SYSTEM OF SELECTION OF YOUTH SOCCER PLAYERS FOR SLOVAK NATIONAL U16 TO U19 TEAMS FROM THE VIEW OF SELECTED FUNCTIONAL PARAMETERS

PAVOL PERÁČEK – PETER KOPÚŇ
Faculty of Physical Education and Sport
Comenius University in Bratislava
Slovakia

ABSTRACT

Currently, all sports games, particularly soccer, have recorded a very significant progress. It is also the result of thoughtful preparation and selection of talented players. This applies not only to senior soccer, but especially to junior soccer. There are very close relationships between elite senior soccer and elite junior soccer.

The authors of this project draw on the experience based on present knowledge of theory and practice of sports training of talented soccer players and want to submit a proposal for an improvement of talent identification and selection of young soccer players for the different age categories of youth national teams. Authors in theirs multiannual research (currently 2nd year of research) pursuing a level of functional parameters of the selected youth soccer players of Slovak Republic in teams U16 to U19. They compare obtained results for each player (their dynamics of changes) in each team U16 to U19, and also within different player positions.

Acknowledgement: This study is a part of VEGA research grant No. 1/1252/12: "*Improvement of identification and selection system of young male talented soccer players for junior national teams in the Slovak Republic and streamlining the content of their training and preparation*."

Key words: soccer, top young players, functional parameters, players' posts, testing

INTRODUCTION

Searching for, identification, selection and development of talents are the concepts which are of serious interest of both coaches and sport scientists. Kane and Fisher (1979, in Hebbelinck 1989) in their report on sport abilities submitted to the British Council of Sport claimed that capable and talented children are the highest value of society and therefore, it is necessary to select them from the population and form them in the desired way. When searching for children talented for sport coaches usually proceed subjectively and rely on their own experience in spite of the fact that using the well-known „catalogue" of criteria for identification of talented players is much more effective. Detailed knowledge on morphological, biochemical, psychological and motor characteristics inevitable for reaching success in the given sport forms the keystone. The issue of selection of talented individuals cannot be limited only to the process of selection itself. We can see the problem in two basic spheres: 1/ in the criteria, i.e. in identification of performance attributes necessary for the reaching of top performances, 2/ in finding predictors, i.e. in indicators of performance at the age when they have not reached its final (univocal) level. Prognostically, only those predictors are relevant, which: can be measured in the time of talent determination, and moreover, which are developmentally stable in the long time of prognosis. Game performance in soccer is very complicated and complex. It is influenced by several factors active in different directions and with various intensity in each individual. Creation of the model of a future sportsman (Volkov, Filin, 1983) is the first step in the long-continuing process of talent selection. Its aim is to describe requirements on a talented sportsman, with high validity. Any serious prediction is very complicated without perfect knowledge of the requirements on talented players. The second phase of „identification – selection – development" of sport talents is represented by the process of selection. It is a specific activity coming out from the essence of the given sport, or created model of future sportsman. This model represents a framework, which determines the requirements on a talented sportsman. Basic starting point is finding and selection of suitable indicators, which show high validity to the given criterium. In nighteen eighties qualitative types of selection were mostly preferred (Korček, 1975, Mikuš et al. 1980, and others). Prerequisites for future performance of high level were determined based on the results of motor tests. The number of tests and their character were given by individual sports and drew from current research on the structure of sport performance. Selection criteria were focusing first of all on mono-factorial performances, but also on multi-factorial types (e.g. sport games) and prediction models in individual and team sport games were the top (e.g. Blahuš, 1982). These selection criteria are found in the world professional literature very frequently (e.g. gymnastics – Dungaciu, Comaneci, 1985; fencing – Érsek, 1990; athletics – Siris, 1983; and many others). In sport preparation of youth serious attention is paid to the search for „optimum" set of tests (from the point of view of tests and time phase of measurement). These works are often represented in our domestic and foreign literature (e.g. Blahušová, 1979; Blahuš, 1982, 1991; Dudin, Makarenko, 1993; Piennar, Spamer, Steyn, 1998 and others). Utilization of motor tests for selection of sport talents allows for predicting performance in certain spheres, thus contributing to high effectiveness of selection (Blahušová, 1979; Blahuš, 1982, Havlíček et al. 1982, Zapletalová, Plichta, 1987 and others). But at the same time there is a problem of methodological character – it is their presumable validity (Havlíček, 1989) and contribution of repeated longitudinal testing in order to increase prediction validity of tests. It is clear that for performance prediction monitored by testing longer time is necessary for obsering monitored groups of sportsmen longitudinally. Our research study focuses on such observation of different groups of representative players in soccer (16 to 19 years of age), representative selections of female junior and adult players as well as 4 teams of top youth soccer players.

The main aim of the research study is deepening of the knowledge on the system of identification and selection of talented players for top youth sport and junior representative teams in soccer. The whole research is conceived as several consecutive parts. They form 8 research stages, which will form an interconnected unit.

The research problem in this part of study draws from the formulation of a partial problem. Its main content forms the level of performance in several functional parameters in observed top youth soccer players in various age categories, as well as their performance level in the same functional parameters in various players' functions in individual age categories.

METHODS

Research design

Observed groups were formed by elite young players of junior soccer teams S1, n=38 (1st measurement) mean age 17.7 years, +/ - 0.50 and n=35 (2nd measurement), mean age 18.3 years, +/ - 0.60 and S2, n = 53 (1st measurement), mean age 16.1 years, +/- 0.50 and n=36, mean age 16.6 years, +/- 0.35.

The level of functional abilities of top sportsmen in adult age is mostly known in the majority of indicators. Research is currently focusing on the finding of the dynamism of their development mainly in top sportsmen. We have still very little knowledge on inherited prerequisites of players as well as facts on the impact of sport preparation on individual parameters of players. In the work by Havlíček et al. 1987 we recorded that long-lasting training (around 800 hours per year) can develop maximum oxygen consumption per kg of weight only to a very limited extent. That is why we tried in our research work to deeply examine the dynamism of changes of functional parameters

of observed sportsmen and since the research is still in progress, we try to find out the changes of parameters after one year of sport preparation.

The volume of trainings in individual groups recorded 600 – 700 hours per year. Individual groups were tested always in the same way. Testing was carried out after the termination of the preparatory period I and II. The order of tests was always identical. Two training units were used for testing. In the first part the following tests were used: 10 m run, 30 m run, 50m run, 5 x 10 m shuttle run, repeated sit-ups and yo – yo intermittent recovery test (Bangsbo, 1995), while in the second training session the following tests were used: standing broad jump, 7 x 30 m shuttle run (ibid). In the tests 10 m, 30 m, 50 m runs and standing broad jump experimental players had two attempts, of which the better was recorded. In the remaining tests players had only one attempt. Testing was organized after a serious warm-up. For the measuring of time electronic time-keeping unit was used. Players were tested on artificial grass. Results were processed using common statistical methods (arithmetic mean, standard deviation, median, and variation interval - Vr). Non-parametric Mann – Whitney U – test was used to determine the differences between the observed teams.

RESULTS

The observed group of elite youth players is tested every year after the preparatory period I and II using the selected set of motor tests so that they covered all the spheres of fitness parameters of the game performance of soccer players.

Motor performance was recorded at the beginning of the main competition period in autumn. Training load was observed according to the number of training hours before autumn and spring competition period of sport preparation (from July 5 till August 2 and from January 8 and February 22). Time asynchrony between the recorded motor performance and training load does not allow for assessing the effectiveness of sport training. Trainers and researchers lack comprehensive information on the necessary characteristics of trainign load in the top youth category. We found out that players reached the following parameters in the fitness motor tests:

In group S1 players reached the following performance in the 10 m sprinting test: 1st measurement x – 1.746 s, s – 0.092, Vr – 0.38 and in 2nd measurement x – 1.779 s, s – 0.134, Vr – 0.46. Relationship between players' performances of this group in the observed indicator was not statistically significant. In the test 30 m sprint players of the group S1 reached the result: 4.251 s, s – 0.165, Vr – 0.64, while in the second measurement the mean performance of the observed players was 4.276 s, s – 0.187, Vr – 0.68, relationship between the performances in the first and second measurement was not statistically significant. Standard deviation and variation interval showed increasing tendency, which gives evidence of steadiness of accruals in the performance of the given group. In 50 m sprinting test players of group S1 reached the performance 6.691 in the first measurement, s – 0.262 and Vr – 1.1; in the second measurement they reached the performance 6.594, s – 0.282 and Vr – 1.1. In spite of the fact that the performance showed decreasing trend, standard deviation increased slightly and variation interval remained unchanged. U–test was statistically significant on the level $p<0.10$ (1.690). In the test 5x10 m players of the group S1 reached the performance 11.57 s in the first measurement, s – 0.373, Vr – 1.4, in the second measurement players reached the performance 11.53 s, s - 0.354 and Vr – 1.22, which gives evidence of the decreasing standard deviation and low value of variation interval. Relationship between the performances in the first and second measurements in this test was not statistically significant. In the test standing broad jump players of the group S1 reached the performance 229.8 cm, s – 15.86 and Vr – 82, in the second measurement players reached the performance 241.9 cm, s – 13.21 and Vr – 56. In this indicator we recorded an increase in the mean performance on the level of $p<0.01$ (3.667). Despite the fact that the mean performance was siginificant on 1% level of significance, standard deviation showed decreasing tendency, similarly as variation interval. In the test repeated sit-ups we recorded the performance 60.47, s – 6.749, Vr – 30, in the second measurement we recorded the performance 65.56, s – 5.923, Vr – 21. U–test was statistically significant on the level $p<0.05$(2.425). In yo – yo test players of the first group recorded the performance in the second measurement 2357.4 m, s – 392.0, Vr – 1640.

In the group S2 players reached in the test 10 m sprint in the first measurement the performance x – 1.765 s, s – 0.073, Vr – 0.33 and in the second measurement x – 1.825 s, s – 0.174, Vr – 0.57. Relationship between players' performances in the observed indicator was not statistically significant. In the test 30 m sprint in the first measurement players of the group S2 reached the performance 4.437 s, s – 0.209, Vr – 1.03, in the second measurement the mean performance was 4.467 s, s – 0.188, Vr – 0.64, relationship between the performances in the first and second measurements was not statistically significant. Both standard deviation and variation interval showed decreasing tendency, which gives evidence of the fact that the performance of players equals. In the 50 m sprint players of the group S2 reached the performance 7.052 in the first measurement, s – 0.416 and Vr – 2.09; in the second measurement players reached the performance 6.942, s – 0.311 and Vr – 1.38. In spite of the fact that the performance in the second measurement is better, standard deviation slightly decreased and variation interval was narrower, the performance of players was more homogeneous. U–test was statistically non-significant. In the 5x10 m shuttle run players of the group S2 reached the performance 11.92 s in the first measurement, s – 0.487, Vr – 2.28, in the second measurement players reached the performance 12.03 s, s – 0.490 and Vr – 2.45, which gives evidence of almost identical standard deviation and variation interval at very low level, even that the player's performance decreased. Relationship between the performances in the first and second measurements in this test was not statistically significant. In the test standing broad jump players of the group S2 in the first measurement reached the performance 217.1 cm, s – 16.79 and Vr – 81, in the second measurement the performance was 229.9 cm, s – 13.62 and Vr – 59. In this indicator we recorded an increase in the average performance on the level of $p<0.01$ (3.678). In spite of the fact that mean value of the performance was statistically significant on 1% level, standard deviation showed a decreasing trend, similarly as variation interval. In the test repeated sit-ups we recorded the performance 60.47, s – 7.113, Vr – 29, in the second measurement we recorded the performance 64.53, s – 8.217, Vr – 28. U–test was statistically siginificant on the level $p<0.10$ (1.762). In yo – yo test players of the second group reached in the second measurement the performance 2172.9 m, s – 214.8, Vr – 780.

Relationship between the results of functional motor fitness tests and players function in the observed groups.

When comparing the results of functional motor tests and players position, we divided the groups S1 and S2 into three differrent subgroups as to their posts. Group S1 included the group of defenders (n = 16) at first measurement, at second measurement (n = 12), the groups of midfielders included n = 15 players and at second measurement n = 14 players, the group of attackers included n = 7 players in the first measurement and 9 players in the second measurement. In group U 16/17 year-old players the group of defenders comprised of n = 20 players in the first measurement and n = 12 players, at the first measurement the group of midfielders included n = 22 and n = 13 players, the group of attackers comprised of n = 11 and n = 11 players. No statistically significant differences between groups were recorded as to players' positions in group S1 and S2. The groups were homogenous as to the test results. In group S1 in the test 10 m sprint at first measurement the best results reached midfielders x – 1.732 and the worst ones defenders x – 1.763, at the second measurement the best results were recorded by attackers x – 1.713 and the worst by defenders x – 1.810, in the test 30 m sprint at the first measurement the best were attackers x – 4.176, while midfielders and defenders reached approximately the same performance, x – 4.310 and x – 4.229, at the second measurement the best wer also attackers x – 4.199 and the wors were defenders x – 4.316 s. In 50 m sprint in the fist measurement the fastest were attackers x – 6.543, similarly defenders 6.654, the slowest were midfielders x – 6.801. In the second measurement the best were attackers again x – 6.471 and the slowest were defenders x – 6.618 s. In 5x10 m shuttle run the best average time in the first measurement was reached by defenders x -11.48 s and the slowest one by midfielders x – 11.66. In the second measurement attackers improved and defenders got worse, the best time was recorded by attackers 11.40 s, defenders 11.56 s, midfielders also improved, however it was statistically non-significant x – 11.66/11.59 s. In the test standing broad jump in the first measurement the best results were reached by defenders 233.9 cm, almost the same performance was reached by midfielders and attackers 227.1/226.4 cm. In the second measurement both teams improved, the best results was reached by attackers 242.9 cm, defenders and midfielders jumped

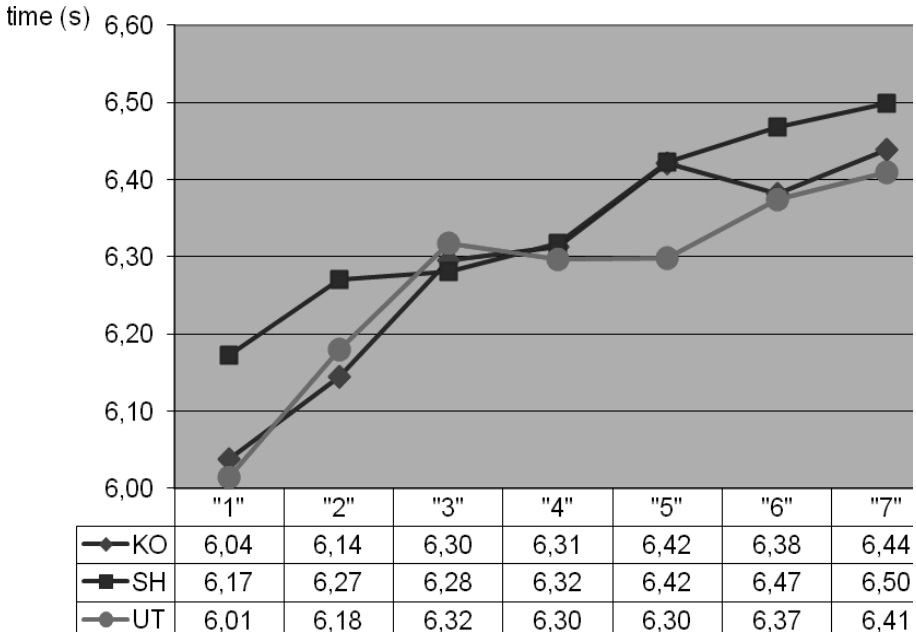
over 242.1 and 241.1 cm on average. In repeated sit-up test the results are almost identical in all three groups (defenders, midfielders and attackers x – 59.06/62.73/58.86. In the second measurement all groups reached better results; however, they were statistically non-significant (65.43/64.75/68.00). In the intermittent recovery test the best result was reached by midfielders and almost identical result was reached by attackers (2429.3/2420.0 m), while defenders recorded the worst result 2267.7 m.

In the group S2 at the first measurement attackers were the fastest – 10 m sprint: 1.760, but midfielders reached almost the same result 1.762 s. In the second measurement all three groups slightly got worse, statistically non-significantly, attackers to 1.792 s, midfielders to 1.815 s, defenders x -1.872 s. In 30 m sprint midfielders were faster than attackers 4.415/4.438 s, in the second measurement attackers and defenders reached almost the same time x – 4.462/4.461 s. In 50 m sprint the fastest were midfielders x – 7.014, while attackers recorded 7.053 s, in the second measurement the fastest were attackers 6.919 s. In 5x10 m shuttle run the fastest were midfielders 11.81 s, defenders reached 11.97 s. Also in the second measurement the best were midfielders x – 11.92 s. In standing broad jump the best result was reached by midfielders x – 221.5 cm, in the second measurement also x – 234.6 cm. In repeated sit-ups in both measurements the best result was reached by defenders 66.33, which is almost identical result as reached by defenders in group S1 (65.43).

When comparing the results of both groups, in all three types of positions we found differences between groups S1 and S2, specifically in group S1 (U18/19) in 1st measurement the best results reached attackers, in the second measurement in the same group defenders, but attackers reached the best performance in the first and last repetitions. In group S2 (16/17) in the second measurement midfielders recorded best results (see fig. 1- 3).

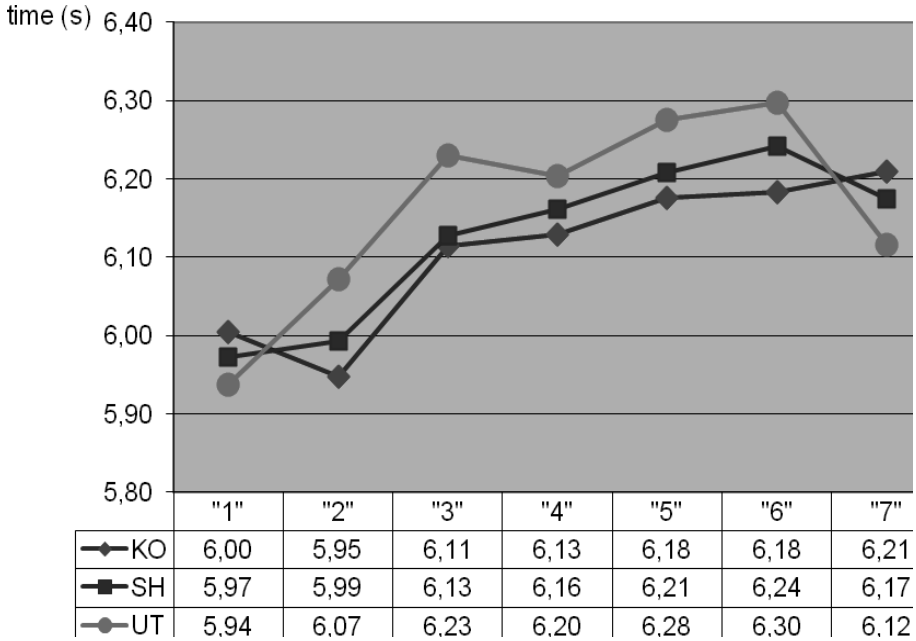
Fig. 1 Fig. 2

Fig. 3 Results in the test 7x30 m sprint - U16/17 – 2nd measurement



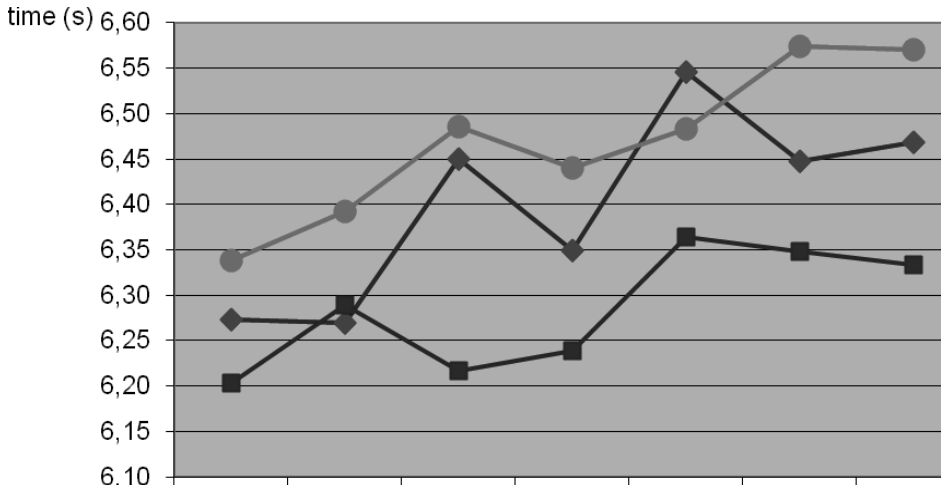
	"1"	"2"	"3"	"4"	"5"	"6"	"7"
KO	6,04	6,14	6,30	6,31	6,42	6,38	6,44
SH	6,17	6,27	6,28	6,32	6,42	6,47	6,50
UT	6,01	6,18	6,32	6,30	6,30	6,37	6,41

Figure 1
Results in the test 7x30 m sprint - U18/19 (1st measurement)



	"1"	"2"	"3"	"4"	"5"	"6"	"7"
KO	6,00	5,95	6,11	6,13	6,18	6,18	6,21
SH	5,97	5,99	6,13	6,16	6,21	6,24	6,17
UT	5,94	6,07	6,23	6,20	6,28	6,30	6,12

Figure 3
Results in the test 7x30 m sprint - U18/19 (2nd measurement)



	"1"	"2"	"3"	"4"	"5"	"6"	"7"
KO	6,27	6,27	6,45	6,35	6,55	6,45	6,47
SH	6,20	6,29	6,22	6,24	6,36	6,35	6,33
UT	6,34	6,39	6,49	6,44	6,48	6,57	6,57

Figure 3
Results in the test 7x30m shuttle run S2 - U16/17 (2nd measurement)

DISCUSSION

Functional prerequisites of young players and their development in the stages of deepen and specialized sport preparation showed serious significance for the level of sport performance in adulthood. It is inevitable to observe these prerequisites thus enlarging the current theoretical knowledge, which is fruitful for the practice, too. Soccer represents intermittent loading, in which higher intensity and lower intensity with randomly changeable physical activity take turns. Players perform various cyclic, but also acyclic game activities with ball or without it, with different speed and various time of duration.

If we compare some of the indicators of motor performance with a similar research by Šajben, Peráček (1982) n = 133, in the U18/19 category, in 50 m sprinting test there came to a marked improvement of players performance level during the last 30 years from 6.81 to 6.59 s. On the other hand, when testing dynamic strength of legs in the test standing broad jump, the results have not changed much during the last thirty years 235.4/ 241.9 cm. Players decreased their level of performance in the test repeated sit-ups per 1 minute from 73.8 to 65.56. In this age category, the overall volume of players loading during a match has almost doubled, from 6500 m to almost 11000 – 12 000 m (Peráček, 2000). The number of meters covered by maximum speed has also increased from 100 m to 500 – 800m (Peráček et al, 2012). In spite of the developmental tendencies in elite soccer, which are related also to elite youth soccer gives evidence of the fact that we have not captured this trend, which is probably showed in the test results. If the test results are better, our players reach good results also in international matches. This age category falls into the stage of specialized preparation. It appears that we shall probably accept this (increased loading of players in a match and differences in loading from the point of view of players' positions, also in the sphere of individualization in conditioning, but in these stages also in the technical and tactical spheres). We found out certain statistically significant relations between some monitored functional parameters. On the other hand, even if we did not find any statistically significant differences in the selected functional parameters in individual groups U18/19 and U 16/17 when testing them within the players positions in our study, but in the research by Peráček et al (2012) we found that there exist differences in the loading of players in these age categories in a match and also from the point of view of offensive and defensive phases of the game. Some other research studies prove this (Psotta, 2003; Verheijen 2000).

CONCLUSIONS

It is presumable that teams with low training load do not normally improve their physical fitness. Gross training time does not mean the guaranty of good quality sport training and does not necessarily cause increasing the motor performance of players. Moreover, it is probable that merely fitness preparedness is not a sufficient guaranty of mastering soccer skills and reaching success. Motor performance of fitness character is a potential prerequisite and it can be effective only under condition that it is applied in game situations.

REFERENCES

Blahuš, P. 1975. Platnost předpovědi při výběru talentu. In: Hošek, V. et al.: *Teoretické* základy výběru sportovních talentu. *Metodický dopis.* Praha: UV ČSZTV, 1975, s. 10 – 27.

Blahuš, P. 1985. *Faktorová analýza a její zobecnění*. Praha : Státní nakladatelství technické literatury, 1985, 354 s.

Blahuš, P. – Seifertová, V. – Kavan, S. 1982. *Možnosti predikce sportovního talentu*. Praha: ČÚV ČSTV, 1982, 150 s.

Blahušová, E. 1979. Predikční validita longitudinálního testování v atletické prípravě mládeže. In *Sborník vědecké rady ÚV ČSTV č. 10*. Praha : Olympia, 1979, s. 63 – 90.

Dudin, N. S., Makarenko, N. V. 1993. Značenie nekotorych morfofunkcionalnych i psychomotornych charakteristik dlja otbora junych sportsmenov. *Teor. Prakt. Fiz. Kult*., 11, 1993, s. 27 – 29.

Dungaciu, P., Comaneci, N. 1985. Teorie – studii – cercetari cu privrie la valoarea si organizarea preboler generale SNUS. *Educ. Fiz. Sport,* 9. 1985, s. 15 – 21.

Ersek, A. 1990. Výber a práca s mladými šermiarmi v Maďarsku. *Tréner*, 34, 1990, 8, s. 491 – 493.

Havlíček, I. 1986. *Aktuálne prístupy vo* výbere a v tréningu športovo talentovanej mládeže. Praha : ÚV ČSTV, 1986, 33 s.

Havlíček, I. 1989. Rozhodovacie procesy vo výbere športových talentov. *Tréner,* 33, 1989, 12, s. 713 – 715.

Kane, J., Fisher, R. J. 1979. Giftednes in sport (a desk study for the Sports Council). Mimeographed manuscript. In Hebbelinck, M. (1989) Identyfikacija i rozwój talentów w sporcie. *Sport wyczyn.* 1989, č.2, s. 3 – 8.

Mikuš, M. et al. 1980. *Výber talentovanej mládeže pre hádzanú.* Bratislava: Šport 1980, 106 s.

Piennar, A. E., Spamer, M. J., Steyn (jr.) H.S. et al. 1998. Identifying and developing rugby talent among 10 – yer – old boys. A practical model. *Journal of Sport sciences*, 16, 1998, 8, s. 691 – 699.

Peráček, P. 2000. Špecifické podnety kvalitatívnej akcelerácie futbalu *na Slovensku*. Habilitačná prednáška. Bratislava, FTVŠ UK, 2000.

Peráček, P. et al. 2012. Vybrané charakteristiky kondičných parametrov vonkajšieho zaťaženia vrcholových juniorskych a seniorskych futbalistov. In Holienka et al 2012, *Tréningové a zápasové zaťaženie hráča v športových hrách*. Bratislava: UK FTVŠ, 2012, s. 21 – 44. ISBN 978 – 80 – 89257 – 52 – 2.

Siris, S. Z., Gajdarska, S. M., Račev, K. I. et al (eds). 1983. *Otbor i prognozovanie sposobnostej v legkoj atletike.* Moskva: Fizkultura i sport, 1983.

Šajben, Z., Peráček, P. 1987. Účinnosť tréningového zaťaženia z hľadiska motorickej výkonnosti vo futbale. In Havlíček, I. et al. Športová príprava talentovanej mládeže. *Zborník Vedeckometodickej rady SÚV ČSZTV XIII*. Bratislava: Šport, 1987, s. 221 – 222.

Verheijen, R. 2000. *Fussballkondition*. Handbuch. Leer: Anton Lindemann, 2000, 334 s.

Zapletalová, L., Plichta, P. 1987. Účinnosť tréningového zaťaženia z hľadiska motorickej výkonnosti vo volejbale. In Havlíček, I. et al. Športová príprava talentovanej mládeže. *Zborník Vedeckometodickej rady SÚV ČSZTV XIII*. Bratislava: Šport, 1987, s. 217 – 220.