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## Effect of specific exercises on selected coordinative abilities of special children

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### Abstract

The main aim of the study was to find out the effect of specific exercises on selected coordinative abilities on special children. To achieve this aim, a total of 40 special children with age ranging from 10 to 18 years were randomly selected from school for special children Gwalior, Madhya Pradesh. It was hypothesized that there will be significant difference in mean of selected coordinative abilities between experimental group & control group and significant effect of duration on selected coordinative abilities. The selected coordinative abilities such as Reaction Ability, Orientation Ability, Differentiation Ability, Balance Ability and Rhythm Ability were measured with appropriate test. Pre-Data for the study was collected and after that the data was collected at different duration as per training of 2 week, 4 week and 6 weeks repeatedly. To find out the effect of training program on the special children's. Mixed model design or between group designs –within group design was used 3&4 between –within factorial ANOVA was used as statistical technique to find out the significant difference. To test the hypothesis, the level of significance was set at 0.05. Findings of the study revealed that In Rhythmic ability, Orientation ability, Reaction ability and In Balance ability it was found that there was significant effect of training duration as well as interaction effect. In Orientation ability the main effect of Training Programme was also significant. In Balance ability, Rhythmic ability the main effect of Training Programme was not significant. In Differential ability the 15 min training programme is more economical since similar benefits can be ripped in lesser time. Thus the finding reveals that the minimum time required for development if Differentiation ability is four weeks. In Balance ability. There was significant difference between 2 weeks and 4 weeks but the performance improved in the initial two weeks and then deteriorated for further duration. This might be because of the fact that the subjects were special children with hear and speech impairment. In Reaction ability the data in all the combination was found normal except the data on the 4<sup>th</sup> Week of 30 min Training Programme, Thus the 15 min training programme is more economical since similar benefits can be ripped in lesser time.

**Keywords:** Special children, selected coordinative abilities, rhythmic ability, reaction ability

### Introduction

Coordinative abilities have a significant role in acquiring motor skills, as the time needs to master any scale (under study). Motor skill depends on the level of ability at the beginning. There is statistical significant appositive relation of learning. Improving and promoting coordinative between the averages of post-measures in some abilities are with a great importance to improve the quality coordinative abilities and between the averages of motor performance and the speed of motor learning and post-measures in some offensive skills performance. The capability of adapt the mentally motor programs to the changeable conditions [Abd Alkhalk, E., 2003, Sayed, M.A., 2009].

Coordinative abilities are primarily dependent on the motor control and regulation process of the Central Nervous System. For each Coordinative ability the motor control and regulation process function in a definite pattern, when a particular aspects of these functions is improved then the sportsman is in a better position to carry out a certain group of movements which for their execution depends on the Central Nervous System functioning pattern (Singh,1991). The learning of movements has a positive effect on the coordinative abilities belong to the performance factor technique or coordination (Singh, 1991).

Playing fundamental motor skills have developed into various movement patterns. But at every stage of human history physical activity provides an existing out let for human expression often

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creative in nature. Human being normally run, jumps, throw, catch, kick, strike and perform a multitude of basic skills. They combine the skills into pattern of unceasingly greater specificity and complexity. The science of sport and preparation of athletes is continuously evolving. (Tudor. D. Bompa and Gregory Hoff, 2009).

## Methodology

### Selection of subjects

To achieve this aim, a total of 40 special children's (Experimental group-20, Control-20) from school for special children's Gwalior having age group of 10 to 18 years was randomly selected from school for special children Gwalior, Madhya Pradesh.

### Treatment variables

For the purpose of administering the training program a training schedule as treatment variable was prepared.

### Selected coordinative abilities

#### Orientation ability

To judge orientation ability (numbered medicine ball run test), was used and performance noted in seconds. Two trails were given to each subject and the best one was recorded as score.

#### Differentiation ability

Differentiation ability judged through (backward medicine ball throw test) 1kg medicine ball touching the mat-1 point, 1kg medicine ball touching the circle line-2 points, 1kg medicine ball touching inside the circle-3 point, 1kg medicine ball touching the 2kg Medicine ball-4 points. Five trail were given and sum of five trail recorded as score.

#### Reaction ability

To judge the reaction ability (ball reaction exercise test), was administered and the distance measured in centimeters from the top of the planks to the point where the subjects stopped the ball. The two trails were given and the best one was recorded as the score.

#### Balance Ability

The test was administered to measure the Balance ability of the Subjects. A Stick, Stopwatch, Pencil, Paper required. On the signal 'start' the subject raises the heel from the floor to maintain the balance as long as possible without moving the ball of the foot from its initial position and the tester starts the stopwatch. The performer is also encouraged to maintain balance with his/her best efforts and not to let the heel to touch the floor for the longest duration.

#### Rhythmic ability

To judged rhythmic ability (sprint at the given rhythm test), was administered the difference between the timing of the first and second attempts was taken as the score.

### Administration of the test and collection of data

The subjects will be randomly classified in to two groups of 20 each (Experimental=20, Control=20). The training was given to Experimental group three days a week i.e. on Monday, Wednesday and Friday. The subjects were given various specific exercises framed in the training schedule. The data was collected on the selected variable after the training of six weeks over.

**Table 1:** Shows that variables and test

	Variables	Test
1	Orientation Ability -	Medicine Ball Run Test
2	Differentiation Ability-	Backward Medicine Ball Throw Test
3	Reaction Ability-	Ball Reaction Exercise Test
4	Balance Ability-	Static Balance Test
5	Rhythmic Ability-	Sprint at given Rhythm Ability Test

### Data analysis

Mixed model design or between group designs-within group design and 3&4 between-within factorial ANOVA was used as statistical technique to find out the significant difference. To test the hypothesis, the level of significance was set at 0.05.

### Results and conclusion

The purpose of the study was to determine the main effect of training duration i.e. 2 Weeks, 4 Weeks and 6 Weeks, main effect of Training Programme i.e. 20Min, 30Min and 40Min along with the interaction effect of the Training duration and Training Programme.

In Rhythmic ability the data in all the combination was found normal as none of the Skewness and kurtosis values were found significant. This ensures the validity of the results obtained as it fulfills one of the assumptions of Mixed (Within-Between) design. On further analysis it was found that there was significant effect of training duration as well as interaction effect but the main effect of Training Programme was not significant. Since interaction effect was significant the significance of main effect loose relevance and demands the calculation of simple effect. In Differentiation ability the data in all the combination was found normal except the data on the 4<sup>th</sup> Week of 30 min Training Programme, on further analysis it was found that there was significant main effect of training duration but the main effect of Training Programme was not significant. Further the interaction effect of Training duration and Training Programme was also found to be insignificant. Since interaction effect was insignificant and the main effect was too evaluated further. As the main effect of Training Programme was insignificant it reveals that Training Programme (III) training is equally effective to that of Training Programme (II) training program and to that Training Programme (I) training program. Thus the 15 min training programme is more economical since similar benefits can be ripped in lesser time. The main effect of Duration was significant. The further pair wise analysis with Bonferroni Correction revealed that there was significant difference between mean differentiation ability values of 0 weeks-4 weeks and 0 weeks-6 weeks but there was no significant difference between 4 week and 6 week. Thus the finding reveals that the minimum time required for development if Differentiation ability is four weeks. In Orientation ability it was found that there was significant effect of training duration as well as interaction effect. Along with the main effect of Training Programme was also significant. In Balance ability it was found that there was significant main effect of training duration but the main effect of Training Programme was not significant. As the main effect of Training Programme was insignificant it reveals that Training Programme (III) training is equally effective to that of Training Programme (II) training program and to that Training Programme (I) training program. Thus the 15min training programme is more economical since similar benefits can be ripped in lesser time. Thus the finding reveals that the minimum time required for development if Differentiation ability is six weeks. In

Reaction ability the data in all the combination was found normal except the data on the 4<sup>th</sup> Week of 30min Training Programme, It revealed that Training Programme (III) training is equally effective to that of Training Programme (I) training program and is significantly better than Training Programme (I) training program. Thus the 15 min training programme is more economical since similar benefits can be ripped in lesser time. The main effect of Duration was significant. The further pair wise analysis with Bonferroni Correction revealed that there was significant difference between 2 weeks and 4 weeks but the performance improved in the initial two weeks and then deteriorated for further duration. This might be because of the fact that the subjects were special children with hear and speech impairment. The reaction time is result of neuro muscular coordination and is directly proportional to the inputs from sensory organs. As in this case there was no input from sound, the subjects might be finding it hard to grasp this coordination ability.

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