ABSTRACT

- **Background:** Lower-limb injuries of musculoskeletal origin have been found to be the most common cause of Lower limb injuries.Athletes and physically active individuals frequently sustain lower limb injuries, especially ankle problems. Maintaining stability and avoiding damage during functional tasks depends heavily on the strength of the muscles around the ankle joint. Dynamic balance and postural control are greatly aided by the plantarflexor and dorsiflexor muscles. A popular clinical tool for evaluating dynamic balance and determining possible injury risk is the mini Star Excursion Balance Test (SEBT).

- **Methodology:** Participants from Brainware University who were physically active and between the ages of 18 and 30 took part in a comparative observational study. A standardized datasheet was used to gather injury history and demographic information. Handheld dynamometry had been used to measure ankle plantarflexor and dorsiflexor strength. The Star Excursion Balance Test was used to assess dynamic balance in anterior, posteromedial, and posterolateral directions. The composite score was determined by normalizing the reach distances using limb length. The association between ankle muscle strength and SEBT performance was determined using statistical analysis.

- **Results:** Ankle muscular strength and SEBT reach distances were shown to be significantly correlated in the study. Individuals with weaker dorsiflexors or plantarflexors had lower composite scores, which suggested poor dynamic balance and a higher risk for lower limb injury.

- ***Conclusion:*** *The findings* emphasised the importance of ankle muscle strength in *maintaining dynamic balance and reducing the risk of lower limb injuries. Thus, strengthening ankle musculature is* an essential component of injury prevention

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