

SUPPLENESS OPTIMIZATION IN CHILDREN AGED 10-11 YEARS BY DANCE SPECIFIC ELEMENTS

Aida Petrea¹

Elena Rață²

¹Children's Palace Suceava, Romania

²Ștefan cel Mare University of Suceava, Romania

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Summary: In this study, a series of elements both from the classical ballet (study at the barre and in the middle of the hall, jumps, etc.) and from dance sport were chosen (cha-cha steps combinations, slow waltz, tango, etc.), that we considered to be most effective for the suppleness optimization in children aged 10-11 years. The aim of this study was to harness the motor, technical-tactical, psychical and attitudinal potential. In addition to posture, grace and the knowledge already acquired in the art of dance, the suppleness optimization represented an important criterion in the choice of future choreographies and dance genres in this group.

Introduction:

Regardless of age, the body must be educated in such way as to be able to perform the movements of the human intellect. The nervous system is the one that dictates the action, and the muscular and skeletal systems are the ones that perform it. In dance, the performer's movements exceed the regular movements, because he performs motor acts and actions with sport characteristics in general, and gymnastics in particular. In order to be capable of this, the dancer must have superior development indexes of psycho-motor skills.

An essential quality both in dance and in any other activity is suppleness, also named flexibility. Suppleness represents "the human individual's ability to perform high amplitude motor actions, in one or more joints" (Săvescu I. 2007).

To be able to execute certain elements of dance, the performer must develop a good flexibility. In addition to this, he must also acquire a good balance and have spatiotemporal orientation and especially grace in performance. In terms of suppleness, it can be successfully educated in younger ages, when the body is developing, the experts in the field are

stating that at the age of 10-13; the suppleness is best educated. (Badiu T. 2001). It is known that suppleness is a skill that is hard to gain and quick to lose, if no motor act or action is performed to keep it.

Both in dance and in the case of the other physical activities, the suppleness must be treated as a condition on which the instructor/teacher must put great emphasis, since "low elasticity lengthens the acquiring period of motor actions, invites accidents, decreases the efficiency, lowers the performance quality and decreases the development indexes of the other motor skills" (Badiu T. 2001).

To prevent these situations, we chose a number of elements from both the classical ballet (study at the barre and in the middle of the hall, jumps, etc.) and from the dance sport (steps combinations of cha-cha, slow waltz, tango, etc.), that be considered to be the most effective for the suppleness optimization in children aged 10-11 years.

Material-method:

Study hypothesis

We presume that using a number of elements specific to dances port and classical ballet, we will be able to optimize the joint flexibility in the age group 10-11 years.

To be able to confirm or rule out our hypothesis, we chose a mixed group of 12 children aged between 10 and 11 years, respectively, 6 girls and 6 boys, children who attend the dance sport circle within the Children's Palace from Suceava Municipality. The experiment was conducted in the premises of its the dance hall, between November 2015 and February 2016 by students having 1h dance/ week.

During classes in this group, a greater emphasis was placed on developing suppleness, because in addition to posture, grace and the previously acquired body of knowledge, the suppleness represents an important criterion to be promoted from the beginners to the advanced level. The promotion to a higher level is made based on the summative assessment, consisting of a performance given by each student at the end of each year or semester.

During classes, it was aimed to harness the bio-psycho-motor potential, to communicate in specific terms to the sports discipline with the teacher and/or the group peers, to develop the competitive spirit and personality traits which are favourable to group integration. In order for these things to be possible, a harmonious physical development must be ensured so that the pupil can develop higher indexes of motor skills. Only

this way, the motor, technical-tactical, psychical and attitudinal potential can be constructively harnessed.

Table no. 1 Model: JOINT FLEXIBILITY OPTIMIZATION

Minimum equipment:

- musical background;
- dance hall equipped with mirrors and wall bar;
- floor and carpet suitable to the hall;
- audio-video equipment, CDs, DVDs;
- costumes suitable for the chosen repertoire.

Level: beginners

Age group: 10- 11 years old

Number of hours: one session / week

Session duration: 90 min

CLASS TIMES/ DURATI ON	Part I 15' Organisation of the students collective Preparing the body for effort Selective influencing the musculoskeletal system	Part II 50' Joint flexibility optimization by elements specific to classical ballet Joint flexibility optimization by elements specific to dance sport	Part III 15' Verification of the acquired knowledge Body recuperation after effort Organized conclusion of the class
CLASS CONTE NT Dosage: e xercises shall be repeted two to five times	-alignment, greetings, list of presence check; -posture check; -health status check; -class themes announcement; - left/right turns; -Types of motion: - walking :- on toes; on heels, stretched pointed step; bent pointed step : - forward, sideways; - high step; - lunge step: - forward ; sideways ; - turns with successive steps; - balancing poses; etc. - dance technique: * arms position I- VII, legs position I- II, III-IV-V; body position: front, back, diagonal, profile; Barre positions : front, side;	Study at barre and in the middle of the hall: At barre:-frontal : movements with the left hand/with the right hand; - Arms liftings, circular arc and circular swinging -arches: Figure <i>Pas arabesque</i> ; -demi-plié; plié;relevé; battment : - tendu; jeté; combe : - front; back; side; movements combinations; balancing positions:pirouettes;fouetté. Semi-acrobatic elements -forward semi-split;balance;splits; Small bridge; Body technique: Dance steps: -slow waltz, viennese waltz; front;back ; side; - dance steps combinations; Dance techninique *Steps and steps combinations from the standard section (Slow waltz, Viennese Waltz; Tango, etc.) and the Latin-American section (Cha-Cha, Samba, Bachata, etc.); Forward step; Back step / side; Cross-side steps- with and without arms movements; - Skip steps; Rotations; Twists; Combinations; Individual- Pairs *Slow waltz: repeating the already learned combinations(basic step, with rotation, in circle) with emphasis on lunging the legs during the execution; *New York (Cha-cha): strengthening the combination with emphasis on the lateral arm arch (open promenade position);	- executing the combinations of steps appropriated during the dance part of the lesson; - Performance of various recreational dances (ex : Lollipop, Lambada, Catnajo, etc) ; - Performing various arms and legs movements (extensions, balancing, inclinations, etc), - breathing movements ; - gathering, alignment ; - assessments and comments on the performance of the lesson; - assesements, indications for the next class; Greetings and the organized leaving of the dance hall.

The joint flexibility optimization programs implemented by us strictly complied with the age specific characteristics, both the chosen repertoire and the rendering-performance means were adequate to the capacity of

understanding and to the psycho-motor development level of the students.

Results:

The tests that we used in the experiment for the joints flexibility assessment were (Neagu N. 2014):

a). *Lower limb flexibility (hamstrings)*: consists of lifting a leg vertically and maintaining its position 3-5 sec (it is performed lying on your back with the arms extended alongside the body). Grading was done as follows: 3 points: lifting the leg past the vertical and maintaining the position; 2 points: lifting the leg vertically (90°) and maintaining the position; 1 point: lifting the leg vertically, but without maintaining the position.

b). *Shoulder joint flexibility (the scapulohumeral joint)*: consists of bringing a hand above the head towards the opposite shoulder blade and holding it with the other hand (it is performed in standing position). Grading was done as follows: 3 points: holding with the opposite hand is succesful; 2 points: the fingers barely touch; 1 point: there is no contact between hands;

c). *Flexibility of the back (spinal column)*: consists in bending the body forward and putting the palms on the ground (it is performed from standing position, with feet together).

Grading was done as follows: 3 points: hands touch the ground (palms lie on the ground); 2 points: the fingers touch the ground; 1 point: there is no contact with the ground;

d). *Hip joint flexibility (coxofemoral joint)*: consists of lifting a knee and pulling it to the chest (it is performed lying on your back, with your feet streched on the ground). Grading was done as follows: 3 points: the thigh fully touches the abdomen; 2 points: the thigh partially touches the abdomen; 1 point: there is no contact between the thigh and the abdomen.

Table no. 2 Values evolution regarding the joint flexibility of the experimental group– INITIAL/FINAL TESTS:

Run in g. No.	Surname, name	Age	Lower limb flexibility (hamstrings)		Shoulder joint flexibility (scapulohumer al joint)		Flexibility of the back (spinal column)		Hip joint flexibility (coxofemoral joint)	
			I	F	I	F	I	F	I	F
1	ST	11	2	2	1	2	1	1	1	2
2	AM	11	3	3	2	3	1	2	2	3
3	AN	10	2	3	2	3	1	1	2	3
4	DA	10	1	2	2	2	1	2	2	3
5	GE	10	3	3	3	3	2	2	2	3

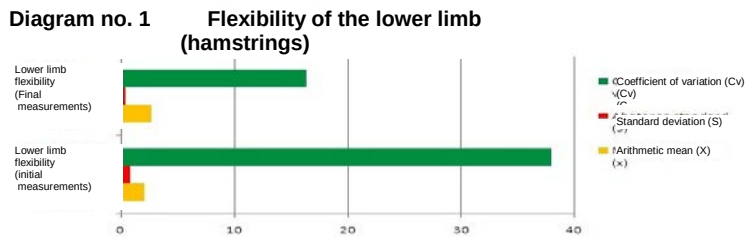
6	DE	10	3	3	2	3	2	3	3	3
7	CO	11	1	2	2	3	1	1	2	2
8	AND	10	2	3	2	2	1	2	2	2
9	RA	10	2	3	3	3	2	2	3	3
10	MA	11	1	3	2	2	1	2	2	3
11	AL	10	2	3	2	2	2	3	3	3
12	DI	11	3	3	2	3	1	2	2	3
X		10.41	2.08	2.75	2.08	2.58	1.33	1.91	2.16	2.75
S		0.51	0.79	0.45	0.51	0.51	0.49	0.66	0.57	0.45
Cv		4.94	38.06	16.44	24.71	19.93	36.92	34.88	26.64	16.44
t		-	2.52		2.37		2.43		2.75	
p		-	p<0.05		p<0.05		p<0.05		p<0.05	

After performing the final tests, we can see (table no. 2) that all subjects have recorded higher values in relation to those of the initial tests at all trials, except for subject no. 7 who showed progress at a single trial, because during the experiment, he has been absent a few times due to medical reasons.

Table no. 3 Values evolution regarding the lower limb flexibility in the two tests (initial – final):

LOWER LIMB FLEXIBILITY (HAMSTRINGS)	INITIAL MEASUREMENTS	FINAL MEASUREMENTS
Arithmetic mean (x)	2.08	2.75
Difference between averages	0.66	
Standard deviation (S)	0.79	0.45
Coefficient of variation(Cv)	38.06	16.44
Student test (t)	2.52	
t test (Fisher's table)	2.20	
Significance threshold (p)	p<0.05	

Chart no.1 Graphical representation of the statistical indicators regarding the lower limb flexibility:



As it can also be seen in table no.3, there is a significant difference between the arithmetic mean of the initial tests and the one of the final tests. This -0.66 difference proves the fact that the dance specific elements we implemented have had a beneficial impact, progress being registered in terms of the joint flexibility improvement in the 12 subjects enrolled in our study. In terms of the coefficient of variation it is observed that the degree of homogeneity of the test group is an average

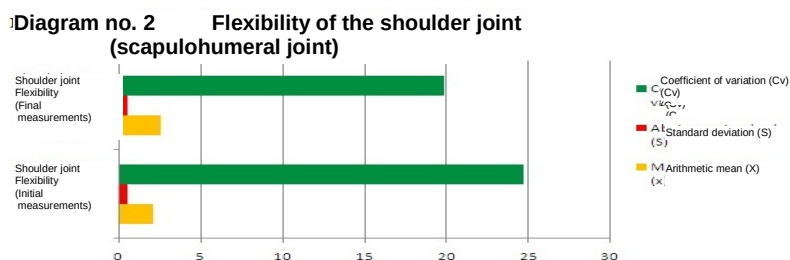
one, the values of the initial tests being 38.06, respectively 16.44 at the final tests.

The Student test calculated by us upon the two tests is 2.52. which compared to the significance degree $p < 0.05$ from Fisher's table (in our case 2.20) shows that there are significant differences between the first and the second test.

Table no. 4 Values evolution regarding the shoulder joint flexibility (scapulohumeral joint) at the two tests (initial – final):

SHOULDER JOINT FLEXIBILITY (SCAPULOHUMERAL JOINT)	INITIAL MEASUREMENTS	FINAL MEASUREMENTS
Arithmetic mean ($\bar{x}$)	2.08	2.58
Difference between averages	0.5	
Standard deviation (S)	0.51	0.51
Coefficient of variation(Cv)	24.71	19.93
Student test(t)	2.37	
T test (Fisher's test)	2.20	
Significance threshold (p)	$p < 0.05$	

Chart no .2 Graphical representation of the statistical indicators regarding the shoulder joint flexibility (scapulohumeral joint):



As it can be also seen in table no. 4, there is a significant difference between the arithmetic mean of the initial tests and the one of the final tests. This -0.5 difference proves the fact that the dance specific elements we implemented have had a beneficial impact, progress being registered in terms of the joint flexibility improvement in the 12 subjects enrolled in our study.

In terms of the coefficient of variation it is observed that the degree of homogeneity of the test group is an average one, the values of the initial tests being 24.71, respectively 19.93 at the final tests.

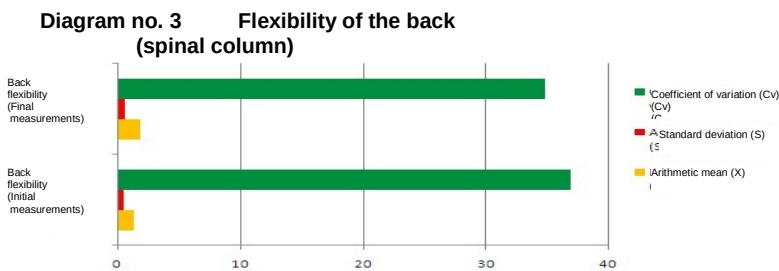
The Student test calculated by us upon the two tests is 2.37, which compared to the significance degree $p < 0.05$ from Fisher's table (in our

case 2.20) shows that there are significant differences between the first and the second test.

Table no. 5 Values evolution regarding the flexibility of the back (spinal column) at the two tests (initial – final):

FLEXIBILITY OF THE BACK (SPINAL COLUMN)	INITIAL MEASUREMENTS	FINAL MEASUREMENTS
Arithmetic mean (x)	1.33	1.91
Difference between averages	0.58	
Standard deviation (S)	0.49	0.66
Coefficient of variation (Cv)	36.92	34.88
Student test (t)	2.43	
T test (Fisher's table)	2.20	
Significance threshold (p)	p<0.05	

Chart no.3 Graphical representation of the statistical indicators regarding the flexibility of the back (spinal column):



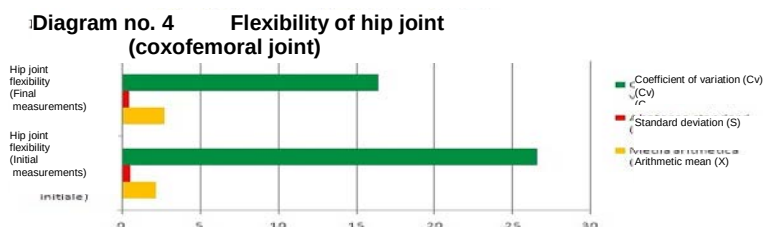
As it can be also seen in table no. 5, there is a significant difference between the arithmetic mean of the initial tests and the one of the final tests. This -0.58 difference proves the fact that the dance specific elements we implemented have had a beneficial impact, progress being registered in terms of the joint flexibility improvement in the 12 subjects enrolled in our study. In terms of the coefficient of variation it is observed that the degree of homogeneity of the test group is a low one, the values of the initial tests being 36.92, respectively 34.88 at the final tests.

The Student test calculated by us upon the two tests is 2.43, which compared to the significance degree $p < 0.05$ from Fisher's table (in our case 2.20) shows that there are significant differences between the first and the second test.

Table no. 6 Values evolution regarding the hip joint flexibility (coxofemoral joint) in the two tests (initial – final):

HIP JOINT FLEXIBILITY (COXOFEMORAL JOINT)	INITIAL MEASUREMENTS	FINAL MEASUREMENTS
Arithmetic mean (x)	2.16	2.75
Difference between averages	0.58	
Standard deviation (S)	0.57	0.45
Coefficient of variation (Cv)	26.64	16.44
Student test (t)	2.75	
T test (Fisher's table)	2.20	
Significance threshold (p)	p<0.05	

Chart no.4 Graphical representation of the statistical indicators regarding the hip joint flexibility (coxofemoral joint):



As it can be also seen in table no. 6, there is a significant difference between the arithmetic mean of the initial tests and the one of the final tests. This -0.58 difference proves the fact that the dance specific elements we implemented have had a beneficial impact, progress being registered in terms of the joint flexibility improvement in the 12 subjects enrolled in our study. In terms of the coefficient of variation it is observed that the degree of homogeneity of the test group is an average one, the values of the initial tests being 26.64, respectively 16.44 at the final tests.

The Student test calculated by us upon the two tests is 2.75, which compared to the significance degree $p < 0.05$ from Fisher's table (in our case 2.20) shows that there are significant differences between the first and the second test.

Conclusions / Discussion:

- Choosing the most effective specific elements of dance, on the basis of age, capacity of understanding and level of psycho-motor development of the students, can create superior manifestation indexes of the joint flexibility;
- Suppleness (flexibility) can be succesfully taught at the age of 10-11 years;
- Besides being enjoyable leisure activities, both the dance sport and the classica ballet, can constructively contribute to harnessing the motor, technical-tactical, psychical and attitudinal potential of the students.
- the fact that there was a significant progress on the final tests compared to the initial ones, prove that the dance specific elements we implemented have had a beneficial impact regarding the joint flexibility improvement in the 12 subjects enrolled in our study;

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OPTIMIZAREA SUPLEȚII LA COPIII CU VÂRSTA CUPRINSĂ ÎNTRE 10-11 ANI PRIN ELEMENTE SPECIFICE DANSULUI

Cuvinte cheie: suplețe, potențial, dans sportiv, balet clasic;

Rezumat: În acest studiu, s-au ales o serie de elemente atât din baletul clasic (studiu la bară și în mijlocul sălii, sărituri, etc.) cât și din dansul sportiv (combinații de pași de cha-cha, vals lent, tango, etc.) pe care noi le-am considerat a fi cele mai eficiente pentru optimizarea supleții la copiii cu vârsta cuprinsă între 10 și 11 ani. Scopul acestui studiu a fost de a le valorifica potențialul motric, tehnico-tactic, psihic și atitudinal. Pe lângă ținută, grație și bagajul de cunoștințe deja dobândit în arta dansului, optimizarea supleții a reprezentat un criteriu important în alegerea viitoarelor coregrafii și genuri de dans la această grupă.