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Concentration Time Values in Men's +105 Kg Top-Class Weightlifting Competitions

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Abstract

Sports, this omnipresent phenomenon, is likely to ensure only the physical and mental health of a member society, there are also new ways of socialization and personal capitalization. The current level of performance on dumbbells (with all the changes as a rule) are established advanced technologies for lifting dumbbells, training methods, but also an increasingly important contribution to scientific research brought by various schools with traditions in this field. Our study presents an analysis of weightlifters (of different genres and categories, respectively) regarding certain moments that refer to the analysis of the attention orientation times that characterize the dumbbell lifting styles. The present research consists in the use of imaging techniques. The technology used provides the data needed for research. Data processing is provided by the components of the technology used. At the start of the competition, in the final of the + 105kg category, which targeted our research, eight international competitors lined up: from Ukraine the winner and the youngest in the category with 203kg., Hungary, Poland, the dean of age of the meeting 32 years, Germany, the 3rd place occupant, with a performance of 190 kg. in the snatch style, the Czech Republic, Armenia and Russia with two representatives, one of them taking second place on the award podium with 193 kg lifted. Among the most important aspects that can result from our research we can highlight the average time of concentration (attention) at the level of the three regulatory tests which is 12.96 seconds; averages of the concentration times for each test, the ratio between the weight of the dumbbell and the concentration time.

Keywords: *attention; performance weightlifting; imaging technique; concentration time.*

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1. Introduction

Weightlifting performance depends on the optimal state of all the factors that determine it, namely: the athlete's personality, which includes systemic biological, psychological and social structures: somatic type, motor skills and talent, attitudes and character, intelligence and emotional control, will, positive relationships with the social environment. The new amendments to the regulations imposed by the International Weightlifting Federation, regarding the reduction of moments when the athlete is in a position to prepare to print to the dumbbell a route that follows an ideal model that ends with keeping the dumbbell above the head, have led to important changes regarding the content particularities of the trainings. Among the most important aspects of training and which have a major impact in achieving performance is attention. The dumbbell lifting technology is carried out in sync with the selective participation of attention and, respectively, among others a peculiarity of it, namely concentration. In full agreement with the latest concerns of researchers, it is considered that both the duration and the moments in which the athlete concentrates are decisive elements in achieving performance.

2. Problem Statement

Baroga [2] initiates a study aimed at concentrating on motor activity specific to weightlifters. The need to have a more precise technique than timing, in sight, imposed the decision to use an imaging technique, doubled by the possibility of computer processing of space and time information of specific actions. Taking into account all the factors that contribute to obtaining sports performance, we can say that the optimal duration of concentration time has great variability. This variability entitles us to consider that the formation of concentration skills, within the limits of an optimal range is correlated with outstanding results of performers.

Practice shows that the mental stability of athletes, their ability to mobilize at the limit in extreme conditions at the level of the main competitions are favored by natural skills and are improved with a lot of work. Basically, this specific labor prepares on the one hand the body of the weightlifter and on the other hand his psyche in order to obtain a harmony that metamorphoses into a focused attention.

Athletes who have approximately the same degree of physical and technical-tactical training participate in major international competitions. A

situation in which the psycho-physical peculiarities of weightlifters become decisive in obtaining great performances.

Very good athletes are usually characterized by the ability and determination to actively fight in highly competitive competitions [8]. Attention mobility and concentration occupy an important gap in the production of adaptive behaviors, thoughts and decisions, according to [9]. The authors Tüdös, Predoiu, & Predoiu mention that there is a significant link in terms of focused attention (tasks that are carried out quickly) and sports performance, the official ranking [11]. The evolution of information techniques, computers, has led to a revolution in the technology of processing and obtaining data through devices that Epuran [4] calls "extensions and amplifiers of our senses." Obtaining images on the monitor screen is used in the scientific literature, under the name of "imaging". Efficiency and speed of applications of modern technologies (computers, cameras, laptops, television satellites and new printing methods) new discoveries, ideas, facts and theories. It is a challenge to be able to keep up with them and understand what they mean [10]. Observations derived from the use of imaging, lead to behavior modeling and can generate new theories, according to Paraschiv, Tănase, & Manea [7]. Research in the field of neuroscience, which includes information on the level of activation of the cerebral cortex, heart rate, and the electrodermal reaction complete the study of the action of the weightlifter, which leads to hypotheses regarding the variation of the concentration of attention in that action [3].

The V-Scope VS-120 system was used by Hiskia in 1997 [5], a system that analyzes and measures technical performance and performance in dumbbells, based on infrared and ultrasound signals from the sensor attached to the end of the bar. A special software performs the three-dimensional analysis, in real time, of the trajectory, displacement, speed, acceleration of the dumbbell lifting action, and others. Through this technique, dumbbell sports professionals benefit from the multimedia advantages, as shown by Jentsch [6]: - the use of filming in trainings and competitions; - feedback obtained through images, in real time, for the analysis of different executions in training; - the images obtained give the coach and the athlete the chance to obtain an objective analysis of the athlete's performance, - in the training room and even in competition; - compiling a database, with information for all those interested, of the different executions in trainings or competitions, with possibilities of comparison, for qualitative analysis.

3. Research Questions/Aims of the research

Our study presents an analysis of weightlifters (of different genres and categories, respectively) regarding certain moments that refer to the analysis of the attention orientation times that characterize the lifting styles of the dumbbells. The present study discusses the identification and examination of the moments of orientation of attention (from the moment of fixing the plants under the axis of the dumbbell (T2), to the moment of detachment of the dumbbell from the podium (T4). Therefore, our study highlights the identification and examination of the moments of orientation of attention to the snatched procedure, of some weightlifters of European value, from the value group A, category - +105 kg. Objectives: 1. Verification of the technological capabilities used in the dumbbell lifting technique by the pulling procedure. 2. Identify the times of attention of the weightlifting attention in the procedure extracted by recording and measurement with the help of the AviSynth program [1]. Assumption: The identification of the attention orientation times, in the torn procedure, offers the possibility to compare between weightlifters and respectively to establish some reports and observations regarding the obtained performances.

4. Research Methods

Aparatus

The present research consists in the use of imaging techniques. The technology used provides the data needed for research. Data processing is provided by the components of the technology used. The actual research took place in two main stages: Stage I, April 3-13, 2009, in which the selection took place (eight male athletes of international value from various clubs in Europe, respectively two athletes from: Russia and one athlete from Armenia, the Czech Republic, Germany, Poland, Hungary and Ukraine (selected athletes compete for the super heavyweight category + 105Kg and are aged between 19-32 years) and the video recording of the athletes; Stage II, October - 2018 - March 2019, where the results were processed and analysed using the AviSynth program. Processing of data obtained from records made.

5. Findings

The research results are capitalized on the one hand by elements related to the specific technical terms of the discipline and on the other hand by concrete aspects presented in sections with numerical specifications.

Results of the research

The most experienced competitor in this category is the 32-year-old Polish athlete, while the Czech competitor, who will occupy a deserved fifth place in the final, is the youngest athlete who is only 19 years old. This research is part of a larger study that emerges from the structure of the tables with numbers 2, 3 and 4 - which capture both the execution time for each athlete and especially the topic of present papers, "Values of concentration times in category + 105kg, male in high performance weightlifting sports for the eight participants of value group A - contenders for the award podium; In the procedure with two arms, the gold medal goes to the Ukrainian athlete who manages to lift all three attempts to 195, 200 and 203 kg. The 23-year-old European champion in this weight category, as we can see from the imaging tables of the three trials (Table 8; Table 9, Table 10), has no failures in this style. The second place is occupied by the 20-year-old sportsman, from Russia, with a weight of 193 kg, at the snatch. The bronze medal goes to the German athlete with a performance of 190 kg.

Table 1. Subjects of the research group

Item no.	Competition number	S.N.	Country	Date of birth	Body weight
1	34	O.J.	CZE	05.01.1989	116.52
2	44	N.P.	HUN	16.01.1986	142.35
3	54	V.A.	GER	22.08.1981	130.50
4	66	K.G.	POL	12.11.1977	131.80
5	88	L.I.	RUS	29.05.1986	112.73
6	157	A.R.	ARM	14.03.1990	141.98
7	207	P.E.	RUS1	17.08.1988	137.80
8	233	S.I.	UKR	27.05.1986	132.10

Table 2. Structure of two-hand snatch and duration of times - first attempt

Item no.	S.N.	Country	Time 1	Time 2	Time 3	Time 4	Time 5	Barbell weight	Successful / Failed attempt
1.	O.J.	CZE	2229	2307	2408	2679	2788	165	Successful
2.	N.P.	HUN	5151	5347	5505	5608	5710	175	Successful
3.	V.A.	GER	7728	7863	8002	8470	8575	182	Successful
4.	K.G.	POL	9394	9517	9632	9682	9768	182	Successful
5.	L.I.	RUS	11720	11892	12044	12400	R	185	Failed
6.	A.R.	ARM	14946	15048	15303	15468	15537	187	Successful
7.	P.E.	RUS1	16023	16151	16238	16280	16358	187	Successful
8.	S.I.	UKR	29591	29704	29846	29902	29989	195	Successful

Table 3. Structure of two-hand snatch and duration of times – second attempt

Item no.	Name	Country	Time 1	Time 2	Time 3	Time 4	Time 5	Barbell weight	Successful / Failed attempt
1.	O.J.	CZE	3746	3873	4080	4221	4343	170	S
2.	N.P.	HUN	10590	10735	10905	11014	11109	182	S
3.	L.I.	RUS	12921	13017	13115	13399	R	185	F
4.	K.G.	POL	17070	17160	17366	17861	R	187	F
5.	V.A.	GER	18750	18860	18946	18977	19081	187	S
6.	A.R.	ARM	23862	24118	24408	24668	R	192	F
7.	P.E.	RUS1	27998	28105	28237	28258	R	193	F
8.	S.I.	UKR	30410	30575	30703	30738	30814	200	S

Table 4. Structure of two-hand snatch and duration of times – third attempt

Item no.	S.N.	Country	Time 1	Time 2	Time 3	Time 4	Time 5	Barbell weight	Successful /Failed attempt
1.	O.J.	CZE	6436	6616	6760	6869	7023	175	S
2.	L.I.	RUS	13918	14000	14086	14338	R	185	F
3.	K.G.	POL	19772	19858	19969	20484	R	187	F
4.	N.P.	HUN	21411	21554	21665	21825	21933	188	S
5.	V.A.	GER	22880	22982	23103	23174	23288	190	S
6.	A.R.	ARM	25280	25589	25708	26009	R	192	F

7.	P.E.	RUS1	28547	28668	28748	28792	28862	193	S
8.	S.I.	UKR	31284	31399	31568	31622	31705	203	S

Table 5. Difference between the barbell lifting off the competition platform (T4) and its fixing/ lowering at the referee's signal (T5) – first attempt

Item no.	S.N.	Country	Time 2	Time 4	Barbell weight	Successful/ Failed attempt
1.	O.J.	CZE	2307	2679	165	S
2.	N.P.	HUN	5347	5608	175	S
3.	V.A.	GER	7863	8470	182	S
4.	K.G.	POL	9517	9682	182	S
5.	L.I.	RUS	11892	12400	185	F
6.	A.R.	ARM	15048	15468	187	S
7.	P.E.	RUS1	16151	16280	187	S
8.	S.I.	UKR	29704	29902	195	S

Table 6. The difference between the fixation of the plants under the halter's shaft (T2) and the detachment of the barbell from the podium (T4) - second attempt

Item no.	S.N.	Country	Time 2	Time 4	Barbell weight	Successful/ Failed attempt
1.	O.J.	CZE	3873	4221	170	S
2.	N.P.	HUN	10735	11014	182	S
3.	L.I.	RUS	13017	13399	185	F
4.	K.G.	POL	17160	17861	187	F
5.	V.A.	GER	18860	18977	187	S
6.	A.R.	ARM	24118	24668	192	F
7.	P.E.	RUS1	28105	28258	193	F
8.	S.I.	UKR	30575	30738	200	S

Table 7. The difference between the fixation of the plants under the halter's shaft (T2) and the detachment of the barbell from the podium (T4) – third attempt

Item no.	S.N.	Country	Time 2	Time 4	Barbell weight	Successful/ Failed attempt
1.	O.J.	CZE	6616	6869	175	S
2.	L.I.	RUS	14000	14338	185	F
3.	K.G.	POL	19858	20484	187	F
4.	N.P.	HUN	21554	21825	188	S
5.	V.A.	GER	22982	23174	190	S
6.	A.R.	ARM	25589	26009	192	F
7.	P.E.	RUS1	28668	28792	193	S
8.	S.I.	UKR	31399	31622	203	S

Table 8. Identification of subjects and results achieved in relation to concentration time - transformation of frames into seconds in the first attempt - snatch event

Item no.	Country	Date of birth	Body weight	Barbell weight (kg)	Attempt	Frames	Concentration time
1.	CZE	21.09.1994	46.37	165	1 st	372	14.88
2.	HUN	22.06.1982	47.67	175	1 st	261	10.44
3.	GER	12.01.1988	47.88	182	1 st	607	24.28
4.	POL	15.10.1988	47.63	182	1 st	165	6.6
5.	RUS	19.02.1988	47.68	185	1 st	508	20.32
6.	ARM	08.11.1992	47.88	187	1 st	420	16.08
7.	RUS1	29.10.1983	47.71	187	1 st	129	5.16
8.	UKR	29.10.1983	47.71	195	1 st	198	7.92

105.68/8=13.21sec

Table 9. Identification of subjects and results achieved in relation to the concentrationtime - transformation of frames into seconds in the second attempt - snatch event

Item no.	Country	Date of birth	Body weight	Barbell weight (kg)	Attempt	Frames	Concentration time
1.	CZE	21.09.1994	46.37	170	2 nd	348	13.92
2.	HUN	22.06.1982	47.67	182	2 nd	279	11.16
3.	RUS	12.01.1988	47.88	185	2 nd	382	15.28
4.	POL	15.10.1988	47.63	187	2 nd	701	28.04
5.	GER	19.02.1988	47.68	187	2 nd	117	4.68
6.	ARM	08.11.1992	47.88	192	2 nd	550	22
7.	RUS1	29.10.1983	47.71	193	2 nd	153	6.12
8.	UKR	29.10.1983	47.71	200	1 st	163	6.52

107.72/8=13.46sec

Table 10. Identification of subjects and results achieved in relation to the concentrare time - transformation of frames into seconds in the third attempt - snatch event

Item no.	Country	Date of birth	Body weight	Barbell weight (kg)	Attempt	Frames	Concentration time
1.	CZE	22.06.1982	47.67	175	3 rd	253	10.12
2.	RUS	21.09.1994	46.37	185	3 rd	338	13.52
3.	POL	12.01.1988	47.88	187	3 rd	626	25.04
4.	HUN	15.10.1988	47.63	188	3 rd	271	10.84
5.	GER	19.02.1988	47.68	190	3 rd	192	7.68
6.	ARM	08.11.1992	47.88	192	3 rd	420	16.8
7.	RUS1	29.10.1983	47.71	193	3 rd	124	4.96
8.	UKR	29.10.1983	47.71	203	1 st	223	8.92

97.88/8=12.23+13.46+13.21=38.9/3=12.96sec concentration time

6. Discussions

The short duration of some exercises as well as the need to perform them with maximum effort require, from the weightlifting, a special concentration of attention. By this is meant the possibility of provoking a high degree of arousal and the mobilization of all physical and mental

capacities, at a certain moment. In weightlifting, practice has shown that the most important mental qualities are: concentration, perseverance and emotional stability. Increasing concentration time during regular dumbbell lifting attempts can become a criterion for assessing both the level of training of the athlete and the success of lifting dumbbells, which confirms the need to maintain a certain stereotype of dumbbell lifting.

7. Conclusions

Following the analysis of the research results, some aspects were highlighted that show the concentration time of the snatched procedure, among them we mention: the average concentration times at the level of the three regulatory tests; averages of the concentration times for each test, the ratio between the weight of the dumbbell and the concentration time. Regarding the results obtained, we find: the average obtained from the athletes' results regarding the concentration time of the first attempt is 13.21 seconds. For the second attempt it is 13.46 seconds. And for the third attempt it is 12.23.seconds. Increasing the weight of the dumbbell also increases the concentration time. The average concentration time for the three attempts is 12.96 seconds.

Authors' Contributions

All authors contributed equally to this article and should be considered as main authors

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