The Relationship of Core Stability to Static and Dynamic Balance

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Introduction

- The ability to maintain balance is prerequisite to many functional activities.[3]
- Static balance is the attempt to keep the center of pressure stable and unmoving within the base of support.[3]
- Dynamic balance is the capability of remaining steady while completing a motion task.[2]
- Core stability may be a contributing factor to static and dynamic balance.[1]

Purpose

- To examine the relationship of core stability to static and dynamic balance in recreationally active young adult men and women.

Methods

- Institutional review board approval was received and all participants signed an informed consent.
- Static and dynamic balance was tested on the non-dominant leg in 30 recreationally active individuals (males *n* = 15; females *n* = 15) with ages ranging from 18-23 years.
- Static balance was tested by 3 trials of the Balance Error Scoring System (BESS).
- Dynamic balance was tested by 3 trials of the Star Excursion Balance Test (SEBT) in both the medial and lateral direction with reach distance normalized to leg length.
- The duration of a single, maximal effort side plank tested frontal plane stability on the same side as the subject's non-dominant leg.

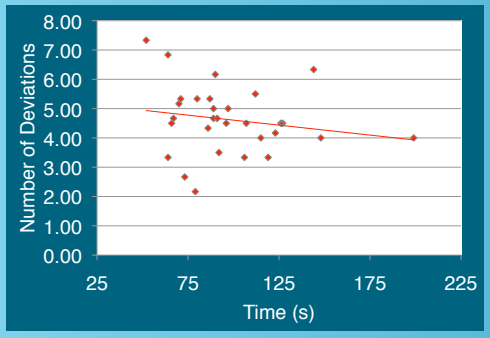

Figure 1. Number of deviations on the BESS versus side plank time

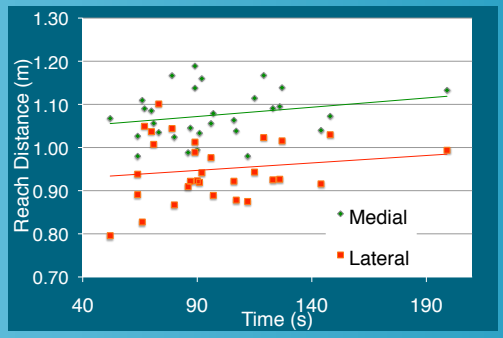

Figure 2. Medial and lateral SEBT reach distances versus side plank time

	Mean (SD)	Pearson *r* (correlation with side plank time)	*p* value
Medial (meters)*	1.075 (± 0.0579)	0.233	0.215
Lateral (meters)*	0.950 (± 0.0713)	0.151	0.425
BESS (# of deviations)	4.62 (± 1.14)	-0.185	0.329
Side Plank (sec)	97.64 (± 31.04)	----	----

Table 1. Mean scores; results of Pearson correlation for side plank time and SEBT medial reach distance, SEBT lateral reach distance, and number of deviations for BESS.
*Distance normalized to leg length.

Conclusions

- There was no significant correlation between the time the side plank was held (core stability) and either of the balance tests (static and dynamic balance).
- Only a single static measure of core stability was evaluated, taken in the frontal plane.
- A very heterogeneous population was used; many confounding variables were present including body type, physical fitness, and sports specific training.
- The results indicate that there is not a significant relationship between core stability and either static or dynamic balance in recreationally active young adults.

References

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Acknowledgements

- Special thanks to Don Fischer for his assistance and guidance with this project.