

## **A COMPARATIVE STUDY OF DEVELOPMENT OF AGILITY IN NORMAL AND DEAF AND DUMB BOYS BETWEEN 8 TO 14 YEARS**

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### **ABSTRACT**

A comparative study of development of Agility in normal and deaf and dumb boys between 8 to 14 years is administered on around 350 students of different schools who were taking formal education. Out of 350 students 175 were selected from normal category and 175 from physically challenged i.e., deaf and dumb category. In each age group 25 boys were selected (25 subjects in normal boys and in each age group i.e., 8, 9, 10, 11, 12, 13 & 14 years totaling to 175; 25 subjects in deaf and dumb in each age group i.e., 8, 9, 10, 11, 12, 13 & 14 years totaling to 175). These subjects were tested initially in Agility and the same subjects were exposed to the same tests after exactly one year without any formal sports training and the development in their Agility was noted. After the statistical treatment of data by utilizing t-test and f-test the following findings were noted: The development in agility is found developing in all the age groups and in all the variables, but it is observed maximum at different ages in different variables.

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### **INTRODUCTION:**

Motor development objectives are concerned with making physical movements, useful with as little expenditure of energy as possible. The term motor is derived from the relationship of a nerve or nerve fiber to the one that connects the Central Nervous System with muscles through their convections the movements' results. Effective motor movement can only results if there is harmonious working of the muscular and the nervous system. It helps in keeping a greater distance between fatigue and peak performance. The activities that involve hanging, jumping, dodging, leaping, kicking, bending, throwing will enable a person to perform his daily work much effectively without reaching a point of wearing out, so quickly.

A comprehensive list of components of motor ability for performance of various physical activities (including sports) include muscular strength, muscular endurance, muscular power, cardiovascular endurance (alternatively also known as cardiopulmonary endurance), **agility**, speed, balance, flexibility, reaction time, coordination (eye-foot coordination, eye-hand coordination, whole-body coordination). In addition, traits like simple motor response, reflexes, sensory input and awareness of space and tempo (characteristic speed and rhythm of movement) are also considered important in motor performance- ability especially during the early years of body development.

The need today is to search some extraordinary talent in an individual for the laurels in international sports arena. In this case it becomes obvious that the search should not limit only with the normal. The qualities that an individual possess should be innate and may be nurtured with good scientific platform, deaf dumb being no exception to it. Hence the search to prove the innate qualities of the deaf and dumb and bring them to equal stature with normal is the basic aim of the researcher.

### **NEED OF THE STUDY:**

The population of the normal mass is comparatively more to the deaf dumb resulting the opportunities designed are more for normal mass. But at the same time there is a society always struggling to uplift the physically challenged and trying to give them the best and equal opportunities so that the handicapped ability should not be the hurdle in normal and natural unfolding of an individual.

Considering the inability, which has the opportunity to be converted into compensatory ability for excelling in the sports arena the researcher, felt high need to evaluate the development of Agility among the deaf dumb and compare with the normal, which is a performance prerequisite.

### **OBJECTIVES OF THE STUDY:**

1. To find out, access and analyze the developments taking in Agility among normal boys and that of deaf dumb at particular age group.
2. To understand if any higher or compensatory ability among deaf dumb children is noticed when compared to the normal children.
3. To understand various parameters of coordinative ability in certain age group of certain physical abnormality.
4. To understand scientific base for methods of training physically challenged children.
5. To understand how the society would help its weak counterpart.

### **SIGNIFICANCE OF THE STUDY:**

1. The study may reveal the physical and mental problems of deaf dumb children.
2. The study may also profound a training methodology and loading procedure in Agility training for physically challenged children in specific age group.
3. Results may also be helped to enhance sports terminology communication skills with physically challenged children.
4. Evaluation of development of Agility may fetch platform for establishing training methodology for enhancing performance in specific sports.
5. The comparison of development of Agility will give clear picture of the positive and negative aspects of Agility, which in turn ensure the proper training.

### **DEFINITION OF THE TERMS:**

#### **DEVELOPMENT:**

Development is a process of qualitative transformation, which brings about progressive changes towards maturity and functional improvement in the organism of human being.

### **GROWTH:**

Growth is a process anatomical in nature involves structural changes and quantitative to measure.

### **AGILITY:**

Agility is the ability of an individual to change the direction with speed (Seconds), it depends on the whole body coordination.

### **NORMAL CHILD:**

Normal: typical; usual; healthy; according to the rule or standard. If a child is found to be disease free, exhibits proper growth and development according to the age in its physical, mental and social health and status, then he/she may be defined as a normal child.

### **DEAF AND DUMB:**

Deaf: is unable to hear; hearing indistinctly; hard of hearing.

Dumb: is mute; speechless; unable to speak.

### **8 TO 14 YEARS (CHRONOLOGICAL AGE):**

Chronological age is the number of years and days elapsed since birth.

### **METHODOLOGY:**

#### **SAMPLE:**

The samples of this study is randomly selected from different schools with their date of birth lying between 1999 to 1993 in normal subjects (boys) and deaf dumb subjects (boys). The selected age groups of the subjects were from 8 to 14 years. In each group 30 subjects were selected initially with a margin of  $\pm 5$ . All the selected subjects were non-sportsman staying either in school hostels or at their residence to ensure the untrained development in motor abilities. In all 350 subjects were tested initially and the same 350 subjects were tested finally after one academic year (12 months). The tests were conducted for two days for four hours on each group of 25 subjects approximately. In all 350 subjects were considered for obtaining the difference between development is evaluated by subtracting the initial test from the final test score. Every subject was allotted with a code and a separate self contained form for test results. The tests were

selected in the aspects of development of Agility. The tests are administered individually under standard conditions applicable for specific tests and the time period required between two tests is amply considered.

### **VARIABLES:**

**Dependent Variables:** (1) Normal boys. (2) Deaf Dumb boys.

**Independent Variables:** Development of Agility (6 X 10 Mts. Shuttle Run)

**Inter-weaning Variable:** Age groups (8, 9, 10, 11, 12, 13 & 14)

### **TOOLS AND MEANS:**

The research scholar has used some of the selected Agility tests which are applicable to the selected age group and samples and are universally accepted and established standard tests for assessing development of motor abilities.

**Agility test:** (1) 6 X 10 Mts. Shuttle Run

### **PROCEDURE:**

The subjects were selected from different schools in normal category (boys) and deaf dumb schools (boys). In all 01 test was selected for evaluating the development of Agility of the subjects between 8 to 14 years. The test was administered with all specified and standard conditions. The conditions of the subjects were observed normal and motivated to take part in the tests. An introductory talk regarding the initial day's workout is assessed for confirmation of tirelessness and recovered state.

### **STATISTICAL METHODS:**

To analyze the collected data the scores are arranged according to the comparison and in sequential order so as to find out the statistical values. The following statistical variables are selected for comparing, analyzing and interpretation of numerical values and basing on which the findings are discussed.

(1) Mean is computed by adding all the scores and then dividing by the number of scores involved. The mean is used in the study to measure the average development.

(2) For testing the hypothesis for the difference between various sample means the t test is used at significance of .05 levels.

(3) For testing the hypothesis for the difference between various sample means the f test is used at significance of .05 levels.

### **RESULTS AND DISCUSSIONS:**

The development in agility is found developing in all the age groups and in all the variables, but it is observed maximum at different ages in different variables.

**RESULTS OF THE COMPARISON OF THE DEVELOPMENT OF AGILITY OF BOYS  
(NORMAL AND DEAF-DUMB) BETWEEN 8 YEARS TO 14 YEARS (6 X 10 MTS. SHUTTLE  
RUN)**

**Normal boys:**

1. The maximum mean of development of agility in normal boys was found at the age of 8th year, which is -0.53 sec and the minimum at 9th year, which is -0.17 sec. The average mean of development of agility normal boys between 8 to 14 years is found to be -0.36 sec.
2. The standard deviation of development of agility in normal boys is found maximum at the age of 14th year, which is 0.26 and minimum at the age of 9th year, which is 0.08. The average standard deviation of development of agility in normal boys between 8 to 14 years is found to be 0.18.
3. The correlation of development of agility in normal boys between 8 years to 14 years of age groups is found as high as 0.96.

**Deaf-dumb boys:**

1. The maximum mean of development of agility in deaf-dumb boys was found at the age of 14th year, which is -0.42 sec and the minimum at 8th year, which is -0.17 sec. The average mean of development of agility in deaf-dumb boys between 8 to 14 years is found to be -0.32 sec.
2. The standard deviation of development of agility in deaf-dumb boys is found maximum at the age of 10th year, which is 0.36 and minimum at the age of 9th year, which is 0.15. The average standard deviation of development of agility in deaf-dumb boys between 8 to 14 years is found to be 0.21.
3. The correlation of development of agility in deaf-dumb boys between 8 to 14 years of age groups is found as high as 0.97.

**COMPARISON OF BOYS (Normal and deaf-dumb):**

The average mean of development of agility of normal boys between 8 to 14 years is -0.36 sec, which is more to -0.32 sec that of the deaf-dumb boys between 8 to 14 years. The difference of mean of development of agility between normal boys and that in the deaf-dumb boys is -0.04 sec, which is insignificant. The maximum mean of development of agility in normal boys is found at the age of 8th year, which is -0.53 sec and that in the deaf-dumb boys it is at the age of 14th year, which is -0.42 sec.

**Table No. IV.2:** evaluation of significance of development of agility in normal and deaf-dumb (boys) by using t-test and F-test.

<b>BOYS (NORMAL &amp; DEAF-DUMB)</b>	<b>t-Test Results</b>	<b>F-Test Results</b>	<b>COMMENTS</b>
<b>08 NB &amp; DDB</b>	0.498	0.674	Insignificant
<b>09 NB &amp; DDB</b>	0.0003	0.006	Insignificant

<b>10 NB &amp; DDB</b>	0.058	0.0001	Insignificant
<b>11 NB &amp; DDB</b>	0.062	0.429	insignificant
<b>12 NB &amp; DDB</b>	0.182	0.526	Insignificant
<b>13 NB &amp; DDB</b>	0.398	0.967	Insignificant
<b>14 NB &amp; DDB</b>	0.420	0.158	insignificant

\* Significant at 0.05 level.

<b>MEAN VALUES AND COMPARISON OF THE CATEGORY OF SUBJECTS: BOYS (N &amp; DD)</b>	<b>6X10 M SHUTTLE INITIAL</b>	<b>6X10 M SHUTTLE FINAL</b>	<b>6X10 SHUTTLE DEVELOPME T</b>
<b>NORMAL BOYS 08 YEARS</b>	19.1724	18.6404	-0.532
<b>DEAF &amp; DUMB BOYS 08 YEARS</b>	20.5116	20.3412	-0.1704
<b>NORMAL BOYS 09 YEARS</b>	20.0616	19.8832	-0.1784
<b>DEAF &amp; DUMB BOYS 09 YEARS</b>	19.9888	19.678	-0.3108
<b>NORMAL BOYS 10 YEARS</b>	18.9152	18.6292	-0.286
<b>DEAF &amp; DUMB BOYS 10 YEARS</b>	19.6792	19.2672	-0.412
<b>NORMAL BOYS 11 YEARS</b>	18.1732	17.7488	-0.4244
<b>DEAF &amp; DUMB BOYS 11 YEARS</b>	18.8832	18.5612	-0.322
<b>NORMAL BOYS 12 YEARS</b>	17.9448	17.5988	-0.346
<b>DEAF &amp; DUMB BOYS 12 YEARS</b>	19.7056	19.4064	-0.2992
<b>NORMAL BOYS 13 YEARS</b>	18.1896	17.8008	-0.3888
<b>DEAF &amp; DUMB BOYS 13 YEARS</b>	18.9948	18.6208	-0.374
<b>NORMAL BOYS 14 YEARS</b>	17.602	17.1888	-0.4132
<b>DEAF &amp; DUMB BOYS 14 YEARS</b>	17.7636	17.3372	-0.4264

## **REFERENCES:**

1. Sue Watson <http://specialed.about.com/od/multipledisabilities/amultiple.html> (2006).
2. LECIA J. BARKER, "Alliance for Technology, Learning, and Society Evaluation and Research Group," University of Colorado, UCB 320, Boulder, CO 80309–

- 0320, e-mail:lecia.barker@colorado.edu. This material is based on work supported by the National Science Foundation, (2003) Oxford University Press.
3. PORTMANN, M., "Athlete Long-Term Development," National Coaching Certification Program- Level 4-5. Ottawa: Coaching Association of Canada (1993).
  4. (a) GALLAHUE, D. A., "Developmental Physical Education for Today's Elementary School Children," New York: Macmillan (1987). (b) TIHANYI, J., "Notes on Child Development," *The Digest*. 1 (1982), pp. 1-4. (c) TIHANYI, J., "Long Term Planning for Young Athletes: An Overview of the influences of Growth, Maturation and Development," Laurentian University, Sudbury, Ontario (1990).
  5. GILBERT, J.A., "Researchers on the Mental and Physical Development of School Children," *Studies from the Yale Psychological Laboratory*, (1984), 40-100.
  6. ELENOR, M. BIRKETT, "A Comparative Study of the Effects of the Makaton Vocabulary and a Language Stimulation Program On the Communication Abilities of Mentally Handicapped Adults," Degree of M.Litt. Department of English Language, University of Glasgow, (1984).
  7. BRYANT J. CRATTY, "Perceptual and Motor Development in Infants and Children," *Analysis of Selected Perceptual- Motor Programs*, 34 (1979).
  8. GROVES, L. "Physical Education for Slow-Learning Girls in North-East Schools with Special Reference to the Effect of Creative Dance on Behavior and Friendship Patterns amongst Adolescent ESN (M) girls," M.Ed. Thesis, Durham University, (1975).
  9. KOOLS, JOSEPH, and D. TWEEDIE, "Development of Praxis in Children," *Percept. Mot. Skills*, 40 (1975), 11-19.
  10. DAVIS, B. and BYRD, R.J., "The effects of judo on EMR boys," *Journal of Sports Medicine and Physical Fitness*, XV, Dec. (1975).
  11. WERNER, PETER, "Education of Selected Movement Patterns of Pre-school Children," *Perceptual Motor Skills*, 39 (1974), 795-98.
  12. DANEIL G. FREEDMAN, "Human Infancy, an Evolutionary Perspective," Hillsdale, N. J.: Lawrence Erlbaum Associates, Distributed via John Wiley and Sons, New York, 1974.
  13. (a) CONSTANTINI A.F., D.A. CORSINI and J.E. DAVID, "Conceptual tempo, Inhibition of Movement and Acceleration of Movement in 4, 7, and 9 year-old children." *Perceptual Motor Skills*, 37 (1973) 779-84. (b) CRATTY B.J., et al., "A Survey of Selected Perceptual- Motor Abilities in Children, Grade K through 4<sup>th</sup>," Unpublished Monograph, Perceptual Motor Learning Laboratory, UCLA, (1973).