

## Powerlifters' ways to overcome confounding factors at competitions

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**Abstract.** Competitive activity is accompanied by a number of factors that prevent athletes' high performance. Like all other athletes, powerlifters find solutions to fight interference emerging at the competitions. The study aims to explore possible ways to overcome the confounding factors in powerlifting. Respondents to the questionnaire were 160 lifters (80 men and 80 women) aged from 16 to 49, with sport experience from 1 year to 34 years and sports qualifications from third junior rank to the Master of Sports, some having the title of "Master of Sports of Russia of International Class". The study builds a hierarchy of ways to overcome the confounding factors according to the degree of their significance. The first five options were analyzed being most important in the athletes' viewpoint. [Ljdokova G.M., Razzhivin O.A., Volkova K.R. **Powerlifters' ways to overcome confounding factors at competitions.** *Life Sci J* 2014;11(11s):477-480] (ISSN:1097-8135). <http://www.lifesciencesite.com>. 108

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### Introduction

Competition is a culminating point in the athletes' activities. Athletes' high achievements depend not only on their perfect physical form. Athletic performance is a synthesis of many components, so the athlete must mobilize all his faculty and power. According Ian M. Cockerill, "five key factors contribute to success in cognitive sport: technique, physical condition, psychological state, nutrition, and equipment" [1]. A determining condition in the athletic career is performance and the results that are achieved. During the competition athletes are exposed to the influence of a number of confounding factors, successful overcoming of which requires certain abilities and skills.

"It is clear that stress, especially acute stress, has important effects on attention and perception. But the effects are quite irregular, and depend in serious ways on the qualitative features of the stressor. Different stressors have different effects on performance" [2]. Some forms of stress (e.g., excitement or agitation) can have a positive impact on the athlete's competitive result. But such a situation as changing the time zone can cause nothing but harm to the athlete's training procedure. According to the Canadian scientist H. Selye, stress does not always cause damage, "Activities related to stress, can be pleasant or unpleasant" [3]. One stressor might cause shifts in attention or a failure to inhibit irrelevant stimuli, while another stressor causes a lapse of attention or attentional narrowing in the same task [4]. In this regard, we distinguish between the concepts "stressor" and "confounding factor" because the latter term precisely fits our proposed definition. Confounding factors in sport are impacts that impede the realization of the athlete's goal. Confounding factors are of a mixed nature, both

exogenous and endogenous and are determined by the conditions of human life [5, 6, 7].

Human possibilities are endless. "Human beings are extraordinarily adaptive and usually can find ways to adjust to stress even if they cannot completely overcome all of its adverse effects" [8]. Therefore, ways to overcome the confounding factors are possible solutions of the problem.

The athlete's body adapts not only to the weight that is to be lifted, but also to the change of functions, biochemical processes and reactions they cause in bodily fluids. Here we should add a change in psycho and emotions, which accompany the competitive activity. For example, in such sports as weightlifting, powerlifting, etc. the emotional state changes from attempt to attempt at the competition, and, in some cases, it is one of the main factors to achieve sporting success. [9]

Powerlifting is a sport demanding strength, in which the athletes are qualified according to the results in three barbell exercises: squat, bench press and deadlift. "In powerlifting athletes are exposed to a complex of confounding factors that have a significant impact on the effectiveness of training and competitive activities. These factors prevent athletes from optimal implementation of motor (power) tasks and psychological functions" [10].

The analysis of scientific literature in the field of athlete's psychological training demonstrates the relevance of strategies to address stress as an important factor in the athlete's performance in competition conditions. An example of this are works by Anshel et al. [11, 12], Rawstorne et al. [13], Thelwell et al. [14], Allen et al. [15], etc. However, research in this area considering powerlifters is relatively insufficient.

Examining issues concerning confounding factors within a particular sport provides a possibility

to create a perfect training model for the athlete who is aimed at a high result. In connection with this provision, our research takes its place among the works of this direction. The material of this paper complements our previous work, which considered the confounding factors of athletes involved in powerlifting [16]. This paper provides a differentiated analysis of the strategies to overcome confounding factors in competitive activities. Its scientific novelty consists in considering and determining the significance of the ways to overcome confounding factors by athletes – powerlifters.

## Methodology

Such methods as analysis of the scientific literature on the research problem, observation, interview and questionnaire were used in the study.

To determine the significance of the ways to overcome confounding factors among powerlifters, we developed a questionnaire, which presents 9 ways to overcome the confounding factors and one more, tenth factor is to be identified by powerlifters according to their consideration. Respondents are advised to arrange the confounding factors in the order of their importance. So, if a particular mode is ranked # 1 it has the greatest, and mode # 10 possesses the lowest value for the athlete.

The novelty of this questionnaire is that it groups particularistic ways, which have been considered in other research, to overcome confounding factors causing changes in powerlifters' sport activities.

To solve the problem 160 athletes involved in powerlifting answered the questionnaire. The sample included 80 women and 80 men aged from 16 to 49 with sports experience from 1 year to 34 years possessing sport skills from third junior rank to the Master of Sports, having the title of "Master of Sports of Russia" and "Master of Sports of Russia of International Class". Such sampling is justified because it provides an opportunity for subsequent studies to examine ways to overcome the confounding factors from different perspectives: gender, age, athlete's qualification, and etc.

Experts in the field of powerlifting professional activity (S.M. Kosarev, President of Russian Powerlifting Federation, Honored Coach of Russia, Associate Professor of Moscow Aviation Institute) and sports psychology (A.I. Fukin, Doctor of Psychology, Professor of Institute of Economics, Management and Law, Kazan) recognize the questionnaire as valid.

## Discussion

To measure the significance of the ways to overcome the confounding factors given to the

athletes for evaluation we calculated the arithmetic mean, and then ranked the list of methods (see table 1).

**Table 1. Hierarchy of the ways to overcome confounding factors by powerlifters during competition**

|    | Ways to overcome confounding factors  | Rank | Mean Value |
|----|---|------|------------|
| 1  | Training partner selection (more experienced, successful, congenial, having similar goals and objectives)                     | IV   | 4.73       |
| 2  | Changing training methods (training according to the competition model: change in training time, diet, mode of the day)       | VI   | 5.19       |
| 3  | Coach's assistance (analysis of approaches, strategy and tactics of behavior development, encouraging)                        | I    | 2.63       |
| 4  | Medication  | VII  | 5.72       |
| 5  | Instructional techniques (meditation, hypnosis, autogenic training, visualization of a successful attempt, music)             | III  | 3.6        |
| 6  | Home-like behaviour (normal diet, a date with a friend/ girlfriend, car repairs, listening to music, chat with friends, etc.) | IX   | 6.55       |
| 7  | Social isolation (to be alone, read a book, etc.)   | V    | 5.08       |
| 8  | Selective communication (communication with a more calm, or, conversely, more active companion)                               | VIII | 6.53       |
| 9  | Mental attitude (formation of alert status)   | II   | 3.43       |
| 10 | Other (to be specified)   |      |            |

This paper presents a detailed analysis of the first five ways to overcome the confounding factors in the competition as the most significant from the powerlifters' viewpoint.

The analysis of the ways to overcome the confounding factors at powerlifting competition (see table) shows that the top rank in the hierarchy is the coach's assistance (2.63). The coach acts as the subject, and the athlete as an object of control. The control function is an influence directed at the athlete's tactical and technical actions, the impact on his mental state and behavior as a whole [17]. The main criterion of the effect of the coach's control actions in conjunction with the athlete's conscious effort is sporting achievement. The best thing for the athlete is to come to the competition together with a personal coach. Athlete – coach relationship is purely individual. But this is not always the case. Throughout their athletic career athletes have to play for different teams, whose leaders, representatives and coaches are different people, whom the athletes have not known before. Unfortunately, sometimes a different coach's useful and good advice may not fit the powerlifter's individual system, and then he has to rely only on himself, on his own ability to concentrate and analyze the situation in order to achieve the desired result.

The second position among the listed ways to overcome the confounding factors is mental attitude (3.43). According to numerous research (E. Genova, O.V. Dashkevich, V.L. Marishchuk, Y.Y. Palayma, V.M. Pisarenko, O.V. Chernikova, G.K. Shingarov, etc.) mental attitude has a direct impact on the athlete's efficiency. Therefore, it is important for the coach to know what the athlete's emotional state at the competition is. If it is in a state of uncertainty, fear of strong contenders, excessive excitement, emotional stress, the results take a turn

for the worse, the performance indicators decline [18]. To perform excellently, the athlete must achieve the best martial status immediately before the start of the competition and keep it until the end of the contest.

The powerlifters consider instructional techniques (3.6) to occupy the third place in the hierarchy of the ways to overcome the confounding factors. Behavioural efforts are used to make oneself feel better, such as relaxation, meditation [19]. When developing a skill, we mentally make assessment of the actions. To avoid information overload, coach guidance should be combined with the athlete's internal self-orders. Developing before the competition such skills as sustainability, distribution and switching of attention; visualization; imagination, including the rebuilding of mental images, situations, phenomena; reproduction and differentiation of muscle effort – all this will allow athletes to effectively manage their condition and overcome the confounding factors. While interviewed, many athletes noted the positive effects of visualization – fulfillment of a successful attempt. As White and Hardy offered, "Imagery is an experience that mimics real experience. We can be aware of 'seeing' an image, feeling movements as an image, or experiencing an image of smell, tastes, or sounds without actually experiencing the real thing" [20].

Next, according to the respondents' choice, on the hierarchy list comes selection of partners for the training (4.73). Teammates' interaction at the competition is, on the one hand, a contest, and on the other hand, it is a kind of cooperation. In the second case, the interaction provides for various forms of activities: physical mutual aid, assistance in the athlete's preparation to go on to the platform (to prepare and wound bandages on his knees, put on a shirt or a sport suit etc.), and psychological support (approval, encouragement, setting goals). The efficiency of the partners' interaction depends on the psychological climate in the team, interpersonal relationships, the presence and availability of recognized leaders, well-developed skills and experience in the joint actions, for it is often a case that there are several eminent athletes in one and the same team.

Social isolation closes the top five important for powerlifters ways to overcome confounding factors (5.08). Mostly those athletes who experience high levels of anxiety, stress or need considerable time to concentrate their efforts resort to social isolation and avoid contacts during the competition. The study by Tenenbaum et al. reports that it is important for the best competitors to make "conscious use of self-talk to 'feel the way they

wanted to feel" in preparation for competition" [21], to be alone, watch TV, go to bed, read a book, etc. in order not to get in contact with overly active people, who can cause a feeling of psychological depression or those athletes who are also prone to pre-start anxiety.

## Conclusions

Our study examined the ways to overcome confounding factors at powerlifting competitions. We analyzed five highest-rated ways to overcome confounding factors from the respondents' point of view. In the process of competitive activity the hierarchy of lifelines from stressors is ranked as follows: 1) the coach's assistance, 2) mental attitude, 3) instructional technique, 4) selection of partners for training, 5) social isolation. Coach's assistance occupies the top position that can be explained by the high degree of his significance for the athlete's sport activities. This conclusion is supported by Cary L. Cooper and John Crump who state that "the coach plays an important role in overcoming the stress in training workouts and at the competitions" [22].

Sports psychology research on stress and ways to get rid of it have so far attracted scientists' attention. Although there are many techniques, defense mechanisms, techniques to overcome stress factors [23], which have been successfully used by coaches and athletes, researchers are actively working to develop new techniques and technologies. This paper describes the possible ways to overcome confounding factors that have not been studied by sports psychology until today in powerlifting.

The obtained data can make the base for developing training recommendations to compete in powerlifting, that would allow athletes to realize their potential with the greatest efficiency and achieve best results.

The present study traces a promising resource in the study of ways to overcome the confounding factors taking into account the powerlifter's gender, age and sports qualification, which can enhance understanding the process of the athlete's survival in sport.

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