

ELECTRONIC EAR AND SPORT

To be pre-eminent in a sport, it is obvious that full athletic qualities are necessary together with a perfect knowledge of the techniques and rules of the sport which has been chosen. Nevertheless, after the athlete's different specific trainings, those conditions once carried out, will not be sufficient if in any case, he is not highly conscious of his body, as sport practice requires full commitment of the human-being with his body.

It may even be asserted that psychological approach should take place before technical approach. Knowledge appears as the reflection of the other's knowledge and is derived from personal discovery and the discovery of one's ego. Technique may be taught and understood but it is not sufficient, and it has to be progressively integrated in a body-image so as to give motory direction, harmony, balance and action uniformity.

What is the meaning of "body-image" for a athlete ?

First, the word body-image means neither the external perception that one can have of his own body, nor a photo ; In fact, it might be possible to say that the body-image is the image that one has of oneself. In fact, it is the mind and the body mechanisms integration. Man's body is the prolongation of his thought.

About 150 years ago, the French philosopher Maine de Biran, had analysed this problem grounding his psychology on "self" consciousness perceived in the voluntary effort, and his ontology of metaphysical subjectivity insists on the value of the effort which is being accomplished, allowing to understand the internal experience of transcendancy.

Body must not be directed by mind but there must be a dynamic expression of direct and instantaneous intentionality, a solid harmony of the whole being. The "Ego" must act directly, immediately between the movement and the human-being in a complete integration.

Let us take the shooter as an example : When at the final moment, his eye meets the target, he is already completely projected on itself.

All spatio-temporal coordinates have disappeared and the being, the arrow and the target, are concentrated and make a whole.

It is the same with a footballer whose body-image must integrate the ball. The footballer who will have a wrong body-image will automatically have difficulties to locate himself as regard to the ball direction. It means that the ball will remain outside the body-image dynamics which should include all the significant elements of the project. The body remains a by-stander and displays its own space-time dimensions outside the ball direction.

In his book "La Libération d'Oedipe", Professor Tomatis tackles the matter of the body-image as far as Sport is concerned :

"Some sports or some techniques will thus become a prolongation of the body, such as tennis, pelota, billiards for example. The dialogue between the body and the ball brings about a thorough knowledge of the attitude, in an approach to call upon intelligence so as to play with the object. The matter is to know the kinetic characteristics of a body and take advantage of all its possibilities, to meet the requirements of an imposed rule. Apprenticeship calls upon human genius to create rules on one hand, and enforce them, on the other hand, according to the body-image towards the object".

In a sport competition, with similar technicality and physical condition, the winner will be the one who will have the best body-image i. e. : the best conscious field image. Once he has come to it, he will be able to control his concentration and selfcontrol possibilities which will fail the opponent.

Thus, one may realise how important is the body-image as far as sport is concerned ; and to make his player get this image, the psychism-intangible object, will be one of every sport-manager's most important care.

The discovery of Audio-Psycho-Phonology and the approach of this science made me immediately understand what it could bring, as far as sport is concerned. As the manager of a sport federation, I was all the more interested in this subject as I knew the psychological problems

of our athletes and the difficulties we met to solve them. I knew that, thanks to these new techniques, it was possible to study on one hand, to what extent a athlete could control his coordinations and on the other hand, to restore a deficient homogenization with the help of Electronic Ear.

Besides, once I was sure of it, I wanted to apply this new method so as to study reactions and improvements. I was able to make an experiment with ten high competition athletes at the "Institut National des Sports" in Paris, under the control of Pr. Tomatis. Let me tell you that we had the results I expected, and with some athletes it was really tremendous. Once the results have been known, the French Sport Ministry started to study with great care how to apply Audio-Psycho-Phonological methods to sport, and recently, Pr. Tomatis has been asked by Sport Ministry to give a lecture to the National sport managers at the "Institut National des Sports".

How will it be possible to bring an athlete to have a better body-image ?

First, we are going to check his neuronical control capacity with laterality tests.

What does laterality mean ?

When one speaks of laterality, it implies right or left, and it is usual to think laterality means that, when an individual writes or plays sport with his right hand, he is right-handed and contrarywise, that he is left-handed. One might think as well that the footballer who uses his right foot to shoot does not use his left foot. This is entirely wrong, as, in this case, the left foot is as important, if not more important than the right to secure support ; the shot can be accurate only if all the right and left gestures are perfectly balanced and coordinated. This idea of right or left will not be obvious with a gymnast on parallel bars or an horizontal bar. There is no longer right or left, everything is integrated, and great gymnasts have smooth harmonious gestures and enjoy an ideal body-image. There is no right without left and vice-versa, as the individual is a whole ; because involved inside, there exists muscular and sensorial phenomena as well as an equal quantity of right and left potentiality. One has to know that out of 5 neurological fibres leaving the brain, 3 are crossed and vice-versa, and that on the other hand, on spinal cord level, direct tracts are more important as far as their number, their intensity and their dimension are concerned, than crossed tracts. The spreading of the latter which seems to be the fundamental element to ascertain that there is a right and a left, is a legend. Laterality corresponds to an entirely dynamic structure.

The two brains where the neurological fibres come from, have not the same functions, the left brain being the active one, the right, the controller. It is obvious that if the left active brain is made to reach homogenization or full laterality, the subject will have quicker and more accurate gestures. Finally, he will have a better control of his body, a perfect body-image.

The perfect laterality insists especially on the right. It may be physiologically explained, all neurological circuits which go to the brain are 200 times shorter to the right, than to the left. It follows that it will be quicker to harmonize all the potentialities of an athlete whose motricity is on the right than of an athlete whose motricity is on the left.

As far as the latter is concerned, we shall hyperlateralize him as we know that if his motricity is on the left, he is not cortically different and it is the same left brain which has to do the work controlled by the right. With a motricity either on the right or on the left, it is still the same left brain which will do the active work. With an action on the latter, we shall be able to obtain a perfect homogenization.

At the beginning, laterality tests will give us full information on his coordinations from motricity to sensoriality. According to the results of these different tests, we shall then be able to start the treatment with the ear.

It is important to know that the ear has several functions : one of the most important : it is the essential organ which re-charges the brain with electric potential. It acts as a dynamo. The ear by itself may produce more than 90 % of the cortical charge and at the spinal cord level, controls all the front-roots which correspond to the emergence of the nerves reaching all the muscles. Thus, there is no muscle which is not controlled by the ear with the auditory nerve.

One realizes immediately how this re-charge is important as far as sport is concerned, when one knows that thanks to Electronic Ear, it will then be possible for an individual to receive sounds very rich in high harmonics, which will lead him to become more and more dynamic, thus less sensitive to tiredness and stronger towards effort.

As far as sport is concerned, let us remind that conditioning will in fact occur by a muscular phenomenon as Electronic Ear will have an effect upon 2 muscles : the hammer and the stirrup. The latter is the smallest muscle of the body (6 mm).

Another important fact ; the tympanum is innervated by a nerve, called the pneumogastric nerve or vagal nerve, which controls all the affective life. As one knows, this nerve acts upon anxiety and anguish, which is very important for an athlete. The reaction of this nerve may lead the athlete to a failure in a contest. Many athletes have come to exceptional results outside competition, and faced to their opponents

in a championship, they are unable to repeat them only because they are unable to overcome their emotivity and lose their own resources. This nerve innervates the pharynx as well and gives angina. It innervates the motor larynx, which may let the individual voiceless after great emotional shock. It innervates the sensitive larynx which gives the impression of a ball going up and down, showing anxiety. It innervates the neck, the bronchi, the heart and the coronaria, which are vital for an athlete. It is worth pointing out that with an Electronic Ear treatment, ten athletes' electrocardiograms ordered by the I. N. S. doctor, have allowed to notice a better heart recovery after the effort made during a competition. It innervates all the viscera up to the anus.

Everybody has to be conscious of the part played by this nerve especially when one knows that it is controlled at the tympanum level, the individual shall always keep his tonicity in a competition whatever the stake may be, and he will no longer be overwhelmed by his emotivity.

With the ear, some information sent to brain by Electronic Ear, will thus allow every athlete to re-charge his brain and consequently to obtain a perfect laterality, thus better psychic possibilities.

Moreover, to give an athlete a better conscious field, will allow him to have a better communication with others, and his integration inside a team will be easier. Every director or sportmanager knows how it is difficult to get what is called, "the team spirit". Failures in this field come from the fact that psycho-social phenomena inside the group are not interpreted in an identical way by all the participants. To come to it, all the team players have to move from the individual social environment to the group social environment, and in fact, they have to reach what is commonly called, the same "wavelength".

The Electronic Ear will allow to obtain this same "wavelength" which will be translated by a similar listening graph. With a more opened ear, the dialogue between each other will be easier.

Finally, the Electronic Ear plays an important part as well, as far as memory is concerned. We know that with the right auditory nerve, we shall be able to reach this almost isolated part of the brain system, where the nominal memory is issued from, and thus obtain a better memorization. The individual will then obtain a better bodily memory which is the brain memory of all sport automatisms.

As a conclusion, we may ascertain that the experiment performed at the I. N. S. has brought the evidence that the Electronic Ear can play a leading part as it allows the athlete to improve more rapidly, relieved of all psychological blockings. The athlete in full possession of his own resources, will then reached a standard corresponding to his potentialities.