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THE TRAINING OUTCOMES OF COMBINED PLYOMETRICS AND YOGIC PRACTICES ON SELECTED MOTOR FITNESS VARIABLES AMONG MALE GYMNASTS

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Abstract

The purpose of this study is the determine the effect of varied modalities of Plyometrics and Yogic practices on selected Motor fitness variables in seven to Nine (7 to 9) years old male Gymnasts were selected from various schools in Tiruchirapalli, Tamilnadu. The subjects were divided as the Experimental group-1 (n15=PLYO & YOGA), performed the combined plyometrics and yoga Control group-2(n15=CONTROL group) did not perform any training. The students in the Experimental group took training for 10 weeks and this training was given for six days (one hour each) at National College Indoor Stadium, Tiruchirapalli, Tamilnadu. The control group maintained their daily routine activities and no special training was given. The collected data were analyzed and compared with the help of statistical procedure in which arithmetic mean, Standard deviation (SD) standard error of mean (SEM)'t' test were employed Experimental group training improves selected motor tests like Explosive Strength, Core Strength & Stability, Flexibility, Balance, Speed, Muscular Endurance, Abdominal muscular endurance and Strength endurance($p<0.05$). The study shows that combination of combined plyometric training and yogic practices were significantly developed in motor fitness when compared to the control group ($p>0.05$) among male gymnasts.

Key Words: Plyometric, yogic exercises, motor fitness, children.

Introduction

Motor fitness is necessary for success in most of games & sports. Without a higher level of motor fitness an individual will not be able to withstand the stress and strain caused on the body by various games and sports. Motor fitness in addition to bringing about better performance in games and sports, also helps in prevention of injuries in the long run (Doneash scaton et al., 1956).Various forms motor activity plays an essential role in the process of Physical education (Lucertini at al., 2012; Haga,

2008). There is a large number of factors like physical activity that influence the growth and development of the children (Malina et al., 2004; Lopes et al., 2011). The motor development and sports skills of pupils have been considered important in the PE curriculum (Haga, 2008). The importance of different forms of sports has been emphasized for pursuing life-long physical activity and for the versatile development of fitness and motor abilities (Pehkonen, 2004 ;). Motor ability is to execute different acts, including coordination of both fine and gross motor skills (Haga 2008; Gallahue and Ozumun, 2006). Some of the existing motor fitness typically focuses on Balance, agility, speed, muscular strength and endurance (Fjortoft et al., 2011; Haga, 2008; Balas and Bunc, 2007).Versatile exercise contents like gymnastics are highly suitable for the development of these characteristics (Pajek et al., 2010; Werner et al., 2012. From the perspective of the child development, gymnastics is one of the key sports as any physical exercise on the floor or apparatus that offers a great range of locomotive, stability and body control movements which are highly important for development of children (Pajek et al., 2010). Gymnastics requires a great diversity of movement; transitions from dynamic to ststic elements and vice versa, frequent changes of the body position in space (Culjak et al., 2003; Bressel et al., 2007).Plyometrics is used in many sports as an effective way to increase speed of movement and power. For gymnasts plyometric is most commonly worked to develop “punch” power for tumbling and vault. The punch, for a punch front somersault, is, in itself, a plyometric exercise. For gymnasts plyometrics are important to strength training in order to develop explosive power.Practicing yoga along with Gymnastics: Gymnasts can certainly benefit by adding yogic methodology to their training routines. Many athletes find that a yoga routine complements regular workouts well. The gentle nature of yogic practices will provide a balance to the rigorous muscle workouts often performed by gymnasts. The stretches make sure that muscles remain long and agile instead of becoming tight and shortened from overuse. Yoga will also provide a number of other benefits of Gymnasts.

Materials and methods

Subjects

Thirty subjects were seven to nine years (7 to 9) old boys, all of whom were second grade students from various schools, taking regular practice at National College, indoor stadium, Tiruchirapalli, Tamilnadu. The subjects were carefully chosen those who are coming for the regular practice. Before the study, participants and parents were given written information about the nature of the study. Written permission was obtained from the parents prior to their child’s involvement in the study. Parents and subjects were told that they were free to quit the test whenever they wanted. No child had any reported history of learning difficulties or any behavioral, neurological or orthopedic problems that would quality as exclusionary criteria for this study. The students were divided in to two groups as control group (N=15, X=7 to 9 years old)

and Experimental group (N=15, X=7 to 9 years old).

Procedure

All applications and tests were carried out at the National College, Indoor stadium, Tiruchirapalli, Tamilnadu.Motor Fitness tests: The day before the test, the motor test battery was introduced to all the students, who did three trails. The students were encouraged to show maximum efforts in all tests. If a subject made a procedure error during tests, instructions and demonstration of the task were repeated, before the child made a new attempt.

Table 1.selection of PERFORMANCE VARIABLE and their criterion measures

S.No	Practical content	Variables	Criterion measures
1	Standing Long Jump (cm)	Explosive Strength	Standing Long Jump
2	Trunk Lift (cm)	Core Strength & Stability	Core Strength & Stability
3	Sit and reach (cm)	Flexibility	Sit & Reach
4	Balance (Sec)	Balance	Standing Stroke test
5	Run 20m (sec)	Speed	20 m Sprint
6	Chin up (arm & shoulder)	Muscular Endurance	Chin up test
7	Curl up (abdominal muscle endurance) 20/BPM	Abdominal muscular endurance	Beep test (20/BPM)
8	Push ups	Strength endurance	Beep test (20/BPM)

Table 2.Comparison of motor Fitness variable performance for COMBINED PLYOMETRIC AND YOGA TRAINING GROUP between pre and posttest:

		Pretest		Posttest			
S.No	Variables	Mean	SD	Mean	SD	t	p
1	Explosive Strength	111.70	13.10	119.72	12.46	6.76	0.012
2	Core Strength & Stability	31.83	3.22	35.95	4.53	4.67	0.006
3	Flexibility	11.75	3.29	17.89	3.68	9.65	0.000
4	Balance	16.93	3.69	20.68	3.65	5.54	0.000
5	Speed	4.86	0.70	4.37	0.41	3.91	0.002
6	Muscular Endurance	6.32	5.00	7.98	5.10	5.45	0.000
7	Abdominal muscular endurance	21.84	7.30	25.44	7.44	3.32	0.004
8	Strength endurance	9.33	5.21	10.78	5.32	3.46	0.005

Table 3.Comparison of motor variable performance for CONTROL GROUP between pre and posttest:

		Pretest		Posttest			
S.No	**Variables**	**Mean**	**SD**	**Mean**	**SD**	**t**	**p**
1	Explosive Strength	111.43	13.40	111.37	12.12	0.305	0.763
2	Core Strength & Stability	31.46	3.43	30.59	3.30	1.456	0.365
3	Flexibility	11.30	2.23	11.98	2.02	0.201	0.615
4	Balance	17.13	3.45	17.42	3.43	0.051	0.938
5	Speed	4.82	0.69	4.94	0.79	0.325	0.741
6	Muscular Endurance	7.48	4.87	8.01	2.42	0.060	0.079
7	Abdominal muscular endurance	21.37	7.54	22.23	7.43	0.624	0.092
8	Strength endurance	3.77	3.77	9.77	3.60	1.477	0.105

Statistical analysis

Descriptive statistics (means and Standard deviation) was calculated for all variables separately for each group. The independent variables in the study were the type of groups. Paired t test (pre versus post) was performed to determine whether there were significant differences. There were no significant pretest differences between control and gymnastics group. Significant level was defined as ($p<0.05$).

Results

The means and standard deviations for each parameter are presented in table 1. In the comparison of the motor tests for pre and post test scores in Experimental group (PLYO & YOGA) the following are obtained: for Explosive Strength, $t=6.76$ ($p< 0.01$); Core Strength & Stability, t.4.67 ($p<0.01$); Flexibility, $t=9.65$ ($p<0.01$); Balance, ($t=5.54, p<0.01$); Speed, ($t=3.91$, $p<0.01$); Muscular Endurance, $t=5.45$ ($p<0.01$); Abdominal muscular endurance, $t=3.32$ ($p<0.01$); Strength endurance, $t=3.46$ ($p<0.01$).The means and standard deviations for each parameter are presented in table 2. In the comparison of the motor tests for pre and post test scores in control group the following are obtained: for Explosive Strength, $t=0.305$ ($p> 0.05$); Core Strength & Stability, t.1.456 ($p>0.01$); Flexibility, $t=0.201$ ($p>0.05$); Balance, ($t=0.051, p>0.05$); Speed, ($t=0.325$, $p>0.05$); Muscular Endurance, $t=0.60$ ($p>0.05$); Abdominal muscular endurance, $t=0.624$ ($p>0.05$); Strength endurance, $t=1.477$ ($p>0.05$).

Discussion

Strength, balance, coordination, speed, agility and flexibility are often described as performance related fitness, reflecting the performance aspect physical fitness (Haga, 2008). Under the influence of physical exercise during growth and development, positive changes are expected especially in the area of motor abilities. Motor competence has important implications for different aspects of development in children and adolescence

(Piek et al., 2006).In this study, pretest and posttest measurements of all motor test batteries in the experimental group show meaningful differences ($p<0.05$), which means that the 10 weeks training programme for kids proved beneficial. On the other hand, it is significant that no statistically meaningful progress was seen in the control group ($p>0.05$).Gymnastics offers a great range of locomotive, stability and body control movements which are highly important for the development of children. Gymnastics requires a great diversity of movement; transitions; from dynamic to static elements and vice versa, frequent changes of the body position in space (Werner et al., 2012; Pajek et al., 2010)

References:

1. Andy T, Yildiz C, Atesalp S, Kalyon TA (2002) proprioception of the ankl: a comparison between male teenage gymnasts and control.
2. Balas J, Bunc V (2007) Short-term influence of climbing activities on strength, endurance and balance with school physical education.
3. Bressel E, Yonker CY, (2007) comparison of static and dynamic balance on gymnastics athletes.
4. Culjak Z, Cavar M, Crnjac D, Maric K, Corluka M (2003). Effectiveness of the School of Gymnastics in Seven years old Children. Sport SPA.8 (8): 41-45.
5. Haga M (2008). The relationship between Physical Fitness and motor competence in children. Child:care,Health and Development. (5):329-334.
6. Kazimeirez K, Ewa K (2010). Body Balance children aged 11 - 13 years and the process of Physical Education. Pol. J. Sport tourism 17:87-96.
7. Lucertini F, Spazzafumo L, Lillo F, Centonze D, Valentini M, Federici A (2012). Effectiveness of professionally-guided Physical Education on Fitness outcomes of primary Scholl children. Eur.J.Sport Sci. 11(6):1-9.
8. Madanmohan, Thombre DP, et.al., (1992) Effect of yoga training on reaction time, respiaratory enurence and muscle strength.Department of Physiology, Jawahalal Institute of Post graduate medical education in research, Pondichery.36(4):229 – 233).
9. Malina RM, Bouchard C,Bar – Or O (2004). Growth, Maturation and physical activity (2nd ed.) USA : Human kinetics publication pp.47-53.
10. Roopchand-Martin S, Lue-Chin P (2010), Plyometric training improves power and agility in Jamaica's national netball team, The University of West Indies, Kingston 7, Jamaica, West Indies. 59(2):182-7.
11. "Sri Ramakrishna math patanjali Yoga sutras" by swami prabhavananda, published by the sri Ramakrishna math p.111.
12. Werner PH, Williams LH, Hall TJ (2012). Teaching children Gymnastics. 3rd ed.Human kinetics pub.pp.23-38.