

THEORY OF FIRST TERM. PHYSICAL EDUCATION: 3rd E.S.O.

1.- WHAT IS THE PHYSICAL CONDITION?

It is a set of characteristics of our body that allows us to perform any physical activity in an appropriate way. When a person gets tired easily when doing a physical activity, we say that he/she has a weak physical condition. When we perform physical activities without getting exhausted easily, we say that he/she has a good physical condition.

1.1- WHAT DEPENDS ON HAVING A GOOD PHYSICAL CONDITION?

- 1. GENES:** we inherit different characteristics from our parent through genes.
- 2. AGE:** our body improves its physical condition naturally up to the age of 30. It is maintained until the 35, and then begins to get worse.
- 3. SEX:** it determines some aspects. Girls tend to be more flexible while boys are usually stronger.
- 4. TRAINING:** if we practice exercise regularly, we can improve our physical condition.
- 5. HEALTH HABITS:** smoking, diet and rest are some aspects that affect our physical condition.

1.2.- WHAT ELEMENTS MAKE UP THE PHYSICAL CONDITION?

- **PHYSICAL OR MOTOR QUALITIES:** coordination and balance.
- **RESULTING ABILITIES:** agility and skill.
- **BASIC PHYSICAL ATTRIBUTES:** strength, speed, stamina and flexibility.

2.- STAMINA

2.1- WHAT IS?

It is the ability to perform prolonged periods of physical activity. Depending on the energy production, It can be aerobic or anaerobic stamina.

2.2- EVALUATION

We have evaluated the stamina through the **Course Navette test or beep test.**

2.3- TYPES

Aerobic stamina: the ability of the body to continuously transport oxygen throughout its various systems for extended periods of time.

- **HEART RATE: 120-170 bpm**
- **TIME: 4 minutes - 2 hours**

Anaerobic stamina: when the oxygen contributed by our organism is not enough.

- **HEART RATE: +170 bpm**
- **TIME: 20 seconds - 4 minutes.**

2.5- SPORTS

The **sports** which the stamina is very important are:

- Athletics (short and long distance)
- Handball
- Basketball
- Motorcycling
- Skiing
- Triathlon
- Cycling
- Swimming

2.6- TRAINING METHODS

- **CONTINUOUS SYSTEMS (aerobic stamina):** there are **no breaks** in its development. Long periods of work. For example, running for 30 minutes keeping the same pace.

Working time: between 10 minutes and 2 hours.

Intensity: moderate. Your heart rate has to be under 170 bpm.

- **INTERVAL TRAINING (anaerobic stamina):** periods of intense work separated by short recovery pause.

Working time: between 40 seconds and 2 minutes of work and 1 minute of rest.

Intensity: high. Your heart rate has to be over 170 bpm. On the resting periods, the heart rate has to go down till 120 bpm.

Progression: increase the number of the series, the working time, decrease the resting time, etc.

- **FARTLEK (anaerobic stamina):** this method consists in changing the intensity of the exercises, alternating periods of low and high intensity.

Working time: between 15 and 60 minutes.

Intensity: varies between low – moderate – high.

Progression: increase the time, the distance, etc.

2.7- BENEFITS OF TRAINING

If we train the stamina, we are developing our **cardiovascular system**.

This means that produces an increase of strength contraction and volume of the heart. In order to send the same quantity of blood to the muscles, the heart has to beat less times. That is, we are increasing the **heart efficiency**.

3.- STRENGTH

3.1- WHAT IS?

Is the ability of lifting or moving heavy weights. We have 3 types of strength: explosive, maximal and endurance.

3.2- TYPES

Explosive strength: the ability of lifting or moving a weight in a short period of time. For example, a jump or a launch.

Maximal strength: the ability of lifting or moving the greatest possible weight in a single contraction, for example weightlifting.

Endurance strength: the ability of lifting or moving a weight many times over for a long time. For example, rowing.

3.3- EVALUATION

We have evaluated the explosive upper body strength through the **overhead medicine ball throw test**.

We have evaluated the explosive legs strength with the **standing long jump test**.

We have evaluated the abdominals endurance strength through the **sit ups test**.

3.4- SPORTS

The sports which the strength is very important are:

- Weightlifting
- Athletics (long, height and triple jump)
- Judo
- Boxing
- Kung- Fu

3.5- TRAINING METHODS

- **CIRCUIT TRAINING:** composed by different stations with different exercises where you work different muscle groups. For example, abs, triceps, quadriceps, deltoid muscles, gastrocnemius, etc. The circuit

Working time: you can divide the work in repetitions or time.

Resting time: between the different stations you need time to recovery, it depends of the capacity you are developing:

Explosive strength: not many working time (10-20 seconds) – long period of resting. (1-2 minutes)

Endurance strength: long time of working (20-60 seconds) and short period of resting. (30-60 seconds)

3.6- BENEFITS

If we train the strength, we are developing our **muscular system**.

The most important benefit is the increase of the muscle size, but there are others as, for example:

- Improvement of body posture.
- Prevent injuries and diseases.
- Improve the bone density.

4.- SPEED

4.1- WHAT IS?

Is the ability to perform actions in the shortest possible time.

4.2- EVALUATION

We have evaluated the speed through the **10x5 test** (10 meters x 5 times). This test evaluates the acceleration and displacement speed, not the reaction.

4.3- TYPES

This year, we are going to see three different types of speed. Reaction, acceleration and displacement.

Reaction speed: the ability of doing a movement in the shortest possible time in the presence of a stimulus. That is, the time between the presence of a stimulus and my reaction.

Acceleration speed: is the ability of increasing my speed in the shortest possible time. That is, the time between we react and we acquire the maximum speed.

Displacement speed: the ability of moving to the maximum speed.

4.4- SPORTS

The sports which the speed is very important are:

- Athletics (100m, 400m...)
- Soccer
- Handball
- Rugby
- Cycling sprint

4.5- BENEFITS

If we train the speed, we are developing our **nervous system**.

- Improves the ability to resist short-duration efforts.
- Decreases the reaction time to a certain stimulus.
- Improves the execution speed of a particular movement.

5.- ENERGETIC RESOURCES

The most important resource is the **ATP: ADENOSIN TRIPHOSPHATE**. All our muscles move because of this molecule.

The different foods (carbohydrates, fats and proteins) are degraded for the organism to produce ATP. The ATP can be in different forms at the beginning: free ATP, PHOSPHATES, GLUCOSE OR FATS.

Depending on the duration and intensity of the exercise, it can be used by the aerobic or anaerobic way.

OXYGEN ON THE REACTIONS	RESOURCES	TIME (EXERCISE)	EXAMPLES
ANAEROBIC (NO O₂) (1 – 60 SECONDS) HIGH INTENSITY	FREE ATP	1-10 SECONDS	A JUMP
	PHOSPHATES	1-30 SECONDS	SPRINT 30 M
	GLUCOSE	30-60 SECONDS	SPRINT 200 M
AEROBIC (O₂) (1 MINUTE – 3 HOURS) LOW INTENSITY	GLUCOSE	1 MINUTE – 3 HOURS	SLOW RUNNING
	FATS	25 MINUTES – 3 HOURS	SLOW RUNNING