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ORIGINAL RESEARCH

DYNAMICS OF TECHNICAL ELEMENTS TEACHING WITHIN A TRAINING MEZZO-CYCLE IN WOMEN'S ARTISTIC GYMNASTICS

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Abstract: The paper is meant to point out the contents of the technical elements teaching at different apparatus within a training mezzo-cycle in women's artistic gymnastics. With this aim in view, we have considered that the efficient use of the preparatory exercises during the training sessions will emphasize the dynamics of the technical elements teaching at various apparatus in women's artistic gymnastics.

Key words: *stages, technical elements, gymnastics, teaching.*

This set of problems determined us to conduct a study within the School Sports Club no.2 of Bucharest, „Obor” Gym; our subjects were 4 girl gymnasts of 12 to 14 years old, juniors of 3rd and 4th level, multiple national champions at different apparatus.

The results of the study emphasize the stages of the technical elements teaching at different apparatus in conformity with the training level of each gymnast separately and the objectives of the training mezzo-cycle.

These results demonstrate that each girl gymnast has a certain level of training and the efficient use of the teaching methods contributed to the more efficient assimilation of the technical elements at different apparatus. Thus, the individualized use of the preparatory exercises depending on the gymnasts' training level has as result the continuity of learning the technical elements at different apparatus in women's artistic gymnastics.

Introduction

At the present moment, the artistic gymnastics has reached a very high training level. Also, after each Olympic Games edition, the International Federation and the Technical Commission change the requirements of the apparatus exercises contents by means of the Code of Points; they modify the elements difficulty and the specific penalizations at apparatus too (FIG, 2009).

The purpose of the paper is to emphasize the contents of the technical elements teaching at different apparatus in women's artistic gymnastics, along a training mezzo-cycle.

Paper Hypothesis

We consider that the efficient utilization of the preparatory exercises during the training sessions will lead to the outlining of the technical elements teaching dynamics at different apparatus in women's artistic gymnastics.

Theoretical- methodical aspects of the teaching in women's artistic gymnastics.

The rich and various contents of the artistic gymnastics are characterized by the high technical level. Each movement has a special technique, so all movements must be learned. Some of them have a simpler structure, other are technically more complex and have a high difficulty level, requiring some specific skills. The technical training in gymnastics should be treated with a particular attention; each new element to be learned should be based on the already correct previously assimilated knowledge (Vieru N., 1997).

The process of teaching the gymnastics technical elements is a system of successive actions from the teacher's (coach's) and the athlete's part. The performance of some correct tasks in a successive manner, in an appointed time creates the possibility to divide into stages the whole learning process: *stage of initial learning, thorough study, consolidation and improvement*. (Grigore V., 2003).

Depending on the learning stage, the whole system of training methods and procedures– as a training process – is used in the gymnastics motor learning. The methods and procedures are used depending on the female gymnast's technical and physical training level, on the technical element structure and difficulty level and on the learning stage. An important factor of the learning process in the artistic gymnastics is the transfer, which can be considered the superior stage of the learning (Potop V., 2008).

Contents of the study

The premise of our study is that the preparatory exercises individualized use during the training stage will lead to the continuity of the training at uneven parallel bars and to the successful participation in events.

This topic has lead to the organization of a case study at the School Sports Club no.2 of Bucharest, with a group of 4 junior female gymnasts of 3rd and 4th level, whose training progresses were reviewed.

The study was carried out along a period of 4 micro-cycles, including a mezzo-cycle for the preparation of the training period basic stage (16.XI.2009- 11.XII.2009).

The contents of the study carrying out show the goals and the means of the training mezzo and micro-cycles within the technical training at different apparatus during the preparatory period.

Table no.1. Teaching of Tzukahara vault with backward tucked salto

Contents of the means		
Stage - Initial	Stage - Consolidation	Stage - Improvement
- Handspring with 180° twisting and landing on stacked mats - 15x -Rotating on corbett springboard with back landing on mat (preparatory exercise) - 15x	- Tzukahara vault – landing in pit, with help – 15x - Tzukahara vault – landing in pit, without help - 10x	- Tzukahara vault with landing on „hard” surface, with help - 10x - Tzukahara vault with landing on „hard” surface, without help – 5x
Group of vaults and code: 3.10		
Graphic symbol:  , Value of difficulty : 4.00 points		



Figure no.1. Tzukahara vault with backward tucked salto

In table no.1 and figure no.1 are shown the methods to learn the Tzukahara vault with backwards tucked salto; the stages and means used during the training are pointed out.

Table no.2. Learning of the double backward tucked salto dismount from uneven parallel bars

Contents of the means		
Stage - Initial	Stage - Consolidation	Stage - Improvement
<i>Uneven parallel bars</i> - pit: with help - Handstand balance with double salto -2x; - Back giant , double salto dismount -3x - Two giants , double salto dismount -5x	<i>Competition uneven parallel bars: assisted</i> - Two giants , double salto dismount -5x	-Exercises with help / assisted Lower bar: Handstand straightening, two free circles, circle on soles, jump on the upper bar, two giants, double salto dismount -5x - Integral exercises without help / assisted Upper bar: Handstand straightening, handstands balance with 180° twisting, handstand straightening, handstand balance, free circle, stretching, under-balance on the upper bar, handstand backwards balance stretching, two back giants, double backward tucked salto dismount - 5x
Element code: 6.205		
Graphic symbol:  , Value of difficulty: B- 0.2 points.		



Figure no.2. Dismount through back giant, double backward tucked salto, with and without help (N.L)

In table no.2 and figure no.2 are introduced the learning methods of the double backward tucked salto dismount from the uneven parallel bars, pointing out the stages and the means used during the training.

Table no.3. Learning of forward „Danilova” on the beam

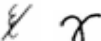
Free (aerial) walkover fwd, landing on one or both feet

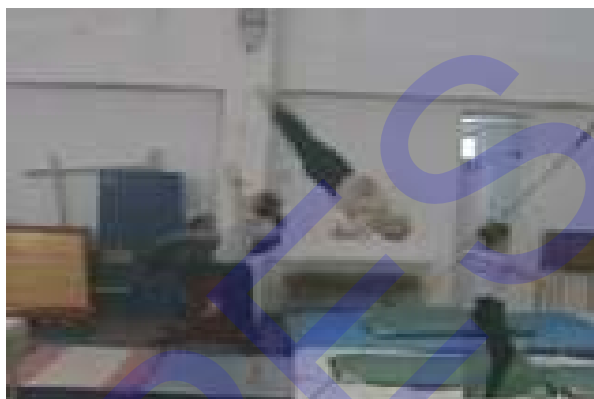
Contents of the means		
Stage - Initial	Stage - Consolidation	Stage - Improvement
<i>Floor:</i> - Free walkover fwd (Danilova) -5x <i>Low beam:</i> - Free walkover fwd -10x	<i>Balance beam :</i> - Free walkover fwd (Danilova) with „mat”-with help-10x - Free walkover fwd (Danilova) without help -5x	,, – ,, – ,, – ,, – – ,, –
Element code: 5.410		
Graphic symbol:  , Value of difficulty: D- 0.4 points		

Table no.3 and figure no.3 introduce the methods to learn the free walkover fwd (Danilova) on the balance beam, pointing out the stages and the means used during the training.



Figure nr.3. Forward walkover on floor and on balance beam (BR)

Contents of the means		
Stage - Initial	Stage - Consolidation	Stage - Improvement
- Flick rotation backward walkover-1x - Flick rotation backward walkover with 360° turn -2x - Flick rotation backward walkover with 540° turn-3x - Flick rotation backward walkover with 540° turn linked to forward tucked salto - 3x	- Flick rotation backward walkover with 540° turn-3x - Flick rotation backward walkover with 540° turn linked to tucked forward salto-3x - Rotation backward walkover-1x - Rotation backward walkover with 360° turn -2x - Rotation backward walkover with 540° turn-3x - Rotation backward walkover with 540° turn linked to tucked forward salto -3x	„ — „ — „ — „ — „ — „ — „
Element code: 5.301+ 4.101 Graphic symbol:  , Value of difficulty: C+A , 0.3pct. + 0.1pct.		



During this preparatory period, the training objectives did not aim at the improvement of the technical elements; it was only at the uneven parallel bars that we have tried to reach this level, as the uneven parallel bars are a more „difficult” apparatus and it is good to use more complex exercises during the training too; such exercises can contribute to the increase of the specific endurance and to the learning of some new elements of higher difficulty.

- *Method of bibliographic study* – it was meant to provide the theoretical documentation of the paper;
- *Method of observation* – it was used all along the study carrying out, in training sessions and events as well;
- *Experimental method* – meant to confirm or to invalidate the study hypotheses;
- *Statistical-mathematical method and graphical method*, using the most usual statistical indices: arithmetic mean – $\bar{X}$, deviation of the mean – A_m , standard deviation – S , coefficient of variability – $Cv\%$, correlation – r Spearman and correlation significance – t .

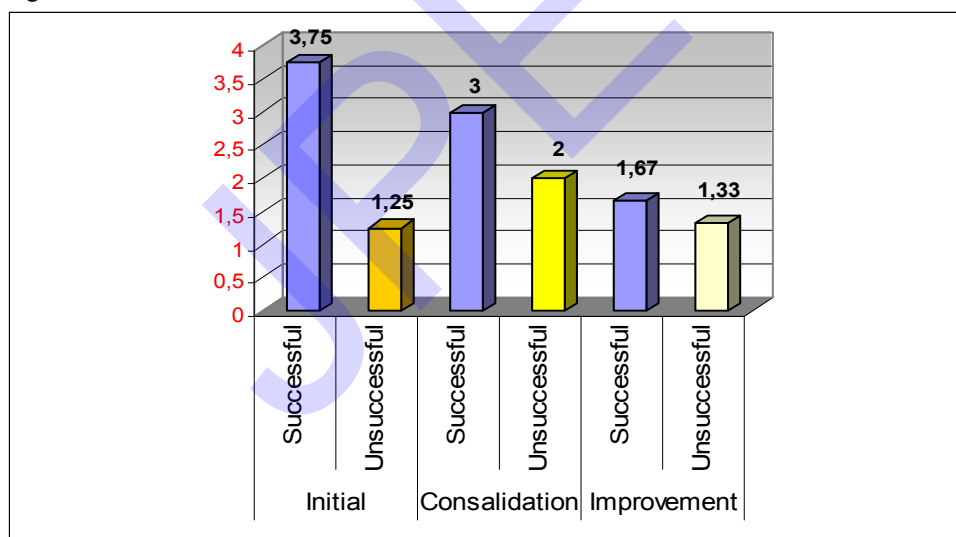
Results of the study and their interpretation*Table no.5. Dynamics of double backward tucked salto dismount teaching at uneven parallel bars*

Full name	Initial		Consolidation		Improvement	
	Successful	Unsuccessful	Successful	Unsuccessful	Successful	Unsuccessful
Ş.C.	3	2	2	3	1	2
T.C.	4	1	3	2	2	1
B.R.	5	0	4	1	2	1
N.L.	3	2	3	2	-	-
Statistical indices						
X	3.75	1.25	3.00	2.00	1.67	1.33
Am	0.75	0.44	0.50	0.50	0.44	0.44
S	0.83	0.47	0.47	0.71	0.47	0.47
Cv%	22.11	28.28	23.57	35.36	28.28	35.36

Table no.6. Teaching stages correlation with the reps number

r - Spearman t- Student		Initial		Consolidation		Improvement	
		Successful	Unsuccessful	Successful	Unsuccessful	Successful	Unsuccessful
Initial	Successful			0.85 2.28		0.90 2.92	
	Unsuccessful				0.85 2.28		0.10 0.14
Consolidation	Successful					0.55 0.93	
	Unsuccessful						0.55 0.93

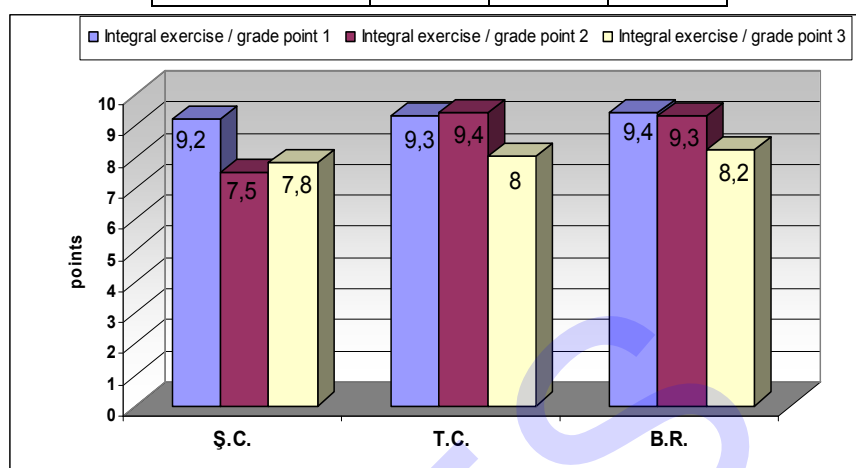
In the tables no.5 and 6 are shown the results of the statistical-mathematical indices calculation for the double backward tucked salto dismount learning dynamics at uneven parallel bars; the stages and the assessment are pointed out. The observation of the girl gymnasts' progresses shows that during the improvement stage the girl gymnast N.L. has no grade as she was in the initial learning stage and she did not succeed to go through all learning stages.

*Graph no.1. Dynamics of the double backwards tucked salto landing from uneven parallel bars*

The results of the calculations point out that during the initial stage, 3.75 points are successful and 1.25 points unsuccessful out of 5 attempts, having a low homogeneity. Regarding the correlation of the learning stages with the number of reps, insignificant differences between stages are visible, excepting the correlation of the initial stage with the improvement stage, which has significant values at $p < 0.05$; $t_{critical}$ is 2.92 at the unilateral test significance threshold.

Table no.7. Improvement of the double backward tucked salto landing from uneven parallel bars

Full name	Integral exercise / grade points		
	1	2	3
Ş.C.	9.2	7.5	7.8
T.C.	9.3	9.4	8.0
B.R.	9.4	9.3	8.2
Statistical Indices			
X	9.30	8.73	8.00
Am	0.07	0.82	0.13
S	0.08	0.87	0.16
Cv%	0.88	10.0	2.04



Graph no.2. Improvement of the double backward tucked salto landing from uneven parallel bars

Table no.7 and graph no.2 show the results of the improvement of the *double backwards tucked salto landing from uneven parallel bars*, pointing out the executions of the girl gymnasts in the 3 integral exercises, where at the first attempt is obtained an average score of 9.30 pct, a decrease of the average score by 0.57 points at the second execution and a decrease by 1.30 points at the third execution. These poorer results render evident the fact that the girl gymnasts do not master well this element yet within the integral exercise and that they still need a greater number of training sessions.

Conclusions

In order to provide an efficient technical training it is important that the number of attempts and the passage from a preparatory exercise to another one is made depending on the technical correctness of the gymnasts' individual possibilities and attempts; in proportion as a certain exercise is learnt, the number of reps is gradually reduced and another exercise, more complex, will be aimed at.

The results of the study emphasize the stages of the technical elements learning at various apparatus depending on each girl gymnast's training level and on the objectives of the training mezzo-cycle.

These results prove that each girl gymnast has a certain training level and the efficient use of the teaching methodology contributes to the more efficient learning of the technical elements at different apparatus.

The selection of the more efficient means during the training sessions renders evident the dynamics of the technical elements learning at different apparatus. The individualized use of the preparatory exercises depending on the girl gymnasts' training level leads to the continuity of the technical elements learning at different apparatus in women's artistic gymnastics.

References

- Arkaev, L.,I., Suchilin N.G., (2004),Gymnastics, How to create champions, The theory and methodology of training top – class gymnasts, Oxford: Meyer & Meyer Sport, UK Ltd, British Library Cataloguing
Bibire M, Dumitru R., (2001), Gimnastica artistică, / Edit. Universităţii Bacău, 247 p
Carrasco R., (1979), Essay de systematique d'enseignement de la gymnastique aux agres / Edit.Vigot, Paris
Creţu M., 2006, *Artistics Gymnastics*, Edit Universităţii din Piteşti, 145 p
International Code of Points, FIG 2009, FRG Technical Commission.
Grigore V., 2001, *Artistic Gymnastics, Theoretical Bases of the Sports Training*. Bucharest, Semne

Potop V., 2008, *Women's Artistic Gymnastics, Elements of Theory and Methods*. Bucharest, Bren Publishing House

Suchilin N.G. Research of gymnastics exercises with increasing difficulty and ways of managing its creation and development (based on examples from High Bar dismounts). - Dis. Când. Ped. Science. - M., 1972 - 150p.

Suchilin N.G. Gymnast in the air. - M.: PhS, 1978. - 120p.

Suchilin N.G. Saveliev V.S., Zaikin V.G., Andrianov N.E. Efficiency of the methods of using pneumatic apparatus- training aids in the education-training process// Scientific bases of management of the preparation of top class sportsmen : thesis's report Russian Scientific Conference. - M., 1986. P. 231-232.

Suchilin N.G. Creation and improvement of technical mastery in exercises of progressive difficulty.-Dis. Dr. Ped. Science . - M.,1989. - 799p.

Suchilin N.G. Arkaev L.Y., Saveliev V.S. Pedagogy-biochemical analyses of techniques of sports movements based on programme-apparatus video-complex.//Theory and Practice Physical culture. - 1996, N4. Page 12-20

Suchilin N.G., Saveliev V.S., Popov G.I. Optical-electronic methods of measuring human movements. - M.:FON, 2000. - 127 page.

Talyisina N.F. Theoretical problems of programmed training, 1969-132p

Ukran M. 1971 Methodology of training gymnasts. - M.: PhS,

Cheburaev B.S., Kalachev O.K., Muravieva L.F. Mechanisms of functional adaptation to extreme conditions, created in the process of preparation of top level gymnasts//Evaluation of specific work-capacity of the sportsmen in various sports: N. beg. Tr. - M.,1993. C. 158-165.

Vieru N., 1997, *Manual of Sports Gymnastics*. Bucharest, Driada Publishing House