THE OPTIMIZATION OF THE FOOTBALL PLAYERS' AGILITY USING THE DATA PROVIDED BY THE STUDY OF THE CONTROL PARAMETERS BY MEANS OF THE MODIFIED MIRON GEORGESCU METHOD

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Abstract
This paper presents the results of a study which wants to establish the importance that the control parameters (i.e. CVE – the coefficient of energetic fluctuation and CVS – the coefficient of structural fluctuation) has on the sport performances of the football players. The results depend on the innate qualities of the sportsmen and the assessment has a general character and can be useful to trainers in the future managing of the training.The scientific planning of the training has to use objective methods and means of highlighting the motric qualities, means of control and means of evaluating the results. These methods are useful for the management of the training process as well as for its individualization.The evaluation was made by means of the modified Miron Georgescu (MGM 15) test. The group under study contains twenty sportsmen, members of the Steaua Dunarii Galati football club; the sportsmen are sixteen years old.The conclusions of the study highlighted the fact that when the values of the control parameters are the best, the sportsmen's results are much better, the sportsmen having a better agility and co-ordination.The study took place complying with the ethics and having the subjects' agreement.
Key words*: Miron Georgescu test, planning, parameters, evaluation*

INTRODUCTION

The sport performances are conditioned by the sportsmen motric which have different weighing according to the respective sport. In our case – in football – performance is conditioned by how fast, powerful, resistant and agile is the sportsman. Agility makes the difference in football; for this reason, football players must benefit by a program of agility's optimization. The body's adaptation to the sport's requirements is the main goal of the training.

The tests and their results provide control on the efficiency of the training techniques and methods, but they do not provide some indicators referring to the quality of the adaptation and the future managing of the training. By means of the modified Miron Georgescu test we obtain a series of indicators that show certain capacities the sportsmen have; these capacities are given by the two control parameters CVE and CVS.

The main principles for the estimations and the results' interpretation are given by Pierre de Hilerin who added the number values for evaluating the flying steadiness (CVE) and the ground connection (CVS) to the initial version of the method.

SUBJECT AND METHOD

The testing of sportsmen by means of the "MGM15" jumping carpet gives us the necessary data to ground the individualization of the speed and explosive force training.

The tests that were made consisted in the registration and electronic processing of the time when the subjects touch the ground and of the time when they are floating; the test consisted in 15 consecutive double leg jumps and single leg jumps.

The subjects are the members of Steaua Dunarii Football Club Galatz, a football club that gave players to the football teams playing in both divisions.

Our research concentrated on the analysis of the data referring to the control parameters – the coefficient of energetic fluctuation (CVE) and the coefficient of structural fluctuation (CVS).

The data's interpretation is based on the table with the level of performances; the table is provided by one of the inventors of the "modified Miron Georgescu" jumping carpet to which Pierre de Hilerin's main principles are added.

THE DEVELOPMENT OF THE RESEARCH

The research lasted a year, from May 2013 till May 2014, under the auspices of the Research Centre for Human Performance from the Faculty of

Physical Education and Sports, the "Lower Danube" University of Galati.
The sportsmen's group had a special training once a day, five days a week according to the annual training plan.
In order to make this research, we and the sportsmen's trainers agreed to introduce two training programs into the annual training plan; each program lasted ten weeks and it repeated three days a week after the sportsmen warmed up for the training.
The sportsmen were initially tested by using the MGM15 platform and the test was repeated after each ten weeks training program.

Table 1.Training program

	Plyometric			Sprint		Frequency
WEEK	Exercise	Sets	Reps	Distance	Reps	Plyo:Sprint
1	Double Leg Tuck Jumps	5	8	40m	5	Plyo 2X:Sprint 1X
2	Double Leg Hops	5	6	40m	5	Plyo 2X:Sprint 1X
3	Double Leg Tuck Jumps	5	8	40m	5	Plyo 2X:Sprint 1X
4	Single Leg Tuck Jumps	2	5	25m	2	Plyo 2X:Sprint 1X
5	Double Leg Hops	5	6	40m	5	Plyo 2X:Sprint 1X
6	Alternate Bounding	2	40m	50m	2	Plyo 2X:Sprint 1X
7	Single Leg Tuck Jumps	2	8	40m	2	Plyo 2X:Sprint 1X
8	Double Leg Hops	4	8	55m	4	Plyo 2X:Sprint 1X
9	Single Leg Bound	4	20m	40m	4	Plyo 2X:Sprint 1X
10	Double Leg Hops	4	6	50m	4	Plyo 2X:Sprint 1X
11	Single Leg Tuck Jumps	4	8	40m	2	Plyo 2X:Sprint 1X
12	Single Leg Bound	4	30m	40m	4	Plyo 2X:Sprint 1X
13	Alternate Bounding	5	50m	40m	5	Plyo 2X:Sprint 1X
14	Single Leg Hops	2	8	40m	2	Plyo 2X:Sprint 1X
15	Single Leg Bound	2	30m	35m	2	Plyo 2X:Sprint 1X
16	Alternate Bounding	8	40m	40m	5	Plyo 2X:Sprint 1X
17	Uphill Alternate Bounding	3	40m	30m	3	Plyo 2X:Sprint 1X
18	Single Leg Bound	2	40m	40m	2	Plyo 2X:Sprint 1X
19	Single Leg Hops	2	8	35m	2	Plyo 2X:Sprint 1X
20	Alternate Bounding	7	50m	50m	7	Plyo 2X:Sprint 1X

Note:
- the break between the jump sets lasts 3 minutes
- the break between the repetitions in sprints lasts 3 minutes.
The sprint training takes place between the two plyometric trainings.

RESULTS AND DISSCUSIONS

The results of the control parameters registered during testing are shown according to table number 2.

Table 2. Control parameters

	C.V.E.			C.V.S.		
Testing/Parameters	B.l.	R.l.	L.l.	B.l.	R.l.	L.l
Initial testing	9.95	9.52	8.64	13.35	10.62	9.91
Intermediary testing	6.84	5.55	5.12	6.62	6.22	6.18
Final testing	3.74	3.65	3.59	3.89	3.85	3.82

Legend: B.l.- both legs; R.l. –right leg; L..l.- left leg

Fig. 1 shows that at the initial testing, the coefficient of energetic fluctuation (CVE) has low values; these shows that the sportsmen do not control the flying phase and also highlights the movements' lack of automatization which must be perfect in football. When analyzing the graphic, it can be observed that the sportsmen have the same shortcomings for the values registered on a single leg and bigger shortcomings for the right leg.

The intermediary testing – which took place after ten weeks of training – shows lower values for CVE as compared to the initial testing

(B.l. 6.84; R.l. 5.55; L.l. 5.12); these values place the group into the average fluctuation area and highlights an average flying control.

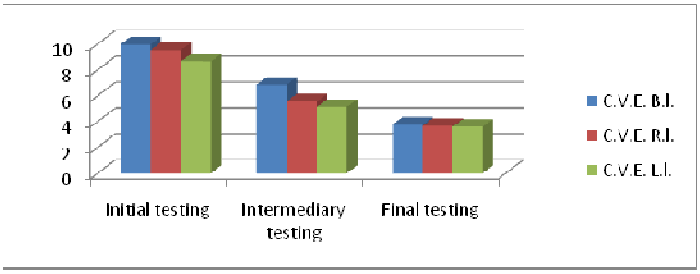

Fig. 1 –C.V.E. parameters

The final testing shows values that place the group into the best steadiness area, highlighting the perfect control of the flying phase during high speeds. In conclusion, we can state that the suggested training program fulfilled its goal i.e. the movements' optimization during flying at high speeds.

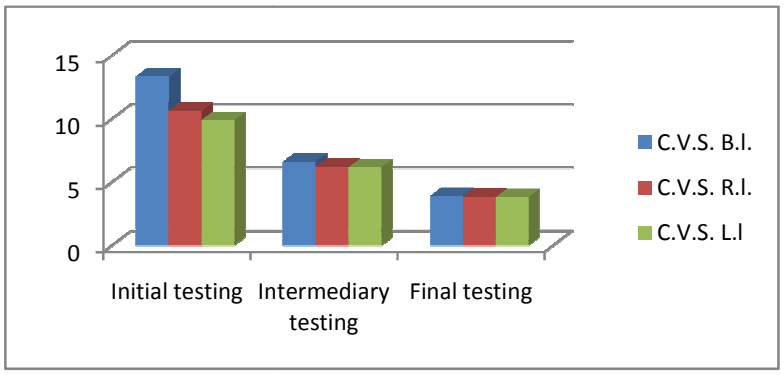

Fig. 2 – C.V.S. parameters

Fig. 2 shows the values of the coefficient of structural fluctuation (CVS) which refers to the capacity of controlling the preparation of the ground connection, respectively the resumption of the ground connection during jumps; defense; preparation and catching the object in launching process. The big values – over the maximum value in literature (3-3.5) for all jumps (B.l..: 13.35; R.l.: 10.62; L.l.: 9.91) – that were registered at the initial testing express the sportsmen's lack of control during touching the ground; this lack can be extended to other types of connections: with balls, with the oponent. The sportsmen do not anticipate the connection phases during the double leg jump and single leg ones as well.

The intermediary testing shows an improvement of the values for all types of jumps (B.l.: 6.62; R.l.: 6.22; L.l.: 6.18). Although these values are considerably improved, they are not enough to place the group into the best area (3-3.5); consequently it is necessary to continue the training.

The final testing shows the following values (B.l..:3.89; R.l.: 3.85; L.l.: 3.82) which are very close to the best ones established by the specialist literature. Moreover, an equalization of the values acn be noticed, which shows that the group recovered the differences obtained initially in the results of a single leg jump. We must mention that additional training program were organized for those sportsmen having bigger shortcomings ; such additional training programs took place as a comparative study between the double leg jumps and the single leg ones. As a resultof the final testing we can state that the group under focus has a good control when touching the ground, that the sportsmen anticipate all the connection phases.

CONCLUSIONS

Taking into consideration the research, the observations during the training and the competitions, the study of the specialist literature, it was a useful experience that led to the following:

- the managing of the training must be scientifically done in order to be able to avoid a lack of balance in the sportsmen's training. When the lack of balance appears, it must be rectified, and the correction can be done only if it is traced. Any untraced lack of balance can provoke major gaps in the training, gaps that can be difficult to rectify.

- The selection process must be stricter; in our case, although our sportsmen have good motricity we did not emphasize the motric quality of speed during the selection process. This motric quality has low values and the future improvements are minimum taking into consideration the fact that speed is a motric quality which is highly influenced by the hereditary factor. In the trainers' opinion, the tested players are very useful for the team as a whole, although they lack speed; many of them cannot be considered players having the capacity to reach high performance.
- The sportsmen' evaluation must take place after each training cycle, in order to quickly trace the gaps from the training process and to manage the training considering the results obtained by each sportsman. A greater importance must be given to the individual training, to be able to reduce the gaps between the sportsmen from the team, as well as the gaps between the sportsman's own qualities. If the trainers know these problems, the efficiency of the trainings will raise and consequently, the performance will be perfected.
- The training methodology used during the study allowed the improvement of the sportsmen's performances and the balancing of the control parameters. As a result of the balancing of the control parameters we noticed an improvement of the sportsmen's agility, which can make the difference during a game. All the sportsmen from the group under study had improvements in point of speed and force as well as in the combination of the two. These improvements could be also seen during the matches from the competition's program.

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