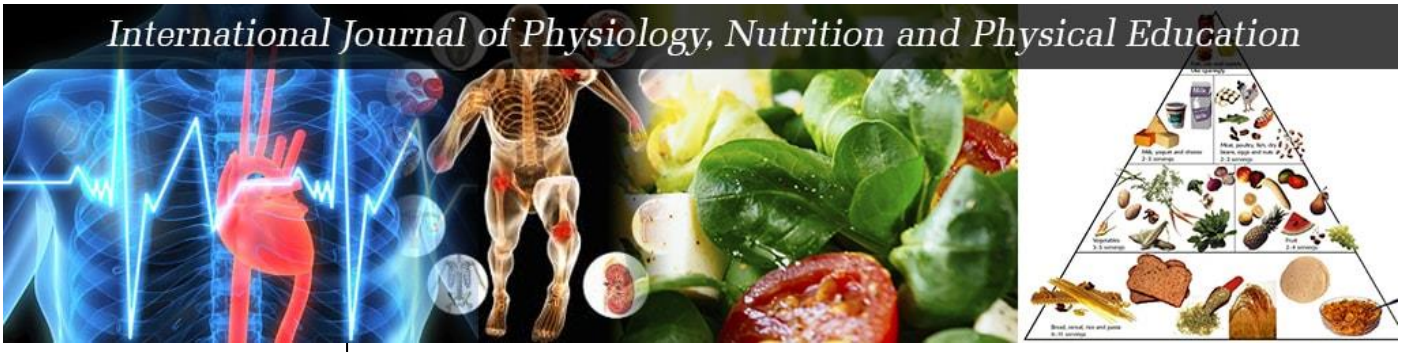

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Analysis of specific functional motor fitness qualities among children with special needs

Dr. NS Gnanavel

Abstract
In order to evaluate the real facts the detective made a challenge to examine the analysis of specific functional motor fitness qualities among children with special needs. The aged of the subject ranged from 10 to 15 years. Selected subjects were purposively assigned to two equal groups, as hearing impaired group (N=15) and the intellectual disabilities group (N=15). The following qualities were measured with standard test items, functional motor fitness qualities namely, balance and coordination, Test was conducted on separate days with a warm-up. Balance measured by the stork stand test in seconds Coordination measured by wall toss test in seconds, To find out the group difference independent 't' test was applied at 0.05level of significance. Further, the findings confirmed that there was a significant difference in specific functional motor fitness qualities among children with special needs. It was also concluded that there was a significant difference in specific functional motor fitness qualities among the children with hearing impairment and intellectual disability.

Keywords: Coordination, balance, hearing impaired and intellectual disability

Introduction
The neuromuscular components of fitness, which enable a person to perform successfully at a particular motor skill, game or activity. Even though a huge amount of investigation has been available in the field of exercise science over the past three decades, relatively little attention has been paid to physical activity behaviour among people with a disability (Rimmer *et al.*, 1996) [21]. The health benefits and the impact on well-being (Heath & Fentem, 1997) [12] are well documented and it has even been claimed that for the health and well-being of people with a disability, a physically active lifestyle is more important than for the general population (Ploeg *et al.*, 2004) [27].

In the past thirty years, we have seen developments in research on physical activity and disability. During the eighties, researchers were concerned about the health benefits of physical activity in persons with a disability and there was a call for training guidelines for this population Compton *et al*, 1989 [4]. The public health perspective was still strong during the nineties (Heath and Fentem, 1997) [12], but developing interest in correlates, factors and relations between physical activity and disability could be discerned (Kinne *et al.*, 1999) [14]. In 1995, a study on physical activity and public health (Pate *et al.*, 1995) [19] sponsored by the Centers for disease control and Prevention and the American College of sports medicine barely mentioned persons with physical disabilities. They were grouped along with older adults, the socioeconomically disadvantaged and the less educated. The part of the report which cited data about the proportion of adults who did not engage in leisure time physical saebu disability and physical activity, categorized by gender, race, annual income and education, did not include persons with disabilities (Rimmer *et al.*, 1996) [21].

Hearing impairment
Hearing and consequently the acquisition of speech and linguistic abilities are an essential precondition for the further development of individuality. The lack of hearing and ability of speech from a very young age plays a determinative role in the school, social and psychological development (Kourbetis, 1998) [15] and it is assumed to be influencing the development of motor abilities.

Physical education and sports activities play an important role in acquiring and maintaining the pupils' corporal and mental health and also in gaining positive attitudes toward nutritional and health matters (Guedes, 2007) [10].

Intellectual disability

Physical exercise and various sports-related activities are necessary to promote health, fitness and psychological development among children of school age. In general, the ability to play sports and exercise is lower for children with intellectual disabilities than for children without such disabilities (Kihara and Hashimoto, 2000) [13]. Children with intellectual disabilities often have psychological problems associated with carrying out exercise. Moreover, their experience of exercise is limited. Health problems accompanying obesity are also more frequent in children with intellectual disabilities (Balakrishnan and Wolf, 1976) [2]. Although the curriculum in schools for intellectually disabled children includes walking, running, ball games, swimming, and skiing (Ministry of Education, 1999) [29], it is often difficult to motivate children with more profound intellectual disabilities to exercise.

Methodology

In order to address the hypothesis presented herein, total N= 30 differently-abled students were selected from Mother Terasa matriculation Higher Secondary school, Mettusalai, Illuppur, pudukkottai, Tamil Nadu. The subject's ages ranged from 10 to 15 years. The subjects were purposively assigned into two equal groups namely, the hearing-impaired group (n=15) and the intellectual disability group (n=15). All participants were eligible for inclusion in this study on the basis of their medical records and determined that they could cooperate with the assessment and exercise procedures and that they could undertake exercise safely. Additionally, informed consent was obtained from their parents.

Research design

The evaluated performance Coordination was assessed by wall toss test hand-eye coordination (wall toss test). A mark will be placed 2-m distances from the wall. The subject will be asked to stand behind the line and facing the wall. The ball is thrown from one hand in an underarm action against the wall and attempted to be caught with the opposite hand. The ball is then thrown back against the wall and caught with the initial hand. The test will be continued for 30 sec. The successful catches in a 30-sec period will be considered as a score. Balance was assessed by stork stand test, subjects will be instructed to raise the heel of the left foot to stand on the toes. When the subject touches left heel to the ground or the right foot moves away from the left knee the time was recorded in seconds.

Table 1: Computation of 't' ratio between the test scores of hearing impairment group and intellectual disability group on balance

Groups	Mean	SD	Mean difference	't'
Hearing Impairment Group	3.19	0.63	0.85	3.92*
Intellectual Disability Group	2.34	0.55		

*Level of significance was fixed at 0.05 with DF 28 table value is 2.05.

Table-I shows that the mean value of balance between the hearing impairment group and the intellectual disability group were 3.19 and 2.34 respectively.

The obtained "t" ratio value of 3.92 was higher than the required table value of 2.05 for significance at a 0.05 level of confidence. The result of these study showed that there was a significant difference between the hearing impairment group and intellectual disability group on balance.

The mean value of hearing impairment group and intellectual disability group on balance were graphically represented in Figure I.

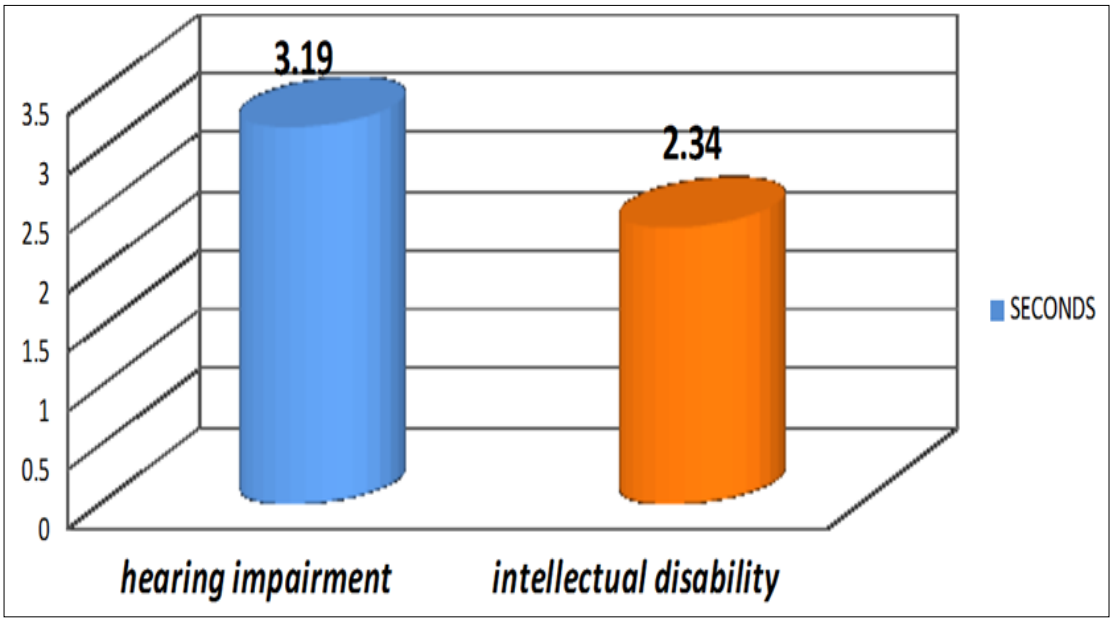

Fig 1: Bar diagram showing the mean values of the test scores of hearing impairment group and intellectual disability group on balance

Table 2: Computation of the 't' ratio between the test scores of hearing impairment group and intellectual disability group on coordination

Groups	Mean	SD	Mean difference	'T'
Hearing Impairment Group	12.33	2.16	2.53	3.57*
Intellectual Disability Group	9.80	1.70		

*Level of significance was fixed at 0.05 with DF 28 table value is 2.05.

Table II shows that the mean value of coordination between hearing impairment group and the intellectual disability group were 12.33 and 9.80 respectively.

The obtained "t" ratio value of 3.57 was higher than the required table value of 2.05 for significance at the level of confidence. The result of these studies showed that there was a significant difference between the hearing impairment group and the intellectual disability group on coordination.

The mean value of the hearing impairment group and intellectual disability group on coordination were graphically represented in Figure 3.

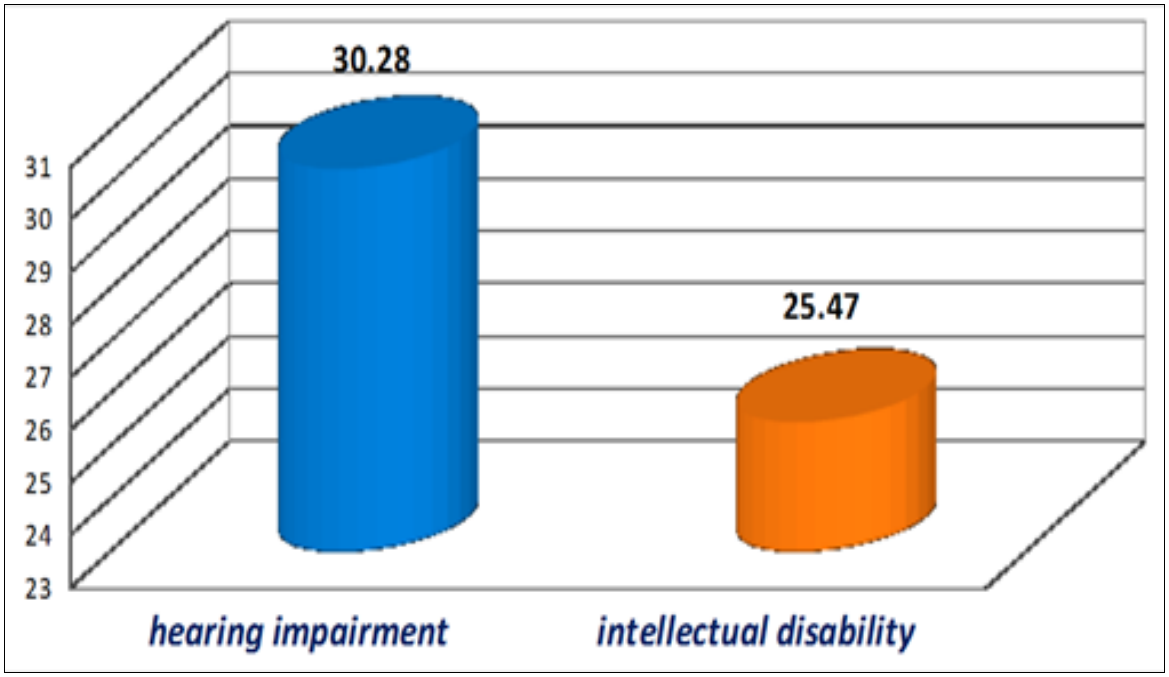

Fig 2: Bar diagram showing the mean values of the test scores of hearing impairment group and intellectual disability group on coordination

Discussion and Findings

Physical fitness and a healthy lifestyle are desirable, many people also participate in a variety of competitive sports or mission-related competitions. Success in games and contests requires more than just being fit. It demands motor skill-related physical fitness components to enable one to move and perform more efficiently, whether it is in work-related activities, daily movement functions or in sports performance. Further, health-related physical fitness may also benefit from skill-related physical fitness, since persons who possess skill-related fitness are more likely to be active throughout life Colfer (2005) [3].

The result of the study indicated that there was a significant difference in Functional motor fitness qualities among hearing impairment group and intellectual disability group. The similar study also conducted by Fisher *et al.,* (2005) [7]. Functional motor skill development plays an important aspect in a child's overall level of participation in physical activities. Deaf children have been found to lag in motor skill development when compared to their hearing counterparts. However, such deficiencies in motor skill development have been found to be reduced with increased involvement in sports and physical activity Ellis *et al.,* (2014) [6].

Conclusions

From the results of the study and discussion, the following conclusions were drawn.

It was concluded that there was a significant difference in specific functional motor fitness qualities among the children with special needs. Further, it was also concluded that children with hearing impairment group were better than the intellectual disability group in functional motor fitness qualities.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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