**EFFECTS OF SELECTED MINOR GAMES ON PHYSICAL FITNESS AMONG SCHOOL STUDENTS**

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Physical education is a planned program of motor activities that help the individual to develop and control their body. Physical education is a process through which favourable adaptation and learning (organic, neuromuscular, intellectual, social, cultural, emotional, and aesthetic) resulting from a fairly vigorous activity. Physical education is a formal area of educational activity in which the main concern is with bodily movements that take place in an educational establishment (Williams J. F. 1964).

Physical fitness refers to the capacity of an athlete to meet the varied physical demands of their sport without reducing to a fatigued state. Physical fitness is the ability to carry out daily tasks with alertness and vigor, without undue fatigue, and with enough energy reserve to meet emergencies or to enjoy leisure time.

The physical effects mainly take into account the impact of AAHPER Youth Fitness Test on the students.The measurement objective is to assess fitness through test items measuring muscular strength and endurance, cardio respiratory endurance, agility, and speed. The tests measure body composition, flexibility, agility, coordination, upper body strength and aerobic endurance. The tests were designed so that they could be administered by professionals and clinicians in the field who lack specialized measurement equipment, training and resources.

The AAHPER youth fitness test was developed in America in 1957 to test physical fitness. These include motor, organic and physique measure. Motor fitness variables include: Pull-Ups, Sit-Ups, Shuffle-Run, Standing Broad Jump, 50-yard Dash, 600-yard Run-Walk

The organic efficiency tests included heart rate and maximal oxygen intake determination. These measurements are taken when the person performs a treadmill run till he could no longer continue. Physique measures involved measurement of bone, muscle and fat. Also lean body mass is also estimated.

**Physical Fitness**

Physical fitness is the ability to do daily task with vigour and alertness, without undue fatigue, and with ample energy to engage in leisure pursuit and to meet emergency situations.

**Selection of the subjects**

The sample consists of 104 children belonging to the age group of 13-15 years studying in the Govt. HSS Anavoor, Thiruvananthapuram, Kerala,India. Among them 55.77% (N=58) was boys and 44.23% (N=46) was girls. The mean age of the participants was 13.04 years with a range of 12 to 15 years and a standard deviation of 1.57 years. The 104 subjects were classified randomly into two groups namely group-A and group-B; group-A, the experimental group underwent the minor game programme consisted of 29 boys and 23 girls and group-B, the control group held 29 boys and 23 girls.

**Physical Fitness Variables**

Agility, Abdominal Strength, Cardio Respiratory Endurance, Arm power, Leg power, running speed

**Tools of the study**

1. **AAPHER Youth fitness test**

The Revised AAHPER Youth Fitness Test is a battery of six test items designed to give a measure of physical fitness for boys and girls in grades 5-12. The tests were selected to evaluate specific aspects of physical status which, taken together, give an overall picture of fitness. Tests can be given in the gymnasium or outdoors. They are as follows: (a) pull-up (with flexed-arm hang for girls)--for judging arm and shoulder girdle strength; (b) flexed leg sit-up--for judging efficiency of abdominal and hip flexor muscles; (c) shuttle run--for judging speed and change of direction; (d) standing broad jump--for judging speed; and (e) 600-yard run-walk (with optional runs of one mile or 9 minutes for ages 10-12, or one and a half miles or 12 minutes for ages 13 and older)--for judging cardiovascular efficiency. The following information is given for each test: equipment, description, rules, and scoring. Also included in this document are a history of the test, methods for recording and comparing test scores, tables with various percentile scores and norms, and recording forms.

1. **Minor game**

These games promote learning and growth for every child who participates. The games have been revised and tested in order to ensure that each game is easy to follow and contributes to the holistic development of the child

1. **Plucking the Tails**

The participants are given a strip of Newspapers about 12 inches in length. This strip is to be tucked in short/halfpant or pant at the back in such a way so that the strip remains about 6 inches outside. This is called the tail. The participants are made to stand in a scattered formation in a circle about 4 m radius. After having fixed the tail and on a signal, the participants try to pull the tail/strip of the other participants while protecting their own tail. Anyone whose tail is plucked becomes out. The individual who remains not out till the end or whose tail has not been plucked becomes the winner.

1. **Leg Cricket**

Teacher divides the participants into two equal teams. One team is a batting side and other team is the fielding side. The teacher installs stumps as in cricket but the distance between the stumps varies from age to age. The game is played similar to cricket. The fielding side rolls the ball to the batsman who tries to kick the ball. The fielders try to field the ball so as to prevent the batting side to score runs. A boundary may also be marked so as to decide whether the batsman has scored four or six runs. A batsman is out if the ball strikes the stumps or if the fielder catches the ball directly after having being kicked by the batsman. When all the players of a team have become out then the fielding become batting side and vice versa. The team scoring more runs shall be declared the winner.

1. **Golden fish/chain tag**

The participants stand in a scattered formation within the area. One participant is appointed as a “it’ by the teacher. “It” must have good endurance and speed. On a signal from the teacher, “It” starts chasing the other participants and trying to take anyone. When a player is tagged, he joins hand with “It” and they both chase others. As and when any runner is tagged, he joins the chain. The game continues till one player is left and he is declared as the golden fish

1. **Spot tag/ Poison tag**

The entire participants stand in a scattered formation within the playing arena. An ‘It’ is appointed who starts from one corner of the arena and tries to tag any participant. Whenever any participant is touched, the touched participant becomes a new ‘It’ and the earlier ‘It’ joins as a runner along with other participants. The interesting quality about this game is that ‘It’ must hold/ place one hand on that spot on his body where he was tagged and hold this position as he tries to tag other players. Similarly, others when tagged must chase while keeping a hand on the spot where they were tagged.

**Table 1**

**AAPHER Test Items and Fitness Dimension Measures**

|  |  |  |
| --- | --- | --- |
|  | **Test Item** | **Fitness Dimension Measures**  |
| 01 | Sit-Up (Flexed Leg- 60 seconds) | Abdominal muscles strength and endurance |
| 02 | 50 Yard Dash | Speed |
| 03 | Shuttle Run | Agility (Speed and change of direction) |
| 04 | Standing Long Jump |  Explosive power of leg extensor muscles. |
| 05 | Pull-Ups | Arm and shoulder girdle strength and endurance |
| 06 | 600m Run- walk | Cardio-respiratory endurance |

**Programme plan and Procedure**

 (a) Duration : 12 weeks

 (b) Schedules : 12 (5 days/week)

 (c) Programme Units : 60 (12 weeks X 5days)

 (d) Programme Time : 1 hour (per day)

**Administration of the programme**

The prescribed programme schedule was applied to the experimental group by the research scholar with the help of other physical education teachers who strictly followed the instructions of the research scholar. Subsequently the control group spent their time doing their daily routine. The experimental group subjects performed in the minor game programme after school session. The programme was implemented on the experimental group after every school session for a period of one hour for 5 days per week.

**Statistical Technique Employed**

The data pertaining to the physical fitness, physiological and psychological variables of minor game programme children were tested using Analysis of Covariance (ANCOVA). Testing of hypothesis level of significance was set at .05 levels.

**ANALYSIS OF DATA AND RESULT OF THE STUDY**

**600m Run/Walk**

ANCOVA was also used to assess whether or not the minor game group experienced a difference in 600 meter Run/Walk after the minor game programme intervention. The interaction was significant, F (1, 103) = 3.94, p < .05.

**Table 2**

ANCOVA table for the post-test data on 600m R/W

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | Sum of Squares | df | Mean Square | F | Sig.a(P-value) |
| Pre-600m R/W | 48.467 | 1 | 48.467 | 778.931 | .000 |
| Group | .850 | 1 | .850 | 13.655 | .000 |
| Error | 6.285 | 101 | .062 |  |  |
| Corrected Total | 55.076 | 103 |  |  |  |

An examination of Table 2 indicates that effects of twelve weeks minor game programme on 600m Run/Walk levels of experimental students obtained a value of F- ratio = 76.866 is significant. Since p-value for the F statistic is .000 which is less than 0.05, it is significant.

**Standing Broad Jump**

ANCOVA was also used to assess whether or not the minor game group experienced a difference in standing broad jump after the minor game programme intervention. The interaction was significant, F (1, 103) = 3.94, p < .05.

**Table 3**

ANCOVA table for the post-test data on Standing Board Jump

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | Sum of Squares | df | Mean Square | F | Sig.a(p-value) |
| Pre-SBJ | 2.546 | 1 | 2.546 | 2173.257 | .000 |
| Group | .066 | 1 | .066 | 56.222 | .000 |
| Error | .118 | 101 | .001 |  |  |
| Corrected Total | 2.734 | 103 |  |  |  |

An examination of Table 4.12 indicates that effects of twelve weeks minor game programme on standing broad jump levels of experimental students obtained a value of F- ratio = 56.222 significant. Since p-value for the F statistic is .000 which is less than 0.05, it is significant.

**Pull Ups**

ANCOVA was also used to assess whether or not the minor game group experienced a difference in pull ups of the minor game programme intervention. The interaction was significant, F (1, 103) = 3.94, p < .05.

**Table 4**

ANCOVA table for the post-test data on Pull Ups

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | Sum of Squares | df | Mean Square | F | Sig.a(p-value) |
| Pre-Pull Ups | 324.875 | 1 | 324.875 | 832.917 | .000 |
| Treatment-Group | 6.068 | 1 | 6.068 | 15.556 | .000 |
| Error | 39.394 | 101 | .390 |  |  |
| Corrected Total | 411.385 | 103 |  |  |  |

An examination of Table 4.14 indicates that effects of twelve we eks minor game programme on pull ups levels of experimental students obtained a value of F- ratio = 15.556 is significant. Since p-value for the F statistic is .000 which is less than 0.05, it is significant.

**Sit Ups**

ANCOVA was also used to assess whether or not the minor game group experienced a difference in sit ups after the minor game programme intervention. The interaction was significant, F (1, 103) = 3.94, p < .05.

**Table 5**

ANCOVA table for the post-test data on Sit Ups

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source |  Sum of Squares | df | Mean Square | F | Sig.a(p-value) |
| Pre-Sit Ups | 4635.529 | 1 | 4635.529 | 2766.735 | .000 |
| Group | 69.471 | 1 | 69.471 | 41.464 | .000 |
| Error | 169.221 | 101 | 1.675 |  |  |
| Corrected Total | 4874.221 | 103 |  |  |  |

An examination of Table 4.16 indicates that effects of twelve weeks minor game programme on sit ups levels of experimental students obtained a value of F- ratio = 41.464 is significant. Since p-value for the F statistic is .000 which is less than 0.05, it is significant.

**Shuttle Runs (4X10m)**

ANCOVA was also used to assess whether or not the minor game group experienced a difference in shuttle run after minor game programme intervention. The interaction was significant F (1, 103) = 3.94, p < .05.

**Table 6**

ANCOVA table for the post-test data on Shuttle Run

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | Sum of Squares | df | Mean Square | F | Sig.(p-value) |
| Pre-Shuttle Run | 167.154 | 1 | 167.154 | 196.909 | .000 |
| Group | 1.532 | 1 | 1.532 | 1.805 | .182 |
| Error | 85.738 | 101 | .849 |  |  |
| Corrected Total | 253.055 | 103 |  |  |  |

An examination of Table 4.18 indicates the effect of twelve weeks minor game programme on Shuttle Runslevels of experimental students and which obtained a value of F- ratio =1.805 which is not significant. Since p-value for the F statistic is .182 which is higher than 0.05, it is not significant.

**50 m Dash Values for the Control and Minor game Groups**

ANCOVA was also used to assess whether or not the minor game group experienced 50 m dasha difference in the minor game programme intervention. The interaction was significant, F (1, 103) = 3.94, p < .05.

**Table 7**

ANCOVA table for the post-test data on 50m Dash

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | Sum of Squares | df | Mean Square | F | Sig.a(P-value) |
| Pre-50m Dash | 194.674 | 1 | 194.674 | 6522.033 | .000 |
| Group | .299 | 1 | .299 | 10.003 | .002 |
| Error | 3.015 | 101 | .030 |  |  |
| Corrected Total | 197.775 | 103 |  |  |  |

An examination of Table 4.20 indicates that effects of twelve weeks minor game programme on 50 m dash levels of experimental students obtained a value of F- ratio = 10.003 is significant. Since p-value for the F statistic is .002 which is less than 0.05, it is significant.

**Discussion of Findings**

1. **Cardio respiratory endurance component**

The result showed that there was significant improvement in cardio respiratory endurance after twelve weeks of training period.

1. **Explosive power component**

The results of the study also reveal that, there was significant improvement in the minor game group in performance of standing broad jump.

1. **Muscular strength and endurance components**

The findings indicate that, minor game programme group showed significant improvement in Muscular endurance components. Muscular endurance components consist of pull ups and sit ups. Pull ups/flexed arm hang gives shoulder strength and Sit ups give abdominal strength and endurance.

1. **Agility Components**

The results of the study did not show significant improvement in the agility (which involves Shuttle run) of the experimental group. The change in shuttle runs component that was seen in the minor game group compared to the control group is P = 0.182 which is <0.05 is not identical to results

1. **Speed components**

Speed component is complex in nature, as it is a composition of reaction ability, movement speed, acceleration ability and loco motor ability.

**References**

[Garstecki](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Garstecki%20MA%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_RVAbstractPlus), [Latin. et al.](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Latin%20RW%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_RVAbstractPlus)  (2004), “Comparison of selected physical fitness and performance variables between NCAA Division I and II football players”, Journal of Strength Cond Res, 18:2, PP.292-7.

[Georgieff](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Georgieff%20B%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_RVAbstractPlus), B. et al. (2006), “Changes in skill and physical fitness following training in talent-identified volleyball players, Athlete and Coach Support Services”, Journal of Strength Cond Res, 20:1, PP.29-35.

Lalit Mohan, Sharma.Y.P. (2007), “selected motor fitness variables of male volley ball players in relation to their performance*”*, Journal of sports science, 30:3, PP.30-36.

Ivin Jabakumar.K. (2007), “comparative study of selected physical and physiological parameters between moderate altitude and sea level inhabitants”, Dissertation, YMCA College of physical education.

## [Sharp, M.A](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Sharp%20MA%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_RVAbstractPlus). et al. (2002), “Comparison of the physical fitness of men and women entering the U.S. Army”, Med Sci Sports Exerc, 34:2, PP.356-63.

Wilcock, A.A. (2006). *An Occupational Perspective of Health*. Thorofare, NJ: SLACK.

Williams, J.F (1964). The principles of physical education (8th ed.) Philiadelphia: Lea & Pebiger.(Original work published 1927)