Perceived Retention, Stability, and Comfort of Mouthguards in Various Dentitions

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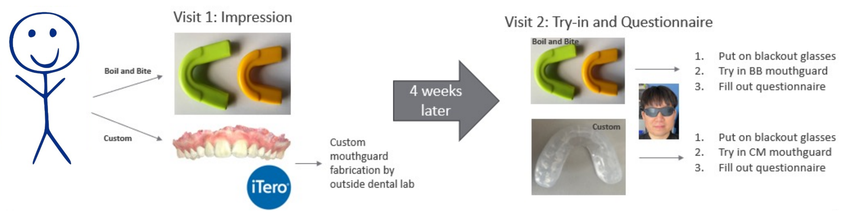
PURPOSE: To assess & compare retention, stability, & comfort of boil and bite versus custom mouthguards in mixed & permanent dentitions.

BACKGROUND

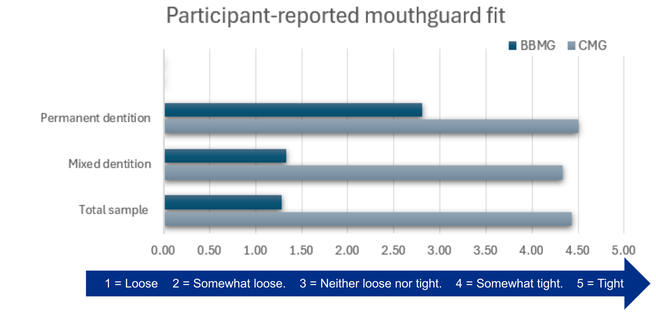
- Dental trauma is a common experience, with approximately 1 billion worldwide having suffered a dental injury at some point.[1]
- Injury to immature permanent teeth in children can result in unfavorable outcomes such as pulp necrosis, resorption, infraocclusion, and tooth loss.[2] The financial and psychosocial effects of these sequelae are significant.[3, 4]
- Sports-related dental injuries comprise 10-39% of childhood dental injuries.[5] Wearing a properly-fitted mouthguard can reduce the risk of dental trauma. [6] There are three types of mouthguards: stock, boil and bite (BBMG), and custom-made (CMG). [7]
- Compliance with mouthguard use is low among children and adolescents.[8, 9]
- Factors reportedly contributing to low rates of mouthguard use in this population include discomfort, a perceived difference in performance level, difficulty in breathing and communicating, and overall fit of the appliance.[10, 11, 12]

METHODS

- Healthy patients presenting to the Department of Dentistry at Boston Children's Hospital who were in mixed (N=10) or permanent (N=10) dentition were recruited for participation.
- At the baseline visit, intraoral impressions for CMG were obtained and BBMG were fabricated
- At a follow up visit, both mouthguards were fitted and evaluated. A 15-question Likert scale survey querying the subjects' perceived retention, stability and comfort was administered.
- Wilcoxon rank sum test was used for pairwise comparison of subjects' responses for CMG and BBMG.

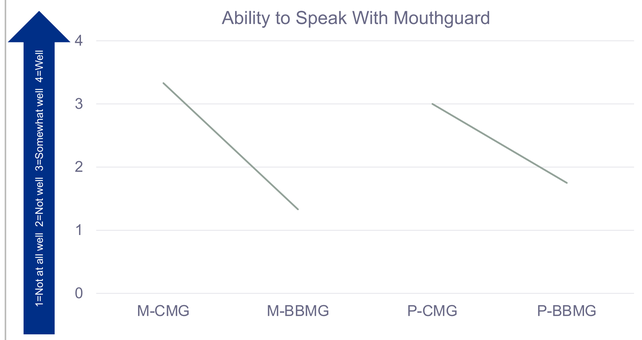


RESULTS



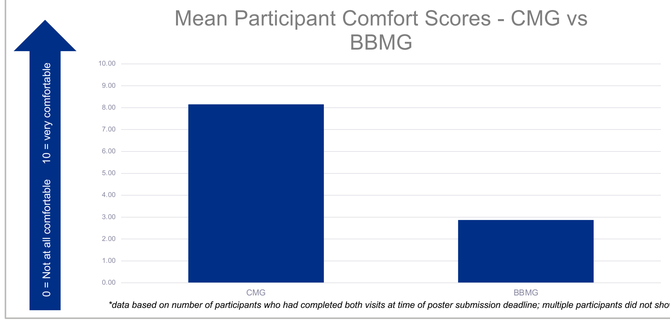
Mean Perceived Fit	CMG	BBMG
Total sample	4.43	1.29
Mixed dentition	4.33	1.33
Permanent dentition	4.50	2.81

***p* = 0.0156**



Ability to speak with MG	Mean score
M-CMG	3.33
M-BBMG	1.33
P-CMG	3
P-BBMG	1.75

***p* = 0.0156**



Comfort: CMG vs BBMG, per dentition	
M-CMG	10.00
M-BBMG	3.33
P-CMG	6.75
P-BBMG	2.50

***p* = 0.0156**

**data based on number of participants who had completed both visits at time of poster submission deadline; multiple participants did not show for scheduled visit 2.*

CONCLUSIONS

- CMG significantly outperformed BBMG on all parameters.
- Participants report significantly improved comfort and retention of CMG compared with BBMG in this study.

FUTURE DIRECTIONS & IMPLICATIONS

- Future need for investigating the motivation for using BBMG over CMG and available reimbursement options for CMG.
- Pediatric dental providers vital in providing anticipatory guidance regarding mouthguard use for all contact sports to patients, families, and through community outreach with teams and other medical professionals.

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