

**Table S1.** Characteristics of Included Studies on Periodontitis and Implants

Study (Year)	Design	Sample Size	Smoking	Severity	Treatment	Implant System	Region/Prosthesis
Polizzi et al. (2000)	Prospective multi-center RCT	143/264	NR	NR	Membranes, freeze-dried bone, graft, collagen	Branemark	Maxilla, Mandible
Gotfredsen et al. (2000)	Prospective RCT	26/52	Non/light	Severe	NR	Astra Tech	Mandible/Bar
Bach et al. (2000)	Comparative study	30	NR	Severe	Conventional + laser	NR	Maxilla, Mandible
Morris et al. (2000)	Clinical study	NR/2900	NR	Severe	SRP	HA / non-HA	Ant/Post
Heydenrijk et al. (2002)	Comparative study	40/80	NR	Severe	SRP	IMZ / ITI	Mandible/OD
Schwarz et al. (2004)	Pilot study	20/32	Nonsmoker	Chronic	Mechanical + Laser	SLA / TPS	Maxilla, Mandible
Romeo et al. (2004)	RCT	17/35	Smokers	Severe	Antibiotics + FMD	ITI-TPS	Max/Mand
Büchter et al. (2004)	RCT	28/48	Smokers	Chronic	Debridement + CHX	Straumann	Partial denture
Wennström et al. (2004)	Prospective RCT	51/149	Smokers	Chronic	Comprehensive therapy	Astra Tech	FPD
Quirynen et al. (2005)	Single-blind study	42/45	Smokers	Chronic	SRP + Surgery	Branemark	Max/Mand
Mengel et al. (2005)	Prospective RCT	39/150	Non-smoker	Aggressive	SRP	MK II / Osseotite	Bridges
Renvert et al. (2007)	Follow-up study	54/234	Smokers	NR	SRP + CHX	Astra / Branemark	NR
Machtei et al. (2007)	Pilot RCT	20/49	Smokers	Chronic	SRP + OFD	NR	Maxilla, Mandible
Collaert et al. (2008)	Prospective RCT	25/195	Smokers	Severe	Infection control	Astra Tech	Maxilla
Crespi et al. (2010)	Prospective RCT	30	Non-smoker	Severe	Debridement	NR	Metal-ceramic
Gianserra et al. (2010)	Retrospective cohort	1727/6720	Smokers	Mod-Severe	Periodontal therapy	Multiple	FPD/OD
Deng et al. (2010)	Follow-up report	12/84	Smokers	Severe	SRP	Nobel Biocare	Maxilla, Mandible
Thöne-Mühling et al. (2010)	Randomized study	13/36	Smokers	Chronic	SRP	MK II / Osseotite	Bridges/OD
Ferrus et al. (2010)	RCT	93	NR	Severe	NR	Astra Tech	Maxilla
Zetterqvist et al. (2010)	RCT	112/304	Smokers	Chronic	NR	Osseotite / Biomet 3i	NR
Cavalcanti et al. (2011)	Retrospective cohort	1727/6720	Smokers	Mod-Severe	Periodontal therapy	Multiple	FPD/OD

Study (Year)	Design	Sample Size	Smoking	Severity	Treatment	Implant System	Region/Prosthesis
Cecchinato et al. (2011)	Clinical-histological	49/36	NR	Severe	SRP + Extraction	Astra Tech	Post. Maxilla
Van Assche et al. (2011)	Randomized trial	18/85	Smokers	Aggressive	NR	TiUnite / Turned	Bridge/OD
Costa et al. (2011)	Follow-up study	212/80	Nonsmoker	Severe	Clinical exam	NR	Maxilla, Mandible
Quirynen et al. (2011)	RCT	18	NR	Severe	SRP	TiUnite/Turned	Max/Mand
Fischer et al. (2011)	Long-term study	24/142	NR	Severe	NR	Straumann	Full-arch
Nicu et al. (2012)	Pilot RCT	14/78	Smokers	Mod-Severe	NR	TiUnite / Tur	Max/Mand
Al Nashar et al. (2015)	Prospective RCT	15/30	NR	Chronic	NR	Euroteknika	Mandible
Han et al. (2015)	Multicenter study	45/95	Nonsmoker	Chronic	Standard therapy	OsseoSpeed	Fixed
Derks et al. (2016)	Long-term RCT	588/2277	Nonsmoker	Mod-Severe	Augmentation + SRP	Multiple	Max/Mand
Blanco et al. (2017)	RCT	22/44	Smokers	Severe	Clinical exam + CBCT	NR	Screw-retained
Li P. et al. (2018)	Prospective RCT	40/45	NR	Severe	Complete treatment	Straumann	Mandible
Li X. et al. (2018)	RCT	128	NR	Chronic	SRP + GBR	Nobel / Straumann	Maxilla
Raes et al. (2018)	RCT	18/48	Smokers	Severe	NR	Brånemark MK III	OD/Bridges

**Table S2.** Outcome Parameters with Respect to Peri-Implant Health

Study	PD Classification	Study Setup (Treatment)	MBL Mean (SD) [mm]	BOP (% / Cases)	PPD [mm] / No. (%)
<b>Studies with Control Groups of Healthy Patients</b>					
Mengel et al. (2005)	Chronic / Severe	Periodontal surgery, SRP, 3-month recall	Severe: 1.76±1.55; Chronic: 1.33±1.21; Healthy: 0.12±0.08	NR	Severe: 3.17±0.83; Chronic: 2.69±0.22; Healthy: 3.28±0.60
Collaert et al. (2008)	Chronic	Infection control, extractions, flap surgery	Smokers: 1.3±1.27; Non: 0.51±0.49	NR	NR
Gianserra et al. (2010)	Severe / Chronic / Healthy	Implant insertion, bone augmentation, recalls	NR	NR	Healthy:4.7%; Moderate:94.2%; Severe:85.7%
Ferrus et al. (2010)	Severe	Immediate placement, semi-submerged healing	H:2.9±1.1; V:0.4±1.2	NR	NR
Cecchinato et al. (2011)	Severe	Flap elevation, histology	NR	NR	NR
<b>Studies on Patients with History of Periodontitis (HOP)</b>					
Polizzi et al. (2000)	Severe	Delayed placement, membranes	Max:1.17/1.19; Man:0.71/0.64	Max:25%; Man:30%	Max≥4:27%; Man≥4:12%
Wennström et al. (2004)	Chronic / Severe	Periodontal therapy	NR	0.3%	<3:2.5±0.7; >3:3.5±0.7
Quirynen et al. (2005)	Gingivitis / Chronic	SPT program	Impl:0.41; Max:0.61; Man:0.15	5%	≤3:79.8%; 4–5:14.9%
Renvert et al. (2007)	Chronic / Severe	Antibiotics, rinse	NR	53–50%	≤4:81%; ≥5:3%
Machtei et al. (2007)	Chronic	SRP, flap	0.96±0.19; 0.85±0.20	NR	2.87±0.9
Deng et al. (2010)	Severe	OHI, SRP	Ex:1.01; Healed:1.24	NR	NR

Study	PD Classification	Study Setup (Treatment)	MBL Mean (SD) [mm]	BOP (% / Cases)	PPD [mm] / No. (%)
Thone-Muhling et al. (2010)	Chronic	Full-mouth scaling	2.19±0.32	0.16±0.09	3.19±0.91
Van Assche et al. (2011)	Severe	Two-stage surgery	0.0–4.2	10–19 sites	1.0–7.0
Costa et al. (2011)	Chronic	Clinical eval.	0.4±1; 1.3±1.7	40–26	8.2–4.8
Nicu et al. (2012)	Chronic / Severe	PCR, ELISA	0.3±0.8	0.3±0.4	3.1±1.5
Han et al. (2015)	Chronic	Autologous graft	0.13±0.46	91.6%	NR
Derks et al. (2016)	Moderate / Severe	Retrospective	NR	60.9%	>6mm:9–43%
Blanco et al. (2017)	Severe	Randomized abutment	0.91 / 0.11	NR	NR
Li et al. (2018)	Severe	DDM material	1.9 / 2.0	NR	NR
Raes et al. (2018)	Severe	Tur / TiU implants	NR	2.1–2.5	3.1 / 4.2