Influence of Single Implant Submersion due to Continuous Craniofacial Growth, to Smile Attractiveness

P. Ntovas,* M. Soundia, I. Karveleas, O. Ladia, D. Tarnow, E. Papazoglou,

Department of Operative Dentistry, School of Dentistry, University of Athens, Greece
Division of Prosthodontics, Department of Restorative Sciences, School of Dentistry, University of Minnesota
Professor & Director of Implant Education, Columbia University College of Dental Medicine, New York

Poster ID
133

Introduction

Restoring single missing teeth in the anterior zone, with osseointegrated dental implants, has been established as a viable option in contemporary practice. An optimal long-term clinical result has to be related not only to peri-implant health and osteointegration, but also to the esthetic outcomes of the implant retained crown, like soft tissue topography around the implant supported restoration and the position of its crown in relation to the adjacent teeth and the surrounding tissues. Some negatives observations, that have been reported for long-term esthetic outcomes are derived by the inability of dental implants to adapt to positional changes of the natural dentition.

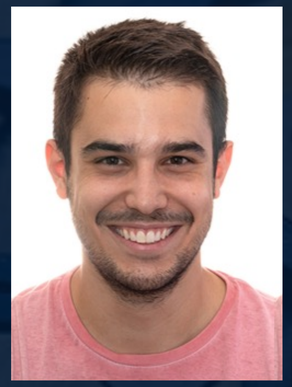
Several researchers have investigated the prevalence of infraocclusion of a single dental implant in anterior zone, however the influence of the deficiencies derived from a single infraoccluded implant to the attractiveness of the smile has not been studied yet.

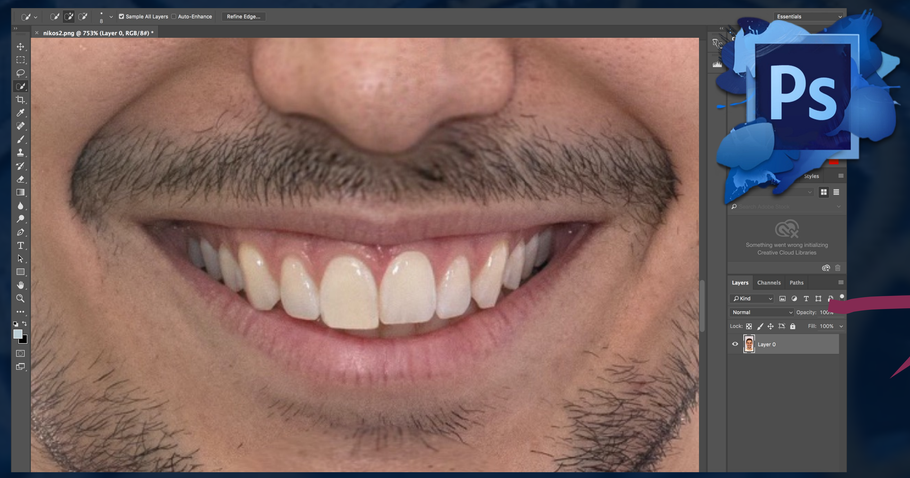
Objective

To evaluate the influence of a single infraoccluded dental implant, to smile attractiveness.

Academy of Osseointegration

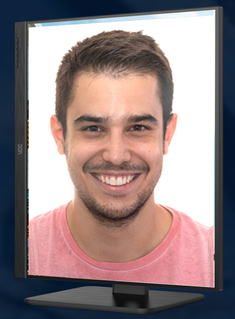
Materials & Methods



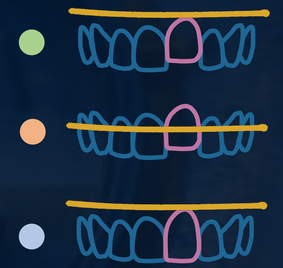


n=80
Dentists

n=80
Laypeople

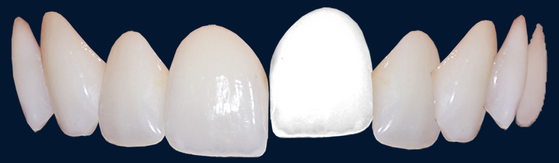


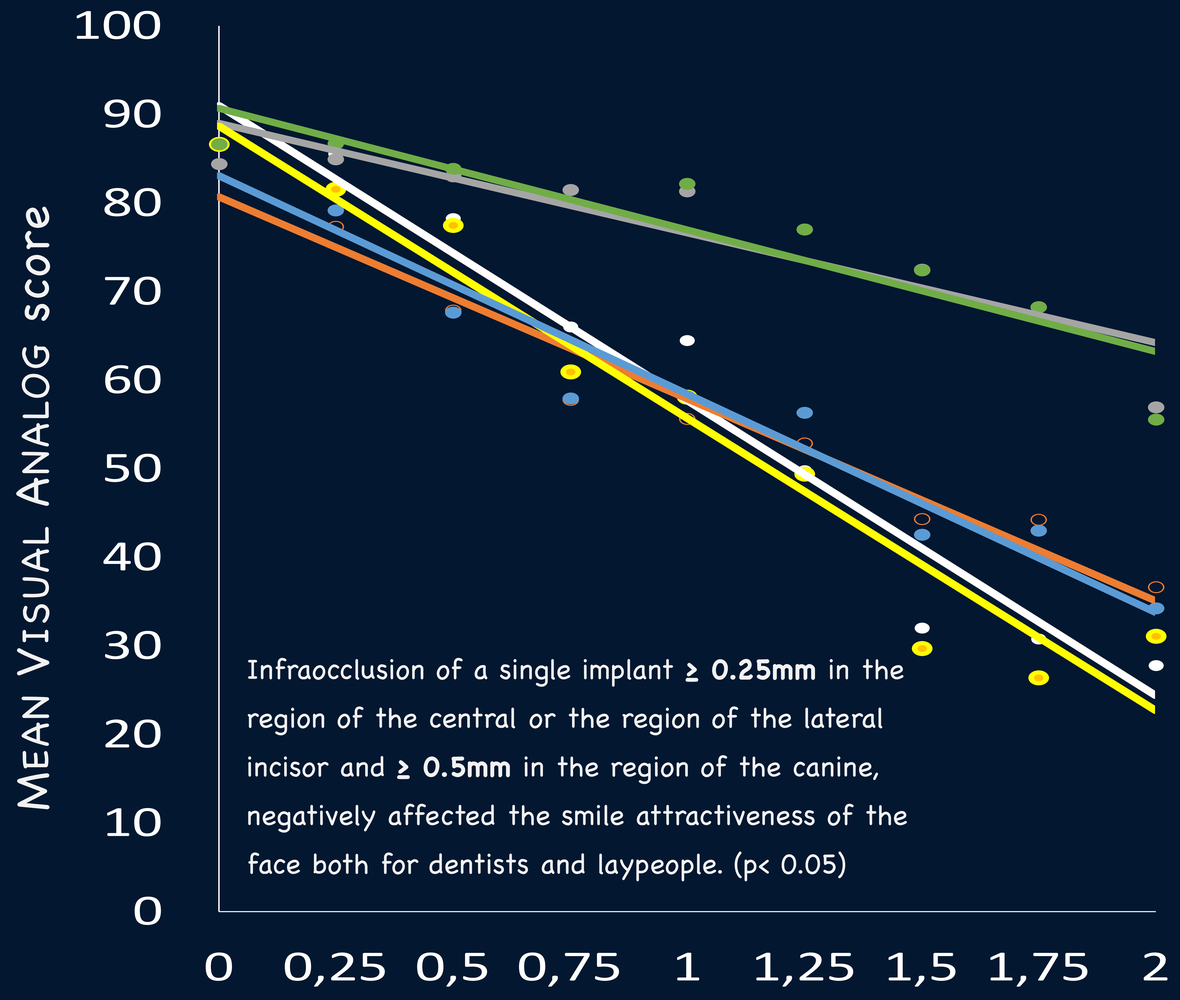
A series of 75 digital modified images, 24 for a high smile line, 24 for a medium smile line and 24 to simulate a prosthetically elongated infraoccluded implant, simulating a varying degree (from 0.25 to 2mm) of single dental implant infraocclusion, 8 for each single anterior tooth (#9, #10, #11), was created by altering a full-portrait image of a male Caucasian. The images along with a visual analog scale for each one of them, were evaluated from a total of 160 participants (80 dentists, 80 laypersons), in real dimensions utilizing a screen in vertical orientation, in order observers to record the perceived attractiveness of each image.

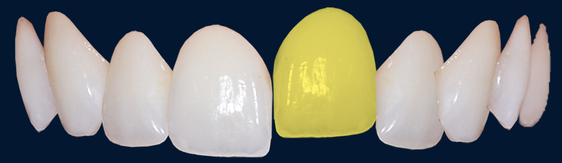


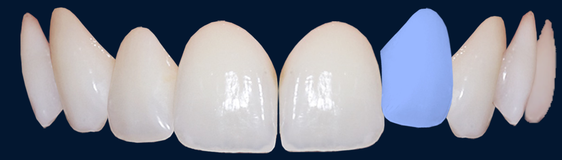
Results

High Smile Line



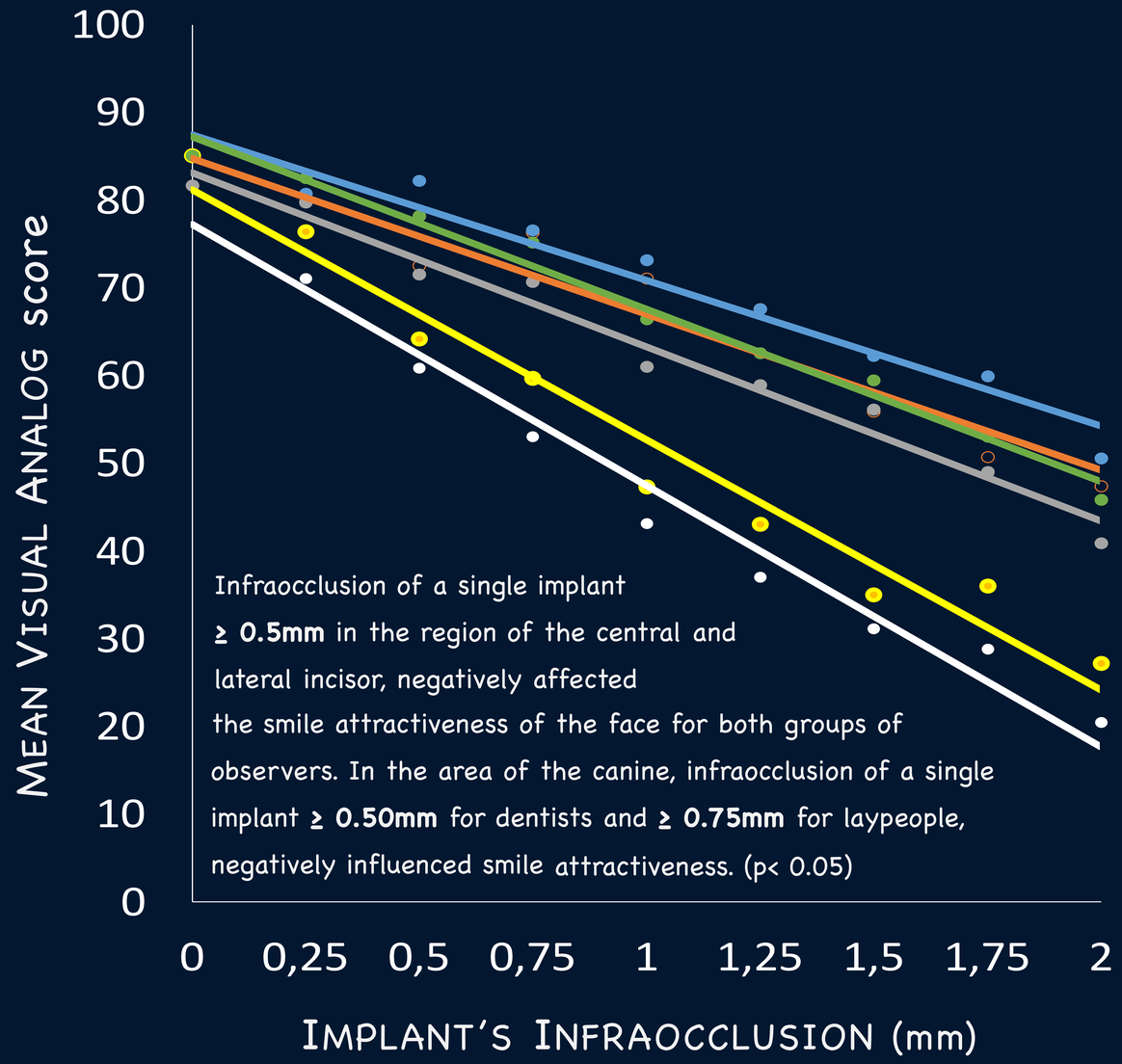






Results

Medium Smile Line



Results

High Smile Line

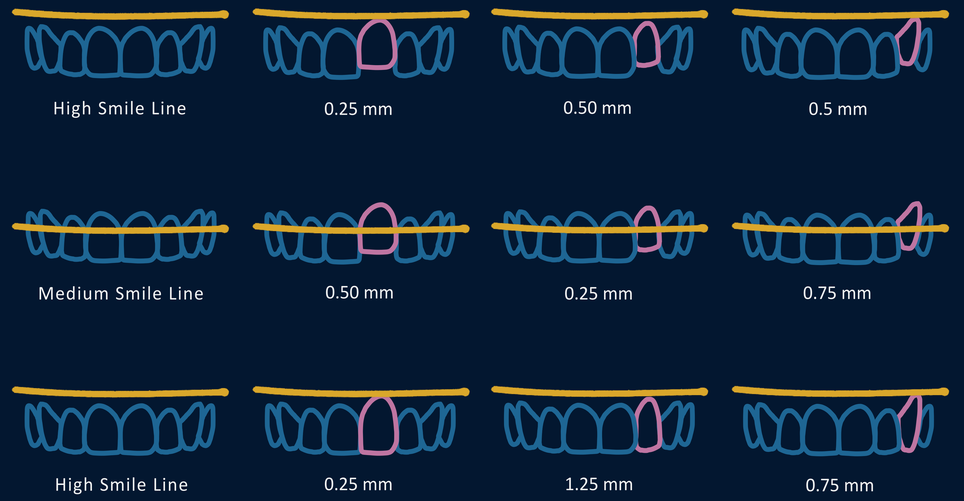
Medium Smile Line

Limitations

The research design, that was implemented in the present study, using digital altered images of the same individual, aimed to bridge the gap between in-vitro and in-vivo, as a gradual implant's submersion for each one of the anterior maxillary teeth is very hard to be performed in vivo, especially when a high and a medium smile line has to be simulated in the same model. However, real-life social interactions and especially the dynamics of the smile, could not be simulated by the experimental design that was applied in the present study.

Conclusions

Even a minor submersion of a single implant in the area of maxillary anterior teeth, can reduce the perceived attractiveness of the face. Infraocclusion in canine' s area can be better tolerated in a medium, compared to a high smile line. In patients with a high smile prosthetic elongation of the crown, can be beneficial for an infraoccluded lateral incisor, ineffective for the central incisor and unfavourable for the canine. As a result prosthetic intervention has to be combined with soft tissue augmentation or orthodontic treatment, especially for infraocclusion in the area of central incisor or the canine.



Thresholds for esthetic acceptability of single tooth's infraocclusion for a high smile line, a medium smile line and a prosthetically elongated tooth.

1. Parrini S, Rossini G, Castroflorio T, Fortini A, Deregibus A, Debernardi C. Laypeople's perceptions of frontal smile esthetics: A systematic review. Am J Orthod Dentofacial Orthop. 2016 Nov;150(5):740-750.
2. Zitzmann NU, Arnold D, Ball J, Brusco D, Triaca A, Verna C. Treatment strategies for infraoccluded dental implants. J Prosthet Dent. 2015; 113:169-74.