

Relationships Among A Standardized Measure For Concussion, Postural Stability, And Function In Non-Injured Athletes

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The purpose of this study was to establish normative data for examining the relationships among the Standardized Assessment for Concussion (SAC) instrument, postural stability using the Biodex Stability System (BSS) and dynamic balance using a single-plane balance board (SPBB). Sixty Temple University football players (age = $21.06 \pm .22$ yr, wt = 103.04 ± 5.50 kg, ht = $186 \pm .36$ cm) volunteered to participate in this study prior to the 1998 football season. Subjects reported for a total of two testing sessions (familiarization and testing). Subjects completed the SAC and performed two postural stability tests (using the BSS and SPBB) and a functional test consisting of a single-leg hop for distance test. The results demonstrate that dynamic postural stability scores (BSS and SPBB) were not strongly correlated with the SAC and the SLH for distance test. The strongest relationships were between the indexes of postural stability. The stability index (SI), as measured with the BSS; is a composite of anterior/posterior and medial/lateral sway. The SI was strongly related to the anterior/posterior index (API) ($r = .95$) and the medial/lateral index (MLI) ($r = .89$). Postural stability scores measured via the BSS were poorly related to balance scores using the SPBB ($r = .00$ to $.02$). There was a significant inverse relationship between SPBB anterior/posterior total touches and the SLH for distance test ($r = -.37$, $p \leq .05$). The relationship between the SI and SAC and SLH were $r = -.18$ and $r = -.24$, respectively. There was a significant inverse relationship between the SAC and SPBB anterior/posterior and the medial/lateral total touches ($r = -.07$ and $r = .02$, $p \leq .05$, respectively). There was a significant correlation between anterior/posterior total touches (A/Ptot) and medial/lateral total touches (M/Ltot) ($r = .29$, $p \leq .05$) as assessed with the SPBB. The findings demonstrated that there was little correlation among the standardized assessment for concussion, postural stability, and functional ability in a non-injured population. Subjects in this study were uninjured and variance among this group was small. It remains to be seen if similar results will be attained in a cognitively or neurologically injured subjects.