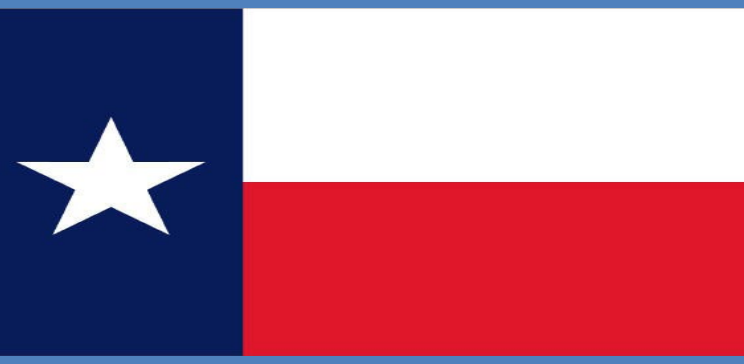


Sensory Organization Testing in Women's Professional Soccer Players Insights for Research and Performance



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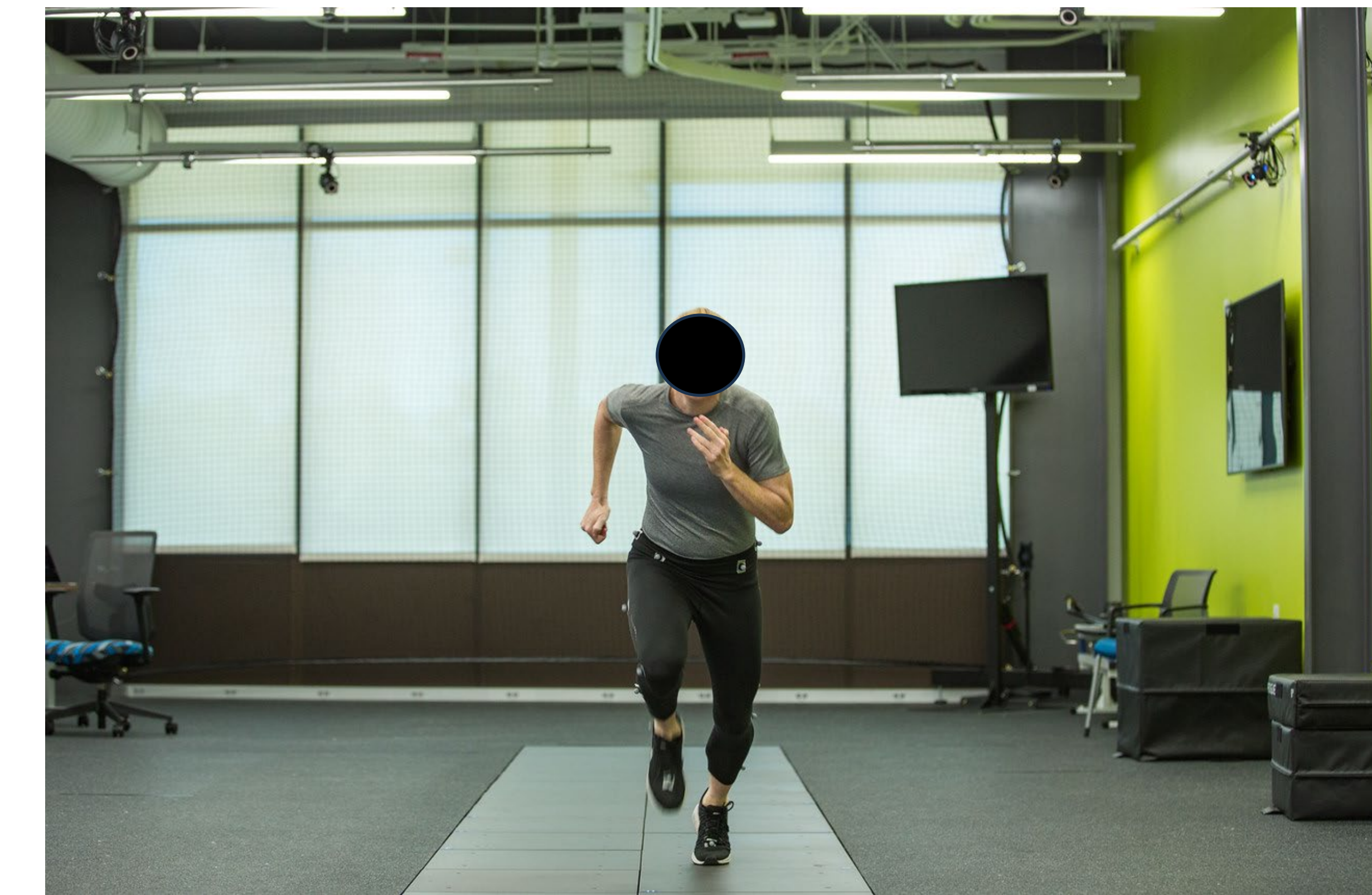


Purpose

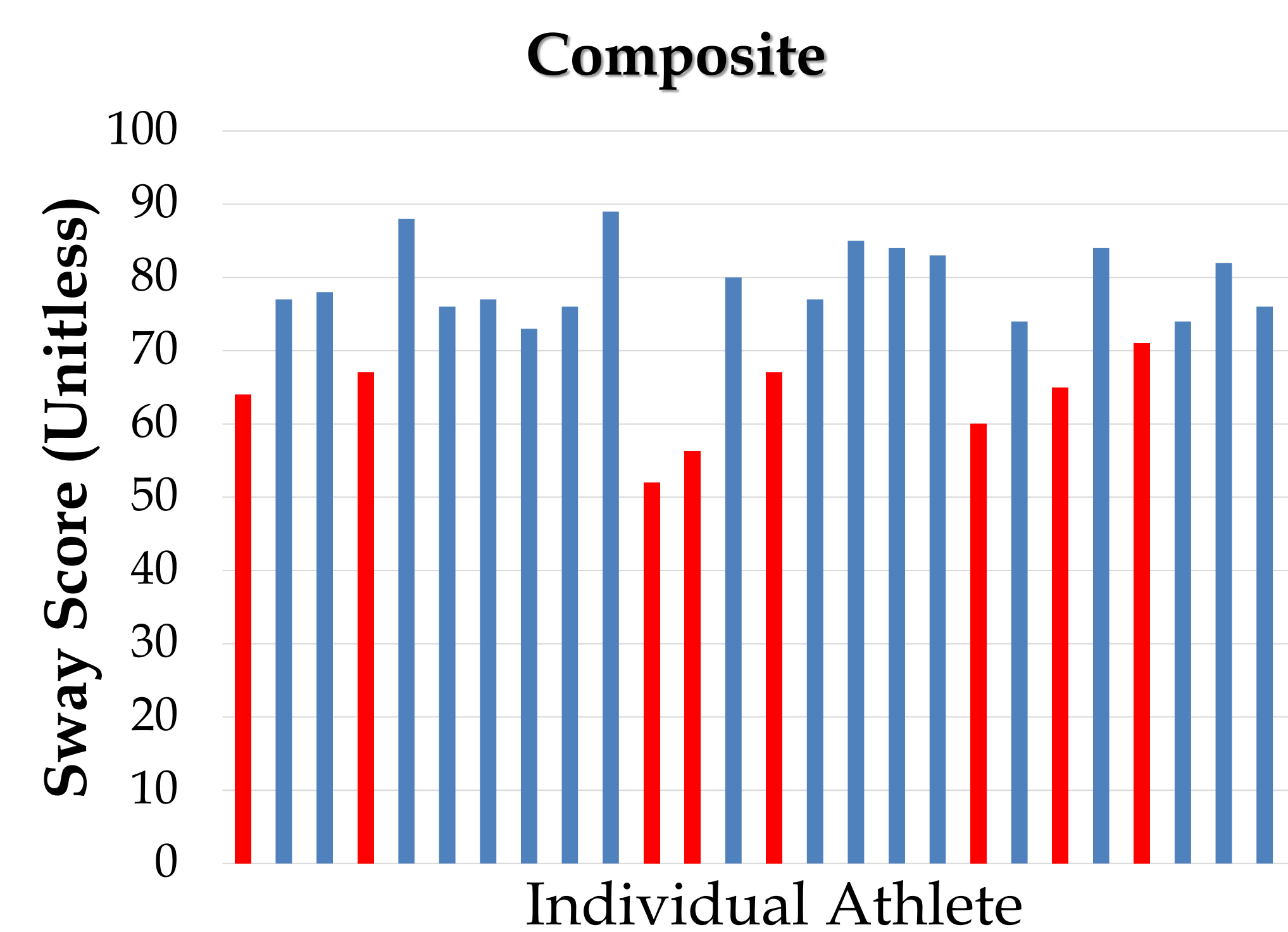
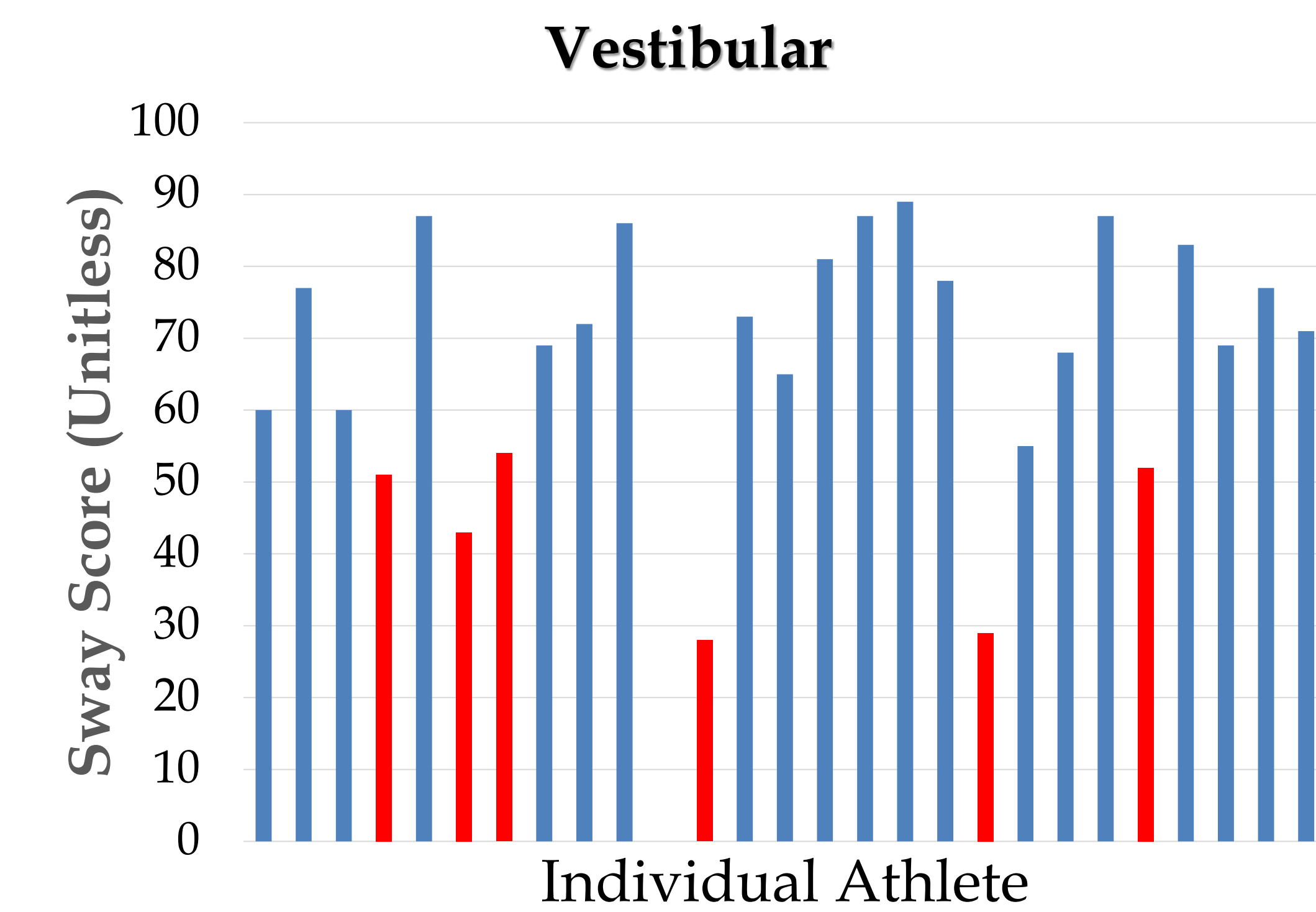
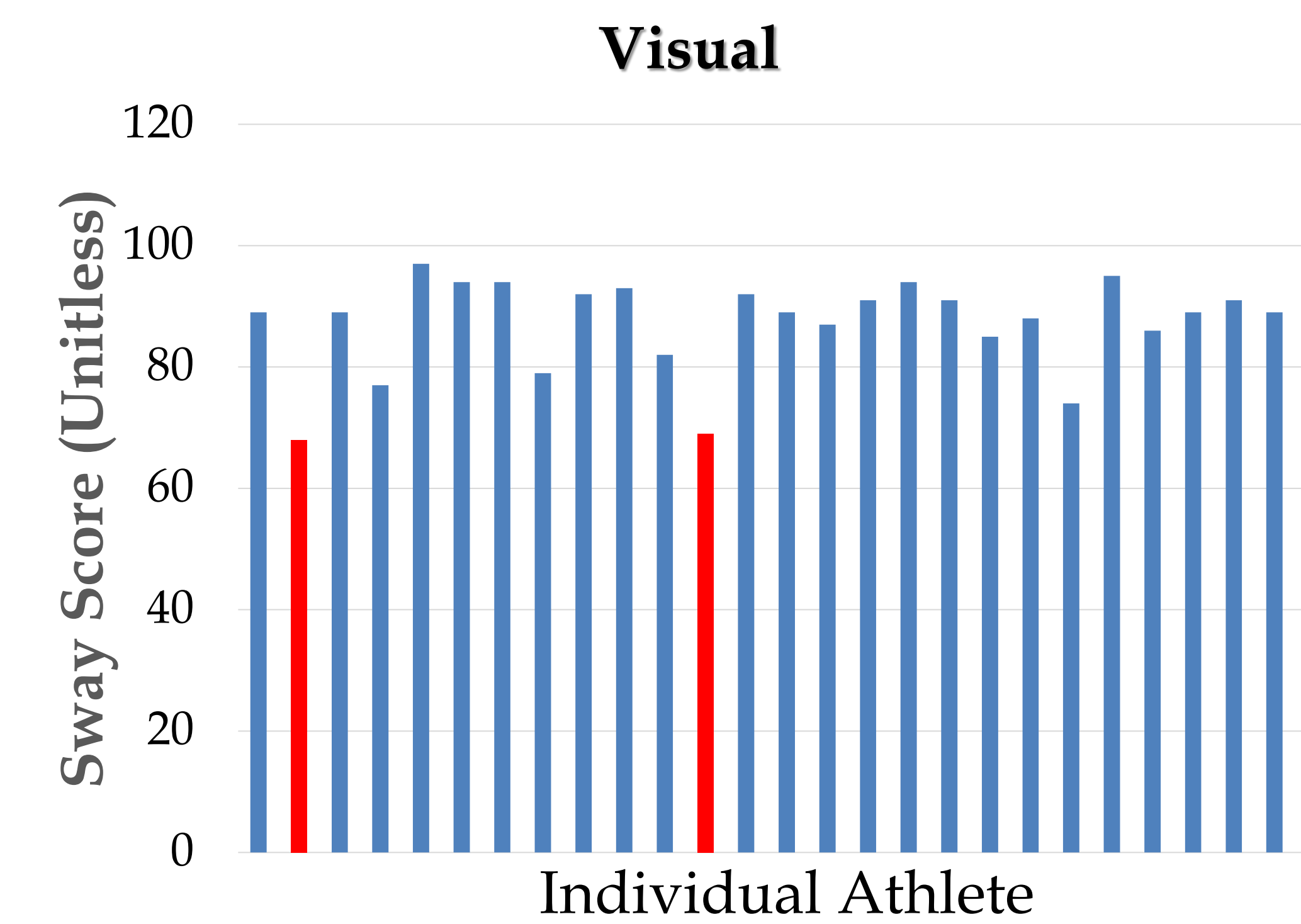
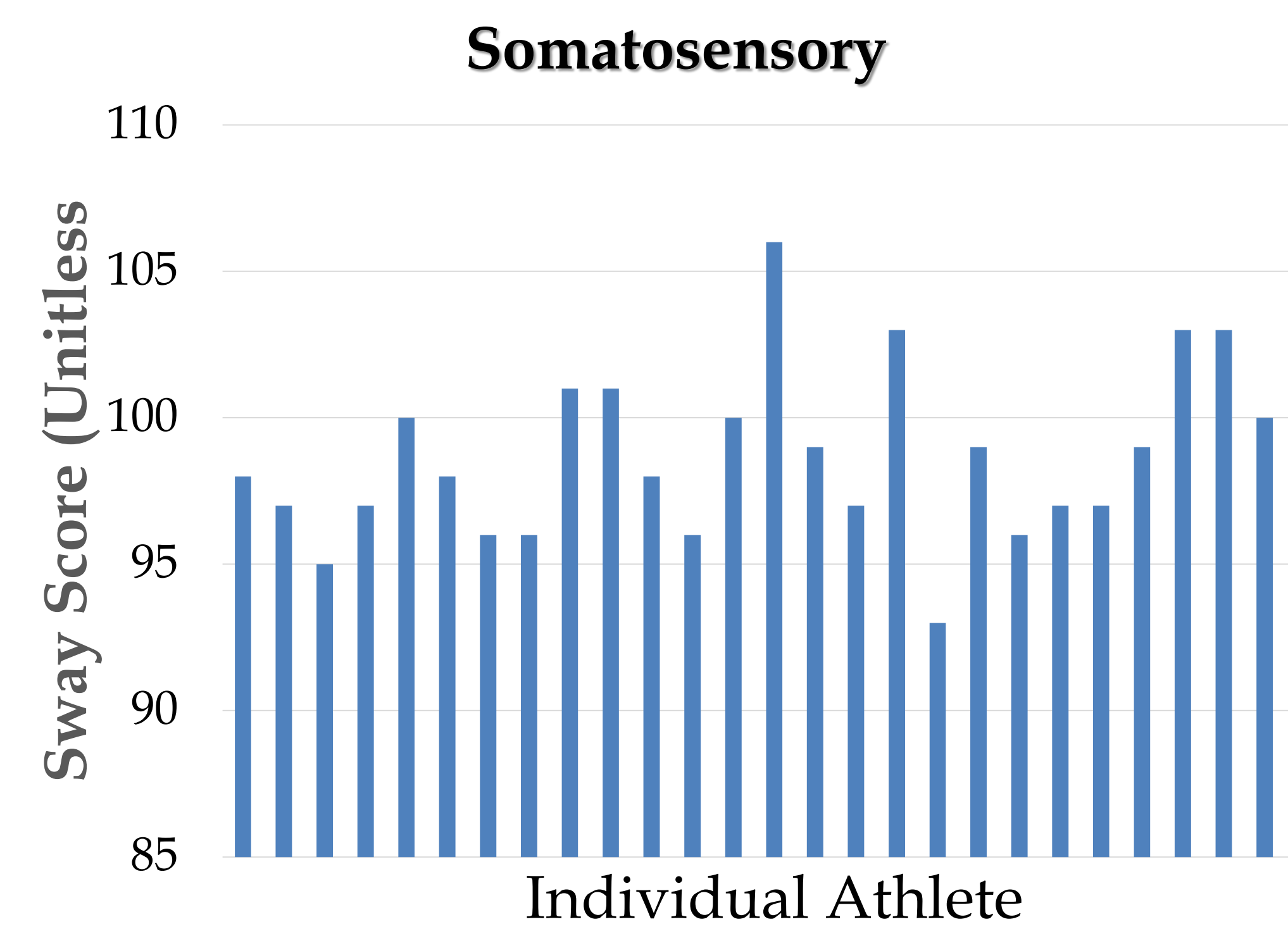
Soccer is a sport that demands speed, agility, quickness, and metabolic fitness for success. Athletes must maintain neuromuscular control in fatigued states to reduce the risk of injury. Many soccer-related injuries affect the lower anterior cruciate ligament or ankle, are non-contact, and occur disproportionately more often in women compared to men. We describe neurosensory function in a group of Women's Professional soccer athletes, to gain insights into other possible contributing factors to knee injuries not yet clinically defined in the scientific literature.

Methods

- After obtaining approval from the Institutional Review Board at the sponsoring university, data were collected on 24 women's professional soccer players ($24.6 \pm 0.5y$; 168.8 ± 1.0 cm; 65.5 ± 0.9 kg).
- The participants ranged from 20-30y and included four national team athletes. The athletes underwent neurosensory testing at the start of the assessment battery prior to training camp and utilized a Computerized Dynamic Posturography (CDP) assessment device.
- Sensory organization testing was performed standing on the CDP force plates under six different conditions:
 1. baseline (eyes open, stable surface),
 2. eyes closed on a stable surface,
 3. eyes open with a sway-referenced visual surround,
 4. eyes open on a sway-referenced support surface,
 5. eyes closed on a sway-referenced support surface
 6. eyes open with both sway-referenced support surface and visual surround.
- The magnitude of sway was recorded (unitless values) and compared to a national database of normative data.
- The results provide an assessment of sensory function across multiple domains, forming a composite risk score. Individuals who scored lower than expected are indicated by the red bars.
 1. somatosensory (SOM)
 2. visual (VIS)
 3. vestibular function (VEST)
 4. overall stability (COMBO).



Results



Practical Applications

- Despite strong somatosensory (SOM) function, many professional women's soccer players demonstrated deficits in visual (VIS) and vestibular (VEST) sensory systems, highlighting specific areas of weakness.
- Vestibular dysfunction was common—eight athletes showed impairments, four experienced falls during testing, and one fell in all vestibular trials—suggesting a potential risk factor for injury.
- Impaired vestibular responses may reduce joint position awareness and increase the likelihood of non-contact lower-extremity injuries in female athletes.
- Sensory organization testing is a valuable tool for detecting subtle proprioceptive and balance deficits that are not easily identified through standard performance assessments.
- Early identification of sensory deficits allows for targeted neuromuscular training interventions that may enhance proprioception, improve postural control, and reduce injury risk.

Acknowledgements: We acknowledge the support of the A. Glenn Houston Endowment, established by former President Dr. Ira K. Blake
 Presented at NSCA National Conference in Kansas City, MO.

