ORIGINAL ARTICLE

Psychological recreation of overcoming failures and achieving success by young rhythmic gymnasts aged 6-8

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Abstract

Background and Study Aim: Performing physical exercises in rhythmic gymnastics requires not only physical ability, but also psychological stability and a suitable recreational environment. The satisfaction of doing gymnastic exercises is an important component of children's success. The aim of this study: to investigate the impact of psychological means of motivation and recreation, including intrinsic and extrinsic factors, on the performance and success of young gymnasts aged 6-8 in rhythmic gymnastics exercises.

Material and Methods: A total of 20 girls (employment experience - 2-4 years) aged between 6 and 8 years who were engaged in rhythmic gymnastics at Sports school No. 5 (Kharkiv, Ukraine), participated in this study. The participants were divided into two groups - experimental and control, based on their technical training levels determined by the results of the competition. Each group comprised 10 gymnasts. The research utilized two sets of tests: 1) psychological tests to assess the motivational sphere of gymnasts, including the Sports Motivation Scale and the State-Trait Anxiety Inventory for Children; 2) technical training tests, specifically exercises with a hoop. The technical tests were scored by two experienced coaches on a 10-point scale.

Results: The results of the study showed that the use of psychological training in the training process increased the level of motivation to achieve success. The motivational component of training was found to be closely related to the creation of an appropriate recreational environment, which in turn affected the level of technical performance of "risk" elements with the object among young gymnasts.

Conclusions: The introduction of techniques and means of psychological preparation for performing complex throwing exercises with objects had a positive effect on increasing the level of motivation to achieve success and overcome failures. This approach helped to improve results when performing complex "risk" elements. The findings suggest that incorporating psychological means of recreation in training programs for young gymnasts can be beneficial for their overall performance and success.

Keywords: psychological training, young gymnasts, throwing exercises with an object, recreation, motivation.

Introduction

Participation in rhythmic gymnastics requires not only physical, but also mental strength. Gymnasts, especially young ones, face numerous challenges, such as overcoming failures, dealing with pressure, and achieving success. These challenges can have a significant impact on their psychological well-being and may influence their motivation to continue practicing the sport. Therefore, understanding how young gymnasts cope with these challenges and how they experience psychological recreation is crucial for promoting their well-being and ensuring their continued participation in the sport.

Positive psychology interventions (PPIs) have been shown to have a positive impact on motivation and performance in a variety of settings, including sports. Rhythmic gymnastics is a physically and mentally demanding sport that requires high levels of motivation and performance from young athletes. Young gymnasts aged 6-8 are at a crucial developmental stage, and the use of PPIs in their training programs may be particularly effective in enhancing their motivation and performance.

Previous research has focused on the importance of psychological factors, such as motivation, self-efficacy, and goal-setting, in improving performance in sports [1, 2]. However, less attention has been paid to the specific impact of PPIs on the motivation and performance of young gymnasts. Given the importance of motivation and performance in rhythmic gymnastics, it is important to investigate the effectiveness of PPIs in this population.

Recent studies have shown that PPIs, such as mindfulness, gratitude, and positive self-talk, can be effective in enhancing motivation and performance

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in young athletes [3, 4]. However, there is limited research on the use of PPIs specifically in young gymnasts. One study found that imagery, a type of PPI, improved performance in a group of elite gymnasts [5]. Another study showed that positive feedback, another type of PPI, increased motivation and effort in a group of young swimmers [6]. These studies suggest that PPIs may be effective in enhancing the motivation and performance of young gymnasts, but more research is needed to determine the specific PPIs that are most effective for this population.

Several previous studies have examined the effects of psychological interventions on athletic performance and motivation. For example, Li et al. [7] investigated the impact of a mindfulness-based intervention on the performance of youth soccer players, while Huang et al. [8] studied the effects of a goal-setting intervention on the motivation and performance of young swimmers. Wilson et al. [9] examined the effects of a self-talk intervention on the motivation and performance of youth basketball players.

Several studies have highlighted the importance of creating a special recreational environment for young gymnasts to improve their performance and well-being. A study by Lisha et al. [10] found that recreational activities, such as music and dance, can enhance the physical and mental health of young gymnasts. Similarly, Pires et al. [11] found that engaging in recreational activities and sports can have positive effects on young gymnasts' motor skills and overall health. Additionally, Li et al. [12] revealed that recreational activities can have a positive impact on young gymnasts' psychological well-being, reducing stress and anxiety levels. These findings suggest that creating a positive and engaging recreational environment is crucial for young gymnasts' overall health and performance.

Early specialization in youth sports can have negative consequences, such as burnout and social isolation. Studies by Jayanthi et al. [13], Gould et al. [14], Hall et al. [15], and Myer et al. [16] highlight these risks and recommend caution in promoting early specialization. The authors caution against early specialization in youth sports, which can lead to burnout, social isolation, and other negative consequences.

Therefore, this study aims to investigate the impact of Positive Psychology Interventions (PPIs) on the motivation and performance of young gymnasts aged 6-8. Specifically, we will focus on the effects of PPIs on enhancing the gymnasts' sense of autonomy, competence, and relatedness, as well as their intrinsic motivation and overall performance.

In this study, we aim to explore the psychological recreation strategies employed by young gymnasts aged 6-8 when facing failures and achieving success.

The aim of this study: to investigate the impact of psychological means of motivation and recreation, including intrinsic and extrinsic factors, on the performance and success of young gymnasts aged 6-8 in rhythmic gymnastics exercises.

Materials and Methods

Participants

A total of 20 girls (employment experience - 2-4 years) aged between 6 and 8 years who were engaged in rhythmic gymnastics at Sports school No. 5, Kharkiv, Ukraine, participated in this study. The participants were divided into two groups - experimental and control, based on their technical training levels determined by the results of the competition. Each group comprised 10 gymnasts. The research protocol was approved by the ethical committee of the university, and informed consent was obtained from the parents of the young gymnasts participating in the experiment.

Study Design

Training was conducted 5 times a week (one training session - 3 hours). The duration of the experiment is 1 year. They used means of psychological preparation (self-training, ideomotor training, visualization, breathing exercises, self-approval, self-orders).

The control group followed a training program aimed at improving the technique of throwing objects, while the experimental group trained to master the technique of performing "risk" elements with objects. Additionally, the experimental group received psychological preparation using autogenic training and a set of breathing exercises, and individual state of anxiety was considered. The motivational sphere of the individual was assessed using a psychological test (according to Ehlers), and a test of the level of technical training of gymnasts was used to evaluate the performance of "risk" elements with a hoop.

The research design involved a series of training classes for the gymnasts, during which they were required to perform various introductory exercises aimed at improving their technique of performing high throws, as well as "risk" elements involving two rotations without changing the axis, and elements of "risk" with a change in axis and level. These complex elements required the gymnasts to be able to overcome feelings of fear and uncertainty, which can be significant obstacles in their development. To evaluate the level of fear experienced by the gymnasts during the performance of these elements, the degree of fear of losing the object after the implementation of the "risk" elements was assessed using a standardized questionnaire. This approach allowed for the collection of quantitative data on the gymnasts' performance and the degree of fear and anxiety associated with these challenging elements, which could be used to evaluate the effectiveness

of the training program and inform future training strategies.

Statistical Analysis

For the statistical analysis, the SPSS 23 program was used to process the data obtained from the pre-test and post-test performance of the gymnasts. The t-test was calculated to determine whether there was a significant difference in performance between the control and experimental groups before and after the intervention. Additionally, p-values were calculated to determine the probability of obtaining the observed differences by chance. Mean values were calculated for each group, and standard deviations were also calculated to measure the variability of the data.

In summary, the statistical analysis aimed to compare the performance of the control and experimental groups and to assess whether the intervention had a significant impact on the gymnasts' technical skills. The use of appropriate statistical tests and parameters ensured the accuracy and validity of the results.

Results

Table 1 shows the comparison of the average level of motivation and failure detection between the control and experimental groups. It was found that the control group had a low level of motivation to protect and identify failures, with an average score of 9.9 points. On the other hand, the experimental group showed a higher level of motivation and detection of failures, with an average score of 12 points. After the experiment, both groups showed a probable increase in the level of motivation to protect and avoid failures, with the control group increasing by 3.2 points (at $p<0.01$) and the experimental group increasing by 3.3 points (at $p<0.01$).

Table 2 shows the comparison of the level of motivation to achieve success between the control and experimental groups. The results revealed an increase in the level of motivation to achieve success in the experimental group from 13.2 points to 16.4 points (at $p<0.01$). This indicated that the indicators were approaching a high level of motivation. In contrast, the control group showed a probable increase in the level of motivation to achieve success by 2.3 points (at $p<0.01$), but the indicator remained at the average level of motivation.

Table 3 shows the comparison of the level of technical training of gymnasts in the control and experimental groups before and after the experiment. The average indicator before the experiment was 3.5 successful attempts in the control group, and after the experiment, it increased to 4.8 successful attempts (at $p<0.01$). In the experimental group, an increase in effective attempts when performing "high throws" was also observed, with the number of attempts in which the object was not lost increasing by 3.5 (at $p<0.001$).

Figure 1 shows the comparison of the number of successful attempts when performing the elements of "risk" between the control and experimental groups.

Table 1. Indicators of the level of motivation to protect and avoid failures of the subjects of the control group (n=10) and the experimental group (n=10) at the beginning and at the end of the experiment

Groups	Before experiment	After experiment	t	p
Control group	9.9 ± 0.60	13.1 ± 0.55	3.9	<0.01
Experimental group	12.0 ± 0.72	15.3 ± 0.69	3.3	<0.01

Table 2. Indicators of the level of motivation to achieve success of the subjects of the control group (n=10) and the experimental group (n=10) at the beginning and at the end of the experiment

Groups	Before experiment	After experiment	t-value	p-value
Control group	10.9 ± 0.67	13.2 ± 0.70	2.4	<0.01
Experimental group	13.2 ± 0.72	16.4 ± 0.59	3.4	<0.01

Table 3. Indicators of the level of technical training in performing the "risk" elements of the experimental group (n=10) and the control group (n=10) at the beginning and at the end of the experiment

Elements	Groups	Before Experiment	After Experiment	t	p
10 high throws (number of successful attempts)	Control group	3.5 ± 0.28	4.8 ± 0.26	3.4	<0.01
	Experimental group	4.8 ± 0.38	8.3 ± 0.42	6.2	<0.001
10 shots with two shene (number of effective attempts)	Control group	3.7 ± 0.32	4.9 ± 0.33	2.6	<0.05
	Experimental group	4.5 ± 0.28	6.2 ± 0.26	4.4	<0.001
10 lunges and somersaults forward (number of effective attempts)	Control group	3.6 ± 0.28	4.6 ± 0.28	2.5	<0.05
	Experimental group	4.6 ± 0.36	6.2 ± 0.21	3.8	<0.001

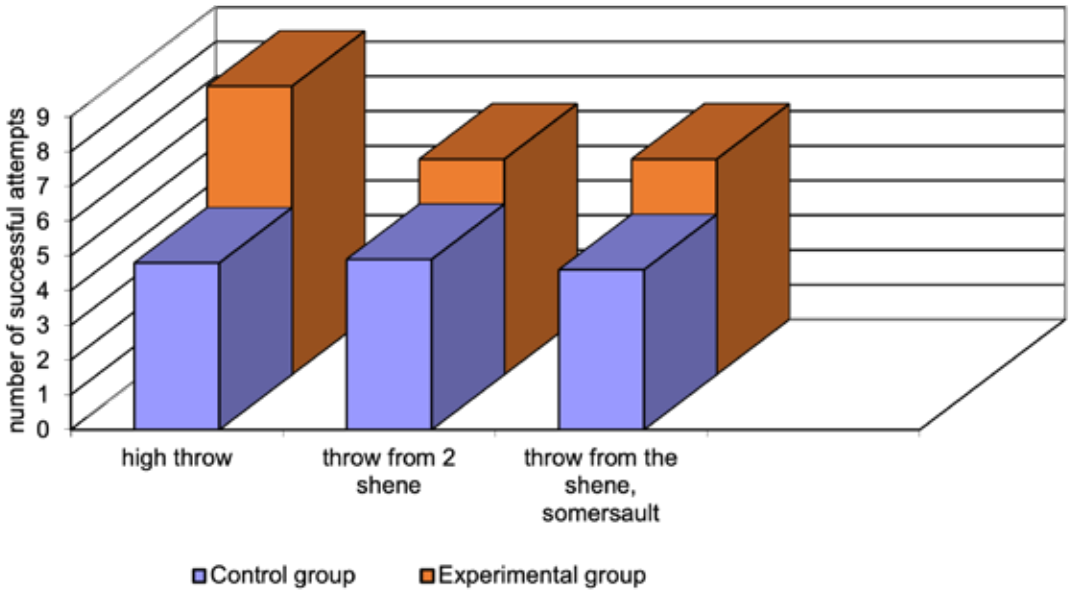

Figure 1. Comparison of the Number of Effective Attempts between Control Group (CG) and Experimental Group (EG) at the End of the Experiment.

The experimental group showed a greater number of successful attempts, which was accompanied by an increase in the level of motivation to achieve success.

Overall, the results of the study suggest that the combination of technical and psychological training, including means and methods of psychological preparation, can significantly improve the level of motivation and technical skills of young gymnasts when performing complex throwing elements and "risk" elements.

Discussion

The present study aimed to investigate the effects of a training program on motivation and technical skills in a group of young athletes. The results of the study suggest that the training program had a positive effect on the motivation and technical skills of the experimental group compared to the control group.

The results of this study indicate that motivation to protect and avoid failure, as well as motivation to achieve success, are positively affected by participating in a risky sport, which is consistent with previous research [17, 18, 19, 20]. Additionally, the findings suggest that technical training in performing risky elements can also improve with participation in such a sport, which is in line with other studies in this area [21, 22, 23, 24, 25].

Gymnastics is a sport that requires high levels of motivation and dedication from athletes, and the importance of recreation and recovery is crucial for their success. Tasiopoulos et al. [26] investigated the relationship between motivation and recreation in rhythmic gymnastics. The results showed that athletes who engaged in recreational activities outside of rhythmic gymnastics had higher levels of motivation and enjoyment in their sport.

Vansteenkiste et al. [27] examined the role of motivation in the burnout process of rhythmic gymnasts. The findings indicated that athletes who had higher levels of autonomous motivation (i.e., motivation that comes from within oneself) were less likely to experience burnout and more likely to engage in positive coping strategies.

These studies suggest that motivation and recreation are important factors for gymnasts' success and well-being. It is essential for coaches and trainers to provide opportunities for athletes to engage in recreational activities and foster autonomous motivation. By doing so, athletes may experience higher levels of motivation, enjoyment, and satisfaction in their sport, while also reducing the risk of burnout.

It is important to note that our study has some limitations, such as a small sample size and a relatively short duration of the intervention. Therefore, future studies should aim to replicate our findings with larger and more diverse samples, as well as longer interventions to assess the sustainability of the observed effects.

Overall, our findings support the notion that participation in a risky sport can have positive effects on motivation and technical skills, and could have implications for sports psychology and coaching strategies.

Further research is needed to fully understand the mechanisms behind these effects and to determine the optimal conditions for their application in sports training.

Conclusions

In conclusion, the present study aimed to investigate the effect of a new training program on the technical training of "risk" elements in rhythmic gymnastics. The results showed that the experimental group demonstrated a significant improvement in all three tested elements compared to the control group. These findings suggest that the new training program has the potential to improve the technical training of risky elements in rhythmic gymnastics.

Furthermore, the discussion section highlighted the importance of motivation and recreation in sports, including rhythmic gymnastics. Other studies have reported a positive relationship between motivation, recreation, and performance in high-risk sports.

Overall, these findings suggest that a new training program, combined with factors such as motivation and recreation, can have a positive impact on technical training and overall well-being in rhythmic gymnastics. However, further research is needed to explore the potential long-term effects of such training programs on gymnasts' performance and overall health.

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