UNIVERSITI TEKNOLOGI MARA

# APPLICATION OF DAHL CONCEPT IN PATIENTS WITH RESIN BONDED BRIDGE: AN OCCLUSAL FORCE ANALYSIS AND PATIENT'S SATISFACTION STUDY.

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PhD

October 2020

# AUTHOR'S DECLARATION

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# ABSTRACT

**Introduction:** Application of Dahl concept in Resin Bonded Bridge (RBB) had recently gained popularity due to conservation of tooth structure, reversible in nature and it is relatively cheap and quick in construction. This study was carried out to devise a design of a new occlusal force recording system (OccluForce) and also to investigate occlusal force re-establishment, patient's satisfaction and occlusal re-establishment of RBB cemented at an increased occlusal vertical dimension (OVD). **Methodology:** The study was conducted at Faculty of Dentistry, UiTM Sungai Buloh campus. 28 subjects requiring RBB which fulfilled all the inclusion criteria were recruited. The occlusal force was taken during pre-cementation, post-cementation and at 12-week review of RBB cemented at an increased OVD using OccluForce film. The patient's satisfaction study and occlusal contact re-establishment were measured at the 12-week review. The films were calibrated for analysis using Pressure Distribution Mapping System FPD-8010E software (Fujifilm Corp., Tokyo, Japan). Data was analyzed using IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., Armonk, NY.). **Results**: There was significant difference of occlusal force re-establishment in pre-operative and post-operative value *(P<0.05)* and post-operative and 12-week review *(P<0.05)* in all parameters including, age, gender, ethnicity, location (anterior or posterior) and arch (maxillary or mandibular) of the prosthesis except for age group more than 60 years old and Chinese *(P>0.05)*. For re-establishment of occlusal contact after 12-week review, there was no significant difference noted in all parameters. While for patient's satisfaction, all subjects were satisfied with the treatment of RBB cemented at an increased OVD and there was significant difference in avoidance of loading for male compared to female *(P=0.015)*. Males (75%) had tendency to avoid loading compare to females (37.5%). **Conclusion:** These findings suggest that OccluForce film may be utilized for occlusal force measurement. Application of Dahl concept is feasible in RBB cemented at an increased OVD as it will lead to patients' satisfaction and occlusal contact re-establishment in most patients.

**Keywords:** Dahl concept, Resin Bonded Bridge, Occlusal force, Prescale film, OccluForce film.

# ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my PhD and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor **Assoc Prof Dr Lim Tong Wah** and co-supervisor **Assoc Prof Dr Yoshinobu Shoji**.

My appreciation goes to the Restorative Department, Kulliyyah of Dentistry, International Islamic University Malaysia for their sponsorship and for giving me the chance to further my study. I would also like to thank all the doctors and staff at Faculty of Dentistry, UiTM for their support throughout the course.

I would love to thank the research subjects who give their valuable time to participate in this study.

I would also like to thank my family and friends: especially my parents, **Idris Ahmad** and **Roshita Abdul Rahman**, without their love, prayers, motivation and support, I would not be able to finish and complete this thesis, thank you.

Finally, this thesis is dedicated to my lovely wife, **Khairunnisa Ahmad Bustami** and my beautiful daughter, **Arissa Safiyya Rostam Iffendi** for their unwavering love and continuous encouragement. Without their motivation, dedication, patience and confidence in me, this would not have been possible. Alhamdulilah.

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