IMPACT OF SPECIFIC BALANCE TRAINING ON STATIC BALANCE AND DYNAMIC BALANCE AMONG HEARING IMPAIRED STUDENTS

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ABSTRACT

The purpose of the study was to find out the Impact of specific balance training on static balance and dynamic balance among hearing impaired students. To achieve the purpose of this study, 24 male hearing impaired students are randomly selected as subjects from the Deaf and Dump School, Tirunelveli District, Tamilnadu, India. Their age ranged from 14 to 15 years. The selected participants were randomly divided into two groups of 12 in each group such as Group'A' specific balance training (n=24) and Group 'B' acted as control group (n=24). Group 'A' underwent specific balance training for five days per week and each session lasted for an hour for six week. Control group was not exposed to any specific training but they were participated in regular activities. The data on static balance and dynamic balance were collected by administering by standardized test item. "Stork Balance Stand Test" was used to measure Static Balance and "Modified Bass Test of Dynamic Balance" was used to measure Dynamic Balance .The pre and post tests data were collected on selected criterion variables prior and immediately after the training program. The pre and post-test scores were statistically examined by the dependent 't' test and Analysis of Co-Variance (ANCOVA) for selected variable. It was concluded that there was significant improvement on Static Balance and Dynamic Balance to the effect of specific balance training when compared to the control group among the hearing impaired students.

Keywords: Specific Balance Training, Static Balance and Dynamic Balance

INTRODUCTION

Sport is considered as an important part of healthy and balanced life and it is accepted as one of the most useful social activities. Exercises may be included into a training program as part of an injury prevention/management strategy or with the primary aim of improving athlete performances **[Sannicandro, I., Cofano, G., Rosa, R. A., & Piccinno, A. 2014]**.

Balance training (BT) is a relatively recent phenomenon in the fitness industry that has developed into a primary point of interest for consumers and fitness professionals **[Yaggie & Campbell 2006]**. defined as a training regimen that aimed at an improved postural control **(Distefano et al. 2009)**.Balance is a key component in both the maintenance of functional abilities and performance of high level physical activity **[Geddam et al. 2014]**.

Balance deteriorates with age and creates a risk factor for falls **[Cecel et al.2007].**Studies confirm that high-level sportsmen display improved balance control in relation with the requirements of each discipline [**Perrin et al. 2002].**

Childhood is the phase of most beautiful times in the human life. Everything attracts to all children's interest in this period. One should allow the concept of motion to enter the child's world in this period. Balance is an important factor in the emergence of productivity and in the movement development. A fall may occur if the ability to maintain balance is not up to the mark, and inefficient balance strategies may also result in poor athletic performance.

Balance creates a basis for a good performance and is defined as a forwarder for muscle, nervous system. The ability of people's providing balance is an advancing factor for the development of other motor

skills. Movements that require balance need the use of an exact combination of certain anatomical, muscular and neurological functions **[Atilgan 2013]**.

There are several studies that have evaluated the effects of balance training on static and dynamic balance abilities. It is, however, found that a limited number of studies of children and adolescents are associated with balance performance. Besides, guide lines concerning the optimal sequence and impact of balance exercises on postural control during BT are rare and lack of scientific validation. Thus, there is at this point no scientific evidence of an optimal exercise sequence to ensure progression in BT and the impact of such a sequence on balance performance **[Muehlbaueret al. 2012]**.

Moreover, it is unclear whether base line balance ability changes due to sports participation and regular training without specific balance training such as the use of wobble boards [**Hrysomallis 2007]**

Purpose of the Study

The purpose of the study was to find out the Impact of specific balance training on static balance and dynamic balance among hearing impaired students.

Methodology

To achieve the purpose of this study, 24 male hearing impaired students are randomly selected as subjects from the Deaf and Dump School, Tirunelveli District, Tamilnadu, India. Their age ranged from 14 to 15 years. The selected participants were randomly divided into two groups such as Group 'A' specific balance training (n=12) and Group 'B' acted as control group (n=12). Group 'A' underwent specific balance training five days per week and each session lasted for an hour for six week. However, control group was not exposed to any specific training but they participated in the regular schedule. The Static Balance and Dynamic Balance were selected as variables. The pre and post tests data were collected on selected criterion variables prior and immediately after the training program. The pre and post-test scores were statistically examined by the dependent 't' test and Analysis of Co-Variance (ANCOVA) for selected variable. The level of significance was fixed at 0.05 level of confidence, which was considered as appropriate.

RESULT AND FINDINGS

1. Static Balance

Table I

Summary of Mean and Dependent 't'-Test for the Pre and Post Tests on Static Balance of Experimental Group and Control Group (In Seconds)

Tests		Pre Test	Post Test	't' – Value
Experimental group Group	Mean	82.01	140.38	14.39*
	SD	8.39	6.04	
Control Group	Mean	82.63	84.21	1.43
	SD	6.37	5.17	

***Significant at .05 level. The table value required for 0.05 level of significance with df 11 is 2.20.*

The table shows that the pre-test mean value of experimental group and control group are 82.01 and 82.63 respectively and the post test means are 140.38 and 84.21 respectively. The obtained dependent t-ratio values between the pre and post test means of experimental group and control group are 14.39 and 1.43 respectively. The table value required for significant difference with df 11 at 0.05 level is 2.20. Since, the obtained 't' ratio value of experimental group are greater than the table value, it is understood that experimental group had significantly improved the static balance. However, the control group has not improved significantly. The 'obtained t' value is less than the table value, as they were not subjected to any specific balance training.

The analysis of covariance on static balance of experimental group and control group have been analysed and presented in Table-II.

Table II

Analysis of Covariance on Static Balance of Experimental Group and Control Group

Adjusted Post Test Means		Source of Variance	Sum of Square	df	Means Square	F-ratio
Experimental Group	Control Group					
143.21	83.84	Between	1696.23	1	1696.23	15.37*
		With in	2317.56	21	110.36	

***Significant at .05 level. The table value required for significance at 0.05 level with df 1 and 21 is 4.32.*

Table shows that the adjusted post test means of experimental group and control groups are 143.21 and 83.84 respectively. The obtained F-ratio value is 15.37 which is greater than the table value 4.32 with df 1 and 21 required for significance at 0.05 level. Since the value of F-ratio is greater than the table value, it indicates that there is a significant difference among the adjusted post-test means of experimental group and control groups on static balance.

The mean values of experimental group and control group on dynamic balance were graphically represented in the figure-1.

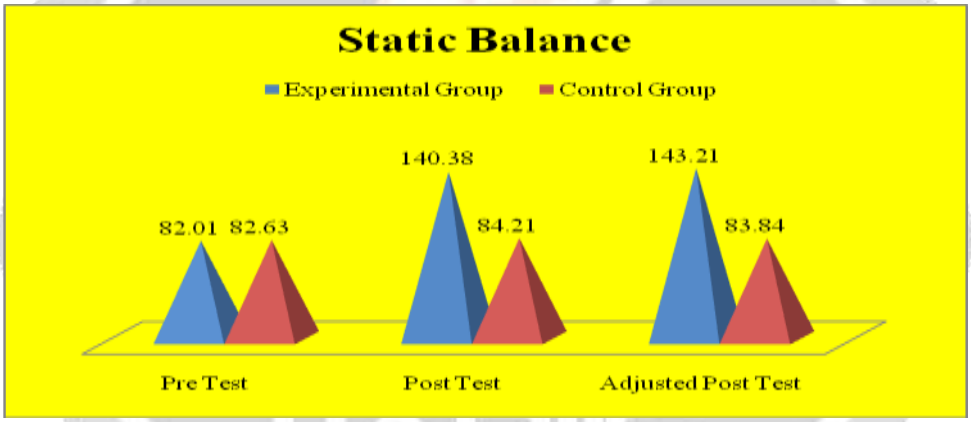

Chart-1: Mean Values and Adjusted Post Mean Values of Experimental and Control Groups on Static Balance

2. Dynamic Balance

Table III

Summary of Mean and Dependent 't'-Test for the Pre and Post Tests on Dynamic Balance of Experimental Group and Control Group (in Points)

Tests		Pre Test	Post Test	't' – Value
Experimental group Group	Mean	70.13	85.62	16.41*
	SD	5.81	4.24	
Control Group	Mean	69.09	70.42	0.76
	SD	6.13	6.29	

***Significant at .05 level. The table value required for 0.05 level of significance with df 11 is 2.20.*

The table shows that the pre-test mean value of experimental group and control roup are 70.13 and 69.09 respectively and the post test means are 85.62 and 70.42 respectively. The obtained dependent t-ratio values between the pre and post test means of experimental group and control group are 16.41 and 0.76 respectively. The table value required for significant difference with df 11 at 0.05 level is 2.20. Since, the obtained 't' ratio value of experimental group are greater than the table value, it is understood that experimental group had significantly improved the dynamic balance. However, the control group has not improved significantly. The 'obtained t' value is less than the table value, as they were not subjected to any specific balance training.

The analysis of covariance on dynamic balance of experimental group and control group have been analysed and presented in Table-IV.

Table IV

Analysis of Covariance on Dynamic Balance of Experimental Group and Control Group

Adjusted Post Test Means		**Source of Variance**	**Sum of Square**	**df**	**Means Square**	**F-ratio**
Experimental Group	**Control Group**					
85.46	70.18	Between	763.73	1	763.73	36.42*
		With in	440.37	21	20.97	

***Significant at .05 level. The table value required for significance at 0.05 level with df 1 and 21 is 4.32.*

Table shows that the adjusted post test means of experimental group and control groups are 85.46 and 70.18 respectively. The obtained F-ratio value is 36.42 which is greater than the table value 4.32 with df 1 and 21 required for significance at 0.05 level. Since the value of F-ratio is greater than the table value, it indicates that there is a significant difference among the adjusted post-test means of experimental group and control groups on dynamic balance.

The mean values of experimental group and control group on dynamic balance were graphically represented in the figure-2.

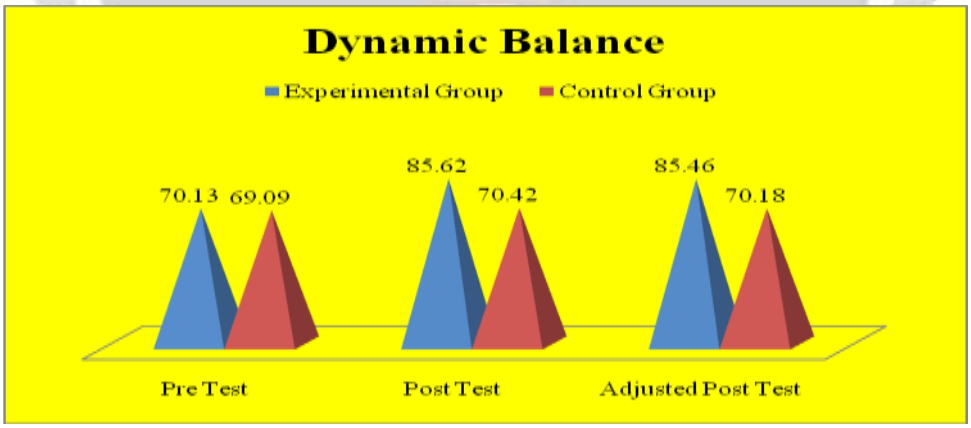

Chart-2: Mean Values and Adjusted Post Mean Values of Experimental and Control Groups on Dynamic Balance

CONCLUSIONS

1. There was significant improvement on static balance due to the effects of specific balance training among hearing impaired students.
2. There was significant improvement on dynamic balance due to the effects of selected specific balance training among hearing impaired students.
3. However the control group had not shown any significant improvement on any of the selected variables.

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