



# Understanding Fixed Targets Shooting Concepts

(for beginners)

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## Chapter One

### **Background of Shooting:**

With the emergence of Islam, shooting was considered as both a need and an inherent trait. Indeed, shooting skill for Muslims was one of the fundamental skills to reach triumph in battles.

Muhammad the Prophet (PBUH) says: “Learn shooting and horseback riding for they are the best of sports.” He has also mentioned: “Truly will God take two to heaven with one shot, first is the man who whittles the arrow for Jihads and second is the man who shoots it for God.”

With the invention of fire weapons (such as rifles and cannons) in the fifteenth century, importance of shooting with bow and arrow was lowered in the armies and from that this weapon was only used for hunting, entertainment and sports and many competitions were held with bow and arrow.

It was by the beginning of the sixteenth century when firearms and long guns were made and shooting started to be used in religious ceremonies and traditions. At that time several competitions were held as well.

Development in making shooting equipment and weapons was continuing when official competitions started in the nineteenth century and this field was included in the Athens Olympic Games of 1896 with 9 different fields among which shooting had the most participants.

Organizations which direct shooting:

### **International Shooting Sport Federation (ISSF):**

The International Shooting Sport Federation was established in 1907 and was dissolved in 1915. It was in 1915 when the international union of shooting restarted under the label of “Union International de tir” (UIT).

In 1939 this federation was suspended and it was again allowed to continue under UIT in 1947.

July 15<sup>th</sup>, 1998 was the day when “International Shooting Sport Federation” was chosen and ISSF is its acronym. The International Olympic Committee (IOC) is responsible for modernization of this federation. It is worth noting that the current location of ISSF is in Munich, Germany.

### **Islamic Republic of Iran Shooting Sport Federation:**

Islamic Republic of Iran Shooting Sport Federation was established in 1958 and 14 people have been announced as the head of federation up to now.

Currently, this federation along with the sub-groups has established 30 committees all around Iran which are all responsible for shooting sport.

Shooting fields in Iran are 22 which are categories as follows:



## Table of Active Shooting Sports in Iran

### Men

No.	Name of the Sport	Status
1	Air Pistol	60 Bullets
2	Air Gun	60 Bullets
3	50-meter Rifle	Prone 60 Bullets
4	50-meter Rifle	Prone-standing-kneeling-3*40
5	300-meter Rifle	Prone 60 Bullets (Armed Forces)
6	300-meter Rifle	Prone-standing-kneeling-3*40 (Armed Forces)
7	25-meter Center-fire Pistol	30+30
8	25-meter Standard Pistol	3*20 Bullets
9	50-meter Pistol	60 Bullets
10	Trap	125 Targets
11	Automatic Trap	125 Targets
12	Double Trap	150 Targets
13	Skate	125 Targets

### Women

No.	Name of the Sport	Status
1	Air Pistol	40 Bullets
2	Air Gun	40 Bullets
3	50-meter Rifle	60 Bullets-Prone
4	50-meter Rifle	Prone-standing-kneeling- 3*20
5	25-meter Pistol	30+30
6	Trap	75 Targets
7	Automatic Trap	75 Targets
8	Double Trap	120 Targets
9	Skate	75 Targets



## Types of Shooting Sports

**Sports recognized by ISSF are as follows:**

### Men's sport

Men's sports	Number of Bullets	Status
300-meter Rifle	3*40	Prone-standing-kneeling
300-meter Rifle	60	Prone
300-meter Rifle	3*20	Prone-standing-kneeling
50-meter Rifle	3*40	Prone-standing-kneeling
50-meter Rifle	60	Prone
10-meter Air Gun	60	Standing
50-meter Pistol	60	
25-meter Rapid Fire Pistol	60	
25-meter Center-fire Pistol	30+30	
25-meter Standard Pistol	3*20	
10-meter Air Pistol	60	
Trap	125 Targets	
Automatic Trap	125 Targets	
Double Trap	125 Targets	
Skate	125 Targets	
50-meter Running Target	30 Rapid Shots	30 Slow Shots
50-meter Mixed Running Target	40 Mixed Shots	
10-meter Running Target	10 Slow Shots	30 Rapid Shots
10-meter Mixed Running Target	40 Mixed Shots	

### Women's sport

Women's sports	Number of Bullets	Status
300-meter Rifle	3*20	Prone-standing-kneeling
300-meter Rifle	60	Prone
50-meter Rifle	60	Prone-standing-kneeling
50-meter Rifle	60	Prone
10-meter Rifle	40	Standing
25-meter Pistol	30+30	
10-meter Pistol	40	Standing
Trap	75 Targets	
Automatic Trap	75 Targets	
Double Trap	120 Targets	
Skate	75 Targets	
10-meter Running Target	20 Slow Shots	20 Rapid Shots
10-meter Mixed Running Target	40 Mixed Shots	



## **Understanding safety principles in shooting:**

### **General matters:**

Safety principles are among technical rules of ISSF which must be followed in all shooting sports and shooters, trainers, and coaches should be well aware of them and act to them as well.

### **Safety issues:**

Safety rules in shooting fields are different among countries. Therefore, the focus is mainly on basic and important details since safety in shooting field is somehow dependent to the environment. Henceforth, the organizing committees are allowed to make changes and issue new rules if necessary. However, the organizing committee must be familiarized with the rules and safety issues and perform the necessary action related to this since this committee is responsible for safety on the field.

- In order to watch safety measures for shooters, organizing personnel and match observers maximum attention must be put to carrying and using weapons. Observing personal discipline is mandatory for the entire participant, shooters. Team coaches should also cooperate with organizing personnel to better carry out rules.
- Match observers are allowed to stop the events any time, if necessary. Shooters and team coaches must inform observers or referees if they found dangerous matters.
- Only match controlling staff, line referees, or field commander are allowed to check weapons and equipment (this process must be done in the presence of the shooter).
- Loading must be done only in the firing line and after hearing “start” or “load”.
- The shooter, after firing the final shot and before leaving the firing line, must make sure there is no bullet left in the barrel.
- Aiming and training shots are only allowed at the firing line and when the field commander permits. Moreover, the shooters are not allowed to touch or move their weapons when executive team is in front of the firing line.
- If the shooter hears “Stop” and keeps changing or moving the weapon without the permission of field commander or match observer, s/he will be eliminated.
- Hearing “Stop”, the shooter must cease shooting and must empty the weapon. The weapon must be put on toggle mod. Shooting will be allowed only when the sign is heard.
- Only formal organizers of the field can command “start, stop, load, unload, etc.). The observer or field commander should make sure of the correct announcement of commands.

### **Safety in Shooting Hall:**

- When you take out the weapon from its case in the shooting hall you should pull the charging handle open and hold it until shooting process begins to make sure the weapon is unloaded.
- Always make sure the weapon is unloaded before taking it out of the case, handing it others or even bringing it to the firing line.
- Keep weapon and ammunition as far as possible from each other.
- Never touch others’ weapons without their permission and presence.
- Always aim your weapon to the targeting card or a safe line even during exercises and when you are sure your weapon is unloaded.
- Never hand your weapon to others.



### **Safety in Firing Line:**

- Do not touch your weapon when staff is in front of firing line (to check scores, change target carts, etc.).
- Hold your weapon downwards when you are carrying it in fields.
- Load your weapon only when the commander commands.
- Unload your weapon immediately when you heard “Stop”.

**Note: In the following moments you must unload your weapon and make sure it is unloaded.**

- When something comes up during shooting.
- When you want to leave firing line for whatever reason.
- When the weapon is broken. (With the supervision of field commander)

**Note: When shooting process is finished, double check your weapon to make sure it is unloaded before taking the weapon out of firing line position. Hold the charging handle open until the weapon is put in the case.**

### **Safety in House:**

- Keep weapon and ammunition somewhere safe.
- Keep weapon away from children, teenagers (and those who do not know how to use it).
- Do not neglect to watch your weapon when in house or when you want to take it to a vehicle.

### **Important Safety Points:**

- Never use a weapon which is new and its barrel are not cleaned. Because oil and grease in the barrel could impose damages to the weapon.
- Never oil an air gun (weapon). Because compression of oil could be dangerous.
- Put your weapon down when you understand your weapon is broken or something is wrong with it. Step back and inform line staff.
- Do not attempt to fix or troubleshoot your weapon during shooting time.
- Make sure you are following the rules. Neglecting any of them could cause unpleasant accidents.
- Load your weapon only at the firing line and with the order of commander.
- Never neglect a warm weapon since one second could be dangerous.



## Chapter Two:

### Understanding Shooting Equipment:

#### Specialized equipment of rifle

Today you can find a shooter in national or international matches who carries heavy suitcases before the match each of which contains lots of equipment for shooting.

Recently, quantitative and qualitative growth in shooting equipment has played an important role in changing records and experienced shooters pay considerable amounts of money to improve their shooting equipment.

Amateur shooters do not need shooting jackets since heaviness and tightness of them impede the reaction of muscular nerves. Therefore, it can be stated as a rule that amateur shooters can continue without steep prices for weeks and even months.

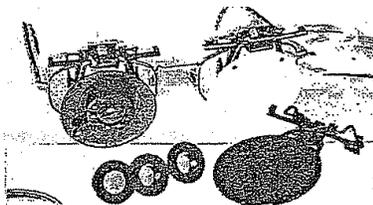
#### *Choosing weapon:*

In most of sports clubs only a limited number of weapons are used. In such clubs it is possible that some shooters practice with one weapon which could put negative effect on the performance of shooters who want to reach high levels. Hence, if you are determined to develop you ought to use your personal weapon.

#### *Special goggles:*

If you wear glasses for studying then you should also wear glasses for shooting. Using goggles can let you aim better and reduce tiredness of your eyes even if you have no sight problems. Therefore, goggles are used in many of shooting sports. One of the important reasons of using goggles is to focus better during aiming.

Picture 1



Using color filters on goggles can stop intense sun rays and bring a balanced light status to your eyes which helps you better see the targets. Usual Type of lenses is as follow:

Light Purple

Purple

Sky Blue

Orange

Yellow

#### *Special headphones:*

Headphones are very necessary for shooting. Using this device can keep your ears protected and reduce the sound of shooting in a great amount. Earmuffs can stop undesired effects on muscles when you pull the trigger and the bullet is shot.

Picture 3





Benefits of using earmuffs are not limited to reduction in bullet sound while air gun shooters also use earmuffs in indoor shooting halls since reduction of environment noise (sometimes caused by the audience) can help shooters better concentrate.

As there is a variety of earmuffs in the market you should choose wisely.

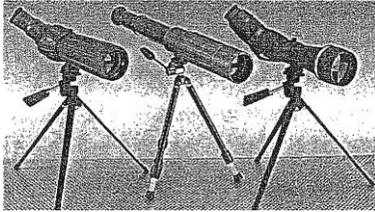
A suitable pair of earmuffs must:

- 1- Have a high quality
- 2- Reduce noise considerably
- 3- Be light and comfortable

### ***Telescope:***

Today we can see that using electronic video equipment is increasing abundantly but as they are expensive athletes still use visual equipment such as binoculars and telescopes in shooting halls to see their shots on target.

Picture 4



**A suitable telescope must:**

- 1- Be handy.
- 2- Be flexible enough to be adjusted for appropriate distance.
- 3- Be adjustable based on heights so that the shooter does not change position to see the target.

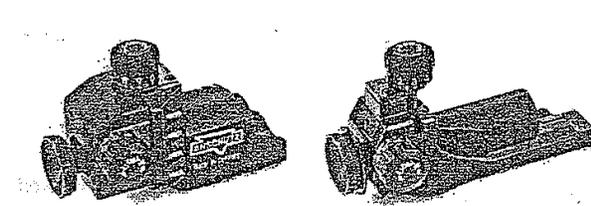
### **Reasons of using telescope in indoor halls:**

It is possible that automatic target card switchers are used in indoor 10 and 50 meter halls. So the shooter must see the place of his/her shot before switch. Also, in 25-meter halls it is mandatory to use telescopes if there is not monitor available.

### ***Eyehole (peephole):***

The eyehole of a gun is designed in a way that the shooter adjusts that with his/her eye during shooting and it provides a suitable space for adjusting the target and shooter's eye. As the eyehole changes so does the space of aiming.

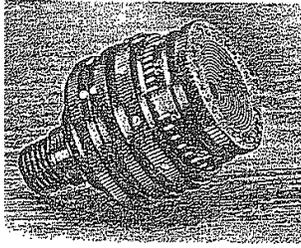
Picture 5





You can use an adjustable diaphragm instead of a fixed eyehole. Therefore, there is no need to change the base to adjust the diameter.

Picture 6



Color filters in the diaphragm can reduce light changes and polarizers will stop refraction during aiming.

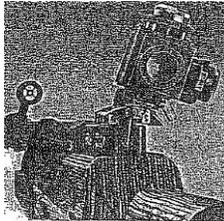
Picture 7



**Swivel eyehole:**

In order not to turn the neck and to stop tiredness during shooting, a swivel eyehole has been implemented which can be twisted to right or left. This way the shooter will not be forced to bend over the stock.

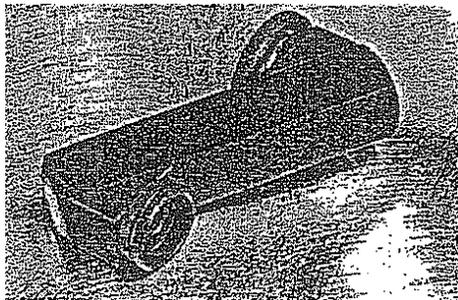
Picture 8



**Prism:**

The best situation for shooting is when the dominant eye and the dominant hand are in one direction. Otherwise, the shooter must use a prism to aim. Angled mirrors in the prism allow the shooter to have the eyehole in front of the dominant eye.

Picture 9

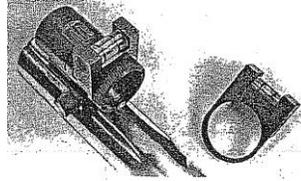




**Rifle scope:**

To find a steady position during shooting, the weapon must be set in a fixed angle. Using scope helps the shooter to adjust the aim so that it remain in a desired angle after it is fixed, parallel to the horizon line so that the inner bulb is between scaled lines of the capsule.

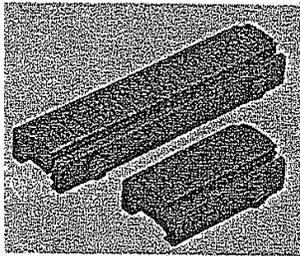
Picture 10



**Gun sight and eyehole stand:**

This device is used when the shooter is supposed to bend his/her head forward more than necessary. Pillars of the stand are various in terms of height but it should be kept in mind that the distance of gun sight core to center of the barrel should not be more than 60 millimeter.

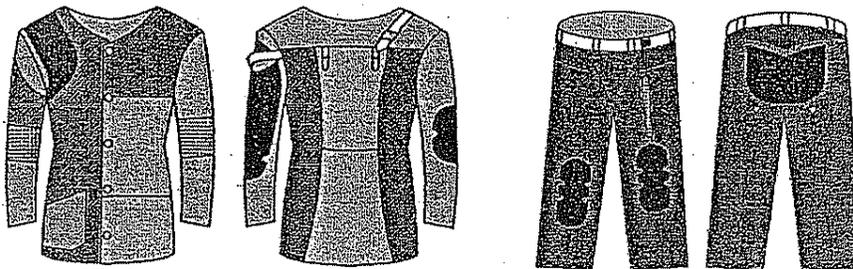
Picture 11



**Clothing of the shooter:**

Shooting clothing in terms of appearance, size, and thickness must be in accordance with ISSF regulations. Clothing of the shooter reduces the activity of body and steadies positioning and aiming.

Picture 12

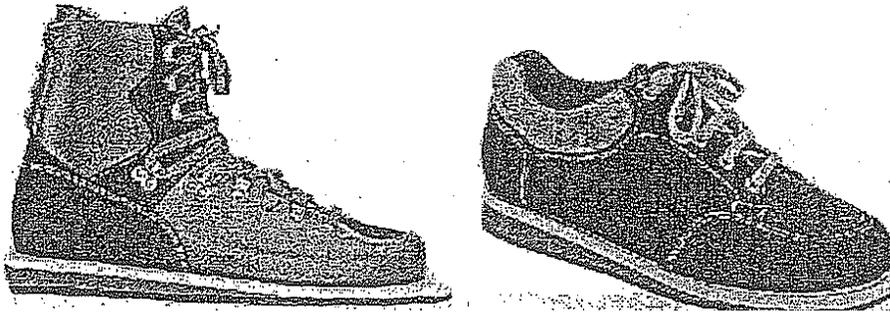




**Shooting shoes:**

Shooting shoes impose less force on muscles, postpone muscular tiredness, supports outer side of feet and reduce ankle's activity in a great deal. Shoes should also be in accordance with ISSF regulations in terms of appearance, size and thickness. Shoe soles must be thick and without erosion on heels. Shoe soles are preferred to be made of one layer and thicker on heel than front. Shoes for pistol shooters must be up to ankle wrist and should not support the ankle.

Picture 13



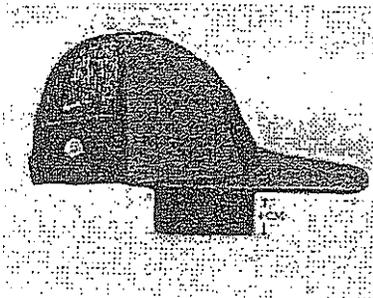
Rifle Shooters' Shoes

Pistol Shooters' Shoes

**Shooting caps:**

Caps are often used as necessary clothing during shooting. The cap does not allow direct sun ray into eyes from above and from other sides. Side coverings of goggles can stop virtual vision as far as they are in accordance with regulations.

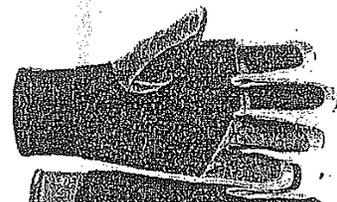
Picture 14



**Shooting gloves:**

Shooting gloves in terms of appearance, size and thickness must be in accordance with ISSF regulations. Special shooting gloves can cause more steadiness and they impose less pressure from weight of the weapon.

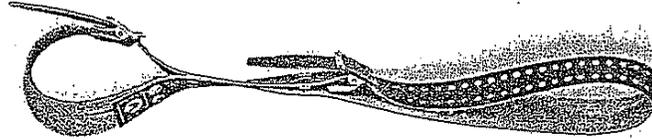
Picture 15



***Gun sling:***

Sling is an accessory which holds the weapon to the lower part of the weapon on one side with a special pin and to the arm of the shooter on the other. Using sling is very effective in prone and kneeling positions of shooting.

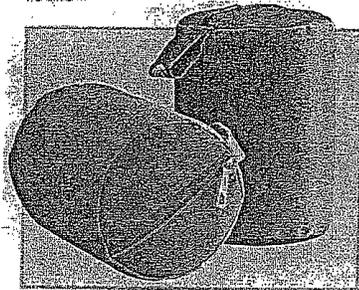
Picture 16



**Shooting cushion:**

In kneeling position, this accessory is used to fill the gap between back of the foot and the ground. Cushions must be in accordance with ISSF regulations in terms of length, width, and flexibility.

Picture 17



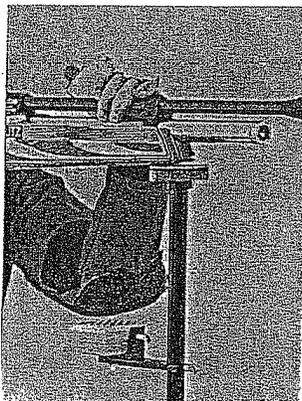
***Weapon holder base:***

Weapon holder base is necessary equipment for shooting. The shooter can use this when reloading or resting in standing or kneeling position. This equipment must be adjustable to these two positions.

The holder base must:

- 1- Reduce the movement distance of the weapon.
- 2- Reduce unnecessary contraction of muscles and movements to move the weapon up and down.
- 3- Form a steady situation during shooting and be applicable for holding bullets and ammunition.

Picture 18





## Chapter Three

### Essential Factors in Shooting

In order to learn shooting you need to enhance the physical status of your body, learn the skills and the techniques, be able to adapt yourself to the environmental factors and be psychologically prepared. It is true that these factors are common in learning of any other sport but exercising them is of a significant importance in learning shooting and by having a detailed schedule you need to enhance all these factors. These factors are:

1. Physical fitness
2. Technical ability
3. Tactical ability
4. Mental preparation

#### 1. Physical Fitness

Physical fitness is one of the most important factors in shooting that underlies the gaining of shooting skills. The aim of physical fitness is to prepare and enhance the practical performance of the shooters.

Being physically fit is the first step towards the advancement of the shooter and the shooter's subsequent success is determined by his physical fitness and other factors. The more time is allocated to physical fitness in the sport program the better the performance and the skills of the shooter will be.

The best exercises and sports for shooters are those that improve the cardiorespiratory endurance, balance and physical fitness of the shooters. Therefore coaches should include the following sports depending on the need of each individual in the sport program: running, swimming, mountain climbing, cycling, stretching exercises, weight training, balance exercises etc.

#### Stretching Exercises for Shooters:

In this section more information is provided due to the significance of the stretching exercises and its influence on the shooters' physical fitness.

#### Why do we do stretches?

Shooting is a very delicate sport in which physical fitness and awareness plays an important role. Therefore stretches for shooters provide a practical way to combine awareness with great mental and physical preparation for the competition.

Following is the benefits of doing stretches:

- Reducing body tensions and making you feel relaxed.
- Increasing the joints' range of motion
- Increasing body awareness



- preparing the eye of the shooter for doing the shooting exercises and competitions
- preventing injuries such as muscle cramps
- developing a satisfactory feeling of readiness in the shooter

### How to do stretches?

Stretches are not dynamic movements; they are about reaching a status in which you feel a mild and comfortable level of stretch for 10 to 30 seconds. This feeling of stretch should be diminishing while you are still in the pose. If this isn't happening, stop that stretch and pose in an angle in which you would feel a mild stretch then increase the angle just a little till you feel a mild stretch in your body and keep this position till the stress and the feeling of stretch start to diminish.

Breathing should be relaxed, rhythmic and under control. If you are going to bend forward for doing a stretch exercise, exhale and after getting in the pose start breathing slowly. Do not interrupt your breathing while you are in the middle of a stretch exercise.

At first count the seconds while doing the exercises. This will make sure that you would do the exercises for a proper amount of time. After a while without getting distracted from counting, you will start to feel the stretch in your body.

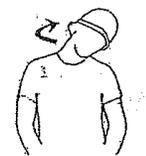
Enduring too much of the stretch in your body or jumping up and down will cause stress and cramping and create a reaction against the stretch which is a mechanism that protects the muscles from cramping. Feeling pain is an indication that you are doing it wrong. Therefore do not stretch your muscles too much.

Do the exercises regularly and systematically from head to foot and focus on the stretch in your body.

The following include stretching exercises that can be done both at home and the shooting hall and can be used as an exercise program prior to competitions.

### Stretching Exercises:

1. Bend the neck to the left till you feel a stretch in the right side of your neck and on your shoulder, hold it for 10 seconds and do this for the other side of your neck.

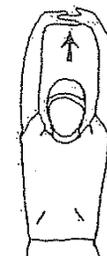


2. Put your right elbow at the back of your head and pull it down gently with your left hand, hold it for 15 seconds and do this for the other hand.



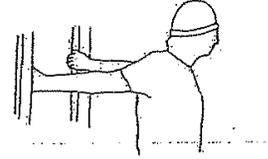
3. Interlace your fingers, turn your hands outwards till you see the back of your hands and raise them overhead and stretch your hands upwards. In this position, you will feel a stretch on the back of your shoulders, arm, forearm, wrist and hand.

(Hold it for 15 seconds and repeat.)

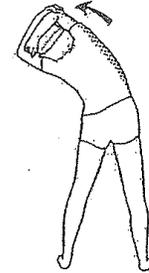




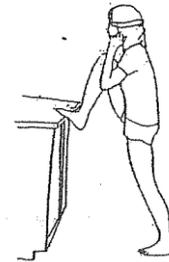
4. With a distance of 30-60 cm stand with your back against the wall and spread your legs about shoulder-width apart. Then gently turn your hands backward to the wall and hold this position for 10-20 seconds. Keep your knees a little bent. Do this turning your hands forward in front of your body.



5. While standing, put your arms on your head and hold each elbow with the opposite hand and slowly lean to one side, hold it for 10 seconds.



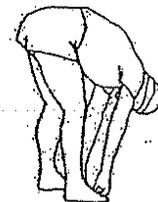
6. While standing, put your feet on a high surface (a desk, stairs, a wall) then move your body forward towards the ground till you feel a stretch at the back of your thigh, buttock, and the front side of your opposite thigh and hold it for 30 seconds.



7. While standing, hold your left knee towards your chest and hold it with your right hand and slowly pull it upwards. You would feel a stretch on the front side of your thigh. Hold it for 20 seconds and do this for the other knee.

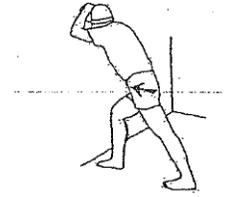


8. Spread your legs about shoulder-width apart and slowly bend down not putting tension on your hands and shoulders and with your knees not being so stiff while bending down. In this position you will feel a stretch on your waist, back of your thighs and shins. Try not to lock your knees and focus on the stretched muscles, hold it for 15-25 seconds.





9. To stretch the muscles of the back of your shin and ankle, stand facing the wall, lean your hands to the wall and put your head on your hands. Then bend your front leg and slide your other leg backwards, hold it for 30 seconds then change the stretched leg.

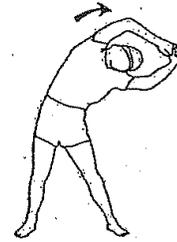


10. To improve the body balance you can do the following exercises:

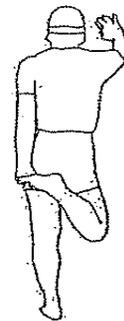
Put your feet close to each other ,interlace your fingers, turn your hands with the back of your hands facing you, then move them upwards above your head and while looking at the back of your hand raise yourself on your heels and hold it for 10-11 seconds. You will feel a stretch in your shin and ankle. (Repeat the exercise)



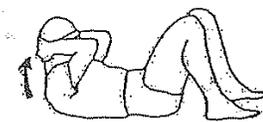
11. While still in the previous position, slowly turn your hands to the left side of your body with your spine being straight, hold it for 10 seconds and then slowly turn towards the right side of your body. You will feel a stretch on your sides, shin and ankle.



12. While standing, put your feet close to each other, raise your right hand and hold it above your head. Move your body's weight to your right leg and bend your left knee backwards with your left hand. Keep your balance and hold it for 10 seconds then do this for your opposite leg.



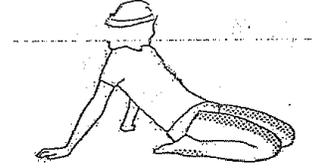
13. For the flexibility of your spine and the muscles of your back and abdomen relax your muscles while you are lying down on your back, then put your hand at the back of your head, bend your knees and slowly remove your shoulders from the ground. Hold this position for 15 seconds and slowly lower your body to the relaxed position.





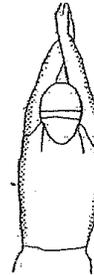
14. To stretch and enhance the muscles of your abdomen and chest do the following exercise:

Slowly sit on your heels, put your knees next to each other, pull your hands backwards, bend your head backwards, push up your chest and curve your spine. You will feel the stretch on your chest, abdomen and the front side of your thighs. Hold this position for 20 seconds.



15. Stretch to enhance breathing

While standing, put your feet next to each other, exhale and empty all the air from your lung and relax your body. Slowly raise your hands above your head while breathing. While raising your hands above your heads go on your heels, hold this position for 5 seconds and repeat it 5 times.



## 2. Technical ability

It is obvious that using techniques is one of the most influential ways of success for a shooter and they learn them in a great proportion in their practices. In order to learn the techniques of shooting, systematic and well-organized methods are provided so that the shooter can get familiar with the details and be able to turn them into a skill by performing and adjusting them. The techniques of shooting with pistol and rifle are different with each other and the related information for each is provided in separate sections.

**Technical ability includes the followings:**

- a. Posing
- b. Holding the weapon
- c. Breathing
- d. Adjusting the elements of sight
- e. Pulling the trigger
- f. Supplementary actions



### 3. Tactical ability

Tactic in shooting has a close connection with side factors influencing the shooting and provides an opportunity for shooters to gain information about them and adjust themselves to them. In fact it can be considered as a kind of adjustability with the unpredictable situations and unforeseen events.

By using tactics and by the right use of abilities and facilities in reaching the goal, it will be easier to achieve success and the shooter can make use of the tactics by planning and making the correct predictions. With the use of the right tactics and by doing the exercises in various environments and gaining experience in various weather conditions and considering the influences of the environmental factors of the competitions shooters can neutralize the unforeseen events and the destructive elements in shooting, and also provide the desired outcome and return to the normal status of the competition. Getting tactically prepared starts from the beginning of the exercises and remain as a part of the daily exercises in the various preparation periods and the coach and the shooter by planning and making predictions should always be ready to face the mentioned factors.

#### *Tactical factors:*

##### **Weather conditions**

- a. temperature of the environment (hot and cold)
- b. wind velocity ( using a vane)
- c. rain
- d. sun light
- e. mirage (which because of the temperature difference of the ground and the movement of the heat upwards causes sight issues)

##### **environmental conditions**

- a. altitude of the place of practice and the competition
- b. lighting condition of the shooting place
- c. systems used in the shooting hall
- d. level of competition between the shooters
- e. audience

##### **the individual's specific condition**

- a. using the time
- b. application of the techniques
- c. the level of practice and exercises
- d. using the facilities

### 4. Mental Preparation

There is a lot of connection between the mental performance and the practical skills of the shooters. Therefore the success or failure of the shooters depends on their physical performance like performing the techniques and the key skills and alongside them being mentally prepared such as being confident, having focused and being able to control the excitement.

The connection between the physical and the mental aspects of the shooting is an interesting one. Shooters often talk more about the mental skills meaning the skills useful in difficult situation such as involuntary pulling of the trigger, breathing and the control of the heart beat than they talk about the



physical skills. In fact experienced shooters believe that being mentally prepared guarantees a high percentage of the success. Therefore famous shooters emphasize on being steady, having consistency in using the techniques, making quick and precise decisions and being calm as the most important possessions of a shooter. Without doubt the positive mental performance of the shooters in different disciplines of shooting is of high importance and should be considered as a significant part of the exercises.

It is surprising that in coach training sessions and shooting exercises the emphasis is put only on the physical aspects of this sport. If both shooters and coaches agree on the importance of being mentally prepared then why is it that not much time is allocated to this aspect and not much attention is paid to it?

The main reason is this false belief that mental preparedness is inherent, meaning the shooters either have it or don't. But mental skills can in fact be developed just like the physical skills. Good shooters don't possess a perfect collection of mental skills, they constantly practice their abilities of thought concentration, staying calm under pressure, keeping confidence and communicating with the coaches, and because these attributes are the same as being mentally prepared if they are not being practiced like the physical aspects they will not get developed. Therefore it seems that a good combination of mental and physical skills is necessary for the success of the shooter. When we talk about the characteristics of a good shooter the nature of this combination is revealed.

### **Characteristics of a good shooter:**

Although shooting requires technical knowledge but undoubtedly what a shooter does in a competition depends highly on his or her personal characteristics.

It might be said that the important attributes of shooting is evident and they are used in evaluating the shooters. But that is not true, and much is said about this between the experts of this sport, therefore we are not trying to rank and give a perfect list of the characteristics of a good shooter. It is possible to give the followings as some of the characteristics of the good shooters based on the most recent research findings:

- having stability in what you do
- proper performance
- consistency
- balance
- confidence
- power of decision making
- proper emotional arousal

For a better understand of some of the psychological terms some of them are defined:

#### ***Emotional Arousal***

In most levels of competitions, athletes feel a natural rise of arousal which is brought about in them based on the situation of the environment. In this situation, warming up should be enough to motivate and arouse the athletes for a good performance. But sometimes the interference of some of the negative excitements such as fear and worry disturb the balance of arousal and can weaken the performance of the athlete. Also sometimes the athlete is not properly aroused and in this case factors such as apathy and indisposition can be discussed.



If the coach or the shooter realized that the level of arousal is too high in order to lower it to a proper level we can use relaxation techniques, and if the arousal level is too low we can use psyching up techniques to raise it.

Ways of decreasing the emotional arousal:

- Listen to calm, relaxing music.
- Talk to the other athletes who are the most dominating and confident. This way you become positively influenced by their confidence.
- Have a regular plan to perform before each competition.
- Those shooters who feel too much emotional arousal should use some of the techniques that would calm them down such as taking a walk, jogging and ping pong.
- Use the focus technique on one or two most important parts of a skill.

Ways of increasing emotional arousal:

- Use mental rehearsal techniques to imagine difficult situations and get a feeling of excitement.
- Use intense workouts for the warm-up.
- Listening to exciting music and watching exciting movies can have a good influence on some of the athletes.

Relaxation as a base for mental exercise:

Most outstanding athletes use mental exercises regularly to get ready for competitions, relaxation by relaxing the mind, reducing the distractions and increasing the effectiveness of exercises can help this process. Relaxation is a skill, and to learn it practice is necessary. An individual who can become physically and mentally relaxed has achieved a very important skill since by gaining this skill for reducing tensions and anxiety we use our mind, when we reach emotional comfort we no longer need this brain action and we can focus all our attention on the activity we are doing and in this way the process becomes much simpler.

#### ***Relaxation methods:***

- Gradual muscle relaxation: includes learning how to relax by using regular contractions and then relaxing of different muscle groups of the body for 10 to 20 minutes.
- Relaxation by using mental picturing and imagination
- Biofeedback ( providing information regarding the bio activities taking place in the athlete's body such as checking the athlete's pulse or listening to the heartbeat)
- Self-hypnotism ( to induce positive thoughts)
- Meditations (for example, sit once or twice a day for 15 to 20 minutes, close your eyes and count your exhalations).

#### ***Mental exercises:***

These kinds of exercises are effective ways to improve the performance for the following reasons:

- They enhance the skills which the athlete is good at.
- They speed up learning of the new skills and fix those that are problematic.
- They improve the body's mental reactions.
- They increase concentration and confidence.
- They reduce anxiety.
- They increase self-awareness and being aware of the important signs.



Mental exercise is not an idealistic thought, it is a real exercise that is done alongside the physical exercise and included four steps:

First step: specifying the objectives

Second step: creation of the scene

Third step: automatic mental exercise

Fourth step: rehearsing the skill

### ***Competition:***

With the competition approaching you should be prepared physically and in your skills as much as possible. However there is more pressure in the competition and you shouldn't let this pressure or any other psychological factor to stand in the way of your best performance. To overcome pressure or frustration or lack of confidence, use mental exercises. One of the good methods of mental exercise for sport strategies and reviewing the expectations you have of yourself is the night before your competition. Although doing regular mental exercise in exercises that lead to an important completion are recommended but the sparse times between the exercises or the competitions are important as well, such as the time gap between two sections of shooting in different shooting categories or even between two shots.

### **Mentally exercising the sport performance:**

Stay 5 minutes in relaxation, relax your muscles and calm your mind. Now imagine the scene of your competition vividly with all its details. Then imagine the clothes you are wearing, people that are with you, your surroundings and the excitement in the environment. Now do your skill in your mind, then practice the techniques and the special skills mentally. This way you have prepared yourself for the environment of the competition and have reduced some of the tension and anxiety of the competition.

### ***Mental picturing:***

Mental picturing or imagination is the ability to create images in your mind which is useful in sports in different ways and for different purposes:

1. To develop a kind of relaxation by imagining a peaceful scene
2. In a mental exercise of a good performance, a scene of an event in the future or picturing, leads to learning of a new skill.
3. To enhance the way a special skill is done
4. To help in solving a problem



### ***Mental rehearsal:***

In mental exercises to control the imaginations you have of your performance, picturing is used to:

1. Rehearse a good performance ( to help you get familiarized with the feeling of a good performance)
2. Rehearse the performance or the competition that you are about to face.( to help you get familiarized with the situation of the competition and to increase your success and your confidence by giving you constant suggestions)
3. Increase learning a skill.

Performing a skill is a physical matter but it is the brain that does the organizing and coordinating. In exercises, the purpose of repeating a skill over and over again is to send the neuro-signals constantly from the brain to the muscles to actually erase the path and to do the skill completely in the future. Imagining exercising a skill will enable you to travel in the neuro-paths without physically doing them. This method enhances the skill and helps you to learn it more quickly.

### ***Improvement in a performance of a skill:***

Mental picturing can be used in exercises and in competitions to have a more successful skill performance. Remember that picturing is done on the right hemisphere of the brain and guides the body and therefore in this way prevents the unnecessary use of energy to try harder.

Adding a picture that doesn't actually exist in the performance can make it easier to perform the skill. Images like this are used a lot in shooting. For example: a shooter might imagine that strong concrete columns are supporting him. This constant image will guarantee his physical status and helps him in having a more precise aiming. For example by doing the following you can improve stability and precision:

When you have posed for shooting it is like you have entered a tunnel, this tunnel has transparent walls and you can see the other side of it, but for a good shooting you are only aware of the things that you need them. This tunnel or path is your concentration and when you are looking at your goal your gaze becomes so concentrated that it will hit the target. When you are ready to shoot, imagine yourself like a statue, a statue that has been fixed on its place and the only movable joint is its index finger. From the aiming device to the target a light, thin line is drawn and the statue automatically will shoot right on that line.

### ***Concentration/attention:***

Many psychologists prefer to talk about attention rather than concentration. In fact this way they show one of the important attributes of concentration which is:

No matter how well and precise is your concentration it is not useful at all till you guide it to a correct path.

This sees pretty obvious and although the majority of the athletes are aware of what to focus their attention on to provide you with more explanation it is good to answer the following questions:

1. Has it ever happened that in a situation that you are wining your opponent reaches you?
2. Have you ever gotten so angry that it has affected your performance in an important competition?
3. Have you ever been so far behind in competition that you have finally given up continuing?
4. Have you ever been in a situation where the chances of you winning or losing have been equal?



If you have given a Yes for any of the above questions there probably has been a problem in your concentration. But before discussing this topic further let's see what the common thread is in all these seemingly different situations.

The answer to this question is hidden in "attention", meaning we have to see what it has been that you have had your attention on by mistake.

When athletes think that they are winning the effort they put becomes less and when they are worried they might lose they make more mistakes. The solution of this issue is not very easy, but many experts believe that to eliminate this problem first the athletes should change their attitudes toward this philosophy that "winning is not everything but the only thing". Obviously everyone wants to win but sometimes this intense desire to win prevents them from paying attention to things that they have to pay attention to. Emphasizing on the quality of the skill performance is a good substitute for this way of thinking. This emphasis means that you as an athlete should only focus on doing your duty, and you should leave the result of the competition to worry for itself.

You have to keep this in mind that by putting your focus on winning or not losing you are reducing your chances of winning.

The poor performance of the athletes is the result of their attitude of being "result-oriented" .if they were "task-oriented" they could have had a better performance.

It means that the athletes by focusing on winning give the control of themselves to things that they are not in control of. In fact the skillful athletes are those who without paying attention to winning focus on the task as much as they can.

Principally, skillful athletes have learned to do one of the followings:

1. To try to become complete in their sport major and in action compete with themselves not others.
2. In difficult situations they focus on their task and to increase their awareness and emotional arousal use mental pressure.

Last point:

Athletes are recommended to consider their own capability without paying attention to their feelings. This is completely related to consistency in practice. Of course it is not strange that the experienced athletes are the best coaches. They without paying attention to how they feel exercise well and therefore it's not surprising that in the competitions they shoot well despite the fact that they don't have a good feeling.

In this regard psychological sport services can help the athletes become more task-oriented in their competitions. This process includes assigning objectives for each practice session and evaluating each session or competition.

## Chapter Four

### Shooting With a Pistol:

In this chapter shooting with a pistol will be explained. The important point in this chapter is the careful attention given to teaching how to learn shooting with air guns which are known as the mother disciplines. Without doubt shooters who have been able to become champions in rimfire disciplines, at the beginning, started with shooting methods of air guns and then by gaining the necessary experience they achieved specific and key skills and by expanding their knowledge to other disciplines in which they were interested became successful. Therefore those who don't show much of an interest in air guns will have a more difficult path to success. For these people there should be this belief that the key to success is practicing with air guns.

### Getting familiar with techniques of shooting with air pistol

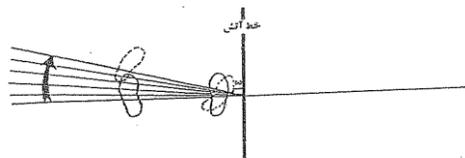
**Position:** position in shooting with a pistol includes the following:

#### Position of the legs

as an important part of the stance of the body the position and the feet's contact with the ground determines the angle of the body to the target, keeps balance and is the body's center of gravity.

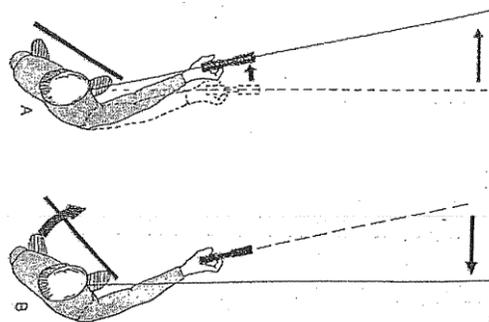
Posing in front of the target depends on the physical status of each individual in a way that he would be standing in the most comfortable way possible. Therefore the angle of the body and the hands are not optional they are determined by the natural status of the body.

Shooters take angles in different ways based on their habit. But experience has shown that the most appropriate status that they have chosen is often an angle between 0 to 25 degrees that they pose in based on their physical condition.



Legs spread a little more than shoulder-width apart.

- Feet parallel to each other, with the tip turned a little outwards.
- Changes in the angle of the body should take place by moving the back foot, the front foot changes angle following this change and only around the vertical axis of the foot.
- The body's center of gravity in natural position "standing without a gun" is located between the average distances between the feet.





## Position of the knee and the upper body

Knees should be fully stretched and upright without any muscle contraction in a way that they transfer the body's weight to the supporting surface.

The position of the waist changes a little naturally with rising of the gun and to keep balance the body's center of gravity shifts a little to the back and sides.

While aiming because of the body's shift to the side, scapula and shoulders of the shooter will be a little higher than normal. This will help the alignment of the gun with the direction of the sight and the adjustment is done better, but we should prevent muscle stress and pressure on scapula and shoulders.

Position of the head and the neck while aiming, is very influential on the adjustment of the sight elements, and unusual pressures on the neck area can disturb the sight and cause early fatigue. Therefore you should always try to position the head in a comfortable way to the target so that eyeballs can position themselves in the direction of the sight elements without muscle stretch.

As a rule it should be remembered that "the position of the head while shooting is completely fixed and doesn't have even the slightest changes."

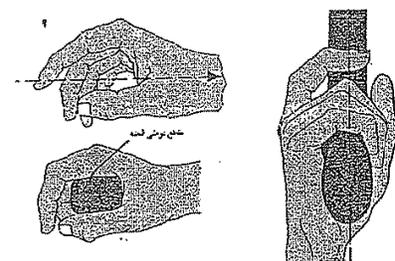
The hand holding the gun is stretched straight to the target and any muscle cramp should be prevented. Any unnatural angle changes in the scapula area, elbows and wrist disturb the adjustment of the sight elements and cause bad results. The other hand must be put completely freely on the belt or in the pocket without it causing any vibration in aiming.

## Holding the gun

In holding an air pistol despite other battle disciplines there is no need to hold the grip tightly, the hand and the fingers are free from any pressure on the muscles and just hold the grip normally.

## Holding the grip

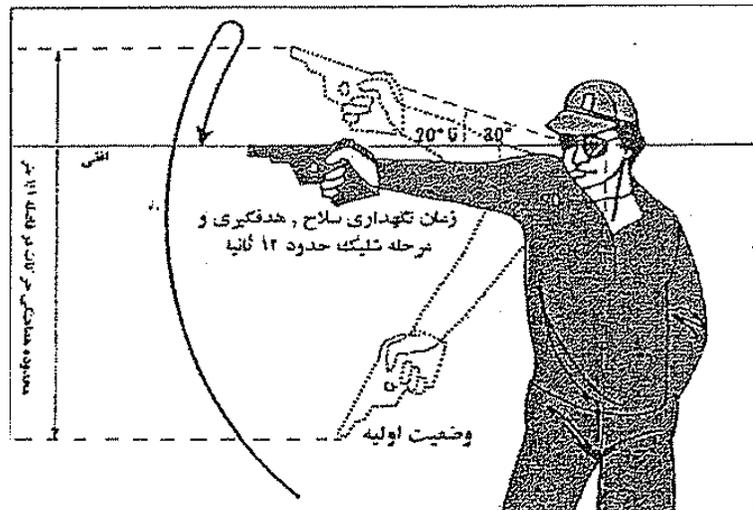
To hold the grip of the pistol, always get help from the other hand. First put the space between the thumb and the index finger in the dented space on the grip, then wrap your third and fourth finger around the grip and hold it with the support of your palm without applying much pressure on the grip. The thumb is placed on its position comfortably and the trigger finger is placed on the trigger with an angle of 90 degree without having any contact with the grip. The wrist while holding a gun is fully stretched and is firm. The lower part of the grip should be set in a way that any empty space for hand movement is eliminated. The size of the different grips of the pistols varies and you should choose a pistol with a grip that suits the size of your hand. The index finger must be positioned in a 45 degree angle in a way that the deviation of the gun sight is not to the left.



The shooter must be aided by the coach or any other person when he wants to set his grip.

## Movement of the hand with the weapon (air gun)

While getting ready to raise the gun, the hand must be fully stretched forward and the tip of the gun must be positioned in a 45 degree position or on the table, then raise your hand straightly and vertically and move it in direction of the aiming space. Remember that lowering the gun should be done in a vertical axis and any deviation and movement to the sides must be prevented.



## Breathing

One of the most important factors in shooting is breathing or inhaling and exhaling while you are getting ready to fire your gun, adjusting and saving oxygen in this case is achieved by doing various exercises.

While getting ready to fire first exhale and inhale a few times( usually 2 to 3 times) and each time breathe more calmly, then while raising the gun inhale and keep it till the stop of the hand above the target. Adjustment of the raising of the hand and inhaling should be in such a way that it wouldn't cause the too much compression of the air in the lungs. By lowering the gun to the target do the exhaling very gently and stop with the adjustment of the sight elements in the aiming space, in a way that some air is left in the lungs to provide the oxygen needed for the body. It should be considered that breathing is an involuntarily action and the coordination should be gained by doing special exercises.

The amount of air trapped in the lungs has a direct connection with how much the respiratory system of the shooter is prepared but in any case it should be able to produce the needed oxygen for the body with the amount of the remaining air in the lungs for at least 20 seconds without any negative influence, so that the shooter would have a good performance.

### *Breathing attributes*

Generally different disciplines with pistol, because of the considerable length of a session of exercise or competition, require a healthy and powerful respiratory system to transfer the oxygen to the muscles to maintain the strength of the individual during shooting.

Doing cardio exercises such as interval runs, swimming, climbing, cycling and other similar sports can have a significant influence on the ability of the cardio system of the shooter and therefore prepare the shooter in the long run.



## Elements of sight

Elements of sight is consisted of different factors which play an important role in aiming and precise shooting to the target, these factors are:

- Eyes and the sight mechanism
- Aiming device or aperture
- Sight
- Target (target area)

### Eye and the sight mechanism:

Shooters always try to focus the sight of their eyes on the objects in the best way possible but you should pay attention that if you have any problem regarding this you should see an ophthalmologist right away.

The most important part of the eyes that controls the lighting is the iris. Keep in mind that your eye can see an image clearly only for a few seconds. In the middle of sighting or firing 10 shots you might need to reset your weapon because your eyes get tired and the lighting changes and it stimulates the visual cells. A person whose eyes are near sighted or far sighted or astigmatic should be using shooting glasses. If you use glasses for shooting you must know that adjusting your glasses in different positions of shooting is of a high importance.

The lens of the glasses must be adjusted in a way that the aiming line in the horizontal position is placed exactly in the middle of it so that eye sight would be corrected. If the eyes are astigmatic you should pay attention to the angle of the lens. You can get help from someone else while you are adjusting your glasses, if needed you can use a mirror to adjust your glasses as well. While practicing at home you have a chance to adjust your glasses in silence and without any stress. In addition to this by marking your glasses you should mark the place of the lens and its angle.

Using both eyes to adjust the elements of sight is beneficial due to the natural adjustment of the visibility otherwise proper covering can be used to limit the sight of the other eye.

But never try to close your eye while aiming because the spasm of the face muscles lead to an early eye fatigue and vibration of the eye and therefore it disturbs the sight effectiveness.

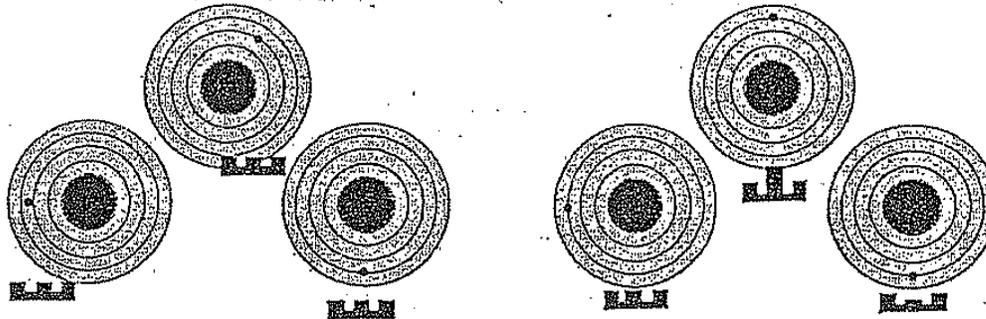
### Aiming device or aperture

Although the aiming device might look different in different pistols but them all have the same system. Adjusting the sight of the gun includes special features that are explained below:

- The width of the sight in the aperture while aiming must be enough so that it would prepare the lighting around the sight for better angles. For the beginners this area must be bigger.
- On the sides of the device there are screws to adjust the weapon (range and direction) that needs to beset by the coach.
- While adjusting the sight in the aperture one of these situations may occur:  
Picture (5)



The correct aiming is when the sight is set exactly on the middle of the aperture in a way that the space on the sides of the sight is exactly equal and the tip of the sight are exactly level with the aperture's edges.



### Sight

Sight is usually produced in different sized by the factory to be installed on the weapon that can be used depending on the proper situation. Adjust the size of the sight and the width of the aperture in a way that the width of the sight is two times of the space on the two sides of it in the aperture.

### Adjusting and coordinating the elements of sight

The correct way of aiming is formation of an axis from the eye in direction of the aperture, the sight and the target area. In this axis the eye and the target area is fixed but the aperture and the sight are the movable elements. Therefore the image of the sight from inside the aperture and leveling them in the direction of the eye sight to the target area and correcting the minor deviations in adjusting the elements must always be considered.

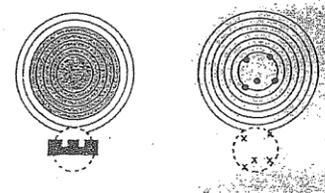
The important point in adjusting the elements of sight is focusing the focal point of the eye on the sight on the axis of adjustment because smallest changes in the image of the sight from the aperture causes the more deviation of the shooting angle in proportion with the distance to the target. Pay attention to the following images:

Important point: while aiming, avoid focusing your eyesight on the target and try to keep your attention and the focal point of your sight only on the sight elements and the correct adjustment of the sight from the aperture. It is natural that in this position the target seems blurry and the image of the sight in the aperture seems clear.

### Aiming area

Because no shooter is able to hold his hand steady as long as he desires, he uses more space for the movement of his hand while aiming since shooting with the pause of the hand causes the hand to involuntarily pull the trigger and deviates the shot.

Selecting the radius of the aiming area depends on the ability and power of the shooter in holding his weapon steadily but you should try to make sure that the selected area is not bigger than the black color of the target nor too small that would make you to shoot voluntarily.

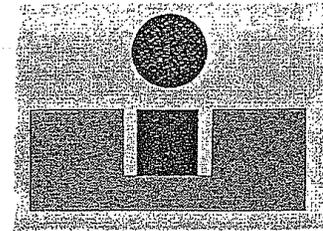




By doing regular exercises and gaining more skills in shooting your hand's movement will decrease and therefore you'll find a more limited aiming area.

While adjusting the elements of sight in the aiming area abide by the followings:

- The more the distance of the aiming area from the black color of the target the more your focus will be on the elements of the sight and they will be more clear.
- Regarding the similarity between the black color of the target and the elements of the sight their distance from each other will cause the elements of the sight to be easier to adjust and you can easily adjust the sight and the aperture.
- If the sight and the aperture contact the edges of the black color of the target it will disturb the adjustment and results in a shooting deviation.
- Keeping proper distance between the black color of the target and the aiming area will give you this possibility to choose a smaller area for adjusting the elements.



### **Pulling the trigger (shooting mechanism)**

Pulling the trigger in air pistols, because of the existence of the time gap between the release of the trigger and the exit's speed of the shot from the barrel in comparison to the warm weapons, needs more attention and focus. Therefore any mistake in pulling the trigger or unusual vibration of the hand results in the shooting deviation.

To learn how to pull the trigger, keep the following in mind:

- The trigger finger make a 90 degree angle with its contact space with the trigger.(after having pulled the trigger)
- The pressure put on the trigger must be in the axis of the barrel and the hand and any side deviation must be avoided.
- The pressure put on the trigger shouldn't cause any change in the shape of the other fingers. By doing exercises regarding the pulling of the trigger this problem will be solved.
- The pressure applied on the trigger after having pulled the trigger should be gentle and gradual and any hurrying in pulling the trigger must be avoided since it causes the voluntarily pulling of the trigger and deviation.
- While adjusting the elements of sight above the target and at the same time that you are lowering the gun towards the target gently hold the trigger and while you are adjusting the elements of sight in the aiming area gradually and steadily apply pressure on the trigger till it is released.
- If any doubts or discoordination are formed while you are adjusting the elements of sight and pulling the trigger, slowly and confidently lower your weapon and repeat the action.

Tip: pulling the trigger is an involuntary action that shooters can gain this skill by doing regular correct exercises.



### ***Coordination between static and dynamic forces in pulling the trigger and aiming:***

In coordination between static and dynamic forced there are four important and influential factors which are separately explained:

- 1- The applied pressure on the trigger: since the pressure applied on the trigger is gradual, steady and involuntarily it has an upward trend. Therefore working efficiency meaning the pressure need to overcome the reactionary force of the trigger will have a direct relationship with the spent time in this diagram and as the time passes the pressure applied on the trigger increases.
- 2- Thought concentration: from the time the shooter gets ready to perform the skills the thought process starts alongside the performing of the skills. Thought concentration is less practical at the beginning but gradually it reaches its desirable level and slowly affected by other factors (specially lengthening of the breathing interruption) starts to decrease.
- 3- Breathing: the amount of oxygen that the lungs can hold depends on the power and the ability of the respiratory capability of the shooter which should be improved by doing exercises. Breathing at the beginning go shooting has enough load of oxygen and then slowly it declines.( rhythm and the uniformity of taking breaths are important in controlling the weapon)
- 4- Holding the weapon: shooter's ability to hold the weapon during shooting, decreases over time therefore holding a weapon is a relative matter and can be increased by doing physical exercise.

### **Forces' Readiness desired level**

To reach a desired level of readiness of the forces and to coordinate them in a specific limited time, a lot of exercise and persistence is required and any kind of skill in this regard results in the forces being in a good readiness level and the proper timing of pulling of the trigger. Generally the process of pulling a trigger from the time of the adjustment of the sight elements in the aiming area takes 5 to 8 seconds (in air gun disciplines) and after that the closeness of the readiness of the forces changes and they go apart from each other.

### **Supplementary actions**

After having pulled the trigger most shooters usually lower their guns immediately and start evaluating the result of the shooting. This, because of unsteadiness in holding the weapon till the shot has reached the target, causes changes in the consistency of performing the skill and results in unsteadiness in performance. To prevent this avoid doing the followings:

1. Quick shooting to evaluate the result
2. Immediate change in the range of adjustment and the sight's focal point
3. Disturbing the thought concentration
4. Ruining the stability and the confidence in shooting

To get rid of the negative consequences of these issues the shooters after having shot ,should insist on keeping the weapon steady and on adjusting the elements of the sight and keep their steady position for about 2 or 3 seconds after each shot. During this short time gap shooters should evaluate the sight image from the scope without disturbing their sight adjustments and then without looking at the target lower their weapon and by pulling the target close to themselves or by using the monitor examine their mistakes. This method results in the following positive outcomes:

- Prevents rash unnecessary hurry in each shooting



- Prevents all changes in the range of the sight adjustment
- Reinforces the consistency in thought concentration in aiming and the adjustment of the sight elements.
- Causes consistency in prevention of shooting deviation
- Improves confidence in shootings
- Evolution of the sight image shows the result of the shooting and reveals the mistakes

By examining these positive results the shooter must always insist on doing the supplementary actions and become skillful in them and recognize them as one of the skills and pay attention to the fact that having pulled the trigger is only one of the components of aiming and not the end of it.



## Chapter Five

### Shooting With Air Rifle

Shooting with air rifle was introduced in 1958 as a proper substitution for rimfire disciplines. It was included in world competitions in 1970 and then with some changes in the kind and the size of the target and the number of shots was added to the Olympic Games in 1984.

#### Weapon's characteristics

Different kinds of air guns with caliber of 4.5 which are compressed by air or gas and are not against the ISSF rules can be used in this discipline.

#### Kind and the size of the target

Size of the target and its rings are as follows:

Size of the target: 10 cm \* 10 cm

Size of the rings: ring number 10 is 0.5 mm, the rings number 4 to 9 are black and the rest are white.

The target of this discipline is built and used as an electronic system.

#### Techniques in shooting with an air rifle

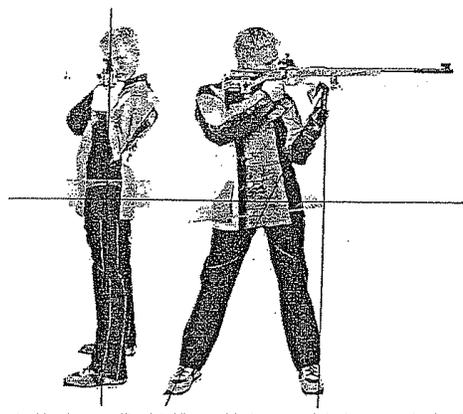
Shooting with air rifle is done in a standing position. Therefore stance of the shooter while bearing the weight of the weapon and keeping stable and having consistency in the shots for a long period of time (at least 2 hours in each form of exercise) is a difficult thing to do and requires regular and consistent exercising.

To prevent early fatigue and keeping the stability and steadiness in holding the weapon and also performing precise shots, some principles are recommended that without them it is not possible to advance or become successful in this sport.

Learning of these principles must be a step by step process and by being patient and serious they should become a part of the shooter's experience and therefore become a habit and a skill.

#### Position

- To stand in the fire line, the shooter must stand from his one side vertical to the target line. (those that are left handed should do the opposite of these directions)
- Legs are spread shoulder-width or a little more apart with almost 90 degree with the fire line. The right foot is placed a little behind the left foot and the tip of the foot is turned a little outwards or the feet are parallel with each other. (It is necessary to mention that the angle of the legs and the position





of each individual may vary depending on their physical status but anyhow they should have a good level of comfort and balance.)

- It is better for the Legs and the knees to be fully stretched without any muscle cramp
- The upper body is located with a little turn toward the target in almost a 75 degree.
- Raise the weapon with your left hand and from the stock part of the weapon put it in its proper place above the uppermost part of the shoulder of your right hand or the dented area of your scapula.
- Then with your right hand hold the grip and the right hand is positioned with folded fingers without any bend in the wrist in the lower part of the weapon's body in the space between the safety catch till the tail-end of the weapon's body.
- To keep the general balance of the body and the steady position of the weapon the upper body from the side is a little turned backwards till the left hand's elbow is positioned on the waist on the bones of the hips or the side of the body.
- The right hand while holding the grip is positioned from the wrist and the forearm in one direction with almost a significant stretch and the elbow is positioned naturally and without any pressure in a steady position.
- The trigger finger without having any contact with the grip and with a 90 degree is placed on the trigger. Therefore the trigger should be free without any tension on it.
- The left hand holds the weapon in a way that it would transfer the weight of the body directly to the supporting surface of the body. In this position the body's center of gravity is located in the supporting surface and close to the left leg.
- The head without leaning to left or right is located from the cheek on the cheek rest of the weapon. (Adjust the cheek rest in a way that the eye is located right in front of the aperture and the eyesight is completely straightforward.)

***Different positions*** based on the comparisons made between the various positions of the legs and the upper body:

Fully straight position:

- In this position the legs are spread shoulder-width apart and the upper body is a little bent backwards.
- Head and neck are stretched.
- The rifle is positioned higher in comparison with the other positions. The higher location of the body's center of gravity makes the shooter's positioning easier and makes him feel less fatigue. Generally this position is of low flexibility, high stretch and low balance.

side style position:

- The legs are spread apart more than shoulder-width
- The upper body is tilted rearward and head and neck are tilted forward.
- The body's center of gravity is located lower and the position is of higher stability and balance.
- Holding the rifle is with more pressure.
- This position is recommended to the beginners or those with an average physical status. Some of the skillful shooters use this method as well



### *Tilt style position*

- In this position because of the body's being too much tilted rearward the shooter feels a lot of pressure on his back. This tilt is seen more specially in the spine.
- The shooter's right arm, head and neck are tilted rearward in a great degree. This position lacks muscle stretch but in the long run will cause a tendon strain.
- In order for the aperture to be located in front of the eye the rifle must be turned a little inward.
- The body's center of gravity is located lower which lowers the final status of the body's center of the gravity and the rifle and makes it reach to a desired level.
- Stability and steadiness is good but needs more flexibility

### **Breathing**

Although shooting requires less physical activity unlike other sports, breathing plays an important and determinant role in it. Using energy to stand, to get a stable and steady position, to have alternate long interrupting of breathing in between the shots, to bear the weight of the rifle, to try to have thought concentration and to fight the competition's excitement and anxiety are some of the inner and outer activities that require oxygen.

#### **Breathing, in air rifle shooting, influences the performance in two ways:**

First of all increase or decrease of the chest's volume when inhaling or exhaling will cause the movement of the hands and the rifle and finally the sight elements.

Secondly the unbalanced amount of oxygen the lungs keep and the time of the breath interruption while aiming and while pulling the trigger cause vibration of the body and the involuntarily pulling of the trigger. Therefore consider the followings:

- Adjusting the sight elements on the target must be in time with the interruption of the breathing while aiming because by inhaling the chest's volume is increased that makes the tip of the rifle or the sight to shift upwards and by exhaling the opposite happens.
- The sight elements must be adjusted in a way that while the breathing is interrupted in proportion with the remaining air in the lungs and the volume of the chest in this situation , the eye the aperture the sight and the black color of the target are all in one line.
- The process of a normal breath taking includes inhaling, exhaling and resting. Experience has shown that the most suitable time for interrupting the breathing while shooting is the time of exhaling close to the time of resting since the chest is located in a balanced status.
- The proper time for aiming since the time of positioning till pulling the trigger and the supplementary activities is 10 to 12 seconds and if the shooting doesn't take place during this time the shooting must be stopped.
- Number of the shooter's cycle of breathing for holding the weapon and getting prepared for shooting depends on the level of breathing exercises the shooters have done but typically 3 to 5 normal breathing with rather long exhales will provide the comfort and relaxation of the shooter.



## Aiming and adjusting the sight elements

By aiming we mean raising and holding the rifle and putting it in line with the target. Therefore the four elements of eye, aperture, sight and the black color of the target should be in one line.

The correct position of the cheek on the rifle gives us a chance to have a correct vision.

- The aiming device or the aperture has a hole with a diameter of 1.2 mm that in situation with bad lighting can we can provide a better vision by using adjustable apertures. Although this size varies between 0.8 till 2 mm but in comparison with adjusting the eye from the aperture it seems different because the diameter changes in proportion with the distance of the eye form the aperture.
- The distance between the eye and the aperture is usually between 5 cm to 8 cm, therefore avoid bringing your eye closer and also there shouldn't be any contact between the eyebrow with the aperture.
- Adjusting the distance between the eye and the aperture is one of the important problems of the shooters that should gain their desired level of preparation by doing regular exercises.
- The distance between the eye and the aperture is always fixed while shooting and should not change.
- If the distance between the eye and the aperture is closer than usual adjusting the sight to the middle of the aperture will be very difficult and results in dispersion of the places the shots have hit.
- If the distance of the eye and the aperture is more than usual because of its diameter getting smaller the space around the sight becomes more limited and results in a blurry sight image and disturbance of aiming.
- Choosing the sight depends on the lighting condition, habit and experience of the shooter but beginners should use wider sights to have a clearer vision.

## Pulling the trigger

Pulling the trigger correctly depend s on the coordination of important t elements such as involuntarily pulling of the trigger, breathing, the ability to hold the weapon and the shooter's thought concentration because each of the mentioned factors paly and important role in the performance that by regular exercising can be coordinated.( refer to the picture showing the coordination of the static and dynamic forces)

- Although this belief that, pulling the trigger doesn't have much effect on the shooting because of the light weight of the trigger, exists but due to scientific and technical reasons it must be accepted that voluntarily pulling of the trigger causes sudden muscle spasms, mistakes while pulling the trigger, folding of the other fingers and the movement of the grip and the rifle.
- Putting the first knuckle on the trigger should not change during the shootings.
- The angle between the second and the third knuckles on the trigger should be almost 90 degrees and avoid the contact of the trigger finer with the body or the grip of the rifle.
- Moving of the trigger in direction of the aiming should be done very gently, steadily and without any doubt or tension.



- If you feel any kind of vibration or unsteadiness while pulling the trigger, stop the shooting and lower your weapon.
- Although the rifle position is of higher stability than in pistol position but the movement range of the sight elements in the aiming area is very noticeable that with regular exercise will be more limited.
- While aiming the space between the aperture, the sight and the black color of the target must always be kept in form of concentric circles.(go to page 42)
- Never try to hold the weapon still and steady since this will cause the voluntarily shooting.

### **Supplementary activities**

As it was explained in the other chapters' supplementary activities, supplementary activities in the air rifle discipline should be done as one of the most important techniques of the ending of each shooting.

Air weapons because of limited ejection of the weapon provide a more precise way of evaluation and examining the result of the shooting. Therefore shooters must keep in mind that after having pulled the trigger they must do the supplementary actions without any change in the status of the sight elements, the way they are holding the gun, their position and breathing.



## Chapter Six

### How Competitions Are Held in 10 Meter Disciplines

#### Qualification round

- Shooting with air guns is done from a 10 meter distance.
- Before the competition shots the shooter may fire an unlimited number of sighting shots but he is not allowed to fire any sighting shot after his first completion shot. For the sighting shots and adjusting the weapon in this discipline 4 especially marked targets are provided for the shooters.
- Men shoot 60 shots and women 40 shots and in official competitions only one shot is allowed on each target.
- The overall time in this stage (including both sighting shots and competition shots) is 105 minutes for men and 75 minutes for women.

#### Final round

Having done the qualification round the best 8 shooters qualify and move to the final round and based on their scores stand from left to right in the fire line.

- In this stage 3 minutes is given for preparation and 5 minutes for doing the sighting shots.
- Shooters can shoot an unlimited numbers of sighting shots only on 2 targets.
- At the end of the sighting shot period and in maximum one minute, separate commands are given for each competition shot in English as the followings:  
For the first competition shot-load  
For the next competition shot

The shooters load his gun after hearing the command and gets ready to shoot.

With regard to whether the shooters are ready or not, after 15 seconds the following command is given:

**Attention, 3, 2, 1, start**

By hearing the “start” command the shooters have 75 seconds to shoot their competition shot, after all the shooters have done this the “stop” command is given. If the shooter doesn’t shoot in this period the score of that shot will be zero. Then by the “change targets” command targets are changed. During the final round, the 10 rings of the target are sub-divided into ten “decimal” score zones. The final score is added to the qualification score to determinate the total scores and the final rankings.

## Chapter Seven

### Getting Prepared For the Competition

#### Getting prepared for the competition:

The time of preparation depending on each shooter's individual need can start in maximum 6 weeks before the competition or at least 2 weeks before the important competitions. Preparation time is divided into 2 stages:

1. Nonstop regular exercises
2. Relaxation before the competition
3. Competition time

#### Nonstop regular exercises

This part of the preparation time takes more than half of it and should be done if possible more than once a day.

- The time duration of exercises must be based on the time of the official competitions.
- If traveling to other countries because of the time differences between your country and the destination proper predictions should be made for doing the exercises.
- Physical exercises must be done regularly
- Avoid any games or activities that might injure the athletes
- Technical exercises and mental preparation must be done in competition conditions.
- To see to what degree the athletes are prepared take records of them during the exercise.
- Because of the importance of glucose in producing energy and in storing glycogen a proper diet for several days must be considered for the athletes. This diet in fact restore the body's glycogen's savings and is used in endurance sprouts especial endurance runs and shooting.
- Mental relaxation exercises ( mental picturing exercises) must be done regularly
- In practical exercises the proper ammunition must be selected for the completion and the weapon must be thoroughly checked and be cleaned before the competition.
- Make a list of all the things you are going to need or all the things you will have to do during the competition.
- Choose clothes that are good to use in any weather condition.
- Visiting the place of competition before the competition to learn about the facilities, services, and salon conditions and to do light exercises like finding the right angle and position and getting familiar with commands and the place of stance in the fire line is necessary.
- The days before the competition avoid tiring, long exercises or shooting with the purpose of finding out your records.

Following these can enhance the shooter's confidence and ignoring them can weaken the shooter's motivation and drive.



### **Relaxation before the completion**

- Towards the end of nonstop exercises gradually lower the pressure of the exercises.
- The daily schedule must consist of stretching exercises and muscle warm up before any technical exercise in the shooting halls.
- Shooting in this stage is done considering the overall shots and shouldn't be done to get the shooter's record.

### ***Competition days***

This stage includes 24 hours before the competition and the day of the competition.

- Exercises done on the day before the competitions must be light and short.
- Other days must be spent doing fun activities such as walking, golf swimming and other proper activities.
- Avoid technical discussions in polluted areas or the hotel rooms.
- Avoid eating complete meals.
- Try to stay with your coach or teammate since being alone triggers anxiety.
- Prepare your accessories and the things you need based on the list you have provided before.
- To sleep well the night before the competition do the followings:
- Don't stake awake late at night
- Eat your dinner earlier and your meal should be light and easily digestible.
- Avoid drinking coffee, alcoholic drinks or too much tea.
- Take a walk before you sleep
- To not oversleep on the day of your competition or to not wake up too early it is better to ask your coach or someone else to wake you up. Or u can use an alarm clock
- Lower the temperature of your room
- Take a warm shower
- Don't forget the mental relaxation program
- Don't take sleeping pills since they disturb your sleep cycle and their later effects will influence your performance.

### **Getting prepared to stand in the fire line**

- On the day of the competition follow the plan you have prepared earlier.
- After waking up get up quickly and take a cold shower if you wanted to.
- For breakfast drink juice, tea or light coffee.
- The food stays in your stomach for almost 3 hours so make sure that you have at least 2 hours to the completion before you eat your meal
- Before leaving your room check your accessories and after reaching the fire line tidy up your stuff and make sure you have access to everything that you need.
- After having made sure about the shooting accessories its time to get prepared for shooting
- In case you use a camera or a telescope, after having adjusted it, make sure that it hasn't moved on something else. Set your telescope in a way that you wouldn't need to turn your body to see



the target. The telescope must be set in a high that you wouldn't need to bend your body because doing this after each shot can have a negative effect on your breathing.

- Have some water with you to in case you need to drink water during the competition.
- Warm up before the competition. Warming up increases the muscle speed, the muscles contraction power, your coordination, your blood flow and the oxygen level of your body. In fact by doing physical activities the tensions on your body well get reduced.



## Chapter Eight

### Nutrition

Nutrition is what makes the connection between food and the body's function. Physiologic aspects of this process include eating the food, digestion, absorption and transfer, and using the food to build and protect the body tissues and storing energy. Therefore a good diet in which there are enough carbohydrates, fats, proteins, minerals and vitamins, water and fiber is necessary for anyone especially athletes.

#### *Proteins*

There is protein in most of the foods and mostly in meat, egg and milk. Protein is required for the growth and building of the body. For example protein is used to enhance the muscles. Injured tissues need protein to heal. Protein is also necessary for body's metabolism and to produce certain enzymes and is used whenever needed as a source of energy for the body.

#### *Vitamins*

Vitamins' role in the body is the same as minerals. The most important vitamins for the body are vitamin A, B and C.

#### *Water*

Water makes up 2/3 of our bodies and should definitely be included in the diet since it dissolves food more than any other thing.

#### *Carbohydrates*

They produce 75 percent of the body's energy and are the main fuel of the body.

Carbohydrates include: sugar, starch and cellulose

#### *Fats*

Fats can be gained both from vegetable and animals. Fats produce 25 percent of the energy that the body needs. Fats are in foods such as butter, meat, beans, soy, nuts and fruits such as almond and pistachio.

### **Nutrition condition before the completion:**

In this situation there is a special biological condition that we must pay attention to. For this reason it's better that you wake up 3 hours before your competition and with motivation and excitement do the rest of your activities. Eat your breakfast earlier in a soothing place.(at least 2 hours before the competition) so that there would be enough time for your body to digest the food.

#### **Your breakfast should include:**

Milk, dairy products, a little cereal, bread, fruits or juices, honey, green tea etc.

Your breakfast should include caffeine drinks (such as coffee, black tea, carbonated drinks etc.), white flour, white sugar, chocolate cream etc. Although these contain a high amount of sugar and energy for your body but they cause your pancreas to work harder and thus produce more insulin which causes an early drop in the level of energy.

During the competition you should eat some food and drink some water.



A low amount of digestible carbohydrates such as biscuits, bread or fruits that don't have much effect on raising the blood sugar is necessary to enable you to work in spite of the low level of the body's energy.

Before or during your competition you should not eat food that is high in fats or that is indigestible. Because if you do your blood flow will be directed to your digestive system rather than the tip of your feet and this is harmful to the performance of your muscles, brain and your eyesight.

It is important for the shooters to include a good amount of minerals and vitamins in their diet.

**To do this, consider two things:**

Vitamin A must always be present in your daily diet because it is a necessary element in the production of the retinal pigment of the eyes and thus affect your eyesight. In providing the food with vitamin A keep in mind that this vitamin is a fat-soluble vitamin, therefore add some oil or sauce to your salad, beans, fish, meat etc. Or cook your food with some oil and accompany it with a dessert.

- To quickly make up for the loss of minerals you can use electrolyte-enhanced waters but drinking water isn't recommended just for this purpose. Also concentrated fruit juice is not suitable because of they take time to get digested. Use some salt with your food if the weather or the temperature is high.

**Storage of the body's needed protein is done by using the following foods:**

- All kinds of meat either cooked or barbequed
- Fish and shrimps
- Cheese and dairy products

Eliminate foods with high fats from your diet since the process of them getting absorbed in the blood is slow and on the other hand the rise in the red blood cells reduces the transfer of oxygen to the sensitive organs such as eyes and the balance system of the body and affect the performance of the body especially in athletes.

Eating fruits that are high in fiber and uncooked vegetable and raw foods create problems for the digestive system and their absorption is slow.

If there is a lack of vitamin in the body, they should definitely make up for it through the athlete's diet. These vitamins are:

Vitamin A

B vitamins

Vitamin C

**Dinner on the night before the competition:**

You should take your meal as usual and not later. Avoid eating food and fats that are slow to absorb. Provide the necessary nutrition such as the carbohydrate, minerals and vitamin for the body. Avoid drinking too much tea, coffee and carbonated drinks.



**Breakfast on the day of competition:**

Eat enough food for your breakfast, not too much to make the digestion difficult. The best time to have your breakfast is 2 or 3 hours before the competition and it should be light and include carbohydrates and enough liquids so that the liver's storage of glycogen would rise even in the body of an athlete whose diet has been high on glycogen.

Eating whole wheat breads and oat bread, some vegetable butter, honey, jam, juices or fruits such as banana, orange, pear, apple and grape is of high benefits to the body.



## Chapter Nine

### The Youth's Education

Considering the future of shooting no one can deny the importance of the youth education and at the same time not much activity is done to reach a good educational plan of shooting for the youth.

Suggesting a general education system for teenagers seems difficult since no one (such as institutions, universities etc.) has provided one uniform education for the coaches.

- One important issue in teaching shooting to teenagers is periodic planning; teenagers should have a place to both study and shoot.
- To teach the techniques it is very important for the teenagers to feel successful in doing their duties and form a proper image of doing the techniques.

#### Education system to teach shooting with rifle and air pistol for teenagers:

**Gun rests:** using gun rests for teenagers is a way by which we can assure the success of the teenagers in the beginning stages of learning; in practicing shooting we can do this by first doing it by shooting on the pistol's target and a gun rest. When a shooter uses a gun rest, the gun has no vibration and pulling the trigger and aiming will be done properly.

- It is recommended to start learning shooting by rifle and by using a gun rest.
- If you want to learn a skill you have to keep repeating and don't leave it till you have made sure that you have completely learned the skill.
- Teenage shooters are not like adult shooters. Each exercise should be fun and enjoyable; some part of the exercises can be done in form of a game.
- Teach teenage learners to enjoy the process rather than focusing on the scores. It is the correct performance that matters and scores especially at the beginning are of no importance. Try not to be critical and instead look for positive and good comments.
- Sometimes it is difficult for teenagers to learn the theoretical part of the education, therefore teach the practical lessons. Group them based on their performance, this way they will do the exercises much easier.

#### Stages of teaching the beginners using training targets:

Here a few samples of training targets are explained for the beginners to learn the technical skills which should be performed with the coach observing.

White target: enhances the shooter's eyesight focus on the elements of sight.

Line target (vertical): corrects the shooter's mistakes on the side.

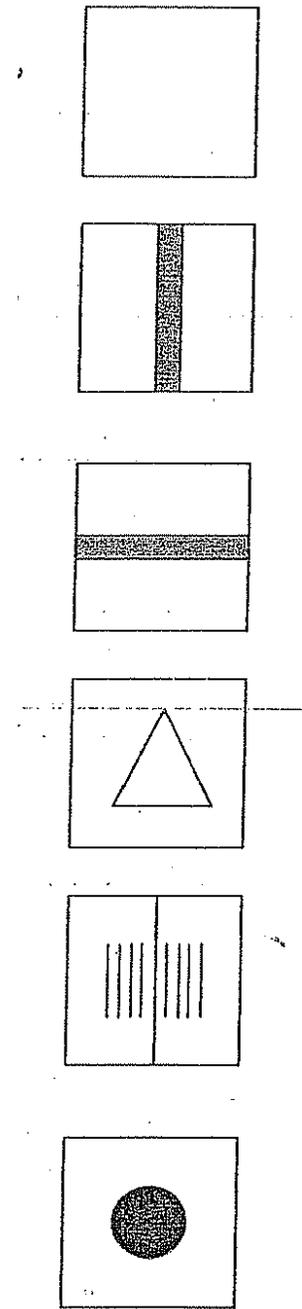
Line target (horizontal): corrects the shooter's mistakes in the ranges (upper and lower)



Triangle target: (used for air rifle disciplines) increases the shooter's effort in adjusting the triangle's angles in the sight's space.

Striped target: increases the shooter's focus on the sight.

Normal target: enhances the shooter's aiming area.





## Chapter Ten

### Doping

Nowadays with the human societies being more inclined towards an industrial life that have physical and psychological negative effects on them, the interest of people towards sports have raised which motives them to take part in competitions and championships. Over time this will lead to the people's desire to overcome the opponent and have a desire to be champions in different field of politics, sociology and economic which ultimately motives the athletes to dope.

We hope that by fundamentally addressing this issue we can have a role in fighting it and that knowing the side effects of doping can prevent it from spreading.

#### What is doping?

Doping is the intentional or unintentional use of a substance or a method that is prohibited by IOC. Encouraging or helping the athletes to use these substances or methods is morally wrong and is considered an act against the laws of doping.

#### Why doping is prohibited?

Doping endangers the basic enjoyment of sports and the movement of the society towards the moral advancement of humanity and athletics.

#### Controlling doping:

An athlete might be picked for a doping test any time during the competitions, training camps or any other time during the year without any prior notice.

#### Prohibited substances and methods:

Five groups of drugs are prohibited by the IOC to use:

1. Narcotics
2. Stimulants
- ...

#### Is it prohibited to use vitamins and minerals?

No. but the athletes that use them must be aware of the side effects of their overuse. A good diet provides all the body's requirements therefore there is no need to take vitamin or mineral supplements. On the other hand by using supplements you cannot make up for your bad diet.



## **Anti-Doping Rule Violations**

Helping, cooperating and consulting about using the prohibited drugs, distributing the needed substances for doping, hiding someone else's doping and refusing to take the doping tests.

A good coach has a significant role in guiding the athletes. He can influence them in positive ways and also identify those using the prohibited drugs.

### **What should the coach do if he suspects that the athlete is doping?**

1. first the coach should talk about this issue
2. make sure that the athlete is aware of the list of the prohibited drugs
3. Call the anti-doping agency