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METHODOLOGY OF ASSESSING THE PERSONALITY QUALITIES OF JUNIOR FEMALE GYMNASTS (12- 14 YEARS OLD)

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Abstract

The purpose of the paper is to highlight the methodology of assessment of personality qualities of junior female gymnasts 12 to 14 years old during their basic specialization stage of sports training.

Methods and procedures. This scientific approach led to the conduct of an ascertaining experimental study in the junior team of Deva and the National College "Cetate Deva", applied to a group of 19 female gymnasts, 12 to 14 years old, all of them having the same training program. The research used the method of bibliographic study; the method of questionnaire; "KyPlot" statistical-mathematical method; ANOVA parametric test of comparison and graphical representation test – Excel. The assessment of the psychological score was performed by applying a questionnaire to a number of 3 coaches who work with junior gymnasts on different apparatus (vaults, uneven bars and beam). The questionnaire included 25 items that were used by means of calculation formulas to assess gymnasts' psychological scores, converted into indices, namely: goal-orientation index (GOI), self-confidence index (SCI), index of the ability to concentrate (IAC), index of performance capacity increase (IPCI) and training capacity index (TCI).

Results. The results of testing the means of gymnasts' personality qualities indices were compared to the assessment scale of the psychological score and to the performances achieved in two competitions (National Juniors' Individual Championships, Deva 2012 and National Masters Championships Onești, 2012), especially on the apparatus where worked the coaches-subjects of the survey.

Conclusions. The assessment of the psychological score of junior gymnasts by each coach separately shows that there are no significant differences in the expression of personality qualities during training, except the goal-orientation index that has significant differences at $P < 0.05$, which invalidates the hypothesis proposed by the research. The comparative analysis of personality qualities indices and the performances achieved in competitions highlight the influence of the development level of personality qualities upon the capacity for performance of the junior gymnasts – subject of the research.

Key words: gymnastics, psychological score, performances, personality, tests.

Introduction

Artistic gymnastics has recorded remarkable progresses, highlighting the fact that it develops in accordance with the trends of performance sport, but it has its specific features too, such as: increase of sports mastership, increase and rivalry of competitive programs, processing of new complex routines, sports mastership that reaches virtuosity; improvement of components that provide the training of high classification gymnasts (Vieru, 1997; Arkaev, Suchilin, 2004).

The problem of psychological training in sport, in general, and in gymnastics, in particular, is of great interest due to an increase of the international competitive system and especially to the tenacious sports competition (Vieru, 1997). The ever increasing requirements in performance gymnastics both related to the athletes and to the teachers, trainers, policy makers, led to the recognition of the significance that the psychological preparation has in sports training process (Grigore, 2001).

Simultaneously with the extent of performance sport, the importance of the psychological factor in performance athletes' training is more and more taken into consideration, fact that determined the conduct of numerous studies and researches embodied in gathering a rich ascertaining factual material but also with strong applicative character. The psychological content of sports training consists in the development of mental capacity under informational and regulating character; intellectual, emotional, volitional and personality traits preparation, development of self-regulating capacity, etc. (Dragnea, Mate-Teodorescu, 2002).

Athlete's psychological training includes a set of general and special measures meant to develop the sides and issues of mental life that are required by sports activity, enabling the athlete to achieve important progresses in training and maximum performances in competitions (Epuran, Holdevici, 1993).

To this effect, the psychological training in sports

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training and competitions helps the coach in several directions, namely (Simion, Mihăilă, Stănculescu, 2011): a thorough knowledge of the athlete, especially in terms of psychology, of character and personality traits seen in their development, implementation of the ways and directions to improve the psychological training in accordance with the specific purposes of sport branches but also with the social-human purposes; orientation of the training towards the achievement of a high mental capacity in accordance with the principles and requirements of performance sport; knowledge of the mechanisms and ways to achieve full preparation as complex process of training and education of athletes, etc.

The psychological preparation, concept with profound meanings, became one of the factors of the training open to the improvement and turning into good account in competitions, as well as a basic component of athlete's education and training process, aiming at a successful participation in competitions (Niculescu, 2003).

To cope with the stress of training sessions and competitions, the athlete must be properly prepared in several steps (Epuran, Holdevici, 1993):

Basic mental training which includes all methods and means necessary for building athlete's personality, his or her attitudinal traits;

specific mental training which consists of the development and improvement of those mental qualities that directly determine the performance (Nicu, 1993), motivation, willpower, fortitude, attention, perseverance, desire to win, ability to concentrate, memory, imagination, ability of motor representation; psychological training for competitions.

Contemporary artistic gymnastics has high requirements on the qualities of female gymnasts' personality. There are several highly important elements for the stages of initial and thorough sports training: *goal orientation, self-confidence, ability to concentrate, ability to increase performances, training capacity* (Adrianov, Kachaev, Chunikhin, 1990).

The purpose of this paper is to highlight the methodology of assessment of junior female gymnasts' personality qualities (12 to 14 years old) during basic specialization stage of sports training.

Methods

This scientific approach led to an ascertaining experimental study in junior team of Deva town and in the "Cetate Deva" National College, applied to a group of 19 female gymnasts, 12 to 14 years old, submitted to the same training program.

Hypotheses of the paper.

The study intended to show that the assessment of the psychological score of junior gymnasts by each coach separately will help to highlight whether there are or there are not significant differences in the manifestation of personality qualities throughout the training process.

Also, the comparative analysis between the personality qualities indicators and the performances achieved in competitions will highlight the influence of the development level of personality qualities on the capacity for performance of the junior gymnasts-subjects of the research.

The research used the method of bibliographic study; the method of questionnaire; "KyPlot" statistical-mathematical method; ANOVA parametric test of comparison and graphical representation test – Excel. The assessment of the psychological score was performed by applying a questionnaire to a number of 3 coaches who work with junior gymnasts on different apparatus (vaults, uneven bars and beam). The questionnaire included 25 items that were used by means of calculation formulas to assess gymnasts' psychological scores, converted into indices, namely: goal-orientation index (GOI), self-confidence index (SCI), index of the ability to concentrate (IAC), index of performance capacity increase (IPCI) and training capacity index (TCI).

Table no. 1. Establishment of personality qualities

Control period	Level of qualities development				
	Very good	Good	Medium	Poor	Very poor
Initial testing	4.2	3.6-4.1	2.5-3.5	1.9-2.4	1.8-
Final testing	4.3	3.7-4.2	2.6-3.6	2.0-2.5	1.9-

Results

In table no. 2 and figures no. 1 to 5 are shown the results of development of junior female gymnasts' personality qualities, assessed by the three coaches who work with these gymnasts (12 to 14 years old) on various apparatus: vaults, uneven bars and beam.

Table no. 2. Results of personality qualities manifestation (n=19)

Variables (points)	Mean ±SD	CV %
IOS M1	2.41±0.85	35.36

	M2	3.40±0.98	28.9
	M3	2.77±1.16	42.01
	XM	2.86±0.94	32.8
IIS	M1	3.13±0.96	30.92
	M2	3.24±0.84	26.18
	M3	3.00±0.97	32.51
	XM	3.12±0.84	27.09
ICC	M1	2.62±0.91	34.77
	M2	3.25±0.94	28.83
	M3	3.28±0.99	30.19
	XM	3.05±0.90	29.52
IPCI	M1	2.54±0.95	37.45
	M2	3.2±0.87	27.24
	M3	3.05±1.03	33.75
	XM	2.93±0.87	30.01
TCI	M1	2.41±1.04	43.24
	M2	2.93±0.97	33.26
	M3	3.00±1.10	36.72
	XM	2.78±0.97	35.11
ICG	M1	2.62±0.91	34.69
	M2	3.20±0.89	28.04
	M3	3.02±1.01	33.38
	XM	2.95±0.89	30.16

M1- coach for handspring vaults; M2 – coach for uneven bars; M3 – coach for beam; XM – mean of coaches; SD – standard deviation; CV – coefficient of variability; n –number of subjects; goal-orientation index (GOI), self-confidence index (SCI), index of the ability to concentrate (IAC), index of performance capacity increase (IPCI) and training capacity index (TCI)

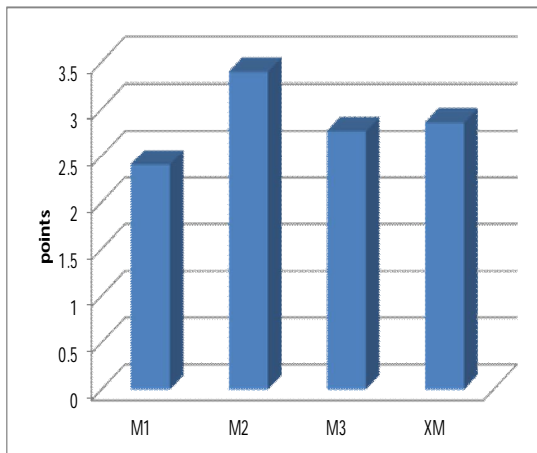


Figure no. 1. Results of the development of goal-orientation index (table no. 2)

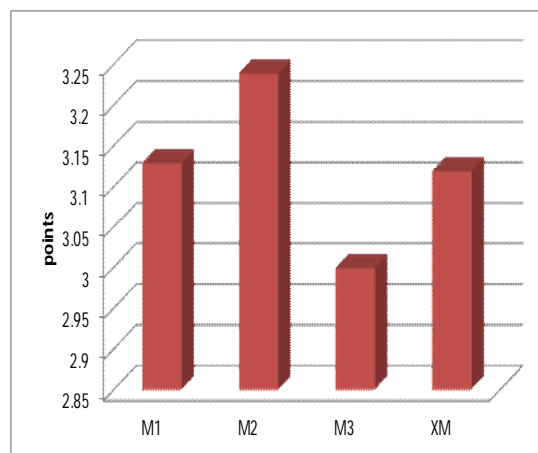


Figure no. 2. Results of the development of self-confidence index (table no. 2)

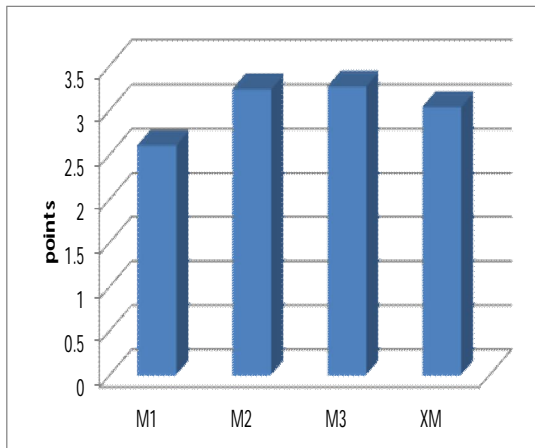


Figure no. 3. Results of the development of ability to concentrate index (table no. 2)

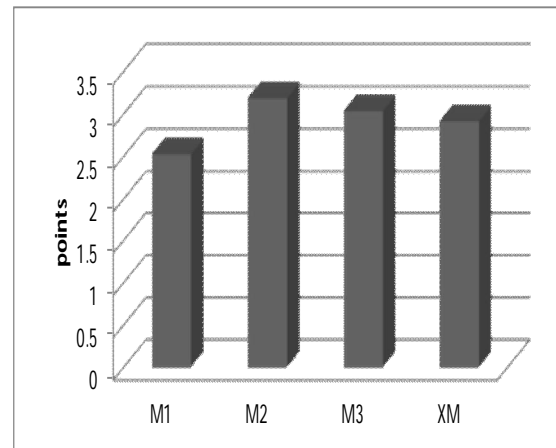


Figure no. 4. Results of the development of the index of performance capacity increase (table no. 2)

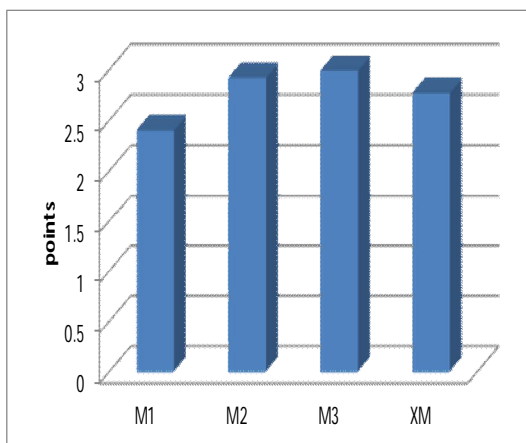


Figure no. 5. Results of the development of training capacity index (table no. 2)

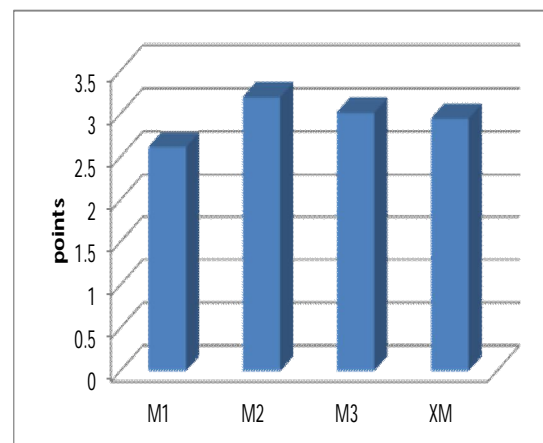


Figure no. 6. Results of general behavior of personality qualities (table no. 2)

Table no. 3. Results of ANOVA parametric test of comparison

Variables (points)	F (cal)	P(F < F(cal))	F (0.05)
IOS	4.69 (P<0.05)	0.013	3.168
IIS	0.32 N.S.(P>0.05)	0.726	3.168
ICC	2.96 N.S.(P>0.05)	0.06	3.168
ICP	2.54 N.S.(P>0.05)	0.08	3.168
ICI	1.82 N.S.(P>0.05)	0.17	3.168
ICG	1.92 N.S.(P>0.05)	0.16	3.168

In table no. 3 are listed the results of the indexes of junior female gymnasts' personality qualities by means

of ANOVA comparative test between the means of the three coaches (M1, M2 and M3).

Table no. 4. Results got in the National Individual Championship for juniors, 25- 27.X.2012 – Deva (n = 16)

Statistical indicators	HV (points)			UB (points)			B (points)			F (points)			Total		
	D	E	FS	D	E	FS	D	E	Pen.	FS	D	E		Pen.	FS
Mean	4.29	8.76	13.04	4.68	8.18	12.86	5.3	7.96	0.1	13.24	5.2	8.89	0.17	14.05	42.33

SEM	0.09	0.08	0.11	0.14	0.19	0.25	0.08	0.18	-	0.24	0.08	0.19	0.06	0.25	4.12
N	12	12	12	14	14	14	13	13	1	13	12	12	3	12	16

SED – standard error deviations; HV - handspring vaults; UB – uneven bars; B – beam; F – floor

Table no. 5. Results got in the National Masters Championship, 16-18.XI.2012 – Onești (n = 15)

Statistical indicators	HV (points)			UB (points)			B (points)				F(points)			Total	
	D	E	FS	D	E	FS	D	E	Pen.	FS	D	E	Pen.		FS
Mean	4.45	8.88	13.32	4.28	7.73	12.01	5.23	8.29	-	13.52	5.07	8.47	-	13.54	49.785
SEM	0.10	0.04	0.12	0.21	0.28	0.39	0.11	0.16	-	0.23	0.07	0.13	-	0.17	1.52
N	15	15	15	14	14	14	14	14	-	14	14	14	-	14	15

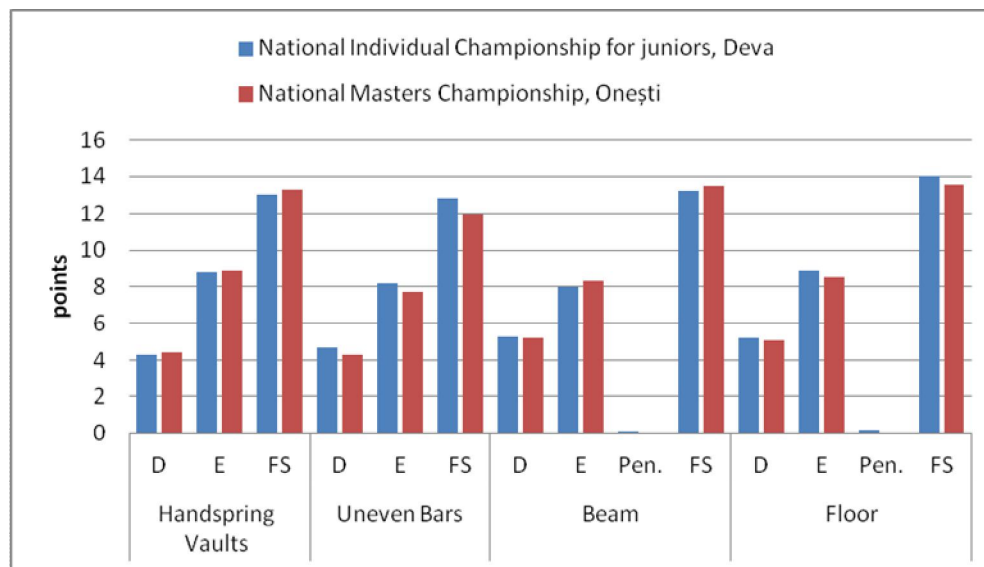


Figure no. 7. Comparative results achieved in competitions (table's no. 5 and 6)

Table no. 4 show the results obtained in the National Individual Championship for juniors, Deva 2012, in terms of difficulty, execution and final score on each apparatus.

Table no. 5 show the results achieved in the National Individual Championship for juniors, Deva 2012, highlighting the difficulty, execution and final score on each apparatus.

Discussions

The assessment of junior female gymnasts' personality qualities development highlights their development throughout the ascertaining stage of the research.

Although the need for more research on the determinants of elite performance in rhythmic gymnastics is apparent, the findings of the present study could help coaches on providing more effective training to their gymnasts (Zisi et al, 2009).

Concerning the psychological characteristics, self-confidence was significantly affected by performance level. This result is in accordance with the literature findings suggesting a strong association of self-

confidence with elite performance in various sports (Woodman & Hardy, 2003).

The results of gymnasts' personality qualities emphasize the following aspects (table no. 2):

Goal orientation index (GOI, fig.1) shows an average level of development, with an assessment mean of the three coaches of 2.86 points, 2.41 points as assessed by coach M1 (vaults), 3.40 points as assessed by coach M2 (uneven bars) and 2.77 points – M3 (beam); all the means of the coaches prove a poor homogeneity in the experimental group;

Self-confidence index (SCI, fig.2) shows an average level of development, with an assessment mean from coaches' part of 3.12 points; 3.13 points as assessed by coach M1, 3.24 points as assessed by coach M2 and 3.00 points – coach M3; all the means of the coaches demonstrate a poor homogeneity within the experimental group;

Index of the ability to concentrate (IAC, fig.3) shows an average level of development, with an assessment mean from coaches' part of 3.05 points, 2.62 points as assessed by coach M1, 3.25 points as assessed by coach M2 and 3.28 points – coach M3; all



the means of the coaches prove a poor homogeneity in the experimental group;

Index of the performance capacity increase (IPCI, fig.4) shows an average level of development, with an assessment mean from coaches' part of 2.93 points, 2.54 points as assessed by coach M1, 3.2 points as assessed by coach M2 and 3.05 points – coach M3; all the means of the coaches prove a poor homogeneity in the experimental group;

Training capacity index (TCI, fig.5) shows an average level of development, with an assessment mean from coaches' part of 2.78 points, 2.41 points as assessed by coach M1, 2.93 points as assessed by coach M2 and 3.00 points – coach M3; all the means of the coaches prove a poor homogeneity in the experimental group;

Index of general behavior (IGB, fig.6) shows an average level of development, with an assessment mean from coaches' part of 2.95 points, 2.62 points as assessed by coach M1, 3.20 points as assessed by coach M2 and 3.02 points – coach M3; all the means of the coaches prove a poor homogeneity in the experimental group.

The poor results in terms of homogeneity of the means are explained by the differences of the scores given by each coach and by the training level of gymnasts on each apparatus.

The results of the psychological score during ascertaining stage listed in table no. 3 highlight insignificant differences between the means of the indices of personality qualities development granted by each coach, with a general mean of 2.95 points, excepting the goal-orientation index (GOI), which shows significant differences between the means given by coaches, namely $F = 4.69$ at $P < 0.05$.

The results of the scores received in the National Championship for juniors, Deva 2012, highlight the following means: in the case of the handspring vaults, a mean of the score for difficulty of 4.29 points, 8.76 points for execution score and 13.04 points for final score mean; on uneven bars – a mean for difficulty score of 4.68 points, 8.18 points for execution and 12.86 points for final score; on beam – a mean of the difficulty score of 5.3 points, 7.96 points for execution score, 0.1 points penalty and 13.24 points for final score mean; on floor – a mean for difficulty score of 5.2 points, 8.89 points for execution, 0.17 points and 14.05 points for final score mean.

As for the total score on apparatus, we notice a mean of 42.33 points, with a number of 16 gymnasts

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participating in the competition, with different participation number on each apparatus.

The results of the scores received in National Masters Championship, Onești2012, highlight the following means: in the case of the handspring vaults, a mean of the score for difficulty of 4.45 points, 8.8 points for execution score and 13.32 points for final score mean; on uneven bars – a mean for difficulty score of 4.28 points, 7.73 points for execution and 12.01 points for final score; on beam – a mean for difficulty score of 5.23 points, 8.29 points for execution score and 13.52 points for final score mean; on floor – a mean for difficulty score of 5.07 points, 8.47 points for execution and 13.54 points for final score mean.

As for the total score on apparatus there is a mean of 49.786 points, with a number of 15 gymnasts participating in competition with a different number of participation on each apparatus.

Conclusions

The results of personality qualities development highlight an average level of expression, insignificant differences of the assessment means given by coaches and poor values of the homogeneity in the experimental group.

The comparative results of the scores received in competition highlight an increase of the difficulty score, execution score and final score mean in the case of handspring vaults; uneven bars – a decrease of difficulty, execution and final mean; on beam – decrease of difficulty, improvement of execution and increase of final score mean; on floor – decrease of difficulty, execution and final score mean and the increase of total score on apparatus.

The comparative analysis between the personality qualities indices of the tested gymnasts and the performances achieved in competitions highlighted the improvement of training level by increasing the difficulty of exercises, by improving the technical execution and by increasing the final score on each apparatus.

The assessment of the psychological score of junior gymnasts by each coach separately proved that there were significant differences in the expression of personality qualities during training process.

The comparative analysis of personality qualities indices and the performances achieved in competitions highlight the influence of the development level of personality qualities upon the capacity for performance of the junior gymnasts – subject of the research.

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