Effectiveness of anti-slip patch to assess lingual performance in use with the IOPI device

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Abstract: The Iowa Oral Performance Instrument (IOPI) is known as the standardized instrument used to measure tongue strength and endurance. A common complaint, however, is that the bulb may move from its intended tongue placement during the measurement. Movement of the bulb may reduce reliability of the recorded measurement; thereby, potentially having a negative impact on diagnostic and rehabilitative practices. This study sought to determine whether an oral-safe biomaterial anti-slip patch is effective in reducing IOPI bulb movement on the tongue while measuring tongue strength and endurance. Additionally, the study sought to identify a participant's overall perception and preference between IOPI bulb conditions. Methods: 40 healthy adults (19-40 years) were randomly counterbalanced and grouped, 1) Anterior Tongue (n = 22) and 2) Posterior Tongue (n = 18). There were 3 IOPI conditions (IOPI bulb, IOPI bulb-Patch 1, IOPI bulb-Patch 2). Each participant performed five tongue strength measures and three tongue endurance measures for each of the 3 IOPI bulb conditions. Each condition was then rated using the Comfort Level Survey. Results: Analysis is currently being conducted. A Cronbach's Alpha will determine ICC (95%) of the Comfort Level Survey. Multivariate ANOVA will determine overall preference amongst the 3 conditions, and Repeated Measures analyses will verify the integrity of tongue muscle performance measures were maintained ($p = .05$). Conclusion: Results may have important implications by introducing a more reliable application of assessing tongue muscle performance while maintaining normative values of IOPI. Such findings may bolster current diagnostic and rehabilitative practices.

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