



Fig 6- The grasp sensor

Although only *one contact applied to the index finge* is active during the grasp, contacts are applied to both index fingers to give the player the opportunity to change grasp from the left to the right side.

CONCLUSIONS

Information science is promoting new devices capable of analysing performance in sports, due to the technological and methodological progress in the field of physical and sport activity. Modern technology provides the opportunity of a new angle approach in sports and physical education.

The system proposed in the present paper provides objective data to both coaches and players who use it in training, and the specialised software provides complete statistics to monitor the progress made perà weeks, months, or training cycles.

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METHOD DISTRIBUTION IN DEVELOPING STRENGTH ABILITIES OF MIDDLE-DISTANCERACE FEMALE RUNNERS

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Abstract

The purpose of the present paper has been to study the special training programme of middle-distance professional female runners and the distribution of the methods used in developing their strength abilities.

To this end, a questionnaire has been drawn up containing a number of questions focusing on the distribution of the methods used by trainers who have achieved results in the training of the most valuable middle-distance race female runners in Romania.

Key words: strength, timing, distribution, middle-distance, training stages.

The purpose of our research has been to distribute as efficiently as possible the methods employed in developing strength, thus leading to improved performance.

The current state: The latest research has shown that a proper organization of the training process, together with a good distribution of the methods and means of strength development

contribute to improving the competition results of middle-distance race female runners.

As part of the control research we have analysed the opinions of the specialists in the field regarding the issue of the training process in middle-distance races and the distribution of strength-developing methods for middle distance female runners.

Thus, in the opinion of the French school, the training for the middle distance races must be regarded as a whole and at the same time similar to a balance (5 p.76-77). Depending on the evaluation of the previous activity and the athletes' goals, it is recommended never to put everything on a single balance: base speed/ specific speed; power/ strength capacity/ elasticity etc., and that no type of effort should disappear completely, modifying the ways in which intensity appears. It is recommended that certain types of effort be coupled or brought closer:

- Anaerobic lactic acid and anaerobic lactic acid
- Speed/ strength and endurance
- Anaerobic lactic acid and short exercise at the anaerobic threshold. These exercises prepare the next ones or help recovery.

It is also recommended avoiding the next couples, due to the extreme fatigue it induces and the risks of trauma:

- Anaerobic lactic acid and long endurance exercises
- Maximum strength and speed
- Aerobic force and speed endurance

Based on the Romanian trainer Z. Gyongyossy's good practice experience, we exemplify in Tabel 1 the distribution of the training sessions (means) of educating- developing strength during the training stages of professional female runners, and during Gabriela Szabo's training sessions respectively, when competing in the 1500m race. (4 p.78-80).

As an observation, the trainer in question projects and uses all throughout the annual training cycle contents and objectives for developing strength.

Thus, during the basic training period the themes are: "developing inferior limb and posterior superior strength" and "developing inferior limb muscles flexibility and force" and their operationalization is achieved through several distinct objectives.

The high level of performance in sport is largely due to the increased complexity of training methodology, especially through a more efficient training projection and planning (3,1,2).

Table 1. The distribution of the training sessions for educating-developing strength in preparation stages (Gyongyossy, Zolt, 2001)

Preparation stages	Cycle Week 1	Cycle Week 2	Cycle Week 3	Week cycle
Basic (December)	Monday A2- abdomen, back, arms	Tuesday A4-abdomen, back, arms	Monday A1- abdomen, back, arms	Tuesday A4- abdomen, back, arms
	Tuesday A4- thrust walk 3x30 steps	Thursday A7-abdomen, back, arms	Friday A8- abdomen, back, arms	Saturday A10- 5x5x160 m a.l.p. 25m P 2min a.u.
	Thursday - idem A2	Friday A8- 3x5x160m a.l.p. with high amplitude 2x4x160m a.l.p. with high frequency		Sunday A13- abdomen, back, arms
Pre-competition Indoor	Monday A1- 3x10(120m-80m-120m-80m...) a.l.p. 120m-distance movement amplitude, 80m-distance movement frequency	Monday A2-1x10(150m-120m-100-80-150m-120m-80m...) high amplitude on long distances, high frequency on short distances	Monday A1- 8x150m 8x120m 8x150m	
	Saturday A11- abdomen, back, arms	Wednesday A6- abdomen, back, arms	Tuesday A3- 3x80m, ex.sp. with progressive execution frequency – abdomen, back, arms	
		Friday A9-abdomen, back, arms	Friday A9- abdomen, back, arms	

Basic (April)	Wednesday A6- abdomen, back, arms	Monday A1- 5x60m a.g.s. 5x30 steps x thrust walk 6x60m different ex.sp.(exercitii spate?)	Monday A1- abdomen, back, arms	Monday A1- abdomen, back, arms
	Thursday A7- 5x60m a.g.s. 5x30 steps x thrust walk 6x60m a.c.s.	Friday A8- 5x80m ex.sp.(a.g.s., ps., a.c.s., psl)	Thursday A7- abdomen, back, arms	Monday A1- abdomen, back, arms
	Saturday A11- abdomen, back, arms		Friday A9- abdomen, back, arms	
Pre- competition Summer	Monday A2- abdomen, back,arms	Monday A2-abdomen, back, arms		
	Friday A8- 4x (150- 130-120-100-150- 130-120-100m) a.l.p.amplitude drops at the same time with shortening distance and increasing frequency	Friday A8- 3x4x (150- 130-120-100-150-130- 120-100m) a.l.p.amplitude drops at the same time with shortening distance and increasing frequency		
		Friday A 9-abdomen, back, arms		

By analyzing the answers of the trainers involved in our research we were able to make an inventory of the main training means employed in the physical preparation focused on educating/

developing strength, displayed in two distinct means categories in Table 2, in which only those used by the majority of the respondents have been retained.

Table 2. Inventory of the strength developing means used by the trainers interviewed

No.	General physical training means	Specific physical training means
1	Running on varied ground (duration)	Running 80-300m distances on inclined ground (km)
2	Stair-step exercises (duration)	Multiple jumps with or without swing
3	Running on stairs upward and downward (duration)	Analytical exercises for different muscular groups, circuit execution (number)
4	Special exercises on flat and inclined ground	Running with weights (vest, sand bags) on distances up to 200m(km)
5	Running technique exercises	Exercises with weights for the inferior limbs (kg)
6	Medicineball exercises	Exercises with weights for the superior limbs (kg)
7	Treadmill exercises	Plyometric drills
8	-	Thrust walk with weights (kg)
9	-	Tip-toe lift-ups with weights(kg)
10	-	Jumps with weights, horizontal and vertical

The weight of the various types of means of developing specific force, start force, acceleration power, power resistance, the forms of force manifestation which influence performance in

middle distance races, has been determined following the answers of the interviewed trainers (Table 3).

Table 3. The weight of the types of strength developing means throughout the training

Means used	Trainings stages					
	Preparation Autumn-Winter	Pre-competition Indoor	Competition Indoor	Preparation Spring-Summer	Pre-competition Outdoor	Competition Outdoor
General Physical Training means						
Specific	85%	65%	33%	68%	35%	25%

Physical Training means	15%	35%	67%	32%	65%	75%
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Upon analyzing the weight of the means of developing the strength of middle distance female runners, it can be inferred that the position of the trainers, which is reflected in the training methodology of their athletes, is to make large use to of the general training means, restricting the

specific training during preparation and pre-competition stages. This is appropriate for beginners but at a superior level of training we consider this approach to be a constraining factor in achieving higher performance.

Table 4 The distribution of the strength developing means throughout the annual macro-cycle

Means Used	The volume of the means throughout the annual macro-cycle											
	IX	X	XI	XII	I	II	III	IV	V	VI	VII	VI II
Running on varied ground(duration)	No	xx Yes	xxx Yes	xxx Yes	No	No	xxx Yes	xxx Yes	xx Yes	x Yes	No	No
Running 80-300m distances up-hill (km)	No	xx Yes	xxx Yes	xxxx Yes	xx Yes	No	xxx No	xxx Yes	xx Yes	Yes	No	No
Running 80-300m distances down-hill(km)	No	xx Yes	xxx Yes	xxxx Yes	xx Yes	No	xxx No	xxx Yes	xx Yes	Yes	No	No
Multiple jumps with and without swing (number/metres)	x Yes	xx Yes	xxx Yes	xxx Yes	xx Yes	xx Yes	xx Yes	xxx Yes	xx Yes	xx Yes	xx Yes	x Yes
Stair running upwards and downwards (duration)	No	No	xxx Yes	xxx Yes	No	No	No	xxx Yes	xxx Yes	xxx Yes	No	No
Stair-Step exercises (duration)	No	xx Yes	xxxx Yes	xxxx Yes	No	No	xx Yes	xxx Yes	xxx Yes	xxx Yes	No	No
Running with weights(vests, sand bags) on max 200m distances	No	No	xx Yes	xxx Yes	xx Yes	No	No	xxxx Yes	xxx Yes	xx Yes	No	No
Hurdles	No	No	xxx Yes	xxx Yes	xx Yes	xx Yes	xxx Yes	xxx Yes	xxx Yes	xx Yes	xx Yes	No
Barbell exercises (load 20-40% of body mass)	No	xxx Yes	xxx Yes	No	No	No	xx Yes	xx Yes	xx Yes	No	No	No
Strength circuit- analytical exercises	No	xx Yes	xxx No	xxxx Yes	xxx No	No	No	xxxx Yes	xxxx No	xx Yes	x Yes	No

Legend – x-small volume
xx- medium volume
xxx-high volume
xxxx-maximum volume

It can be observed that only 15% of the trainers use analytical exercises in order to develop the strength of the muscular chains (bone structure-muscular groups- articulations-ligaments) involved in the specific effort: the start and the start launch (starting force); while running (acceleration power and power resistance).

CONCLUSIONS

A questionnaire has been drawn up for the research, which was then employed for a number of 25 trainers who work with the most valuable female runners in Romania at present, who either compete in the 800m -1500m races or have achieved remarkable results in these races throughout their professional careers.

During the control research we have examined the opinions of the specialists in the field on the issues of the training process in middle distance races, the distribution of the strength

developing means and the middle distance female runners.

Upon examination of the answers of the trainers involved in our research we have been able to make an inventory of the main training methods use in the physical training focused on educating-developing strength. The majority of trainers use seven common means of general physical training and ten specific means of strength training.

By using the method of the investigation we have been able to identify the opinion of the Romanian trainers with regard to middle distance races, in general, and to middle distance female runners, in particular.

The analysis of the answers in the questionnaire has revealed that 76% employ two macro-cycles for developing strength, 20% prefer three macro-cycles and only 4% use one macro-cycle.

It is obvious from their answers that the majority of the trainers support the principle of

working in tougher conditions (80%) and only 20% use weight exercises in order to develop specific strength.

This confirms the analysed methodological orientation of the trainers and offers us solid arguments in promoting these training means with the experimental group.

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STUDY REGARDING THE DESIGN OF THE PHYSICAL AND TECHNICAL TRAINING OF JUNIOR PLAYERS ACTING IN THE GOAL AREA IN THE SOCCER GAME (UNDER 19)

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Abstract:

Many of the problems encountered by the coaches refer to the efficiency, both from the individual point of view and from the team perspective in general . By recording the games at the physical, technical, tactical and psychological level we can establish almost exactly the evolutionary curve of the team or of the players considered separately. This fact could bring new data to the coach and thus he is able to intervene, to design the physical and technical training at the parameters of the official game.

Keywords: training, strikers, design, efficiency.

INTRODUCTION

Each player has his own technical and tactic profile as well as his own characteristics in a team. Moreover, the bio-motive qualities and their distinct combinations are unique for each position.

The experts in training understand very well what differentiate a position from another and they apply these principles in the daily training process, developing and implementing programs specific to the soccer game.

All the technical and tactic sessions have to use specific sets of exercises according to the operating area. In other words, the coaches will do right highlighting the specific adaptations of each position, planning sets of exercises specific to each position.

So, under the name of “individualization”, we can define the adaptations of sport technique and educational process to the particularities of each player, according to his main features and to physical technical and tactic deficits specific to each position

THE PURPOSE of the research is the efficient design of the training by using methods and means that would solve the complex tasks of the individual and group training, individual or specific to the target group of the research.

TASKS OF THE RESEARCH

- To study the literature of specialty related to the research topic;
- To establish the research methodology and the work plan;
- To identify and use the training means specific to the goal area and their elaboration as programmes;
- To experiment the training programmes;
- To assess the efficiency and quality of the training;
- To elaborate the operational models, mentioning the aims and the parameters of the effort at ages under 19, starting from the objective realities of the competitive match;
- To analyse and interpret the results

RESEARCH HYPOTHESIS

We consider that the design of the content of the training shall improve the physical and technical factor and shall lead to an increase in the performance of the players in the goal area.

METHODS

We have used the following research methods in order to fulfill the aim of the research and to achieve its objectives:

- scientific documentation (bibliographic);
- pedagogical observation technique;
- test method;
- pedagogical experiment;
- mathematical and statistical method;