

A pilot trial on lithium disilicate partial crowns using a novel prosthodontic Functional Index for Teeth (FIT)

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Purpose: Lithium disilicate is now an accepted material for indirect restorations. The aim of this trial was to evaluate clinical performances of two lithium disilicate systems using a novel prosthodontic Functional Index for Teeth (FIT) after three years of clinical service.

Material and Methods: Partial adhesive crowns on natural abutment posterior teeth were made on sixty patients. Patients were divided into two groups: Group 1 IPS e.max press (Ivoclar-Vivadent, Schaan, Liechthestein), and Group 2 Initial LiSi press (GC Co., Tokyo, Japan). The restorations were followed-up for 3 years, and the FIT evaluation was performed at last recall. The FIT is composed of seven variables (Interproximal, Occlusion, Design, Mucosa, Bone, Biology and Margins), each of them are evaluated using a 0-1-2 scoring scheme and is investigated by an oral radiograph and occlusal and buccal pictures. More in details, three variables have the three scores made on the presence or not of major, minor or no discrepancy (for 'Interproximal', 'Occlusion' and 'Design'), presence or not of keratinized and attached gingiva ('Mucosa'), presence of bone loss >1.5 mm, <1.5 mm or not detectable ('Bone'), presence or not of Bleeding on Probing and or Plaque Index ('Biology'), presence of detectable gap and marginal stain or not ('Margins'). The Mann-Whitney 'U' test was used and the level of significance was set at $p < 0.05$. Also, "success" of the crowns (restoration in place without any biological or technical complication) and "survival" (restoration still in place with biological or technical complication) were evaluated. **Results:** Regarding FIT scores, all partial crowns showed a stable level of the alveolar crest without detectable signs of bone loss in the radiographic analysis. All other evaluated parameters showed a high score, between 1.73 and 2. No statistically significant difference emerged between the two groups in any of the assessed variables ($p > 0.05$). All FIT scores were compatible with the outcome of clinical success and no one restoration was replaced or repaired and the success rate was 100%.

Conclusions: The results showed that it is possible to evaluate the clinical performance of partial crowns using FIT. The FIT proved to be an effective tool to monitor the performance of the restorations and their compatibility with periodontal tissues at the recall. The FIT can be really helpful for a standardized evaluation of the quality of the therapy in prosthodontic dentistry. The two lithium disilicate materials showed similar results after 3 years of clinical service.