Over 90% of implants supporting bridges and crowns survive 5 years.

Lindh T, Gunne J, Tillberg A, Molin M. A meta-analysis of implants in partial edentulism. Clin Oral Impl Res. 1998: 9; 80–90

Objective To assess the survival of implants supporting fixed partial dentures and single crowns in partially edentulous patients.

Data Sources MEDLINE 1980–1996 using terms, dental implants, cylindrical intraosseous, osseo-integration, edentulous, partial, single, fixed bridges, fixed partial dentures, prosthodontic treatment, survival. In addition reference lists of collected papers were searched. Only papers published in English or with English abstracts were included.

Study selection Studies were included which reported on cylindrical metallic threaded intraosseous implants, had a minimal follow-up period of 1 year, implant failure was defined and cumulative survival rate could be calculated. Where multiple reports used the same implants only the most recent data was used.

Data extraction and synthesis A life-table actuarial analysis was performed for each study and for pooled data on implants from single crown and fixed partial denture groups.

Results 66 studies were identified. Nine studies on single crown (SC) supporting implants, 9 on implants supporting fixed partial dentures (FPD) and one reporting on both SC and FPD were included (19 in all). The included studies totalled 2686 implants 570 supporting SC and 2116 supporting FPDs.

Conclusion The cumulative survival rate for implants supporting fixed partial dentures and single crowns in partially edentulous jaws was found to be over 90%.

	1yr		4–5yrs	
	% Survival	95% SE	% Survival	95% SE
Fixed Partial Dentures (FPD)	95.9	0.9	93.6	1.2
Single Crowns (SC)	98.1	1.1	97.5	1.4

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Commentary

The use of dental implants to support single crowns or fixed partial dentures is a frequently used treatment option in restorative dentistry. The affluent patient especially asks for the replacement of missing or untreatable teeth with implant restorations in lieu of conventional prosthodontics to avoid the need for preparation of natural teeth as abutments. Other patients may decide against the implant alternative due to the higher out-of-pocket expense, since insurance reimbursement is not available or only to a minimal extent.

From the dentist's perspective another argument has value. Whereas for the treatment of edentulous patients, evidence has been established that implant supported prostheses are a long-term predictable mode of therapy, data on single crowns and fixed partial dentures are still sparse and shorter term. So far, one meta-analysis[1] demonstrated that implants represent a predictable treatment modality and that patient satisfaction is high. However, more such data are needed to assist clinicians, patients and hopefully also third party payers in the decision making process. Thus, the paper discussed here is of great value.

In this study, a meta-analytic technique was applied to assess the survival of implants supporting single crowns or fixed partial dentures. Meta-analyses form a valuable and accepted tool to compile information for the purpose of gaining generalised results and conclusions for evidence based decision making. In this case, a survey of the literature revealed 66 studies, published between 1986 and 1996. Nine studies on single implants and 10 studies on fixed partial dentures met the authors' inclusion criteria for the meta-analysis, which were: 1) published in English in a peer-reviewed journal, 2) reported on threaded cylindrical metallic endosseous implants, 3) minimum follow-up of 1 year after loading of implants, 4) definition of implant failure provided and 5) cumulative survival rate calculable. Data from a total of 2686 implants, 570 single crowns (SC) and 2116 supporting fixed partial dentures (FPD) were analysed. In order to calculate annual survival rates for individual studies, a life-table analysis was conducted. Maximum follow-up time ranged between 1–8 years. After 1 year the survival rate was calculated to be at least at 85.7% for FPD and 97.2% for SC. When the results from all included FPD studies were pooled, the survival rate was 93.6% after 6–7 years. The corresponding value for SC was 97.5%.

The authors draw the valid conclusion that in the short term these results are comparable with the survival rates for implants in completely edentulous jaws and should be considered a strong clinical argument for restoring partially edentulous patients with implants.

Future analyses might usefully include both numeric and statistical survival data as well as measurements including patient satisfaction criteria. Comparative data on conventional crowns and fixed partial dentures would also be of value.

1 Fritz M. *Ann Periodontol* 1998; **1**: 796–815.

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