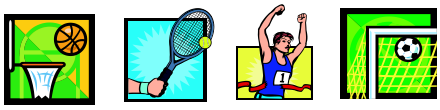
I.E.S. Liceo Caracense
P.E. Department



P.E. Theory Book

3rd 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.

Cycling is a sport that needs a very good physical condition.

We can say that the physical condition of a sportsman is given by his/her:

A- Anatomical condition: it states the difference between the different body shapes in human beings. The base of the anatomical condition is the mechanical structure. Taking this into account, we can differentiate among three different body shapes:

a- Ectomorph: elongated and straight muscles.

b- Mesomorph: strong, very marked muscles.

c- Endomorph: fat predominates over muscles.

B- Physiological condition: it can be defined as the functional ability of doing physical exercise without danger for the organism.

C- Motor condition: it is conditioned by the physical qualities of the human being. These qualities are endurance, speed, strength, coordination and flexibility (elasticity).

D- Nervous and psychomotricity condition: This quality is determined by the reaction against stimulus and the sportsman's coordination.

E- Ability and skills condition: this quality allows us to obtain the biggest performance with the smallest work when doing sport.

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:

1- Endurance.
2- Speed.
3- Strength.
4- Flexibility.
5- 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. There are two types:

a- Alactic: the energy used by the muscles to contract is the A.T.P. It is a very short energetic source, lasting only 5 to 10 – 30 seconds, that is as long as the energy deposits last. Lactic acid is not produced and the effort can be recovered easily. The energy of the organic molecules is transformed by the cells in chemical energy held in the ATP, which is the means of transport for the energy created and needed in the cellular processes, all of which need energy.

b- Lactic: it is produced when the energy used by the muscles to contract is obtained from the glucose in blood or from the glycogen in the liver. The capacity of this energetic source is wider than the previous one, thus it can last from 20- 30 seconds until 90 – 180 seconds. Its recovery, though, is very slow, due to the fact that lactic acid has been produced and it has deposited in the muscles.

Training endurance

There are two types of systems when training endurance:

1- Continuos

Its main characteristics are:

a- There is no break.

b- They last for a long time.

c- They should be performed in the natural media.

d- Depending on their intensity they will work aerobic or anaerobic endurance.

Continuous systems can be made in two different ways:

A- At a regular rhythm: obtained through continuous running. Its main characteristics are:

a- Regular and moderate intensity.

b- Long working time, between 15 to 60 minutes.

c- The heart rate must be between 140 and 160 beats per minute.

d- Used to increase the aerobic endurance.

B- Changing rhythms: through the Swedish fartlek. Its main characteristics are:

a- Run on a changing terrain.

b- Varied intensity, both in rhythm and distance.

c- The body must adapt to the rhythm changes.

d- The heart beat must be between 140 to 200 beats per minute.

e- Speeding, continuous rhythm, ups and downs, etc… are worked in this exercise.

The marathon is probably the highest example of endurance.

2- Fractional systems

They are of two types:

A- Interval – training: the main characteristics of this system are:

a- The necessary time to perform this activity will be 70 % of the time used to perform it at its highest intensity.

b- The recovery time between series will be more or less a minute.

c- The running distance will vary between 80 to 100 meters.

d- Depending on its intensity, aerobic or anaerobic endurance will be trained.

B- Repetitions: the main characteristics of this system are:

a- The performing time in the round will be 90 – 95% of the time usually used at this distance.

b- The heart rate per minute will be between 160 to 200 beats.

c- Recovery between series will be practically total.

d- Anaerobic endurance will be worked.

Benefits produced by working endurance.

Working endurance produces the following benefits:

a- The heart rate is increased, so the heart can receive more blood and as a consequence, it can expel more blood with every heart beat (Systole)

b- The heart walls get more resistant.

c- The heart rate decreases, so the heart gets more efficient and more energy is produced during the physical effort.

d- Capillarization increases thanks to the oxygen increase in the skeletal muscle.

e- Positive impact on respiratory system, so the lungs increase their capacity.

f- The organs used to clean our body (liver, kidneys…) are activated, so they eliminate more harmful substances.

g- The muscle system gets stronger.

h- Metabolism is activated, as the capacity to oxidate carbon hydrates and fats is increased (less obesity); also, the "good cholesterol" (High Density Lipoproteins or HDP) increases, and the "bad cholesterol" (Low Density Lipoproteins or LDP) decreases; lactate in blood is eliminated more easily, so the body will recover faster and better.

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.

There are three types of strength:

a- Slow, pure or maximum strength: This strength is produced when we succeed against a resistance without taking into account the time used.

b- Quick or fast strength: it is produced when we succeed against some strength, taking into account the time used.

c- Explosive strength: it is produced when we succeed against a resistance of 75 % in the sportsman's maximum test, at the highest possible speed.

Training Strength

To train strength there are different systems:

A- Weight lifting: it has the following characteristics:

a- It can be made with weight or with specific machines.

b- Se puede realizar con compañeros o con balones medicinales.

c- Very specific muscles groups are trained.

d- You must observe all the security rules.

B- Multi-jumping training: this system has the following characteristics:

a- All kind of jumps can be made (forward, backward, on one foot,…)

b- It Works on the strength of the lower limbs.

Doing a basketball dunk requires, among other things, some great impulse strength.

C- Isometric training: this system has the following characteristics:

a- The sportsman's strength receives a higher resistance.

b- This training can cause muscle exhaustion.

c- When this training is finished, relaxing and elasticity exercises must be performed.

D- Circuits: this system has the following characteristics:

a- An exercise is assigned, and it must be performed through different stations, always with the same time and recovery patterns.

b- Work can be also made with a fixed number of repetitions.

c- The number of the stations will be between 8 and 12.

d- The drills will vary so as to avoid working on the same muscle group on two consecutive stations.

e- Both, strength and anaerobic work are being trained.

Training strength according to your age.

A- 10 – 14 years old:

a- Only general strength is trained.

c- The drills performed must never be higher than the sportsman's weight.

c- It is important to watch the back position in every exercise at every moment.

B- 15 – 17 years old:

a- We can begin to work on specific strength areas development.

b- We begin to lift very light weights, always paying attention to the back position. It is only recommended for regular sportsmen.

C- 18 years old and older:

a- Strength can be trained at any level.

b- The lifting weights will be always made in percentages.

c- The back position will be watched at any moment.

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.

Training speed

There are several systems to train speed:

A- Starts:

a- We react against a stimuli.

b- The distance covered will be of about 10 meters.

c- It can be made with different variations (sitting down, standing up, back on floor, lying down, etc.).

d- We work mainly on speed reaction.

B- Muscles empowerment:

a- We should make specific exercises to work on the muscles that are necessary for speed.

b- We can use devices such as rubber bands, tensors, ballast jackets, ballast wristhand.

c- Both, reaction speed and moving speed are being trained with this system.

Throwing the ball against the goal in handball is a fast and explosive gesture.

C- Progressions:

a- We run in different series, at an intensity of 95 to 100 %.

b- Recovery between series must be complete.

c- The running distance must be in between 30 to 150 meters.

D- Displacements:

a- Series of 30 meters which will be made at a medium intensity.

b- The series will vary (facing front, facing back, skipping, heels behind etc.) .

c- We will pay close attention to the running technique.

Benefits made after working on speed.

Working on speed provides the following benefits:

a- It improves the muscle coordination.

b- It improves the speed with which orders are transmitted to the nervous system.

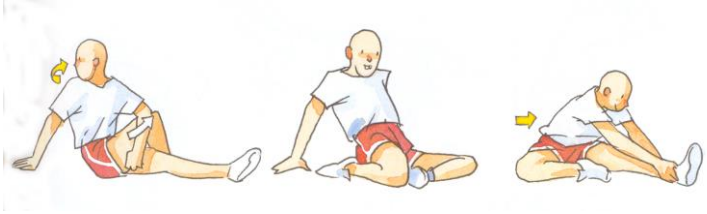
c- The heart walls get stronger.

d- The muscle strength increases, mainly on the lower limbs.

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.

Systems to train flexibility

To train this quality there are some methodologies based on the repetition of exercises (drills), which will cause the highest tension on joints and muscles.

a- Active methods: exercises are made in an active way, not using inertia to reach the positions.

b- Passive methods: exercises are made in a passive way. To reach the positions we use the help of another person or an apparatus, otherwise, the position wouldn't be reached.

Benefits made after working on flexibility.

Working on flexibility provides the following benefits:

a- It improves the ability of elongating our muscles, so that they can stretch without injuries.

b– It improves the articular movement, so our exercises will be wider without having to use our joints in extreme movements.

c- The person will be more agile, so the technical work will be easier and better.

d- Muscles will relax more easily.

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.

Systems to train coordination

There are several systems to train coordination, but the most important ones are:

a- Shifts: general running exercises are done (skipping, run progresibily etc.)and also specific running exercises (jumps changing the leg, jump the skipping rope, walking on certain areas of the court, etc.).

b- Exercises with balls: such as bouncing or throwing two or more balls at the same time, technical gestures with an analysis of the coordination and the performance.

Tennis requires an excellent 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 in athletics, the long distance disciplines (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 (cuádriceps, gemelos aductores).

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.

Types of warm-ups

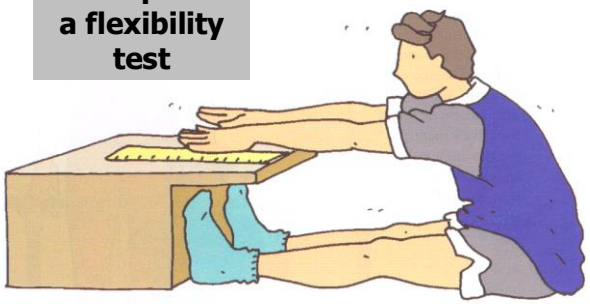
a- General: It is the one performed before any sport activity. It must work on all the body parts. It is the necessary warm-up to be done before any physical activity, regardless its purpose being sport or leisure.

b- Specific: In this warming-up we work on the specific areas that are going to be used during the training.

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)

Gymnastics

History

Nowadays, gymnastics became an independent branch of general gymnastics in the second half of the 19th century. Until then, it was considered as a part of the general physical condition and, consequently, as part of the preparation for other sports.

The first big gymnastic competition held outside the Olympic Games were the origin of the present day World Championships, and they were held in Antwerp (Belgium) in 1903. At present gymnastics is a Olympic Sport, both in male and female categories.

The base of the gymnastic discipline was stated in the 1924 Olympic Games held in Paris. It was the first time when the rules we use at present days were established, that is with three different competitive levels: individual contest, team contest and apparatus contest.

Training of a young gymnast.

General characteristics of gymnastics.

Gymnastics in general is the physical activity in which the body makes movements and exercises for the general practice of sport. But this would be just a general definition, so we must go deeper into a better definition that would be: **gymnastics** is the combination of exercises that demand exceptional physical conditions of the gymnast. These exercises are made by means of apparatus. The competitions have three different disciplines:

a- Individual competition.
b- Team competition.
c- Individual apparatus competition.

In official competitions the apparatus are:

A- Male category:
a- Horizontal bar.
b- Parallel bars.
c- Long horse jump.

d- Pommel horse.
e- Rings.
f- Floor exercises.

Competition in gymnastics requires a high concentration level.

B- Female category:
a- Floor exercises.
b- Long horse jump.
c- Beam.
d- Asymmetric bars.

Here comes an analysis of the different apparatus:

A- Apparatus in male competitions:

a- Floor exercises: during the floor exercise, the gymnast must cover all available surface. The exercise consists mainly on three to five diagonals (acrobatic series along the diagonal line of the floor), performed in different directions. These acrobatic series must be performed forward, backwards, landing the body on the feet facing forward and backward.

The transition elements (gymnastic movements performed among diagonals) must be made with harmony and rhythm, under a pattern.

The best gymnasts will perform three to five diagonals of an increasing difficulty, making double forward somersault with turns on the second or third diagonal. The working floor is a square of 12 x 12 metres.

Floor exercise.

b- Pommel horse: the gymnast must cover at least the three different areas in which a horse is divided: the middle part and both sides, performing circular movements just interrupted by the required scissors. Only the hands can touch the apparatus. The exercise must follow a constant and controlled rhythm. This apparatus is considered by many experts as the most difficult one in male category, although also one of the most subtle. Each movement must be preceded by complex positions of hands and body.

Difficulty lies on two main elements. First, the gymnast makes movements mainly circular, but performed on a horizontal axis. Then, he uses just one hand at a time, while the other one is trying to reach the position in order to develop the next movement.

Exercise on the pommel horse

The measures of the pommel horse are 115 cms. tall, 35 cms. wide 160 cms. long. The hoops must be at a distance of 40 to 45 cms.

c- Rings: this exercise must include at least two hand stops: one done in the middle of a strength exercise and the other one through the swinging movement. One of the strength elements must last at least for two seconds.

Examples of strength elements are crucifix, the inverted cross or the long fly. The Christ is made with the body straight, perpendicular to the floor and the arms extended perpendicular to the body.

Rings exercise.

The inverted Cross requires a stop with the body upside down, stopping the hands with the arms extended and perpendicular to the body. A long fly is holding the body rigid and parallel to the floor, above the rings.

The rings must be stopped during the routine. All unnecessary swinging will discount punctuation, as well as unbalanced positions during the performance. The rings are the most unbalanced apparatus in male category. Not moving or swinging along the performance is of the highest importance.

The rings must be under absolute control until the end of each element. Body must not get loose or twisted and the arms must not tremble.

The gymnast must perform a Christ or a long fly in a quick movement, then stop clearly and with confidence for two seconds, and then proceed into a new element. During the swinging elements, the body must be stretched and in the stops, it must be straight.

The rings holder measures 575 cms. high. The wire and straps to which the rings are stuck are 300 cms. Long and they are separated 50 cms. from each other.

d- Jump horse: each jump is classified in the punctuation rate, so every jump will have a different starting grade according to its complexity.

Horse jump exercise.

The gymnast must jump a minimum height and distance. During the pre-flight, which is the one between the springboard and the horse, the body must be risen quickly and with the correct angle, until the hands contact the horse. During the second flight, from the horse to the floor, the gymnast must rise his body at least a meter over the horse, and he must fly two and a half meters from the horse before touching the floor. The landing must be firm, without extra steps and in line with the horse.

The horse in male jump is 135 cms. high, 35 cms. wide and 160 cms. long. The lane on which the gymnast runs before jumping is one meter wide and 25 meters long.

e- Parallel bars: an exercise on the parallel bars mainly consists on swinging and flying elements. Some strength skills can be used in the performance, but they are not necessary.

The gymnast must make at least two different swinging elements: one leaning on the bars and the other one hanging from the bars. He must also make another element releasing the bars and grabbing them again. This last element is known as "suelta".

The most difficult elements require the gymnast to lose eye contact with the bars for a few moments, for example in the forward somersault and vertical backward. The parallel bars are 1,95 cms. high. Each bar is 150 cms. long and the separation between them can be from 42 to 52 cms.

Exercise on the parallel bars.

f- Horizontal bar: the exercise on the horizontal bar consists exclusively on swinging without stops. The gymnast must release the bar at least once, to grab it again ("fly"), and he must also swing at least once with is back towards the bar (dorsal swinging). The gymnast must also make one element on the bar, as for example a "circular stalder".

The gymnast will release the bars several times to perform the best exercises. They will get bonus points if they join high difficulty elements during their routines. The horizontal bar is placed at a height of 275 cms. It is 240 cms. long and it has a diameter of 2,8 cms.

Exercise on the horizontal bar.

B- Aparattus on female competitions:

a- Long horse jump: female gymnasts' jumps are gathered in four different categories. Each category defines the position of the body and the movements that must be done in each jump. Depending on the type of jump the gymnast chooses, it must follow all the stipulations written on the punctuation code; this code is the official text used to grade the gymnasts.

A good jump begins with a fast race. The best jumpers take off from the spring board, rising their feet over their heads at an amazing speed during the

pre-flight (from the spring board to the horse). On the next phase, when the gymnast touches the horse, the judges pay attention to the correct collocation of the hands, the body and the shoulders.

The second flight and the landing are critical phases. The gymnast must pay attention to the flight, the distance reached after the flight, and also the number of forward somersaults and turnings. Besides, gymnasts must "slam" their landings, without any extra step.

Normally, the number of forward somersaults and turnings made by the gymnast gives the difficulty of the jump.

The horse is 120 cms. high, 35 cms. wide and 160 cms. long. The lane used to run towards the apparatus is one meter wide and 25 meters long.

Jumping exercise.

b- Asymmetric bars: This apparatus is the most spectacular in female competitions. They demand strength, concentration, coordination and precision.

During the exercise on the asymmetric bars, there must be big swings, which will begin on the upper bar, changing then to the lower bar, as well as acrobacies and release elements.

The routine must develop from the lower to the upper bar, including releases, flying elements, direction changes, forward somersault and circular swings.

The lower bar can be adjusted in between 140 to 160 cms. high, and the upper one must be in between 235 y 240 cms. high. On their base the bars are at a distance of one meter, but they can reach a maximum distance of 143,5 cms.

The routine must flow with movements between bars without stops, extra swings or extra leanings. Each exercise must have at least two long flies.

Image of asymmetric bars.

c- Beam: the exercise must last 70 to 90 seconds and it must cover the whole length of the apparatus. The gymnast must perform acrobacies, gymnastic and dance elements to reach a high score.

The following elements are compulsory: an acrobatic serie with at least two flying elements, a turning on one leg of at least 360 degrees, a high, wide jump, a gymnastic/acrobatic serie, a gymnastic serie and a working routine near the bar. The beam is 120 cms. high, 10 cms. wide and 500 cms. long.

The general impression when we see the exercise must be as if it was being performed on the floor, and not on a 10 centimeters wide surface. We must see rhythm changes, level changes (from sitting down on the bar to jump high above it) and a harmonic mixture of acrobatic and gymnastic elements.

Exercise on the beam.

d- Floor exercise: this exercise must be adapted to music, follow a choreography, it must last from 70 to 90 seconds and it must cover the whole floor surface.

The gymnast must perform acrobatic and gymnastic elements to obtain a high score.

Spectacular image of an exercise on the floor.

They must include two acrobatic series, one of them with at least one or more forward somersault, an acrobatic/gymnastic series and a gymnastic series.

The gymnast must mix all these elements with harmony, meanwhile using the floor area in an efficient way, changing directions and the movement level.

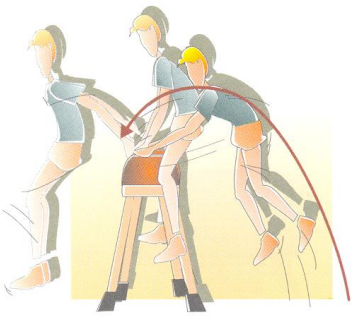
The gymnastic elements must flow freely during the exercise, and the jumps must cover long distances, meanwhile the turnings and acrobacies add emotion to the music.

The floor area is 12 by 12 meters.

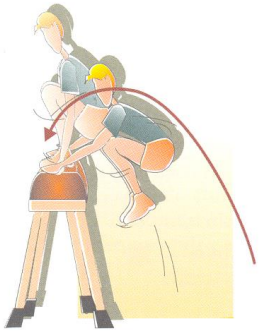
Gymnastic abilities on apparatus to be performed during the P.E. class

To be able to do exercises on apparatus we must first know them well. Also, we must work carefully with great caution, as well as be aware of our own possibilities. If necessary, we must use spring boards to impulse our jumps. We must also use two landing mats to soften the landings and the possible falls. Besides, we can rely on two partners to prevent falling. Before jumping, we must evaluate our skills, and we must begin with the easiest jumps, progressing smoothly into the most difficult ones. The following exercises, all from a German origin, can be performed on the apparatus:

a- The buck: it is a short apparatus that stands on four legs. We can make different jumps on it. The easiest one is jumping to finish the jump sitting down on the buck. We can also jump along it or over it. Last, the most difficult one, is jumping the buck with the knees bent and inside our arms, pushing them against our chest.

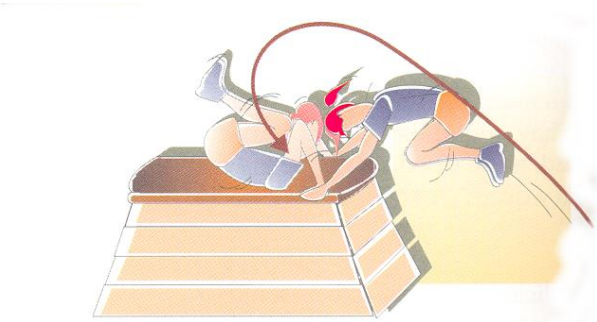


Buck external jump

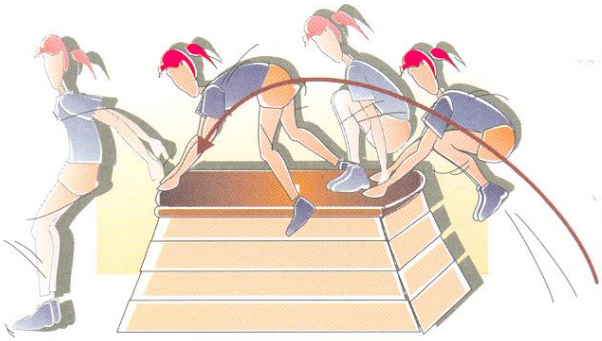


Buck inner jump

b- Box: it is a rectangular apparatus, built up out of several drawers. We can make forward roll on it or we can also make forward, grouped jumps on it.

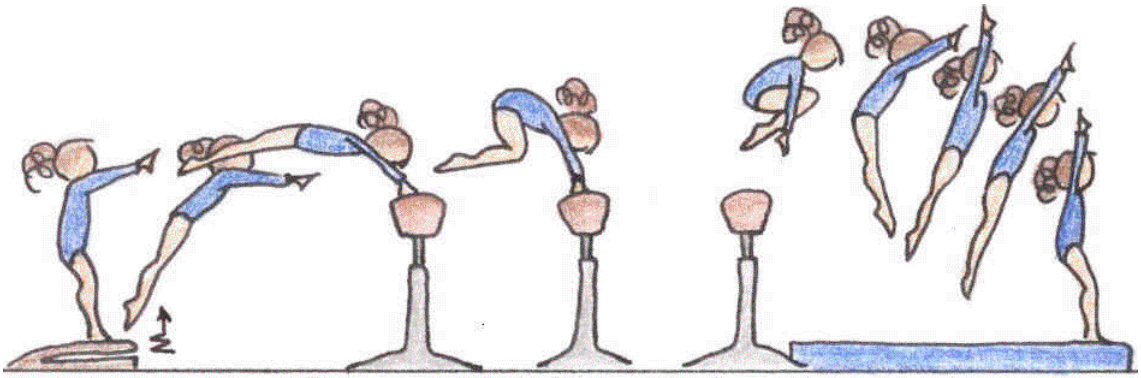


Forward roll on the box

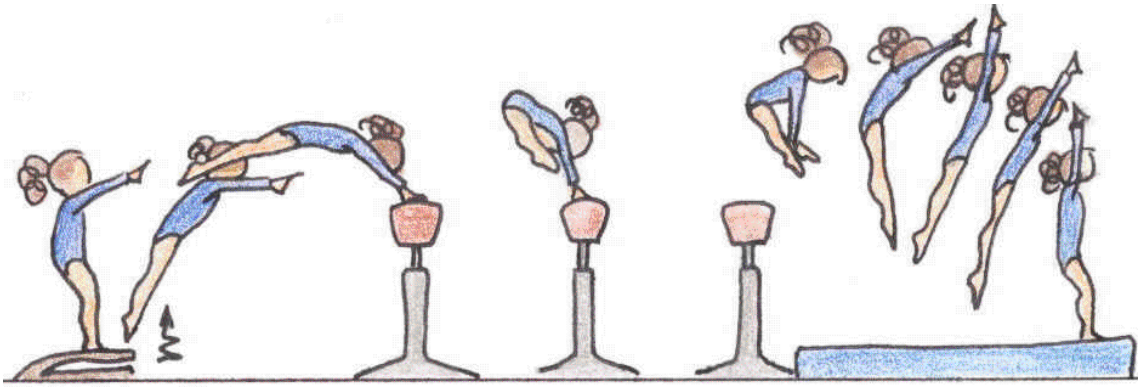


External jump on the box

c- Long horse: we can make inner or outer jumps on this apparatus.



Inner jump on long horse



Outer jump on long horse

Floorball

A bit of history

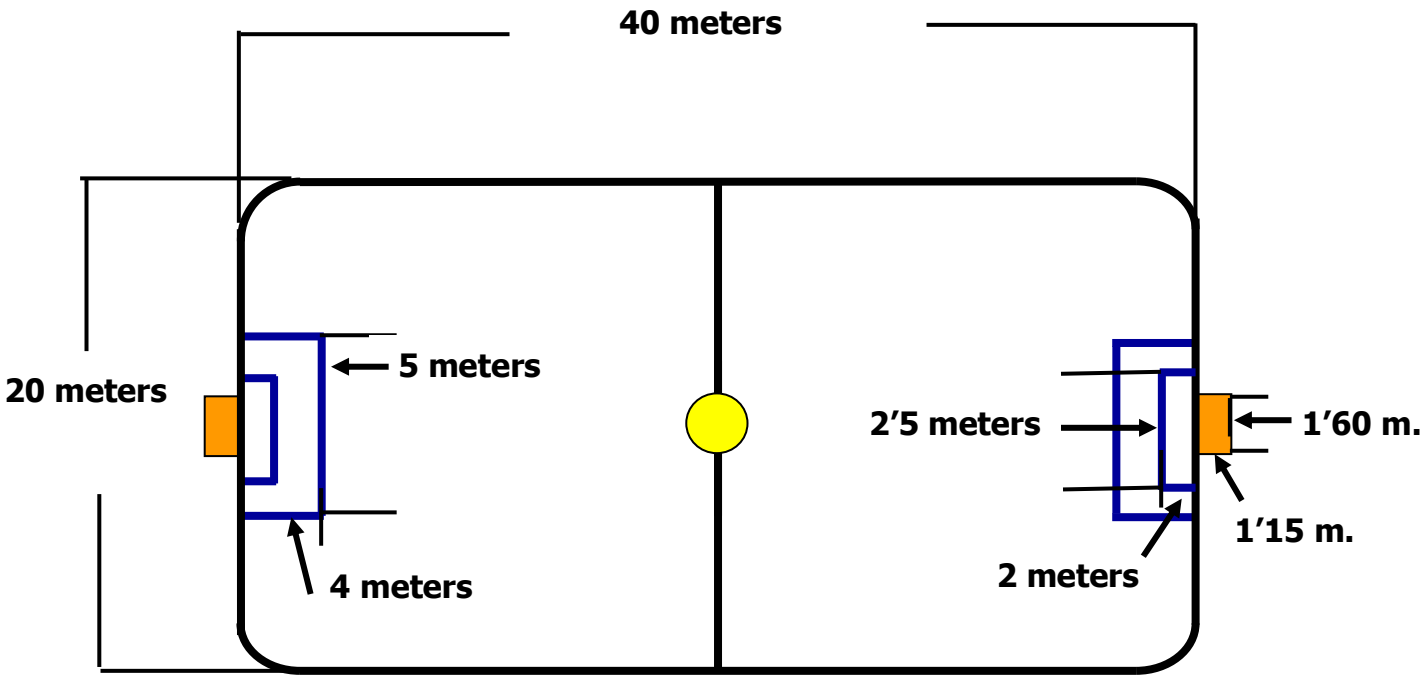
The origin of the games with a ball and a stick leads us as far as 2.000 years B.C., when some relieves on the grave of Beni-Hassam were grabbed. Historians agree on the fact that hockey on grass is one of the oldest team games to our days. At present, all these games have evolved to the present day sports played with a stick and a ball, such as hockey on grass, on roller skates or on ice, and also a more modern discipline called "floorball".

Floorbal rink.

Floorball is a team sport from Swedish origin, and it can be easily played. As a consequence, it is open to a large number of people, so it becomes a very useful tool in P.E. classes. It is very similar to hockey in all its varieties, because the main concepts are very similar. The aim is to score goals by pushing and throwing the ball with a stick.

Rules

As we said before, the aim of the game is scoring in the opposite goal using a stick. The measures and characteristics of the playing area are analyzed in the diagram below:



The whole rink will be surrounded by a 50 centimeters high kerb or wall. The inner area of 2.5x2 meters can't be walked on by any player. The **stick** will be made out of some plastic material and it can't weight more than 380 grams. It must always have a rounded shape and the side hit can have a slight curvature on the flat side, which will never be bigger than 30 mms. The stick can't be longer than 110 cms.

The **ball** will have a diameter of 72 mms. and it will have 26 small holes, not bigger than 10 mms. diameter, which will be placed on a symmetric way.

It won't weight more than 23 grammes.

Playing the ball in floorball.

A floorball **match** has different playing times, according to the players' age. Players over 16 years old play three periods of 20 minutes each. The match begins with a neutral serve in the middle of the rink. After each goal, the game starts in the same way.

Each **team** is made of five field players and a goalkeeper. Each team can have a maximum of 20 players. Players can be substituted an unlimited number of times, and they can be made at any playing time using the substitution area. The match won't be stopped during substitutions.

A player leading the ball, in a try to overcome an opponent.

Shooting to the goal.

In the possible actions to be performed during the game, we can distinguish:

A- Actions permitted to the players:

a-Hitting or leading the ball with both sides of the stick.

b-Stopping the ball with the foot, passing it to his own stick or clearing it.

c-Playing with the sides.

d-Stopping the ball with the chest.

Control of the ball and quick attack

B- Actions not permitted to players:

a- Entering the goalkeeper's area.

b- Rising the stick above the waist.

c- Passing the ball to another player with the foot.

d- Touching the ball twice with the foot.

e- Stopping the ball with the head or with the arm.

f- Playing the ball while lying on the floor or playing an action after a jump, with both feet not touching the floor.

g- Hitting, blocking or interfering the stick movements of the opponent.

h- Throwing your own stick.

i- Pushing, grabbing or tripping the opponent.

If any of these forbidden actions is done, the referee will give a free kick against the team that made the fault. The kick will be made from the place where the fault was committed. If the fault is made behind the imaginary goal line, the kick will be made to the nearest point to the goal line. If the **fault** is **grave** and it has been made just before a clear goal situation, or because a defendant has entered the goalkeeper's area, the punishment will be a **penalty shot** against the team that made the fault. The penalty shot will be made by setting the ball in game from the rink center. A player will advance freely, without defendants, until he shoots. The rest of the players must be at a distance of at least three meters.

Playing situation on a hockey match.

A floorball match is led by a **referee** and an annotator who will control the time and the score. The referee will be able to warn the players if they have an anti-sporty behavior. The warnings will take from two to five minutes depending on the importance of the behavior. In both cases, the warned player will have to sit on the bench and won't be able to be substituted while the punishment is on the go.

Technical basis

a- Leading: it is widely used in floorball, because it allows us to go forward with the ball under control. It is usually performed with the stick on the "drive" position.

A player leading the ball.

b- Passing: it is the action that allows us to pass or change the ball between two players. It can be made with both sides of the stick.

A player passing the ball during a training.

c – Shooting at the goal: it is the shot made with the aim to score a goal. It is usually made with the stick on the "drive" position.

Player shooting at the goal.

d- Dribbling: action made out of all the movements done to overcome an opponent. The player must be touching the ball at any time.

Image of a player after having dribbled an opponent.

2nd Term

Basketball

History

There are many theories that explain the ancient origin of basketball. Moreover, many different sports and activities practiced by the Aztecs, Mayas and Persian are supposed to be the first precursors of this sport.

However, basketball as it is known today was born in 1891, when an American high school teacher from Massachussetts called James Naismith created the sport as he was trying to find a game that could be played by his students indoors, as winters in Massachussetts were really cold. While he was thinking on how to solve this problem, he remembered a game consisting on throwing balls into some peach baskets. Basketball had just been born. Then, he set a group of thirteen rules to play this sport, among which the main ones are the following: players mustn´t run with the ball in their hands and the ball has to be thrown with the hands but not with the fists. At the beginning, teams had 9 players, but around 1897 teams started to have just 5 players.

Nowadays, both male and female basketball are Olympic sports.

Image of a basketball match

In Spain, basketball started being played in 1921, thanks to the Escolapian Priest Father Eusebio Millán. The truth was that Spanish basketball, still using 7 players' teams and with the baskets being placed on top of soccer goals, was far behind the times. In 1927, an Argentinean club came to play basketball in Spain and it was a total revolution, as for the first time ever in Spain, the team was made out of 5 players and the match was played on a court with the official measures. From that moment, information about techniques and tactics was researched in foreign countries to be used here.

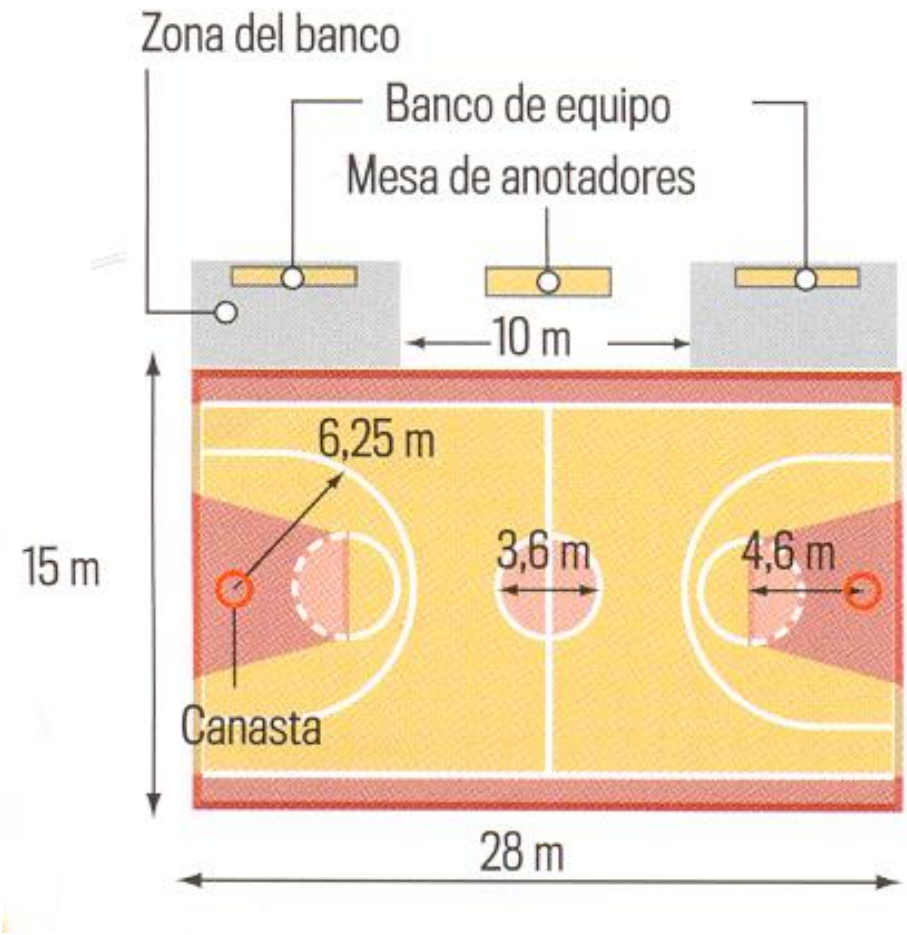
The picture shows a basketball match in old times.

Rules

1- General aims.

The **goal of the game** is to fight against another team trying to basket the ball in the opposite basket using the hands.

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



Canasta**: Basket**
Zona del banco: **Bench area.**
Banco de equipo: **Bench team**
Mesa de anotadores; **Write down table**
Aro: **Ring**

The **ball** has a circumference of 75 to 78 centimeters and a weight of 600 to 650 grammes.

A **basketball team** is made out of 10 players, although only 5 of them can be on court at the same time.

A match is conducted by a **main referee** helped by the **auxiliary referee.** They use a gesture language to communicate with the people sat at the main table, the one in charge of the clock and the one who copies the result. This table is always placed in between the team benches.

A **basketball match** lasts 40 minutes splitted in 4 periods of 10 real minutes each (that means that the clock is stopped while not playing). There is a 1 minute gap in between the first and the second period and between the third and fourth ones. Between the second and third period the break lasts 10 minutes. The match starts with a jump between two players, each of one of the teams, in the court centre.

Each team can ask for a minute lasting **time out** in each of the first three periods. In the fourth and last period, each team can ask for two time out of also 1 minute time.

Image of basket match

2- Faults and penalties.

There are different types of faults:

A- Personal faults: They are made when a player hits, pushes or illegally blocks another player. When a player makes 5 personal faults in a match he/she will leave the game, being substituted by another player. These faults can be penalized in different ways:

a- Two free throws if the player on whom the fault was made was throwing the ball to the basket. If the player baskets he/she will score two points and will have an extra thrown.

b- Three free throws, if the player was throwing the ball beyond the 6.25 line. If he/she baskets, he/she will score three points and will have an extra throw.

c- Throw in, if the player on whom the fault is made wasn't throwing the ball.

d- If the fault is the fourth one made by the whole team in the same period, two free throws will be made, regardless the kind of action that was being taking place.

B- Technical faults: They can be applied on coaches or players. They

are normally made when someone shows lack of respect to an opponent or the referees, and also when some anti-sporty behavior is shown. They are noted down as a personal fault for the player and they are penalized with a free throw and getting the ball from the court centre for the other team.

C- Faults related to time; They are penalized by missing the possession. There are different types:

a- Three seconds rule: No player of the attacking team can stay on the other team's zone for longer than 3 seconds.

b- Five seconds rule: A player can´t hold the ball in his/her hands without bouncing it, passing it to another player or throwing it to the basket for longer than 5 seconds.

c-Eight seconds rule: When a team has the possession, they must get into the opponent's field before the first 8 seconds.

c- Twenty-four seconds rule: When a team has the possession, they have just 24 seconds before throwing the ball to the basket.

Throwing to the basket during a jump.

D- Other faults; They can be:

a- Back court: Once the ball gets into the opponent's field, it can't go again into your own side of the court.

b- Travelling: The player can only walk for three steps before bouncing the ball. Also, a player can't bounce the ball without walking at the same time.

c- Doubles: A player will be considered to have committed this fault when bouncing the ball with both two hands, or if he/she bounces the ball, catches it and bounces it again.

All these faults are penalized by losing possession.

Technical basis.

A- The basic position: It is an essential technique, and it consists on keeping the following position: feet must be placed parallel, legs in semi-flexion and body slightly leaning forward. This position allows the player to do a fast and efficient action, both attacking and defending.

B- The bounce: It is the action of throwing the ball against the floor, so it comes to the player's hands again. It helps the player to move forward with the ball under control. There are three different types of bounces:

a- Protective bounce: Used when your opponent is near. It is low bounce where the player's body is located between the ball and the opponent.

A player making a defensive bounce.

b- Speed bounce: Used to move forward quickly when there are no opponents nearby.

Players making speed bounces

a- Pace changing bounce: Used to dribble an opponent in a one-to-one action.

Image of a pace changing bounce

D- The pass: It is the action of passing the ball to a mate in a secure and precise way. There are several types:

a- Breast pass: Mostly used in short and medium distances, it is made with two hands, from the breast and it goes straight to your mate.

b-Bounce pass: In this pass, the ball must bounce once, before getting into your mate's hands. To do it, you follow the steps of the breast pass but throwing the ball first to the floor. It is used in short and medium distances.

c- Deliver pass: Used when your mate is very close, so you just need to impel the ball slightly to hand it straight away.

d-Baseball pass: it uses a similar technique to the one necessary for a baseball throw. The ball is placed at your ear level, and it is thrown using just one hand. Useful for long distance passes.

e- Over the head pass: The player catches the ball with two hands, places it over his/her head and throws it straight, by stretching his/her arms towards the direction of the pass, and ending up with a short, strong movement of the wrists. Used in short and medium distances.

Sequences of players making passes over their heads.

E- Basket throws: They are the final step in the attack. There are several types:

a- Static throw: Made from any attacking position. Both feet are set on the floor when throwing.

Players doing static throws.

b- Suspension throws: Using the same technique as in the previous throw, the only difference is that here both feet are in the air at the throwing time.

A suspensión throw.

c- Tray throw: It must be made very close to the basket ring. It can be done with your left or the right hand

The picture shows a tray throw.

d- Basket entry: This throw is preceded by a previous race, so that the ball is released the closest possible to the ring.

Sequence of a basket entry.

F- Dribbling: To dribble is to move quickly so as to avoid a defender. It can be done with or without a ball. The player pretends to be throwing, passing or moving.

G- Stops: This movement is made very often as it helps you prepare for the following actions. It is done by a player with a ball gets ready for his next action. There are two different types:,

a- Stop in one movement: both feet are placed on the floor at the same time.

b- Stop in two movements: a step is necessary, because one foot is placed on the floor before the other one.

G- Swing: In this action, one foot is firmly placed on the floor (swing foot) to allow the other one to move freely in any direction. This technique is used to throw the ball or to free from the pressure set by a defender.

Player doing the swing action

H- Rebound: It is done when a player recovers the ball after a missed throwing. There are two types:

a- Defensive: the ball is recovered by the defending team.

b- Ofenssive: the ball is recovered by the attacking team.

Rebound images

Player's specialization

As the basketball players are improving their technique, they specialized in the different positions in the field, according to their physical conditions, their technical quality and the team necessities. There are several special positions:

a- Playmaker: This player leads the game. He must control the ball, organization skills and good peer communication. In tactical schemes, he is always number one.

Image of a playmaker leading the team.

b- Guard: He helps the playmaker to lead the ball towards the opponent's field to take offensive actions. He shares the characteristics of a playmaker and a forward. In tactical schemes he is always number 2.

A guard making a protective bounce.

c- Forward: He is an expert throwing in short and medium distances. In tactical schemes he is always number 3.

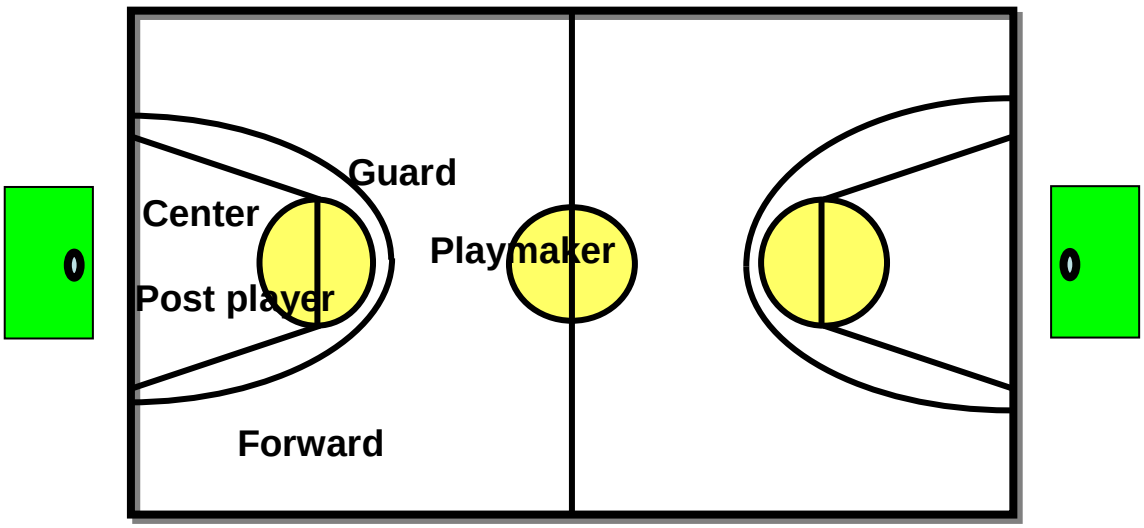
Forward throwing the ball during a jump.

d- Post player. He must be a tall player and he plays with his back to the basket, the same way pivots do, but he must move quicker when going out of and into the zone. He must also take part in the outer game with the rest of the team. In tactical schemes he is always number 4.

A post player throwing the ball to the basket.

e- Center: He is in charge of the rebounds, both offensive and defensive. He always plays under the basket, trying to look for good throwing positions and at the same time, trying to stop the opponent's game. In tactical schemes he is always number 5.

Two centers at an action. One is trying to basket while the other one is trying to defend.



Position of the players on the court.

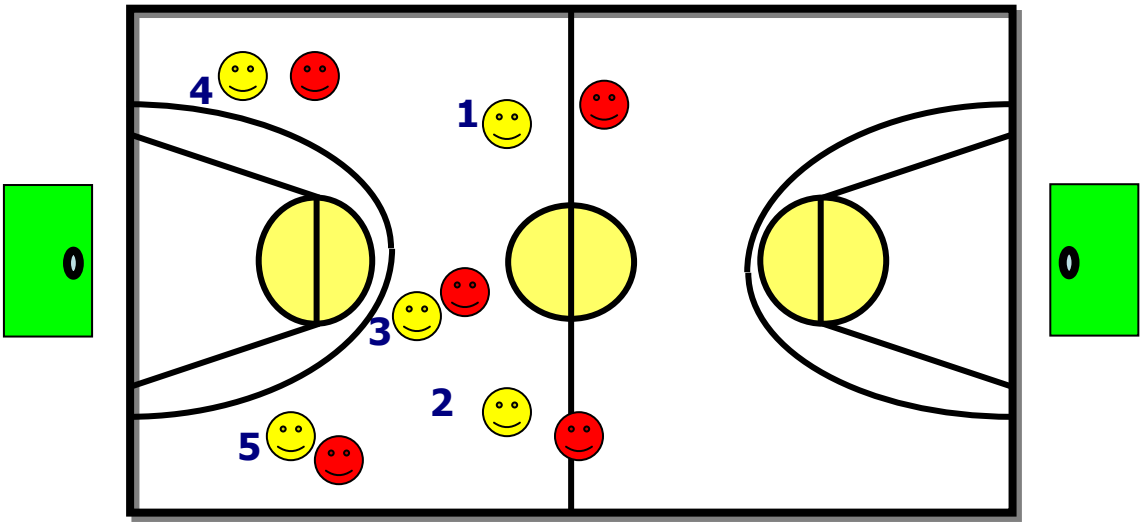
Tactical basis

Tactic is the performance of the offensive and defensive systems.
The following symbols will be used in the diagrammes below:

Defensive player X  **Offensive player X** 

1- Defensive systems: they are divided into:

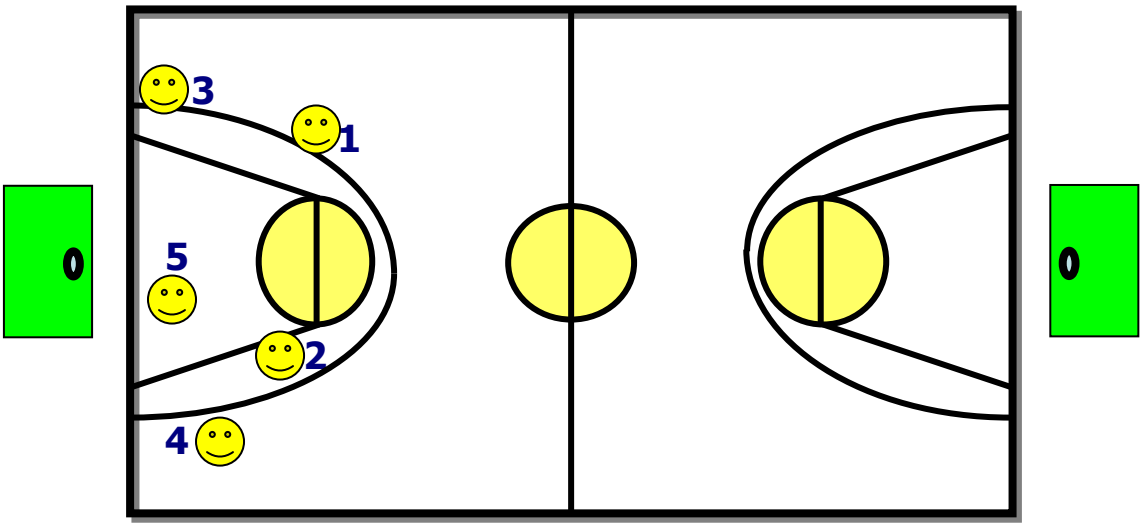
A- Individual defense: each defender is in charge of one particular opponent. He must chase him all over the field.



Positions in an individual defense.

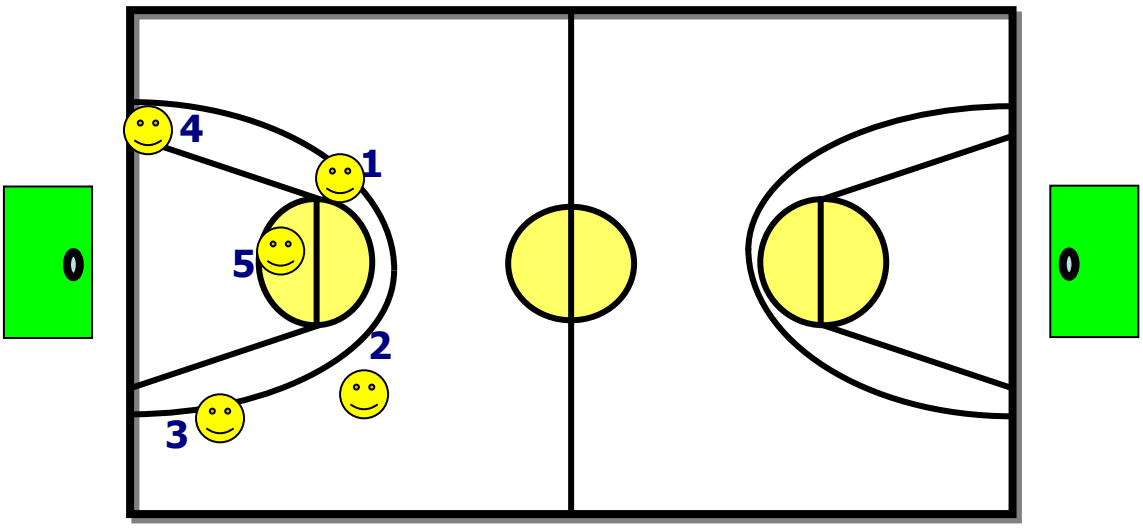
B- Zone defense: each defender is in charge of a specific area of the field, normally around the paint. The most common zone defensive systems are:

a- Zone 2 – 3: Two players are in an advanced position, normally the playmaker and the guard, each of them on the sides of the free throw line, and three taller defenders, normally 2 forward and the center, nearer the basket.



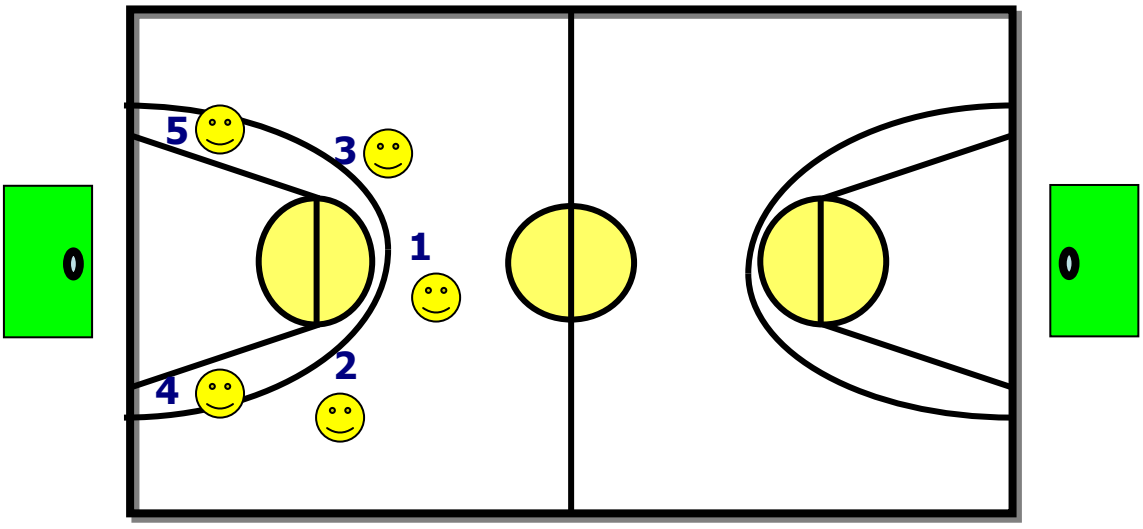
Positions in the zone 2-3 defense.

b- Zone 2 – 1 - 2: very similar to the previous one, the only difference is that the pivot is placed in a more advance position, to avoid opponents crossing the area.



Positions in the zone 2 – 1- -2 defense.

c- Zone 1 – 2 – 2: the further player to the ring, normally the playmaker, must be a very quick one. This system is weak in the middle of the paint.



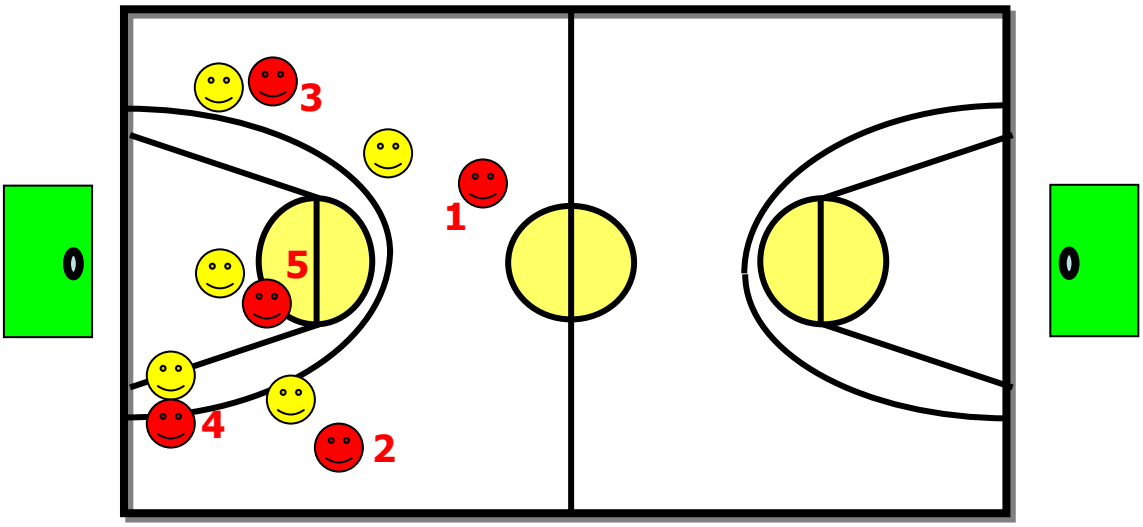
Positions in the zone 1 – 2 – 2 defense.

C- Mixed defense: It is a mixture of the previous systems. Some players use the zone defense, normally around the paint, and some others defend a particular opponent. This system is mostly used when there is a very effective, outstanding player in the opponent's team.

2- Offensive systems: They are determined by the defensive system used by the other team. The most common ones are the following:

A- Against an individual defense: there are two tactical systems:

a- One against the other: it is a fight between the individual technical performance, the dribbling skill of the offensive player and the speed of the defender.

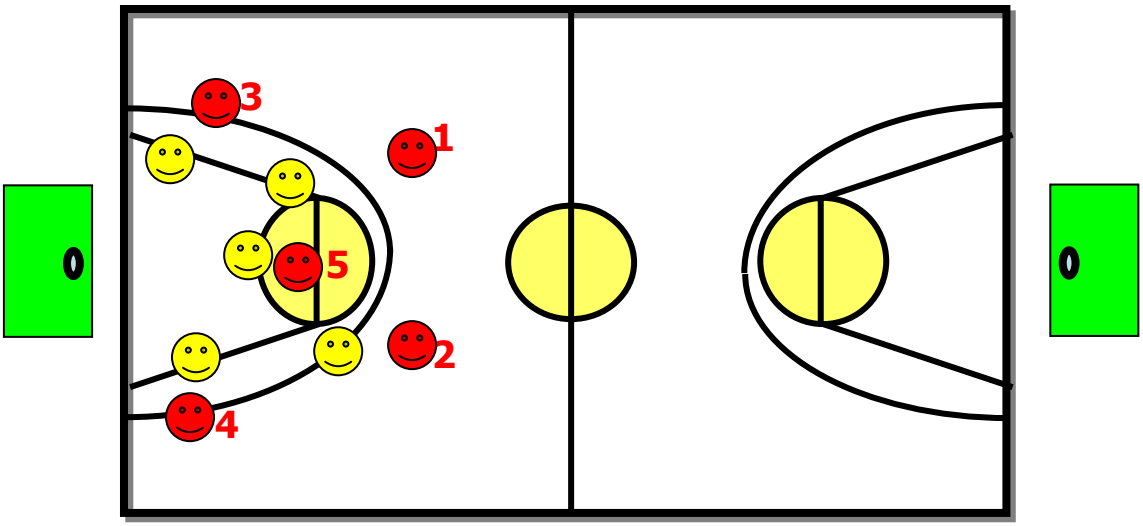


Positions of the players in a 1 to 1 system

b- The screen: It is a specific technique which consists on getting in the middle of the way of a defender, who is trying to follow a particular opponent. This way, the attacking player will open and will be able to throw the ball, pass it or bounce it to follow the game.

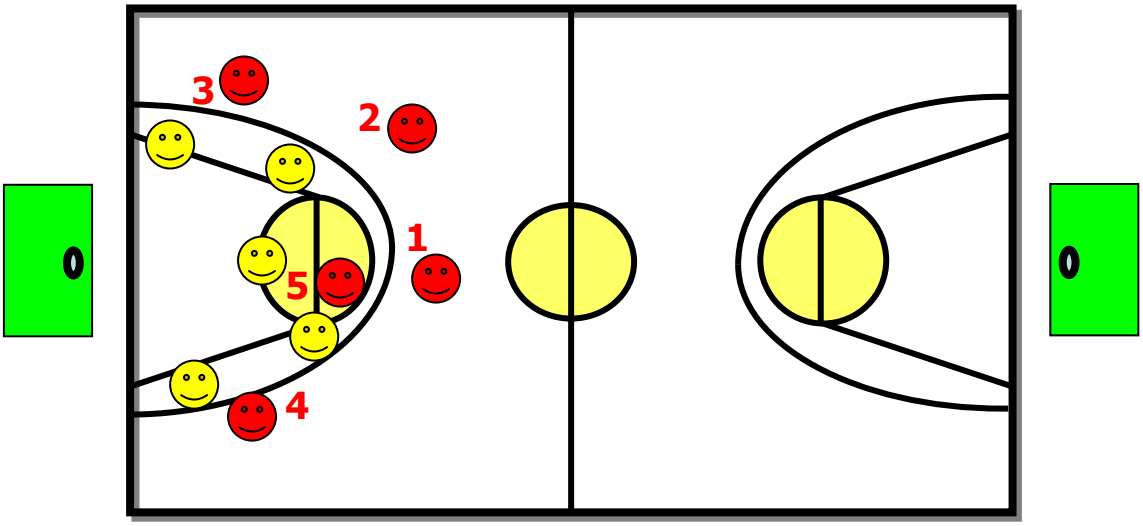
B- Against a zone defense: The best way of playing against this system is by external, effective throws. There are two different tactics:

a- 2 – 1 – 2 System: One playmaker and one forward outside the 6'25 metres line, two forwards on both sides of the zone and a center moving inside the zone.



Positions of the players in a 2 – 1 - 2 system.

b- 1 – 3 – 1 System: the playmaker is placed outside the 6'25 metres area, two forwards are also outside this zone, but further to the ring tan in the previous system, a pívot around the free throw line and another center right under the basket.



Position of the players in a 1 – 3 – 1 system.

Diet and physical activity

Diet for children who do sport.

It is very important to follow a healthy diet. Your body needs healthy food, so if you eat and drink this kind of food, you will surely become a better sportsman.

As professional sportsmen know this is a fact, they usually have nutritionists and experts in diets on their teams, to help them follow the healthiest diets.

To have a good diet, you must take into account these aspects:

A- Eat food of all the groups: All the children need to eat a variety of food, and so must do the children who do sport. Eat something from all the different groups:

a- Proteins: They can be found in meat, eggs and dairy products. Try to avoid fat when you eat meat or cheese, and choose semi-skimmed milk.

b- Carbohydrates: Found in the boxed cereals, wheat bread and rice. Avoid cereals with too much sugar, and try to choose wholesome products.

c- Vitamins and minerals: found in fruit and vegetables, milk and products containing calcium.

Big efforts, such as rowing, require a lot of energy.

B- Get the right amount of calories: People who do sports burn a lot of energy; as a consequence, they must consume more food.

School children (between 6 and 12 years old) usually need between 1,600 and 2,500 calories a day. If the child does sport, he becomes more active than a normally active kid, so he might need more food. The need for calories grows during puberty too.

But we must be careful, because each child is different, so it is important to find a balance between the sport you do, the number of hours you are practicing sport, and the intensity of the sport you do.

C- Calcium and iron (ferrum): they are two very important nutrients for children, especially for the ones doing sport. Calcium helps you to develop strong bones, so less prone to break while doing tiring physical activity. It can be found in dairy products such as milk, yoghurt and cheese, but also in dark green leaves vegetables or even in products enrichened with calcium, such as orange juice.

It is important to follow a diet rich in iron too, such as meat, eggs and dried fruits. If you don't eat enough iron, you can get tired very easily.

A waterpolo match burns a great amount of energy.

D- Children who do sports don't need to be on a diet: as a rule, it is not good for a child who does sport to be on a diet in order to become thinner or heavier. Don't follow the advice of those who tell you to go on a diet. If someone suggests that you should go on a diet, tell your family and your doctor.

Some sports require different body shapes, but children can practice sports such as football or gymnastic without having great body changes. In fact, as most of the children will be still growing up, it is important to let their bodies reach their height. If during this period you follow a non-healthy diet, you can risk your own growing-up process.

Some non-healthy diets, such as eating too many proteins, can damage your kidneys, causing serious illnesses.

Skipping meals, avoiding groups of food or fasting (not eating at all or not eating enough) can also develop serious illnesses in children and teenagers.

Sometimes, if you are too busy, it might be difficult to have all your meals. Talk to your family and try to organize your time better, especially when you are training or competing. Try to have dinner at home as frequently as you can. Researchers have proved that we eat healthier when we share our meals with our family regularly.

E- Liquids: we are sure that you have often see sportsmen drinking water in the match breaks. Sportsmen need water before, during and after doing sport. When we sweat we miss water through our skin. Sweat cools our bodies and we could easily dehydrate if we miss a lot of water this way and we don't drink enough. If you dehydrate you won't feel well and you will produce a poor performance. Severe dehydratation can even drive you to hospital to get treatment at the emergency service. Drinking enough water before, during and after the physical activity is the best way to keep you healthy. Don't wait until you feel thirsty. The best drinks you can get are water or fruit juice with water. Having especial drinks for sportsmen is not bad if done occasionally, but remember that these drinks have a lot of sugar and calories. **Water** is the best and healthiest drink and it has zero calories.

F- Training and competing times: when the time comes to train or compete, you will get your energy from the food you have eaten before, so it is a good idea to eat properly. You must eat from 3 to 4 hours before your

training or competition. If your stomach is full, your digestive system will use a lot of energy to digest the food, so you will get less energy to use for doing sport.

But you must not starve either. Take some food with you, especially if the competition or training is going to be long, even a whole day long. Good examples of food you can have are half a turkey and lettuce sandwich, fresh fruit or dried fruits such as a bunch of nuts. Energy bars made especially for sportsmen won't be a good option, even if they are convenient, as you can get the same amount of energy out of healthier products.

Avoid eating sugar (mainly sweets) or fizzy drinks before a training or a competition. You might get the wrong impression of feeling stronger, but this feeling will quickly disappear, leaving you more tired than ever. On the other side, if you eat properly, you will reach your best performances.

Badminton

A bit of history

A similar game to badminton used to be practiced in China 2,000 years ago. It is believed that the "indiaca", a game of Incan origin, has the same principles as badminton.

Badminton finds its origins in the Indian game called "**Poona**", which was brought to Europe by soldiers from the British army. According to tradition, a rainy day in 1873, some men from the military decided to have some leisure inside the mansion where they were staying. They started playing with some tennis rackets, but as they were indoors, instead of using balls, they used some champagne bottles leads to which they had attached some feathers. This event took place at the mansion called Badminton House.

In 1934 the first International Federation of Badminton was created. The Spanish Federation was created in 1983.

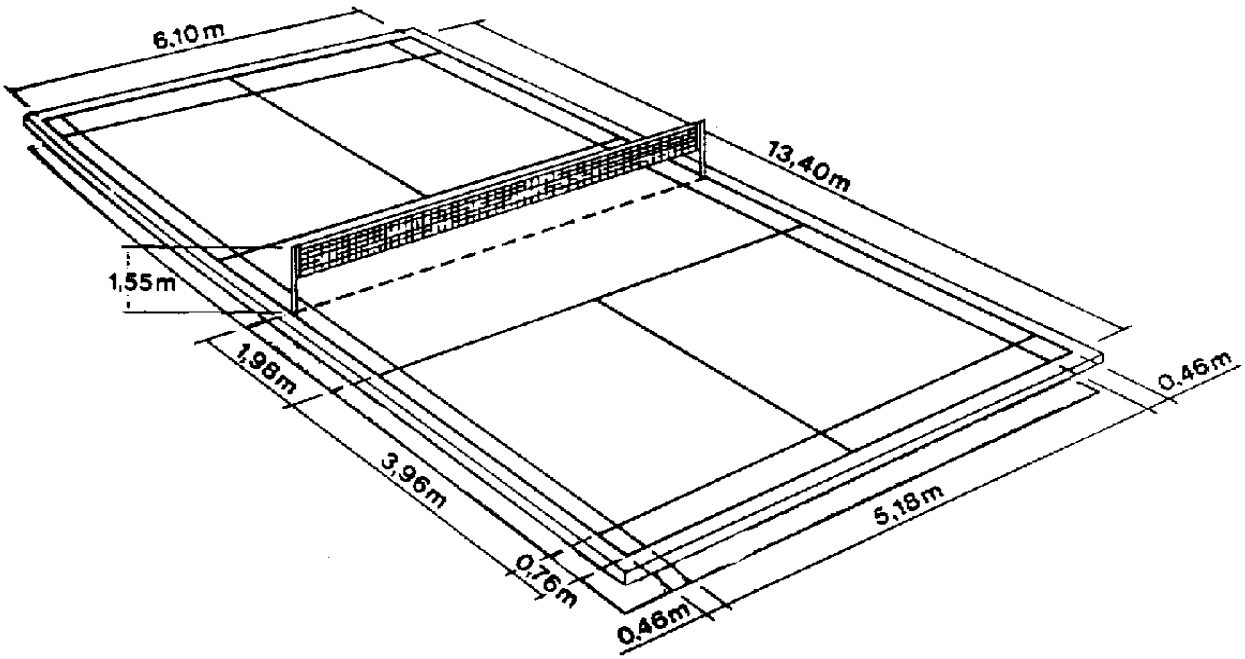
Badminton became a Olympic sport in Barcelona'92.

Rules

1- General aspects:

The **goal of the game** consists on two or four players, all with a racket, who play against each other to score points according to some fixed rules.

The **playing field** has the following measures:



The lines are considered part of the field. Individual matches are played using the inner lateral lines as well as the back lines. Double matches use the outer lateral lines.

The distance from the upper part of the net to the court surface is 1,55 meters.

A player scores a point if he hits the shuttlecock and it lands on the opponent's field, or if the opponent sends the shuttlecock outside the field lines or it gets caught in the net.

The shuttlecock weights between 4.74 and 5.50 gr., it has l6 feathers of 6 cm. long and that are glued to a cork base which has a diameter of 25 to 28 mm. and whose shape is a sphere where it gets hit. There are two types of shuttlecocks, the one made out of feathers, used in competitions and by high level players, and the one made out of nylon, more convenient for non-experienced players, school competitions or leisure games.

The racket is light and rigid, thanks to the materials used, such as carbon fibre or titanium. Its parts are handle, shaft, throat and head. It weights around 100 grammes.

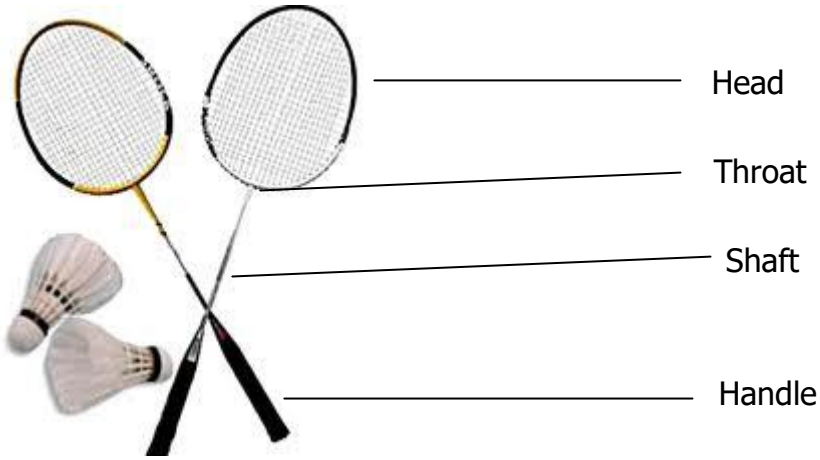


Image of a badminton racket and a shuttlecock

In **the serve** (beginning of the game) both players are placed in their serving areas, opposite one to the other in the diagonal, and they must not touch any of the limit lines. Until the serve is done both players must be touching the floor with the two feet, and they must not move.

As soon as the ball is hit when serving, the correct hitting position is with the head of the racket meeting the shuttlecock below the player's waist.

The **modalities** established in the rules are:

a-Individual (male and female).

b-Doubles (male and female).

c- Mixed doubles(a man and a woman).

Image of a double match

The matches are played to two winning sets. If there is a tie, a third set will have to be played.

In male modalities the players will change the side of the field when one of the players scores the eighth point. In female modalities, the change will be made when the player scores the sixth point. To score a point, the player must be serving, so if a player is serving and he misses the point, he will miss the serve, but no point against will be scored.

In the **male modalities** the games last up to 15 points. If the score is 14-14, the player who scored this number on the first place can decide to end up the game on 15 or 17 points, that is, adding just one or three more points to the game.

In the **female modalities** the games last up to 11 points. If the score is 10-10, the player who scored this number on the first place can decide to end up the game on 11 or 12 points, that is, adding just one or two more points to the game.

A match does not have a time limit, so in professional competitions it is not unusual for a match to be longer than an hour.

The most common **faults** are:

a- Hitting the shuttlecock above the waist or placing the head of the racket above the hand when hitting the ball.

b-Sending the shuttlecock outside the opponent's serving area, or being outside the serving area both when serving or receiving the serve.

c-When the shuttlecock touches the floor outside the field lines or it touches the player or the player's clothes.

d-Hitting the shuttlecock in the opponent's field, touching the net or the poles.

e-If the shuttlecock gets caught in the net or in your racket. Also, hitting it twice or dragging it.

f-If a player consciously uses his racket to shadow the opponent's hitting position.

Technical basis

1-Basic position

Badminton is a very fast sport, where you must react and answer quickly. The body position is essential. The player must stand, keeping his feet parallel, with the legs in a semi-flexed position, and the body leaning slightly to the front. This position allows the player to have a quick reaction, both defending and attacking.

2-Basic hits:

According to the trajectory drawn by the shuttlecock, the basic hits can be grouped in:

A-High trajectories to the back line. In this group we can find the serve and the lob.

a- The serve: With it the game begins. It is a defensive movement.

The player who serves must be located in the serving area, 1.5 metres far from the serving line. According to their trajectory, the serves can be short, drive, with an horizontal path and high.

The reverse serve also exists, but it is only used occasionally in the double modality. We will only study the short and the high serves:

a1- Short serve: if the player serving is right handed, his left leg must be placed forward. The body weigth will be delivered on both legs. He must hold the shuttlecock with his left hand, placed in front of the body. The right hand will be holding the racket by the grip and the arm will be straight backwards. The movement will be fast, dropping the shuttlecock, moving the arm from backwards to forward, until the shuttlecock is hit. The racket must be perpendicular to the floor or leaning slightly. This serve is mostly used in double matches.

Serving in badminton

a2- High serve: it is used to send the shuttlecock near the back line, by means of a very high trajectory, which will oblige the opponent to move a long distance.

All the movements needed are the same as in the short serve, with the only exception of the hitting moment, in which the racket will be forward and the palm of the hand will be placed looking up.

It is mainly used in individual modalities.

b-The lob: it is a high trajectory hit aimed at the back line. It is mostly defensive. It is normally made by moving the racket upwards, inferring a wide movement to the hit, mainly when the shuttlecock is very close to the floor in our own side. It can be also made from the upper part, offering then a more offensive movement.

B-Hits with a long, horizontal trajectory: in this group we can find the drive, the smash and the drop. The last one is included in this group because its trajectory is horizontal, despite being short. All these hits, with the exception of the smash, can be made on the right or reverse.

a- The drive: it is made at a medium height, with a long, horizontal trajectory, mostly used in double modalities, both on the right or the reverse. The shuttlecock is hit laterally at shoulder height, with a strong, directed hit.

To make it, we must place the racket behind our head, with the elbow at the shoulder's height, and the hand palm facing the net. The body must rotate a little bit backwards and the arm must go from the back to the front, at a shoulder's height, rotating the body back to its former position.

When we hit the ball, the arm is straight and we make a slight lateral step to the side, using the foot on the racket side.

Image of a drive in badminton.

b-The reverse drive: the arm crosses in front of the face towards the opposite shoulder, with the elbow risen at the same height and the racket behind the head, with the body slightly rotated to this side. The leg on the hitting side is placed forward and the arm must straighten quickly as the hit is made. Then, the movement stops abruptly, so the wrist will be the one which directs the hit.

Image of a reverse drive in badminton

c-The drop: it is the hit that sends the shuttlecock very close to the net on the opponent's field, when he is far from the net, generally near the rear line, so it becomes very difficult for him to get in time to answer.

It is a cheating point, considered so because the opponent thinks he is going to get a smash. This way, it is considered an offensive movement.

The drop can be short or long, depending on the trajectory of the shuttlecock and its distance to the net. It can be made hitting the ball from backwards or from upwards.

Image of a player trying to hit the shuttlecock **after a drop.**

d-The smash: Mainly offensive hit, always made from upwards, hitting the shuttlecock hardly from the side or the front. We place the racket behind the head with the elbow at the shoulder height, then we straighten the arm and we hit the shuttlecock over our head, in front if the wrist, bending it when we hit. We can also smash jumping at the same time if the trajectory of the shuttlecock is very high.

Smashing in badminton

Popular dances

Without any doubt, Spain is a country where the popular dances have been taken into account from the ancient times. We can check testimonies from the Classical times or the Medieval Age. The Romans already wrote about the beauty and elegance of the dancers in Cádiz. During the Renaissance, all these popular dances were risen to a higher category and were moved into elegant balls. At this time, all the different dances had been mixed, making it impossible to distinguish one from the other. Since then, they were divided into two large groups: dances related to war rituals from the ancient times on the one side, and dances related to religious ceremonies, from the Medieval times on the other side.

Image of a popular dance.

A- Dances from Castilla - La Mancha:

a- Danzantes y pecados (Camuñas (Toledo): eucharistic dance typical of Camuñas (Toledo). It is possibly a very old pagan dance adopted by Christians after some centuries.

b- Danza del paloteo y el cordón a la virgen de la piedad: very interesting dance of La Mancha, typical and traditional in Toledo, that has been danced since very old times.

c- Danza del cordon, de la carrera y del paloteo al Cristo de la Viga (Villacañas (Toledo): they are several different dances held in the village of Villacañas (Toledo) to honour the Christ of the Viga. It is the most characteristic and original dance of all the ones celebrated in Toledo.

d- Jota de la vendimia (Ciudad Real): Held during the harvest of the grape, its origin is linked to an old rural dance celebrated during the recollection.

e- Seguidillas: Very typical of La Mancha, they have different variations. At present, the two main locations where Seguidillas are danced are La Solana y Ciudad Real, considered both as the most beautiful dances ever. However, Seguidillas are danced all over La Mancha, as they are one of the best known dances.

f- Meloneras: This dance gets a different name depending on the place where it is danced. It is known as "boleras" in La Solana or "meloneras" in Daimiel. They are a variation of the Seguidillas, and they are danced at a slower pace, but they are not sung. They can be danced by two or four couples.

Popular dance.

g- Fandango: the fandango from La Mancha, together with its variations known as *rondeñas* and *malagueñas*, is very similar in its content and its music to the Andalusian fandango. This dance has got a lot of followers among old and young people, who consider it the new folklore.

h- Las Torras: This typical and traditional dance is not so well known and it is only practiced in small locations, such as La Solana, Daimiel, Villahermosa and Torre de Juan Abad.

Steps in a popular dance.

i- Bolero: it represents the pure essence of the folklore in La Mancha. Its lyric beauty leaves the viewer astonished at its sight.

j- Danza de las Ánimas: very old and traditional dance, mainly performed in the village of Albaladejo, from the Infantes Council. It represents the folklore from La Mancha as its deepest level.

3rd Term

Handball

History

Handball is a very young sport. Even if some authors place its origins in Ancient Greece, it really appeared in Germany, where Mr. Heiser created it to entertain the workers at Siemens in their free time. Not much later, Karl Schelenz changed some of the rules and he created handball with 11 players, which started to be known as "handbold". In 1947, the sport evolved and started to be played the way we know today. As it was mainly played indoors, handball teams of 7 players started to spread, mainly among the Nordic countries, precursors of this sport, due to their bad weather conditions.

At present handball is an Olympic sport in both categories, male and female.

In Spain this sport has followed the same path as in other countries. We first started playing with the 11 players' handball, as an evolution from soccer,
and little by little it evolved into the 7 players handball practiced indoors. According to the Spanish coach Juan de Dios Román, it was the Spanish Military School from Toledo the place and epicenter where the first regulations and the first technical projects on this sport were produced.

Image of a handball match.

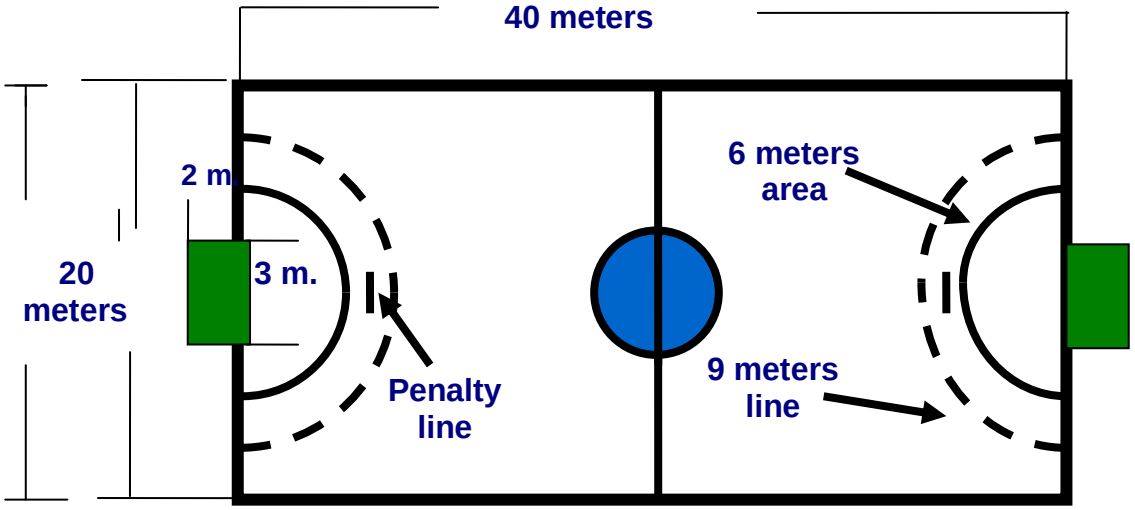
Rules

There are several groups to be considered:

1- General ideas.

The **goal of the game** consists on two opposed teams trying to score goals in the opposite side by using just the hands.

The measures and characteristics of the court are as follows:



A handball court.

The **ball** is a sphere and it weighs 450 grammes. A handball **team** is made up out of 12 **players,** but only 7 can be playing at the same time. One of them is the goalkeeper and he/she is dressed in different colours tan the rest of the team.

A handball match is supervised by two **referees,** who use a gesture language to communicate between them and with the two people sat at the table. One of them is in charge of the clock and the other one is noting down the result. This table is placed between the benches assigned to the different teams.

The **match** lasts 60 minutes, divided in two periods of 30 minutes each, and with a 10 minutes break in between. The clock never stops, unless there is an exceptional situation or they are throwing a penalty.

2- Faults and penalties.

They can be of two types:

A- Technical faults: they are made when the match is in progress.

There are three types:

a- Made on the opponent: An opponent can't be held, grabbed, hit or punched when trying to take the ball away from him. Depending on the importance of the fault, it will be penalized with a free kick or a penalty.

A player trying an attack while the defenders try to stop him.

b- About ball management: Players mustn't touch the ball with any body part below the waist. They mustn't keep the ball for more than 3 seconds. If they catch the ball twice or more without it touching the floor or other player, or if they bounce the ball with two hands, they make "**doubles".** Finally, if the player walks three steps holding the ball in his/her hands, he/she makes "**steps"**. All these illegal actions are penalized with a free kick in favor of the opponent's team.

Inside his/her area, the goalkeeper can touch the ball with the whole body without making any of the faults mentioned above, but if he/she leaves his/he area, then he/she becomes a normal player. When stopping a ball, if it goes out of the court through the end line, it is not a corner.

c- About the areas in court: the goal area, limited by the 6 meters lines, can only be used by the goalkeeper. Players can jump over it, but without stepping on it. If they do so, they will be penalized with a penalty. Stopping a throw inside this area or even passing the ball to your own goalkeeper is also considered penalty.

A **free kick** is a throw made after a fault has been committed. It is thrown from the place where the fault was made, except if it has been made between the 6 and 9 meters lines. If this is the case, the throw is made outside the 9 meters line, and the opponents' team can place a defensive barrier to defend their own goal.

A barrier trying to stop a free kick throw.

A **penalty** is blown when the fault committed impedes a clear goal situation. It is thrown from the 7 meters line, and only the goalkeeper is allowed to stop it.

A player throwing a penalty

B- Disciplinary faults: There are three different types of disciplinary sanctions, and they are applied when dangerous actions, faults done on purpose or lack of respect to other people take place:

a- Warning: It is used when faults are repeated several times, or the player is showing anti-sporty behavior. The aggressor will get a yellow card.

b- Exclusion: When a player has two warnings or makes repeated faults. The player will have to leave the game for 2 minutes.

c- Disqualification: If a player gets three exclusions, he/she will be disqualified. This particular player won`t be allowed to come back to the game, but after two minutes another player can substitute him/her.

Technical basics of handball.

The most important technical actions in handball are:

A- The basic position: it is an essential technical tool and it consists on keeping a position where your feet are parallel, legs in semi-flexion and the body leaning slightly forward. This position allows the player to do faster and more effective actions, both attacking or defending.

B- The throws: It is the final goal of an offensive attack. It needs a good technique, which has both power and precision. There are several types:

a- Free kick, penalty or static at the end of an action: The player catches the ball with one hand, prepares the arm, and throws from a static position. It can be done after a dribbling.

Finishing an action with a throw.

b- Suspended: The player throws the ball while being in the aerial part of a jump.

Suspended throw.

C- Passes: essential technical action which consists on passing the ball to a mate. It must be made with high precision, so it helps the receptor to keep on with the action easily. There are several passes:

a- Frontal pass: It is the most widely used. It begins from the basic position, with the arm ready and throwing the ball with a straight and forward trajectory.

Players training several passes.

b- Bounce pass: The same as above, but the ball follows a leaning trajectory to bounce before getting into his/her mate.

c- Suspended pass: done in the aerial part of a jump.

d- Hip pass: Here the ball leaves at the heap level, the trajectory going up and normally with some effect. It is used to pass the ball to the pivot.

e- Tray pass: It is used when both player and receptor are nearby, so the ball goes from one hand into the other.

f- Lateral pass: It is used to make the ball circle among the players when a static attack is in progress.

D- Receptions: It is the technical action consisting on catching the ball after a mate passes it. A good reception is essential to keep the possession and continue with the attack. The reception can be made jumping, standing without moving or running.

E- Bouncing: It is the action that allows the player advance with the ball under control. Bouncing is the action of throwing the ball against the floor and letting it come to your hands again, but without holding it. There are two types of bouncing:

a- High or offensive bouncing: It is used to go the fastest possible way to the opposite goal. The ball bounces high and in front of the body. It is mainly used in counter attacks.

Player doing an offensive bouncing.

b- Low or defensive bouncing: It is used to protect the ball when a defender is nearby. The ball must bounce low and it must be protected with the body.

Player doing a defensive bouncing.

F- Dribbling: the player begins a movement trying to make the defender to follow him; once the defender starts the defensive movement, the player changes the direction abruptly, so that the defender can't react or follow him.

A player doing an attack.

G- Blocking: there are two types:

a- Offensive: It is the one done by an attacking player, when he stops right in front of the defender, just when another team member throws the ball to the goal.

b- Defensive: It is a defensive action done by the defense, and it consists on stopping a throw to the goal, by catching or rejecting the ball. If the action is made by two players at the same time, they must stand very close to each other to get an effective action.

A player attacking while an opponent is trying to stop her.

Player's specialization.

According to the player's physical and technical qualities, they get specialized as the training takes place and they choose one or other position in the team. These positions are:

a- Goalkeeper: He defends the goal and he starts the attacking actions. He can touch the ball with any body part while he is inside his area, but when he leaves it, he has to follow the rules as the rest of the team. In tactical schemes he is always number 1.

Goalkeeper during a match.

b- Centre forward: He is the player that more directly faces the defense, because he must go in the middle of the barrier to try to open gaps to allow his team mates to throw easier from the area limits. In tactical schemes he is always number 6.

A pivot trying to go through the barrier during a match.

c- Back: They are players that are experts in throwing the ball, mainly in suspension. In technical schemes they are numbers 3 and 5.

A lateral player throwing the ball to the goal in suspension.

c- Winger: These players must be very fast and they have a great throw, mainly in suspension. They play in the further sides of the areas, close to the area line. In technical schemes they are numbers 2 and 7.

The wingers are fast players with a great throw.

e- Centre half: He is the player that organizes the team and distributes all the actions. He is always in the middle of the attack or the defense. In technical schemes he is number 4.

The centre half not only distributes the actions, but also throws the ball.

Tactics in handball

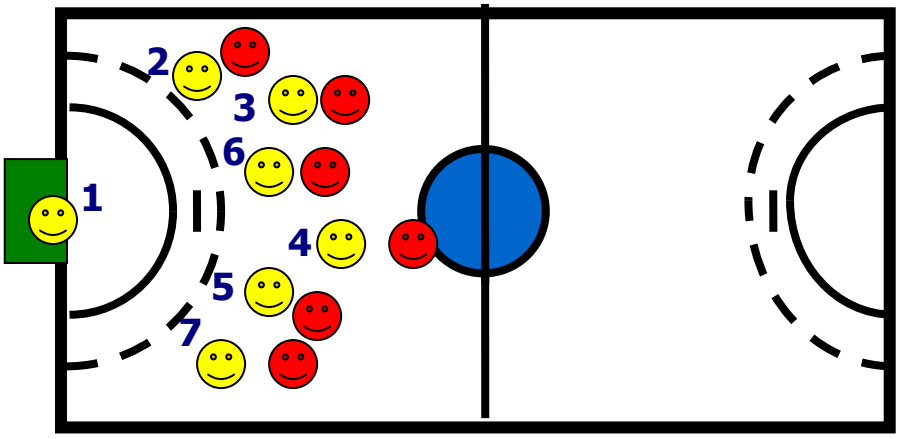
The players follow a game system or another according to the circumstances of the match. Tactical systems are divided in:

Players following a defensive tactic.

Symbols in the schemes: Defender player **X** Attacking player **X**

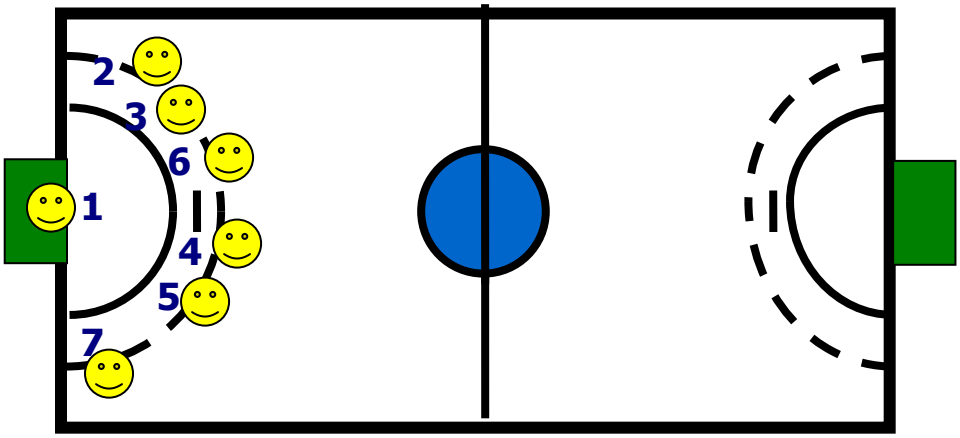
1- Defensive systems: Their goal is to stop the attacking team to score a goal. We can distinguish two systems:

A- Individual defense: each player is in charge of just one particular player. It is commonly used when it is urgent to recover a ball. It is a very risky system.

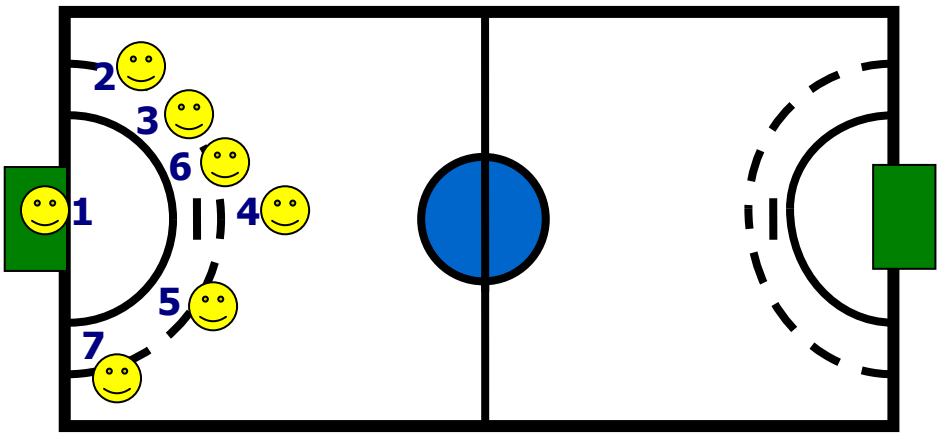


B- Zone Defense: its goal is to stop the attacking player to throw from a comfortable position. In this system, each player is responsible of a certain zone of the court. The most commonly used systems are:

a- System 6 – 0: It is the most basic defense and it can be used against any attack. All the players are on the 6 meters line, with their backs to the goal.



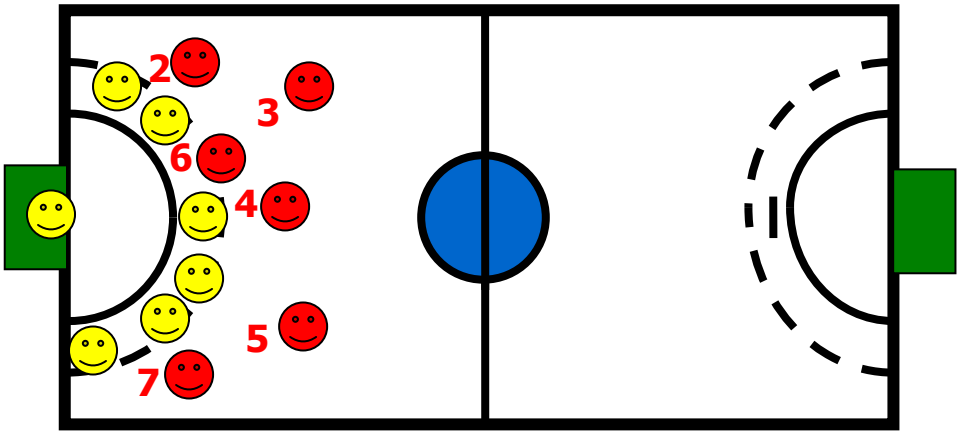
b- System 5 – 1: 5 players are placed at the 6 meters line and one player stands forward to stop the ball when the opponents pass it among them.



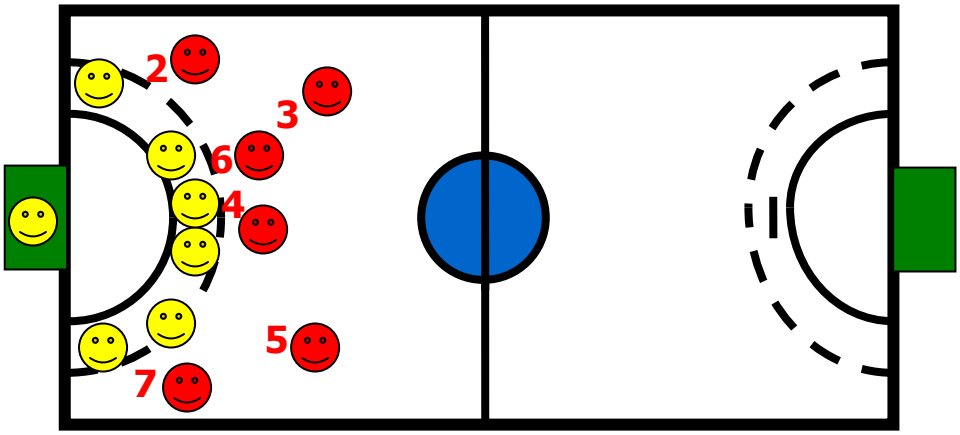
2- Attacking systems: the final goal is to score a point. There are several types:

A- The counter attack: It is a very common action in handball, since it is a very fast sport. It begins when one team recovers the ball or when the goal keeper stops it after a throw.

B- System 3 – 3: It is used when the six defenders are very closet o the area. Three players stand far from the area so they can throw against the goal, and three others play near the defense to open gaps.



C- System 4 – 2: In this system two backs play a bit further away from the area and the rest of the players, even the centre half, play near the area line.



Relaxing

The progressive relaxation of Jacobson

Edmund Jacobson is the father of a relaxation method known as "progressive relaxation". At the beginning of the century, he thought about a method to relax whose main aim was to reach the mental tranquility after having eliminated all the muscular tension little by little. This method tries to teach you how to relax all your body parts in a progressive way. Jacobson discovered that by stretching and relaxing several muscular groups, and by learning to pay attention and to discriminate the different feelings obtained after the tension and the relaxation, a person could eliminate all the muscular contractions, and this way, he could also learn to experience the feeling of a deep relaxation. He gathered all his theories in a book called "Progressive Relaxation" (1938), where he describes his theories and procedures. Four years before he had written "You should relax", a versión for non profesional readers. Since 1936 until de 70s, Jacobson kept on researching in the Laboratory of Clinic Physiology in Chicago. Since 1962, the basic procedure for relaxing included 15 groups of muscles. Each group was treated in different sessions lasting nine hours each. Before starting a new session, it was necessary to have finished with the previous group of muscles. A whole training lasted 56 sessions.

But such a large amount of time made it impossible for us to follow Jacobson's method.

Then, Josep Wolpe adapted this technique as a technique of countercondition, and shortened the time to six sessions of 20 minutes each, that coul be done at home in two sessions of 15 minutes each. The procedures used by Wolpe were similar to Jacobson's, stretching and relaxing muscles to achieve deep relaxation. With Wolpe's theories, an expert used to monitor the sessions by means of hypnosis or direct suggestion. However, at present, an expert must monitor the process by giving verbal instructions to make it easier for us to feel our bodies.

Image of a relaxing session.

Proper places for relaxing.

We advise to use common sense to find a good place for relaxing. So, try to avoid noisy or too luminous places.

A good place for relaxing will have these characteristics:

a- A quiet place, without stressing noises or bright, flashing lights, far from vivid stimuli.

b-Mild temperature, a warm room not too hot or cold.

c- Dull ligths.

Correct position for relaxing.

To relax, we can use different positions. The best ones are the following:

a- Lying on a bed or a sofa, with your arms and legs in a slight angle not close to your body.

b- On a comfortable armchair. It is convenient to use devices to hold your neck and feet.

c- Sitting on a chair, keeping a comfortable position.

Proper clothes for relaxing.

The only piece of advice here is to wear loose clothes. If your clothes are too tight, they won't let you relax conveniently.

Activities in nature.
Orienteering in open spaces.
A bit of history

Orienteering was born at the end of the 19th century, during some military training held in the Scandinavian countries. They were based on the idea of sending messages in an unknown terrain.
However, it wasn't until the end of the First World War, when it started to be considered a sport, with the first competitions.

In 1942 orienteering became a compulsory subject at Swedish schools. In 1961 the first Orienteering International Federation was created and in 1966 the first World Championship was held Fiskars (Finland).

The Orienteering International Federation establishes in its book of rules the limitations for the tracks and the rules for the orienteering races.

In Spain we have the "Agrupación Española de Clubes de Orientación" (AECO), and most of the numerous orienteering clubs in Spain gathered there in their different regions. They can give us topographic maps of nearby regions and areas close to our homes.

Orienteering maps.

Orienteering consists on following a path in an unknown natural environment, helped by a map and a compass, knowing where we are at any moment.

The map is a key tool in orienteering. If we can make a correct interpretation of the map, we will make a good race. If we make any mistake when reading the map, we will waste time and we won't make a good race.

To help us, orienteering maps have much more information tan a normal one.

To begin with, these maps usually use a scale 1:15.000 or 1:10.000 (as different from the scale 1:25.000 normally used in mountain maps). They also have many details such as cliffs, lonely trees, vegetation details (thick forest, open areas…), rocks, holes or even objects never to be found in a normal map, as abandoned cars, a litter…

To get oriented in the map, follow these steps:

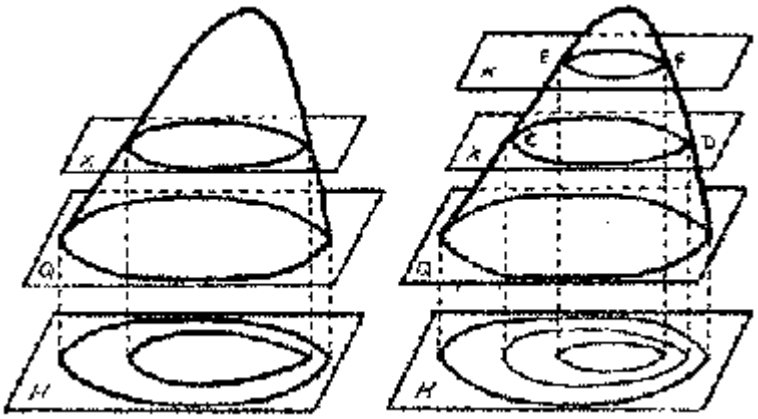
a- If there are clear references on the map (a railway line, a hill, a river, etc.), just rotate the map to make the mark coincide with the reference.

b- If there aren't clear references, we will need a compass. Place it on the map and turn it until the meridians (north to south lines) coincide in a parallel way with the compass needle (which always points at the line north-south).

Image of an orienteering map and a signaling flag.

When interpreting an orienteering map, we must take into account:

a- Contours: They are the base of a topographic map and also of orienteering maps. The theory explains that they are the resulting lines after inserting in the terrain a horizontal plane. This way they will tell us the terrain layout.



Graphic representation of a contour.

b- The equidistant: It shows the ramp which is represented on the map between two consecutive contours. The most common distance in these maps is 5 meters, which means that between two consecutive contours, the ramp will be of 5 meters. When the layout of the terrain doesn't allow us to define its shape with contours every 5 meters, we have two options: the first one is to use intermediate contours, called "auxiliaries", which will help us define the terrain at that point. If the normal contour has been represented with a brown line, the auxiliary line will have the same color and thickness, but in an intermittent line. The second option is to reduce the equidistant, but it is a very extreme solution, only found in very flat terrains. Besides, to make the reading of the layout easier, without getting the lines too close together, they can be drawn every 25 meters, or doing the same, painting 4 thin contours, representing the fifth one with a thicker line, called the "master contour line".

The orienteering track

In order to follow a track, we must know the terrain and ask for the necessary permissions in case we cross private properties, hunting areas, etc. we must also know places to be avoided, such as dangerous places or plantations.

The track must be carefully and previously planned. We must avoid actions that can be harmful for the animals or the plants. At the early stages, a track will be planned according to the difficulty of the terrain, its length will be related to the competitors' age (between 2 to 4 Kms.) and several controls will have to be made (between 4 to 8 kms.).

The compass

The runner must carry a compass, which must have the following characteristics to help location in controls:

a- Transparent plastic base and a small magnifying glass.

b- Direction arrow engraved on the base.

c- Different scales engraved on the side.

d- Needle normally mobile, with a circular shape and graduated from 0 to 360º with the cardinal points.

e- Meridian lines engraved on the base in the north-south direction.

f- An arrow pointing at the magnetic north. The magnetic arrow is painted in two colours (red and white or red and black). The red colour indicates the magnetic north.

Image of a compass

When using a compass, we must take into account some aspects:

a- One of the long sides of the compass is placed on the map, from the starting point to the destiny. We rotate the needle until the meridian lines have the same orientation as the meridian lines on the map. The north needle on the arrow must coincide with the north in the map.

b- The compass is held horizontally on the hand, and we turn it until the red part of the magnetic arrow coincides with the north arrow in the needle. As the compass arrow is magnetic, it will always point at the magnetic north.

c- Whenever we take a route, the compass must be correctly oriented on the map, with the arrow pointing at the destiny. The arrow at the north of the limbo must be pointing at the north of the map. It is convenient to practise, taking different routes on the map.