

Media Release

Independent landmark study shows significantly lower failure rate with Straumann dental implants

- *Large study in broad clinical setting; >11 000 implants, 2765 patients; 9-year follow-up*
- *Implant loss influenced by brand; Straumann ahead of 7 other brands named*
- *Findings highly relevant for dentists basing implant choice on independent clinical evidence*
- *Independent study published in peer-reviewed Journal of Dental Research*

Basel 23 December 2014 – Researchers¹ at Gothenburg University in Sweden have just published a landmark study analyzing the short- and long-term effectiveness of dental implants in a large number of randomly selected patients. This is exceptional in that most studies on treatment outcomes in implant dentistry have assessed survival rates only in small, selected groups of patients treated in university clinics or by specialists.

Using the national data register of the Swedish Social Insurance Agency, the investigators gained unique access to the records of 2765 patients treated in 2003 with a total of 11 311 implants. Information on the patients, treatment procedures, and outcomes was obtained from the records, which had been collected by more than 800 clinicians. In addition, the study included a clinical evaluation of 596 patients approximately 9 years after their treatment had been completed.

The analysis showed that early² implant loss occurred in 4.4% of patients (1.4% of implants), and late² loss in 4.2% of the patients (2.0% of implants). Overall, almost 8% of the patients lost at least one implant.

A key observation was that implant brand influenced implant loss. More than eight different brands of implant were included, the most popular of which were Astra Tech, Nobel Biocare and Straumann. In addition to reporting the percentages of early and late implant losses, the study presented the relative probability of implant loss as shown by ‘odds ratios’ (see below). Compared with Straumann, the odd ratios for early implant failure were approximately two times higher³ with Nobel Biocare and Astra Tech, and more than five times higher⁴ for late failure. The ratios for early failure with the other implant brands collectively were nearly eight times higher³, and almost sixty times higher³ for late failure.

With very few exceptions, the Nobel Biocare Implants had a TiUnite[®] surface, the Astra Tech implants a TiOblast[®] surface, and the Straumann implants an SLA[®] surface. Shortly after the implants were placed, in 2005, Straumann introduced its gold-standard SLActive[®] surface, which has demonstrated enhanced healing properties to SLA in pre-clinical and clinical trials⁵.



“These findings are extremely relevant for dentists who want to offer their patients the best implant on the basis of independent published clinical evidence. They add to the unparalleled body of long-term clinical data supporting Straumann’s dental implant system. Impressive long-term outcomes have also been reported with Straumann implants in other peer-reviewed publications, including 10-year survival rates of 97-99% in more than 600 patients⁶. “To our knowledge, no other leading implant on the market is backed by more extensive, specific, long-term published data”, commented Dr Christoph Appert, Head of Research at Straumann.

Details of the study are published in a Clinical Research Supplement of the Journal of Dental Research (epub) under the title ‘Effectiveness of Implant Therapy Analyzed in a Swedish Population: Early and Late Implant Loss’ by J. Derks, J. Håkansson, J.L. Wennström, C. Tomasi, M. Larsson, and T. Berglundh.
www.ncbi.nlm.nih.gov/pubmed/25503901

About odds ratios

Odds are the probability of an event occurring divided by the probability of it not occurring. An odds ratio is the odds in one group divided by the odds in another group. In this study there were four implant groups: Straumann, Nobel Biocare, Astra Tech and ‘others’ (predominantly Biomet 3i, CrescoTi, Xive, Frialit, and Lifecore). As the least implant losses were reported with Straumann, it served as the benchmark. Thus the respective odds ratios were determined by dividing the Straumann odds by those of the other groups. When the probability of loss is low (e.g. less than 10%) the odds ratio approximates the true relative risk⁷.

About Straumann

Headquartered in Basel, Switzerland, Straumann (SIX: STMN) is a global leader in implant, restorative and regenerative dentistry. In collaboration with leading clinics, research institutes and universities, Straumann researches, develops and manufactures dental implants, instruments, prosthetics and tissue regeneration products for use in tooth replacement and restoration solutions or to prevent tooth loss. Straumann currently employs approximately 2320 people worldwide and its products and services are available in more than 70 countries through its broad network of distribution subsidiaries and partners.

Straumann Holding AG, Peter Merian-Weg 12, 4002 Basel, Switzerland.
Phone: +41 (0)61 965 11 11 / Fax: +41 (0)61 965 11 01
E-mail: corporate.communication@straumann.com / investor.relations@straumann.com
Homepage: www.straumann.com

Contacts:

Corporate Communication:

Mark Hill, +41 (0)61 965 13 21
Thomas Konrad, +41 (0)61 965 15 46

Investor Relations:

Fabian Hildbrand, +41 (0)61 965 13 27

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¹ Derks J, Håkansson J, Wennström JL, Tomasi C, Larsson M, Berglundh T, Dept. of Periodontology, Institute of Odontology, Sahlgrenska Academy, University of Gothenburg

² Early and late loss were defined as follows: if the implant was lost before the prosthetic restoration (e.g. crown or bridge) was fitted, it was considered 'early'; if it occurred afterwards, it was considered 'late'.

³ Statistically significant

⁴ Not statistically significant

⁵ Lang NP, Salvi GE, Huynh-Ba G, Ivanovski S, Donos N, Bosshardt DD. Early osseointegration to hydrophilic and hydrophobic implant surfaces in humans. Clin Oral Implants Res. 2011 Apr;22(4):349-56

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⁶ Buser D, Janner SF, Wittneben JG, Brägger U, Ramseier CA, Salvi GE. 10-year survival and success rates of 511 titanium implants with a sandblasted and acid-etched surface: a retrospective study in 303 partially edentulous patients. Clin Implant Dent Relat Res. 2012 Dec;14(6):839-51. PubMed PMID: 22897683.

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⁷ Grimes DA, Schulz KF. Making sense of odds and odd ratios. Obstetrics & Gynecology 2008 Feb; 111 (2) 423

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