

The Effect of Thai Traditional Play Program on Speed and Agility in Male Students in the Upper Primary School

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Abstract

The purpose of the research was to study and compare the effect of Thai Traditional Play program on the speed and agility of Upper primary school male students. Group samples consisted of 32 male students from Chumchonsampraw School in Udonthani province. The test group (N = 16) was trained with both the Thai Traditional Play program and physical education activity and the control group was trained with physical education activity only. The training 60 min per day, 3 days per week, for 8 weeks. A personal questionnaire was collected and a speed test by using running 50 m and an agility test by using running a zig-zag course. All parameters were measured baseline, at week 4 and 8, respectively. The data were analyzed by using percentage, mean, standard deviation, t-test and One-way analysis of variance with repeated measure. Scheffe was compared at the statistical significance level at $p < 0.05$. The results showed that the speed and agility of the experimental group before, after the 4th and after the eight weeks were found to be significantly at 0.05 level. But control group found not significantly at 0.05 level. This research suggests that Thai Traditional Play program could increase speed and agility of male students in the Upper primary school.

Keywords: Speed, Agility, Male student, Thai traditional play program

Introduction

As human development is important a successful Thai society, the development of skills in children is important. Since the development in children is the basis of achievement in adults, to develop the country, the development of various skills in children is required.

The upper primary students between 10 and 12 years old have significant changes and body development as they move more regularly than staying still. In this age, their fine motor skills and gross motor skills must be developed in order to move quickly and to be able to control muscles such as in jumping, standing on tiptoes, standing on 1 leg, etc. [1]. If the process of development at this age has stopped or been impeded, it would affect subsequent development and become a chronic problem. As a result, appropriate activities for muscular and physical development should be provided and be able to participate in various activities, for example, outdoor activities, movement activities, or extra experience activities, etc. These activities should intend on the movement of the children, for instant standing, walking, sitting, running, catching, throwing, jumping, and movements in various directions [2]. According to Watsapat and Palawiwat [3], the speed and agility of the children would increase until the age of 12. Three years from this age, their agilities might not increase but decrease. After the adolescent period of physical growth has nearly finished, speed and agility would slowly increase and would decrease again when they were in the adult age. Therefore, the activities in developing this ability are required appropriately for their ages.

Thai traditional play means the plays of each society indicating the identity of each locality. They are the recreation activities accepted by the society originating from the ways of life inherited from the past to the present [4]. Thai traditional play supports physical development, the nervous system, balance, muscle strength, flexibility, the endurance of the respiratory system, speed, and agility. Thai traditional play, mostly

uses the movement of the body, such as running, stopping, maneuvering, direction changing, standing on the tiptoes, or jumping in various forms. These movements are the basis of speed and agility development [5].

Accordingly, the researcher is interested in studying the effect of Thai Traditional Play program on speed and agility in male Students in the Upper primary school as the guideline in the speed and agility developments from Thai traditional play. To do Thai traditional play, it is not only the children who will receive the amusement but also aware of the importance and have a passion for exercise from the movement activities supporting better learning.

Materials

In this experimental study, participants were female students from Chumchon Samprow Upper School, semester 1, the academic year 2020, Samprow sub-district, Muang district, Udonthani province. A total of 32 participants aged 10 - 12 years were recruited. This sample size was indicated by Cohen's tables [6]. As the result indicated that as the effect size = 0.4 and Power = 0.8, the sample size was 16 samples. The participants were randomly selected and equally divided into experimental and control groups (16 participants each). In the experimental group, participants were trained in the Thai traditional play training program and physical education activity; while those in control group participated in physical education session only. To be eligible, the participants had to be healthy female students with no history of cardiovascular disease or injuries of the muscle. This study was approved by the Research Ethics Committee on Human Research, Udon Thani Rajabhat University. (approval number: 0622.7/518; approval date: March 18, 2020). Each volunteer provided informed consent.

The experimental intervention and procedures in experimental group, participants took part in the Thai traditional play program which consisted of activities including one-legged bunny, hiding a cloth behind one's back, blind piggyback racing, monkeys scrambling for posts, run and pick, crow hatching, Chase racing, and teasing the crocodile. For participants in control group, only regular weekly physical education class was provided.

The period of training was 8 weeks with 3 days per week, on alternate days. The training session started with stretching (10 min), followed by traditional folk play activities (a total of 60 min of 4 activities with 8 min per activity and 2 min of resting in between), and finally the cool-down session (10 min).

The physical fitness test

There are 2 forms as follows: Agility testing tested by Zig-Zag Run. The quality of the testing form and the validity are 1.00 and the reliability is 0.81. For the testing methodology, the trainee stands after the line. When the sign "Starts" indicated, the trainee must run to around the left side of post 1 and the right side of post 2, then, left side of post 3, the right side of post 4, left side of post 5, and right side of post 6. After that, the trainee runs back by running around the right side of post 5, left side of post 4, the right side of post 3, left side of post 2, the right side of post 1, and quickly passes the line. The researcher records the time since the trainee is at the start line until the trainee has finished running around all of 6 posts and has run back to the goal line in a 2nd unit.

The speed testing tested by running 50 m, the quality of the testing form and the validity are 0.80 and the reliability is 0.73. For the testing methodology, when the sign "Ready" indicated, the trainee must stand with one foot at the start line (do not bend the body). When the sign "go" announced, the trainee must run quickly to the goal line. The researcher records the time since the trainee is at the start line to the goal line in a 2nd unit.

Statistical data analysis

All data were presented as mean with standard deviation (S.D.). Differences in age, weight and height. Speed and Agility in seconds between the 2 groups, at baseline, 4 and 8 weeks were compared by using independent t-test.

For the changes within each of the 2 groups, Speed and Agility at baseline, 4 weeks and 8 weeks were compared using repeated measure ANOVA with Scheffe's adjustment method for pairwise comparisons. Statistical significance was set at a type I error of 0.05. Data were analyzed using IBM SPSS Statistics for Windows, Version 21.0 (IBM Corp. Released 2012).

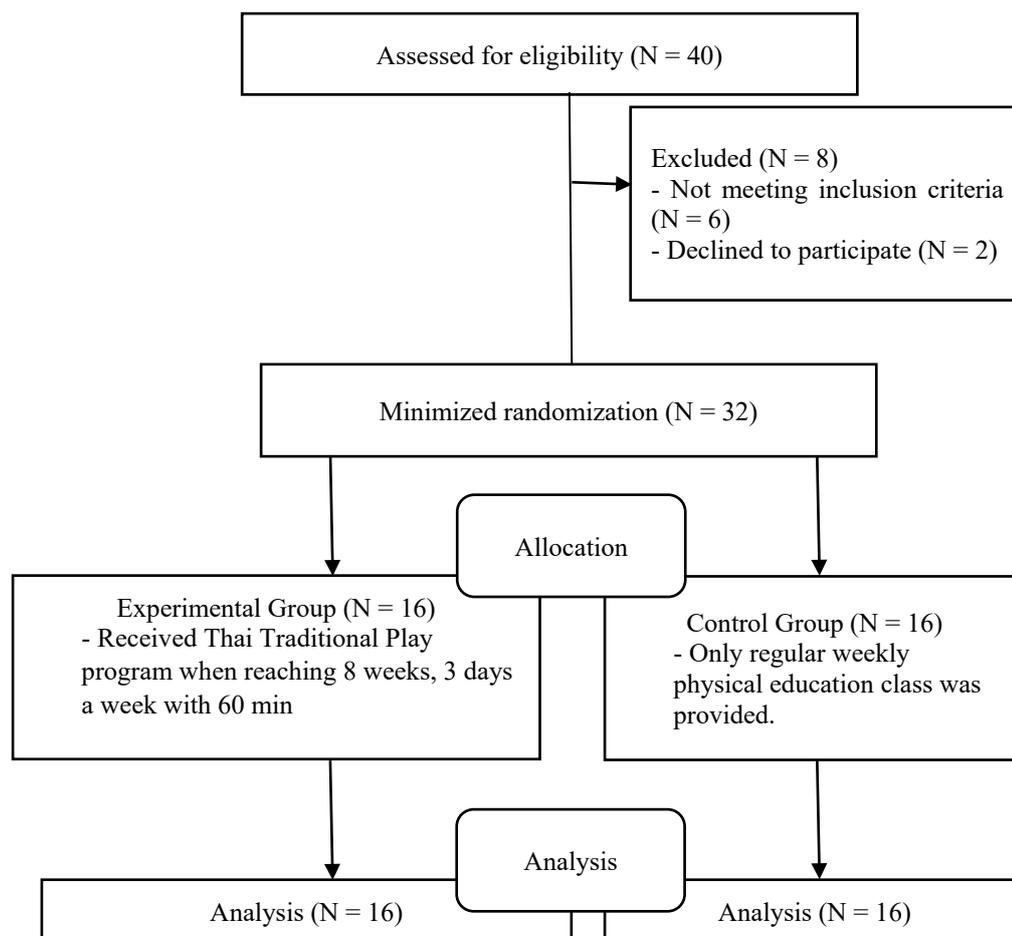


Figure 1 Flow diagram of the selection procedure.

Results and discussion

For the mean and the standard deviation, the result indicated that the sample with 11 ± 0.77 of age, 35.38 ± 12.10 kg of weight, and 1140.69 ± 8.14 cm of height, and for the control group, the age was 11 ± 0.77 , 36.23 ± 12.03 kg by weight, and 142.46 ± 7.28 cm in height (**Table 1**).

Table 1 Demographic characteristics of the participants.

Outcomes	Experimental group		Control group	
	\bar{x}	S.D.	\bar{x}	S.D.
Age (years)	11	0.77	11	0.77
Weight (kg)	36.23	12.03	35.38	12.10
Height (cm)	142.46	7.28	140.69	8.14
Body mass index (kg/m^2)	17.93	2.34	18.05	2.51

The result of the one-way ANOVA analysis of speed and agility of the baseline and at week 4 and at week 8 of the testing period indicated that the mean value of the experimental group has decreased before testing with the significant difference at the statistic level of 0.05. For the control group, the result indicated that baseline and at week 4 and at week 8 of the testing period did not have a significant difference at the statistic level of 0.05 (**Table 2**).

Table 2 Agility and speed of the participants within groups (N = 24).

Outcomes	Experimental group		Control group	
	Agility	Speed	Agility	Speed
Baseline	19.69 ± 2.31	15.41 ± 0.62	19.82 ± 2.58	15.50 ± 1.08
at 4 weeks	12.08 ± 2.03*	11.33 ± 0.31*	19.92 ± 3.84	14.86 ± 2.02
at 8 weeks	11.41 ± 1.72*†	10.97 ± 0.56*†	18.06 ± 4.65	14.68 ± 2.31

* The measure significantly different from that at baseline by repeated measure ANOVA ($p < 0.05$).

† The measure was significantly different from that at 4 weeks by repeated measure ANOVA ($p < 0.05$).

The result of mean and standard deviation comparisons between the experiment and control group on the agility indicated that, at week 4 and 8, they had a significant difference at the statistic level of 0.05. But, baseline, there was not any significant difference at the statistic level of 0.05. For the speed, the result at weeks 4 and 8 of the training period indicated a significant difference at the statistical level of 0.05. But baseline, there was not any significant difference at the statistical level of 0.05 (**Table 3**).

Table 3 Agility and speed of the participants between 2 groups (N = 24).

Outcomes	Experimental group		Control group		t	p
	\bar{x}	S.D.	\bar{x}	\bar{x}		
Agility						
Baseline	19.69	2.31	19.82	2.58	0.143	0.887
at 4 weeks	12.08	2.03	18.92	3.84	5.68	0.000*
at 8 weeks	11.41	1.72	18.06	4.65	4.84	0.000*
Speed						
Baseline	15.41	0.62	15.50	1.08	0.267	0.792
at 4 weeks	11.33	0.31	14.86	2.02	6.20	0.000*
at 8 weeks	10.97	0.56	14.68	2.31	5.61	0.000*

* $p < 0.05$

The results indicated that the mean of the time had decreased with a significant difference at the statistical level of 0.05. The program had been developed concretely at week 4 as traditional Thai play required the movements, running, walking forward and backward, from one point to another point with speed developing and increasing the speed. The speed was from the ability of the full contraction and relaxation of the muscle and the speed under the nerve control [7]. Sine Thai traditional play required every part of the body to move in running and flexing, which were the basis of each activity, it is relevant to Butmuang [8] mentioned that practicing could develop the speed by using the program practicing the speed with the coordination of the muscles and nerves. To practice by using Thai traditional play could practice the speed effectively with various forms causing the nerves remembering each movement and was able to do the activity perfectly. To practice speed by using Thai traditional plays, the trainer must use the maximum speed level and tried to control the movements while playing relatedly to the direction with the maximum speed. Besides, Thai traditional plays could provide the trainees to practice running back, direction changing, jumping, along with using every muscle [5,9]. Accordingly, to develop the agility would be promoted, for example, Run and pick, Chase racing, etc. It was relevant to Krabuanrat [10] that said: To practice agility, the ability to change the direction with speed movements, the cooperation of the nerves, and the muscle system must be intended. This was related to Choengklinchan [11] researched from the program practicing agility by using Thai traditional plays. The result indicated that the program practicing the agility by using Thai traditional plays could develop the general agility and agility in sport ability better than the general agility training program. This was also related to Bompa [12] indicated the main factors to develop the speed and agility were the ability to increase speed, muscle

power of the leg, the flexibility of the hip, and reaction by analyzing each Thai traditional play affected the speed and agility as followed [5,13-15].

The one-legged bunny activity consists of jumping with 1 leg while running away in a limited area. In both teams it develops muscle strength in the legs, arms, and body. It can develop speed, agility, flexibility, in chasing, running away, reaching and touching. This activity could also develop the agility to sneak quickly and the ability to speed up the movement.

Run and pick, the exercise running forward, backward, bending the body forward, and stopping and picking up items develops muscle strength, speed, agility, balance, and muscular coordination. This activity also could develop the agility in maneuvering and speed in movement.

Chase racing was the challenge of both teams based on the speed, running back, changing direction to run around the post and giving and receiving the flag, or the handkerchief. To provide the movement to the legs and hands would develop the power of the muscle, speed, strength of the muscle, agility, balance, and the coordination of the nerves and muscles. This activity could develop the agility in maneuvering and speed in movement.

Monkeys scrambling for posts was the movement maneuvering each other scrambling the posts or the specific area. It provided the movement of the body from one post to another post in a short period developing the power of the muscle, speed, strength of the muscle, agility, balance, and the coordination of the nerves and muscles. This activity could develop the agility in maneuvering and the ability to speed up the movement to another post.

Blind piggyback racing required the movement from the players. There were 2 players. One player was, assumedly, a blind horse blindfolded. The riding would tell the direction to the blind horse running to the goal line. This activity could develop the speed in movement, the strength of the muscle, agility, balance, and the coordination of the nerves and muscles. This activity would also develop the agility and the ability to speed up the movement.

Hiding a cloth behind one's back was the activity required the movement in a circle, running back, bending forward, stopping, throwing the cloth, and picking things. This activity could also develop the speed, strength of the muscle, agility, balance, and coordination of the nerves and muscles. This activity also developed the agility and maneuvering, to run back quickly, and the ability to speed up the movement.

Crow hatching was the activity played in the limited circle area. One player would protect the egg and the rest would try to fight for the egg. This activity required the movement in maneuvering, protecting, bending forward, and moving. This activity also developed the strength of the legs and arms, strength of muscle, agility, and the coordination of the nervous system and muscles. This activity also could develop the agility in maneuvering and reaction.

Teasing the crocodile was the activity of the crocodile chasing the running people in a wide area. This activity promoted both teams to develop the strength of the muscle of the legs, arms, and body. It could promote the speed, agility, flexibility, and the power to chase and run away. This activity could also develop the agility in maneuvering and reaction.

As the detail indicated above, to practice by using Thai traditional plays could develop the speed and agility related to the idea of Gomaratut [5,13-15] summarizing the value of Thai traditional sports in physical development as Thai traditional sports could provide the physical development to the player not less than the international training program, for example, the flexibility, balance, coordination of the internal systems, strength of the muscles, power of the muscles, and the endurance of the respiratory system, which was the main factor to develop the speed and agility.

Conclusions

The result indicated that the training program using Thai traditional plays for 8 weeks, 3 days per week, and 60 min per day, could increase the speed and agility of male Students in the upper primary school. Therefore, Thai traditional program had the possible form and save to be used as a good choice for male students in the primary school to develop the speed and agility.

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