

Influence of oral microbiome and Stephan curve kinetics in white spot lesion development in orthodontic patients wearing fixed appliances

2020 Grants

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FollowUp Form

Award Information

In an attempt to make things a little easier for the reviewer who will read this report, please consider these two questions before this is sent for review:

- Is this an example of your very best work, in that it provides sufficient explanation and justification, and is something otherwise worthy of publication? (We do publish the Final Report on our website, so this does need to be complete and polished.)*
- Does this Final Report provide the level of detail, etc. that you would expect, if you were the reviewer?*

Title of Project*

Influence of oral microbiome and Stephan curve kinetics in white spot lesion development in orthodontic patients wearing fixed appliances

Award Type

Biomedical Research Award (BRA)

Period of AAOF Support

July 1, 2020 through December 31, 2022

Institution

University of Alberta

Names of principal advisor(s) / mentor(s), co-investigator(s) and consultant(s)

Maria Febbraio, Professor, University of Alberta Consultant; Raisa Catunda, PhD student, University of Alberta

Amount of Funding

\$30,000.00

Abstract

(add specific directions for each type here)

Respond to the following questions:

Detailed results and inferences:*

If the work has been published, please attach a pdf of manuscript below by clicking "Upload a file".

OR

Use the text box below to describe in detail the results of your study. The intent is to share the knowledge you have generated with the AAOF and orthodontic community specifically and other who may benefit from your study. Table, Figures, Statistical Analysis, and interpretation of results should also be attached by clicking "Upload a file".

Submitted to BMC Oral Health - in second revision

Results: 50% of enrolled patients developed a mean 5.7+1.193 WSL. There were no differences in saliva microbiome species richness, Shannon alpha diversity or beta diversity between the groups. Capnocytophaga sputigena was found exclusively, and Prevotella melaninogenica predominantly in WSL patients; Streptococcus australis was negatively correlated with WSL development. Streptococcus mitis and Streptococcus anginosus were primarily present in healthy patients. We found significant moderate correlations with Stephan curve parameters and the following species in WSL developers: Selenomonas spp, Stomatobaculum spp, Butyrivibrio spp, Gemella spp, and Eubacterium nodatum group sulci. Conclusions: While there were no differences in salivary pH or restitution kinetics following a sucrose challenge, and no global microbial differences in WSL developers, our data showed salivary pH association with an abundance of acid-producing bacteria in saliva. The results suggest saliva pH modulation as a therapeutic strategy to inhibit the abundance of caries initiators.

Were the original, specific aims of the proposal realized?*

Yes - See results and conclusions above.

Were the results published?*

No

Have the results of this proposal been presented?*

Yes

To what extent have you used, or how do you intend to use, AAOF funding to further your career?*

AAOF funding has been paramount in my professional development. I have been the recipient of multiple AAOF foundation awards. The initial ones supported me financially the latest ones have allowed me to work with other peers with different skills and knowledge to complete multidisciplinary research. Current levels of research support in orthodontics are quite limited. The support of AAOF is immensely appreciated.

Accounting: Were there any leftover funds?

\$2,000.00

Not Published

Are there plans to publish? If not, why not?*

Yes. BMC Oral health. Revision submitted last week. Remaining funds are to be used to pay for publication fees.

Presented

Please list titles, author or co-authors of these presentation/s, year and locations:*

Influence of oral microbiome and Stephan curve kinetics in white spot lesion development in orthodontic patients wearing fixed appliances

Catunda R, Altabtadei K, Flores-Mir C, Febbrario M.

Discovery dental seminar – Department of Dentistry at the University of Alberta venue to showcase graduate student research.

We presented some of our results at the annual Pacific Coast Society of Orthodontists conference in San Diego/USA - October 2022

Was AAOF support acknowledged?

If so, please describe:

Yes in both presentations and in the current revised manuscript.

Internal Review

Reviewer Comments

Reviewer Status*

File Attachment Summary

Applicant File Uploads

No files were uploaded