

POLEMICS

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Directing the process of training, taking competition and fencer's personality dimensions as a model

Submission: 12.04.2011; acceptance: 18.04.2011

Keywords: preparing programme of training, principle of individualization, analyses of successful actions in competitions

Abstract

Many coaches and sport scientists still believe in a value of model champion (champion profile). Of course, it is known – or should be known – that very often it is difficult to notice the obvious thing. So, many coaches and sport scientists do not notice that great coaches, especially in combat sports, although display certain common traits, do differ considerably in their views, motivation, programming, conducting the process of training, and style of leadership. Often they try to dispute a simple truth. It is enough to compare best fencers, team players, to notice great differences in body build, type of personality (extravert or introvert), traits of temperament, functions of sympathetic and para-sympathetic system, range and variety of actions they apply in competitions, as well as variety of achievement motivation. The greatest fencers, medallists of Olympic Games and World Championships, achieve their successful results not because they have champion profile traits, but because they developed their strong points to the highest level. The other aspect of what brings success in sport is notice what happens in competitions, which type of achievement motivation is best, how the competitors learn and apply various actions in competitions.

So, it is obvious that programme of fencer's training ought to be based on what happens in competition and takes into account the fencer specific personality traits.

Time and quality of work will provide better results than selection based on any champion profile; we don't select champions, they select themselves by work, passion and determination to achieve the highest results.

Janusz Bednarskii

Introduction

At the beginning of modern competitive sport, training was very simple. Athletes trained two or three times a week and hoped for the best. Any improvement in technique or motor abilities (quite often accidental) led to improvement of results.

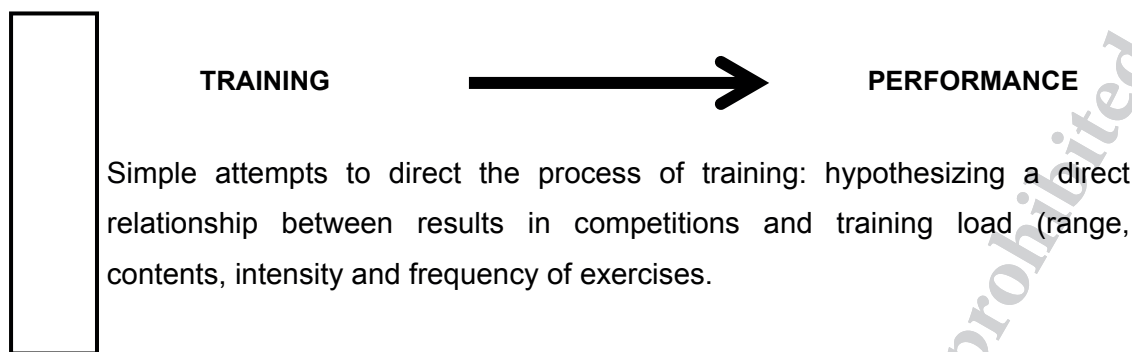
With the increasing role and frequency of competitions, the intensity and frequency of practice increased and the first attempts to programme, direct and control the process of training were gradually introduced.

To begin with, the control of training was very simple and took the form of comparing the training – its intensity, frequency, contents – with the results achieved in competitions (Fig. 1).

This simple comparison between the character and amount of training and the sports results gave a little information but not nearly enough to adequately improve and control training. It was difficult to assess the precise correlation between the contents and intensity of training and the athlete's results in competitions. It was particularly difficult to elucidate the hidden factors which led to better or poorer results. Among other things it was quickly noticed that the same amount and intensity of training produced quite different results among various athletes.

So, the next steps in improving the process of training and searching for the factors influencing the results were:

Fig. 1.



1. Analysing the process of training (choice of exercises and the way of conducting them, frequency and intensity of training);
2. The form of the athlete (his capacity for effort, his speed, endurance and strength, and his technique and tactical abilities etc.);
3. Results obtained in competition (Fig. 2).

This was a big step forwards and enabled the coach to prepare more detailed plans, to control and conduct training. Many factors, the component parts of an athlete's form, directly or indirectly influencing competition results, came to light. Many tests evaluating the physiological state, level of motor possibilities, psychomotor abilities, technique and tactics were introduced.

Not long ago, a "model of champion" (champion profile) began to be widely used as a basis for diagnosis and prognosis concerning future achievement, selection of candidates, programming, and directing and controlling the process of training.

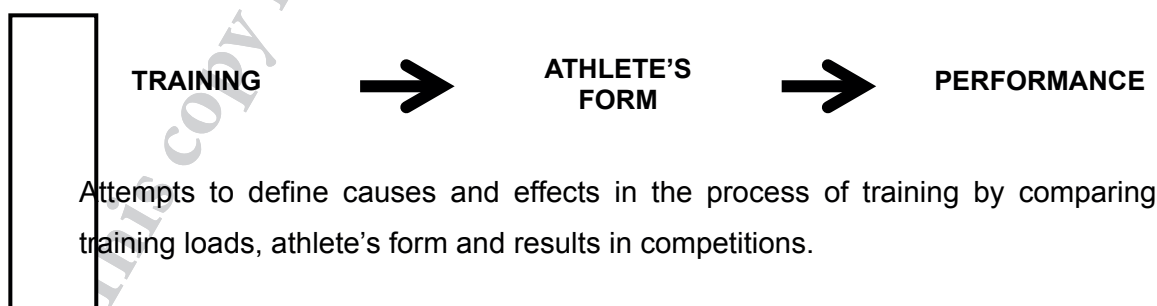
At the base of the champion profile conception is very simple reasoning: if we know what the champion is like, how he developed throughout the years of training, what his chief characteristics are (body build, weight, height, speed of reaction, etc. etc.), all we have to do is to find the "proper" young person, make a detailed plan of training and try to

achieve all of the characteristics of the ideal model. Control of training then consists of comparing, at each stage of training, the young athlete with the model champion.

It seems so logical and obvious – especially in "simple" sports (one motor skill, one dominant motor ability) – that this conception became very popular. Soon it became "fashionable" to construct various model champions for various disciplines of sport, including the most detailed characteristics – even down to the arching of the foot.

Of course, it has been much easier to construct model champions in simple sports (track and field events, swimming, rowing, weightlifting etc.) than in more complicated sports (fencing, tennis, team games, etc.). But even in very complicated sports, in which so many different factors affect the results in competition, attempts were made to construct champion profiles. Some Soviet authors went so far as to prepare an amazingly detailed model of a champion in fencing, giving all parameters separately for foilists, sabreurs, epeeists, and lady foilists. What is more, they gave detailed figures of various parameters which the representatives of various weapons should achieve each year in a four-year training plan. Those parameters included the times of various kinds of reaction (simple reaction,

Fig. 2.



choice reaction, change of reaction) while executing an action. In differentiating between fencers with different weapons, they failed to notice the importance of the stimuli to which fencers react. It is well known that the fastest reaction is to mixed stimuli (epee), less fast to tactile stimuli (foil), and slowest to visual stimuli (sabre). There are many other drawbacks to this model which I shall discuss later on.

The champion model has a certain value in the preliminary selection, planning, conducting, and controlling the processes of training in some sports, especially when there is one main factor or very few factors playing an important role (for example, various manifestations of speed in sprints, a high capacity of the pulmonary and cardiovascular systems in long distance running, etc.) or when one factor seems indispensable (e.g., height in basketball).

Personally, for many years I have had great doubt about the over-estimation of the champion model in sport, particularly in the more complicated sports. Among the best athletes, one could find certain common psychological factors which greatly influence their performance – like resistance to stress, optimal levels of motivation and arousal, a high quality of certain psychological processes (attention, perception, thinking etc.) – but in this field there is a great diversity in functional and physical qualities. John M. Silva finds that attempts to construct an ideal model of champion, based on psychological traits, is sterile and not of very much use: "The trait approach is seen an exercise in futility or a searching for the ideal profile that may not truly exist at any competitive level."

My chief objection to the over-estimated practical value of the model of champion is the fact that the "ideal profile" is made up of the mean value of various parameters of outstanding athletes while extreme data have a great influence on mean values. Such a "model" athlete may not exist in reality.

Especially doubtful is the value of model champion in primary selection of future champions and consequent control of training. Although we may notice certain common traits among top athletes, novice athletes are very dissimilar. So, looking for the traits specific to great champions in very young future athletes may have no predictive value. Let us imagine that Demosthenes wanted to enter a school for public speakers: if the principle of model champion was applied, he would have been chucked out at once.

In this way, I think, many potential champions have been deprived of the opportunity to cultivate their chosen sport. I know a few fencers of international standard who were initially rejected

but, through persistency, managed to start training and eventually achieved excellent results.

So I think that the model champion as a basis for selection, programming and control of training has to play a much lesser role than admitted by the majority of contemporary authors. In control of training, it may only help the coach in a very general way, indicating only the direction of action.

Below I present some additional arguments against too rigid an application of an ideal champion profile in the control of training:

- There are many component parts of athlete's form which influence the results of competition and each of them develops at a different pace, and the speed of their development is different among various athletes.
- Detailed monitoring of the progress of various competitors based on the conception of the model of champion (various tests, examinations, controls etc.) may be misleading because some young people develop well in advance of their physiological age and some lag behind. What makes it more complicated is the fact that children and youth who are retarded in their physiological development may, and sometimes do, achieve very high results later on – this is especially true for girls. Taking into consideration the function of the autonomic nervous system, we may divide people into sympaticotonic types and vagotonic types. The former achieve athlete's form very fast and keep it for a short time, the latter acquire peak form very slowly but can keep it for a long time.
- Considering the function of the hormonal system we may divide people into sympaticotonic types and parasympaticotonic types. The former quickly achieve form and lose it quickly while the latter, taking longer to gain form, also keep it longer.
- Among top athletes there are competitors, some of whom achieve the peak of form once or twice a year, some every two years and there are some exceptional athletes who achieve top performance practically throughout the whole year.
- There are many factors which influence the final result in competition. All are important separately and, even more, in their interrelationship and yet there are competitors who achieve outstanding results mainly due to speed or good technique or good tactics or good motor co-ordination, etc. Even in such a simple event as the hundred metres sprint one may distinguish several factors which determine the result: simple reaction to auditory stimulus,

execution of start, the phase of development of speed, maintenance of top speed, lowering of speed and anaerobic endurance. All these factors play a different role among top sprinters. One can imagine how much more complicated it is in sports like fencing or tennis.

In fencing and other complicated sports where the number of factors influencing the results is even difficult to estimate – although there are certain similar traits among top athletes – the conception of an ideal model of champion cannot be upheld. Conducting training both in the club and with the national squad and careful observation and analysis of innumerable international competitions, including Olympic Games and World Championships, as well as various tests and research, enabled me to draw the following conclusions:

1. In fencing one ideal champion profile does not exist. World class results are achieved by various types of fencers – fencers of differing ages, fencers of different schools, tall and short, lean and plump, athletes of various temperaments (apart from melancholics), very offensive and rather defensive types, fencers with different techniques, fencers applying foreseen actions and fencers relying on lightning speed improvisation, competitors with very good simple reaction and competitors with short choice reaction, extraverts and introverts, etc. It is enough to compare the famous Polish and Hungarian sabreurs who some years ago were winning medals in Olympic Games and world championships: Aladar Gerevich, Rudolf Karpathy, Paul Kovacs, Jerzy Pawłowski, Wojciech Zabłocki, Emil Ochryra to note how different they were.
2. The top fencers win, not because they have not got weak points, not because their assets are ideally balanced, not because they have an ideal champion's profile, but because they manage to develop their potential possibilities, their strong points to the highest degree.
3. In fencing so many factors (inherited and acquired) play an important part in determining results that a low level or even lack of one factor may be compensated for by another, for example:
 - a) a certain lack of mobility of nervous processes, typical for a phlegmatic type may be compensated by good tactics, careful observation of the opponent and foreseen second intention actions;
 - b) even such an important factor as speed of movement may be compensated by fast reaction;
 - c) rather poor co-ordination of movement may be compensated by great speed and mobility, etc.

The important thing is speed of reaction – fencers with fast simple reaction base their tactics on premeditated, fast and energetic actions while their colleagues with good choice reaction apply more complicated tactics (e.g., “open-eyes” attacks).

Thus, we must admit that the model of champion is of little practical use in fencing as a main element of directing and controlling of training. The fencer's training and its control ought to be based on a model of competition, taking into account the concrete individual traits of a given athlete. This means that in selection, developing physical fitness, teaching technique and tactics, developing psychological processes, building up individual style of fencing, and preparing for competitions the coach must take into account the following:

- Careful observation of competitions (visual observation, film, video), analysis of technique and tactics, range of application and efficacy of various fencing actions, practical differentiation of various tactico-psychological types of fencers, recognition of modern trends of development in fencing as a whole and of each different weapon.
- The level of transfer of skills and abilities acquired in training to training bouts and, above all, from training bouts to bouts in competition.
- Individual characteristics of a given fencer, dimensions of his personality, traits of temperament, his individual style, of fencing, range and efficacy of his fencing actions, his favourite strokes, ways of solving tactical problems in a bout, level of his perception, correctness and speed of his reactions, self-control and resistance to stress, level of his specific fitness, the range of his technical repertoire, etc., etc.
- Recognising the strong points, assets and potential possibilities of each individual pupil as well as his weak points. The coach and pupil should develop in the first place the strong points, they should work on perfecting the actions and abilities which bring the pupil success and which are consistent with the modern style of fencing. Weak points should be considered mainly when they interfere with the possibility of displaying his assets. For example: an active, offensive fencer should perfect and, in competition, mainly rely on offensive action. He should, however, learn defensive actions to increase the efficacy of his attacks as the psychological and technical

base of offensive style of fencing is confidence in unforeseen defensive actions.

- Apart from the coach's own observation he should take into consideration the pupil's self-assessment (pupil's own assessment of his specific fitness, his technique, his favourite actions, etc.).
- It is very important to realize that energy and coordination abilities, technical and tactical skills, psychological processes (perception, various aspects of attention, sensory-motor responses, achievement motivation) undergo salient changes in consecutive stages of fencer's training (Table 1).

Every fencer should be treated by the coach in a different way. The fencing master should avoid trying to push the pupil into an artificial model of champion but should help him to develop his specific, individual style of fencing, his specific reactions, technique and tactics. Speaking generally, in training and its control the coach must take into account: what is actually happening in competition, what actions are used by top fencers, actions used by a given pupil and his individual characteristics.

The general trends of development of modern fencing can be assessed by careful observation and analysis of competitions (the way of manoeuvring on the piste, range of application of various fencing strokes, their efficacy, various ways of preparing an attack, area of target most frequently hit, the methods of judging, influence of rules on tactics, new elements in technique and tactics, etc., etc.). For example, many observations of sabre in the fifties and sixties showed the hits given were the result of: attacks of various kinds – 50%; parry-ripostes – 30%; counter – attacks – 20%. That was a very general picture of sabre fencing in that period. In training and its control, a coach should have taken this into account plus the individual characteristics of each given fencer, which often differs from the average considerably.

Table 2 shows hits scored, by attacks, ripostes and counter-attacks by all fencers together in the final of individual men's foil, World Championships in Melbourne in 1979.

Table 3 shows the individual differences in the successful application of various strokes by competitors in this final.

Even a superficial glimpse at Table 2 shows the great diversity of actions displayed by the finalists. In the limited framework of this article it is quite impossible to present dozens of similar tables compiled over a period of many years. Tables 2 and 3 give only a tiny example.

A careful analysis of the range and efficacy of various actions in national and international

competitions (and I have been involved in fencing for 75 years) has allowed me to make objective observations on the development of fencing generally and the style of fencing of individual competitors. These observations comprise, among others: big changes in fencing in recent years, increased differentiation between different weapons, marked influence of new rules on technique and tactics, etc. The general conclusions from these observations are that planning, directing and control of training ought to be based on objective observation of competitions, on the competitor's individual characteristics and the manner in which he utilises his skills and abilities in competition.

To put it shortly, training ought to be modelled on competitions and the pupil's performance in them.

In programming and directing the process of training and developing the individual style of fencing for each pupil, the coach must take into account:

1. Objective observation and analysis of competition,
2. Pupil's performance in competition (his style, range and efficacy of various fencing actions),
3. The ways in which he solves tactical problems (psychological basis of taking decisions and motivation in the fight),
4. Individual characteristics of his pupil (personality, temperament, psycho-motor abilities, achievement motivation etc.).

The ways of analysing competitions and single competitions performance has already been briefly touched upon.

In order to ascertain the pupil's main and most frequently used ways of taking decisions in a bout we may use the following procedure:

A fencer, for a certain period (e.g., a fortnight), during every training bout notes down the following successful actions:

- a) foreseen first intention attacks,
- b) foreseen second intention attacks,
- c) attacks with unknown final,
- d) attacks with change of decision.

This, combined with the results of various objective tests, will allow us to make the right choice of exercises in lessons.

The individual characteristics of a fencer, the level of his specific fitness and his technical abilities can be assessed, by: the coach's observations, questionnaires, psychological laboratory tests, fitness and technical trials, etc.

All these – especially analysing the pupil's performance and behaviour in competition – give a thinking coach plenty of information, e.g.:

- What are the competitor's favourite strokes?

Table 1. Stages of energy and coordination abilities, technical and tactical skills and psychological processes in consecutive stages of training.

Phases of mastering and applying of technique and tactics	Characteristic properties of applying fencing actions in competition
Introductory (cognitive) stage of technique (first phase of training)	<ul style="list-style-type: none"> - numerous errors, - errors of perception, choice of action and execution, - very changeable, not stable results, - a competitor does not notice and does not evaluate his errors and mistakes, - advice and assistance of a coach in spotting and eliminating errors is necessary, - a competitor focuses his attention on how to execute an action (conscious visual control), and not – or to much less extent – on evaluation of fighting situation and choice of proper action, - the improvement of speed occurs gradually as a result of elimination of by-movements and unnecessary muscle contractions, - small range and low level of preparatory actions, - offensive actions mainly foreseen, executed as a first intention action, - low level and poor applying of psychomotor capabilities (perception, different traits of attention, reactions etc.)
Intermediate (associative) technique and tactics phase (at second, basic training stage)	<ul style="list-style-type: none"> - basic actions better mastered, better execution of selected actions, - errors less numerous, better – faster and more appropriate perception, greater and more changeable scope of attention, better choice of action, better quality of actions execution, - errors less serious, - stress to more an more efficient and faster execution of actions, - a competitor begins to notice some of his errors, - a competitor attempts to eliminate noticed errors, - results more stable, - gradually more and more attention pays to what to do, and not how the chosen action has to be performed (visual control of performance gradually diminishes while evaluation of tactical situation becomes more important; execution more and more relies upon proprioceptive senses), - the improvement of speed results mainly from acceleration of movement execution (fencing actions), i.e. shortening of executory (final) stage of a sensory-motor response, - greater variety and higher level of preparatory actions, - enriching the tactics by applying foreseen second intention actions, - gradual increase of importance and application of psychomotor abilities (more accurate and fast perception, sense of surprise, different versions of sensory-motor responses, different ways of choosing an action).
Third technique phase, or many-sided and purposeful actions (occurs in third, competitor, and fourth, champion stage of training)	<ul style="list-style-type: none"> - sensory-motor skills and technical-tactical capabilities, based on sensory-motor responses, as well as tactical capabilities basing on observation, perception and thinking more and more mastered, - a competitor focuses his attention on proper and fast perception of fighting situation, selection of a proper action, on how to fake the rival, and not on how to execute a chosen action, - more rich and variable range of applied actions, - various methods of choosing and applying of actions; actions foreseen as a first intention and second intention ones, actions not foreseen, actions with not known result, actions with change during its course, - better quality, precision and speed of execution of chosen action, - much less errors of perception, selection and execution, - a competitor employs many different actions according to situation, - a competitor discovers his errors and tries to eliminate them, - results more and more stable, - improvement of speed of action results mainly of shortening the latent period of a motor response (from appearing the essential stimulus to beginning of the movement), and – gradually more and more often - as a result of reaction to pre-signal of a proper movement, - bigger range and variety of preparatory actions and their increased efficacy (identifying the movements unveiling the intentions of a rival, hiding own intentions, faking the rival, drawing from the opponent actions in order to score a hit, timing, fast situation evaluation etc.) - employing various versions of action choices, i.e. actions foreseen (as first and second intention ones), action with unknown ending (“open eyes”), actions with change during their execution, - very high (especially in the fourth phase) level of psychomotor abilities and their skillful employing.

Table 2. Number and percentage of successful actions in the individual final, men's foil, World Championships, Melbourne, 1979.

Type of action	Number of successful hits	Percentage of successful hits
Various kinds of attacks	63	48
Parry-ripostes	40	31
Counter-attacks	24	21
Total	127	100

Table 3. Efficacy of offensive and defensive actions of finalists, men's foil, World Championships, Melbourne, 1979.

	Competitor	A/a	R/r	C/c	Hits	IO	ID
1.	Romankow (USSR)	11/8	10/3	4/2	25/13	2,2	1,75
2.	Jolyot (France)	7/9	7/5	7/3	21/17	0,87	1,55
3.	Dal Zotto (Italy)	19/8	5/5	4/6	19/19	0,90	1,12
4.	Behr (West Germany)	5/7	7/9	6/2	18/18	0,45	1,85
5.	Flament (France)	15/9	7/7	2/7	19/23	1,07	1,44
6.	Cervi (Italy)	6/13	1/5	4/5	11/23	0,60	0,38

A – hits scored by attacks, a – hits received by opponent's attacks

R – hits scored by ripostes, r – hits received by opponent's ripostes,

C – hits scored by counter-attacks, c – hits received by opponent's counter-attacks

IO – index of efficacy of offensive actions (attacks of all kinds and counter-time)

ID – index of efficacy of defensive actions (parry-ripostes and counter-attacks)

$$IO = \frac{\sum A}{\sum r + \sum c} \quad ID = \frac{\sum R + \sum C}{\sum a}$$

- What are his most successful strokes?
- How does he react when taken by surprise?
- How does he behave in extreme situations?
- Does he prefer foreseen or unforeseen actions?
- How wide is the repertoire of strokes actually used in a competition (compared to the amount of motor skills learned in a lesson)?
- Can he change easily from one action to another?
- Can he keep up high concentration for a long period of time?
- Does he rely mainly on simple or compound reaction or both?
- Can he easily shift attention from narrow to wide and vice versa, from external to internal and vice versa?
- What is his optimal level of arousal?
- What is his main attitude toward training and competitions (ego-involvement or task-involvement)?
- What are the main components of his achieving motivation (motive of success, rivalry, aggressive attitude, emphasis on extreme effort, motive of avoiding failure, emphasis on self-efficacy, independence)?
- Etc., etc.

How to deal with a given competitor after finding out the answers to these and to many more questions is described in more detail in many of

my articles and books. Here, in this short paper, **I only endeavoured to stress the usefulness and importance of a model of competition, combined with individualisation of training and tactics as a main guiding line for programming, conducting, directing and controlling the fencer's training.**

Too rigid selection may lead to rejection of really talented people. Attempt to squash everybody into an abstract, universal, stereotyped model of champion may be harmful. **Programmes that are based on competition and individualisation allow the best athletes to rise to the top in due time and for all to find enjoyment and their right place in fencing.** This is my firm conviction and the results of my pupils over many years appear to confirm it. Various tests and research work conducted in the Fencing Department, Academy of Physical Education, Katowice, also strongly confirm it.

Kierowanie procesem treningu w oparciu o zawody i wymiary osobowości szermierza

Streszczenie

Autor bardzo mocno podkreśla, że w kierowaniu procesem treningu sportowego, a szczególnie w szermierce i innych sportach walki i grach sportowych (w odróżnieniu od sportów wyrazu artystycznego i sportów o jednym nawyku ruchowym zamkniętym, w których decydującym jest

Tabela. Stadia uczenia się, doskonalenia i stosowania zdolności wysiłkowych, zbornościowych, techniki i taktyki oraz procesów psychicznych w kolejnych etapach treningu.

Stadia opanowania i stosowania techniki	Znamienne właściwości działania
<p>stadium techniki wstępne czyli poznawcze (występuje w pierwszym - wstępnym etapie szkolenia)</p>	<ul style="list-style-type: none"> • duża liczba błędów, • powszechne błędy postrzegania, wyboru działania i wykonania, • wyniki osiągnięte w zawodach bardzo zmienne, niestale, • zawodnik nie dostrzega, ani nie ocenia swoich błędów i pomyłek, • w dostrzeżeniu i usuwaniu błędów potrzebne uwagi i pomoc trenera, • zawodnik skupia się na sposobie wykonania działania (świadoma kontrola wzrokowa), a nie - lub w znacznie mniejszym stopniu - na ocenie sytuacji walki i wyborze odpowiedniego działania, • poprawa szybkości następuje stopniowo w wyniku usuwania przyruchów i zbędnych napięć mięśniowych, • mały zakres i niski poziom działań przygotowawczych, • działania zaczepne przeważnie przewidziane, wykonane w pierwszym zamiarze, • niski poziom i niktłe stosowanie umiejętności psychoruchowych (postrzeganie, różne właściwości uwagi, reakcje etc.).
<p>stadium techniki pośrednie, czyli skojarzeniowe (występuje w drugim - podstawowym etapie szkolenia)</p>	<ul style="list-style-type: none"> • podstawowe działania już lepiej opanowane, lepsze wykonanie wybranych działań, • błędy mniej liczne, lepsze - szybsze i bardziej trafne postrzeganie, większy i zmienny zakres uwagi, bardziej trafny wybór działania, lepsze jakość wykonania działań, • błędy mniej „poważne”, • nacisk na coraz sprawniejsze i szybsze wykonanie ruchu, • zawodnik zaczyna sam dostrzegać niektóre błędy, • próby poprawienia zauważonych błędów wyniki bardziej stałe, • stopniowo coraz więcej uwagi poświęca na to co ma wykonać, a nie jak wykonać wybrane działanie (kontrola wzrokowa stopniowo przechodzi na ocenę sytuacji taktycznej, a wykonanie coraz bardziej oparte na czuciu głębokim, mięśniowo-ruchowym), • poprawa szybkości następuje głównie w wyniku przyspieszenia wykonania ruchu (działania szermierczego), a więc na skutek skrócenia okresu wykonawczego (końcowego) odpowiedzi czuciowo-ruchowej, • nieco większy zakres i wyższy poziom działań przygotowawczych, • wzbogacenie taktyki poprzez stosowanie działań przewidzianych w drugim zamiarze, • stopniowy wzrost znaczenia i wykorzystywania zdolności psychoruchowych.
<p>trzecie stadium techniki, czyli wszechstronnej i celowej działalności (występuje w trzecim - zawodniczym i w czwartym - mistrzowskim etapie szkolenia)</p>	<ul style="list-style-type: none"> • nawyki czuciowo-ruchowe oraz oparte na odpowiedziach czuciowo-ruchowych umiejętności techniczno-taktyczne i oparte na obserwacji, postrzeganiu i myśleniu umiejętności taktyczne coraz lepiej opanowane, • zawodnik skupia uwagę na trafnym i szybkim postrzeganiu sytuacji walki, na wyborze odpowiedniego działania, na zaskoczeniu przeciwnika, a nie na tym jak wykonać wybrane działanie, • bogatszy i bardziej różnorodny zasób stosowanych działań, • różne sposoby wyboru i zastosowania działania: działania przewidziane w pierwszym i drugim zamiarze, działania nieprzewidziane, działania o nieznanym zakończeniu, działania ze zmianą zamiaru w toku działania, • lepsza jakość, dokładność i szybkość wykonania wybranego działania, • znacznie mniej błędów postrzegania, wyboru i wykonania, • zawodnik stosuje wiele różnych działań zależnie od sytuacji, • zawodnik sam dostrzega błędy i stara się je poprawiać, • wyniki coraz bardziej stabilne, • poprawa szybkości działań następuje głównie w wyniku skrócenia okresu utajonego odpowiedzi ruchowej (od pojawienia się bodźca istotnego do zapoczątkowania ruchu) oraz - stopniowo coraz częściej, w wyniku reagowania na „zwiastun” - ruch wstępny mającego nastąpić działania właściwego (bodźca właściwego), • coraz bogatszy i bardziej skuteczny zakres działań przygotowawczych (rozpoznawanie ruchów o zamiarach przeciwnika, ukrywanie własnych zamiarów, wprowadzanie przeciwnika w błąd, wywoływanie u przeciwnika korzystnych dla siebie działań, wycucie zaskoczenia, błyskawiczna ocena sytuacji etc.), • stosowanie różnorodnych odmian wyborów działania, a więc działania przewidziane (w pierwszym i drugim zamiarze), działania o nieznanym zakończeniu („otwarte oczy”), działania ze zmianą zamiaru w toku działania, • bardzo wysoki (zwłaszcza w czwartym etapie) poziom zdolności psychoruchowych i ich umiejętne stosowanie.

czynnik zdolności wysiłkowych) musimy zwracać uwagę na właściwy zestaw motywacji osiągnięć oraz osobnicze cechy zawodnika. W szermierce ważne są nie tylko zdolności wysiłkowe i zbornościowe (szczególnie pojętność ruchowa i kierowanie ruchami), ale także zdolności spostrzegania, przewidywania ruchów przeciwnika, doboru właściwych działań zależnie od sytuacji oraz wycucie zaskoczenia. Ponadto ważne jest uwzględnienie osobowości zawodnika (ekstrawertyk, introwertyk), cech temperamentu i czynności układu współczulnego i przywspółczulnego. Zależnie od tych cech osobowości należy kształtować odmienny typ taktyczny szermierza (szermierz działań przewidzianych, szermierz błyskawicznej improwizacji, o przewadze działań zaczepnych, o przewadze działań obronnych etc.).

Niezmiernie ważne w procesie zaprawy szermierza jest kolejne opanowanie i stosowanie działań szermierczych – nawyków i odpowiedzi czuciowo-ruchowych. Działania szermiercze, nawyki i odpowiedzi czuciowo-ruchowe muszą być tak opanowane, aby zawodnik w walce zwracał uwagę na to, co i kiedy wykonać, a nie jak wykonać. Niezmiernie ważne jest też wycucie zaskoczenia (błyskawiczne zauważenie i wykorzystanie sytuacji dogodnej do zadania trafienia).

Nauczanie techniki i taktyki oraz ich doskonalenie jest bardzo różne, przy czym autor wyróżnił trzy stadia uczenia się i stosowania działań szermierczych, taktyki i procesów psychicznych, co przedstawia w tabeli.

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