

## **Introduction of a novel Functional Index for Teeth Prosthodontic Score (FIT): A prospective study analyzing single-unit natural abutment crowns after three years of loading.**

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### **Abstract**

**Objectives:** The aim of this prospective clinical cohort study was to validate natural abutment crowns with a novel Functional Index for Teeth Prosthodontic Score (FIT) an instrument in assessing prosthetic success, as a supportive tool to validate a satisfactory outcome as perceived by patients, to identify possible failure risks, and to compare follow-up observations.

**Material and methods:** Thirty patients were restored with partial adhesive crowns on natural abutment in posterior sites and annually followed-up for 3 years. FIT was applied for the objective outcome assessment including clinical and radiographic examinations. Seven variables (Interproximal, Occlusion, Design, Mucosa, Bone, Biology and Margins) were defined for evaluation, resulting in a maximum score of 14 per restoration. The patients' level of satisfaction was recorded and correlated with FIT.

**Results:** All crowns revealed survival rates of 100 % without any biological or technical complications after three years of clinical service. At last recall the mean total FIT score was 13,26 and 13,66 respectively for Group 1 and 2, ranging from 12 to 14. All seven variables/parameters (Biology, Bone, Design, Interproximal, Margins, Mucosa, Occlusion) were evaluated and scored as following with a media ranging from 1,73 to 2. The variable "bone" demonstrated the most consistent results and highest scores with a mean value of 2 (range: 2–2) in both groups. Similarly mean score was recorded for the variable "occlusion" and "mucosa" 2 (range: 2–2) in Group 1 and 1.9 in Group 2 (range: 1-2). Mean scores for "design" 1.86+0.7 in Group 1(range: 1–2), and 2 (range: 2–2) in Group 2, "mucosa" 2 (range: 2–2) in Group 1 and 1,93+02 (range 1-2) in Group 2, "interproximal" 1.73+0.7 (Group 1) (range: 1–2) and 2 (Group 2) (range: 2–2), "biology" scored in both Groups 1.93+03 (range 1-2) and "margins" 1.73+08 (range 0-2) in Group 1 and 1.86+07 (range 1-2) in Group 2 and was the most challenging parameter to be satisfied. No statistically significant differences were found between the two Groups. The patients expressed a high level of functional satisfaction at or above 80 on the VAS for both questions. The mean score of Q1 was 97 (Q25–Q75: range: 65–100) for group 1 and 98.6+2.5 for Group 2 (Q25–Q75: range: 65–100). The mean score of Q2 was 95,6+-1.5 (median: Q25–Q75: range: 90–100) for group 1 and 99+-1.5 for Group 2 (Q25–Q75: 73–95; range: 100–100).

A statistically significant positive correlation was found between total FIT score and Q1 (Spearman's Correlation Coefficient  $\rho = 0,673$ ;  $p = 0,006$ ) and Q2 (Spearman's Correlation Coefficient  $\rho = 0,809$ ;  $p < 0,001$ ).

**Conclusions:** The findings of the clinical trial indicated the potential of FIT as an objective and reliable instrument in assessing implant success. FIT can be considered as a supportive tool to validate a satisfactory outcome as perceived by patients, to identify possible failure risks, and to compare follow-up observation.