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FLIP-FLOP VERSUS HIGH HEEL ON POSTURE AMONG COLLEGE GOING GIRLS

VELKUMAR.V[1], MOHAMED SALAUDEEN[2], SENTHIL.S[3]
[1]ASSISTANT PROFESSOR,DEPARTMENT OF PHYSIOTHERAPY,MGMCRI
[2]BPT, DEPARTMENT OF PHYSIOTHERAPY,MGMCRI
[3] ASSISTANT PROFESSOR,DEPARTMENT OF PHYSIOTHERAPY,MGMCRI

ABSTRACT:

Background and purpose of the study is, foot wears have vital role in posture. Nowadays students especially college going girls wearing various types of foot wears mostly high heels and flip-flops without knowing its impact on their posture. So, this study is aimed to found out the posture variations of high heels vs flip-flops among college going girls. The methodology states that this is an observation study design. Hundred samples from Sri Balaji Vidyapeeth University, Pondicherry, were recruited for this study. They were divided into groups A and B. Those who were using flip-flop alone for last six months to the college are allocated in group A and those who were using high heels alone for last six months to the college are allocated in group B. Reedco posture assessment scale (RPS) was used to assess the posture of the all the samples and the obtained data's were interpreted with unpaired t test in SPSS software. The t-value is 8.49841. The p-value is <0.00001. The result is significant at $p < 0.05$, it is concluded according to the results that the high heels are having more effect on posture than the Flip flops.

KEY WORDS: High Heel, Flip-flop, Posture, REEDCO scale, College going girls.

INTRODUCTION:

Posture is the attitude assumed by the body either with support during the course of muscular activity, or as a result of the coordinated action performed by a group of muscles working to maintain the stability. Dynamic posture is how you hold yourself when you are moving, like when you are walking, running, or bending over to pick up something.

Poor posture is when our spine is positioned in unnatural positions, in which the curves are emphasized and this results in the joints, muscles and vertebrae being in stressful positions. This prolonged poor positioning results in a buildup of pressure on these tissues.

Foot wears have been conventionally thought of as protection for the feet. Leading experts have discovered through vast research that foot wears play a far more important role than simply covering our feet or making us look good. They can affect our overall health by affecting our posture.

The use of high-heeled shoes alters selected proximal lower-extremity joint kinetic function. These changes represent adaptive strategies that maintain limb stability as the ankle is forced into an exaggerated plantar flexed posture and substitute for reduced plantar flexor function in limb advancement through the increased use of hip flexor muscle activity. The changes are modest but could contribute to the creation of abnormal and potentially injurious forces that may underlie some of the proximal joint and spine pain complaints of habitual high-heeled shoe wearers. The potential role of foot posture in the development of musculoskeletal disorders needs to be considered when evaluating pain complaints or prescribing shoes, insoles, lifts, and surgical treatments. The use of high-heeled shoes increases muscular effort during walking and diminishes the leg venous pressure compared with barefooted [1, 2, and 3].

The natural curve of our feet supports the gentle curve of our spine so that we have a healthy posture. Foot wears that do not take into consideration back support can not only be

uncomfortable to wear but can, over time, cause changes in posture that can lead to long-term damage and chronic pain.

Shoes have been worn for thousands of years for the main purpose of protecting feet from the environment, recent studies have implicated shoes as the principal cause of forefoot disorders seen in females[4].

Flip-Flops are simple sandals that are held on with a strap or thong at the front only. Flip flops have no arch support, heel cushioning, or shock absorption. High heels are designed as raised heels with exaggerated foot arches.

Repeatedly slouch or slump rather than spreading our weight evenly can put too much pressure on our muscles and joints, give us aches and pains, and increase the risk of sporting injuries. It is important to find foot wears that offer structural support that align your feet appropriately, support the natural curve of your spine, and not cause foot pain. Foot pain can affect the way you walk, which will impact your balance and posture as well. The natural curve of your feet supports the natural curve of your spine; anything that negatively impacts your feet will hurt your spine alignment as well

MATERIAL AND METHODS:

It is an observation study design which used convenience sample of 100 girls from Sri Balaji Vidyapeeth, Pondicherry. This study includes samples aged between 18 to 25 years, using Flip flops or high heels wearing for the last six months to the college, normal body mass index. Similarly this study excludes over weight, obese, any recently healed fractures in lower limbs, who own joint stiffness in lower limb and inflammatory conditions in lower limbs. Duration of this study is one month.

POSTURAL ASSESMENT SCALE:

Reedco Posture Scale (RPS) is the tool we are using to analyse the posture of the samples in this study. This scale consists of ten components with a total score of 100. Which is comprising of Good (10), Fair (5), and Poor (0).

PROCEDURE:

After identified the samples they were divided into group A and group B. Group A consists of flip flop users and the group B consists of high heel users. All the samples were explained about the objective and procedure of the study and then signed a consent form. Later we assessed posture of the samples of group A and B separately by using the REEDCO postural assessment scale in standing position and the data were recorded.

STATISTICAL ANALYSIS:

The obtained data's were interpreted with unpaired t test in SPSS software.

Group A

The total number of sample is 50 (N_1=50), the mean of the samples age is 20, the degree of freedom (df_1) is 49 (df_1= N-1=50-1=49), the mean value of the group A is (M_1) 76.1, the sum of square (SS_1) is 7064.5. Sum of square (S^2) is 144.17. Standard deviation of group A is 11.886547017532 and the variance is 141.29.

Group B

The total number of sample is 50 (N_2=50), the mean of the samples age is 21, the degree of freedom (df_2) is 49 (df_2= N-1=50-1=49), the mean value of the group B is (M_2) 54.5, the sum of square (SS_2) is 8762.5. Sum of square (S^2) is 178.83. Standard deviation of group B is 13.238202294874 and the variance is 175.25

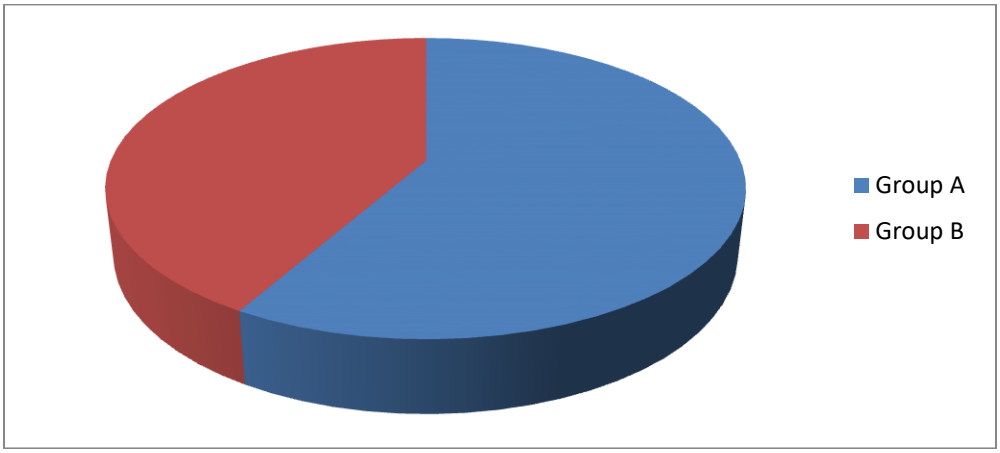
The t-value is 8.49841. The p-value is <0.00001. The result is significant at p < 0.05

TABLE:

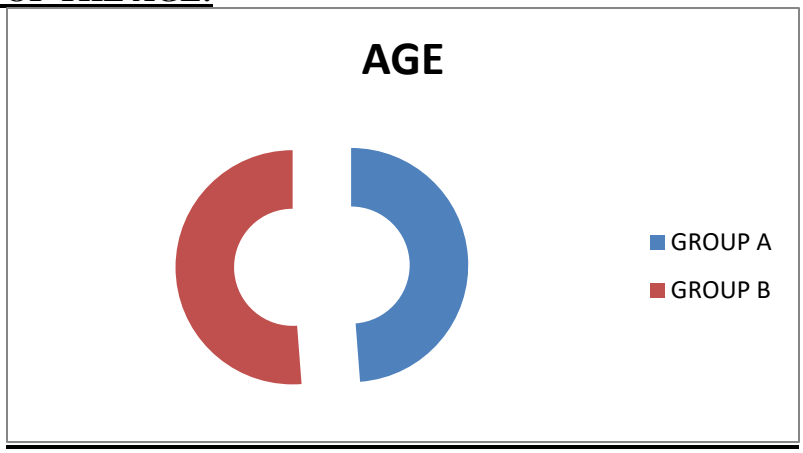
S:NO	Number of samples (N)	MEAN	STANDARD DEVIATION	VARIANCE	t value	p value
Group A	50	76.1	11.89	141.29	8.49841	0.00001
Group B	50	54.5	13.24	175.25		

SCHEMATIC REPRESENTATION:

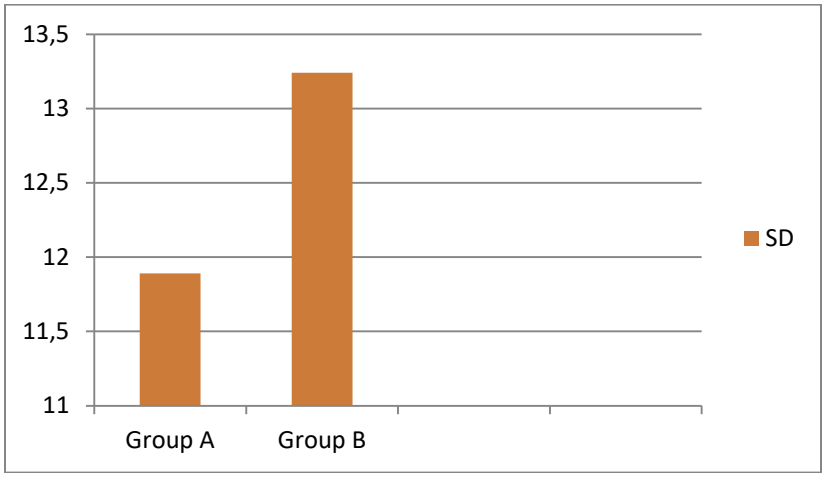
MEAN DIFFERENCES OF GROUP A AND B:



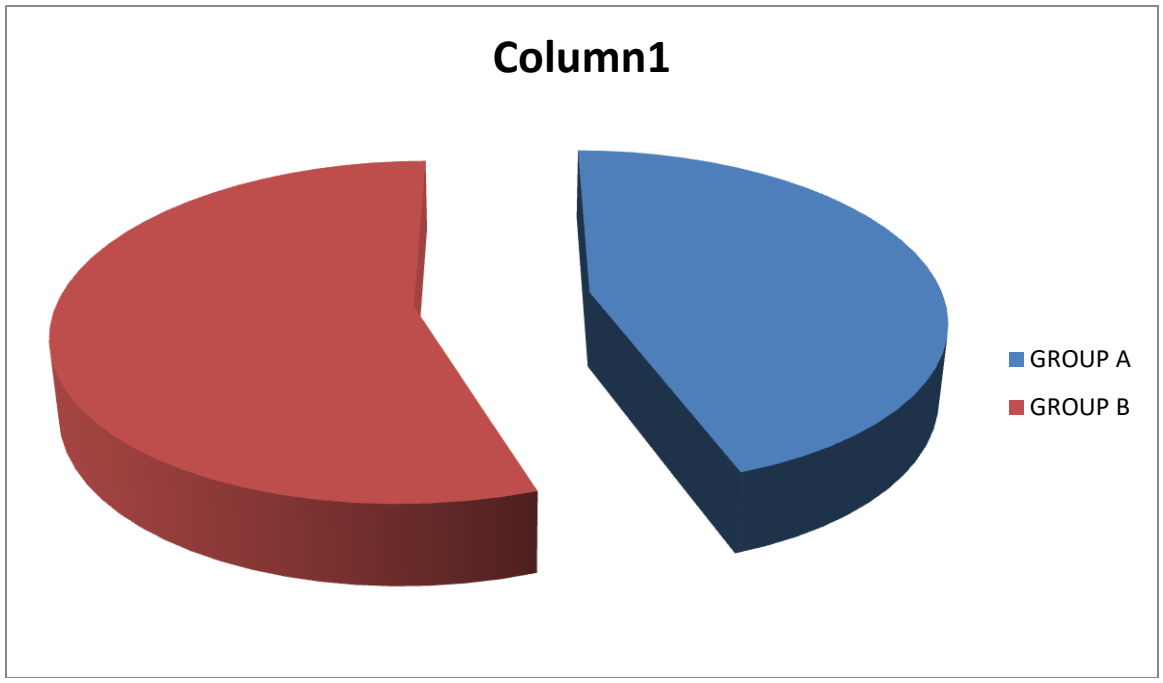
MEAN VALUE OF THE AGE:



STANDARD DEVIATION OF GROUP A AND B:



VARIANCE OF GROUP A AND B:



RESULTS:

The result states that t-value is 8.49841. The p-value is <0.00001 which is significant at $p < 0.05$ and the mean value of the Reedco Posture Scale (RPS) is 76.1 for group A and 54.5 for group B.

DISCUSSION:

In this present study we recruited female students of Sri Balaji Vidyapeeth University, Pondicherry, identification and collection of samples for this study was challenging. Because many of the students have said that they are using both, the high heels and the flip flops

simultaneously. To avoid this error we carefully identified the samples and recruited to this study. After samples identification, they were very curious to know about their posture.

The average age of the sample is 20 in group A and 21 in group B which shows the homogeneity among the samples. The p-value is <0.00001. The result is significant at $p < 0.05$.The mean value of the Reedco Posture Scale (RPS) is 76.1 for group A and 54.5 for group B so we identified the group B which consists of High heel users are having poor posture than the group A which is pooled with Flip flops users.

Our study confirmed the influence of high heels in the adaptation of locomotion of individuals. Regarding the use of high heels, the muscles of the lower limbs can be shortened; especially the posterior chain muscles as triceps sural, sural buttock, Para vertebral muscles and this is the main reason of altered posture in high heal users, maximum knee angle during swing and knee extension velocity decreased with increased heel height[5].

The wearing of high heels causes lumbar flattening, a backward tilting pelvis, a reduction of the distance of the knee and ankle from the line of gravity, and a posterior displacement of the head and thoracic spine. High heels decreased the lumbar lordosis thereby results in less swayback rather than more. Wide-heeled shoes cause abnormal forces across the patella femoral and medial compartments of knee, which are the typical anatomical sites for degenerative joint changes. Our findings confirm that the wearing high-heeled shoes significantly alter the normal function of the ankle. Because of this compromise, compensations must occur at the knee and hip to maintain stability and progression during walking[6, 7, 8 and 9]. Our study confirms the concept of the women without foot pain or deformities also wore shoes that were smaller than their feet[10].Because of no pain the samples wearing flip-flops having good posture than the high heel users.

As we discussed earlier there are numbers of studies to describe the impact of high heels on posture but flat foot wears and its impact on posture was least described, this motivated us to do this study and compare the effectiveness of the flip flop and high heels on posture.

RECOMMENDATIONS:

- In future effect of this foot wears on posture among females and males have to be compared.
- Effect of foot wears on static and dynamic posture.
- This can be done with larger samples in future.

CONCLUSSION:

According to the results it is concluded that the High heels are having more effect on posture than the Flip flops in college going girls.

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