## Direct Resin-Based Composite Dahl Appliance: A Case Report

## M. Golobic/N. Funduk

Department for Prosthodontics, Dental Clinic, Medical Faculty, University of Ljubljana, Slovenia

Purpose: Tooth wear localized to the anterior maxillary teeth with loss of interocclusal space is difficult to manage. With the use of a Dahl interocclusal appliance, the necessary space is obtained by a combination of intrusion of the anterior teeth in contact with the appliance and eruption of the separated posterior teeth. Conventional removable or cemented metal Dahl appliances are associated with undesirable appearance and difficulty of removal after the necessary space has been created. Those disadvantages can be overcome with a direct resin-based composite built-up Dahl appliance, which creates interocclusal space while at the same time offering permanent esthetic treatment of worn teeth. *Materials and Methods:* This report describes the treatment of a 30-year-old patient with idiopathic anterior palatal tooth erosions, incisal chipping, and lack of interocclusal space. Study casts were poured and mounted. The vertical dimension of occlusion was increased to a height that rendered a diagnostic waxup of the worn palatal and incisal surfaces of the anterior maxillary teeth possible. Palatal bite platforms for contact with the opposing dentition were incorporated in the waxup. With the use of corresponding templates, a direct resin-based composite appliance was constructed, observing the principles of Dahl's original technique. The thickness of the material placed on the palatal aspect of the worn teeth directly related to the interocclusal space that was required to restore the worn surfaces. Occlusal bite platforms were constructed to ensure that occlusal forces were directed along the long axis of the teeth. Stable interocclusal contacts were provided. The appliance did not impede the movement of the discluded teeth. **Results:** After 9 months, posterior occlusal contacts were reestablished and the palatal bite platforms were ground away. The remaining composite represented a medium-term definitive restoration of the worn tooth surfaces. Conclusion: With the use of directly bonded resin-based composite, the Dahl principle can be combined with esthetic treatment of worn anterior teeth. Precise treatment planning and use of silicone and thermoforming foil templates increases the predictability of the functional and esthetic outcome and reduces chairside time.



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**Dr Matjaz Golobic** was born in Ljubljana, Slovenia in 1976. In 2003, he obtained his DMD at the University of Ljubljana and joined the Ljubljana University Prosthodontic Department as a teaching assistant. The same year, he started his postgraduate Multidisciplinary Scientific Studies of Biomedicine and is currently involved in the research field of zirconia ceramics. In 2007, he entered Postdoctoral Prosthodontic training at the Ljubljana University Dental Clinic.

## What was your rationale for choosing this research topic? Is it a scientific rationale or clinical wisdom that you employ as a basis for your choice of the Dahl appliance?

One of the relevant trends in contemporary dentistry is preservation of tooth substance. The use of the Dahl appliance is an alternative to the classic prosthodontic approach of creating interocclusal space between the worn anterior teeth and their antagonists by means of grinding the sound tooth substance. The resin-based composite Dahl appliance offers a minimally invasive esthetic treatment solution for the worn anterior teeth, especially suitable for patients who do not need or want extensive prosthodontic or orthodontic treatment. It also facilitates the subsequent fixed prosthodontic restoration of the worn teeth at low biological cost, when indicated.

Although the mechanisms of supra-eruption of the unopposed teeth have still not been fully elucidated, the effect of the Dahl appliance has been investigated thoroughly in the original scientific work of Dahl and co-workers in the early 1980s. Subsequent clinical reports of the successful use of the Dahl-type appliances complement that scientific basis.

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