THE PLACE AND IMPORTANCE OF TECHNICAL MEANS IN SWIMMING PERFORMANCE PLAN

Scorţenschi Dmitri[1], Risneac Boris[1]
[1]State University of Physical Education and Sport, Republic of Moldova

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Summary:

This study addresses the issue of planning and applying technical meansin the training of high performance swimmers. A survey on this issue was conducted by specialists from the Republic of Moldova.

Introduction:

A proper planning removes any reference to those who claim that "he who does not strive - fails" or that "an all-out-effort" is needed. Such rhetorical formulations need to be replaced by reasonably applied training. Why? Because planning is the art of using science in order to organize a training program. In preparation nothing happens accidentally, everything is well "planned" [1, 2, 12, 14, 15].

Coaches do not always use objective methods to alternate or plan training intensity. For example, in athletics, swimming and canoeing, coaches calculate training volume based on mileage (during a microcycle or macrocycle). Athletes typically use the percentage of maximum speed or throwing and jumping distances to determine the total intensity. In power training, coaches use the percentage of maximum force for calculating the intensity, etc. [1, 13, 15].

Thus, several planning methods mentioned by Krasilinicov V., Kotliarov A. (2008) can be highlighted nowadays. These are taken from some bibliographic sources related to the issue in question:

- "Random Search" method - the coach intuitively elaborates the training program without planning it for the whole year.
- "Direct selection of the situation by effort" - that is, the sport result is achieved by an effort (volume and intensity), this method has been used by well-known US trainers (Gambrill, Heine, Counsilman) and Australian (Carlile) ;
- "Parallel Planning" proposed by Vaitehovski S. is the most common method among young coaches, which is to analyze the

current micro- and macrocycles for determining weaknesses and avoiding them in the next year;

- "Goal-directed Programming" - a method proposed by Absaleamov T. - the author proposes that the final result to be analyzed by: thesports result(s) of start time, turn, speed distance, pace, step, water traction.

In sports training, the workoutplanning representsa complexprocedure combining the physiological reaction of athletes to the training effort. In order to achieve the highest possible performance, the planning process must be recognised as a way of manipulating the athlete's training, according to the specificity of each sport, [1].

It is rather difficult to determine the training volume and this cannot be achieved unless a training program is developed for an athlete whom the coach knows well [1, 16, 17].

In most sports, the annual training cycle is conventionally divided into three periods: preparatory, competitive and transition. The preparatory and competitive periods are divided in two stages, in which later, the mezo- and micro cycles are specified [16, 17].

The above-mentioned authors also note that the monocycle is specific to beginner athletes, bi-cycle –is for experienced athletes, who can qualify in the national championship, the preparatory period being as long as possible, and the three-cycle and multi-point plan are recommended only for world-classhigh-performance athletes.

In the 1970s and 1980s, thanks to the efforts of specialists from different countries, first of all, the USSR, the GDR and Australia, a well-defined concept for the multi-year training of swimmers was developed.

As a result of science and practice integration, the theoretical and methodical bases for the elaboration of the multi-annual planning of swimmers [4, 7, 12, 15] were established and presented in a series of fundamental studies.

The inclusion of various specific and non-specific water sports forms and methods [2, 3, 5, 8, 9, 10] plays an important role in the methodology of the sports training planning ofhigh-performance swimmers. In this respect, there was a special interest in highlighting the opinions of the specialists in swimming on the application of modern technical means within the framework of the swimmers sports training.

The special technical means, such as Mertens Huttel, Mini Djim, Eakzer Janie, Nautilus, Biokinetic etc., according to a number of authors [2, 5, 9, 14, 16, 18] and specialists in sports swimming can be applied in

the training process of different swimming categories, predominantly for strength, fortitude, force-speed development, especially on land.
Currently, there are other,more sophisticated technical installations of the same type, with more and more fine working regimes, but anyway these cannotcreate or redefine the conditions of the water environment, so a series of sophisticated technical means,applicable to water, which help to transfer the positive potential accumulated in the dry have been developed [2, 3, 4, 6, 10, 17,]. Among these, sports inventory can be mentioned: hand paddleof different sizes and shapes, flippers, floats; which relate to technical means or specific installations: elastic yarn of different diameter and length, hydrochannel,„hidroremorcher" (towing a swimmer in pool)programmed mechanically and computerized, Power Track and Power Tower, belts or mini-parachutes with braking effect etc.

As mentioned above, swimming specialists believe that all of these facilities and means must be mandatorilyplanned in the annual program in order to be applied in the training process with a well-calculated performance, taking into account the recommendations outlined in the specialized literature.

At the same time, drawing some conclusions, one can get to the idea that a result of a successful participation of the athlete, manifested by the recorded time or speed at the top competitions is needed in the end. Thus, we have been concerned about the impact and the place in planning the technical means, in particular, of the computerised„hidroremorcher", for the improvement in strength - speed in water.

Purpose: General overviewof technical means integration, and particularly, of the „hidroremorcher"in an annual swimming training plan.

Research objectives:

- Analysis of the specialized literature on the methodology of the training planning process - general concept;
- Determination of the structure and content of the annual training plan for the training of swimmers at the stage of sports training;
- Highlighting the applicability of technical means in the process of training of the swimmers at the stage of sports improvement;

Research methods:

- Analysis of specialized bibliographical sources;
- Analysis of planning documents applied in the training of swimmers.
- The survey;

- Interview;
- Pedagogical observation;
- Statistical and mathematical data processing.

Research results:

Swimmers' training planning analysis during the multiannual preparation shows that there exist a number of common goals throughout the long-term preparation, but, at the same time, some different views regarding the stages of training in which the focus is on the dominant aerobic, aerobic-anaerobic, strength, speed- strength, speed, etcare marked out. As far as sporting form is concerned, it undoubtedly includes the above mentioned steps, increasing the intensity and volume from one stage to the next one.

The competitive element grows starting from the age of 14-15 years (boys), i.e. at the beginning of the basic specialization stage, where the annual plan may already have two-three peak forms, which, in turn, require diversification of the means of training, for the development of optimal above-mentioned qualities. In this case, as noted by the specialists [5, 8, 12, 16], the training includesvariousMertens Huttel, Mini Djim, Eakzer Janie, Nautilus, Biokinetic, Vasa Trainer, Ergosim, „Hidroremorcher" etc. techniques, which contribute to an optimal mobilization of the athlete's body, especially of the strength, speed-strength, but not least the skill to manage these parameters.

It is interesting that all of these means have their purpose and are described and recommended by many authors and specialists in the field of swimming, in textbooks, magazines and scientific literature, on different web pages, or in video on the internet. But when attempting to carry out a thorough analysis to establish in which it would be possible to specify the concrete volume and intensity in % regarding the use of these technologies for micro meso - or macrocycle in swimming, etc., it wasn't possible because these are recommended [2, 7, 14, 18,] to be applied in a number of cases, on a general basis, but the percentage in a mono or bicycle planning is not specified.

From the investigated specialized sources it was found a standard form of work planning performed during the training where number of hours, during one year of training (Table 1) was calculated.

In the course of specialized sources investigation it was founda standardized work on planning, done in the course of training where the number of hours within a preparation year was taken into account.

Table 1. Model swimming training plan for an annual macrocycle at the initiation stage proposed by the Russian swimming school coaches (hours) (Kashkin A.A., Popov O.I., Smirnov V.V., 2008)

The content		September				October					November				December				January					February				March				April				May					June			July	47-52
	Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
PF	518	6	10	9	10	11	11	10	7	10	11	10	10	11	10	11	10	7	10	10	10	11	11	10	10	11	7	6	10	11	11	11	11	8	11	11	10	11	10	6	11	11	11	9	9	11	9
PFG	263	4	6	4	5	6	6	5	3	4	4	3	4	3	2	3	2	3	9	9	6	6	5	5	5	5	2	3	5	5	5	5	4	3	4	3	2	3	2	0	3	5	6	4	4	7	5
PFS, PTS	255	2	4	5	5	5	5	5	4	6	7	7	6	8	8	8	8	4	1	1	4	5	6	5	5	6	5	3	5	6	6	6	7	5	7	8	8	8	8	6	8	6	5	5	5	4	4
CNC	14			2					2				1					2							1			1					1						2				2		
PT	20	1	1		1			1		1		1			1		1		1	1	1			1					1					1			1		1					2			2
PAAC	4																											2											2							
AR	8								2									2										2					1						1							
EC	8	4																									4																			
TOT ORE	572	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11

PF-physical training, PFS and PTS - special physical training and special tactical training, CNC-competitions and control rules, PT - theoretical training, PAAC-training practice and arbitration of competitions, AR-recreation activities, EC – clinical examination.

By analyzing this model it can be observed, that the presented structure includes necessary forms and means in the training of the swimmers at the initiation stage. At the same time, such plans do not highlight the content of these activities, especially the inclusion and application of technological means.

Studying the theoretical and methodological approach of some recommendations given by the US specialists (M. Schubert) regarding the application of the technical apparatus, means of implementation during one trainingis specified:

- September, the "Mini Djim" installation is widely applied on Monday, Wednesday, Friday; Physical training has a general character.
- Since October, the volume and intensity of strength training increases, Universal and Nautilus, installations are applied three times a week, and Mini Djim - three times more.
- The number of exercises, repetitions and effort in each exercise permanently increases. If in September the exercise lasts 30s and the rest is 20, in November-December the duration increases up to 60s and rest is reduced to 15s.
- In December, the volume in these installations drops to half in connection with the preparation for competitions, but at the beginning of the preparatory period of the next macro cycle, it returns to the abovementioned volumes.
- In the second macro cycle, the volume of work at the "Universal" and "Nautilus" exercise machines decreases, however the workout on "Mini Djim" with speed-strength increases, (20-30s work and 15s rest).

– Getting closer to competitions (end of march, beginning of April) the volume of work at the simulators on land decreases, at the same time, the volume of the work strength-speed in water increases, by the positive transferring of strength potential to the swimming speed.
- In the third macro cycle, the "Mini Djim" and speed-of-water exercises are used in even larger volumes. The exercises on "Universal" and "Nautilus" simulators shall be carried out in a volume to maintain maximum strength. Generally, the volume of land-exercises in this macrocycle decreases by 10-20%, while its specificity increases, etc.

In the German system model, whith four macrocycles within a year of training, such simulators as "Mertens Huttel" and swimming in the hidrochannel are also used.However, the thorough analysis of the proposed models did not reveal the information on how to train the athletes in the planning of training volumes.

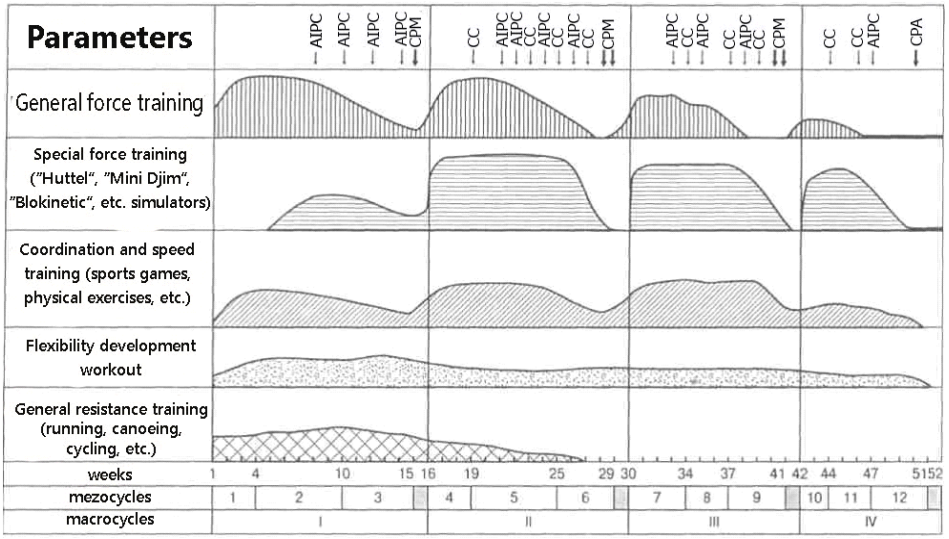

Fig. 1. The scheme of distribution of work differentiated on land during a year of the strongest swimmers: AIPC - preliminary integration activity in competitions; CC - control competitions; CPM - Main Competitions of the Macrocycle CPA - Main Competitions of the Year (Platonov NV, 2000)

In connection with these findings, an analysis of planning models applied by swimming specialists in the Republic of Moldova was carried out. Swimming specialists have also conducted a survey on the importance and the place of technical means, particularly the special ones, and, in part, the application of „hidroremorcher” or training

method, in the planning and implementation of the training process of swimmers in general.

Analyzing thoroughly the annual plans drawn up by the coaches involved in the training of high performance athletes,it was noted that there are some common aspects of some of the authors regarding training modeling, but at a small percentage. At the same time, it has been established that coaches do not include the modeling methodology in the sports training plans for medium and longer periods for implementing various technical means in the sport adaptation process.

In order to achieve the goal of the present study, a survey for SCS coacheswith more than 20 years of experience, andfor some athletes was organized, in order to determine the role of technical means in training the swimmers of different categories in RM , and in particular, the model of application of the „hidroremorcher" for short-distance swimmers.

As a result of the conducted survey, the prevailing opinion of trainers, teachers and athletes on the majority of questions has been established.In connection with this, the answers to the questions were categorized as follows:

- Responding to the question, if training techniques are used in training, it turned out that 75% of the coaches gave a positive response and 25% - a negative one.
  Further, opinions of the coaches, who conducted the process of training of the swimmers included in the national team were selected.

At the same time, in order to establish concepts regarding the planning methodology ofexercise and development of the main technical parameters, an attempt to the examination of the problem has been undertaken. Probably, one of the main causes is the lack of simulators and special equipment at some pools.

Examining the components due to which the swimming speedincreases (based on the frequency of paddling, step length or both factors), it was established that the majority of respondents - 75% consider that the swimming speed is increased especially due to the increase in the frequency of paddling, 17% - due to the increase and the step length, and the frequency of paddling, and only 8% consider that this happens as a result of step length increase. In our opinion, this is related to the fact that the swimming speed is more difficult to maintain on account of the step length increase.

Besides, it was interesting to find the coaches' opinion on the number of hours intended for training on dry of swimmers in a percentage ratio to the overall volume of the training time. Answering this question the respondents were divided in the following way: 65% pay attention to activity on land in the proportion 1/3 of the total time of the training, 25% - in the proportion of 1/4 workout.

Studying the question regarding the time dedicated to the preparation of force on land using special simulators, it was found that 65% paid to the preparation of the respective 1/3 of the training time, 25% - in the proportion of 1/4 and 10% in a proportion of 1/5 of the training time. Such a high percentage is explained by the fact that force resistance plays an important role in achieving high sporting results in swimming.

Considering the issue of applying modern technical means, in particular, the hidromarker, which is available at the Department of Swimming and Tourism, based on the opinions of the coaches and athletes, it was found to be a simulator with a little known working principle. But they consider that it would have a beneficial effect and would create preconditions for the achievement of high results of professional swimmers.

Thus, summarizing the results of the carried out research, we can observe that although most experts in the field choose to use modern technical means to guide the main parameters of the swimming speed in time and space, they have not yet become a conscious necessity. Probably, strong motivation incentives are required that would force coaches and swimmers to use modern technical means to optimize and streamline the training and training process.

Conclusions:

It has been found outthat modern training in any sporting test and especially in swimming cannot be achieved without annual and multiannual planning. For a top-level achievement, these plans must be based on and adjusted to current demands and discoveries in sport, including special technical means on land and in water.

In the training plans of domestic and foreign specialists,the methodology for the application of technical means at different times and stages of annual and multi-annual training of swimmers, preventing the objective assessment of weak or strong points in the growth, stagnation or decreases in sports scoresis not highlighted.

Although most experts in the field of swimming opt for AUse need technical means to control the parameters of the speed of swimming time and space, they have not become a necessity acknowledged.

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