ENDURANCE

*"Most runners run not because they want to live longer. They do it because they want to live to the fullest "(*Haruki Murakami, writer)

"Endurance makes your muscles and heart stronger and your soul happier" (Carmen Félix Vidal, your teacher)

ENDURANCE:

It is the basic physical and psychological ability to maintain an effort, without diminishing the performance.It allows you to significantly improve your physical condition and it therefore prepares you to be better at your favorite sport. Having a high level of Stamina(endurance) also helps you to be healthy and it enables you to do daily tasks more efficiently.

1. TYPES

- **Aerobic endurance (+15')** It is the ability to perform and extend a low or medium intensity effort for a long time, with a sufficient amount of oxygen. Your heart rate will be between 120 and 170 ppm. I.e. 10000 meters, triathlon, road cycling.
- **Anaerobic endurance**: It is the ability to perform and extend a high intensity effort without the sufficient oxygen amount. Your heart rate will be over 170 ppm.
- *** Alactic anaerobic endurance (1''-20'')** It doesn't produce lactate (waste product which is produced when working at a high intensity). Example:100 metres in athletic, sprints in sport teams, etc.
- *** Lactic anaerobic endurance (20''-2')** It produces lactate. Examples: 400-800 metres in athletic, 200 metres in swimming and indoor cycling.

AEROBIC WORK AREA

To control the intensity of the activity, consider your heart rate (HR). Your heart rate is how many times your heart beats per minute. Your maximum heart rate (MHR) is **220 minus your age. (MHR = 220-age).** It could be: 220-16= 20 beats per minute.

Your **aerobic work area** is between **60% and 85% of your MHR**. (Between (MHR x 60) :100 and (MHR x 85):100). It means that your aerobic work area will be between: **122** and **173 beats per minute.**

2. **ANAEROBIC THRESHOLD (AT):**

It is called too lactate inflection point (LIP) or lactate threshold (LT). It is the exercise intensity at which **lactate** (more specifically, lactic acid) **starts to accumulate in the blood stream**. This happens when lactate is produced faster than it can be removed metabolized in the muscle. When exercising at or below the AT, any lactate produced by the muscles is removed by the body without it building up.

Theoretically, it is place **around 85% of the maximum heart rate** (MHR) of the person. Thus, training increases it.

3. ENDURANCE TRAINING METHODS

3.1. CONTINUOUS METHODS

They are based in the realization of a series of repeated actions during a long period of time, without pauses in the middle.

a) Continuous race: it consists on running without pauses with a continuous pace. I.E. 10'cr or 30'cr (continuous race)

b) Fartlek (Speed play): It is a continuous race where slow and fast distances combine. It is a mixed aerobic-anaerobic endurance training. Depending on the orientation we will search more the development of one or the other. I.E. 5' with 2x (2'-1'-30") r: 1' active / 5' C.R. with x 4 x (150-100-50) r:100 mts.

3.2. FRACTIONED METHODS

They are based in the workout stimulus and rest periods.

a) Interval training:

Is a type of discontinuous physical training that involves a series medium intensity exercise workouts interspersed with rest periods.

- Short distances: 100-300 mts.
- Medium intensity
- High repetitions number: 8-15
- Recovery between repetitions: 30-60''.
- Examples: 12x100 r: 30" / 10x200 r:1' / 8x300 r:1'

b) Repeated distances:

This system is called **Series** too. The distances are longer than in interval training system.

- Long distances: 500-2000 metres.
- Medium intensity.
- Low number of repetitions: 3-6.
- Medium recovery: 2-4'
- Example: 4x500 r:3' / 3x800 r: 2' 2x1000 r:3'

4. **TESTS:**

Aerobic endurance: Cooper test: (run the furthest distance you can in 12 ')

Anaerobic lactic endurance: Course Navette (the pupil is moving from one point to another located 20 meters away and made a U-turn at the rate indicated by a beep that will gradually accelerate.