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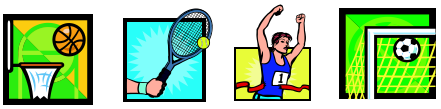


P.E. Book

Theory

2nd E.S.O.

1st Term

General concepts in physical activity

First of all, it is essential to give the definition of several concepts, so that they are all clear and we use the same vocabulary when we use them.

Physical activity is any body movement in which we use more energy than the one we use when we don't move.

Physical exercise is any physical activity that has been planned, has a structure and is repeated in time, and its goal is to be fit, to improve someone's physical condition or to keep one or more components of that physical condition.

Physical condition is the ability and vitality that allows people to fulfill their daily general tasks, to enjoy an active leisure, preventing at the same time diseases and injuries which can be produced out of the lack of activity. The physical condition consists on a group of characteristics owned by any individual or which can be achieved related to their own ability of doing physical activities.

Basic physical qualities

Basic physical qualities are the necessary movement skills on which men and sportsmen develop the technical skills. Physical qualities are developed through training and they determine the physical condition of a person. The development of these basic physical qualities greatly influences the learning of the technical skills and the tactical techniques of sports, and also on the learning of the movement skills. The basic physical qualities are:

- Endurance.
- Speed.
- Strength.
- Flexibility.
- Coordination.

1- Endurance

Definition: There are many definitions for endurance, but they can all be gathered in one; endurance is the ability of a sportsman to make an effort, more or less intense, for the longest possible period of time.

Football requires a high endurance level.

We can distinguish two different types of endurance:

A- Aerobic: it is the ability of doing and keeping an effort, done at a low or medium intensity, for a long period of time, in which our muscles receive enough oxygen.

B- Anaerobic: it is the ability of doing and keeping an intense effort, bearing in mind that the oxygen received by our muscles won't be enough to make the whole exercise, considering too that the muscles get easily tired. This situation is known as oxygen debt, and the workability of the sportsman will depend on his own ability of working under fatigue conditions.

2- Strength

Definition: It is the ability of a sportsman to fight against and win an external force by means of muscle contraction.

There are two different contractions:

a- Isotonic contraction: When contracting, the muscle varies its length. If the length becomes shorter it will be called **positive or concentric isotonic contraction**; if the muscle length becomes longer it will be called **negative or excentric isotonic contraction.**

b- Isometric contraction: the muscle strength applied can't defeat the resistance, so the muscle doesn't vary its length.

c- Auxotonic or mixed contraction: In the same movement, both isotonic and isometric contractions are produced, at the same time or alternatively.

Swimming is a sport that demands strength and coordination.

3- Speed

Definition: It is the ability of a sportsman to move and go forward at the highest intensity in the shortest time possible.

There are three types of speed:

a- Pure or gestural speed: every movement made without paying attention to the distance.

b- Moving speed: the ability of making the distance in the shortest possible time.

c- Reaction speed: determined by the time elapsed between the stimuli and the sportsman's reaction against it.

Tennis requires both gestural and reaction speed.

4- Flexibility

Definition: It is the joint mobility together with the muscle elasticity.

Exercises made on the floor to develop flexibility.

Agents that determine flexibility

a – Joint mobility: The way each joint is built depends on the bone segments it is made out from, on its tendons, on its ligaments and on other joining elements.

b- Muscle elasticity: The articular tissues (tendons, ligaments, muscles, etc.) that make the joints can stretch or shorten, but the most important elasticity to be taken into account is the muscle elasticity.

As shown in the image, high jump needs great flexibility.

Factors that affect flexibility

a- Age: flexibility decreases as the sportsman ages. The more the sportsman trains, the better the flexibility will be.

b- Gender: Women have better flexibility than men.

c- Climate: High temperatures help to improve flexibility.

d- Genetic: due to heritage and constitution, some people are more flexible than others.

5- Coordination

Definition: It is the ability of a sportsman's whole body or just one of his/her body parts, to develop an orderly and efficient sequence, a gesture or a specific action, all of them under his/her brain control.

There are two different types of coordination:

A- General: movements with all our body parts are made at the same time.

B- Segments: movements are made just with some of our body parts. This is subdivided in:

a- Eye - hand: eye-hand coordination.

b- Eye - foot: eye-foot coordination.

Work developed on the different basic physical qualities.

Work is determined by three main factors:

A- Work intensity. It is the work quality; we distinguish:

a- Maximum intensity: working at a 100 % of the possibilities. As an example, in athletics it would be the speed disciplines (100 meters).

b- Sub-maximum intensity: working at a 75 % to 80 % of the possibilities. For example in athletics, the medium distance disciplines (800 meters).

c- Medium intensity: working at a 50 % to 60 % of the possibilities. Once again, the long distance disciplines in athletics (10,000 meters).

B- Work volume: It is the amount of work done by the sportsman.

C- Working time: It is the time used to make a specific effort. It can be:

a- Short: speed races in athletics (100 meters).

b- Medium: medium distance in athletics (1,500 meters).

c- Long: long distances in athletics (10,000 meters).

Warm-up.

All activity that uses physical qualities must be preceded by a warm-up. Warm-up is the group of exercises made before doing any physical activity, soft or intense, which helps the body to get ready in order to do an effort preventing injuries.

The main aim of warm-up, as mentioned in its name, is to rise the body temperature, in order to achieve some **effects or goals:**

a- To improve the muscle function, so that it improves the muscle ability to contract and relax, and also its elastic abilities. This way, the possibility of getting muscle contractions and injuries is diminished.

b- To activate the joints, so they lubricate with the movement. This way, the ligaments get ready for the effort, preventing this way injuries and sprains.

c- To activate organic functions by means of the cardiovascular and the nervous systems.

The **phases** in a warm-up are:

a- Varied and continuous running. It consists on running softly for 8 or 10 minutes; half of the time is used for plain running and the other half is used for varied exercises, as lateral running, rising your knees, bending down, lowering, etc.

Continuous running is the first part of a warm-up.

b- Articular mobility. It consists on doing soft, circular movements with all the body joints.

Warming up the joints is essential to prevent injuries.

c- Muscle stretching. It consists on stretching all the major muscle groups by doing static exercises (quadriceps, calf muscles, adductors).

Stretching allows our muscles to increase performance.

d- Running exercises. They must be made with a higher intensity than in the continuous running, as for example rising your knees, your heels, lateral running, very soft multi-jumping, etc.

General guidelines to follow when warming-up.

a- Time: how long the warming-up should be depends on several factors, among which we highlight the day time (at early hours, the warming-up must be longer than in the afternoon), the outdoors temperature (if it is cold, the warm-up should be longer), and the training level (the people with a higher training level will need shorter warming-up times, because their bodies adapt easier to the effort). As a general rule, the warming-up will last between 10 to 20 minutes.

b- Intensity: it must be moderate and progressive. Only aerobic (90 - 120 ppm). Not overloading.

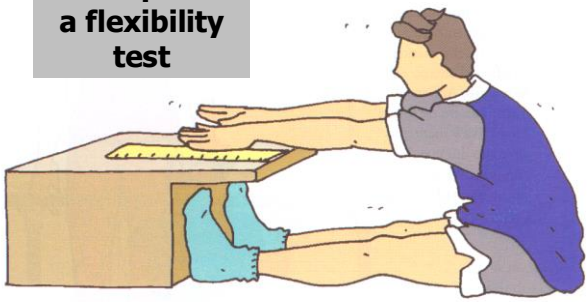
c- Sequence: always following the order (continuous, varied running, joint mobility, stretching and running exercises).

d- Exercises to be done: the exercises must be comprehensive, not difficult and using several muscles groups.

Evaluation of a sportsman's performance

To state the level of a sportsman, there are several tests that will value specific aspects of each basic physical quality. There are tests for all the different basic physical qualities.

Example of a flexibility test



Example of a balance test

Tests must be done at the beginning and at the end of a training period, so that they will provide the real improvement of the quality in analysis. They must be done under the same conditions (exercise, distance, etc) and under similar circumstances (terrain, time, etc)

Breathing

Breathing is one of the most important vital functions. If we know how to breathe, we know how to live.

There are three different types of breathing:

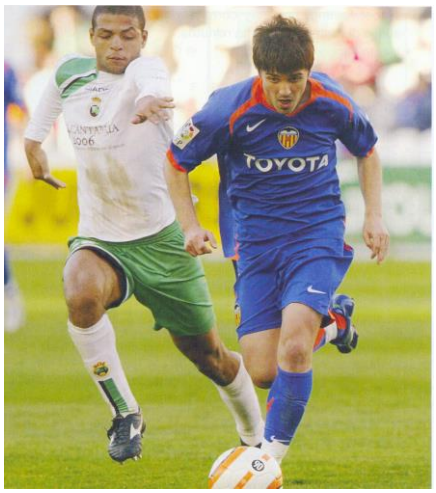
A- Breathing with the diaphragm: It is essential to know how to breathe with the diaphragm as it is considered as our second heart. The diaphragm gives us a pleasant, natural and wide breathe.

When we inspire the abdomen gets wider and then the diaphragm lowers down massaging softly the lower part of the abdomen. Little by little, the lower part of the lungs gets full of air. The inspiration must be done slowly, in a comfortable and quiet way. If we can't hear ourselves when we breathe, it will be slow enough. If we can hear it that means that we are breathing too fast.

In a second moment, when we exhale, the lungs empty and they are enclosed in a very small space. It is important to empty the lungs as much as possible and to exhale the air softly. After having emptied the lungs in depth, the breathing has to start again. The stomach area relaxes and the process starts again. To make a good breathing we must inspire and exhale the air through the nose with the abdominal muscles relaxed. The best position for practicing the respiration with the diaphragm is lying on our back, favoring the relaxation of the abdominal muscles.

We must also be aware of the entrance and exit of the air when we inspire and exhale and of the movements in our diaphragm. To notice it, we can place a hand on our stomach right on the belly button, and this way we will be able to follow the abdominal movement.

If we control our breathing we will increase our sport production



B- Breathing with the lungs:

The movement in the pulmonary breathe consists on separating the ribs and widen the thoracic box, filling this way the medium area of the lungs with air. When we practice this respiration, we will notice a resistance to the entrance of air, just the opposite to the abdominal breathe, in which the entrance of air is done smoothly. Despite it, the air entrance will be considerable in the pulmonary breathe.

Combining both types of breathings we will provide some satisfactory lung ventilation.

The best position for practicing this respiration is sitting down, contracting the abdominal waist while we inspire.

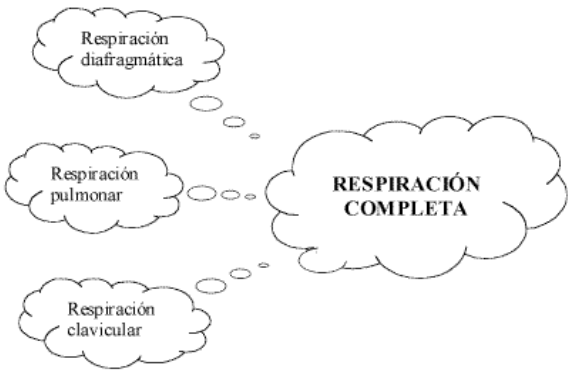
To be aware of this type of breathing we can place both hands on both sides of the thoracic box, and when we inspire and exhale we will be able to feel the wide movements.

C- Breathing with the collar bone: we will try to raise our collar bone and to inspire at the same time. The air goes in slowly, but without raising the shoulders. Only the upper part of the lungs gets some fresh air.

If we place the hands on the body sides, we will be able to feel the entrance of air, going inside little by little, even if we are making an effort much bigger than with the thoracic breathe.

This way of breathing, the least efficient of the three, can't be understood isolated. It gets all its value when used together with the other two, and always in the third place of order.

D- Complete breathing: the complete breathing gathers the three previous ways of respiration in a unique, wide and rhythmic movement.



Body positions

We usually carry heavy loads on daily basis. Here, there is some advice to move these loads in a correct way.

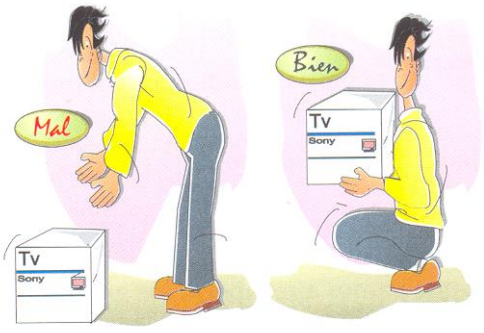
To look after our backs and prevent pain and injuries, we must pay attention to the way we carry our school bag and how we lift objects. These are some precautions that must be taken into account:

A- Carrying our school bags: always carry a comfortable school bag, with wide stripes. Deliver the weight of the books inside the bag regularly, and never carry the school bag only on one shoulder. Use both shoulders and place the bag close to your back.

B- Carrying heavy weights: whenever we must carry some heavy weight, we will always hold it as close as possible to our bodies. If we are lifting it **frontally** our knees will be semi-bent and our back will be arched backwards, never forwards.

C- Moving heavy weights: whenever we must move some heavy weight, we will always hold it as close as possible to our bodies. If it is very heavy our knees will be in semi-bent position. We will never turn or lean forward while we are moving the load.

D- Lifting weights: they will be lifted just to the chest height, with semi-bent elbows to hold the load as close to the body as possible. If the load needs to be placed higher, we will use a ladder or a stool.

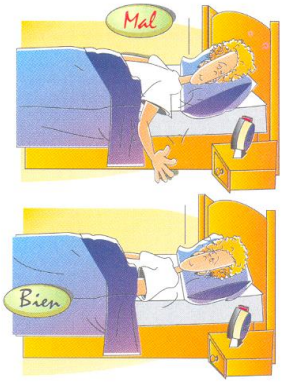


Preventing injuries related to wrong body positions. Correct body positions.

Some facts that can cause back injuries are:

A- The use of the computer, sometimes in an addictive way. When we use the computer, we keep incorrect postures very frequently and they increase the pressure on our intervertebral disc, which might eventually cause a fissure, protrusion or disc hernia. To protect itself from these injuries, our body will contract the muscles, and consequently we will feel pain.

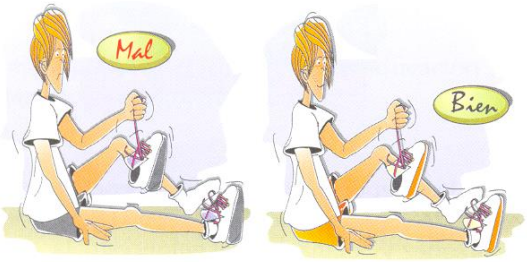
B- A wrong posture while sleeping, lie on your side when you sleep. Sleeping on the body front is not a good position, as we increase the lumbar bend of our heaps. If we lie on our left side, we should flex our right heap and knee, keeping the left ones straight. We should also adapt the pillow so that it keeps our head and back straight.



C- A wrong position while sitting down; the height of the chair must allow us to place our feet on the floor, keeping the knees at the same level. The back of the chair must hold our backs and keep its normal curvature. When we are sitting down, we must not turn partially: we should turn the whole body at the same time. Also we should stand up and walk a bit every 45 minutes.

D- A wrong position while standing up; we should keep one foot up and with the support of a step. We should also alternate the legs and change the posture whenever possible. Never stand up if you can sit down.

E- A wrong use of shoes, don't use high heels or flat shoes. Ideal shoes have a 2 or 3 centimeters heel.



An incorrect posture can modify the back natural curvatures and can create changes into our body positions, which eventually might cause painful injuries and a lost in our life quality.

Lift weights correctly to prevent back injuries

The most common back injuries caused by a wrong body posture are:

A- Lumbar hyperlordosis: it is an exaggerated curvature in the lumbar area, which can be caused by several factors:

a- A big increase of the abdominal volume, obesity.

b- Weakness in the lumbar muscles.

c- Continuous efforts or overloads.

The proper way to **correct** these injuries will depend on their cause. If it is the obesity, a diet and abdominal exercise will be required; if it is lumbar weakness, we will need to make these muscles stronger and if it is an overload, we will have to decrease the work we are doing.

B- Dorsal kyphosis: it is an exaggerated curvature in the dorsal area, which can be caused by several factors:

a- Family heritage.

b- Overloads caused by exhausting work.

c- Age (Scheuerman syndrome)

d- Wrong postural positions.

The proper way to **correct** these injuries will depend on their cause as in the previous case. If it is family heritage, we will try to minimize it through exercise and correcting the body position. If the cause is an overload, we will decrease work, and if it is because of the wrong postural positions, mainly acquired at school, we will try to be aware of our bodies at any time, standing, lying or sitting down in front of a computer.

C- Scoliosis: it is the deviation of the vertebral spine or any of its areas, respect to its longitudinal axis. It can be caused by several factors:

a- Family antecedents.

b- Insufficient food during childhood (Rachitism).

c- Chronical bacterial diseases (Tuberculosis).

d- Childhood, problems at the moment of giving birth, when babies start walking, etc.

e- Incorrect body positions.

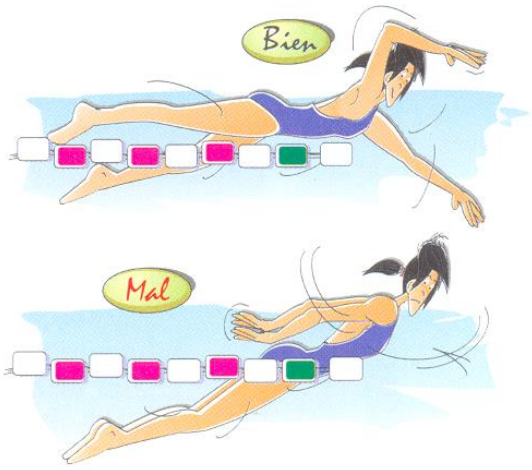
The way to **correct** it, as in the previous cases, will depend on the cause. We must place the importance on the correct body positions at school, preventing students form sitting on their legs, carrying their school bags only on one shoulder or taking care of the shoes they wear, as it is the base of a good vertebral spine.

What can we do to prevent pain?

A- To keep at least a slight physical activity Just 20 or 30 minutes of aerobic activity every two days should be enough.

B- Sitting down with a correct position, with the back straight and close to the back of the chair, the knees together and both feet on the floor. Stand up every 40 or 50 minutes, walk a little bit and bend your back backwards softly.

C- Keep or develop your back muscles by means of swimming (**never swim in butterfly style)**. Regular swimming is the best exercise for your back muscles.



Athletics

A bit of history

The principles on which athletics is set have remained unchanged through centuries. In Ancient Greece (8th century B.C.) athletics competitions were already held, as the ones which took place in Olympia (Olympic Games). In these games, athletes competed to be the fastest and the strongest. There were different disciplines in these games as speed and resistance races, long and triple jump, or javelin and discus throws.

The development of athletics to the sport we know at present days began in the middle part of the 19th century in England, where athletics was used at schools and universities as part of the education.

When the Olympic Games were restored in Athens in 1896, athletics became the outstanding sport in this competition. From then, athletics has spread all over the world.

Image of an athletics stadium

In athletics, we can find races and contests. In the contests group, we have the jumps and the throws.

Regulations

Competitions are held on a track made out of tartan. This material allows the perfect grip of the special shoes the athletes wear, which have got nails. The track has got oval shape and it measures 400 meters in the inside edge of lane one. Normally a track has got eight lanes. There are also specific areas to make the jumps and the throws. We will explain the specific rules of the disciplines in each of the following sections.

Races

Races are one of the basis motoric skills. All the races have three different phases:

A- The start: The different parts of a start coincide with the callings of the starts judge. According to the race, there can be two starts:

a- Low start: it is made from the starting blocks, which are used to give a bigger impulse to the athlete. The callings given by the start judge are: "On your marks, set, and then there is a gunshot". The athlete must have four supports on the track. This start is used in the following races: 100, 200 and

400 meters; 110 meters male hurdles, 100 meters female hurdles and relays 4 x 100 and 4 x 400 meters.

Start from the starting blocks in a 200 meters race

b- High start: it is made with a slight unbalance on one of the feet, to help the athlete begin the race. It is used for distances longer than 400 meters.

B- Race development: each race has a different long stride technique, passing obstacles or passing the baton, etc. The only common elements to all races are frequency and amplitude. **Frequency** is the number of long strides done by the athlete in a particular distance. **Amplitude** is the distance achieved in each long stride.

C- The arrival: it is the last phase of the race. The race is finished when the athlete crosses the finish line with his/her chest.

Taking into account the Olympic program, these are the races:

A- Speed races: 100 meters, 200 meters and 400 meters, both male and female categories.

Last meters in a 100 m. race

Finish line in a 100 meters race

B- Middle distance races: 800 meters and 1500 meters, both male and female categories.

A 1,500 meters race

C- Long distance races: 5000 meters, 10,000 meters and marathon, with a distance of 42,195 meters.

Last meters in a 5000 m. race

Marathon race, held out of the stadium

D- Races with obstacles, divided into:

a- Hurdles: 100 meters female, where the hurdles are 0`84 meters high, 110 meters male, where the hurdles are 1`06 meters high and 400 meters, where the hurdles are 0`76 meters high for females and 0`91 meters high for men.

Athletes passing the hurdles in a competition

b- Steeplechase: it has a distance of 3,000 meters both for males and females.

The water obstacle in the steeplechase race

E- Relays: they are team races. Four athletes have to pass a baton among them during the race. The baton is a 30 centimeters long cylinder tube.

The athletes have to pass the baton to each other in a specific area. This area differs according to the race. Passing the baton can be made in two different ways:

Passing the baton in a 4 X 100 meters relay race

a- Upper pass.

b- Lower pass.

The two distances in relays are 4 X 100 meters and 4 X 400 meters, both male and female categories.

F- Race walk: race walk consists on a sequence of steps in which there is not aerial phase, which means that there must always be one foot on the floor. The distances in race walk are 20 km. and 50 km., both in male and female categories.

50 kilometers race walk

Jumps

Jumps are included in the athletics **contests.** There are some common characteristics:

a- Two athletes never compete at the same time

b- They compete in turns that have been previously arranged.

All the jumps are in male and female categories and they have several phases:

a- Running, its length will vary depending on each jump.

b- Whipped, the back foot leaves the floor

c- Flight, aerial phase of the jump.

d- Landing, the athlete lands on the sand or the mattress.

Landing in long jump

There are 4 types of jumps:

A- Long jump: it is a horizontal jump, and it consists on making a jump with one leg as long as possible, until the athlete lands on a sand pit. The running before the jump has a progressive acceleration, in order to reach the top speed at the moment of the strike on the table. This table has a soft material which helps to say if the jump was valid or not, as if the athlete steps on this soft area, the shoe nails leave a trace on it. To measure the jump length, the judge will use the last trace left by the athlete on the sand pit. Each athlete will make three jumps each in the competition. Then, the athletes with the eight longer jumps will make three other jumps each.

Arerial phase in long jump

B- Triple jump: it is similar to the long jump, with the difference that the athlete must make three strikes before beginning the aerial phase over the sand pit. The first and second strikes are made with the same leg and the third strike uses the other leg. The rules are similar to the long jump ones.

Image of a triple jump competition

C-High jump: it is a vertical jump. The aim is to go over a bar placed horizontally on two uprights. This discipline has had a big evolution along the years, and there have been different styles:

a- Two feet together jump: facing the bar, the athlete jumped with the two feet together and landing on his/her feet.

b- Scissors jump: the athlete jumps first with one leg and then the opther, falling on the feet.

c- Ventral jump: the athlete jumps over the bar facing it, with the ventral part of the body towards the bar, and landing on a mattress on his/her back.

d- Fosbury jump: this name comes from the US athlete Dick Fosbury, who in the Olympic Games in Mexico 1968 made a great revolution in this discipline. The athlete strikes with the foot that is further away from the bar, then goes over the bar on his back and the landing is made on the mattress also on his back. Each athlete can try three times in each of the heights to jump over them.

Fosbury style in high jump

D- Pole vault: in this discipline, the athlete must jump over a bar helped by a pole made out of a resistant but flexible material. The length of the pole depends on the strength and speed of the athlete. The jump is preceded by a 40 meters running, in which the athlete must hold the pole at the waist height. Then, to do the strike, the athlete must put the pole inside a small box and then he/she must transfer all the energy of the running into the pole, pushing and bending it to start the flight. As the pole is flexible, it will throw the athlete upwards and he/she will go up with the feet first, facing the bar, rising legs and arms not to throw the bar down, and pushing the pole away, finally falling on the mattress on his/her back. The rules are similar to the high jump ones.

Sequence of a pole vault

Acrosport

A bit of history

It is not easy to establish exactly the time when these acrobatics started, but we can state that this kind of exercises have been made by human beings since the earliest times.

In Ancient Egypt and Greece some documents prove that there were already jugglers and acrobats performing on the streets. But we have to wait until the 18th century to see these activities shown in a circus.

But it is from the 1960 when the performance of these human pyramids started to be a competitive sport, creating a new sport called acrosport. At present, there are national and international acrosport championships, where the Spanish Andalusian Federation shows an outstanding level of performance. Here we can find the world champions in different categories: male couple, female couple, mixed couple, female trio and male quartet.

The word acrobat comes from the Greek word "akrobato". An acrobat is someone who has perfect domain on very complicated physical exercises, keeping different postures in space.

Image of an acrosport training session

General aspects of acrosport

Acrosport, also known as acrogymnastics, consists on making acrobatic and gymnastic exercises by means of routines.

Technical basis

Acrosport is an acrobatic-choreographic sport where three main elements can be found:

a- Building of human figures and pyramids.

b- Acrobatics, strength and flexibility elements and equilibriums which facilitate the transition between different figures.

c- Elements from dance, jumps and gymnastic acrobatics used as the base of routines, providing an artistic aspect by doing so.

A- Roles in acrosport: there are two:

a- Agile : He/she will be a very light, skillful person, who will perform all the most difficult acrobatics.

b- Carrier: They must be the strongest people, as we need a strong, firm base to build the figures. It is also important for them to be able to help the agile ones to climb the pyramids. Also, they must have posture control to create a firm base.

Both roles are equally important to create a good pyramid.

Figure of a pyramid in acrosport

Helpers are also essential, since without them a pyramid won't be built.

A- Steps to build a pyramid.

To build a safe and beautiful pyramid we must:

a- Think beforehand the pyramid to be built. An acrobat can't be on other acrobat while the others are still thinking what to do. Each one must know his/her role, the figure he/she is going to do and how to do it.

b- Analyze the positions and supports of all the members in the pyramid.

c- Know who the helpers when climbing and descending in the pyramid are.

d- Go up and down the pyramid slowly, so no one gets hurt.

e- It is essential to trust your partner.

f- Before doing the exercises, check which one is the heaviest, the strongest, where you should be moving to keep balance, which is the safest support, the best position for our bodies, etc. Bear in mind what your body can or can't do and keep thinking while you work.

g- Even if it doesn't look like so, helpers are essential in the routines. They will support a partner to go on another one, to keep an upside down position, to end with a difficult situation, or to vault, etc.

h- It is important to pay attention to the best supports and to warn our partners about where they are.

Figure in acrosport

Safety and precautions

Safety depends on the sportsman, so we must not lose concentration when we practice acrosport.

All the following facts must be taken into account to prevent accidents and injuries:

a- If the sportsman has back problems, he/she must never be the carrier, but as agile. If he/she acts as a carrier, he/she will never carry another partner on his/her back.

b- Don't wear trainers. They can hurt your back, shoulders, feet, etc. Wear socks instead.

c- Pyramids must be done in groups, using your partners' help.

d- Before beginning a routine, check that the mattresses are correctly placed, without folds or gaps between them.

e- Remove all the objects from the working area, as swedish bench or wall bars. Make sure that there isn't anybody around. If you fell, you could hit them otherwise.

2nd Term

Voleyball

A bit of history

Volleyball was born as a sport in the USA in 1895 by the P.E. school teacher William G. Morgan, in Massachussets. At first, this sport was called Mintonette, and its basic rules and concepts were established. Later, another teacher called Halstead suggested the name volleyball, which was accepted.

In 1946, as an international match between Czechoslovakia and France was being played, it was decided to create a Advisory Congress in Paris to be held in 1947. Thirteen federations attended this Congress, in which the rules and statutes for the sport were set, and the Volleyball International Federation was established. At present, volleyball is an Olympic sport, both for men and women.

Image of a volleyball match.

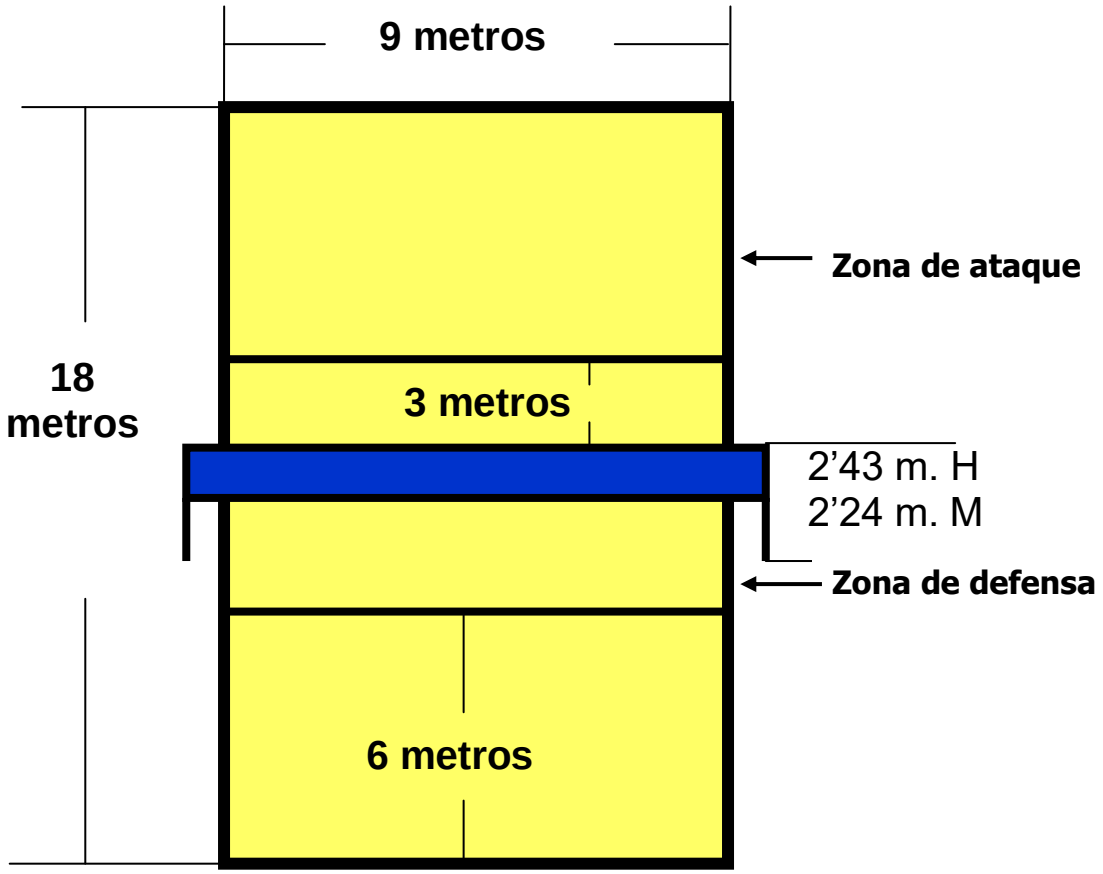
In 1920 this sport landed in Spain, being played first as a beach game. Even if it wasn't a widely played game, the Toledo P.E. School published the first book of rules for the sport in 1925.

General facts of the game.

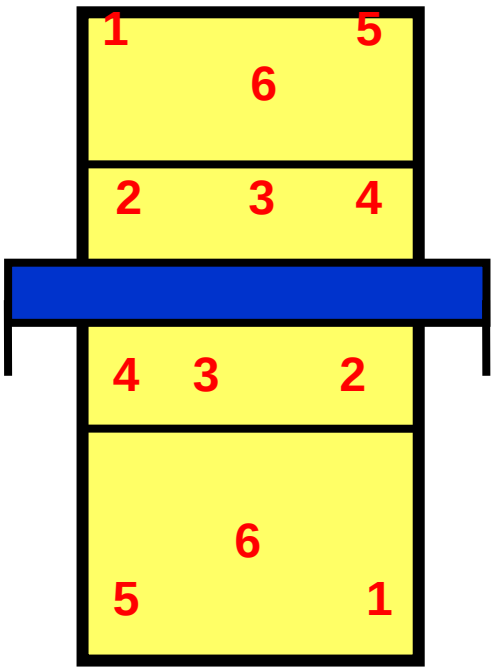
The sport **main goal** is to send the ball into the opponent's field over a net, touching the ball no more than three times, so that the other team can't pass the ball back before it touches the floor.

A volleyball match.

The **court** and its main characteristics are analyzed in the following graphic



Each position on the court has got an assigned number. Any time a team recovers the serve, the players must go forward one position moving to the right. This movement is called rotation. Once the ball is being played, the players can move to any position. The following graphic shows the numbers given to the specific positions on the court.



A **volleyball team** is made out of 12 **players,** but only six of them can be on the court at the same time. In each set or play, six changes can be made. The player that substitutes a team mate can only enter the court once a set and if he/she needs to be substituted, the former player is the only one allowed to do it.

The ball has a diameter of 21 centimeters and it weighs 270 grams.

Each team can ask for two **times out** of 30 seconds in each set.

It is not necessary to be serving in order to **win a point.** That means that if the point is won by the team that is serving, they score and keep on serving. If the point is won by the team that is receiving the serve, they score and they will serve in the next game.

To **win a set** the team must score 25 points with a difference of two points. If they tie to 25 points, they must keep on playing until one of the two teams reaches a difference of two points. To **win the match** the team must win three sets. If they tie to two sets, the last set or **fifth set** will be the definitive one, and it will be won by the team who gets 15 points with a difference of two. If they tie to 15 points, they will keep on playing until one of the teams gets a difference of two points.

An official match is **ruled** by a main referee, an auxiliary referee and four linesmen. The referees can produce the following penalties: By losing a point; by expelling a player, which means leaving the court and losing a point. In this last case, the player can stay in the technical area, but if the player is disqualified, he/she won't be able to stay in the technical area and the team will also lose the point.

The **ball** can **be hit** with any body part, but it mustn't be retained, be touched twice (double touch) and it can't be hit when it is in the opponent's field. A player mustn't touch the **net** if he/she is attacking or if he/she interferes in an opponent's attack. The serve can't be blocked.

The **líbero** is a player with the following characteristics:

a- He/she wears a different T-shirt.

b- He/she can substitute any player for an endless number of times, which will not count on the global team number substitutions.

The líbero player is wearing a red T-shirt.

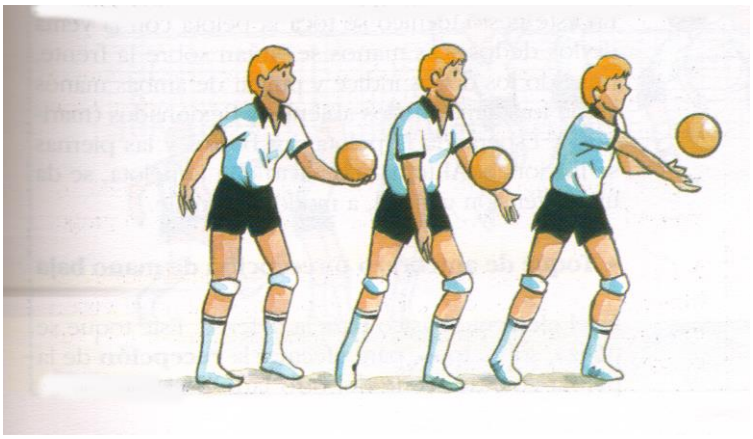
c- He/she can't serve or block, neither can he/she finish an attack by passing the ball to the opponent's field if the ball is above the net.

d- If he/she passes the ball from the attacking area and the ball is above the net, the next step can't be a smash; but if the pass has been made from the defense area, the next step can be a smash.

Technical Basis

A- The serve: with this technical tool the game starts. There are different types:

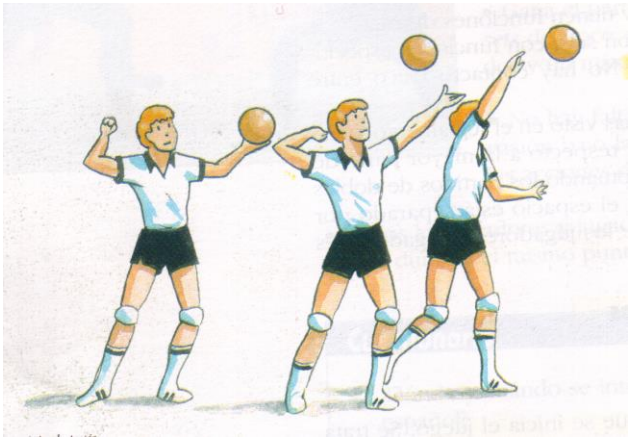
a- Low hand serve: it is the easiest and safest serve. The hand is placed on the ball, in front of the body at the waist height. The hitting hand is cupped and the whole body goes together with the movement in the direction of the ball.



Low hand serve sequence

b- Tennis serve: It is the most efficient one. Facing the net, the ball is thrown upwards above the head. As the ball is going up, the arm gets ready, and at the highest point of the descending trajectory, the ball is hit with an open hand and grouped fingers.

This serve can also be made with a small race before the hit and with a small jump, in order to hit the ball at its highest point. These are called floating serves.



(Left) Sequence of a tennis serve; (Right) Image of a floating tennis serve.

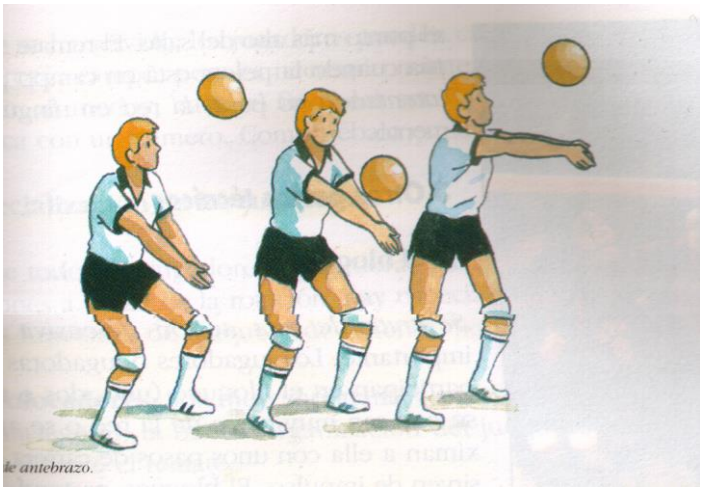
c- Two other serves are the **lateral serve** and the **hook serve,** but they are not commonly used.

B- Touches: It is the technical tool to move the ball once it is at play. There are several types:

a- Fingers touch: it is the most basic technical tool in volleyball. After this touch, the ball can move forward, to the sides or backwards. When the fingers touch the ball, the whole body extends. When this touch is addressed to a mate, its function is to **place** the ball.

Sequence and image of a fingers touch

b- Forearm touch: it is the basic touch in defense and mostly used to receive the ball when it comes from the other side of the net. When touching the ball, the whole body must extend.



Sequence and image of a forearm touch.

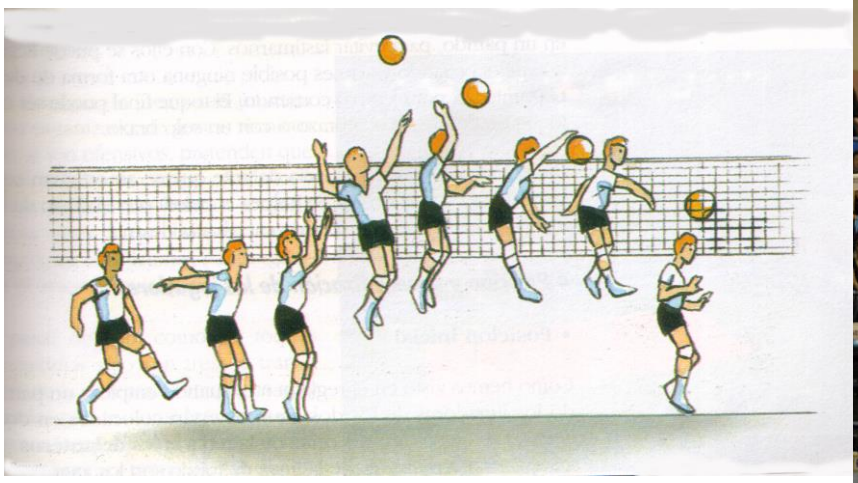
C-Smash: it is the most difficult technical element. Its aim is to attack. A smash must be done when the ball is on your side of the court. This touch has the following parts:

a- Running, done before the smash, is necessary to impulse.

b- Flight, done with both feet together and getting the arm ready.

c- Hit, done when the ball is at its highest point.

d- Fall, done after the hit.



Sequence and image of a smash

Popular Games

Popular games are the ones played by a high part of the population. They have become part of the popular culture and because of this, they are also called traditional games. These games have been forwarded from parents to sons and they have been practiced along the times.

There are some differences between games and sports:

A- Games have the following characteristics:

a- They are related to daily routines.

b- They have basic rules which can even be modified if all the players agree.

c- They are practiced on a field that can be adapted to the particular circumstances. The players' number is variable.

d- They require ability and skill. They don't need training or physical requirements.

Image of a popular game called "Perchos"

B- Sports have the following characteristics:

a- They have rules and regulations that can't be changed under any circumstances.

b- They usually have competitive connotations.

Characteristics of popular games

They have the following characteristics:

a- The playing field does not need complicated or sport courts.

b- The rules are forwarded from one generation into the next one.

Popular game called "The Rope"

c-Abilities and skills such as coordination, precision and rhythm are developed through these games.

d- These games create cohesion among people. They are sometimes related to popular festivities. They are common elements of the popular culture.

Classification of the popular games

Popular games can be classified in multiple ways: depending on the objects they use, time of the year, where they are played, etc. In this book, we are going to classify them according to their movements:

A- Ability games: they are based on basic movement qualities. They are also called "great motive games". Here, we can find the running games, jumping games and balance/coordination games. Games in this group are:

a- Sack race.

Sack race game

b- The four corners.

c- The handkerchief.

The Handkerchief game

B- Mastery games: these games are based on the basic motive abilities (Throws, drivings and hits) and on all the manual abilities. They are also called "skillful abilities". Some games of this group are:

a- The hoop.

b- The rayuela.

c- The frog.

Hoop game

C- Sensitive games: They need to use at least one of our five senses, as sight, hearing, etc. Some games in this group are:

a- The piñata.

Piñata game

b- The gallina ciega.

The gallinita ciega game

D- Singing or dancing Games: they need rhythm or music songs with lyrics sung by the own players. The movements are similar to the ones in popular dances. Some games of this group are:

a- Antón pirulero.
b- The barrack.
c- The corro de la patata.

The corro de la patata game

3rd Term

Indoor football

A bit of history

Indoor football started in Uruguay 1930, when the P.E. teacher Carlos Ceriani asked his students to play football in a handball court. In 1949, this new version of football created its own rules and a bit later it became completely independent from football. A new sport had been born. In 1971 the Indoor Football International Federation was created in Sao Paulo (Brazil).

Rules

The **aim of the game** is to score goals using any body part but the hands by means of two teams playing on a court.

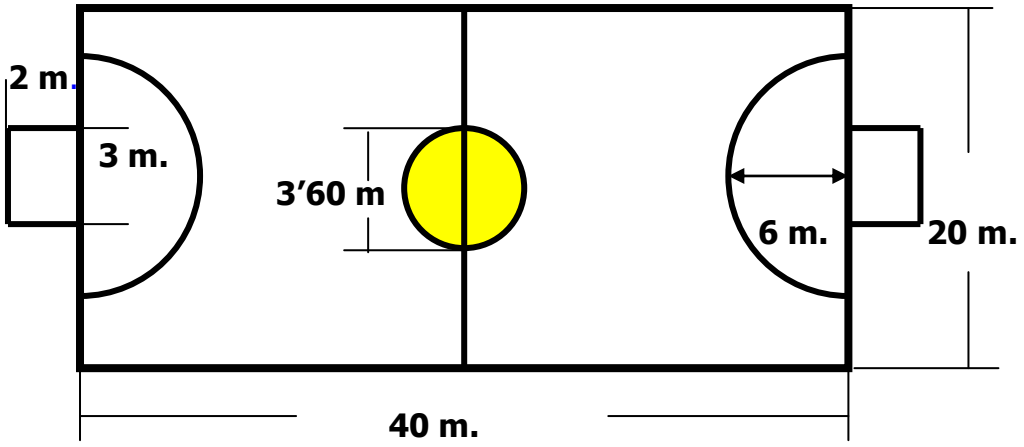
In an indoor football **match** two teams of five players each must play. Seven other players are sitting on the bench.

The **match** consists on two times of 20 minutes each, stopping the time when necessary, and a break of 10 minutes.

The match is directed by two **referees,** a person in charge of the clock and a judge table. The teams can ask for a 1 minute time out in each period.

The indoors football ball has a circumference of 55 centimeters and a weight of 450 grammes.

The measures and characteristics of the **court** are analyzed in the following graphic:



A- Types of faults:

a- Technical faults: kick, push or grab the opponent. The penalty is a free shot from the place where the fault was made. If the fault is made several times in a role it can be penalized with a warning (yellow card).

b- Personal faults: if the player takes longer than five seconds to start playing the ball or he/she gives the ball to the goalkeeper, the action is penalized with a throw in.

c- Disciplinary faults: lack of respect, inappropriate behavior, etc., are penalized with a warning (yellow card). A second warning means that the player is immediately expelled (red card). This player must be substituted by a different one after two minutes.

d- Summative faults: each team can make five faults in each period without losing the right of a defensive barrier. From the sixth fault, the team will be penalized with a shot of the 11 meters line. It is a shot from a point placed 11 meters away from the goal and without a defensive barrier. If the fault is made closer than 11 meters, the shot will be done from this point.

Technical basis.

a- Driving : It is the mostly used tool in indoors football. It allows us to drive the game on the court with the ball under control. It is usually made with the inner part of the foot.

Players driving the ball

b-The pass: this action helps the players to pass the ball between them. It is usually made with the instep or the inner part of the foot.

A pass between players

c – Shooting to the goal: the aim of this shot is to score a goal. It is usually made with the instep, the inner part of the foot or the cap of the foot.

A player shooting the ball to the goal

d- Dribbling: This actions gathers all the movements made with the ball to overcome an opponent.

Different dribblings made by players

Activities in the natural media

Camping

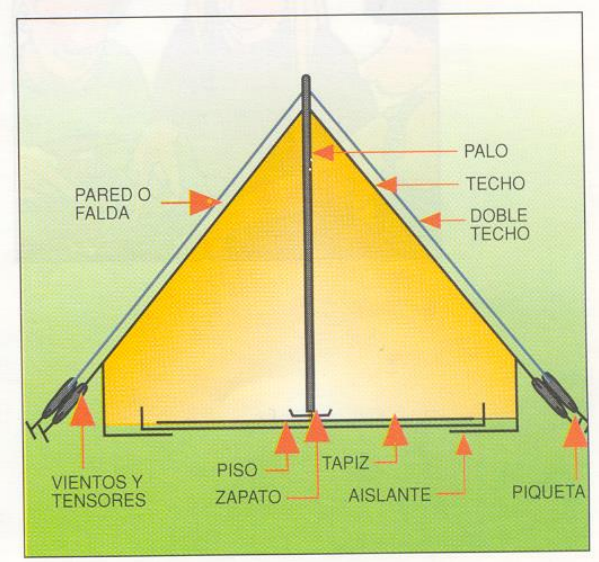
Not all the hiking trips last only one day. If we must sleep out, we should foresee where and how we are going to do it. There are several possibilities:

a- Under cover: we can spend the night in a mountain refuge if there is any. If we wish to sleep in the mountains, there are other possibilities:

b- Bivouac: it consists on sleeping outside in the open air. We must check the weather and we must try to sleep on a surface that isolates us from humidity and stones.

c- In a camp: it is the most common system and the best one to be used if we can carry personal objects and we must stay more than one night. The tent must be light and easy to use. The place must be flat and wind protected.

Squeme of the parts of a tent



We must be very careful if we light a camp fire, and it might even be forbidden. A fire is nice and a source of heat, but it is very dangerous if we don't follow the security rules. We could even cause a fire. These security rules are:

Picture of a tent

a- Fires must be light in open spaces.
b- They must be placed far away from any vegetation.
c- They must be surrounded by big stones to prevent ashes and coals to escape from them.
d- They must be always under surveillance.
e- We will use dry branches from the floor to start and keep a fire. We will never cut them from trees.
f- It must be completely extinguished when we leave.

Picture of people camping

Trekking

Trekking is a widely practiced sport that consists on walking for more or less long distances in the mountains. They are several difficulties according to the chosen routes.

Preparation for the activity

It is essential. The person in charge of the hiking must program it. The ideal preparation is doing the hiking beforehand. You must also know the participants' number, their personal situations, the route, the necessary material, etc.

Trekking is usually done in beautiful landscapes.

Doing the activity

If you are walking on a road, the most convenient formation is in a one-person line and on the left side of the road. In any other terrain, the formation can be as wished, but always with care. In difficult, long walkings, or with crowded groups, you can gather in smaller groups. We will bear the following aspects in mind:

1- The walking rhythm: we must release our energy in small doses. The rhythm must be the one of the weaker walkers. They must walk at the front, so they won't be delayed. The hike can be tiring if there are not breaks or the rhythm is not regular.

2- The walking pace: we can't establish rules on this, as it depends on the type of route, the geographical features, the age of the walkers, the moment of the day, etc. Going up, the rhythm must be slow and we must breathe regularly.

3- Breaks: Breaks must be done depending on the group. If the walkers are accustomed to walking, not too many breaks will be needed, so they will take few, long breaks. But if they are novice walkers, they will need lots of short breaks.

Breaks are very important in trekking.

4- The trekking routes are divided in two big groups:

A- Long distance routes: for distances over 50 kilometers.

B- Short distance routes: for distances below 50 kilometers.

5- The equipment: to go trekking, we must have special equipment to avoid injuries and possible damage after the activity. The equipment must include:

A- Mountain shoes/boots.

B- Comfortable clothes.

C- Glasses, cup and sun cream.

D- Rucksack. Its size must be adapted to the trekking route.

E- Torch. Even if you plan to come back with day light, any mistake can make darkness a problem.

F- Food and water. They are very important, especially water in the summer.

G- Basic first-aid kit.

Image of a group in a trekking route

6- Some general recommendations:

A- During breaks:

a- Look for shelter away from sun and wind (depending on the season)

b- Avoid meadows or wet places to lie on.

c- If anything is disturbing you during the walk, remove it.

d- Breathe rhythmically.

B- Foot care:

a- Before the walk clean them carefully scrub them with talcum powder to avoid excessive sweating and cut your nails.

b- When you finish the walk, change your shoes for some lighter ones to relax your feet.

c- It is better not to touch the small blisters. The big ones must be emptied and disinfected. They are healed leaving them in the open air and covering them to protect them when we walk with plasters or bandages.

C- Shoes:

a- Boots must be made out of leather, also flexible, breathable, with thick, rough rubber soles, to help adherence on the terrain. They must adjust the foot but without squeezing it.

b- Socks must absorb the sweat and fit the foot perfectly. It is convenient to carry an extra pair.

D- Food and drinks:

a- In hard routes and cold weather, the food must contain sugar and dried fruit, as they are quickly absorbed. Breakfast will be a strong meal and we will do another big meal at the end of the walk.

b- Drink moderately and breathe regularly.

c- In mountain waters it is convenient to add salts.

E- The rucksack:

a-It must adjust your body. The objects inside must be regularly delivered. Try not to tie any object hanging from the rucksack, as it will cause balance problems.

b- Revise the stripes before and after the walk.

Be careful in a trekking route. It can have difficult paths.

Security rules

Walking in a mountain and some other places can become a dangerous activity. A blizzard, heavy rain, fog can change a peaceful hike in a torture. This is the reason why it is essential to have the following criteria in mind:

a- Know your own physical conditions.

b- Quitting in time is better than having an accident.

c- If you get disoriented, the best thing to do is to go down.

d- In case of accident, place the victim in a safe, sheltered place, keep him/her warm and reanimate him/her, only if you have the correct media. Move the victim only if necessary and communicate the accident as soon as possible.