

Physical fitness and physiological parameters between deaf/dumb and blind students of Amravati University: A comparative study

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Received: 21 January 2021; Accepted 12 April 2021; Published 04 August 2021

OPEN ACCESS

ABSTRACT

The purpose of the study was to find out the study of physical fitness and physiological parameters between deaf/dumb and blind Students of Amravati University. For the present study the source of subjects were selected from the deaf/dumb and blind Schools of Amravati University. Eighty (80) students were selected as the subjects from deaf/dumb and blind schools of Amravati University. 40 students were selected from deaf/dumb and 40 from blind schools of Amravati University. The subjects were selected by using simple random sampling method. In this study comparison of two physical variables strength and flexibility and two physiological variables fat percentage and Exhale Capacity were taken into consideration from both deaf/dumb and blind students of Amravati University. For the present study data pertaining to various physical and physiological variables were be collected through the administration of various tests. The data for the study is to be collected and statistical analysis and interpretation of data were be done by using statistical technique 't' test because only two groups are considered one group from deaf/dumb population from various deaf/dumb schools of Amravati University and other group from blind section of the various schools of Amravati University.

Keywords: Physical fitness; physiological; deaf/dumb; blind

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[https://doi.org/10.25299/es:ijope.2021.vol2\(2\).6282](https://doi.org/10.25299/es:ijope.2021.vol2(2).6282)

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How to Cite: Khan, M. A., & Jose, T. (2021). Physical fitness and physiological parameters between deaf/dumb and blind students of Amravati University: A comparative study. *Edu Sportivo: Indonesian Journal of Physical Education*, 2(2), 76-84. [https://doi.org/10.25299/es:ijope.2021.vol2\(2\).6282](https://doi.org/10.25299/es:ijope.2021.vol2(2).6282)



INTRODUCTION

Physical education has been considered as an essential part of human life (Sun et al., 2017). Education must be concerned with developing optimal organic health, vitality, emotional stability, social consciousness, and knowledge, and wholesome attitude, spiritual and moral qualities (Sun et al., 2017). The typical undergraduate physical education major, with a teacher preparation emphasis, is no longer a direct path to graduate programs in exercise physiology (Richards et al., 2019). Physical education is not a new word in Indian context, is concerned with improving its fields of education and with increasing the public's knowledge and appreciation of physical education (Mahulkar, 2021). From time immemorial Indians have laid emphasis on 'yoga' and physical exercise not only to keep fit but to prevent and treat the physical ailments (Uppal & Gautam, 2017). For example, any limitations of the oxygen delivery system to the cells will reduce the effectiveness of the delivery; regardless of vital capacity is the ability to take in more air per unit of time with fewer, but deeper inspiration, thus prolonging the onset of fatigue in the respiratory muscle (Mahulkar, 2021). The great ancient Rishis, Vedas and Puranas attached much emphasis on physical fitness, Meditation, dhayana and spiritualism. As

physical education and sports help in the development personality of an individual no one deny its significance in the development of fundamental skill essential for the daily life activities of human beings and social skills, which aid in making him a well adjusted and useful member of society (Anwari, 2017). A highly systematic well developed programme of physical education and sports and games is basically a product of modern historical programme (Marschark et al., 2013).

Physical fitness is the general capacity to adapt favorably to physical effort. Individuals are physically fit when they are able to meet both the usual and unusual demands of daily life, safely and effectively with undue stress or exhaustion. Physical fitness is the capacity to carry out reasonably well various forms of physical activities without being unduly tired and includes qualities important to the individual's health and well-being. If that takes them from one place to another, we call the process locomotion (Cherni et al., 2020). The meaning of human Physiology is the study of body function. In physiology we study how our organs, systems, tissues, cells and molecules within cells work and how their function are put together to maintain our internal environment. Exercise physiology is the biological study of the functions of living organisms and their parts. This component of sport science is essentially concerned with the assessment of how the body responds to single or repeated bouts of exercise. Physical fitness implies a relation between the task and work to be performed and the individual's capacity to perform that work moreover the recovery is faster and quicker (Kanchan & Balwal, 2012).

Physiological assessments can involve heart rate monitoring, expired-air collection, lactate profiling and/or blood biochemistry analysis (Birch et al., 2004). Moreover, a range of sport-specific protocols have been developed allowing exercise physiologists to perform a variety of physiological appraisals in a sport specific context (Ahmed et al., 2010).

Exhale capacity is the total amounts of air that can be forcibly expire after a complete inspiration has been used frequently as a measure of adequacy of the respiratory system. Although it measures the approximately capacity of the lungs, recent information indicates it is of little use in predicting ability to perform tasks of endurance. Attitudes of Children and Adolescents toward Persons Who Are Deaf, Blind, Paralyzed or Intellectually Disabled obviously other factors are more important (de Laat et al., 2013). For example, any limitations of the oxygen delivery system to the cells will reduce the effectiveness of the delivery; regardless of vital capacity is the ability to take in more air per unit of time with fewer, but deeper inspiration, thus prolonging the onset of fatigue in the respiratory muscle of Abilities in Deaf and Blind Adolescents (Gawlik & Zwierzchowska, 2006; Zwierzchowska et al., 2020).

In physical fitness, body composition is used to describe the percentages of fat, bone and muscle in human bodies, However, human efforts for improving physical fitness through physical activities have been quite old (Devinder, 2008). Because muscular tissue takes up less space in our body than fat tissue, our body composition, as well as our weight, determines leanness. Two people of equal height and body weight may look completely different from each other because they have a different body composition (Hopkins et al., 1987). The human body is composed from many major components at the cellular and tissue levels. These include water, minerals, protein and fat. Increases in the levels of fat components are detrimental to health and also sports performance. We need to exercise regularly all our life, and should exercise more, not less, as we get older.

The skin fold estimation methods are based on a skin fold test, also known as a pinch test, whereby a pinch of skin is precisely measured by calipers at several standardized points on the body to determine the subcutaneous fat layer thickness. These

measurements are converted to an estimated body fat percentage by an equation. Some formulas require as few as three measurements, others as many as seven. The accuracy of these estimates is more dependent on a person's unique body fat distribution than on the number of sites measured. As well, it is of utmost importance to test in a precise location with a fixed pressure (Devinder, 2008).

Fat mass include adipose tissue, whereas fat-free mass includes water, protein and minerals. Muscle contraction occurs through the action of chemical messages by nerves that supply the muscles (Singh et al., 2014). Large amount of fat mass are associated with health problems. Being physically active has also been proven to help build healthy bones, joints, and muscles and helps to perform better performance in competitions. In essence a large fat mass results in obesity and the various health problems associated with being obese e.g. (cardio vascular diseases, diabetes, cancers, etc). If that takes them from one place to another, we call the process locomotion. A large fat mass is also inappropriate for a sports performer, where there is requirement for low body fat and increased muscle mass. There is an inverse relationship between fat mass and performance of activities that involve jumping or running, although not for distance swimming (Kossewska, 2008).

Strength is perhaps the most important motor ability in sports because all movements in sports are caused by muscle contraction (Tsimaras et al., 2010). Therefore, strength is a part and parcel of all-motor abilities, technical skills and tactical actions. The development of strength has almost certainly been the greatest factor to enhance performance in sports but it is not a new concern (Sarchet et al., 2014).

The purpose of the study was to find out the Study of Physical Fitness and Physiological Parameters Between Deaf/dumb and blind Students of Amravati City. The importance of this research is carried out so that deaf and blind students can know their level of physical fitness and physiological parameters.

RESEARCH METHODS

The subjects selected in this study were from deaf/mute and blind schools in Amravati City. For the present study total 80 students were selected as the subjects from deaf/dumb and blind schools of Amravati City. 40 students were selected from deaf/dumb and 40 from blind schools of Amravati City. The subjects were selected by using simple random sampling method.

The equipment used for data collection are goniometer, hand grip dynamometer, skinfold clipper and peak flow meter. For the present study data pertaining to various physical and physiological variables were be collected through the administration of various tests. The criterion measures selected to collect the data for testing of hypotheses.

RESEARCH RESULT

The data for the study is to be collected and statistical analysis and interpretation of data were be done by using statistical technique 't' test because only two groups are considered one group from deaf/dumb population from various deaf/dumb schools of Amravati University and other group from blind section of the various schools of Amravati University. In this study two physical variables I.e. strength and flexibility and two physiological variables that is fat percentage and Exhale Capacity were taken into consideration from both deaf/dumb and blind students of Amravati University.

Level of significance:

The level of significance is 0.05 for testing the hypothesis.

Findings of Study:

The data for the present study was collected from 40 deaf/dumb school students and 40 blind school students of Amravati University selected randomly. The statistical analysis of the data gathered for the comparison of fat percentage exhale capacity, grip strength and flexibility of deaf/dumb and blind school students of Amravati University. The findings of the study can be given under the following two headings:

Table 1. Mean Difference of Hand Grip Strength Between Deaf/Dumb School Students and Blind School Students of Amravati University

Group	Mean	S.D.	M.D.	O.T	Tabulated 't'
Deaf/Dumb	39.75	7.37	8	3.50	2.00
Blind	31.75	7.07			

Level of significance =0.05

Table No. 1, reveals that there is difference between means of deaf/dumb group and blind group because mean of Deaf/dumb group is 39.75 which is greater than the mean of Blind group 31.75 so this mean difference is found as 8. To check the significant difference between Deaf/dumb and Blind groups the data was again analyzed by applying 't' test. Before applying 't' test, standard deviation is calculated between Deaf/dumb and Blind group which is 7.37 and 7.07 respectively and the calculated value of 't' is found as 3.50, is greater than tabulated 't' which is 2.00 at 0.05 level of significance. This shows that Deaf/dumb school students are having more grip strength than Blind school students. Hence the hypothesis which was given by the researcher is accepted. This is presented graphically in figure-1.

Graph 1. Graphical Representation of Mean Difference of Hand Grip Strength Between Deaf/Dumb and Blind Students

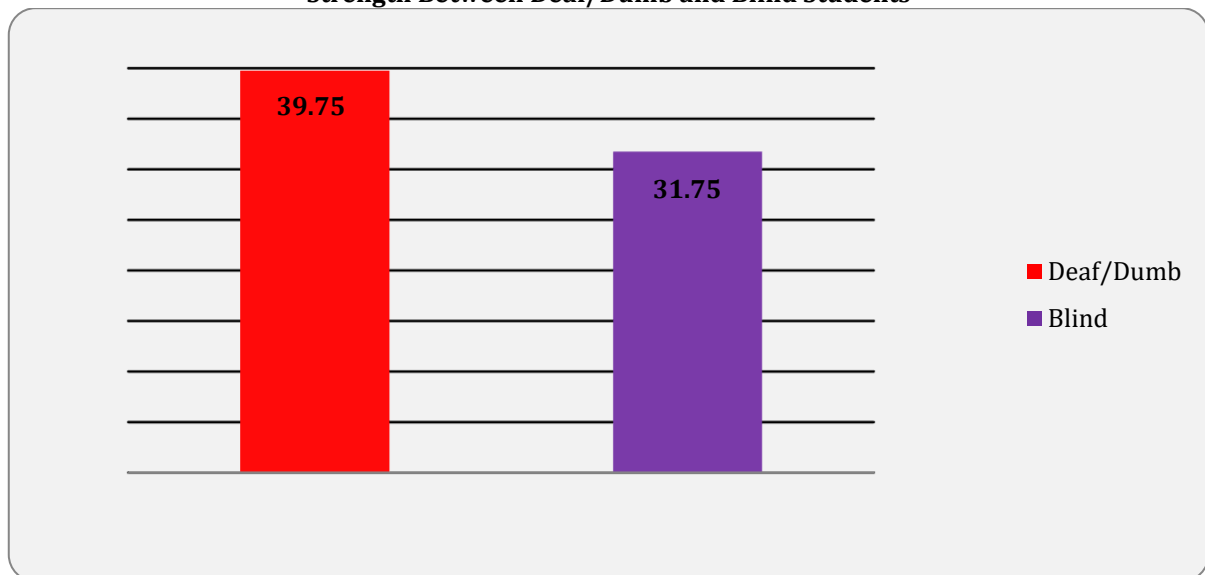


Table 2. Mean Difference of Flexibility Between Deaf/Dumb School Students and Blind School Students of Amravati University

Group	Mean	S.D.	M.D.	O.T	Tabulated 't'
Deaf/Dumb	51.01	7.70	9.74	5.01	2.00
Blind	41.27	4.00			

Level of significance =0.05

Table No.2 reveals that there is difference between means of Deaf/dumb group and Blind group because mean of Deaf/dumb group is 51.01 which is greater than the mean of Blind group which is 41.27 and therefore mean difference is 9.74 to check the significant difference between Deaf/dumb and Blind group data is again analyzed by applying 't' test. Before applying 't' test, standard deviation is calculated between Deaf/dumb and Blind group which is 7.70 and 4.00 respectively and then the calculated value of 't' is found as 5.01, is greater than tabulated 't' which is 2.00 at 0.05 level of significance. This shows that Deaf/dumb school students are having more flexibility than Blind school students. Hence the hypothesis which was giving by the researcher is accepted. This is presented graphically in figure No.2.

Graph 2. Graphical Representation of Mean Difference of Flexibility Between Deaf/Dumb and Blind Students

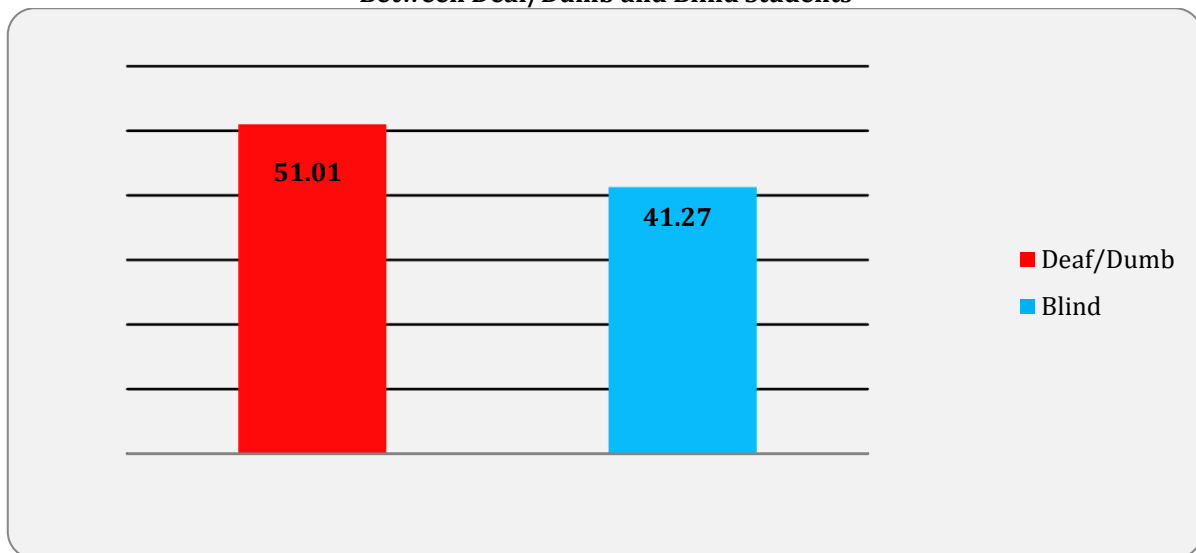


Table 3. Mean Difference of Fat Percentage Between Deaf/Dumb School Students and Blind School Students of Amravati University

Group	Mean	S.D.	M.D.	O.T	Tabulated 't'
Deaf/Dumb	24.42	1.58	0.07	5.04	2.00
Blind	21.96	1.51			

Level of significance =0.05

Table No.3 reveals that there is difference between means of Deaf/dumb group and Blind group because mean of Deaf/dumb group is 24.42 which is greater than the mean of Blind group which is 21.96 and therefore mean difference is 0.07 to check the significant difference between Deaf/dumb and Blind group data is again analyzed by applying 't' test. Before applying 't' test, standard deviation is calculated between Deaf/dumb and Blind group which is 1.58 and 1.51 respectively and then the calculated value of 't' is found as 5.04, is greater than tabulated 't' which is 2.00 at 0.05 level of significance. This shows that Deaf/dumb school students are having more fat percentage than Blind school students. But it shows negative sign of health. Hence the hypothesis which was giving by the researcher is accepted. This is presented graphically in figure No.3.

Graph 3. Graphical Representation of Mean Difference of Fat Percentage Between Deaf/Dumb and Blind Students

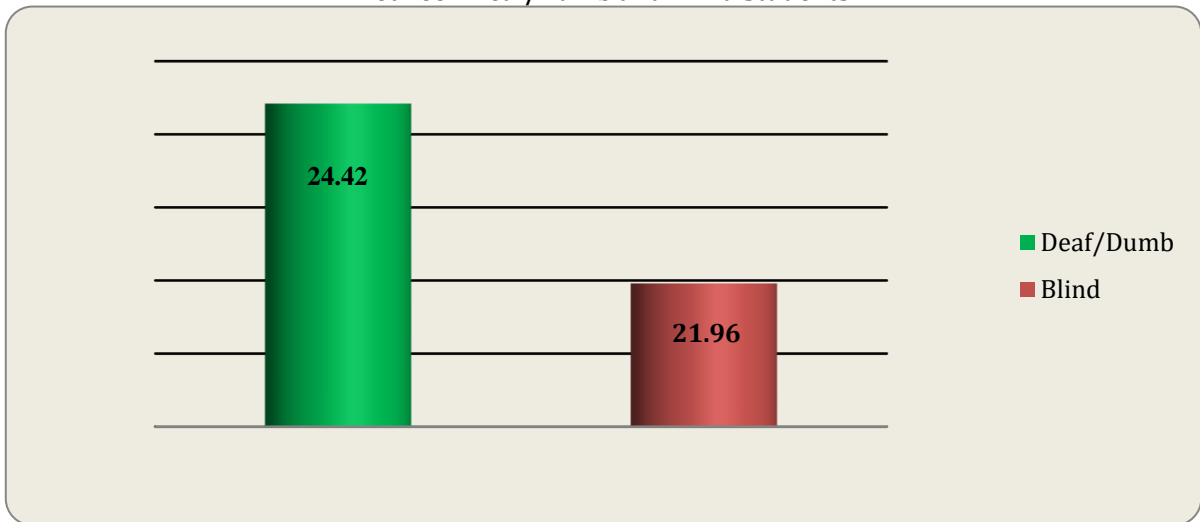


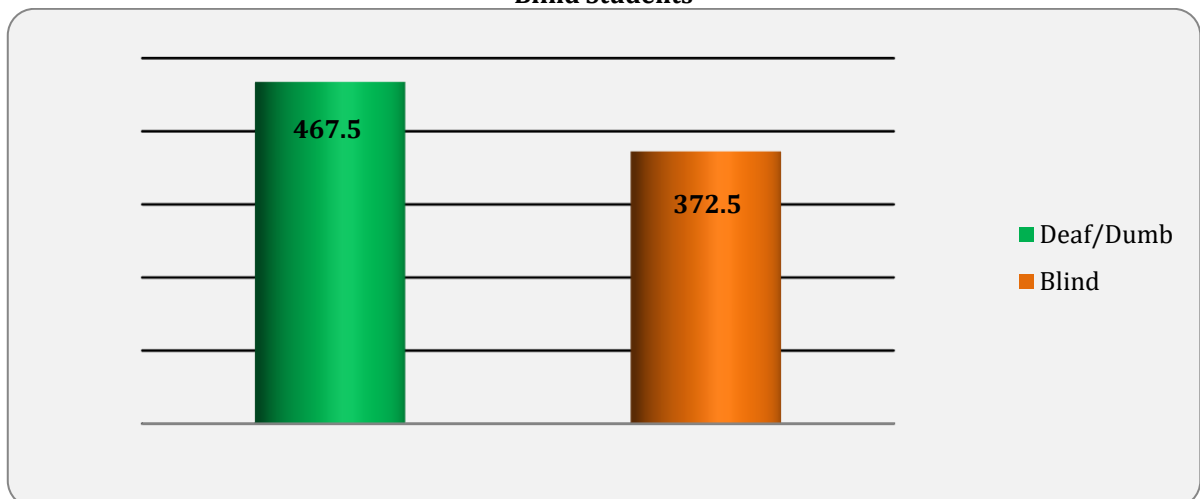
Table 4. Mean Difference of Exhale Capacity Between Deaf/Dumb School Students and Blind School Students of Amravati University

Group	Mean	S.D.	M.D.	O.T	Tabulated 't'
Deaf/Dumb	467.5	89.25			
Blind	372.5	75.17	95	3.64	2.00

Level of significance = 0.05

Table No.4 reveals that there is difference between means of Deaf/dumb group and Blind group because mean of Deaf/dumb group is 467.5 which is greater than the mean of Blind group which is 372.5 and therefore mean difference is 95 to check the significant difference between Deaf/dumb and Blind group data is again analyzed by applying 't' test. Before applying 't' test, standard deviation is calculated between Deaf/dumb and Blind group which is 89.25 and 75.17 respectively and then the calculated value of 't' is found as 3.64, is greater than tabulated 't' which is 2.00 at 0.05 level of significance. This shows that Deaf/dumb school students are having more exhale capacity than Blind school students. Hence the hypothesis which was giving by the researcher is accepted. This is presented graphically in figure No.4.

Graph 4. Graphical Representation of Mean Difference of Exhale Capacity Between Deaf/Dumb and Blind Students



DISCUSSION

In the beginning of this study it was hypothesized that there might be significant difference in physical fitness and physiological parameters between deaf/dumb and blind students of Amravati City.

The data were collected from Eighty (80) students were selected, among which Fourty (40) were deaf/dumb and Fourty (40) were blind students. The students were selected by using available sampling method. The following Physical and Physiological variables namely Strength, Flexibility, and Exhale capacity, Fat Percentage, were selected as criterion variables. The criterion variables were tested by the standardized test items. The Strength and Flexibility were measured by using Goniometer and Grip Dynamometer respectively.

The purpose of this study was to find out the selected physical fitness and physiological variables. The data pertaining to each of the selected physical fitness and physiological variables were examined by the special statistical techniques viz. mean, standard deviation and 't' test.

In overall numerical and statistical analysis the comparison of physical fitness and physiological parameters in between deaf/dumb and blind students of Amravati City, it is found that there is significant difference in physical fitness and physiological parameters between deaf/dumb and blind students of Amravati City. Therefore the hypothesis which the researcher has given is accepted. [Cumming et al., \(1971\)](#) stated that deaf children have a much higher level of physical fitness in comparison with blind children. Contrary results were published by [Hattin et al., \(1986\)](#) They conducted tests on a ergocycle and stated that the endurance of deaf people was 9,5 % worse and maximum oxygen uptake was 17,5% worse than that of blind people. Results of conditioning tests of deaf and blind children may indicate a poor level of physical fitness ([Gawlik & Zwierzchowska, 2006](#)). Deafness and blindness is primarily a disability of communication rather than a disability of motor skill performance ([Gawlik & Zwierzchowska, 2006](#)).

CONCLUSION

On the basis of the result drawn with the mentioned methodology the following conclusion were drawn out. There was found significant difference in physical and physiological parameters between Deaf/Dumb and Blind students of Amravati University. The study showed the partially significant difference among the mean of selected items of the groups. The conclusion of this research work May aware the Deaf/Dumb and Blind students as well as players about physical and physiological parameters while performing any physical activity.

The researchers recommended the following suggestion for further students; (1) The same study may be repeated to compare the above said variables between male and female deaf/ dumb students only, (2) The same study may be repeated on the deaf/dumb and blind players of various games and sports, (3) The study was completed on the same subjects of college level, (4) It is recommended that this study can also be conduct on different age groups, (5) It is further recommended to see the physical and physiological parameters of different districts, (6) It is further recommended to take same study on other category of handicapped students.

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