Effects physical exercises and minor games on speed in mild mentally challenged children

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Abstract
The intention of the study was to analyse the effects of physical exercises and minor games on Speed in mentally challenged Children. To achieve this purpose of the study 45 mild category mentally challenged Children were selected from SATYA Special School Puducherry. Children chronological age from 15 to 20 and their IQ ranged from 60% to 70%. They were divided into three groups physical exercise group (PEG) was considered as Group I, minor games group (MGG) considered as group II and control group (CG) considered as Group III. Group I and II undergone training for 18 weeks. The training was scheduled for three days in a week for an hour (4pm to 5 pm) and CG was not undergone the training. Random group design was used for this study. Speed is the criterion variable which was measured by 50 mts dash. The test was taken before and after the training period. The collected data were statistically analysed by Analysis Covariance (ANCOVA). All the data were analyzed using SPSS statistical package. The level of confidence was fixed at 0.05 level of significance. From the results of the study it can be concluded that there is no significant difference between CG and PEG on speed. Thus, the above result clearly indicates that the speed in the children belonging to the MGG has considerably improved in comparison to the PEG and CG.

Keywords: Physical exercise, minor games, speed, mentally challenged

Introduction
Concept of Mental Retardation/Mentally Challenged
The AAMD defines “Mental retardation refers to a significantly sub-average general intellectual functioning resulting in or associated with concurrent impairments in adaptive behaviour and manifested during the developmental period” (Grossman, 1983) [1]. This is a useful meaning which was focuses on the connection among the individual's capacities, the earth in which the personal capacities, and the requirement for emotionally supportive networks. The AAMR meaning of mental impediment, showing before age eighteen, alludes to a generous confinements in present working, described by altogether sub-normal scholarly working which exists simultaneously with related constraints in two or a greater amount of the accompanying versatile aptitude territories i.e., home living, self-care, group use, correspondence, self-heading, social abilities, utilitarian scholastics, wellbeing and security, relaxation and work.

In most of the cases the persons with Mental Retardation, the intellectual functioning level is very below average and marks in considerable constraints in the individual's everyday living abilities and it proceeds for the duration of grown-up life. The analysis of mental hindrance is made if a man has a scholarly working level well beneath normal and in addition noteworthy limits in two or more versatile ability zones. State administered tests are utilized for measuring the scholarly working level regarding mental age (IQ). Generally, the persons with IQ score below 70-75 come under mental retardation. Useful abilities are the word that alludes to execution required for everyday life. A percentage of the abilities are capacity to yield and acknowledge dialect, wellbeing, recreation, home living aptitudes, social abilities, utilization of group assets, and self-care utilitarian scholarly aptitudes (perusing, composing, and number juggling); self-heading security, and occupation related abilities.

Typically, there can be dynamic turning points as talking and strolling rationally for the impeded kids than the youngsters in the widespread populace. Indications of mental impediment are perceivable either during childbirth or later adolescent.
The tyke's age toward the starting relies on upon the questioned reason for the inability. In few cases mellow mental hindrance is not distinguished before the tyke goes to kindergarten or preschool. Offspring of this kind normally experience issues with correspondence, useful scholarly abilities and social. Kids who have a neurological issue for instance encephalitis might rapidly hint at psychological insufficiency and versatile troubles (Luckasson, et al. 2002). Kale, B (2011) observed that mentally challenged is a summed up confusion and portrayed by essentially disabled intellectual working and shortages in two or more versatile practices with starting before the age of eighteen. It has been characterized verifiably as an IQ score beneath seventy. Once secured totally on cognizance, the definition now stretches out to both segments identified with mental working and one identified with persons' useful aptitudes in their environment.

**Classification of Mental Retardation**

Mental hindrance can be ordered taking into account in its seriousness. As indicated by the Diagnostic and Statistical Manual of Mental Disorders, fourth release, content correction (DSM-IV-TR) (2013), the investigative standard for psychological wellness care experts in the US, ordered into four unique sorts of mental hindrance to be specific mellow, direct, extreme and significant. These classes depend on the individual's level of working.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Classification</th>
<th>I.Q. Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Borderline Intellectual Functioning</td>
<td>70 to 84</td>
</tr>
<tr>
<td>2.</td>
<td>Profound Mental Retardation</td>
<td>20 to 34</td>
</tr>
<tr>
<td>3.</td>
<td>Severe Mental Retardation</td>
<td>35 to 49</td>
</tr>
<tr>
<td>4.</td>
<td>Moderate Mental Retardation</td>
<td>50 to 69</td>
</tr>
<tr>
<td>5.</td>
<td>Mild Mental Retardation</td>
<td>50 to 70</td>
</tr>
</tbody>
</table>

**Review of Related literature**

**Physical Exercises (Aerobic & Free Hand Exercises) and Mentally Challenged Children**

Exercise and exercise training regularly are utilized conversely and for the most part allude to physical exercise performed amid recreation time with the basic role of enhancing or keeping up physical health, physical execution, or wellbeing (Physical Exercise Guidelines Advisory Committee, 2008). Persons with intellectual disability (ID) and related numerous inabilities have been observed by numerous analysts to be a populace with insufficient physical fitness measures, which can be clarified by a latent way of life, a consequence of adjustments and learning (natural, scholarly, social, passionate, neuromuscular, and tasteful) results from a genuinely fiery action. Physical training is a formal territory of instructive action in which the primary concern is with substantial developments that occur in an instructive foundation (Williams J. F. 1964).

**Methodology**

The intention of the study was to analysis the effects of physical exercises and minor games on Speed in mentally challenged Children. To achieve this purpose of the study 45 mild category mentally challenged Children were selected from SATYA Special School Puducherry. Children chronological age from 15 to 20 and their IQ ranged from 60% to 70%. They were divided into three groups physical exercise group (PEG) was considered as Group I, minor games group (MGG) considered as group II and control group (CG) considered as Group III. Group I and II underwent training for 18 weeks. The training was scheduled for three days in a week for an hour (4pm to 5 pm) and CG was not undergone the training. Random group design was used for this study. Speed is the criterion variable which was measured by 50 mts dash. The test was taken before and after the training period. The collected data were statistically analysed by Analysis Covariance (ANCOVA). All the data were analyzed using SPSS statistical package. The level of confidence was fixed at 0.05 level of significance.
Analysis of Speed

Table VI: Analysis of Covariance Table for Pre, Post and Adjusted Post Tests on Speed of Cg, Peg and Mgg
(Units of Measurements in Seconds)

<table>
<thead>
<tr>
<th></th>
<th>CG</th>
<th>PEG</th>
<th>MGG</th>
<th>SOV</th>
<th>SOS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test Mean</td>
<td>8.037</td>
<td>8.035</td>
<td>8.272</td>
<td>B:</td>
<td>0.559</td>
<td>2</td>
<td>0.279</td>
<td>0.084</td>
</tr>
<tr>
<td>Post-test Mean</td>
<td>8.103</td>
<td>7.937</td>
<td>7.86</td>
<td>B:</td>
<td>0.479</td>
<td>2</td>
<td>0.239</td>
<td>0.070</td>
</tr>
<tr>
<td>S.D</td>
<td>1.379</td>
<td>2.385</td>
<td>1.62</td>
<td>W:</td>
<td>143.292</td>
<td>42</td>
<td>3.412</td>
<td></td>
</tr>
<tr>
<td>Adj. Post-test Mean</td>
<td>8.182</td>
<td>8.018</td>
<td>7.696</td>
<td>B:</td>
<td>1.823</td>
<td>2</td>
<td>0.911</td>
<td>18.651*</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.

The table values required for significance at 0.05 level of confidence for 2 & 41 is 3.22 & 3.23.

The above table indicates the mean values and ‘F’ values of the pretest, posttest and adjusted posttest of CG, PEG and MGG on speed. It can be observed from the table that the pre and posttest’s ‘F’ value is lesser than the table value 3.22, the degrees of freedom 2 & 42 significant at 0.05 level. Hence, it can be inferred from the result that there is no significant difference between CG and EGs on speed before and after the training. But in the case of adjusted post-tests’ ‘F’ value is higher than the table value 3.23 the degrees of freedom 2 & 41 significant at 0.05 level between CG and EGs on speed owing to the impact of training provided to them. Hence, the results of the study reveal that there is a significant change in EGs in comparison to CG. The Scheffe’s Post Hoc test was used to compare the paired mean difference between the groups and the following table explains it.

Table VII: Scheffe’s Post Hoc Test on Speed

<table>
<thead>
<tr>
<th></th>
<th>CG</th>
<th>PEG</th>
<th>MGG</th>
<th>MD</th>
<th>CD</th>
<th>CD</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8.182</td>
<td>8.018</td>
<td>-</td>
<td>0.164</td>
<td>0.164</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.182</td>
<td>7.696</td>
<td>0.116</td>
<td>0.116</td>
<td>0.322</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at 0.05 level. The Scheffe’s critical difference is 0.21.

The above table explains the adjusted posttest mean differences between CG and EGs on speed. It can be noted from the table that CG and PEG mean difference is 0.164, CG and MGG mean difference is 1.116 and PEG and MGG mean difference is 0.322. Therefore, the mean differences of CG & PEG and CG & MGG values are lesser than the critical difference value of 0.21 at significant level of 0.05. Hence, there is a significant difference between CG & PEG and PEG & MGG. But when compare to CG and PEG, their mean value is lesser than the critical difference value. Hence, it can be concluded that there is no significant difference between CG and PEG on speed. Thus, the above result clearly indicates that the speed in the children belonging to the MGG has considerably improved in comparison to the PEG and CG. The mean difference of CG, PEG and MGG on speed is showed in figure 2.

Fig 2: Linear Graphical Representation on Speed

Discussion on findings
The outcome of the study is observed that there is no significant change on speed in the means value of the pre-test and post-test between the CG and EGs. But the result of Adjusted Post Hoc test point out that speed has significant changes between CG and EGs after the eighteen weeks training of physical exercise (combination of free hand and aerobic exercise) and minor games. The result of the study
concludes that the speed improved for the impact of the eighteen weeks training of physical exercise and minor games. It is evident from the study that the minor game training group is significantly better than the other two groups.

Inchulkar Shilpa and Venugopal Reeta, (2013) determined the effect of ten weeks of physical education program on speed for mentally retarded (MR) children and he concluded that participation in physical education program improved speed in mentally challenged children.

Ahmadi Rahmat, (2013) [2] resolute that the impact of core stability exercises program on physical fitness of children with mental retardation. Results showed that training group to be a possible and effective way to develop in significantly speed.

**Conclusion**

Based on the limitation and delimitation of the present study, the following conclusions are drawn,

The result of the study reveals that there is a significant change between control group (CG) and experimental groups (EGs) on all the physical fitness variables such as speed, shoulder strength, explosive power, coordination and balance after eighteen weeks of physical exercises (freehand and aerobic exercise) and minor games training on mentally challenged children.

**References**