The Czech Phenomenon of Men's Decathlon development

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Abstract. By means of digital documentary and materials research it involves data of scores of eight Czech men's decathletes. Based on the data and other relevant references, statistical methods were applied to analyze the characteristics of Czech decathlon in the aspects of selection of athletes, management and training. The results show that Czech decathletes have an outstanding running and jump capability in the early stage; later a large emphasis are put on the balanced development of both strength and technique; large quantity of exercise and training team management are carried out as well. This can also serve as a reference to the development of decathlon in our country.

Keywords: Czech, men, decathlon

1. Introduction

Czech is the country which has to be mentioned as to the world men's decathlon. In the past decade, Czech men's decathlon has been leading worldwide. As a small country, it is no doubt that Czech has become a 'phenomenon' in the development history of the world field and track events. This paper analyzes the characteristics of Czech decathlon in the aspects of selection of athletes, management and training, which can also provide revelation and enlightenment to the development of this event in our country.

2. Research object and methods

2.1. Research objects

Eight Czech men's decathlon decathletes, whose average score was 8461, were analyzed. The main representative figures are Robert Zmelik (champion of the 26th Olympic Games), Tomaš Dvorak (champions of the 6th, 7th, 8th World Track and Field Championship) and Roman Šebrle (champion of the 28th Olympic Games, world-record and Olympic-record holder, the only athlete who has broken through the barrier of 9000 points until now). The data were obtained from www.decathlon2000.ee

2.2. Research methods

Documentary and materials research 10+ relevant references were obtained by digital documentary investigation.

Statistical method The data were managed by statistical method with SPSS 13.

3. Development overview of Czech men's decathlon

Since 1975, Czech men's decathlon has been developing all the way. Change in the Czech national record of men's decathlon is shown in Table 1. As is shown below, during the 30 years, the Czech national record of men's decathlon showed a linearly increasing tendency. In details, this can be divided into three phases: slow-developing period, steady-improving period and high-level period.

A. Slow-developing Period (1975-1983). In this period, USA ranked the top in men's decathlon. Germany, United Kingdom and the former Soviet Union also had good strength. Competitions in men's decathlon launched mainly between these countries. As the same to other countries, the score of Czech decathlon remained in a relatively low level, stagnating below 8000 points.

B. Steady-improving period (1983-1992). By the rising of European decathletes like Daley Thompson and Jürgen Hingsen, the hot spot of world decathlon event switched to Europe. The level of men's decathlon in Czech, which is situated in central Europe, had considerable improvement with steady steps. But compared with world first-class level, there still existed a certain gap.

C. High-level period (1992-now). The Zmelik's rising winded the horn of Czech decathlon road to the top. Zmelik won the gold medal in the 1992 Barcelona Olympic Games, which inspired the Czech's confidence enormously. After that, two geniuses athletes: Dvorak and Šebrle created the world-record with score of 8994 points and 9026 points one after another. They won the first place in World Champions many times and pushed the Czech men's decathlon to the summit of the world.
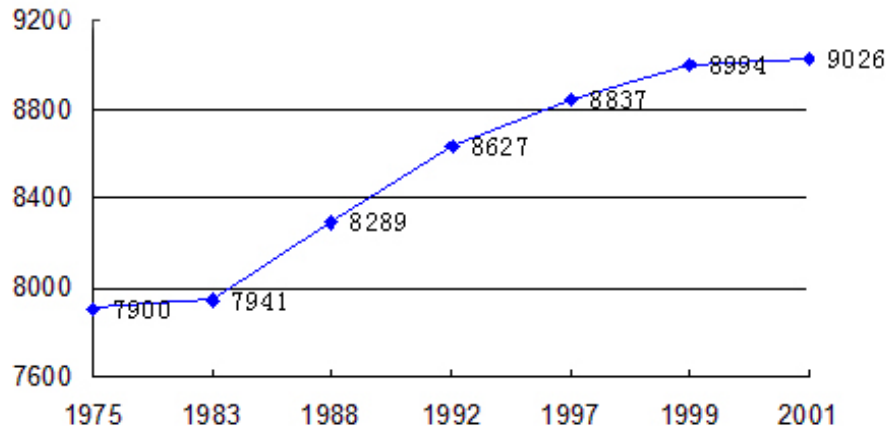

Fig. 1   Change in the Czech national record of men's decathlon

Table 1 Characteristics of Czech men's decathletes' body shape and age

	Lifetime best	Age 1[+]	Age 2[++]	Height/m	Weight/kg	Quetelet Index
Šebrle	9026	21	27	1.87	87	465
Dvorak	8994	22	27	1.86	90	484
Zmelik	8627	20	23	1.85	86	465
Czech Avg. (N=8)	8461	21	25.3	1.880	88.5	471.0
*Olympic Avg. (N=8)	8494.25	22.3	27.4	1.909	86.3	451.8

Notice   * The top 8 athletes in the final of men's decathlon in the 28th Olympic Games
               + The age when the athlete first achieved 8000 points
               ++ The age when the athlete created his lifetime best

4. Key factors in selection of decathletes

4.1. Body shape

The population in Czech is merely 10.5 million. Small population base limited the selection of decathletes to certain extends. Table 2 shows that: average height of the eight Czech decathletes was 1.88m and Šebrle, Dvorak and Zmelik was 1.87m, 1.86m and 1.85m separately while the top eight decathletes in the final of 28th Olympic Games had an average height of 1.909m, 5 above 1.90m, highest amount to 1.98m. It indicated that although the score situated in the identical level (about 8400 points), Czech athletes were shorter than the other Olympic athletes. Compared to the average weight of the top eight decathletes in Athens Olympic Games, Czech athletes were slightly heavier, about 2.2kg. Quetelet Index is a comprehensive criterion that reflects the strength of an athlete. As seen in Table 2, the average score of Quetelet Index of the Olympic athletes was 451.8 while the Czech was 471.0 equally. The score of Šebrle, Dvorak and Zmelik was 465, 484, and 465 separately. It indicated that in selection and training of decathletes, Czech pays great attention on the physical strength and blasting power in running.

4.2. Age

Some research showed that the average age of the world men's decathletes when they first achieved 8000 points was 22.3. As is shown in Table 1, the average age of Czech decathletes when they break through 8000 points for the first time is 21, earlier than the world average level. It indicated that the physical quality of Czech decathletes was prominent and an emphasis was put on the selection and training in multi-events. Take Šebrle, the world-record holder, for example. He was engaged in football training in the early stage and

changed over to professional training of decathlon at the age of 18. He broke through 8000 points for the first time when he was 22 years old. It was averagely 25.3 years old when Czech decathletes achieved their best performance. Šebrle and Dvorak achieved 8600 points in their 25 years old and became world-class decathletes with the-world records 8994 and 9026 points created in their 27 successively. They created their outstanding scores earlier than the average of the top eight decathletes in the final of 28th Olympic Games. To decathletes, events cover from field and track and training load is also very heavy. The risk of injuries and diseases in training was high, too. What is more commendable, it lasted a long time for the Czech decathletes to keep their performances in a high level. Take Dvorak and Šebrle for example. They kept their performances in a high level, above 8800 points, during 27-30 years old. This explained that Czech was training its decathletes in a scientific and reasonable way and the decathletes achieved an outstanding score early and their good status lasted a long time.

4.3. Physical quality

An overall development of the physical quality is the foundation when an athlete is engaged in training of decathlon. Among the factors, speed, strength (blasting power) and endurance capability rank the top. They are three main factors used to evaluate an athlete's potential. Take the score of a decathlete when he broke through 8000 points for the first time as his early-stage score. The average score of the eight Czech decathletes in our analysis above was 8097 points. Take "8200 Mode" introduced in the 'Journal of Field and Track events' published in the US in 1990 as a reference. Table 2 shows that compared to '8200 Mode', Czech athletes had a stronger running and jump capacity and their score in jumping events high jump, long jump and pole vault) leveled with the mode. The Czech had a good speed capacity that their scores in 400m, 100m and 110m H were higher than the mode. It indicated that Czech paid great attention to the training and selection of speed and strength (blasting power). Czech athletes had obvious superiority in 110m hurdles which indicated that they could make good use of their speed capability and had a good sense of balance. They also did well in 400m as they had a good foundation of speed endurance as well as a strong willpower, which on the hand built a solid energy foundation for them to be engaged in the difficult and energy-consumptive decathlon training. The score of Czech athletes' on throw events had a certain distance with the 'mode' in the early stage. This may have something to do with their techniques.

Table 2 Overview of Czech decathletes when they achieved 8000 points for the first time

	Šebrle	Dvorak	Zmelik	Czech Avg.(N=8)	*Mode Score
100m/s	10.85	10.93	10.86	10.94	10.98
Long jump/m	7.65	7.20	7.90	7.41	7.40
Shot put/m	14.24	14.29	12.60	13.88	14.51
High jump/m	2.10	2.00	2.01	2.02	2.02
400m/s	49.94	49.90	48.25	48.72	49.39
110mH/s	14.49	14.21	14.12	14.32	14.78
Discus throw/m	41.86	42.66	39.00	41.36	48.64
Pole vault/m	4.60	4.50	4.90	4.64	4.63
Javelin throw/m	64.28	61.30	59.28	58.38	62.45
1500m	4:39.8	4:37.8	4:27.8	4:28.54	4:20
Total	8210	8032	8249	8097	8200

5. Training and management

5.1. Training team management

The kind of training system implemented in Czech, Training team system, was similar to that which was carried out in the club. There were many training teams in Czech and the most famous decathlon team was led by the well-known coach, Wanner. After Dvorak and Šebrle created men's decathlon world –records successively, Wanner's training team became a kind of scheme and his ideas of management also were approved widely. His management motto was: Challenge doesn't come from the other but yourself. Every

member in the training team was equally important. In his training team, there was an atmosphere of both competition and cooperation. This special kind of power urged every athlete trained diligently and was also very helpful in the maximum excavation of potential of every athlete in every training lesson.

5.2. Large load training

Though Wanner stressed that training load and intensity varied from person to person, actually, training load in his team was very heavy. This shared something in common with the training principle "Three requirements and heavy load" proposed by our country. While under this humanization management as well as good competition atmosphere, training enthusiasm was very high and training plans could be completed with self-conscious and high grade. The combination of training team management and training principle of heavy load got a best effect.

5.3. An emphasis on strength and technique in the late stage

Wanner believed that "A decathlete's success relies on speed firstly as well as strength and technique." Along with speed improvement and strength increase, technique also needs corresponding change. Athlete with overall development is the develop tendency for current decathletes. Wanner believed that only when athletes had a good speed foundation, the training focus can change to developing strength and improving technique. Technique was the key to make full use of the athlete's capacity of speed and strength. Take the change of Šebrle's scores on throwing events in his 22 to 30 years as an example. In the eight-year period, his scores increased in a winding tendency along with the improvement of strength and technique. Person correlation analysis was used to assess the correlation between single event score and the total score of Czech best score, and sort the result according to the correlation coefficients (Table 3). Coefficients of 110m hurdles, javelin, long jump, high jump and 100m were bigger than 0.6, highly and obviously related (Sig.<0.05). All of these were strength-demanding events and had a high requirement of technique. It indicated that had something in common on training of speed, strength and technique, which coincided with the principle of balanced development of speed, strength and technique proposed by Wanner.
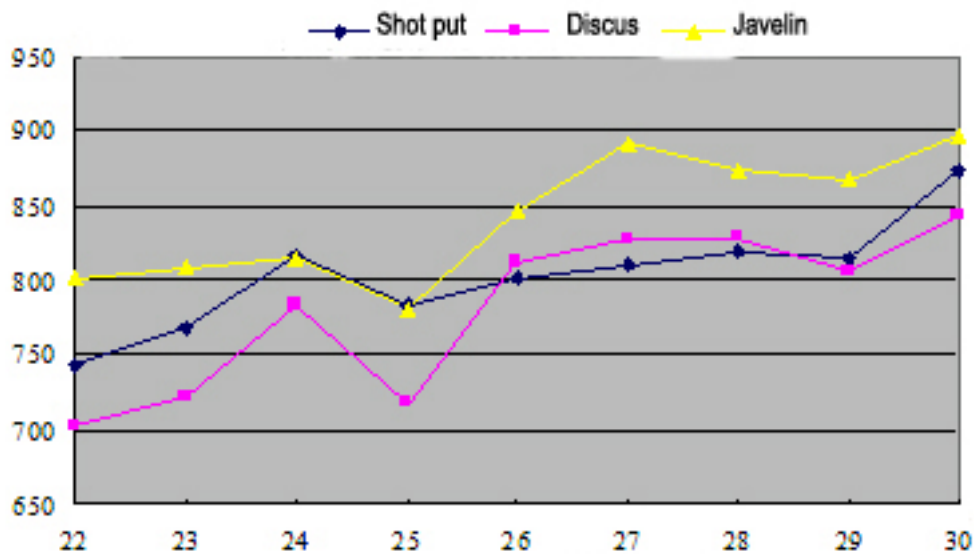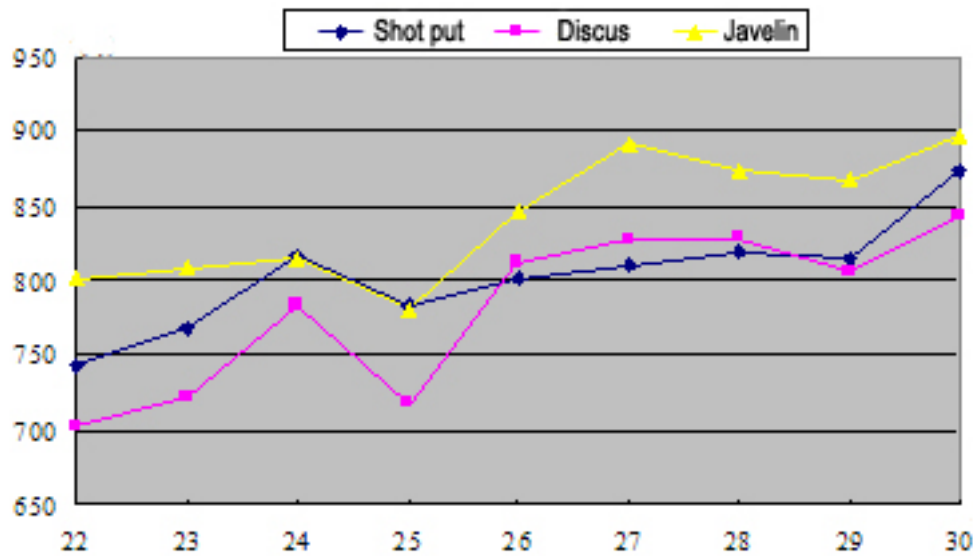
Fig. 2 Change of Šebrle's scores on throwing events in his 22 to 30 years

Table 3 Analysis result between single event and total score of eight Czech decathletes

	100m	long jump	shot put	high jump	400m	110mH	discus throw	pole vault	javelin throw	1500m
Pearson correlation	.679	.749	.076	.711	.207	.892	.414	-.300	.887	.222
Sig.(1-tailed)	.032	.016	.429	.024	.311	.001	.154	.235	.002	.298
Sorting	5	3	--	4	--	1	--	--	2	--

6. Conclusion

In the past 30 years, the development of Czech decathlon can be divided into three periods: slow-developing period, steady-improving period and high-level period. Characteristics of Czech decathletes were ordinary height, relatively heavier weight and higher Quetelet indexes, which indicated that they had a good physical strength. They showed outstanding running and jump capability, good hurdle technique and speed endurance when they achieved 8000 points for the first time. Czech put an emphasis on speed training with balanced development of strength and technique. The training principle of overall development with large load was introduced. The efficient combination of advanced training principle and training team management obtained a good effect of humanization management and scientific training.

The experiences of Czech decathlon development and characteristics in selection of decathletes, training and management can a reference and provide the following enlightenments and suggestions:

a. China has a large base of selection of decathletes because of its population. Great attention should be paid to the scientific selection of athletes, especially speed, strength (blasting power) and endurance, as it's the foundation of being successful decathletes.

b. The analysis of Czech decathletes' performance when they broke through 8000 points showed that they had a predominance running and jump capability but performed relatively weaker in the throwing events. They showed characteristics of balanced development of speed, strength and technique after achieved their lifetime best scores. Some research suggested that Chinese decathletes did well in speeding events but weaker in throwing events, which is similar to the mode of Czech athletes in the early stage. Chinese athletes should spare more efforts on developing speed and blasting power and carry out strength training as well as improving technique at the same time.

c. "Three requirements and heavy load" is a key principle in our tradition predominant events. It should also be implemented efficiently in the training of decathlon. Discovery of management system in the professional training team should be continued, making scientific training and humanization management work together, enhancing the athletes' self-conscious in training.

7. References

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