

# Effect of Brisk Walking on Flexibility of Sedentary College Students

KrishnaKant

Department of Physical Education, C.S.J.M. University, Kanpur, Uttar Pradesh

\*E-mail of the corresponding author: [krishnakant.yadav@gmail.com](mailto:krishnakant.yadav@gmail.com)

## Abstract

The purpose of the present study was to determine the effect of brisk walking on Flexibility of sedentary college students. The sample was consisted of thirty (N 30) sedentary college students and their age ranged between 18-25 years of age .the subjects were briefed in details about the study. The criterion measures for the study was Flexibility and it was measured by flexibility measuring box in nearest of cm. The total research period was of 12 weeks out of which six (6 weeks) of brisk walking programme was employed. Mean flexibility differed statistically significantly between Observation points ( $F(2.50, 71.22) = 90.78, P < 0.000$ ), insignificant difference was found in case first observation and second observation (MD=0.01,  $p=1.000$ ), whereas significant difference was found in second and third observation (MD=0.84,  $p=0.000$ ), also in third observation and fourth observation (MD=0.86,  $p=0.000$ ) and fourth and fifth observation (MD=0.90,  $p=0.000$ ).

**Keywords:** Brisk walking, Flexibility, Sedentary.

## 1 Introduction

In today's times, people are leading a very unhealthy lifestyle. Inadequate sleep, eating disorder, lack of proper regular exercise, increasing rate of obesity and other health diseases, shooting stress levels are some of the facts that define the contemporary world's lifestyle. It can be said that in the present era, human beings have got so engrossed in earning money, that they have virtually stopped paying attention to their physical and mental fitness. People do not realize the fact that money cannot buy them happiness. There is a saying that "if wealth is lost, something is lost, but if health is lost, everything is lost." So, it is high time, we start giving importance to our health and make a constant effort to work towards maintaining our all round fitness. There are distinctive types of workout that one can perform in order to keep fit, but one exercise that is suitable for all age groups is brisk walking. According to **Ayushveda (2008)** walking is one of the most relaxing, refreshing and enlivening form of exercise which reaps numerous physical, emotional and psychological benefits. To stay fit and healthy one does not need to spend a bounty on gym facilities as the natural way of remaining healthy can be achieved by indulging in the healthy practice of brisk walking. Brisk walking can reap numerous health benefits which range from keeping one's heart in a healthy shape, to helping in the process of weight management. Further, walking helps in refreshing and rejuvenating the mind along with reducing stress and fatigue. Brisk walking implies picking up a pace which is faster than normal leisure speed but something which is not exhausting. Thus, if somebody wants to reap the numerous benefits of brisk walking one should pick up a pace which is fast, involving the work out of the entire body but that pace should be within comfortable range and should not exhaust you in a couple of steps. **According to Mayer (2007)** the walking gait is fundamental to the survivability of all terrestrial animals. We humans are biomechanically designed to walk and walk and walk. "A quadruped has a greater amount of horizontal forward thrust than a biped; that's why we lose speed and agility when we became upright. In the quadrupedal posture, the centre of mass lies well forward of the hind limbs. Our upright posture, in contrast, places our centre of mass almost directly over the foot. We lose horizontal thrust and thus lose speed," explained Dr. Lovejoy the Center of mass is like a point on the body where, if you strike a rod through it, the body would be evenly balanced in all directions, just as a wheel is around its axle. Thus the investigator interested in whether six weeks of brisk walking programme is effective in increasing the flexibility of sedentary college students.

## 2. Material and Methods

### 2.1 Subjects

For the purpose of the study thirty (N=30) male sedentary college students of Lucknow Christian College, Lucknow between 18 to 25 years of age were selected as subjects for the present study and the subjects were briefed in details about the study.

## **2.2 selections of variables**

Based on literary evidence, discussion with expert and scholar's own understanding flexibility was selected as variable for the present study.

## **2.3 Procedure**

Periodisation of training and collection of data was showed in table 1

(See table 1)

For the detail of training protocol interested person may contact to the author.

## **2.4 Administration of test**

### **Flexibility**

**Test:** - The Sit and Reach Test.

**Equipment:** - Flexibility measuring Box and mat.

**Procedure:** - The lower-back flexibility was measured by sit and reach test. The subject sit on a mat with his legs extended. Your feet should rest against the base of a box on which a yard stick is mounted with the 9 inch (23cm) mark on the near side of the box. After a general warm-up that includes stretching of the lower back and thighs slowly reach forward with both hands as far as possible and hold the position momentarily. Record the distance reached on the yard stick by your fingertips.

**Scoring:** - Use the best of four trials as flexibility score.

## **2.5 Statistical Analysis**

To determine the level of Flexibility, descriptive statistics was applied. To determine the effect of brisk walking on Flexibility in sedentary college students one factor repeated measures analysis of variance was used to compute the data.

## **3 Findings**

The findings and discussion of findings with regard to the present study have been presented in two sections. Section one deal with the mean and standard deviation of Fat percentage. Section two deals with the one factor repeated measures Analysis of variance of Fat percentage variable.

## **4. Discussion of Findings**

Mean of Flexibility in table-7 reveals that there was slight decrease in Flexibility from observation one to observation second (**obs A 9.91(Cm)**, **obs B 9.90(Cm)**), whereas after second observation to fourth observation there was sequential increase in Flexibility till the training phase **obs C 10.74(Cm)**, **obs D 11.60(Cm)**. Whereas at obs E of detraining phase there was slight decrease in Flexibility 10.70 (Cm), mean flexibility differed statistically significantly between Observation points ( $F(2.50, 71.24) = 90.78, P < 0.000$ ), insignificant difference was found in case first observation and second observation ( $MD=0.01, p=1.000$ ), whereas significant difference was found in second and third observation ( $MD=0.84, p=0.000$ ), also in third observation and fourth observation ( $MD=0.86, p=0.000$ ) and fourth and fifth observation ( $MD=0.90, p=0.000$ ). We can, therefore, conclude that a brisk walking training program (6 weeks) elicits a statistically significant increase in Flexibility.

## **5. Conclusion and recommendation**

From the above discussion it is concluded that a brisk walking training programme (6 weeks) elicits a statistically significant increase in flexibility of sedentary college students. The results of this study may be used by Physical Education teachers, Health trainers and Fitness experts for prescribing the brisk walking programme for different age groups and sex.

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Periodisation of training and collection of data presented in Table 1

**Table- 1** *Periodisation of training and collection of data*

Phase -1				Phase-2				Phase-3																									
Training	Weeks	Days	Obs	Training	Weeks	Days	Obs	Training	Weeks	Days	Obs	Training	Weeks	Days	Obs																		
No	1	1	A	Brisk Walking	4	22	Brisk Walking	7	43	De	10	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	E
		2	23			44																											
		3	24			45																											
		4	25			46																											
		5	26			47																											
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	15	36	57																														
	16	37	58																														
	17	38	59																														
	18	39	60																														
	19	40	61																														
	20	41	62																														
	3	21	B			6																											

**Note:- obs = observation**

The Total research period was of 84 days. obs A=day1, obs B=21<sup>st</sup> day, obs C=42<sup>nd</sup> day, obs D=63<sup>rd</sup> day and obs E=84<sup>th</sup> day).

**SECTION ONE**

**Mean and Standard deviation of Fat Percentage**

**Table-2**

Variable	Observation									
	obs A		obs B		obs C		obs D		obs E	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Flexibility(cm)	<b>9.91</b>	2.76	<b>9.90</b>	2.82	<b>10.74</b>	2.83	<b>11.60</b>	2.89	<b>10.70</b>	2.88

The Mean of Flexibility in Table-2 shows that there was slight decrease in Flexibility from observation

one to observation second **obs A 9.91**( cm), **obs B 9.90** (cm), whereas after second observation to fourth observation there was sequential increase in Flexibility till the training phase **obs C 10.74** (cm), **obs D 11.60** (cm). Whereas at obs E of detraining phase there was slight decrease in Fat percentage **10.70** (%).

## SECTION TWO

The findings pertaining to brisk walking one factor repeated measure analysis of variance was computed and data pertaining to that have been presented in tables.

### FLEXIBILITY

Mauchly's Test of Sphericity for Flexibility presented in Table -3

**Table-3**  
**Mauchly's Test of Sphericity for Flexibility**

Within Subjects Effect	Mauchly's W	Approx.Chi-Square	Df	Sig.	Epsilon		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Observation	.270	35.934	9	0.000	.614	.675	.250

The above table shows that the Mauchly's Test of Sphericity was significant  $X^2(9) = 35.93, p = 0.000$ . (i.e. has a probability value less than 0.05) and it is concluded that there was significant variance of difference and thus the condition of Sphericity has been violated. Further, as the value of Epsilon of Greenhouse-Geisser correction was less than 0.75, therefore in test within subject effect, Greenhouse-Geisser value of 'F' was taken into consideration.

One Factor Repeated-Measure Analysis of Variance of Flexibility presented in Table 3.1

**Table-3.1**  
**One Factor Repeated-Measure Analysis of Variance for Flexibility**

Source	SS	Df	MS	F	P
<b>Between-Subject</b>			9.74		
	1152.58	29			
<b>Within-Subject</b>					
Observation	59.99	2.50	24.42		
Subject x Observations	19.14	71.24	.27	90.78	.000*

\*Sig. at 0.05 level of confidence ( $F(2.50, 71.24) = 90.78, P < 0.000$ ).

Mauchly's test indicated that the assumption of Sphericity had been violated,  $X^2(9) = 35.93, p = 0.00$ , therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ( $\epsilon = .61$ ). The results show that there was significant effect of brisk walking on flexibility of sedentary college students, ( $F(2.50, 71.24) = 90.78, P < 0.000$ ).

Pair wise Comparison of observations in relation to Flexibility presented in Table -3.2

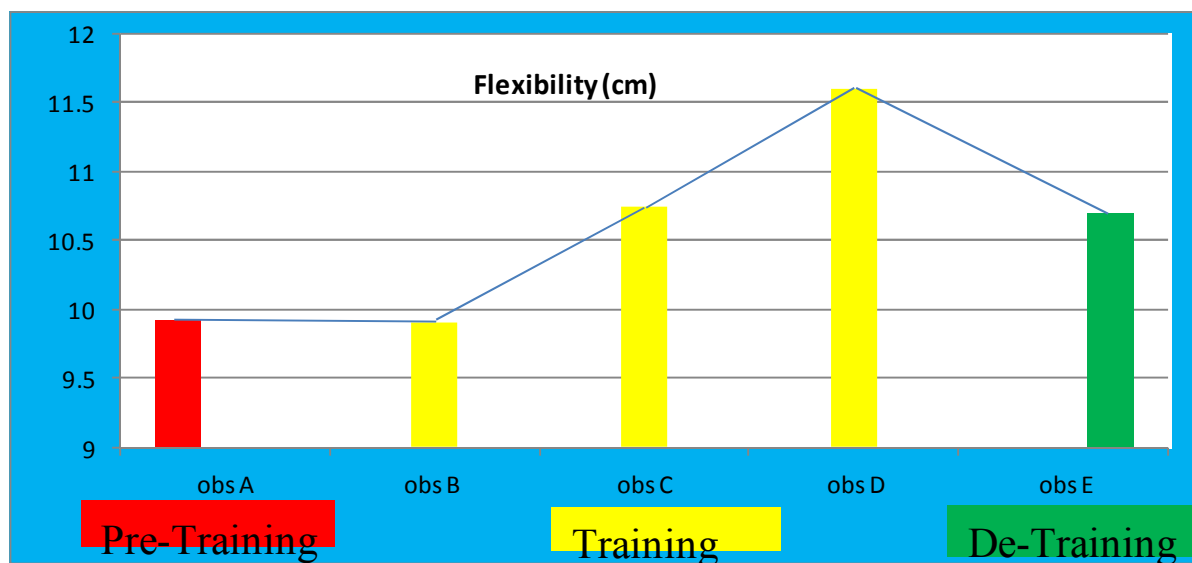
**Table-3.2**  
**Pair Wise Comparison of observations in relation to Flexibility**

(I) Observation	(J) Observation	Mean Difference (I-J)	Sig. <sup>a</sup>
1) 9.91	2) 9.90	<b>0.01</b>	<b>1.000</b>
2) 9.90	3) 10.74	<b>0.84*</b>	<b>0.000</b>
3) 10.74	4) 11.60	<b>0.86*</b>	<b>0.000</b>
4) 11.60	5) 10.70	<b>0.90*</b>	<b>0.000</b>

Significant at 0.05 level of confidence.

**a** :- Adjustment for multiple comparison: Bonferroni.

Post hoc tests using the Bonferroni correction revealed that insignificant difference was found in case first observation and second observation (MD=0.01, p=1.000), whereas significant difference was found in second and third observation (MD=0.84, p=1.000), also in third observation and fourth observation (MD=0.86, p=1.000) and fourth and fifth observation (MD=0.90, p=0.000). We can, therefore, conclude that a brisk walking training program (6 week) elicits a statistically significant increase in Flexibility after a certain time interval.



**Figure: 1** Graphical representation of means on repeated observations in relation to Flexibility (cm).

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