most champion shooters feel that they started to be successful when they set high goals for themselves. They decided that instead of being good shooters, they would become the best shooters. When they began to accept nothing but the best from themselves, they became champions.