

UNIVERSITI TEKNOLOGI MARA

**SPORTS-RELATED DENTAL INJURIES, ORAL
HEALTH STATUS, AND ACCEPTABILITY OF
CUSTOM-MADE MOUTHGUARD AMONG
MALAYSIA CONTACT SPORTS ATHLETES**

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Thesis submitted in fulfilment
of the requirements for the degree of
**Master of Science
(Dental Science)**

Faculty of Dentistry

October 2022

ABSTRACT

Ready-made mouthguards are widely used by athletes because they are readily available and cheap. However, a ready-made mouthguard does not provide the optimal protection and comfort as a custom-made mouthguard. Therefore, in this study, we explore the acceptability of a custom-made mouthguard among Malaysian contact sports athletes. This is a cross-sectional study of Malaysian athletes targeted from the sports of rugby, silat and field hockey. They were randomly recruited and divided into two groups that received either a conventional mouthguard or a CAD-CAM mouthguard. The study included four components, namely self-reported dental injury questionnaire, intraoral examination, visual analogue scale (VAS) along with oral health impact profile (OHIP-14) and measurement of mouthguard's thickness. Independent t-test was used to evaluate and compare between gender, type of prescribed mouthguards and ANOVA was used to compare between the type of sports. Paired t-test was used to compare before and after the prescription of mouthguard. A total of 95 athletes (56.8% male, 43.2% female) participated in the survey. 47.4% (N=45) are field hockey athletes, 33.7% (N=32) from rugby and 18.9% (N=18) from silat. The experience of self-reported dental injuries was 49.5% (N=47) and the most commonly reported injuries were 35.8% (N=34) laceration to the lip, 24.2% (N=23) bruised to the face followed by 20% (N=19) cheek laceration. Most athletes 95.8% (N=91) are aware that mouthguard can prevent injuries, but only 60.0% (N=57) wear or own a mouthguard. The most common reasons for not wearing mouthguard were general discomfort 25.3% (n=24), 22.1% (N=21) salivation and 17.9% (N=17) reported that speech was affected. On intraoral examination revealed, 49.5% (N=47) had decay, 23.2% (N=22) had missing teeth and 46.3% (N=44) had dental restorations. Only 11.5% (N=5) injuries were observed during intraoral examination. It is also shown that missing and DMFT influence the OHIP-14 score among athletes. ($p < 0.05$). Custom-made mouthguards are shown better VAS and OHIP-14 scores. When comparing the previous experience of mouthguards and newly prescribed custom-made mouthguards, VAS showed a significant improvement as seen in breathing, communication capacity, salivation, bad breath, gingival pain, tooth pain, TMJ pain, comfort, adaptation, flexibility, softness, and level of protection felt by these athletes ($p < 0.05$). It is observed there is no significant difference in OHIP-14 after 1 hour and post 3-months delivery ($p > 0.05$). After 3 months, there is a change of thickness in both conventional and CAD-CAM mouthguards, however, does not affect the VAS and OHIP-14 scores. ($p > 0.05$). From the self-reported question, although mouthguard can prevent injury, not all athletes in this study use them. A custom-made mouthguard is more accepted by the Malaysia contact sport athletes as there are significant improvements and benefits when compared to previous experiences of wearing the ready-made mouthguards or not wearing a mouthguard. Therefore, education of the athletes and prescription on the usage of custom-made mouthguard is deemed necessary.

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and Most Merciful Lord

Firstly, I wish to thank Allah for giving me the opportunity to embark on my Master of Dental Science journey successfully. My gratitude and thanks to my supervisor Dr, Aiemeza binti Rajali, and co-supervisor Dr Nik Rahayyu binti Nik Zulkifeli for their guidance and advice with this research.

I am very thankful for all the support from my parents and my husband, Mohd Shahrudin bin Mohd Shaari, Fahimah binti Abu Bakar and Ahmad Faiz bin Mansor, for the continuous physical, mental, and emotional support throughout this period.

I also would like to express my gratitude to the staff of Institut Sukan Negara and Universiti Teknologi Mara who provided the facilities and assistance during my research journey. Special thanks to my colleague and friends for helping me with this research. Thank you very much, everyone.

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