ABSTRACT OF THE DOCTORAL THESIS

EFFECTS OF CHANGES IN THE REGULATIONS ON THE TECHNIQUE AND TACTICS IN PERFORMANCE SABRE

LUPU CRISTIAN ROMEO

The research approaches the perception of changes in the regulations and their reflection in the technical-tactical evolution, through the study of the actions carried out between 1996 and 2012 at the main sports competitions, in order to see the tactical situation in each period comprised between two Olympic cycles, the tactical actions that were predominantly used, their spatial localization on the fencing area and what the trend is.

We also want to see if it is possible to construct a pattern which the coaches can apply in the future in the technical-tactical preparation of the sabre fighters.

Throughout the years, from our perspective, three modifications have left their print on the sabre at the world level. 1 - introduction, at the Seoul Olympics, of the electric apparatus. 2 - elimination of the cross-step forward and the fleche in the sabre event. 3 - diminution of the blocking time to 360ms.

A very important characteristic in the tactical fighting is represented by the ability to gain the best distance, which places the opponent in difficulty. To the same extent, it is important to recognize and understand the opponent's intention to action and to mislead him.

Tactics is directly related to both the technique and other training factors.

Fencing, as an individual sports discipline, is characterized by technicality and combativeness. In a performance fencer, the preparation efficiency depends on the quick and optimum adaptation of the effort specific to competitions through: elimination of some useless or low-efficient means in favour of those specific to the respective event and individualization of all physical, physiological, biological, technical, tactical and psychic qualities and possibilities.

A Hungarian author of a fencing book, Zoltan Ozoray Schenker, wrote that a fencer must catch the moment when the opponent is totally or partially incapable of action and such a moment appears when the opponent makes a wrong movement with the weapon or legs, when his attention is distracted and he is not prepared for action.

In order to achieve this, a fencer must first of all possess a very good technique. In constructing an attack, three aspects should be taken into account: the moment, the appreciation of fencing distance and the speed. Anticipation is a weapon which any athlete, practitioner of this sport, should develop in training and especially to put it into practice in competitions. Anticipation confers the one who uses it a precious time in front of the opponent, and if this is also sustained by the knowledge of the actions that can be undertaken on the respective zone, it might become an extremely useful weapon.

Our entire work starts from the idea that the modifications of the regulations, issued throughout the history of fencing as a sport, have determined changes in the tactical and technical preparation. At the same time, we wanted to investigate the effects of the exercises established by us, for different fighting areas, on the preadolescent fencing practitioners, from the point of view of intersegmental coordination, eye-hand coordination, decision time and resistance to perturbing factors.

The thesis is made up of three parts: the first part represents the theoretical substantiation, the second part comprises the preliminary research, and the third part is destined to the formative experiment regarding the effects of modern fencing training on the psychosomatic optimization and the development of performance capacity.

From our point of view, the greatest achievement of modern fencing was the introduction of the electric apparatus to signal the hit received or given by the opponent. This might be called the zero point of modern fencing, which was possible due to the technological leap throughout the years. All the subsequent changes were requested by this apparatus. The technique to hit the opponent, the working distance, the tactics of a bout, the competitive system, all of these have changed, but also many others.

The sabre, one of the three weapons of modern fencing, was the last among them which has been submitted to the changes aforementioned. Starting with the year 1988, at the Seoul Olympics, the electric apparatus has become compulsory in all major competitions developed under the aegis of the International Fencing Federation: the Olympic Games, World Championships, Regional Championships, Grand Prix or World Cups, either we refer to individual or team competitions.

The research was conducted by monitoring the matches afferent to the period comprised between 1996 and 2012. The selection criterion for the

matches was given by the importance of the competition, which also included the value of participating athletes. The selected bouts were from some major competitions developed under the aegis of the International Fencing Federation, namely: the Olympic Games, World and European Championships, as well as World Cups.

The video images analysed were taken either from Youtube.com or from the personal film archive of Mihai Covaliu. Their analysis was performed frame by frame, using the freeze-frame procedure.

Except for recording the actions leading to touches in different periods of time, another aspect we were concerned with was to identify the place on the fencing area where those actions were carried out. For this, to make it easier to understand, we divided the strip in three zones, as follows:

- Zone 0 – comprised between the two on-guard lines;
- Zone 1 – from one's own or the opponent's on-guard line to the 2m line;
- Zone 2 – from the 2m line to the end of the strip.

In the second part of the thesis, we conducted the preliminary research. This consisted of the video analysis of the matches from the World, European, Asian and Olympic Championships between the years 1996 and 2012. The research was made on a group of athletes from different countries with a tradition in fencing, such as: France, Italy, Russia, Germany, Poland, South Korea, China and Romania. These athletes are medallists at the Olympic Games, World, European or Asian Championships.

The subjects of the survey regarding the perception of changes in the regulations and their reflection in the technical-tactical evolution were 12 in number, other than those monitored in the video analysis. They are currently members of the Romania's national sabre team, while others are former Olympic champions or medallists at the World and European Championships, and also the Head of the Referee Commission within the International Fencing Federation.

The research hypotheses are three in number, as follows: dividing the fighting area on zones facilitates the capacity to analyse a bout; the technical-tactical actions are different, depending on the place where they are performed on the strip; due to the changes in the regulations, certain technical-tactical actions have not been used to the same extent.

The conclusions of this preliminary research have confirmed the research hypotheses, they also being reinforced by the results of the survey achieved among the athletes of the national team, coaches and international referees. These conclusions are the following:

1. Dividing the fighting area on zones was a necessity resulted from the analysis of the fencing phrases. Thus, it was easier for us to record the touches, but especially to localize them on the fighting area.

2. Knowing the main technical-tactical actions specific to each fighting area contributes to achieve the best tactics in the respective match and, at the same time, enables the athletes to anticipate the opponents' actions. The advantage of knowing the actions for each zone is given by the fact that there is a pillar on which any fencing phrase can be constructed, either if the athlete is in attack or defence. At the same time, it is possible to anticipate the next action that an opponent might initiate, based on his position on the fighting area. Anticipation is a weapon which any athlete, practitioner of this sport, should develop in training and especially to put it into practice in competitions. Anticipation confers the one who uses it a precious time in front of the opponent, and if this is also sustained by the knowledge of the actions that can be undertaken on the respective zone, it might become an extremely useful weapon.

3. Achieving the tactical plans based on the information collected from the study of fighting zones. At the same time, the existence of a tactical plan offers us a better vision on how the fight will take place. Each opponent has, depending on the fencing school he belongs to, a certain trend in his way of fighting. Starting from this knowledge of the way in which the assault is approached, we can construct a guiding tactical plan. This will be modified throughout the entire assault, depending on the opponent's responses. Even if these tactical plans have only a guiding role, they must be drawn up, because they make the athlete feel more secure when he starts a competition, regardless of its scope. Due to the current competitive system, at the contests such as the World Championships or the Olympic Games, the future opponents or potential opponents are known before the beginning of the competition. Studying them and preparing a tactical plan represent an advantage, and ignoring these aspects would certainly lead to failure in the respective competition.

4. Also from the analysis of the period comprised between the years 1996 and 2012, we have found that there are similarities between one's own and

the adverse zones 1 and 2, information that can be used to construct the tactical plan, but also in the process of learning some technical procedures.

5. The ratio between the attack and defence actions is almost equal, which has led us to the conclusion that, in the learning process, both of the actions should be treated equally, without making differences between them.

The third part of the thesis refers to the ameliorative experiment, which included 16 fencers, athletes aged between 9 and 14 years. We investigated the effects of the exercises established following the video analysis made in the preliminary research on different fighting zones, upon the preadolescent fencing practitioners, from the point of view of intersegmental coordination, eye-hand coordination and decision time.

The three hypotheses of the research are: the exercise programme applied induces significant differences in the case of preadolescent fencing practitioners, from the point of view of eye-hand coordination; the intervention on the subjective reality of preadolescent fencing practitioners through the preparation programme conceived by us induces significant differences in the case of intersegmental coordination; the preparation programme conceived by us induces significant differences in the case of preadolescent fencing practitioners, under the aspect of the decision time.

The study was conducted in the period between June and October 2014, at the National University of Physical Education and Sports (UNEFS) of Bucharest, in cooperation with the UNEFS Psycho-Pedagogy Laboratory, under the supervision of Psychologist PhD Mitrache G. and Psychologist PhD Predoiu R. The complex of exercises was applied to the athletes over 16 weeks, with a number of 6 training sessions a week.

The subjects recorded a significantly better performance in the case of the quick adaptation of movements to new actional demands, new perceptive conditions (conditions exerting the intersegmental coordination) and proved a significantly better capacity to memorize and operate promptly and correctly with the procedural knowledge (knowledge about the action, the procedures in performing a task). At the same time, preadolescent athletes improved their ability to perform motor operations supposing intersegmental coordination when an increase in the dynamics of situations occurred, they obtained a better ratio between correctness and time, they recorded a better reaction time to complex stimuli - which expresses the ability to trigger and perform motor operations in

optimum periods (it includes the speed of transmitting the nerve impulse, the time necessary to identify the stimuli of interest and the time necessary to select the appropriate response), involving the voluntary adjustment of the motricity dynamics, and they also processed faster the operative information, showing a better speed in the command and decision making, the production and development of motor movements supposing the intersegmental coordination, at the end of the exercise programme.

As regards the coefficient of resistance to a perturbing factor (which implies the intersegmental coordination under the conditions of the unexpected emergence of a signal stimulus, the distraction of attention), the coefficient of inspection of the perceptual field (which involves attentional montages, a volunteer effort, the constant maintaining of the vigilance state, commutativity - the rapid change of the eye gaze) and the coefficient of personal optimum rhythm (which refers to the number of errors, in situations exerting the intersegmental coordination), there are no statistically significant differences between the results recorded by preadolescents at the end of the exercise programme and their initial performances.

The personal contribution is represented by:

- The division on zones of the fencing area;
- The actions specific to each zone;
- An exercise programme that took into account the frequency and efficiency of the actions performed in the mentioned zones;
- The organization of a thematic after school, in order to provide the athletes optimum preparation conditions.

The research results were presented in two articles entitled as follows: *Effects of modern fencing training on the psychosomatic optimisation and the development of performance capacity*; *The technical-tactical evolution in performance fencing in the period 1996-2012, as a consequence of changes in the regulations*.

These two articles will be published in the next issues of the Discobolul Journal. Throughout the entire period of the research, I communicated with the top performance athletes making part of the men’s national sabre team and with the leaders of the Romanian Fencing Federation. Both the results obtained and the solutions proposed by us enjoyed their appreciation.