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Role of Musculoskeletal Variables of Ankle and Foot in Balance: A Review

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Abstract

Background/Introduction: Balance is a combined process of maintaining and achieving a state of stability. There are many musculoskeletal factors of ankle and foot that affect balance. Muscular strength and flexibility of ankle muscles as well as foot posture and deformity are the components necessary to achieve balance. These contractile and non-contractile structures are considered to be affecting the static and dynamic balance control ability.

Objective: There are many literatures which have studied the individual component of ankle and foot that are affecting balance but very few literatures are available on multiple components affecting balance. Hence, this study aims to present a summary review of the current state of knowledge about the influence of different factors of ankle and foot on balance.

Methodology: After finalizing the keywords, literatures were searched using various search engines such as PubMed, Google Scholar, COCHRANE, CINAHL, MEDLINE, PEDRO. Electronic libraries,

Electronic Journals, and from the print sources i.e. Journals, Textbooks, Hand searching, Follow-up references were used for the source of data. All the articles were screened for inclusion and exclusion criteria.

Result: studies shows that plantar flexion flexibility affects balance more than dorsiflexion. However, Strength of ankle dorsiflexors affect balance more than planter flexors. Deviation of foot affects dynamic reach. Studies have also shown to affect antero-posterior sway.

Conclusion: Reviewed articles suggested that there is a high correlation between ankle range of motion, ankle muscle strength and pronated foot with static as well as dynamic balance. Whereas, supinated foot does not have a significant relationship with balance.

Keywords: Ankle and Foot; Balance; Flexibility; Foot posture