

## WEAR OF LITHIUM DISILICATE CANINE RESTORATIONS OVER 3 YEARS OF CLINICAL SERVICE

**Objective:** The aim of this study was to evaluate the mean height and maximal height loss of canine restorations in patients after complete prosthetic rehabilitation due to severe tooth wear with lithium disilicate ceramic over 3 years.

**Materials and Methods:** 40 canine restorations were analyzed in 10 patients as part of a clinical study with complex rehabilitations made of monolithic lithium disilicate ceramic (IPS e.max Press, Ivoclar, Schaan, Liechtenstein). Data was collected at annual recall appointments with polyether impressions and digitalization of the gypsum cast using a laboratory scanner. The obtained datasets (n=104) were exported to a surface analysis software (GOM Inspect Professional, Braunschweig, Germany) and were individually overlaid over the baseline dataset. The superimposition error of 10µm was determined as exclusion criteria for further data analysis (n=16). The mean and maximal height loss of occlusal-contact areas were quantified. Kruskal-Wallis test was used to determine significant differences between groups regarding time, as the data showed significant deviations from the Gaussian distribution (Shapiro-Wilk test).

**Results:** Mean/Maximum wear rates resulted as following: for the first year 33.2±21.5/97.7±63.5 µm/year, for the second year 22.7±19.5/57.9±37.0 µm/year, for the third year 18.1±11.5/56.9±40.7 µm/year. Both groups showed significant differences regarding time, with decreasing values over time.

**Conclusions:** This data gives first insights into clinical wear of canine restorations made of monolithic lithium disilicate ceramic. This study showed comparatively low restorations wear rates, with significant differences between groups with rising time in situ. Highest mean and maximum wear rates could be observed for the first year of clinical service. Generally, wear of canine restorations should be taken into account when choosing the material for prosthetic rehabilitation, as the canine guidance ensures adequate function in dynamic occlusion and reduces shear forces on posterior teeth and restorations.