

THE POLISH WAY TO SPORT WALKING MASTERY

E. Mleczko*, G. Sudol*, M. Waclaw*, J. Jaszczanin**

*University School of Physical Education in Cracow, Cracow, Poland; ** University of Szczecin, Szczecin, Poland; Lithuanian Academy of Physical Education in Kaunas, Lithuania.

Annotation. To test the dependence between the progression of the sport results (ended with the Polish records in the junior category in 10 and 20 km) and the training loading complied in the beginning years of the training of two Polish Olympic contestants in the sport walking (G.S.'s VII th place in 50 km and B.K.'s XII th place in 20 km). Is any directly proportional dependence between the result pace of the sport walking in 10 and 20 km ended with the Polish records in the junior category in both distances and the training structure and quantity and intensity of the training loading. The appearance of the tendency to the stabilisation of the sport results development's pace can be a succession of too significant training loading in the junior category. There is a possibility of holding the relative stabilisation of the sport development in the sport walking for a long time. The training quantity and its intensity on the oxygen-non-oxygen level can influence on the result progression in 10 and 20 km at the beginning time of practicing the sport walking. The negative influence is marked by the number of the starts and the running training quantity. The cumulative effect of the training in the following years can influence on the progress of the results in the sport walking, especially in the 50 km distance. Practicing sport walking in 50 km should not cause any decrease of the efficiency in the sport walking's shorter distance.

Key words: Sport walker, junior category, result progression, training structure, training loading, correlation factor.

Аннотация. Млечко Э., Судол Г., Мирек В., Ящанин Я. Польский путь к мастерству в спортивной ходьбе В работе представлен анализ материалов ведущих польских легкоатлетов по спортивной ходьбе (рекордсменов Польши среди юниоров на дистанциях 10 и 20 км), в последующем двух членов олимпийской команды (на предыдущих ОИ на дистанции 50 км Г.С. занял VII место, Б.К. на дистанции 20 км занял XII место). В работе представлена структура тренировочного процесса, интенсивность нагрузок выполненных в возрасте младшего и старшего юниора и их спортивные показатели. Существенный прирост результатов на дистанциях 10 и 20 км связан с выполнением тренировочных нагрузок в аэробно-анаэробной зоне. Отрицательное влияние на спортивные достижения оказывает большое количество стартов и объем беговых тренировочных нагрузок в годовом цикле, что было отмечено для упомянутых спортсменов. Анализ представленного материала свидетельствует о том, что снижение прироста спортивных результатов Г.С. в возрасте юниора было связано с большим объемом тренировочных нагрузок. Высокого уровня достижений на дистанции 50 км можно достичь на основе многолетней специализации на более коротких дистанциях, в то время как специализация на упомянутой дистанции не должна снижать показателей на более коротких дистанциях.

Ключевые слова: Спортивная ходьба, юниоры, динамика результатов структура тренировок, тренировочная нагрузка, коэффициенты корреляции

Анотація. Млечко Е., Судол Г., Мирек В., Ящанин Я. Польський шлях до майстерності в спортивній ходьбі У роботі представлений аналіз матеріалів провідних польських легкоатлетів по спортивній ходьбі (рекордсменів Польщі серед юніорів на дистанціях 10 і 20 км), надалі двох членів олімпійської команди (на попередніх ОІ на дистанції 50 км Г.С. зайняв VII місце, Б.К. на дистанції 20 км зайняв XII місце). У роботі представлена структура тренувального процесу, інтенсивність навантажень виконаних у віці молодшого й старшого юніора і їхні спортивні показники. Істотний приріст результатів на дистанціях 10 і 20 км пов'язаний з виконанням тренувальних навантажень в аеробно-анаеробній зоні. Негативний вплив на спортивні досягнення робить велика кількість стартів і обсяг бігових тренувальних навантажень у річному циклі, що було відзначено для згаданих спортсменів. Аналіз представленого матеріалу свідчить про те, що зниження приросту спортивних результатів Г.С. у віці юніора було зв'язано з більшим обсягом тренувальних навантажень. Високого рівня досягнень на дистанції 50 км можна досягти на основі багаторічної спеціалізації на більше коротких дистанціях, у те час як спеціалізація на згаданій дистанції не повинна знижувати показників на більше коротких дистанціях.

Ключові слова: Спортивна ходьба, юніори, динаміка результатів структура тренувань, тренувальне навантаження, коефіцієнти кореляції

Introduction.

The recent success of Polish sport walkers is linked with the name of Robert Korzeniowski. His international arena's sport achievements are still the reference points to the estimation of the sport level not only among Polish athletes. According to this kind of situation is it not difficult to ask the question about the reasons of such unusual sport achievement. Undoubtedly, they can be found in the real talent whose rational example is the phenomenal genotype transmitted from parents. However, it is well known this frequent Olympic champion owes his results in 20 km and 50 km distance sport walking first of all to the well organized training system where the training problematic points play one of the biggest roles (Cempla, Mleczko. 1989). Till now, their foundations have been only partly estimated and published (Cmielewski, 1978) but their beginnings take place from Polish origins. They gave and are still giving the chance of talent accomplishment measured by the athletes' possibilities. Some of them during the following ontogenesis stage achieve even better results where example can be found among Polish juniors' record which belonged to the younger contestant than R. Korzeniowski (Kisiel, 1992). The result of the detailed analysis of the training concept of the

Polish sport walkers provide proofs that despite of some differences in the training material and time structure there are some common features. The example of the last sentence can be G.S. the athlete who was the Polish juniors' champion of 10km and 20km (1:25.47). He repeated this success several times. His greatest international achievement of 10 km and 20km are: 7th place in the international championship of juniors in 1996 in Sydney (20km), as a senior 10th place in European championship in 2002 in Munich and also 7th place during the Olympic Games in Athens (50km). In the following year Robert Korzeniowski became his personal trainer but before that G.S. was trained according to the training foundations of Kisiel (1999-2004) and Zięba (1998).

In the individual researches the attempt was undertaken to describe the specific features of the G. S.'s (top Polish sport walker) pace of sport result development and the connection intensity between progression of the achieved results of 10km and 20km walking distance in the junior, pre-senior and senior's first year categories and accomplishing during that time the training loading.

Resources. During the eight year long period of training (1992-2000) the number of starts, outside training capacity (km) considering the way of doing the distance's partition (sport walk-run) and the range of accomplished exercises intensity (inner loading zone: oxygen, oxygen-non-oxygen and non-oxygen-oxygen; Cempla, Mleczko, 1989), inside training's exercises endurance (hourly) improving strength and coordination base (so called "efficiency"). Using the Spearman's correlation rang factor the strength of connection between the best result in the following training years in the 10 and 20km distance and accomplished training loading in the particular year were stated.

The research questions:

1. Can be find during the thirteen year long period of practicing sport walking by researched contestant the typical features of the development dynamics of the sport results: progression, relative stabilization and regress for all typical sport walking distances (10, 20 and 50 km)?

2. What kind of the training loading were accomplished by the Polish champion in the 10 and 20 km distance sport walking in the junior category during the junior, pre-senior and senior's first year season and which of its elements showed the strongest correlation with the development dynamics of the sport results?

Material and methods. The documents and files enclosed in the Polish Athletics Association's reports in years 1993-2005 and information from the G.S.'s and B.K.'s "Training Reports" compiled by the Polish Athletics Association's trainers for sport walkers' training registration needs to test the sport results within 5, 10, 20 and 50 km distance in thirteen year long sport career period of researched contestant and the capacity and intensity of the sport training accomplished by G.S. and B.K. in the years 1992-2003 (the junior, pre-senior and senior's first year season) were detailed analyzed.

Results. Table 1 describes the quantities of the training measurements (outside training and inside training- "efficiency") and considering the way of distance overcoming (sport walking run) in the first 8 years of the sport training: junior cat. (5 years), pre-senior cat. (2 years), senior cat. (1 year).

Tab.1.

The annual measurement of the outside training (altogether and particularly of run and sport walking and the training accomplished inside (efficiency))

The age category	Run (km)	Run %	Walk (km)	Walk %	Altogether (km)	"Efficiency" (hour)
Junior	561	26	1628,4	74	2189,4	36,7
Junior	1384	38	2270,7	62	3654,7	52,7
Junior	1422	34	2796,4	66	4218,4	60,8
Junior	968,5	21	3452,9	79	4511,4	67,3
Junior	637	13	4418,6	87	5055,5	71,9
Pre-senior	465,5	11	3782	89	4247,5	77,8
Pre-senior	593	12	4225,7	88	4818,7	67,6
Senior	616,4	14	3652,2	86	4268,6	71,6

The progression of the results and frequency of the G.S.'s sport walking starts From the data presented in the table 2 it can be assumed in every distance appeared the period of the relative stabilization of the result development. It is fairly marked in 50 km distance but it does not prove the progressive development' obstruction of the life records.

Tab .2.

The result progression in the sport walking and the frequency of starts from particular disciplines including age and the training practice G.S.

The year of training	Age	5 km/number of starts	10 km/number of starts	20 km/number of starts	50 km/number of starts
1	15	25.26/4	-	-	-
2	16	22.56/5	45.41/6	-	-
3	17	22.07/4	42.46/8	1:35.10/1	-

4	18	21.08/2	41.46/12	1:30.21/2	-
5	19	20.50/2	41.26/8	1:25.47/1	-
6	20	19.40/3	42.19/3	1:29.39/4	-
7	21	20.16/1	41.44/4	1:27.54/4	-
8	22	19.39/5	41.55/3	1:25.02/4	-
9	23	19.42	40.57	1:24.37	-
10	24	19.35	40.07	1:22,37	3:51.26
11	25	19.40	40.37	1:23.07	3:55.12
12	26	19.34	-	1:22.27	3:48.09
13	27	19.11	39.01	1:21.03	-

The contestant began the starts in this particular distances after 10 years of practicing sport walking. In the following year (2005) G.S. did not achieved any positive start. Omitting the mentioned case it should be underlined in the result development progress the typical situation of the faster appearance of the relative result stabilization in the shorter distance took place.

Taking under consideration the training practice it can be accepted it appeared in the following training years: 5 km-6th year (first year of pre-senior category), 10 km-8th year (senior category), 20 km-9th year (senior category). First, quite successful starts in the 50 km distance G.S. began at the age of senior category which is after 9 years of the professional practicing of the sport walking and it was difficult to assume if in the sport result development's dynamics its progressive development was finished.

As the above claims show in 13 years of sport practicing by the researched sport walker non of the result development pace shows the appearance of the progress period of the mastery level in the following years.

The life records achieved in 2005 are the proof of the observed results. It can be presume only the disqualification preclude the improvement of the results in the 50 km distance. The changes of the sport level does not seem to vary as much as in the junior category. They definitely show the stabilization of the sport condition up to the mastery level in the following years. The less successful years seem to be 6th and 7th year of the sport walking practice (the pre-senior years). It is worth mentioning G.S. achieved his best results in the 50 km distance belonging to the senior category. During this time G.S. continued his degree studies and I 2005 he both graduated and reached the top level of his sport possibilities so far. The frequency of the starts shows the slight difference. During the junior period, especially at the age of 18 the increase of numbers of starts was noticed (18 starts in one year in which 12 in 10km distance!) In the following years the number stabled at the same level (9-12 starts a year) with the majority of the 20 km distance.

Analyzed information showed a very clear increase of the training loading in the junior category. The quantity of the overcoming distance of the outside training was 219,4 km and in the last preparing year of the junior category it reached 5055,6 km (B.K. – 2979 km) . To this measurement the inside training should be added. In the past year its quantity increased to 96,7 hours and in the last year 71,9 hours. It can be assumed G.S.'s result progression in the all typical distances 5, 10 and particularly 20 km was the effect of the extensive loading growth. This tendency was stopped in the pre-senior category (age 20-21) and in the senior category (age of 22). The increase of the time of the inside training was noticed. As the earlier result shows in that time the obstruction of the fast pace of the sport result development and the tendency of the relative stabilization appeared. What should be marked is the fact the achievement of the mastery level 's senior category in the 20 km distance was accompanied not only with the quantitative growth of the training loading but also the significant reduction of the training provided by running stressed in the time of the early junior. Its participation at this time reached the level of 34-38% of the outside training and in the last year over limited not much of 10%. This relations between the particular exercises practiced both in running and sport walking stayed at the same level in the following training years.

The intensity of the outside training of the sport walker

As the table 3 shows during all years of the training the exercises engaging the oxygen mechanism of the metabolic changes were in the major. In average it stayed at the level of 0% by the quite clear dispersion of the results (67,8-84,2%), (B.K. 72,5-77,2%). The relations of the aerobic-anaerobic and anaerobic-aerobic averages approach nearly the same. Only in the older junior period the more intensive averages of anaerobic (16,6-17,6%), (B.K. – 13,0-13,9%) achieve supremacy upon the oxygen-non-oxygen (9,6-14,7%), (B.K. – 11,7-14,5%). The information analysis allows to notice when the contestant achieved the mastery level the training loading was quantitatively and qualitatively the strongest.

Tab.3.

The structure of the training loading G.S. in the following stages of the sport training .

Loading SEASON	aerobic km [%]	anaerobic km [%]	Aerobic-anaerobic, km [%]	Sum km
1993 [Jr]	1661.5 [75.9]	231.0 [10.6]	296.9 [13.6]	2189.4
1994 [Jr]	3077.0 [84.2]	155.2 [4.2]	422.5 [11.6]	3654.7
1995 [Jr]	3438.0 [81.5]	333.0 [7.9]	447.4 [10.6]	4218.4

1996 [Jr]	3329.5 [73.8]	434.0 [9.6]	747.9 [16.6]	4511.4
1997 [Jr]	3426.0 [67.8]	742.0 [14.7]	887.6 [17.6]	5055.6
1998 [P-sen]	3357.5 [79.0]	476.5 [11.2]	413.5 [9.7]	4247.5
1999 [P-sen]	3567.0 [74.0]	673.0 [14.0]	578.7 [12.0]	4818.7
2000 [Sen]	3335.4 [78.1]	501.1 [11.7]	432.1 [10.1]	4268.6

Description: Jr-junior; P-sen. - pre-senior; Sen.-senior

Quite probable the obstruction of the result in the pre-senior category could be the result of the overloading of the training and a try to copy the training patterns from the earlier years.

The relation between the training loading and the result in the sport walking 10 and 20km distance

Table 4 shows the result of the relation strength between the result in 10 and 20 km and the training loading structure practiced by G.S. during particular period of his sport ontogenesis. The relatively higher correlation factor between the training loading and the result in 10km than 20 km can be noticed.

Tab.4.

Spearman correlation rang factor in relations: training loading structure –10 km and 20 km result in the initial period of the sport training of G.S.

loading and	10 km	20 km
outside training quantity	1	0.46
sport walking quantity	0.86	0.66
run quantity	-0.40	-0.50
efficiency quantity	0.54	0.60
oxygen loading	0.48	-0.11
oxygen-non-oxygen loading	0.86	0.66
non-oxygen loading	0.79	0.03
the number of starts	-0.34	-0.24

In these both cases apparently the relation strength between the sport result and outside training quantity in the sport walking together with the oxygen-non-oxygen training loading appeared. The negative correlation factors appeared in the relations where the number of the starts and the training quantity took place while running.

Conclusion

1. The training quantity and its intensity on the aerobic-anaerobic level can influence on the result progression in 10 and 20 km at the beginning time of practicing the sport walking. The negative influence is marked by the number of the starts and the running training quantity. The cumulative effect of the training in the following years can influence on the progress of the results in the sport walking, especially in the 50km distance. Practicing sport walking in 50km should not cause any decrease of the efficiency in the sport walking's shorter distance.

2. The appearance of the tendency to the stabilization of the sport results development's pace can be a succession of too significant training loading in the junior category. There is a possibility of holding the relative stabilization of the sport development in the sport walking for a long time.

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