State of the Art of Short Dental Implants: A Systematic Review of the Literature

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ABSTRACT

Background: Short implants (≤8 mm) are manufactured for use in atrophic regions of the jaws. As implant length in many studies has been proven to play a major role in implant survival it is indicated to evaluate survival of short implants in the present literature.

Purpose: The purpose of this study was systematically to evaluate publications concerning short dental implants defined as an implant with a length of ≤8 mm installed in the maxilla or in the mandible with special reference to implant type, survival rate, location of implant site, and observation time.

Materials and Methods: A Medline and a hand search were conducted to identify studies concerning short dental implants of length ≤8 mm published between 1992 and October 2009. The articles included in this study report data on implant length ≤8 mm, implant surface, registered region of installment, observation time, single tooth restorations, supporting overdentures, splinted implants, and implants used for prostheses.

Results: The 27 included studies represent zero randomized clinical trial studies, 15 prospective nonrandomized, noncontrolled clinical trials, 11 retrospective nonrandomized, noncontrolled clinical trials, and one review. Data on 6-mm implants were few and most frequent represented was manufactured Straumann implants representing 441 out of 549 implants. Brånemark implants, 7 mm in length, comprised 1607 implants out of 1808. Straumann implants, 8 mm in length, comprised 2040 out of 2352 implants. Failures varied between 0 and 14.5%, 0 and 37.5% and 0 and 22.9% of the 6-, 7-, and 8-mm-long implants, respectively.

Conclusion: Short implant length was not related to observation time, installment region, failures, and dropouts were not specified, subsequently a meta-analysis was not possible to perform.

KEY WORDS: follow-up studies, short dental implants, survival rate

INTRODUCTION

The posterior regions of the mandible and the maxilla may represent regions of insufficient bone for conventional dental implant installment.[1] In these cases it may therefore be necessary to increase the geometry and volume of the alveolar bone before installment of dental implants. This can be obtained by grafting techniques, sinus elevation, and transposition of the inferior alveolar nerve or by intrabony distraction of the alveolar process,[1–4] which results in four to five surgical interventions. Short implants have been invented to solve these problems and do not require the same presurgical treatment prior to installation as longer ones often do. Short implants may therefore have a reduced risk of interference with anatomic structures like the maxillary sinus or the inferior alveolar nerve.[5] They may osseointegrate in atrophic alveolar ridges despite reduced bone volume and their installment only requires one or two surgical interventions.

Implant Length, Survival, Implant Type, and Observation Time

In a Medline and a hand search, which was conducted covering 1990–2005,[1] a short implant was defined as an implant with an intra-bony length of 8 mm or less. However many studies have their own definition of a short implant ranging from 6 to 10 mm.[1,6–8] The

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intrabony length is of great importance, as the part of the implant anchored within the bone is related to the load and the forces which the implant can resist, and not the stated length per se.

The implant length is meant to play a role in implant failure rate. Many studies indicate a higher failure rate on short implants compared with longer ones.[5,9–11] A study conducted by Naert and colleagues[12] compared survival rates for machined surface implants and revealed a higher failure rate for implants less than 10-mm long in comparison with that of longer ones with survival rates of 81.5 and 97.2%, respectively.[12] These results were cumulative survival rates for implants supporting prostheses. Other studies investigated free-standing or splinted Brånemark implants with a length ranging between 6 and 20 mm, and a survival rate of 94.4% at 5 years, in the posterior region of the maxilla.[4] In another study single or double Brånemark implants with a length ranging between 6 and 18 mm and a mean observation time of 37 months and a survival rate of 97.7%[13] were reported. A study by Renouard and Nisand from 2005[5] showed better results. The implant length used in that study ranged from 6 to 8.5 mm and was manufactured as Brånemark implants. Seventy-six percent of the studied implants were installed in extremely atrophied maxillary alveolar processes grade III or IV[5] in accordance with the Lekholm and Zarb index[14] and the survival rates for the machined surface implants and the oxidized TiUnite surface was reported 92.6 and 97.6%, respectively. In a study by Deporter and colleagues from 2000[3] on porous surface short implants, a survival rate of 100% and a mean functional time on 11 months was reported.[3]

Most implant failures are reported to be early, that is during the healing phase, at abutment connection[5,10,15–21] or during the first year of function. Jaw shape and bone quality seemed to be the two most important factors for early failure in a study by Friberg and colleagues[22] on Brånemark dental implants. This study reported a survival rate on 7 mm machined surface implants of 92.9% in the maxilla and 96.9% in the mandible during a 3-year observation period. Failures were compared with the failure rate observed with longer fixtures 10–20 mm in length, which was 0.9 and 0.4%, respectively.[22]

Implant Lengths and Bone Dynamics

Short implants have shown to move more in bone than longer ones.[23] These micro movements develop forces

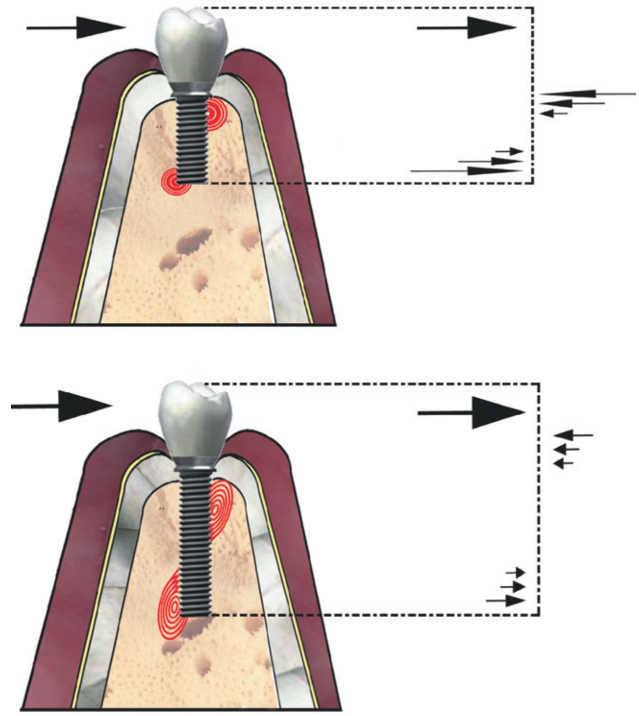

Figure 1 Schematic illustration of the micromovements in bone around a dental implant.

especially in osseous regions in contact with the implant compression surfaces, which is the side away from the force vector.[23,24] Studies have shown that the straighter the alignment of the implants, the greater the potential bending of the implant.[24] This induces a greater stress potential on the crestal bone (Figure 1), especially when the implant is subjected to lateral forces, Rangert and colleagues.[24] The first three to five threads are mostly involved in stress absorption.[23] Pierrisnard and colleagues found that increasing the implant length does not reduce the intensity of stresses along the implant.[23,25] These studies suggested an optimal implant to be wider and not longer.[10,23,25]

Many studies indicate a higher failure rate of implants installed in maxillary sites than in that of mandible.[9,26] Different biomechanical properties of bone in the mandible and in the maxilla are well known.[27,28] Bone in the anterior part of the mandible is of quality I–II according to the Lekholm and Zarb index[14] and may represent favourable biomechanical conditions for dental implants compared with that of the posterior region of the maxilla which comprises more cancellous bone.[14] Different healing potentials are also well-known and maxillary bone has shown to generate peri-implant cancellous bone, which includes rapid formation of new trabeculae by the recruitment of new populations of osteogenetic cells within the healing compartment alongside with a remodelling of the already existing lamellar trabeculae. In cortical bones, on the other hand, peri-implant bone regeneration relies exclusively on lamellar bone remodelling.[29]

The posterior region of the oral cavity offers a challenging clinical scenario for rehabilitation with dental implants. The resorption of the alveolar ridge, poor bone quality, the presence of the inferior alveolar nerve, the maxillary sinus and high occlusal forces might jeopardize the survival of the implant.[30] Therefore short implants have widened the options for implant installation.

The purpose of this study was to evaluate publications concerning short dental implants defined as an implant with a length of ≤8 mm installed in the maxilla or in the mandible with special reference to implant type, failure rate, location of implant site, and observation time.

MATERIALS AND METHODS

A Medline search (PubMed) was conducted, and studies published in English from 1992 to October 2009 were included in the review. The following search terms were used in different combinations: "dental implant," "review," "prospective and retrospective studies," "implants splinted," and "survival rate." Titles and abstracts were screened, and full-text analysis was performed in relevant publications.

Inclusion Criteria

The following criteria needed to be included in this review:

- Articles should include short implants (≤8 mm).
- Study was performed only in humans.
- Patients should *not* have known diseases.

The article should include:

- Installment region of the maxilla or the mandible.
- Surface/type of implant.
- Survival rate/failure rate.
- Observation time.

Exclusion Criteria

Studies were excluded from the study if:

- Data on length was not available.
- Any type of bone augmentation procedures had been performed.
- Advanced surgery, for example, sinus lift operations had been performed.

Outcome measures were:

- Implant failure.
- Implant site.
- Length.
- Peri-implantitis.

From the identified articles, the following variables were extracted: author, journal, evidence level, type of statistic, implant type, implant diameter, implant length, number of implants (failure) in the maxilla and in the mandible, number (n) of implants (failure), pockets >4 mm, bleeding on probing (BoP)/pus on probing (PoP), follow-up, general drop out in the study, and total failure in the maxilla and in the mandible.

A meta-analysis was planned if comparable data were available in the included studies. A descriptive analysis was planned to be performed if the conditions for a meta-analysis were not present.

RESULTS

The search term "short dental implants" and "randomised clinical trials (RCT)" and "systemic reviews and meta-analysis" resulted in six articles. "Short dental implants survival" was indicated in 129 articles and "short dental implants splinted" reputed six results. Following screening of titles and abstracts by defining the chosen inclusion and exclusion criteria, 59 potentially publications were found relevant and full-text analysis was performed by both authors (CAN, EMP). Out of the 59 articles a total of 27 were included in the study and are listed in Tables 1–3 together with the extracted data. Thirty-two studies[3,4,6,11,13,20,31–57] did not meet the inclusion criteria and were therefore excluded from this analysis. The included studies represent zero RCT studies, 15 prospective nonrandomized, noncontrolled clinical trials, 11 retrospective nonrandomized, noncontrolled clinical trials, and one review. None of the 26 trials included in this review were designed as controlled studies even though they were designed as prospective trials. Short implants were compared with longer ones without being the primary aim of the study. Therefore they are classified as clinical studies, noncontrolled.

Many of the included studies use cumulative survival rates. The cumulative survival rate provides information on how the risk of implant failure varies over

TABLE 1 Publications on 6-mm-Long Dental Implants

Author	Implant Type/Surface	Diameter	Follow-Up	Number of Implants (Failure) Maxilla	Number of Implants (Failure) Mandible
ten Buggenkate et al. 1998[59]	Straumann	4.1 mm	1–7 years	45 (6)	208 (1)
		4.1 mm			
		3.5 mm			
Becker et al. 1999[15]	Brånemark	5.0 mm	Mean: 3.9 years	2	5 (1)
Ivanoff et al. 1999[60]	Brånemark	5.0 mm	3–5 years	41 (4)	21 (7)
Friberg et al. 2000[7]	Brånemark	5.0 mm	1–14 years	0	13
Tawil et al. 2003[69]	Brånemark	5.0 mm	12–92 months	0 (0)	16 (0)
Renouard et al. 2005[5]	Brånemark	5.0 mm	Mean: 37.6 months	10	0
Bischof et al. 2006[58]	Straumann	4.8 mm	1–5 years	4 (1)	0
Fugazzotto et al. 2008[8]	Straumann SLA	4.1 mm	Mean: 36.2 months	0	59 (2)
		6.5 mm			125 (1)

time.[19] However, it does not inform about the absolute failure rate. In this article all numbers therefore refers to absolute failures. The numbers presented in this article will therefore differ from the original article. Observation time is indicated for each study however, it was not possible to relate to specific implant length, site, and time of failure. Dropouts were in many of the publications not specified.

In many of the articles there were no compliance between text and tables. The numbers used are therefore the numbers from the tables. The selected articles embodied a wide range of approaches in study design, definition of the length of a short implant, implant geometry and surface, methods of statistical analysis, data reporting, success and survival criteria, and follow-up time which varied between 2 months and 14 years.

Implant Length, Manufacture Type and Surface, Location, and Failure Rate

6-mm implants. In Table 1, which is an extract of studies on 6-mm-long implants, the total number of 6-mm-long implants comprised 555. The implant distribution in the maxilla and in the mandible, according to implant type, is shown in Figure 2.

In the maxilla, implants, with a diameter less than 5.0 mm, and Straumann TPS surface, failed in 14.3%[58,59] of 49 installed, whereas none of five installed Straumann SLA surface failed.

In the mandible, implants, with a diameter less than 5.0 mm, and Straumann TPS surface, failed in 0.5%[59] of 208 installed, and Straumann SLA implants failed in 3.4%[8] of 59 installed implants.

In the maxilla, implants, with a diameter of 5.0 mm, and Brånemark-machined surface, failed in 7.5%[5,15,60] of 53 installed implants.

In the mandible, implants, with a diameter of 5.0 mm, and Brånemark-machined surface, failed in 14.5%[7,15,60] of 55 installed implants.

In the maxilla, implants, with a diameter of more than 5.0 mm, and Straumann SLA surface, failed in 0.8%[8] of 125 installed implants.

7-mm implants. In Table 2, which is an extract of studies on 7-mm-long implants, the total number of 7-mm-long implants comprised 1808. The implant distribution in the maxilla and in the mandible, according to implant type, is shown in Figure 3.

In the maxilla, implants, with a diameter less than 5.0 mm, and Brånemark-machined surface, failed in 20.4%[5,10,15–19,60–67] of 910 installed, Brånemark TiUnite failed in 7.1%[5] of 14 installed, and Straumann SLA surface failed in 0%[68] of 42 installed implants.

In the mandible, implants, with a diameter of less than 5.0 mm, and Brånemark-machined surface, failed in 6.3%[7,10,16,17,19,60–62,65–67,69] of 687 installed, Endopore failed in 0%[38] of 18 installed, and Straumann SLA surface failed in 1.8%[8] of 113 installed implants.

In the maxilla, implants, with a diameter of 5.0 mm, and Brånemark-machined surface failed in 50%[5] of two installed, and Brånemark TiUnite in 7.1%[5] of 14 installed implants.

TABLE 2 Publications on 7-mm-Long Dental Implants

Author	Implant Type/Surface	Diameter	Follow-Up	Number of Implants (Failure)	
				Maxilla	Mandible
Naert et al. 1992[19]	Brånemark	4.1 mm	2–77 months	30 (3)	28 (1)
Jemt et al. 1992[16]	Brånemark	4.1 mm	1 years	13	57 (2)
Quirynen et al. 1992[67]	Brånemark	3.75 mm	2 years	44 (6)	33 (9)
Nevins et al. 1993[66]	Brånemark	3.75 mm	2–7 years	55 (7)	64 (1)
Jemt et al. 1993[63]	Brånemark	3.75 mm	3 years	228 (63)	0
Jemt et al.1993[17]	Brånemark	3.75 mm	5 years	15 (2)	39 (3)
Ekfeldt et al. 1994[10]	Brånemark	4.1 mm	3–46 months	1	1
Jemt et al. 1994[18]	Brånemark	4.1 mm	5 years	108 (15)	0
Brånemark et al. 1995[61]	Brånemark	4.1 mm	10–11 years	37 (9)	1
Jemt et al. 1995[64]	Brånemark	4.1 mm	5 years	296 (78)	0
Higuchi et al. 1995[62]	Brånemark	3.75 mm	3 years	28 (NS)	81 (NS)
		4.0 mm		0	11 (1)
Becker et al. 1999[15]	Brånemark	4.0 mm	Mean 3.9 years	1	0
		5.0 mm		0	5 (3)
Ivanoff et al. 1999[60]	Brånemark	3.75 mm	3–5 years	6 (1)	10
		4.0 mm		19	12 (2)
Lekholm et al. 1999[65]	Brånemark	3.75 mm	10 years	22 (4)	70 (2)
		4.0 mm		0	9
Friberg et al. 2000[7]	Brånemark	3.75 mm	1–14 years	0	247 (17)
Deporter et al. 2001[38]	Endopore	4.1 mm	32.6 months	0	18
		5.0 mm			14
Tawil et al. 2003[69]	Brånemark	3.75 mm	12–92 months	0	14 (3)
		4.0 mm		0	10 (2)
		5.0 mm		0	3
Fugazzotto et al. 2004[68]	Straumann SLA	4.1 mm	Up to 84 months	16	0
		4.8 mm		26	0
Renouard et al. 2005[5]	TiUnite	3.75 mm	Mean: 37.6 months	1	0
	Brånemark	4.0 mm		8 (1)	
		5.0 mm		5	
		3.75 mm		1 (1)	
		4.0 mm		6	
		5.0 mm		2 (1)	
Fugazzotto et al. 2008[8]	Straumann SLA	4.1 mm	36.2 months	0	113 (2)

In the mandible, implants, with a diameter of 5.0 mm, and Brånemark-machined surface, failed in 37.5%[15,69] of eight installed, and Endopore implants failed in 0%[38] of 14 installed implants.

8-mm implants. In Table 3, which is an extract of studies on 8-mm-long implants, the total number of 8-mm-long implants comprised 2352. The implant distribution in the maxilla and in the mandible, according to implant type, is shown in Figure 4.

In the maxilla, implants, with a diameter of less than 5.0 mm, and Straumann TPS surface, failed in 4.3%[58] of 47 installed, Straumann SLA implants failed in 1.0%[20,68] of 800 installed, and Astra Microthread failed in 0%[70] of 38 installed implants.

In the mandible, implants, with a diameter of less than 5.0 mm, and Straumann TPS surface, failed in 1.3%[8,58] of 297 installed, HA-coated failed in 22.9%[21,71] of 140 installed and Astra Microthread implants failed in 0%[70] of 18 installed implants.

TABLE 3 Publications on 8-mm-Long Dental Implants

Author	Implant Type/Surface	Diameter	Follow-Up	Number of Implants (Failure)		
				Maxilla	Mandible	
Block et al. 1996[71]	HA coat	4.1 mm	Up to 10 years	0	80 (30)	
Teixeira et al. 1997[21]	HA coat	3.75–4.0 mm	5 years	0	60 (2)	
Ellegaard et al. 1997[70]	Astra	4.1 mm	3–84 months	38	18	51(3)
	Straumann					
Ivanoff et al. 1999[60]	Brånemark	5.0 mm	3–5 years	15 (4)	3 (1)	
Tawil et al. 2003[69]	Brånemark	5.0 mm	12–92 months	7	20	
Griffin et al. 2004[72]	SteriOss	6.0 mm	Mean: 34.9 months	89	79	
Fugazzotto et al. 2004[68]	Straumann SLA	4.1 mm	Mean: 37.6 months	239 (2)	0	
		4.8 mm		234 (4)	0	
		4.8 mm WN		327 (4)	0	
Bischof et al. 2006[58]	Straumann	4.8mm	1–5 years	47 (2)	32	
Fugazzotto et al. 2008[8]	Straumann	4.1 mm	36.2 months	0	265 (4)	
		6.5 mm		0	748 (4)	

In the maxilla, implants, with a diameter of 5.0 mm in diameter, and Brånemark-machined surface, failed in 18.2%[60,69] of 22 installed implants.

In the mandible, implants, with a diameter of 5.0 mm in diameter, and Brånemark-machined surface, failed in 4.3%[60,69] of 23 installed implants.

In the maxilla, implants, with a diameter of more than 5.0 mm, and SteriOss type did not fail in 89 installed implants.[72]

In the mandible, implants, with a diameter of more than 5.0 mm, and Straumann TPS surface, failed in 0.5%[8] of 748 installed and SteriOss type failed in 0%[72] of 79 installed implants.

The published data were difficult to compare because the studies were not constructed with a control group of same number and in same location. Neither was time of failures nor drop outs specified to the specific groups. Subsequently these different factors make data difficult to compare and hence not standardized. Therefore the conditions for a meta-analysis or other statistical analysis were not present or logical to perform. A descriptive analysis was therefore performed.

DISCUSSION

Statistics and Evidence Level

This review reveals that no RCT studies are reported on dental implants ≤8 mm in length during the chosen time period 1992 to October 2009. In the present study 15

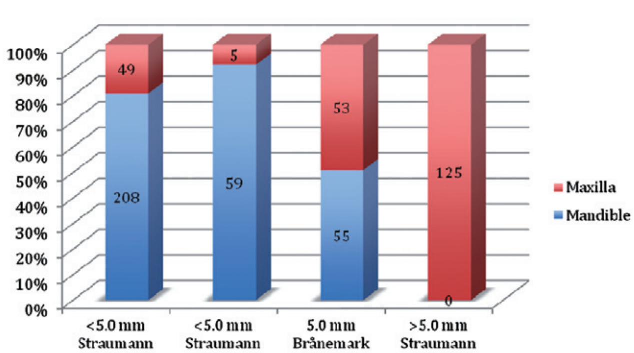

Figure 2 Implant type distribution of 6-mm-long dental implants and varying diameter.

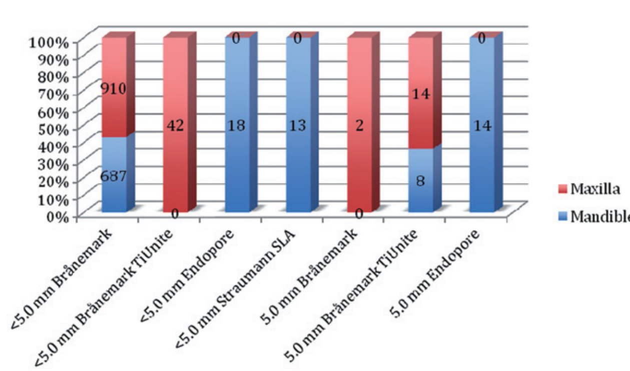

Figure 3 Implant type distribution of 7-mm-long dental implants and varying diameter.

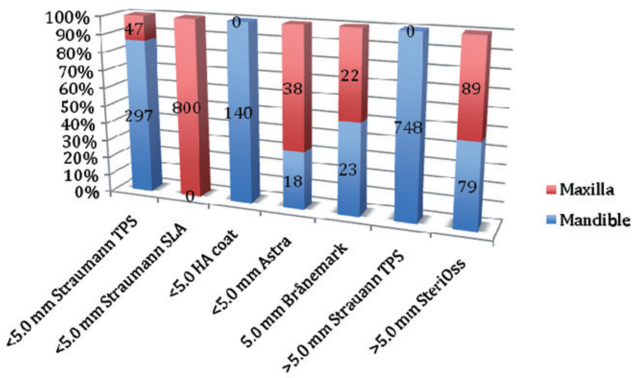

Figure 4 Implant type distribution of 8-mm-long dental implants and varying diameter.

prospective nonrandomized, noncontrolled trials, 11 retrospective nonrandomized, noncontrolled trials, and one review presented in most cases life table analysis. The retrospective studies were included in this review because their data on implant failure were found valuable. There were no clinical controlled trials among the included studies. However, data in this review has been published in peer-reviewed scientific journals, and are therefore judged reliable. Data on different implant length and their survival were published in case studies without controls. Comparison of implant lengths, location of their installment, and survival rates were not the purpose in any study and control groups were not objectives either. Hence, no clinical controlled trials were among the included studies. Since observation time and drop out of patients were not specified according to implant size, location of installment and failure for 6-, 7-, and 8-mm-long implants, a meta-analysis was not performed as data from the included reports were not standardized. Subsequently conditions were not present for such an analysis and therefore a descriptive analysis is presented.

Implant Types

The trend of the included studies revealed a higher failure rate of implants with a diameter of 5 mm than those with a diameter less or more than 5 mm. In a study from 1999, Ivanoff and colleagues looked at 5.0-mm-wide diameter implants compared with 3.75- and with 4.0-mm-diameter machined surface, Brånemark implants.[60] The study showed an increased failure rate among wide neck implants 6 and 8 mm in length with a failure rate of 17.7 and 27.8%, respectively. Other implants in the same study were 7 mm in length with a diameter of 3.75 and 4.0 mm and in comparison these implants represented a failure rate of 6.3 and 6.5%, respectively. Ivanoff and colleagues points out implant design as a possible factor, as the 5.0 mm diameter implant lack a neck and has a different threaded profile, compared with that of the 4.0-mm-diameter implant.[60] They concluded that the increased failure rate of wide neck implants were because of the anatomical site and the surgeon's learning curve.[60] The wide diameter implant is often placed as a rescue implant[58] after a failed one or at more difficult implant sites, which might explain the relatively higher failure rate shown in some studies.[5,15] Other studies, however, showed a small or no failure rate of 0–0.57%[7,8,38,65,69,72] in wide diameter implants of Brånemark-machined surface,[7,65,69] Straumann SLA[8], Endopore,[38] and SteriOss.[72] The larger failure rates (17.7% to 27.8%) for wide neck implants, in the study by Ivanoff and colleagues[60] are in accordance with the results found in this review. Brånemark-machined surface implants with a diameter of 5.0 mm showed higher failure rates, ranging from 0[69] to 60%,[15] than any other implant type. The higher failure rate is observed in accordance with the smooth surface of these implants compared with rougher surfaced implants like Straumann SLA implants, which showed more favorable results with failure rates ranging from 0.5[8,59] to 4.3%.[58]

Implant Failure, Observation Time, Location, and Type

The factors that determine the long-term success of implants remain unclear. Some of the included studies point at poor bone quality in the posterior jaw compared with the anterior jaw as a factor.[15,21,64] Others point at the combination of poor bone quality along side with short implants as a factor for failure.[20,64,65] Numerous of the studies agree in one point that is the expected higher failure rate in the maxilla than in the mandible because of poor bone quality.[17,19,28,58–66] These results are in accordance with the findings in this review, where there is a general tendency to higher failure rates in the maxilla than in the mandible. The posterior regions generally have less available bone height, poor bone quality, and are at the same time exposed to greater occlusal loads than the anterior region which may cause an increased failure rate.

It is generally agreed that implants can be designated as successful if the following three criteria by

Albrektsson and colleagues[73] are met: (1) The implant should not cause pain or paraesthesia; (2) the implant should not be mobile; (3) the implant should not show peri-implant radiolucency.[73] Some of the included studies use these criteria as a measurement of implant success.[8,58,65,70,74] A fourth criterion suggested by Albrektsson and colleagues was a limited loss of vertical bone of 0.2 mm annually after the first year of loading. This criterion is not used in the studies, which may be because of the fact that marginal bone level can reach levels of 1 mm, which does not necessarily imply future implant failure if the process is not continuous.[74]

There seems to be a general pattern concerning implant loss because it is known that longer implants are lost during the healing phase, abutment connection, or during the first year of loading.[34,39,44,51,75] The same pattern was observed in this review[5,10,16–19,21,52,58,59,63,64,66–68] since after the first couple of years there seems to be a steady state in failed implants.[5,10,17,18,21,67,68]

In many of the included studies, pocket depths and bleeding on probing/pus on probing (BoP/PoP) were recorded; however, these data were not related neither to length of implant nor to location of implant site. Observation time related to time of failure was difficult to determine as observation times in the included studies varied between 2 months[19] and 14 years.[7] Because of the lack of consistency in the follow-up periods and recall time in the different studies, it was therefore difficult to compare data.

Peri-implantitis at short implants is a risk factor for implant loss. One mm bone loss around the neck of an implant shorter than 8 mm means a loss of 12.5% bone support. Marginal bone loss ≥1.8 mm compared with first year data and BoP/PoP by Roos-Jansåker are mentioned to be important factors of peri-implantitis.[76] It was interesting to observe that only a few of the included studies reported peri-implantitis, as a cause of failure, and none of these studies related to length or location[47] of implants.

CONCLUSION

The purpose of this review was to asses data on implants ≤8 mm in length. The 5.0 mm diameter implants showed less favourable results in general than the implants <5.0 mm diameter for all three lengths, 6, 7, and 8 mm. Pocket depth and BoP/PoP measurements were nonspecified according to length and implant site in the included studies. The observation time ranged between 2 months and 14 years, which make data difficult to compare.

Implants with a machined surface showed generally less favourable results than implants with a rougher surface that is sand blasted and acid etched. Implant loss showed a general pattern with losses concentrated during the healing phase, abutment connection, or at the first year of loading. No randomized clinical trial on implants with lengths of ≤8 mm was present in this analysis because none such exist. It is therefore necessary in the future to present randomized controlled clinical data on short length implants ≤8 mm to be able to obtain proper evidence power.

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