

The Effect of TITAN Evo Chairs on Muscle Stiffness, Player Perception and Performance

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ABSTRACT

PURPOSE: To examine the difference of an Aeron chair and a TITAN Evo (TE) chair on muscle stiffness, gaming performance, and gamers perceptions during a 2-hour League of Legends gaming session. **METHODS:** All subjects signed written consent to participate in this mixed-method randomized cross-over design trial. Each subject performed 2 testing days. Prior to each gaming session, subjects were fitted to each chair according to manufacturer guidelines and shown all the adjustable features of each chair. Instructions were “please adjust the chair to your preference”. Prior to gaming, subjects sat for 15 minutes in the chair. Dynamic muscle stiffness [N/m] was tested using oscillation frequency [Hz]. Measurements were taken bilaterally on the upper trapezius, mid trapezius, lower trapezius and erector spinae muscles pre and post 2 hours of game play. Surveys were administered following each day on chair preference. Total Wins and Kills were recorded. A paired t-test was used to compare the difference in muscle stiffness pre- and post-game play between chairs and for wins and kills, as well as descriptive statistics. **RESULTS:** Thirty-three subjects (men 85%, age 23 ± 4.9) were analyzed. No significant differences were found in muscle stiffness measures except upper trapezius. After 2 hours of gameplay, the left erector spinae in the TE was 4.8% less than the Aeron chair ($p=0.1$), and 3.8% less on the right ($p=0.29$). In the TE chair, the left lower trapezius was 1.7% less ($p=0.64$), and 4.4% less on the right ($p=0.44$). The left mid trapezius was 15.6% lower ($p=0.94$), and 13.7% less on the right ($p=0.36$). The left upper trapezius was 7.7% higher ($p=0.03$), and 2.8% higher on the right. No significant difference was found in the left upper trapezius between groups ($p= 0.71$). Although not significant, subjects showed 25% more wins in the TE chair ($p=0.27$) and 15% more kills in the TE chair ($p=0.32$). Chair preference showed 58% of subjects preferred the TE chair over 42% who preferred the Aeron chair. **CONCLUSION:** This study found minimal differences in muscle stiffness between the TE chair and the Aeron chair. However, the data suggests that the TE chair is the preferred choice among this group of gamers and is associated with enhanced performance.