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ANALYSIS OF THE PERFORMANCE OF BULGARIAN FEMALE WEIGHTLIFTERS IN WORLD CHAMPIONSHIPS AND OF THE SPORTS PROFILE OF MEDAL WINNERS

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***Abstract**: In that article the authors analyse the rankings of Bulgarian female weightlifters in World Championships between 1987 and 2015 and describe the sports profile of the competitors based on their Sinclaire Coefficient values. The number of the athletes with successful careers is reported along with the number and the type of the medals they won. Based on the analysis of the data the authors reached to the conclusion that the average maximum increase in the values of Sinclaire Coefficient was 58. Furthermore, the weightlifting training and competition activity was not found to have any impact on the physiological functions of the organisms of the competitors neither in the short, nor in the long term.*

***Keywords: :** weightlifting, women, excellence, and world championships.*

***JEL:** I25*

INTRODUCTION

The dynamics of the sport life in female weightlifting requires a deep analysis of the competitive activity, which the sports science researchers are closely connected to. A deeper understanding of these processes is most necessary because of the big differences between the theory and the methodology of training between male and female weightlifters. In our opinion, for world class sports performance in female weightlifting to be achieved, the capabilities of the athletes for bearing extreme training loads are of equal importance as their abilities for top ranking [6, 8, 15].

Female weightlifting gained a huge popularity among Bulgarian girls right after its launching as a official sport discipline. This was especially true for those competitors in different sports that had routinely used strength exercises in their training. They used their familiarity with weight training as base for achieving high results in weightlifting.

Mostly due to lack of consistent information, a negative public opinion towards female weightlifting was widely spread during the years. Especially concerning the alleged impairment of childbearing functions, that these exercises could provoke.

Some researches [4, 11] report about a great number of elite female athletes who return successfully to their professional sports activities after giving birth. We were not able to find any similar data concerning female weightlifters.

We analysed very closely the sports profile of Bulgarian elite female weightlifters in order to reveal its most prominent features and use these data for the development of a campaign for attracting more young girls in the weightlifting gymnasiums.

The aim of the study was to analyse the rankings of Bulgarian female weightlifters in World Championships and to describe the sports profile of the medal winners, based on the dynamics of their performance.

Objectives:

1. To compile a data base for the rankings of Bulgarian female weightlifters in World Championships between 1987 and 2015;

2. To analyse the sport performance of medal winners since their first appearance in an international contest.

The contingent of the study was the cohort of Bulgarian female medal winners in weightlifting aged 17-33 years.

METHODS

We conducted a systemic-structural analysis of the protocols of the World Female Weightlifting Championships held between 1987 and 2016.

Because many of the contestants changed their competitive weight classes more than once during the years, we considered the appropriate method for assessment of the performance to be the one based on the Sinclaire Coefficient.

RESULTS AND DISCUSSION

Of the 25 World Championships that took place during the studied period, Bulgaria did not participate in four – that of 2009, 2010, 2011 and 2015. Between 1987 and 2015, 33 Bulgarian female competitors took part in World Contests of which 18 won medals in the snatch, the clean and jerk and in biathlon combined (fig. 1).

On **fig. 1** we show the distribution of the gold medals in the biathlon won by Bulgarian female weightlifters during the period – 3 competitors won 5 titles.

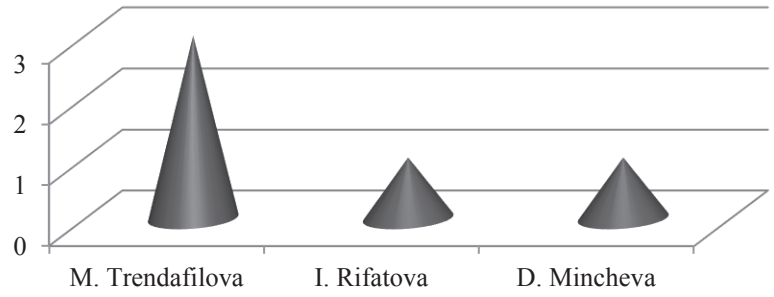

Fig. 1 World Championships gold medals of Bulgarian female weightlifters 1987-2015

In our opinion, it is worth mentioning the small number of the champions. The performance of the 3 times world winner M. Trendafilova (in her age class) leaves her competitors far behind. The next 2 places in that ranking go to I. Rifatowa and D. Mincheva with one gold medal won.

We do not consider the age a factor for sport performance mostly based on the observation of the wide age range of the gold winners – 19-26 years. In addition, we did not find a connection between sports-technical results and the age of the competitors. The sports experience of the competitors, which we measured to be more than 10 years, correlates with the performance. This finding corroborates with the conclusions of some other researchers [1, 13, 14].

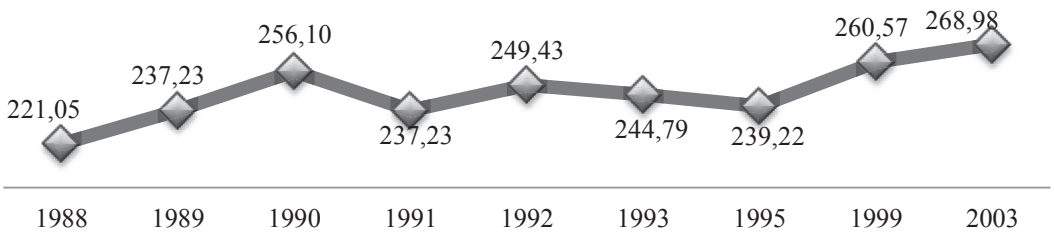

Fig. 2 Data for M. Trendafilova

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Fig. 2 depicts the results of M. Trendafilova between 1988 (when she was 18) and 2003. Her body mass varied within the range of ±7.5 kg and her sports experience is 16 years in total.

The analysis showed an ascending trend in her results with time and with an increase in the Siclaire Coefficient of 47.93 between the beginning and the end of her career. It is worth emphasizing the fact that she had achieved very high results early in her career, when she won her first two World Titles. Further on, in 1993 she won a third title (even with a lower result) and in 2003 she achieved her best result, but this was not enough to put her among the top 6 competitors.

Despite of their initial good performances, some elite female athletes discontinue their active career after giving birth. Others do this after invasive medical operations, pregnancies, injuries, diseases, etc., but return to competitive training and continue the winning streak of their careers (fig. 3 and 4).

Fig. 3 shows the data of I. Rifatova for the 1991-2005-time period. Her body mass variability was within ± 5.0 kg and her competitive career lasted between her 20 and 34 year, 14 years in total.

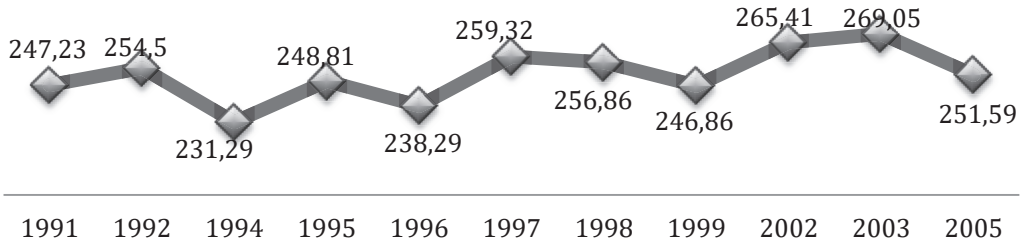

Fig. 3 Data for I. Rifatova

It is hard to detect any clear trend on the graph, with a 21.82 increase in the Sinclaire Coefficient between the beginning and the end of her career. There are some well-pronounced drops in her performance, most probably a result of a harsh competition schedule, weight reduction, injuries, etc.

On fig. 4 are shown the data of D. Mincheva. Between 1991 and 2007 her body mass varied with ±8.0 kg. and her sports experience was 13 years between her 19 and 35 years of age.

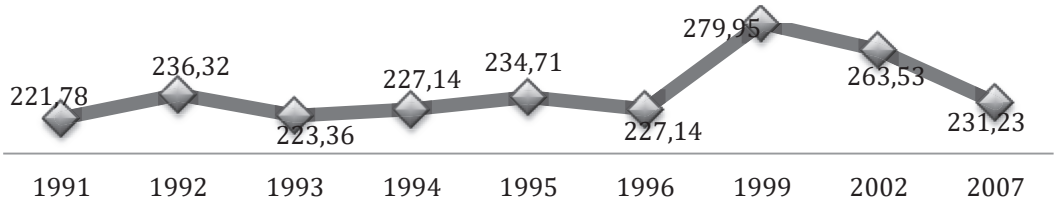

Fig. 4 Data for D. Mincheva

After analysing the data we detected a clearly visible increasing trend in the results of D. Mincheva with the greatest value of 58.17 in the Sinclaire Coefficient reached in the year prior to the Olympic Games.

Based on the data from fig. 3 and 4 we reached to the conclusion that both competitors achieved their best results after giving birth. Obviously, pregnancy and giving birth are not obstacles to reaching top performance in weightlifting, which corroborates with the opinion of other researchers concerning female athletes in many different sports [5, 11].

In addition, the data from an inquire we held among female weightlifters strongly suggests that the monthly period does not interfere in any way with the sports efficiency and training abilities of the athletes. Most of them do not discontinue their training activities, nor do they miss any competitions, even more, some of them achieve remarkable performance during their periods [3, 12].

The anatomic and physiological differences between male and female organisms necessitate differences in the construction of the training processes between both sexes. Most of these differences are aimed at dealing with the specific symptoms that accompany monthly period, pregnancy and post birth-giving period in female athletes.

The increase in the results correlates not only with the sports experience, but also with the increase in the muscle strength, which accompanies it. This increase could be a result of the improvement of the neuromuscular contractive regulation – inner muscle coordination and intermuscle coordination.

Fig. 5 depicts the quantity of medals won by Bulgarian female weightlifters in relative terms.

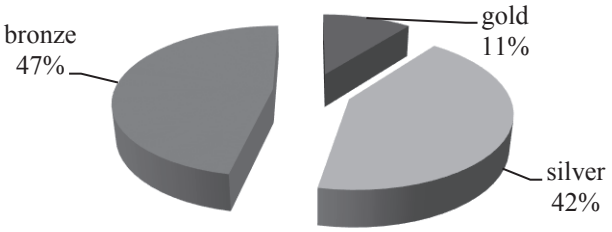

Fig. 5 Distribution of medals won by Bulgarian female weightlifters in relative terms

We would like to emphasize the fact that the biggest percentage of these medals - 47% - went to the bronze ones, followed by the silver ones with 42% and gold ones with 11%.

On **fig. 6** we showed the distribution of the world records of Bulgarian female weightlifters during the studied period of time.

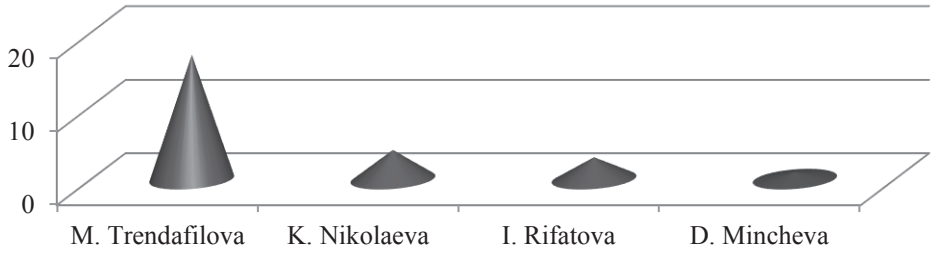

Fig. 6 Distribution of the world records of Bulgarian female weightlifters

In total there are 25 World Records achieved by 4 competitors. We found it interesting to mention that 3 of them won World Championships gold medals and the last one, K. Nikolayev, despite lifting a record weight, could not reach to the title.

Between their first participation and the year 2003 Bulgarian female weightlifters took third place in the team rankings behind the teams of China and Taipei with two-second places and three third places won. Since 2003 they have not won any team or individual titles.

CONCLUSION

During the studied period, 18 female competitors have won 133 medals in total – 18 gold ones, 55 silver ones and 60 bronze ones. Of them 86 were in one of the competitive exercises – snatch and clean and jerk (13 gold medals, 35 silver medals, 38 bronze medals) – and 47 in the biathlon – 3 competitors have won 5 gold medals, 10 competitors – 20 silver medals and 15 competitors – 22 bronze medals.

In our opinion, it is most probable that the achievements of Bulgarian female weightlifters are connected to their previous experience with strength training. The initial low results are due to

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logical reasons – technical imperfection, lack of sports experience, etc. We consider the most important factor for better results to be the sports experience, but not the age of the competitor.

On average the difference between the initial and the final values of the Sinclaire Coefficient is about 50. The biggest differences were achieved in the year prior to their first participation on the Olympic Games – results most probably due to the competition for reaching an Olympics quota.

Our results suggest that weightlifting does have an impact on different physiological processes in female organism, but the adaptation of the body successfully overcomes the adverse effects and gives opportunities for a world-class career.

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