



What Works When Using Implants: The Science

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Evidence-based practice (EBP) aims to apply the best available evidence gained from the scientific method to aid clinical decision-making. Once the science indicates what works, treatment needs to be matched to the individual situation and personal desires. When several treatments may obtain a similar result, the most practical approach to achieve a predictable result is to use the one which has the lowest cost, is the least invasive and is the least complicated.

I make it known that I'm using the best science available to come up with effective and efficient treatments. If a patient answers that they have been successful at some time with an upper full denture, I commonly recommend an upper denture made with premium materials and a lower implant overdenture with two or three implants. If some usable teeth are present, a tooth and implant supported removable partial denture might be the best solution. All these relatively simple treatments have been shown to provide very satisfactory results in the majority of patients. After the risks and rewards are disclosed, a full description is given of time, effort and money required to accomplish this treatment.

Two implants with snap retention, an **implant retained denture**, can be a good mandibular treatment when ridges are sufficient to add stability. Studies show more posterior bone resorption occurs using that plan shortly after extractions. (1) With healed ridges, there is more annual bone loss than with a fully **implant supported prosthesis**. (2) Implant support is preferable for the resorbed mandible using an implant overdenture with three implants or "all on four" hybrid bridgework. Data about upper denture instability when opposed by an implant overdenture is contradictory though evidence suggests some increase in fracture and frequency of relines. (3)

Despite the prominent exposure in dental magazines and at implant continuing education courses, the science does not support maxillary fixed bridgework or hybrid type appliances as superior to the less costly denture or overdenture. (4, 5) Problems with lip support, speech, esthetics and breakage make this a demanding restoration. (6, 7) In highly predictive "same patient" comparisons, McGill University found a fairly even split when allowing patients to choose between an implant bridge and an implant overdenture for either the upper or lower jaw. Younger, less experienced denture patients preferred the fixed option. (5, 8) Even so, posterior bone loss occurs at a rate higher with the maxillary implant bridgework than the maxillary implant overdenture. (9)

Sources

1. Jacobs, R., Schotte, A., van Steenberghe, D., Quirrynen, M. & Naert, I. (1992) Posterior jaw bone resorption in osseointegrated implant supported overdentures. *Clinical Oral Implant Research*. Jun; 3(2), 63-70.
2. Wright, P.S., Glantz, P.Q., Rando, K. & Watson, R.M. (2002) The effects of fixed and removable implant-stabilized prostheses on posterior mandibular residual ridge resorption. *Clinical Oral Implant Research*. Apr 13(2), 169-74.
3. Rutkun, V. Maxillary complete denture outcome with two implant supported mandibular overdentures. A systematic review. *Stomatogija, Baltic Dental and Maxillofacial Journal*. 10,10-15.

4. Thomason, J.M., Heydeche, G., Feine, J.S. & Ellis, J.S. (2007) How do patients perceive the benefit of reconstructive dentistry with regard to oral health related quality of life and patient satisfaction? *Clinical Oral Implant Research*. 18(Suppl.3),168-188.
5. Heydecke, G., Boudrias, P., Awad, M.A., De Albuquerque, R.F., Lund, J.P. & Feine, J.S. (2003) Within-subject comparisons of maxillary fixed and removable implant prostheses: Patient satisfaction and choice of prosthesis. *Clinical Oral Implants Research*. Feb, 14 (14), 125-30.
6. Belser, U.C., Schmid, B., Higginbottom, F. & Buser, D. (2004) Outcome analysis of implant restorations located in the anterior maxilla: A review of the recent literature. *International Journal of Oral Maxillofacial Implants*. 19 Suppl, 30-42.
7. Pjetursson, B.E., Tan, K., Lang, N.P., Brägger, U., Egger, M. & Zwahlen, M. A. (2004) Systematic review of the survival and complication rates of fixed partial dentures (FPDs) after an observation period of at least 5 years. *Clinical Oral Implant Research*. Dec 15(6), 625-42.
8. Feine, J.S., de Grandmont, P., Boudrias, P., Brien, N., LaMarche, C. & Taché, R. (1994) Within-subject comparisons of implant-supported mandibular prostheses: choice of prosthesis. *Journal of Dental Research*. May, 73(5),1105-11.
9. Jacobs, R., Schotte, A., van Steenberghe, D., Quirrynen, M. & Naert, I.(1993) Maxillary bone reoption in patients with mandibular implant-supported overdentures or fixed prostheses. *Journal of Prosthetic Dentistry*. Aug, 70(2), 135-40.