

Men Athletics Results of Value Analysis

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Abstract—Using the method of statistical analysis of China's scientific man in Olympic athletics the status and value, according to the 11th national twenty nine games, select the man athletics events and Olympic Games in the top 30 before three grades, the percentage of statistical standard grades, and sorting items, the analysis results showed 20km race, 50km, 110m column, marathon, boasting, long jump, triple jump, javelin national projects, the highest gold 400m, 400m, 800m, 1500m, shot put, hammer projects of the national medal of low value. Studies suggest that use of scientific research and systematic analysis method, Chinese man athletics technical level, analyzes on the track and field sports scores man the status and value for our country to realize the plan, provide some scientific theory of target.

Keyword: Male athletics; Sports scores; contains

I. INTRODUCTION

Olympic medals are an important symbol to measure a major sports country and a strong country of competitive sports. Track and Field has been called the “mother of sports”, and it is one of the items with most Olympic medals. The level of track and field is an important symbol to measure the capacity of national competitive sports. In this paper, based on the performance of top 30 of men's track and field sports of 29th Olympic Games in 2008 and top 3 of men's track and field of 11th National Games in 2009, current status of Chinese men's track and field sports has been analyzed systematically using scientific methods, and the position and gold content of men's track and field sports in Olympics have been analyzed according to the ranking of results of various items and Olympic achievements, to provide scientific theoretical reference for the implementation of Olympic Games plan of China.

II. STUDY OBJECTS AND METHODS

A. Study objects

Top 30 athletes of men's track and field sports of 29th Olympic Games in 2008, Beijing, and the total is 630^[1], and top 3 of men's track and field of 11th National Games^[2], total 63, and the sum is 693.

B. Database construction

The results obtained were treated with relevant statistical methods according to the official website of 29th Olympics in Beijing <http://www.beijing2008.cn> and the official

website of 11th National Games <http://www.11th-games.org.cn>.

C. Methods of mathematical statistics

Microsoft Excel2003 was used to calculate the means (\bar{x}) and standard deviation (s) of the results of top 30 athletes of 29th Olympic Games for descriptive statistics^[3].

D. Grading method

According to the parameters of descriptive statistics and the calculation formula of standard percentage:

$$z = 50 + \frac{\bar{x} - x}{s} \times 10 \quad (\text{track}) \quad \text{and} \quad z = 50 + \frac{x - \bar{x}}{s} \times 10 \quad (\text{field}),$$

the original achievements of track or field sports were used to calculate the standard percentages of top 30 of Olympics and top 3 of National Games through programming, and the scores were sorted, to analyze the achievements of track and field sports in a quantitative manner.

E. Method of comparative analysis

The gold content (advantage and disadvantage) of the medals of excellent Chinese athletes of track and fields sports has been described, compared and analyzed according to the percentages and ranking orders of the achievements of Chinese men's track and field sports in Olympic track and field sports.

F. Evaluation method

Some scientific theoretical evaluation foundations have been introduced to Olympic plan of excellent Chinese athletes of track and field sports according to the comparative analysis.

III. RESULTS AND ANALYSIS

A. Analysis on gold content of achievements of Chinese men's track sports

1) Analysis on gold content of achievements of Chinese men's walking race

In the 20 kilometers walking race, the achievement of National Games broke Olympic record, and the standard percentage calculation shows that the achievement of National Games is 2.2 points ahead of the first of Olympic Games. The achievements of top 3 ranked in top 10. In 50 kilometers walking, the result difference of Olympic

champion and national champion is 3 points, shown in Table 1.

2) *Analysis on gold content of achievements of Chinese men's short-distance race*

TABLE I RANKING ORDERS AND STANDARD PERCENTAGES OF MEN'S WALKING RACE OF OLYMPIC GAMES AND NATIONAL GAMES

Item	Olympic Games					Top3 of National Games			
20km	Ranking order	2	4	5	...	33	1	3	9
	Results	1:19:01	1:19:15	1:19:42	...	1:24:34	1:18:13	1:19:10	1:20:27
	Standard percentage	64.4	63.7	62.5	...	49.12	66.6	63.9	60.4
50km	Ranking order	1	2	3	...	33	4	5	7
	Results	3:37:09	3:39:27	3:40:14	...	3:59:46	3:40:33	3:41:55	3:44:15
	Standard percentage	69.3	67.3	66.5	...	48.84	66.3	65	62.9

TABLE II RANKING ORDERS AND STANDARD PERCENTAGES OF MEN'S SHORT-DISTANCE RACE OF OLYMPIC GAMES AND NATIONAL GAMES

Item	Olympic Games					Top3 of National Games			
100m	Ranking order	1	2	3	...	32	26	29	33
	Results	9.69	9.89	9.91	...	10.33	10.25	10.31	10.41
	Standard percentage	74.7	65	64	...	43.64	47.5	44.6	39.8
200m	Ranking order	1	2	3	...	33	26	30	31
	Results	19.3	19.96	19.98	...	21.07	20.79	20.98	20.99
	Standard percentage	83.8	65.1	64.6	...	33.76	41.7	36.3	36
400m	Ranking order	1	2	3	...	30	31	32	33
	Results	43.75	44.74	44.8	...	45.81	46.02	46.84	46.9
	Standard percentage	83.3	59.5	58	...	33.66	28.6	8.8	7.4

According to Table 2, the achievements of 100m, 200m and 400 m fall behind in the ranking orders, and the strength of 400m was the weakest. Based on the standard percentage, the score of the champion of National Games is 28.6, and the

difference to the champion of Olympics is 54.7, so there is no possibility for him to enter Olympic Games based on the analysis of current results. The gold content of short-distance running is low.

TABLE III RANKING AND STANDARD PERCENTAGES OF MEN'S MIDDLE AND LONG DISTANCE RACE OF OLYMPIC GAMES AND NATIONAL GAMES

Item	Olympic Games					Top3 of National Games			
800m	Ranking order	1	2	3	...	30	31	32	33
	Results	01:44.7	01:44.7	01:44.8	...	01:49.19	01:49.2	01:49.5	01:50.4
	Standard percentage	64.7	64.3	63.3	...	28.44	28.4	26	18.8
1500m	Ranking order	1	2	3	...	30	31	32	33
	Results	03:32.9	03:33.1	03:34.2	...	03:41.57	03:45.0	03:45.9	03:46.0
	Standard percentage	65.4	64.9	61.2	...	35.18	23.1	20	19.6
5000m	Ranking order	1	2	3	...	33	14	15	16
	Results	13:02.8	13:06.2	13:10.6	...	14:00.76	13:38.8	13:39.5	13:39.6
	Standard percentage	65.6	64.4	62.9	...	45.32	53	52.8	52.7
10000m	Ranking order	1	2	3	...	33	28	29	30
	Results	27:01.2	27:02.8	27:04.1	...	29:08.10	28:15.1	28:17.6	28:19.0
	Standard percentage	64.2	63.8	63.4	...	31.65	45.2	44.6	44.2

3) *Analysis on gold content of achievements of Chinese men's middle and long distance race*

According to Table 3, the middle and long distance race is a weak item, and the gold content of sports achievements is low. In the four middle and long distance race items,

namely, 800m, 1500, 5000m and 10000m, the achievements of 5000m were the best, and the average score of top 30 is 51.1, and the mean of top 3 of 11th National Games is higher than it. Therefore, the 5000m shall be focused on in the middle and long distance race.

4) *Analysis on gold content of achievements of Chinese men's ultra-distance race*

TABLE IV RANKING ORDERS AND STANDARD PERCENTAGES OF MEN'S ULTRA-DISTANCE RACE OF OLYMPIC GAMES AND NATIONAL GAMES

Item	Olympic Games	Top3 of National Games							
	Ranking order	1	2	3	...	33	10	11	17
Marathon	Results	2:07:16	2:10:00	2:10:21	...	2:18:26	2:12:36	2:12:53	2:13:56
	Standard percentage	73.5	64.16	62.96	...	35.34	55.28	54.31	50.72

According to Table 4, marathon is the ultra-distance track item requiring stamina. Quantitative analysis shows that the achievements of Chinese men's marathon are higher than other items in standard percentage and ranking. It can be

regarded that the achievement of marathon is at middle level in the world, so marathon can be treated as a second priority.

5) *Analysis on gold content of achievements of Chinese men's hurdle race*

TABLE V RANKING ORDERS AND STANDARD PERCENTAGES OF MEN'S HURDLE RACE OF OLYMPIC GAMES AND NATIONAL GAMES

Item	Olympic Games	Top3 of National Games							
	Ranking order	1	2	3	...	33	5	9	23
110m hurdle race	Results	12.93	13.17	13.18	...	13.84	13.34	13.42	13.63
	Standard percentage	79.15	67.12	66.62	...	33.55	58.6	54.6	44.07
	Ranking order	1	2	3	...	30	31	32	33
400m hurdle race	Results	47.25	47.98	48.06	...	49.89	50.04	50.75	50.95
	Standard percentage	74.05	63.92	62.81	...	37.41	35.33	25.48	22.7

6) *According to Table 5, the achievements of 110m hurdle race have high gold content. In recent years, excellent athletes represented by LIU Xiang had performed very well in 110 m hurdle race, and the overall strength of the item had been improved. Based on the analysis of standard percentage and ranking, the item of 110m hurdle race is at the ascendant position, and the gold content of 400m hurdle race is low, belonging to inferior items.*

7) *Analysis on gold content of achievements of Chinese men's barriers*

B. *Analysis on gold content of achievements of Chinese men's field sports*

1) *Analysis on gold content of achievements of Chinese men's throwing events*

According to Table 7, the levels of throwing events are not optimistic. Except for javelin, the ranking orders of three other items of 11th National Games are backward, and the

achievement of shot putting was equivalent to the 31st of Olympic Games, and the ranks of discus and hammer are in a low position as well. Therefore, the throwing events shall be focused on, problems and shortages shall be found, and the development of current men's throwing sports in the world shall be understood, and the position of Chinese men's throwing events shall be defined expressly, to improve the levels of throwing events of field sports.

2) *Analysis on gold content of achievements of Chinese men's jumping events*

Shown in Table 8, the achievements of long jump and triple jump have advantages, and high jump and pole vault are weaker. However, based on standard percentage, the foundation of men's jumping athletes are good, but top players are scarce, then strong impact can not be exerted to the champions of Olympics. Chinese jumping events have good group advantages.

TABLE VI RANKING ORDERS AND STANDARD PERCENTAGES OF MEN'S BARRIERS OF OLYMPIC GAMES AND NATIONAL GAMES

Item	Olympic Games	Top3 of National Games							
	Ranking order	1	2	3	...	32	16	18	33
3000 barriers	Results	08:10.3	08:10.5	08:11.0	...	08:37.37	08:25.1	08:27.1	08:38.9
	Standard percentage	67.15	66.97	66.34	...	34.48	49.31	46.9	32.63

TABLE VII RANKING ORDERS AND STANDARD PERCENTAGES OF MEN'S THROWING EVENTS OF OLYMPIC GAMES AND NATIONAL GAMES

Item	Olympic Games	Top3 of National Games							
	Ranking order	1	2	3	...	30	31	32	33
Shot putting	Results	21.51	21.09	21.05	...	19.32	19.2	19.11	19.1
	Standard percentage	74	66.84	66.16	...	36.67	34.62	33.09	32.92
	Ranking order	1	2	3	...	32	23	26	33
Discus	Results	68.82	67.82	67.79	...	58.82	60.39	60.07	57.07
	Standard percentage	71.9	68.39	68.29	...	36.85	42.36	41.24	30.73
	Ranking order	1	2	3	...	33	28	30	31
Hammer	Results	82.02	81.61	81.51	...	70.16	71.01	70.77	70.66
	Standard percentage	67.97	66.88	66.61	...	36.21	38.49	37.85	37.55
	Ranking order	1	2	3	...	33	13	16	17
Javelin	Results	90.57	86.64	86.16	...	71.58	79.57	78.91	78.73
	Standard percentage	73.45	65.87	64.95	...	36.85	52.25	50.98	50.63

TABLE VIII RANKING ORDERS AND STANDARD PERCENTAGES OF MEN'S JUMPING EVENTS OF OLYMPIC GAMES AND NATIONAL GAMES

Item	Olympic Games	Top3 of National Games							
Long jump	Ranking order	1	2	4	...	33	3	8	12
	Results	8.34	8.27	8.24	...	7.64	8.27	8.18	8.06
	Standard percentage	69.99	66.46	64.95	...	34.68	66.46	61.92	55.87
Triple jump	Ranking order	1	2	3	...	33	4	6	19
	Results	17.67	17.62	17.59	...	16.20	17.59	17.41	16.9
	Standard percentage	68.72	67.42	66.63	...	30.25	66.63	61.92	48.57
High jump	Ranking order	1	2	3	...	33	10	11	23
	Results	2.36	2.34	2.34	...	2.2	2.28	2.26	2.23
	Standard percentage	71.9	67.81	67.81	...	39.15	55.53	51.43	45.29
Pole vault	Ranking order	1	2	3	...	33	14	15	24
	Results	5.96	5.85	5.7	...	5.30	5.6	5.6	5.5
	Standard percentage	78.45	70.24	59.05	...	29.21	51.59	51.59	44.13

C Analysis on gold content of overall achievements of Chinese men's track and field sports

Statistics methods for sports have been used ^[4], and the standard percentages of top 3 of National Games are

summed. The higher the standard percentages are, the better the achievement of the item is. The ranking tables of track and field sports of National Games are obtained based on statistics calculation ^[5].

TABLE IX LIST OF RANKING OF CHINESE MEN'S TRACK SPORTS

Item	Sum of standard percentages	Ranking	Advantage/disadvantage	Gold content
110				
50km	194.2	1		
20km	190.9	2		
Marathon	160.31	3	Priorities	High
5000m	158.5	4		
110m hurdle race	157.27	5		
10000m	134	6		
100m	131.9	7		
3000m barriers	128.84	8	Second priorities	Middle
200m	114	9		
400m hurdle race	83.51	10		
800m	73.2	11		
1500m	62.7	12	Inferior items	Low
400m	44.8	13		

TABLE X LIST OF RANKING OF CHINESE MEN'S FIELD SPORTS

Item	Sum of standard percentages	Ranking	Advantage/disadvantage	Gold content
Long jump	184.25	1		
Triple jump	177.12	2	Priorities	High
Javelin	153.86	3		
High jump	152.25	4		
Pole vault	147.31	5	Second priorities	Middle
Discus	114.33	6		
Hammer	113.89	7	Inferior items	Low

According the achievements of top 30 of 2008 Olympic Games, the achievements of Chinese men's track and field sports are not optimistic, but some items have certain strength. In addition, the best National Games records of some items of Chinese men are lower than these of 30th of Olympic Games, such as 1500m, 800m, 400m, shot putting and discus, which indicates the backwardness of the items,

and it can be concluded that the gold content of these items is low. Therefore, there is a long way for these items to catch up with the leading level in the world, and there is no possibility for the athletes to be ranked in top 8 in world games.

According to the ranking of Table 2 and 3, Table 4 can be obtained.

Rank	Gold content	Track sports	Field sports
Priorities	High	20km waling race, 50km, 110m hurdle race, marathon and 5000m	Long jump, triple jump and javelin
Second priorities	Middle	10000m, 3000m barriers, 100m and 200m	High jump, pole vault, and discus
Inferior items	Low	400m, 400m hurdle race, 800m and 1500m	Shot putting and hammer

IV CONCLUSION

Appropriate evaluation shall be made for competition results before competition, to facilitate the making and implementation of optimization strategy of Chinese track and field sports, to make full use of advantages. Items shall be selected for the development with key points and order.

Statistics methods have been used, and the results shows that the gold content of the gold medals of 20 km walking race, 50km, 110m hurdle race, marathon, 5000m, long jump, triple jump and javelin of National Games is highest, and the gold content of the gold medals of 400m, 400m hurdle race, 800m, 1500m, shot putting and hammer of National Games is low.

Based on the maintenance of traditional advantages of Chinese men's track and field sports, second priorities shall be developed vigorously, to develop the Chinese men's track and field sports in a sustainable manner.

V REFERENCES

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