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Quantifying Postural Sway of Simulated Pre & Post Traumatic Brain Injury Trials

Concussions have been recognized as a major problem in sports, enough so that the National Football League and the National Hockey League have mandated strict criteria for return-to-play following a head injury. Furthermore, it is of concern that football players are three times more likely to sustain an additional concussion during the same season if one is sustained previously (Riemann & Guskiewicz, 2000).

The goal of this project was to determine if an App could be created to discern changes in postural sway under two different conditions using the accelerometer in an iPod Touch. The App was developed and placed onto an iPod Touch, and waistband was constructed to hold the device at the mid-back. Subjects performed a Romberg's test with the eyes open and eyes closed to determine the sensitivity of the device at detecting changes. Trials showed that the App was able to detect changes in postural sway from the baseline (eyes open) and post-injury (eyes closed). No biographical data was collected. The App is continually being upgraded to better interpret the information.