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CONSIDERATIONS ON THE MICROCLIMATE OF THE TRAINING AN ATHLETE

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Abstract: *The work refers at the conditions, which need to meet them in the microclimate case that an athlete trains, for better performance levels required races. Remove all the aspects required in retail exhibition workouts, which are refer under: ambient temperature, ambient humidity, atmospheric pressure, noise, lighting, contact surface, and vibrations that can apply to the athlete, or that it is subject to involuntary.*
Key words: *ambient conditions, microclimate, training of an athlete*

1. INTRODUCTION

The conditions that an athlete make its training shall constitute a special category of factors that may influence its performance and aptitudes. The most important factors (other than psycho-social factors) are the physical, chemical and biological agents (Table 1).

Table 1.
Most important factors for the athlete training

Physical factors	Microclimate: temperature, humidity, air currents, calorific radiation; atmospheric preassure; noise; lighting; functional colors; functional music; vibrations; infrasounds; ultrasounds; radiation: infrared, bright, ultraviolet.
Physico-chemical factors	Powders: organic anorganic, synthetic.
Chemical factors	Toxic substances in gaseous, liquid or solid state.
Biological factors	Micro-organisms.
Psycho-social factors	interpersonal relationships; temperamental peculiarities; aspirations; training style.

Besides these characteristic factors of environment, of training ambiance, there are the different factors that have a direct influence on the physiological performance of the human body, there are a number of external factors, which exert influences on the different stages of the movement, such as [Ber 05]:

- tensile strength and elasticity of soil;
- gravitational acceleration.

2. THE MICROCLIMATE

Microclimate constitutes a group of physical factors from the rooms and areas of an athlet workout, which includes:

- *ambient temperature* – radiation of surrounding areas and air temperature*;*
- *humidity – by water vapour, steam, ventilation*;
- *air movement* – movements due to the different air volumes caused by unequal heating;
- *calorific radiation* – electro-magnetic waves of particles propagation (quanta).

2.1. Ambient temperature

Temperature is a factor of ambience, with effects on health status, the effort and the results

of the athlete training. The man recognizes the temperature when there's a feeling of cold or hot, that triggers due to the imbalance of thermal conditions of the environment and the human body [Ben 90].

Depending on the ambient temperature, the man through skin analyzer, develop a feeling of warm (caused by the action of objects with a higher temperature than skin temperature: 32-33°C – is considered zero physiological) or cold sensation (caused by the action of objects upon receptor skin with a temperature lower than the temperature of the skin).

The making of a corresponding ambient heat of a physiological body in the comfortable condition (subjective temperature) is based on a stable balance between temperature and humidity environment (Fig. 1). This determines the realization of a workout with maximum efficiency for an athlete.

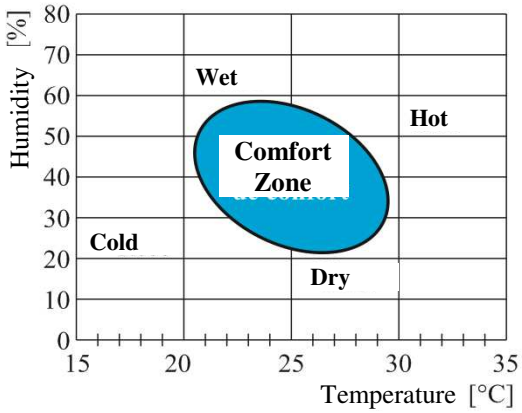

Fig. 1. Comfort zone depending on temperature and humidity

The temperature of the working environment influences the health and performance of subjects by:

- the combination of temperature with humidity (Fig. 1);
- duration of exposure to thermal conditions outside your comfort zone, in which case the acclimatisation is necessary;
- the temperature of objects and devices with which they train. Big differences (over 43°C object temperature or below 0°C) between body temperature and the devices can produce the feeling of pain or even destroy the tissues.

Prolonged exposure to heat stress may cause various diseases due to reactions that occur during the process of heat transfer at the level of the human body, such as cramping, characterized by painful muscle spasms and muscle exhaustion, characterized by numbness, dizziness. These diseases represent only those notable due to their effect on the muscular system and locomotion system.

2.2. Ambient humidity

In order to establish the relationship between ambient temperature and humidity, there is a dependence relationship, which can be analyzed using the Figure 2.

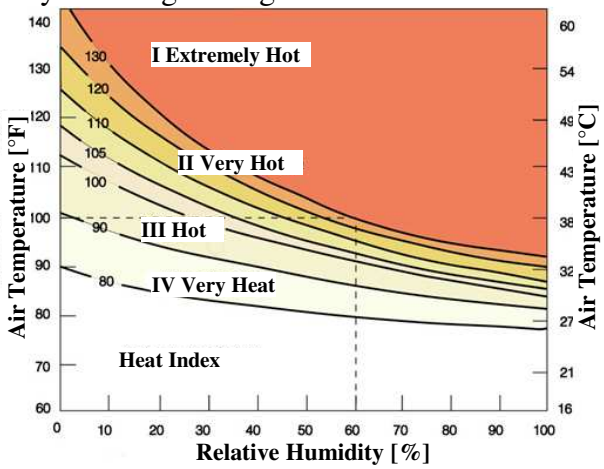

Fig.2. Heat index map

The amount of water vapour in the atmosphere (water droplets or ice crystals), is expressed as a percentage by the ratio between the amount of vapour in the air at any one time and the maximum possible (when air is fully saturated). Organic comfort is in the range of 25 to 75%:

- under 25%, the negative repercussions on the structures and functions of the respiratory lining that ensures the elimination of impurities (including bacteria) in the air;
- over 75%, according to the provision of heavy acting negatively on thermolysis process (up to heat shock).

Usually uses the term "heat" which includes factors: temperature, humidity and air circulation [Chi 00].

3. DISRUPTIVE FACTORS AN ATHLETE IN TRAINING

An athlete in training there are disruptive factors that modify its performance, depending on the type of training and the place in which it takes place. Training can take place:

- ✓ in closed-space – in an workout room, in a nacela, in a vehicle;
- ✓ free-space – for cyclists, skiers, runners, long jumps, jumps with jamie, bikers, tennis players, parachute jumps;
- ✓ in liquid medium – swimmers, jumps from springboard, divers;
- ✓ in combined medium – for athletes who practice in parallel more sports, or for those that apply complementary training, in order to improve performance for sports discipline, for which he has been training.

Regarding these issues, this paper presents some elements related to the factors, which influence negatively the performance of an athlete's training.

3.1. Pressure

The pressure is important, if the athlete operates under water, or high [Bat 10].

For works under water the pneumatic caisson is used (a room where a high pressure air), sluicing rooms, which compress and decompress [Hol 06]. An important aspect is the "drunkenness of the deep" (driven by euphoric serious low-oxygen flow to the brain stem level), due to the winding-up of a much larger amounts of nitrogen in the blood.

To avoid negative situations settled tables with the length and speed of sluicing, respectively immersion, in relation to the possibilities of eliminating elevated quantities of gas in the blood and body tissues.

3.2. Noise

Although we are constantly surrounded by sounds, d in any other place, in most cases we can work while ignoring "ambient noise". But with the increasing level of noise (standard), it becomes a pollutant of the living and working environment, permanent, unwanted, which adversely affect the level of professional performare, being very often cause fatigue, rage or decline in quantitative and/or qualitative level of work performed [Con 11].

To understand the effects of noise on the human subjects it is necessary to understand the nature of the sound. Any collisions (mechanical energy) propagated through a material medium in the form of a where it's called sound. Sound waves may not be moved into the vacuum, because the vibrations are transmitted through particles in the environment, thus the speed of sound depends on the density of the environment propagation (Fig. 3).

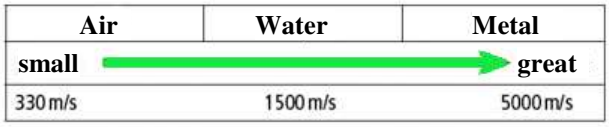

Fig. 3. The speed of sound through various mediums

Noise is an important cause of growth and the frequency of accidents by [Cot 10]:

- ❖ to prevent the collection of sound signals or commands;
- ❖ subtraction and distraction;
- ❖ decrease precision of movements;
- ❖ balance disorders.

3.3. Lighting

Visual sensations and visual analyzer plays a primarily role from human activity, and in being involved in 90% of reception of the information.

Because of this, an appropriate lighting (artificial or natural) constitutes a decisive key in getting performance.

3.4. Contact surface

Studies on the vertical posture control shows that SNC is able to adjust to different types of disturbance of the surface features and support. Previous studies on the disturbance of the equilibrium along the bipedal locomotion have suggested that recovery strategies are organized similar to the strategies used to maintain vertical posture [Bog 02].

Areas of particular importance contacts both in the control of posture and coordination of locomotion because it determines, through the coefficient of friction, reaction forces that have a factor particularly in the context of the movement in order to evaluate posture, balance and stability [Kut 09].

The strategy of a subject adaptation at a surface with a low coefficient of friction would entail an increased strength in the area of the detachment of the leg (thumb) and depreciation of the contact in the heel area.

4. CONCLUSIONS

The microclimate of the training an athlete is decisive in achieving their performances, sports discipline in which the appropriate it training.

Everything surrounding him and it requires an athlete, perhaps to boost sports in increasing their performances or maybe to diminish possibilities of evolution towards higher performances.

It is therefore necessary to adopt a microclimate of training adapted to every athlete to achieve the desired performance in a timely manner.

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Consideraţii asupra microclimatului antrenamentului unui sportiv

Rezumat: *Lucrarea se referă la condiţiile, pe care trebuie să le indeplinească microclimatul, în cazul in care un sportiv se antrenează, pentru realizarea unor performaţe necesare intrecerilor. Se scot in evidenţă toate aspectele necesare desfăşurării antrenamentelor, care se referă la: temperatura ambientală, umiditatea ambientală, presiunea atmosferică, zgomotul, iluminatul, suprafaţa de contact, vibraţiile ce se pot aplica sportivului, sau la care acesta este supus involuntar.*

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