

## R161

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### **A 20-year clinical study: functionality and success of root canal treatments**

**Aim** This prospective cohort study aimed to evaluate endodontically-treated teeth checked periodically for at least 20 years.

**Methodology** A large number of patients were managed between January 1989 and January 1996 for various endodontic reasons (deep caries/pulpitis, periapical lesion, prosthetic reason, retreatment for re-exacerbate lesion) and followed-up for at

least 20 years. Teeth were endodontically treated by a single specialist and restored definitively by four different operators. During the routine hygiene recall-program (approx. every 2 years for 20 years), teeth were clinically and radiographically blindly assessed to detect clinical symptoms, presence of apical radiolucency (PAI), quality of root filling, presence of apical extrusion and quality of coronal restoration (coronal status). A Chi-square-test was performed to detect statistically significant pre-, intra- and post-operative factors associated with root canal treatment disease ( $p < 0.05$ ). Multilevel analysis was performed to explore factors associated to endodontic failure/disease development. A Kaplan Meier analysis was used to examine tooth survival.

**Results** At 20-year recall, 196 teeth in 70 patients (39M, 31F; mean age  $37.7 \pm 8$  years) were analyzed. 153 (78.1%) were functional and 41 (20.9%) had been extracted. Out of these, 39 were lost for non-endodontic reasons (tooth fracture, periodontal diseases, deep carious/not-restorable tooth) and 2 as a result of the sequelae of endodontic pathosis. 128 teeth (65.3%) did not have endodontic disease, were not retreated ( $PAI \leq 2$ ) and were defined as healthy. Twenty-seven teeth (13.7%) developed an endodontic lesion, or showed a stable/unaltered periapical radiolucency ( $PAI \geq 3$ ) during the 20 year follow-up; these teeth were defined as endodontically diseased. Pre-operative disease, initial PAI and coronal status significantly influenced ( $p < 0.05$ ) the final outcome/success rate.

**Conclusions** In the long-term, approximately 80% of treated teeth remained functional. Teeth were more frequently extracted for non-endodontic reasons rather than for endodontic failure/sequelae. Endodontically treated teeth that received and maintained an adequate hygiene therapy and coronal restoration were associated with long-term success.