

## Investigation of the Effect of the 5-Month Special Multi-Component Training Program on the Performances of a Blind Powerlifter\*

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### Abstract

This study aims to Investigation of the effect of the 5-month special multi-component training program on the performances of blind powerlifters and knowledge their impact on Strength and performance to lifts; squat, bench press and deadlift for Blind Powerlifter Beginners. Applied study on a sample of (10) Egyptian Powerlifting Team for Blind Participated in 13th Annual IBSA World Open Bench Press & Powerlifting Championships For Blind and Visually Impaired Athletes 2018 in Luxor, Egypt. The researcher used an experimental method to design one group of pre-posttest. The team included (6) men lifters and (4) women lifters. Where the average age of  $(25.46 \pm 7.63)$  years, height  $(185.00 \pm 10.57)$  cm and weight  $(83.41 \pm 18.84)$  kg for the men lifters, while the average age  $(29.75 \pm 8.01)$  years, height  $(180.00 \pm 15.69)$  cm and weight  $(70.74 \pm 21.51)$  kg for the women lifters. It was the first time for all blind powerlifters to practice this sport. Egyptian Powerlifting Team for Blind underwent to Powerlifting undulating Periodization training plan for Strength and performance development of the muscles involved in the squat, bench press and deadlift. Strength and performance training program Continued for 4 months, 18 Weeks 5 times per week and the training workout lasted 2 hours. The pre- posttest for physical strength and performance were performed on lifters in three lifts competition. The results showed statistically significant differences between Pre- Posttest in physical strength and performance of the lifts squat, bench press and deadlift, where the value of  $p < 0.05$ . Egypt's women's powerlifting team won third place in the competition, While the Egyptian men's team won fifth place; With 16 medals including 7 gold, 1 silver, and 4 bronze. Training should focus on three lifts as program core in the competition phase. These results must be taken into account by the coaches and Blind powerlifters to use the powerlifting training plan for the development physical strength to improve the performance and the level of achievement lifting squat, Bench press, and deadlift for blind lifter women and men.

**Keywords:** Blind, Powerlifting, strength, squat, bench press, deadlift.

### INTRODUCTION

Blind Powerlifting is a sport in which competitors test their strength across three different lifts: Squat, Bench Press and Deadlift. Lifter aims to lift the maximum amount of weight in the respective lifts, With adhering to good performance. Also, there are different weight categories and age groups for men and women (Aleksandrović, 2018; Haykowsky & Warburton, 1999, Kiely, 2011; Butcher & Piletic, 2003).

Powerlifting is a sport for all Blind and Visually Impaired Athletes. Powerlifting will increase and develop an individual's physical strength and skills. In competition, lifters have three attempts to achieve a result on each lift. To achieve this result, the lifter must complete the lift with good performance. If the lifter fails to post a score on a special lift, they are unfit

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from the competition (Aleksandrović, 2018; Ebada, 2011a; Fonseca, et al., 2014; Haykowsky & Warburton, 1999).

Periodization is the only model training planning way, the method of training planning based on experiential and scientific knowledge. Periodization organizes training in terms of number, duration and the basic structure of the training units (Painter, 2009; Rhea, Ball, Phillips & Burkett, 2002; Simao, 2012).

Periodization has many forms, however, it refers to the intelligent manipulation of intensity, volume, and frequency to raise the rate of strength and muscle development. Moreover, it is the key that separates a training and powerlifting program. There are three forms of training periods: - The Linear Periodization is the gradual of training from high and low intensity to low volume training and high intensity. Undulating Periodization depends on the continuous change in volume and intensity of training based on the weekly training module or daily training module. Conjugate Periodization: It depends on the change in supporting exercises from a weekly training unit to another weekly training unit. Otherwise, change the training variables for a defined and planned period (Rhea, Ball, Phillips & Burkett, 2002; Simao, 2012).

The training method works to balance intensity and volume smartly so that lifters can keep progressing through an extensive period without needing to make dramatic changes or follow an advanced Plan. To, achieve this balancing, the training method includes of three days of lifting per week: a high-intensity day, a high volume day, and an active recovery day (Chaouachi et al., 2011; Ebada & Abdel Hadi, 2018; Painter, 2009; Physiqz, 2018).

Powerlifting exercises improve performance in the three competitive lifts squat, bench press and deadlift. The weight training method used in powerlifting is very different. Some methods call for the use of many differences in competition lifts, while others call for a more limited selection of exercises and a confirmation on control the competition lifts through repetition (Kiely, 2011; Matt, 2010). While much powerlifting plans depend on principles of sports science, such as adaptation to strength training (Butcher & Piletic, 2003).

Powerlifting training plans focus on the three main lifts. These lifts stimulate most of the muscles and put the most overwork on the central nervous system, which in turn method they free the most hormones. Before start this. To put develop a good Powerlifting training plan; we should test a maximum one-rep max (1RM) in the squat, bench press, and deadlift (Spencer & Croiss, 2015).

The three competition lifts (Squat, Bench Press, and Deadlift) for powerlifting blind are difficult skills in the motor performance of the blind and visually impaired in learning and mastery. It requires high mental and consensual abilities for blind lifters; to achievement, these lifts especially if he/ she is beginner powerlifting, which requires a blind lifter mental imagine of performance. It also requires a lot of training to reach the optimal technical performance by building the strength of the muscles working in lifting; to achieve the maximum weight can be lifted by the lifter. Through the researcher's experience as a Head coach of the Powerlifting team for the blind and his knowledge of studies, scientific researches, and specialized references, he noted that there is a scarcity of scientific studies

related to Powerlifting training for the blind. Where there is a lack of sports training plans based on scientific foundations, which meet the requirements of visual disability, which prompted the researcher to conduct this study; to develop a Powerlifting training plan for the blind to compete in World Championship. Also, to know the impact of the training plan for the development of strength and performance of powerlifting for the blind.

## **METHOD**

This study aims to Blind Powerlifter training plan for a world championship and knowledge their impact on Strength and performance to lifts; squat, bench press and deadlift for Blind Powerlifter Beginners. Applied study on a sample of (10) Egyptian Powerlifting Team for Blind Participated in 13th Annual IBSA World Open Bench Press & Powerlifting Championships For Blind and Visually Impaired Athletes 2018 in Luxor, Egypt. The researcher used an experimental method to design one group of pre-posttest. The team included (6) men lifters and (4) women lifters. Where the average age of ( $25.46 \pm 7.63$  years), height ( $185.00 \pm 10.57$  cm) and weight ( $83.41 \pm 18.84$  kg) for the men lifters, while the average age ( $29.75 \pm 8.01$  years), height ( $180.00 \pm 15.69$  cm) and weight ( $70.74 \pm 21.51$  kg) for the women lifters. It was the first time for all blind powerlifters to practice this sport.

Egyptian Powerlifting Team for Blind underwent to Powerlifting undulating Periodization training plan for Strength and performance development of the muscles involved in the squat, bench press and deadlift. Strength and performance training program Continued for 4 months, 18 Weeks 5 times per week and the training workout lasted 2 hours. The pre- posttest for physical strength and performance were performed on lifters in three lifts (Squat, Bench press, Deadlift) Competition. The training plan included three phases: preparation phase 12 weeks divided into (general preparation) aimed at building strength, muscles and learning the performance of the three lifts competition. Also, (special preparation) aimed to increase the special strength and performance of the lifts. Competition phase divided into pre-competition 4-week and peaking phase lasted 2 weeks aimed to improve the increases performance and strength of competition. The two-week transitional period (Physiqz, 2018; Plisk & Stone, 2003; Spencer & Croiss, 2015).

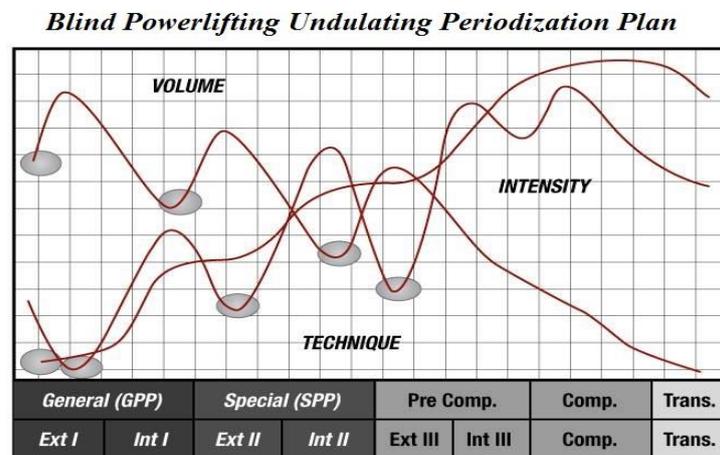
Pretest: These measurements were made for the lifters before the start of the training program in the measurement of the limit (1RM) in the three lifts (Squat- Bench press – Deadlift) and construction of the calculation of strength/weight Ratio (Squat Raito- Bench press Ratio – Deadlift Ratio - Level strength - Wilks Score) (Spencer & Croiss, 2015; Stone, Stone & Sands, 2007; Vanderburgh & Batterham, 1999).

Blind powerlifting Training plan: The training plan was implemented in the period from 7/7/2018 until 18/11/2018, where the trainers were subjected to the training program for strength development, building muscles and performance for lifting (Squat – Bench press - Deadlift) competition. According to the following: - The program was implemented for (18) weeks by (3-5) training units per week, training was in the morning and the evening from Saturday to Wednesday. On Thursday, the lifters were given a sauna, Jacuzzi, massage or swimming and on Friday a negative rest. The daily training unit time ranged from 2 hours. The training load components were formed in the program using 60-100% of the maximum

weight of 1RM and repetitions between 1-5 repetitions, the number of groups ranged between 2-5 work Sets and rest periods between exercise was 1-2 minutes. The formation of the training load for the daily training units was characterized by moderate (medium-light - high - medium - light) training and a uniform warming period of 15 minutes were given. The relaxation period will calm (5 minutes) lengthen the muscles at the end of the training module. The lifters had a negative rest week from 19/8/2018 to 24/8/2018 (Chaouachi et al., 2011; Ebada & Abdel Hadi, 2018; Painter, 2009; Plisk & Stone, 2003; Spencer & Croiss, 2015).

The daily training unit included exercises (Squat, bench press, deadlift, back exercises, Chin-up, 2-4 Board Press, Shrugs, Dumbbell Side Bend, Barbell Rows, Shoulder Press, Hanging Leg Raise, Triceps, Planks) (Butcher & Piletic, 2003; Ebada & Abdel Hadi, 2018; Physiqz, 2018). Trainers were trained in the period of general physical preparation to build and strengthen the muscles. Also, learning the performance of competitive lifts. In the period of physical preparation to increase the strength and ability of the muscles working in the lifting of competition, while the period of competition was training to increase the strength and performance of the competition (Physiqz, 2018; Painter, 2009; Spencer & Croiss, 2015).

The training load in powerlifting training plan was formed according to the model of the training periodization and the manipulation of volume and intensity and performance according to the following model Figure 1: The best Blind powerlifting training plan is used periodization to cause the largest amount of muscle and strength adaptations in the shortest period.



**Figure 1:** The best Blind powerlifting training plan model

In this form, variation is used throughout the training block to continually power the body to adapt to the stressors being placed on it. In a workout, when using varying levels of reps, sets, and weights, a body is the force to continually adaption. Moreover, these adaptations occur in the form of increased muscle and strength (Chaouachi et al., 2011; Colquhoun et al., 2017; Physiqz, 2018; Plisk & Stone, 2003; Painter, 2009; Spencer & Croiss, 2015).

Posttest was carried out on the lifters according to the results in the 13th Annual IBSA World Open Bench Press & Powerlifting Championships for Blind and Visually Impaired Athletes 2018 in Luxor, Egypt.

## Data Analyses

Statistical analysis was performed with SPSS for Windows software, version 22.0, Data are expressed as means (M) and standard deviations (SD). The data were analyzed using the Wilcoxon Test.

## RESULTS

**Table 1.** Statistics-test for the Physical strength and Performance of Wilcoxon Test pre-and post-test to Blind Powerlifter results.

Variables		Pre-test		Post-test		t	p	
		Mean	SD.	Mean	SD.			
Physical strength (1RM)	Squat Ratio	Kg.	1.13	0.42	1.48	0.46	-2.803	0.005*
	Bench Press Ratio	Kg.	0.75	0.41	0.89	0.39	-2.668	0.008*
	Deadlift ratio	Kg.	1.50	0.50	1.98	0.50	-2.701	0.007*
	Level strength	Kg.	453.50	107.28	581.50	107.40	-2.803	0.005*
	Wilks Score	Kg.	200.10	72.61	260.89	47.71	-2.295	0.022*
Performance (1RM)	Squat	Kg.	93.20	40.40	115.75	39.98	-2.666	0.008*
	Bench Press	Kg.	60.95	33.30	69.50	31.92	-2.613	0.009*
	Deadlift	Kg.	118.50	42.89	154.25	44.21	-2.805	0.005*
	PL. total	Kg.	272.65	114.25	339.50	114.00	-2.805	0.005*

\*p<0.05

Table 1. Shows the results of significant statistical differences to Wilcoxon Test the experimental group between pre and posttest in tests of Physical strength and Powerlifting Performance for lifts. Where the value of  $p < 0.05$  to all variables search which shows statistically significant differences between pre and posttest for posttest.

## DISCUSSION

Table1. Shows the results of significant statistical differences to Wilcoxon test the blind powerlifting between pre and post measurements in tests of physical strength (Squat Raito-Bench press Ratio – Deadlift Ratio - Level strength - Wilks Score) and (Squat- Bench press-Deadlift) performance. Where the value of  $p < 0.05$  to all variables search which shows statistically significant differences between pre and post-measurement for posttest. This development is due to the impact of the training plan applied to the lifters and is consistent with what (Andrew, 2001; Ebada, 2008; Ebada, 2011b; Ebada & Abdel Hadi, 2018; Escamilla et al., 2000) that high-intensity weight training programs improve the strength of muscle groups working in the three lifts. In addition to following the training principles such as adjustment, increase load and resistance near the maximum and maximum and the gradual resistance that affects the increase in strength and performance for powerlifters.

The results also showed the effectiveness of powerlifting training plan Strength and Performance to increase and develop an individual's physical strength and skills for Egypt's women's powerlifting team won third place in the competition, While the Egyptian men's team won fifth place; the Ukrainian team came out first followed by Iran, Russia, and Turkey. With 16 medals including 7 gold, 1 silver, and 4 bronze, this was the first time for the Egyptian team to compete in a world championship.

The use of the method of training the daily spindle in volume and intensity control using repetition and load increases the strength of Powerlifting while using the training method repetition, intensity and the focus of training on three lifts (Squat – Bench press - Deadlift). Also, various exercises to build muscles for the upper and lower body through Variation in volume, intensity, density factors and selection of appropriate exercises, especially blind blinders, are important training variables associated with adaptability to training for powerlifters (Chaouachi et al., 2011; Plisk & Stone, 2003; Stone, Stone & Sands, 2007). Daily Undulating Periodization, also known as Using this periodization form, volume and intensity are inversely altered within the same microcycle squat, bench press and deadlift workout on a day will be fundamentally different than another day. This maximizes results.

## CONCLUSION

Training should focus on competition lifts (squat - Bench press- deadlift) as program core in the competition phase. As well as, Training must be very light through the last week before the championship. This is even better than total rest. These results must be taken into account by the coaches and Blind powerlifters to use the powerlifting training plan for the development physical strength to improve the performance and the level of achievement lifting squat, Bench press, and deadlift for blind powerlifter women and men.

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