

Control and planning of training for identifying the affective attitudinal traits of female gymnasts

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Abstract:

Purpose: highlighting the system of control and planning of the training process in identifying the affective-attitudinal traits of the female gymnasts aged 12 to 15 years. *Material:* the experimental study was conducted from 2013 to 2016, with two research groups (experimental, n=10 and control, n=10), in „Speranta” Sports Club of Chisinau. In order to identify the affective-attitudinal traits of the female gymnasts, they were evaluated on the basis of the following indices: Self-Confidence Index, Goal Orientation Index, Index of the Ability to Concentrate, Learning Capacity Index, Index of Performance Capacity Increase and Index of General Behavior. *Results:* The experimental results on the identification of the affective-attitudinal traits reveal the following matters: insignificant difference of the affective-attitudinal general behavior between the indicators of the first and the second Olympic macro-cycle ($t=0.59$, $P> 0.05$), significant differences between the indicators of the second and third macro-cycle ($t=9.73$, $P<0.001$) and between the third and fourth macro-cycle ($t=6.23$, $P<0.001$) with a probability of 99.9 %; significant differences between the results obtained by the subjects of the experimental and control group between the second and third macro-cycle, $t=3.54$, $P< 0.01$ between the third and fourth macro-cycle ($t=5.14$, $P<0.001$). The affective-attitudinal general behavior is predominant to a larger extent in the experimental group with a probability of 99.5 – 99.9 %. In the control group, the affective-attitudinal traits come into prominence only at the end of the fourth macro-cycle of the Olympic cycle, $t=2.92$, $P< 0.05$. *Conclusions:* It is worth mentioning that in order to identify the affective-attitudinal traits of the examined female gymnasts there were applied tests with descriptors and assessment scales considered effective for the specific training of the gymnasts at such a stage. It was also found out that the moral-psychological factors had a positive influence on the dynamics of athletes' states and affective-attitudinal traits, which influenced in turn the entire system of gymnasts' training throughout the Olympic macro-cycle.

Key words: artistic gymnastics, tests, affective-attitudinal traits, macro-cycles, performance.

Introduction

The artistic gymnastics has currently made great progress, proving that it develops in accordance with the performance sport tendencies but it also has its specific features, such as (Arkaev & Suchilin, 2004; Potop, 2015): increase of sports mastery, increase of competitive programs complexity, preparation of new routines of high difficulty, bringing sports mastery to virtuosity etc. Sports training is a long-lasting adaptation process carried out throughout several years; thus its effective guidance can be achieved only based on the scientific provision of the sets of objectives, decisions and means. The training structure is represented by its content organized in components of different dimensions and correlated according to the requirements imposed by the body adaptation meant to develop the capacity for performance and implicitly the specific fitness. Training structure includes the multi-annual structure (one or two Olympic cycles), macro-structure (annual or multi-annual), mezzo-structure (average duration), micro-structure (system of sessions) and the training session (Planotov, 2015). The psychological training must ensure the development of the necessary qualities and determine the efficiency of the entire process of training (Dragnea & Teodorescu-Mate, 2002). To be able to cope with the stress of training and competitions, the athlete must be properly trained in several steps, namely (Epuran, 1990): basic mental training, specific mental training and psychological training for competition. The main components of the mental training according to M. Epuran (1990) are: psychological training, intellectual (cognitive) training, emotional training, volitional training and development of personality components.

The problem of psychological training in sport in general and in gymnastics in particular is highly important given the amplification of the international competitive system and especially of the tough sports events. The core task of the psychological preparation is to bring together all the conditions and elements required for training in order to ensure the successful participation in competitions. The essential difficulties are the lack of proper physical and technical training (Potop, 2013) or issues belonging to the mental area like fear, apathy, emotions and inattention. The large number of events and complicated elements and the carrying out of the training sessions and competitions are the situations that call for volitional efforts and contribute to their education (Vieru, 1997).

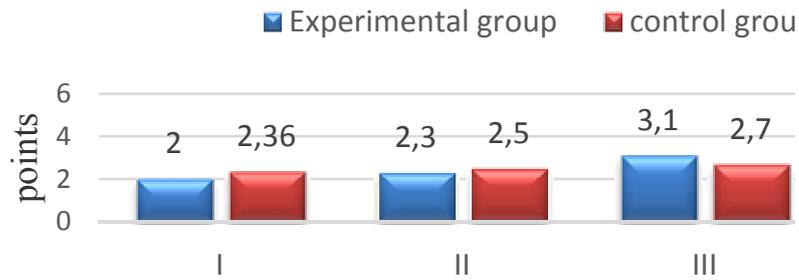


Fig. 1. Dynamics of the results of Self-Confidence Indices of the gymnasts in the Olympic cycle of sports training

Table 2. Comparative analysis of the goal orientation indices in the female gymnasts of 12-15 years old ($\bar{x} \pm m$)

Training macro-cycles	Experimental group (n=10)	Control group (n=10)	t	P
Macro-cycle 1 (points)	2.89 ± 0.12	2.84 ± 0.07	0.37	> 0.05
Macro-cycle 2 (points)	3.40 ± 0.07	2.95 ± 0.21	0.63	> 0.05
t, P (1 and 2)	0.37; > 0.05	1.14; > 0.05	-	-
Macro-cycle 3 (points)	4.10 ± 0.15	3.30 ± 0.11	4.30	< 0.001
t, P (2 and 3)	6.03; < 0.001	2.19; > 0.05	-	-
Macro-cycle 4 (points)	4.65 ± 0.05	3.55 ± 0.11	9.09	< 0.001
t, P (3 and 4)	4.47; < 0.01	2.75; < 0.05	-	-

Note: df=9; P<0.05; 0.01; 0.001 t=2.262; 3.250; 4.781; df= 20-2, P < 0.05; 0.01; 0.001. t=2.101; 2.878; 3.922.

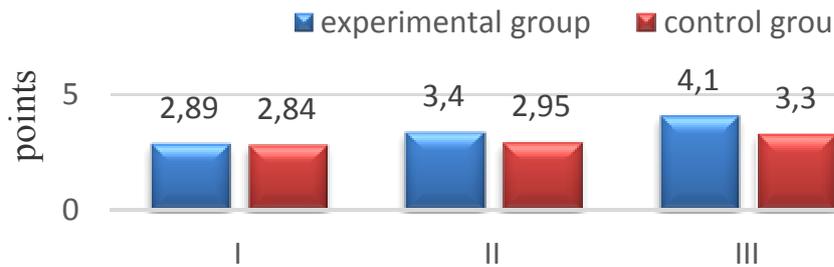


Fig. 2. Dynamics of the results of goal orientation indices of the gymnasts in the Olympic cycle of sports training

Table 3. Comparative analysis of the Index of the Ability to Concentrate in the gymnasts of 12-15 years ($\bar{x} \pm m$)

Training macro-cycles	Experimental group (n=10)	Control group (n=10)	t	P
Macro-cycle 1 (points)	3.05 ± 0.18	2.85 ± 0.07	1.04	> 0.05
Macro-cycle 2 (points)	3.70 ± 0.07	3.00 ± 0.08	7.7	< 0.001
t, P (1 and 2)	4.28; > 0.05	0.40; > 0.05	-	-
Macro-cycle 3 (points)	4.01 ± 0.08	3.20 ± 0.10	6.28	< 0.001
t, P (2 and 3)	5.17; < 0.001	2.63; < 0.05	-	-
Macro-cycle 4 (points)	4.41 ± 0.10	3.40 ± 0.10	7.16	< 0.001
t, P (3 and 4)	5.26; < 0.001	2.43; < 0.05	-	-

Note: df=9; P<0.05; 0.01; 0.001 t=2.262; 3.250; 4.781; df= 20-2, P < 0.05; 0.01; 0.001. t=2.101; 2.878; 3.922.

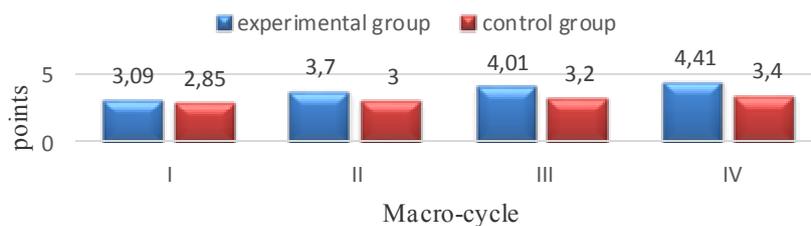


Fig. 3. Dynamics of the indices of the ability to concentrate of the gymnasts in the training Olympic cycle

Table 4. Comparative analysis of the Learning Capacity Index in the female gymnasts of 12-15 years old ($\bar{x} \pm m$)

Training macro-cycles	Experimental group (n=10)	Control group (n=10)	t	P
Macro-cycle 1 (points)	1.63 ± 0.09	1.72 ± 0.14	0.54	> 0.05
Macro-cycle 2 (points)	1.80 ± 0.06	1.78 ± 0.06	0.55	> 0.05
t, P (1 and 2)	2.54; > 0.05	0.45; > 0.05	-	-
Macro-cycle 3 (points)	2.16 ± 0.09	1.90 ± 0.07	2.28	< 0.05
t, P (2 and 3)	5.22; < 0.001	2.55; < 0.05	-	-
Macro-cycle 4 (points)	3.39 ± 0.29	2.30 ± 0.19	3.14	< 0.01
t, P (3 and 4)	6.61; < 0.001	2.61; < 0.05	-	-
Note: df=9; P<0.05; 0.01; 0.001 t=2.262; 3.250; 4.781;		df= 20-2, P < 0.05; 0.01; 0.001. t=2.101; 2.878; 3.922.		

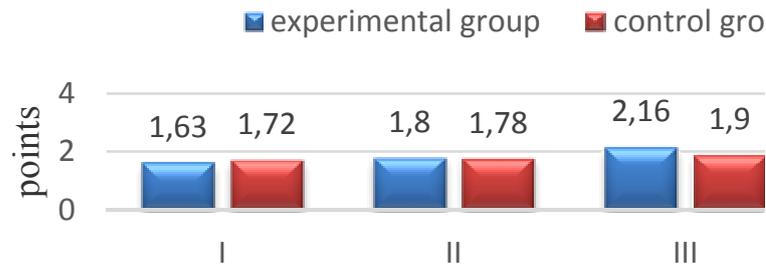


Fig. 4. Dynamics of the indices of learning capacity of the gymnasts in the Olympic cycle of sports training

Table 5. Comparative analysis of the Index of Motor Memory Development in the gymnasts of 12-15 years (x±m)

Training macro-cycles	Experimental group (n=10)	Control group (n=10)	t	P
Macro-cycle 1 (points)	1.74 ± 0.14	1.81 ± 0.15	0.34	> 0.05
Macro-cycle 2 (points)	3.09 ± 0.06	1.81 ± 0.15	0.34	> 0.05
t, P (1 and 2)	2.74; < 0.05	1.00; > 0.05	-	-
Macro-cycle 3 (points)	3.36 ± 0.09	2.51 ± 0.17	4.62	< 0.001
t, P (2 and 3)	4.00; < 0.01	1.60; > 0.05	-	-
Macro-cycle 4 (points)	4.36 ± 0.28	2.90 ± 0.14	4.66	< 0.01
t, P (3 and 4)	4.35; < 0.01	3.00; < 0.05	-	-
Note: df=9; P<0.05; 0.01; 0.001 t=2.262; 3.250; 4.781;		df= 20-2, P < 0.05; 0.01; 0.001. t=2.101; 2.878; 3.922.		

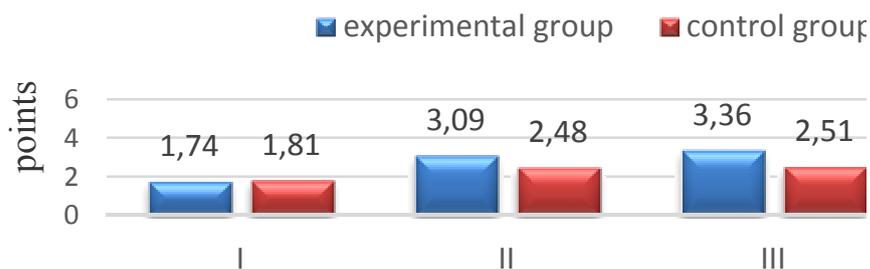


Fig. 5. Dynamics of the indices of motor memory development of the gymnasts in the Olympic cycle of training

Table 6. Comparative analysis of the General Behavior Index in the female gymnasts of 12-15 years old (x±m)

Training macro-cycles	Experimental group (n=10)	Control group (n=10)	t	P
Macro-cycle 1 (points)	2.22 ± 0.13	2.32 ± 0.11	0.59	> 0.05
Macro-cycle 2 (points)	2.28 ± 0.06	2.54 ± 0.14	1.07	> 0.05
t, P (1 and 2)	0.59; > 0.05	2.08; > 0.05	-	-
Macro-cycle 3 (points)	3.35 ± 0.14	2.72 ± 0.11	3.54	< 0.01
t, P (2 and 3)	9.73; < 0.001	1.70; > 0.05	-	-
Macro-cycle 4 (points)	4.16 ± 0.17	3.03 ± 0.14	5.14	< 0.001
t, P (3 and 4)	6.23; < 0.001	2.92; < 0.05	-	-
Note: df=9; P<0.05; 0.01; 0.001 t=2.262; 3.250; 4.781;		df= 20-2, P < 0.05; 0.01; 0.001. t=2.101; 2.878; 3.922.		

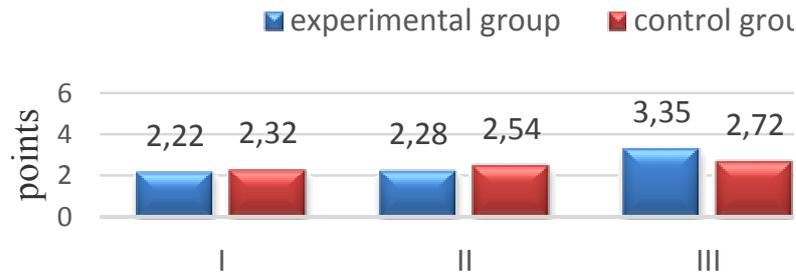


Fig. 6. Dynamics of the indices of General Behavior of the gymnasts in the Olympic cycle of sports training

Thus the experimental approach entailed the education and development of the affective – attitudinal traits in order to professionalize the female gymnasts during this stage, according to the requirements and experimental provisions planned and submitted to the respective forms of control and assessment. Certain disclosures of aesthetic feelings, experiences and emotions were established and identified in order to present the beauty within the competitive artistic compositions, highlighting the technical-artistic elegance and the virtuosity of the execution.

Discussion

The development of the affective–attitudinal traits during the experimental study on the performance gymnasts was conditioned by some scientific-methodological aspects since the discovery of certain “hidden” states of the gymnasts was difficult every time and this discovery was mainly subjective. At the same time, the actions recommended to the studies of affective–attitudinal development were directed towards the formative value of sports performance along with all the other values taken into consideration.

The moral – psychological qualities are characterized by gymnast’s mental and neuropsychological state and determine a certain level of attitude and behavior. These ones, in their turn, generate the mode of action in certain work conditions and circumstances, influencing the sports performance (Potop, 2015).

The results of the comparative analysis of the affective–attitudinal traits reveal the following features:

Thus, as far as the self-confidence is concerned, the indicators show that in the first Olympic macro-cycle the gymnasts have a low confidence – 2.00 points for the experimental group and 2.36 points for the control group, $t=2.02$, $P>0.05$ which confirms that both groups have the same affective–attitudinal traits. The gymnasts of the experimental group have the tendency to overestimate their moral-psychological capacities, their personal competencies and possibilities during all three macro-cycles of the Olympic cycle. They do not assess the real qualities correctly. Therefore they do not behave shyly, given that the indicators of the assessment scale specify a medium level of the self-confidence capacity of 2.3 and 3.0 points in the second and third macro-cycle, with an increase of 0.8 points in the subjects of the experimental group. The self-confidence shows a trend of significant increase in the fourth macro-cycle (from 3.10 points in the third macro-cycle to 4.00 points in the fourth macro-cycle $t=5.11$, $P<0.001$) (Table 2, Figure 2). This situation identifies a strong psychological training.

Regarding the results of the goal orientation index listed in table no. 2 and fig. 2 we notice values close to the average in macro-cycle I of 2.89 points for the experimental group and 2.84 points for the control group compared to macro-cycle II. In both cases the differences are insignificant both within the group and between the groups. The results of the averages in macro-cycle IV highlight higher values in the experimental group which proves a better orientation towards a certain goal and significant differences between groups at 0.001 and 0.01 within the group. We can also say that the control group improved its goal orientation attitude with a significant difference at 0.05.

The statistical data shown in Table no. 3, Figure 3 in terms of index of the ability to concentrate show significant progress starting from the first macro-cycle of the Olympic cycle, with a difference of 1.76 points, initially – 2.89 points, finally – 4.65 points, significance $P<0.01-0.001$, with the probability of 99.5 % - 99.9 %. Significant differences were observed between the results obtained by the experimental group starting with the macro-cycle III of the Olympic cycle ($P<0.01-0.001$). The comparison of the results achieved by the experimental group in terms of ability to concentrate and the results of control group reveals significant differences throughout the Olympic cycle, with a probability of 99.9 %.

Table 4 and Figure 4 show the dynamics of the learning capacity of artistic elements and compositions. There are no significant differences between the examined groups in the first and the second macro-cycle of the Olympic cycle

($P > 0.05$). Starting with the macro-cycle III, the experimental group had the advantage of using the learning tools according to the experimental model, using rigorous assessments of the athletes. The control group had a poor level, with an average of 2.30 points and the experimental group had a medium level of 3.39 points; it was difficult to learn the artistic compositions at a high level.

The motor memory is also developed significantly along with the cognitive information and the affective-attitudinal feelings. Keeping in mind the artistic compositions described, the movements are learnt in

conformity with the execution operations, closely related to the affective memory and the emotional memory, thus developing the motor intelligence (Table 5, Figure 5). The motor memory develops significantly during the training sessions, starting with the first macro-cycle of the Olympic cycle, assessed with 1.74 points initially and 3.03 points in the second macro-cycle, $t=2.74$, $P<0.05$; the average 3.36 points in the third macro-cycle compared to the second macro-cycle, the significance increased by $t=4.00$, $P<0.001$ and 4.36 points in the fourth macro-cycle, $t=4.35$, $p<0.001$. There is an insignificant difference in the control group which had low to sub-medium indicators of motor memory development during the fourth macro-cycle, with 2.90 points ($t=3.00$, $p>0.05$).

The general behavioral dimension consists of the affective-attitudinal actions made by gymnasts all over an Olympic macro-cycle. Table 6 and Figure 6 present the results of our research on this dimension. The qualitative analysis of the obtained data indicates the following matters: the superiority of the moral-psychological performances achieved by the gymnasts of the experimental group is explained by the positive influence of the favorable psycho-social climate where they were trained during an Olympic cycle, meeting the requirements of sports training; the interest and motivation of the gymnasts for solving the objectives of the artistic compositions are increased. The experimental results regarding the identification of the affective – attitudinal traits emphasize the following elements (Table 6, Figure 6):

- insignificant difference of the general affective-attitudinal behavior between the indicators of the first and second Olympic macro-cycle ($t=0.59$, $P>0.05$).
- significant differences between the indicators of the second and third macro-cycle ($t=9.73$, $P<0.001$) and between the third and fourth macro-cycle ($t=6.23$, $P<0.001$) with a probability of 99.9 %;
- significant differences between the results obtained by the subjects of the experimental and control group between the second and third macro-cycle, $t=3.54$, $P<0.01$ between the third and fourth macro-cycle ($t=5.14$, $P<0.001$). The affective-attitudinal behavior is more pronounced in the experimental group with a probability of 99.5 – 99.9 %. In the control group, the affective-attitudinal traits are revealed only at the end of the fourth macro-cycle of the Olympic cycle, $t=2.92$, $P<0.05$.

Conclusions

Tests with descriptors and assessment scales considered effective for the specific training of the gymnasts in this stage were applied for identifying the affective-attitudinal traits of the examined gymnasts. It was also found out that the moral and psychological factors influenced positively the dynamics of athletes' states and affective-attitudinal traits, which in turn influenced the entire training system of the gymnasts during the Olympic macro-cycle.

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