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Callanetics as one of the factors in motor abilities development in women

by

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Proper and systematic physical activity is one of the elements influencing healthy life style. Callanetics is a farm of movement, which lead to stable, and reliable changes in human organisms. The main aim of this work was to determine the changes in abdominal strength and spine flexibility under the influence of systematic callanetics exercises. The experiment was conducted on 112 female subjects participating in callanetics courses. Mean age of subjects equaled 21,7 years with the range from 10 to 26 years.

In order to evaluate abdominal strength and spine flexibility the field motor tests from International Test of Physical Fitness were used. The measurements were conducted twice on the same subjects, at the initial stage of course and after 6 month of exercise.

Systematic callanetics exercises influences significantly abdominal strength and spine flexibility in females of different age. The efficiency of exercises decreases with age.

Keywords: *callanetics, motor abilities*

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Introduction

Proper and systematic physical activity is one of the elements influencing healthy lifestyle. Contemporary humans because of "civilization successes" significantly decrease their physical activity. High overloading, appearing from lack of movement and sedentary lice style, cause smaller spine flexibility, miotony of abdominal and dorsal muscles, which are so important in correct posture.

Callanetics is a for of physical forms activity, which performed systematically leads significant changes in women organism (Eider 2001a; Pinckney 1994). It consists of 30 exercises grouped in 8 sections: warm-up, abdominal, legs, gluteal and hips, leg abduction and adduction, stretching, pelvis and strengthening exercises (Eider 1998). All callanetics exercises are performed very slowly, without music, in isolated positions, which do not cause overloading of osseous and joint systems, therefore are safe.

The main aim of this research was the determination of changes in abdominal strength and spine flexibility under the influence of systematical callanetics exercises.

Material and methods

The research was conducted on 112 women participating in a callanetics courses. Mean age of subjects equaled 21,7 years with the range from 10 to 26 years. The largest group consisted of women aged 22 years (15,2%), working in sedentary conditions (60,7%) and studying females (26,8%). In statistical analysis only included were subjects that participated in the 6 month course (45 min. twice per week). The data was collected in 1995-2000 because of problems with selection of subjects participating in whole experimental period. The structure and training loads are presented in tab. 1.

In order to determine the abdominal strength and spine flexibility the motor tests from International Test of Physical Fitness were used. The flexibility was determined on the basis of the depth of forward bend in standing position (cm), while abdominal strength by the number of sit-ups in 30 s. The measurements were repeated twice with the same subjects i.e. at the initial stage and after 6 month of callanetics exercises. Acquired results were described with the use of basic descriptive statistics.

Table 1 The structure and training loads of callanetics course

Lp.	Exercise characteristics	Quantity
	Exercise structure:	
1.	Amount of callanetics exercises (n)	30
2.	Amount of sections (n):	8
2.1	General warm-up exercises (n)	6
2.2	Abdominal exercises (n)	4
2.3	Legs exercises (n)	4
2.4	Gluteal and hips muscles exercises (n)	4
2.5	Abduction and adduction exercises (n)	1
2.6	Stretching exercises (n)	6
2.7	Pelvis exercises (n)	3
2.8	Leg strengthening exercises (n)	2
3.	Exercises in axis (%):	
3.1	Saggital	40
3.2	Complex	26,7
3.3	Frontal	17,8
3.4	Transversal	4,4
3.5	No axis	11,1
	Training loads:	
4.	Number of months (n)	6
5.	Days of courses	Monday, Thursday
6.	Time of course (in min.)	45
7.	Amount of practices per month (n)	8-9
8.	Amount of practices per 6 month (n)	48-50
9.	Time of all practices in experiment (in min.)	2160-2250
10.	Amount of exercises pe r 1 practice (n)*	18-24
11.	Amount of exercises in whole experiment (n)*	864-900 – 1152-1200

* The amount of exercises on particular practice, chosen from the whole callanetics program, characterized by the proper technique and amount of repetitions (left or right, hand or arm) or time of duration

Results

Female subjects, at the initial stage of experiment, performed on average 15,8 sit-ups. The individual diversity ranged from 7 to 24 repetitions. The mean values of the test were higher in group aged from 18 to 21 while in older subjects (22-26) the decrease of results was observed. The best results were registered in females aged 20 and 21 years.

The analysis of results after the experiment an showed increase in number of sit-ups (abdominal strength) by 2,6. Significant increases of mean values were observed in 18, 19 and 20 year old women ($p \leq 0,05$). The average amount of sit-ups equaled 21 (fig. 1) what seems to be appropriate to medium abdominal strength (Pilicz et al. 2002). In older age categories the average increase equaled from 2,1 to 2,5 repetitions and these differences were statistically insignificant. It is also possible to state that 93,7% of tested women improved their performance after callanetics exercises. Only 6,7% remained at the unchanged level, and there was no subject with a decrement in abdominal strength.

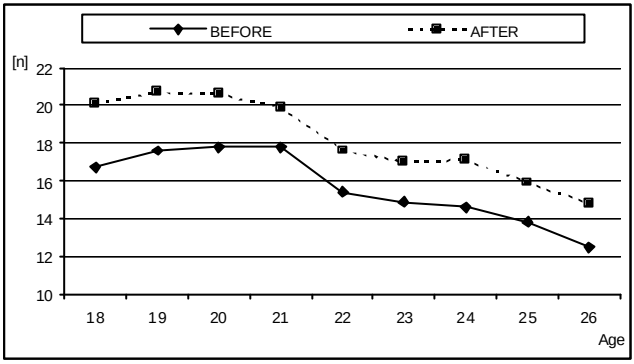

Fig. 1 The results of abdominal strength test

Spine flexibility was evaluated with the use of the forward bend in standing position. At the first measurement the average value was 6 cm[x)]. The individual results ranged from 14,0 cm to –8,0 cm. Best results were acquired by 18,19 and 20 year old women (fig. 2), while older females were characterized with slightly worse results.

The results of second evaluation showed a significant increase in spine flexibility in comparison to initial state. The average value increased from 6,0 to 9,6 cm and once again best results appeared in 18, 19 and 20 year old subjects (4,9 cm, 4,3 cm and 4,4 cm respectively). The differences were statistically significant ($p \leq 0,05$). These results were at the medium level of population and were scored approx. 50 points (Pilicz et al. 2002). In older age groups (21-26 years) average increments equaled from 2,9 cm to 3,4 cm ($p \leq 0,05$) (fig. 2).

x) each cm below feet level was showed as positive and above as negative

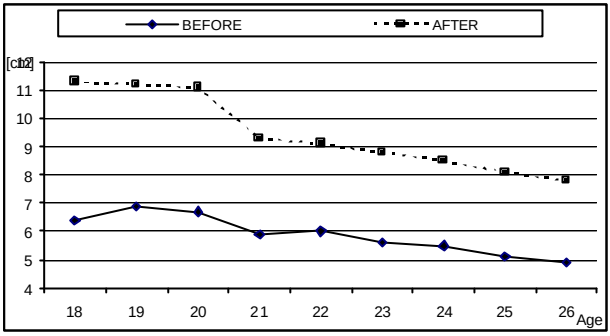

Fig. 2 The results of spine flexibility test

Specific analysis of data showed that 95,5% of tested subjects improved spine flexibility. None of the females showed a decrement in evaluated ability.

Discussion

Sit-ups are very popular abdominal exercises that can serve as reliable motor tests, valid and diagnostic in general motor fitness evaluation. Its results depends mainly upon abdominal strength and muscle endurance because test lasts 30 s. Standing forward bend is a generally accepted test diagnosing spine flexibility, however it is significant effected by somatic traits (length of limbs) (Przeweda and Trzesniowski 1996)

The acquired results showed that systematically repeated callanetics exercises significantly increase abdominal strength and spine flexibility. Similar results were registered with 16-19 year old girls (Eider 2001 b).

Callanetics is a modern form of contemporary gymnastics, in which exercises are performed in different planes. This universal character significantly influences, among others strengthening of abdominal muscles and spine flexibility what was confirmed with the used motor fitness tests. “Strong abdominal muscles are a necessity for maintaining proper posture. They create a natural gorset, which allows functioning of internal organs, spine decompression and – what is also very important – assuring well shaped body” (Fidelus 1997). Properly performed callanetics exercises (from the technical point of view) improve muscles elasticity and increase joints mobility what improves work efficiency.

(Sedentary) life style influences the state of spine negatively. Sitting in such a position during plenty of ours in school, work, watching TV or computer monitor restricts spontaneous movement activity. Muscles and joints become

weaker. Only performed physical exercises favors improvement and increase of greater spine mobility (flexibility), while sedentary style of life significantly decreases this feature. All this factors cause growing danger for healthy organisms (Kasperczyk 1998; Rakowski 1999).

The main effect of callanetics exercises is improvement of muscle strength and flexibility do to isometric (constant length) or isotonic muscle work (constant tension) performed in slow rhythm. Besides positive influence on muscle, this type of exercises, cause positive effects on bones, protecting against osteoporosis (Dentkowski 1996). Because of low intensity of exercises and uncomplicated movement sequences this form of gymnastics may be advised to persons at any age and level of fitness.

Conclusions

1. Systematic callanetics exercises significantly influence the level abdominal strength and spine flexibility in women.
2. The efficiency of exercises decreases with age.
3. Callanetics may be performed by subjects with spine disorders caused by overloading and healthy people – as a means of prevention.

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