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Every child in the society has a right to participate in wholesome physical education, health education and recreation activities, as such it is responsibility of the society, institution and government to construct adequate facilities and scientifically planned programme even for disabled children.

The national policy on education and disability act 1995, strongly recommended providing equal educational opportunities to children with a special need. Education also means that they should have equal access to physical education, sports, games and recreational activities. There is general feeling that these children may not participate in all these activities as much as general norms demand. Therefore they are mostly deprived from these activities. These children are also first child and then disabled. They have all sorts of enthusiasm to participate in all educational activities both inside and outside the classroom. They also need access to academic and non-academic activities, which are of to the normal counterparts. Healthy body has healthy mind and therefore they need to be provided physical education and health education and
recreational facilities and programmes in sports games and recreation to ensure smooth functioning of the institution.

Adapted physical education is an area, which is gaining significant importance in the last two decades. This area is focusing on the physical education programmes for the disables and how the programmes can be modified according to their needs. Unfortunately in our country no such efforts were made to involve the disables in the co curricular activities in the educational settings. These co curricular activities such as sports and games and other recreational activities, which are very essential for the all round development of school children. Due to this, the disabled children are deprived of participating in such activities and their physical and mental developments are restricted to a great extent during their schooling.

There are institutions for the disables and in those institutions the co curricular activities including physical and sports were not given adequate importance. School going age is the most sensitive phase for their physical growth and development of motor and coordinative abilities. Healthy children are the assets of our nation and it is very important to see that children are growing healthy with all positive attitude and habits in their school age.
One of the periods in which rapid physical growth is observed is during the puberty. In this age, children gain significant improvement in their height and weight and also in motor performance. In order to have the optimum physical growth and health, they have to be provided with adequate amount of physical exercises. One of the major problems our schoolchildren facing are over weight and it's associated ailments. Parents and physical education teachers should understand the far reaching problems of over weight, under weight and other associated health problems. Hence it is very important to ensure that the child grow healthy at their school age.

The assessment of growth in children and comparing the results with average values can help to dictate abnormal growth. Besides that, these data can be used to teach the children about the basic concepts of heredity and environment influences. Knowledge of the growth process can alleviate children's anxieties. These anxieties often come about because of the timing differences in maturation rate. These differences often leave the late matured feeling of inadequate or inferior. The teacher can make children aware of the changes likely to take place in their bodies and help them to set responsible goals for their physical endeavors in the interim before they reach adult stage.
The motor development like other aspects of growth and development is not uniform throughout the period from childhood to the completion of the maturity. Various factors develop at different speeds in different age periods.

Assessment of various components of motor development provides important information about the quality of sports potentialities, which in turn serve as a guideline to identify the most gifted and talented children. Through understanding of the quality of motor development offers the basic information for formulations and implementations of physical education and sports training programmes, thus optimize the performance ability at a given age and prevents the possible harmful effect of training.

Health related physical fitness is vital information to be cared for the creation of healthy society. The body composition, musculo-skeletal movement ability, the cardio-respiratory and vascular abilities are the very popular and important variables to be monitored. Understanding of health related fitness facilitates a scientific base for the formulation and implementation of meaningful physical education and health education activities.
The population of school children consists of normal, physically challenged, mentally retarded and also deaf and dumb. There is ample number of research work carried out on the normal school children in their physical growth and various aspects of motor development and health related fitness of all the ages. But on special population, the research studies are very scanty in these areas.

Hence, it is the need of the present hour to conduct research studies to understand various aspects of growth and development, motor performance and also the health related physical fitness of the disabled school children. This was the basic motivational factor for the research scholar to take up a research topic on special population especially the deaf and dumb population to understand the physical growth, motor development and also the health related physical fitness of these children compared to their normal counterparts.

Statement of the problem

The purpose of the study was to compare and analyze the variations in physical development, health related physical fitness and motor performance between deaf and dumb and normal boys of 12 to 15 years.
Delimitations

1. The study was delimited to 600 male school children of 12 to 15 years.
2. The study was delimited to 300 normal and 300 deaf and dumb school children of 12 to 15 years.
3. The study was further delimited to a sample of 75 boys from each age group from normal and deaf and dumb population.
4. The study was delimited to the following variables;
   a). Physical development:
      • Height
      • Weight
   b). Health related physical fitness:
      • Body Composition
      • Aerobic Fitness
      • Flexibility
   c). Motor performance:
      • Speed
      • Explosive Strength
      • Muscular Endurance
      • Agility

Limitations

1. All the tests, which were used for the collection of data except body composition, were field tests.
2. Body composition was assessed through indirect method that is, the skin fold measurement method.

3. The age of the subjects was obtained from school records, which was considered as their chronological age.

**Hypotheses**

For the purpose of the study the following hypotheses were formulated:

1. There would not be any significant difference in the physical development between the normal and the deaf and dumb boys of 12 to 15 years.

2. There would not be any significant difference in the physical development among the normal boys of 12 to 15 years.

3. There would not be any significant difference in the physical development among the deaf and dumb boys of 12 to 15 years.

4. There would not be any significant difference in the selected health related physical fitness variables between the normal and the deaf and dumb boys of 12 to 15 years.

5. There would not be any significant difference in the selected health related physical fitness variables among the normal boys of 12 to 15 years.
6. There would not be any significant difference in the selected health related physical fitness variables among the deaf and dumb boys of 12 to 15 years.

7. There would not be any significant difference in the selected motor performance variables between the normal and the deaf and dumb boys of 12 to 15 years.

8. There would not be any significant difference in the selected motor performance variables among the normal boys of 12 to 15 years.

9. There would not be any significant difference in the selected motor performance variables among the deaf and dumb boys of 12 to 15 years.

Definition and Explanation of terms

Physical development

The term physical development refers to the increase caused by the biological processors in which the child becomes bigger in size, in volume and heavier in weight.

Motor performance

The term motor performance refers to the ability of a person to perform motor skills such as speed, explosive strength, agility, endurance,
and balance and neuro-muscular coordination in an efficient manner.¹

**Motor Performance Variables**

**Speed:** Speed is the ability to execute motor action, under given condition in minimum possible time. Speed ability is highly movement specific.²

**Explosive strength:** Expending a maximum amount of energy in one or a series of strong sudden movement.³

**Agility:** Agility is the ability to change the direction of the body or body parts rapidly. It is a performance factor representing the coordinative ability.⁴

**Flexibility:** Flexibility is the range of movement about a joint. Individual differences in flexibility depend upon physiological characteristics that influence the extensibility of the muscle and ligaments surrounding a joint.⁵

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⁵ Ibid. p. 248.
Health related physical fitness

The components of health fitness are general in the sense that they apply to everybody and that each person should achieve and maintain certain levels of health fitness in order to stay as healthy as possible throughout a lifetime and to improve the quality of life.

Body Composition

Most important aspects of body composition are body fatness and fat distribution. Body fatness will be expressed by the relative proportion of fat weight within the total body weight. It can be estimated with reasonable accuracy by simple measures such as the thickness of subcutaneous fat.  

Maximum Oxygen Uptake

The maximal oxygen uptake can be defined as the maximal amount of oxygen that can be consumed per minute during the maximal exercise and it is abbreviated as VO$_2$ max.  

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Relative Maximal Oxygen Uptake (Relative VO₂ Max)

The relative maximal oxygen uptake (relative VO₂ max) refers to the maximal oxygen uptake when expressed relatively to the body mass (the amount of tissue that must be supplied). In this case, the most common unit is milliliter per Kilogram of body weight per minute.  

Absolute Maximal Oxygen Uptake (Absolute VO₂ Max)

Maximal oxygen uptake expressed in volume (liters) per unit of time (minute), which describes the absolute power of the cardio­respiratory system.

Deaf and dumb

The term ‘deaf and dumb’ indicates if a person could not use his / her voice in the same way as hearing people, then there was no way that this person could develop cognitive abilities.

The term ‘deaf and dumb’ is to describe a person who is unable to hear and speak. Or in other words is hearing loss is partial, hard of hearing” and speech disabled

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8 Noble, *Physiology of Exercise and Sports*, pp.96-97.
Significance of the study

This study may contribute to the field of knowledge in the following ways:

1. This study may be helpful in understanding the pattern of physical growth among normal and the deaf and dumb children of 12 to 15 years and also the difference in physical growth between them.

2. This study may be helpful in understanding the development of motor performance through the ages and difference in such variables between normal and the deaf and dumb population. This knowledge in turn help the physical education teachers and coaches to chalk out appropriate programmes for their needs.

3. This study may be useful to the physical education teachers and coaches in making appropriate programmes for the deaf and dumb population considering the differences in physical development, health related fitness and motor performances. Modification of programmes if necessary can also be done for this population.

4. This study may be useful in formulating syllabus for physical education, which in turn provide a strong base for the construction of formidable policies for the deaf and dumb children in particular.
5. This study may bring out information about the health related physical fitness status among 12 to 15 years aged boys of normal and deaf and dumb; also the difference in health related fitness status. This could be a valuable insight for making programmes and policies for such age groups in their physical education and co curricular activities.

6. This study may reveal the necessity of physical education teachers specialized in adapted physical education to handle deaf and dumb children and also the necessity of including adapted physical education in the curriculum for the professional preparation of physical education teachers.