



RESEARCH ARTICLE

EFFECT OF FOOT WEAR ON BALANCE SCORE

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ABSTRACT

Barefoot and minimal footwear running have become increasingly popular. Barefoot advocates claim that running injuries may be reduced when running in little or no footwear. On the contrary footwear has its own role in providing postural stability. This study analyses the effects of footwear on balance in young females and concluded there is significant effect of footwear on balance.

Keywords:

Balance, Footwear, SEBT

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INTRODUCTION

It has been seen in various studies that there is significant effect of footwear on ones balance or gait of an individual. Inappropriate or ill fitted shoes can lead to fall of an individual any many of us has definitely experienced this in our life, Inappropriate footwear has been identified as a contributor of up to 45% of falls(1,2). Study of people who had suffered a fall-related hip fracture reported that 75% were wearing poor footwear at the time of the injury(3) A number of studies have investigated the influence of various shoe features on balance ability in people. High heels have been shown to impair balance when standing as less BOS and less area for LOG to move.

Barefoot advocates claim that running injuries may be reduced when running in little or no footwear. It is found in various studies that types of shoes definitely influences the balance score both dynamic and static of an individual of any age.

It has also been concluded that even socks can affect your single limb stance so the shoes for sure. (1)

the study done by Lord SR, & Bashford GM concluded that shoes with an elevated heel impaired both standing and leaning balance and it has also been shown that high-heel shoes reduce performance in functional tests of gait in community dwelling older people(4,5)

As per the study done by Lindemann U, Scheible S, Sturm E, Eichner B, Ring C, Najafi B, Aminian K, Nikolaus T, Becker it has been suggested that if you wear one shoes continuously for 5 weeks duration it may not affect your stability. Maximum number of studies is done on elderly population because of

common fall among them less number of studies is available in younger population related to affect of shoes.

The present study tries to compare the balance score of person with or without shoes.

Inclusion criteria

1. females within the age of 18-22 years
2. having habit of wearing shoes with maximum of 1-2 inch and minimum of 8-10 hours in a day
3. BMI normal is 18.5—24.9 kg/m²

Exclusion criteria

Individual with diagnosed cases of systemic, Neurological, Musculoskeletal, Dermatological, psychiatric disorders or disabilities.

1. Defect in vision even after correction
2. History of pregnancy
3. Any recent illness or trauma

Instruments and tool used

1. Measuring tape
2. 3-in (7.62-cm)-wide adhesive tape.
3. Protractor
4. Chalk
5. Shorts
6. Measuring Ruler
7. Football
8. Couch

Outcome Measures

Star Excursion Balance Test Score
Procedure

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In the study 100 females fulfilling inclusion criteria were taken. Participants signed an informed consent document. The length of the stance leg was measured from the anterior-superior iliac spine to the most distal point of the ipsilateral medial malleolus, using a standard tape measure while participants lay supine on a plinth. balance score was measured using SEBT (Star excursion balance test) (6) firstly balance was tested with their shoes “on” considered as Group A on other day balance score was tested bare foot Considered as group B. Two balance test were performed to check out the effect of shoes on balance score of an individual.



Group Statistics							
	Group	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.
FRT	A	50	9.3713	2.86772	0.40556	2.480	0.423
	B	50	8.0405	2.48383	0.35127		

Readings of SEBT was compared between both groups. A significant difference was found between the two groups. The mean value of barefoot was found to be less than the mean value with shoes on in females. There is a significant change in the balance score of barefoot and with shoes on

DISCUSSION

This study is the largest to date looking at the effects of footwear on balance in young community-dwelling women. It showed that wearing their own footwear was associated with significantly improved balance compared to being barefoot. The finding of a protective effect of footwear on balance of elderly women is consistent with the work of Robbins *et al.* [8] who found that in a convenience sample of 25 healthy men (aged 60 years and older), being barefoot was associated with significantly more balance failure while walking along a beam. It is possible that patients with poorer balance have deficits in foot and ankle architecture that are compensated for by footwear, whereas more independent subjects have a reduction in balance due to reduced proprioception while wearing shoes, although this warrants further investigation.

Larsen *et al.* [9] found that in a Danish community sample (aged 66 and older), using indoor footwear without soles was strongly independently associated with falls in the preceding 24 h

This study has several limitations. No recording of foot, ankle or knee characteristics occurred and only women were studied, so it is unclear why footwear gave a benefit and whether this would also be seen in men. There were also no measures of midsole stiffness or of plantar cutaneous sensation. This may be important given that cutaneous sensation from the sole of the foot plays a major role in the control of balance and the likelihood that stiffer midsoles may interfere with the ability to sense the distribution of pressure on the foot accurately

The fact that subjects were measured using their own shoes and that benefits were independent of shoe types makes the results more generalisable. The finding that footwear was associated with benefits across a range of balance subscales further strengthens the case for an association.

CONCLUSION

It was found that wearing shoes, compared to going barefoot, was associated with a significant improvement in balance in young women attending a day and that this effect was independent of the individual characteristics of the shoes. Taking into account the findings of increased falls risk in individuals who go barefoot, we recommend that older individuals at risk of falls do not go barefoot while walking. Further research is needed to more fully understand the effects of footwear on balance and falls.

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