

Supplemental Table S5. Baseline characteristics of the patients in the included studies.

Reference ID	Sample <i>N</i> = 11918	Age (Years) Mean (<i>SD</i>)	Gender Male (%)	Voice prostheses group types (<i>n</i>)	Radiotherapy <i>N</i> (%)	Follow-up (Months)	Quality assessment
Bertl/2015/Austria	15	64.1 (7.4)	11 (73.3)	PRO 2 (15)	NR	NR	Fair
Bertl/2012/Austria	15	65 (9.4)	14 (93.3)	PRO 2 (15)	13 (86.6)	NR	Poor
Leonhard/2010/Austria	10	63.2 (3.7)	4 (80)	PRO 2 (5) / Phonox (5)	5 (100)	NR	Poor
Dirven/2013/Australia	20	69.3 (6.8)	19 (95)	PRO Hands-free with ENB 2 (10) / PRO Hands-free without ENB 2 (10)	19 (95)	0.5 & 1	*(Low risk)
Hancock/2012/Australia	31	64.3 (13.8)	25 (81)	PRO Vega (15) / BS (16)	30 (97)	0.75 & 1.5	*(Low risk)
Ward/2011/Australia	31	64.3 (13.8)	25 (81)	PRO Vega (15) / BS (16)	30 (97)	0.75 & 1.5	*(Low risk)
HANCOCK/2005/Australia	15	65	13 (86.6)	PRO NID (15) / BS (15)	13 (86.7)	6	Fair
Hancock/2005/Australia	15	NR	13 (86.6)	BS (15) / PRO NID (15)	13 (86.6)	NR	Fair
Pighi/1997/Australia	469	^(28-86)	NR	BS (469)	469 (100)	6	Poor
Bridger/1995/Australia	137	^(17-90)	121 (88.3)	BS (137)	85 (62)	^(0-36)	Fair
Mendelsohn/1993/Australia	39	BS 62.5 / Control 67	BS 25 (86.2) / Control 8 (80)	BS (29) / Control (10)	27 (93.1)	NR	Poor
Cole/1992/Australia	50	66 ^ (44-82)	41 (82)	BS (50)	26 (52)	NR	*(Low risk)
Ameye/2005/Belgium	19	^(42–79)	18 (95)	PRO with nystatin (14) / PRO without nystatin (5)	NR	NR	*(Unclear risk)
Lequeu/2003/Belgium	38	NR	36 (94.7)	PRO (24) / PRO 2 (128)	14 (9.2)	NR	Good
Delsupehe/1998/Belgium	113	62.7	50 (87.6)	PRO (63) / BS (50)	NR	1 & 4	*(Unclear risk)

Weissenbruch/1997/Belgium	36	63.1 (11.5)	34 (94.4)	PRO with nystatin (18) / PRO without nystatin (18)	36 (100)	1,2,3,4,5,6	*(Low risk)
Kesteloot/1994/Belgium	43	62 (9.3)	41 (95.3)	PRO (31)	NR	8	Fair
Weissenbruch/1993/Belgium	37	61	33 (89.18)	PRO (37)	NR	NR	Good
Monaretti/2016/Brazil	34	NR	NR	PRO (34)	21 (61.7)	NR	Good
Reis/2013/Brazil	30	61	22 (73.3)	PRO 2 (30)	30 (100)	NR	Poor
Takeshita/2010/Brazil	12	64 (8.4)	9 (75)	PRO (12)	10 (83.3)	NR	Fair
Chone/2005/Brazil	71	NR	NR	BS (71)	NR	^(12-87)	Poor
Kruschewsky/2002/Brazil	10	63.5	10 (100)	BS (6) / PRO (4)	NR	NR	Poor
Foreman/2016/Canada	48	63.4 (11.2)	NR	HME (16) / External Humidifier (32)	NR	NR	Fair
Cornu/2003/China	128	NR	113 (88.2)	PRO (128)	NR	NR	Fair
Wong/1997/China	159	61	145 (91.6)	BS (159)	NR	^(3-110)	Poor
Wong/1997/China	159	61 ^ (27-83)	NR	BS (159)	NR	NR	Good
Lukinovic/2012/Croatia	100	64 ^ (47-86)	88 (96.7)	PRO (100) / BS (100)	73 (80.2)	NR	Fair
Pedusic/2012/Croatia	91	NR	NR	PRO 2 (91)	NR	NR	Good
TiTac/2010/Croatia	94	59.9 (8.7)	85 (90.4)	PRO 2 (94)	88 (93.6)	NR	Fair
Globlek/2004/Croatia	10	57.5	10 (100)	PRO 2 (5)	NR	NR	Poor
Slaviček/1997/Czech Republic	54	NR	51 (94.4)	PRO (39) / LLAP (8) / BS (5)	25 (46.2)	NR	Poor
BALLE/2000/Denmark	76	62 ^ (42-84)	58	PRO (61) BS (15)	NR	NR	Fair
Sayed/2012/UK	18	56.9	14 (77.78)	BS (22)	13 (72.2)	12	Fair
Samir/2003/Egypt	7	62.4	7 (100)	Simple cheap prosthesis (7)	NR	NR	Air

Tantawy/2003/Egypt	100	54.3	92 (92)	PRO (100)	NR	NR	Fair
Tervonen/2005/Finland	14	60 ^{(40-85)}	14 (100)	PRO HME & PRO Free-Hands HME (14)	14 (100)	NR	Good
MAKITIE/2003/Finland	95	63.5	88 (92.6)	PRO (95)	88 (92.6)	NR	Fair
Dassonville/2011/France	60	62.5 (11)	58 (96.7)	PRO HME (30) / PRO without HME (30)	41 (68.3)	0, 3, 6	*(Unclear risk)
Merol/2011/France	53	60 (10.3)	44 (83)	PRO HME (27) / External Humidifier (26)	38 (71.7)	0.5	*(Unclear risk)
Traissac/2007/France	225	59	214 (95.1)	NEWVOX (225)	NR	NR	Good
Laccourreye/1997/France	37	59	35 (94.5)	PRO (37)	16 (43.2)	18	Fair
Doescher/2015/Germany	21	68.5 ^{(53-81)}	19 (90.4)	Silicone stoma prosthesis (21)	NR	NR	Fair
Müller/2015/Germany	41	56.2 (12.3)	30 (73.1)	Laryvox (41)	NR	NR	Fair
Kress/2014/Germany	749	62.8 ^{(42-86)}	91 (89.2)	PRO 2 (424) / PRO Vega (117) / PRO ActiValve (38) / BS (170)	91 (89.2)	NR	Poor
Schuldt/2011/Germany	67	NR	63 (94)	ESKA-Herrmann (201)	NR	NR	Fair
Lawrence/2010/Germany	28	63.1	18 (94.7)	PRO 2 (19) / PRO Vega (28)	NR	2-6	Good
Minovi/2009/Germany	35	^^58.8	24 (80)	BS (16)	NR	53 ^{(12-110)}	Fair
KRAMP/2009/Germany	30	^^59.23	27 (90)	HME (8)	NR	NR	Fair
Lawrence/2009/Germany	17	53.6 ^{(41-76)}	15 (88.2)	PRO Freehand HME (17)	17	^{(24-107)}	Fair
Lorenz/2007/Germany	24	57.7	21 (87.5)	PRO Hands-free HME (24)	18 (75)	1 & 6	*(Unclear risk)
Kress/2006/Germany	33	65.4	30 (90.9)	BS (33)	NR	NR	Poor
M.Tisch/2003/Germany	52	59.67 (9.19)	49 (94.2)	PRO (52)	28 (53.8)	NR	Fair
Schuster/2003/Germany	25	62.1 (7.5)	25 (100)	PRO (25)	NR	NR	Fair

Schuster/2003/Germany	25	62.3 (8)	25 (100)	PRO (25)	NR	NR	Fair
Schäfer/2001/Germany	58	NR	53 (91.37)	BS (172) / PRO (136) / PRO 2 (75)	45 (77.5)	NR	Fair
Issing/2000/Germany	103	57	86 (83.4)	ESKA-Herrmann (55) / PRO (48)	NR	NR	Fair
Koscielny/2000/Germany	45	NR	NR	PRO 2 (108) / PRO (69)	NR	^(3-63)	Fair
SEBOVA/1997/Germany& Solvakia	130	^^59.5	127 (97.6)	PRO (130)	121 (93)	NR	Fair
Maddalena/1992/Germany	44	55.4	44 (100)	ESKA-Herrmann (44)	NR	6	Good
Herrmann/1984/Germany	34	NR	NR	BS (34)	13 (38.2)	NR	Poor
Mastronikolis/2008/Greece	12	^^64	12 (100)	PRO 2 (12)	11 (91.6)	NR	Good
Krishnamurthy/2018/India	60	56	56 (93.3)	PRO (60) / PRO 2 (60)	48 (80)	36	Good
Shekaraiah/2018/India	10	^(45-75)	10 (100)	BS (10)	NR	NR	*(Unclear risk)
Chaturvedi/2014/India	58	56	NR	PRO (58)	51 (87.9)	NR	Fair
Suhail Sayed/2013/India	35	60 ^ (37-82)	33 (94.2)	PRO 2 (30) / PRO (5)	NR	NR	Fair
Ramalingam/2007/India	41	48	39 (95)	PRO (21) / BS (20)	35 (85.4)	^(6-18)	Fair
Ramalingam/2006/India	41	NR	NR	PRO (21) / BS (20)	NR	NR	Fair
Agarwell/2006/India	25	NR	24 (96)	PRO (20) / PRO 2 (6) / BS (3)	NR	NR	Fair
K.nayak/2001/India	17	NR	NR	PRO (17) / PRO 2 (17)	NR	NR	Fair
GRILLO/2017/Italy	28	58.5	25 (89.2)	PRO (28)	6 (21.4)	60	Good
COCUZZA/2016/Italy	54	67.19	49 (90.7)	PRO Vega (54)	13 (24)	NR	Good
Giordano/2011/Italy	42	68.5 (4.8)	39 (92.8)	PRO 2 (24)	NR	NR	Fair
Schuldt/2010/Italy	91	NR	NR	ESKA-Herrmann (225) / PRO (20) / PRO 2 (83)	NR	127	Poor
Serra/2009/Italy	40	^^64	38 (95)	PRO (36)	NR	NR	Fair

Schindler/2005/Italy	12	70	12 (100)	BS (12)	NR	NR	Fair
Miani/1998/Italy	12	68	12 (100)	Staffieri (6) / PRO (6)	NR	NR	Poor
Kojima /2014/Japan	22	^(54-83)	19 (86.3)	PRO 2 (22)	NR	NR	Fair
Terada /2012/Japan	40	NR	NR	PRO 2 (40)	NR	NR	Poor
Attieh/2008/ Jordan	12	61.5	12 (100)	BS (12)	NR	NR	Fair
Terada/2007/Japan	32	64.6	32 (100)	PRO 2 (32)	23 (71.8)	NR	Fair
Furuta/2005/Japan	8	33.5	6 (75)	GRO (8)	NR	NR	Poor
Iwai/2003/Japan	20	NR	NR	GRO (20)	2 (10)	NR	Fair
Petersen/2019/Netherlands	232	64 (10.8)	185 (79.7)	PRO 2 (232) / PRO Vega (232)	220 (94.8)	NR	Good
Atos Medical/2010/Netherlands	20	66	18 (90)	PRO XtraHME (20)	20 (100)	NR	Fair
Free/2014/Netherlands	138	68	123 (89.1)	LR-GRO (138) / PRO 2 (138)	64 (46.4)	NR	Fair
Hilgers/2013/Netherlands	47	64.7 (11.9)	39 (82.9)	PRO Vega (47)	20 (42.5)	NR	Fair
Kalkeren/2013/Netherlands	14	66	NR	PRO Hands-free HME (7) / iValve prototype (7)	NR	NR	*(Unclear risk)
Dirven/2012/Netherlands	24	NR	NR	PRO Freehands HME (14) / PRO Freehands HME + ENB (14)	NR	1	*(Low risk)
Hilgers/2012/Netherlands	64	65.3	62 (95.3)	PRO 2 (32) / PRO Vega (15) / PRO ActiValve (15) /Others (2)	NR	NR	Good
Harms/2011/Netherlands	80	NR	NR	GULR (80) PRO 2 (80)	NR	45	*(Unclear risk)

Scheenstra/2011/Netherlands	D1: 10 D2: 13	D1: 69.3 (7.2) D2: 64 (9.8)	D1: 10 (100) D2: 12 (92.3)	D1: PRO HME/Stomvent HME (10) / D2: R- plus HME (13) / D1: R/L-plus HME (10) / D2: L-plus HME (13)	D1: NR D2: 10 (100)	D1: NR D2: 1.5	*(Unclear risk)
Dirven/2010/Netherlands	9	70	9 (100)	PRO HME (3) / HME (9)	8 (88.9)	NR	Fair
Hilgers/2010/Netherlands	31	66.35	30 (96.7)	PRO Vega (31)	28 (90.3)	0.58	Fair
Zuur/2009/Netherlands	10	63.6 (8.7)	9 (90)	PRO HME (6) / PRO without HME (4)	NR	6	*(Low risk)
Soolsma/2008/Netherlands	42	65.1	35 (83.3)	PRO ActiValve (42)	38 (90.4)	7.6	Fair
Zuur/2008/Netherlands	10	64.4 (9.8)	NA	PRO HME (10) / PRO without HME (10)	NR	6	*(Low risk)
Tack/2008/Netherlands	17	65.1	0 (0)	GULR (17)	17 (100)	NR	*(Unclear risk)
Buijssen/2007/Netherlands	34	NR	NR	PRO 2 (26) / GULR (8)	NR	NR	Poor
Hilgers/2006/Netherlands	11	60.5	10 (90.9)	PRO (11)	9 (81.8)	NR	Poor
Jongmans/2006/Netherlands	11	66.9	11 (100)	PRO (11)	10 (90.9)	NR	Good
Schwandt/2006/Netherlands	45	NR	NR	PRO 2 (45)	NR		Poor
Schwandt/2006/Netherlands	45	NR	NR	PRO 2 (45)	NR	NR	Fair
Torn/2006/Netherlands	40	69	11 (55)	GULR (20) / SPVP (20)	8 (40)	NR	*(Unclear risk)
COUL/2005/Netherlands	80	65	71 (89.8)	PRO Free HME (80)	75 (94.9)	6	Poor
Eerenstein/2003/Netherlands	69	NR	NR	VoiceMaster (69)	NR	NR	Fair
Hilgers/2003/Netherlands	13	65	12 (92.3)	PRO ActiValve (13)	8 (61.5)	NR	Fair
Hilgers/2003/Netherlands	20	62	15 (75)	PRO Hands-free HME (15) / PRO HME (15) / BS (12)	19 (95)	^(5–14)	*(Unclear risk)
Elving/2002/Netherlands	101	63	87 (86.1)	GRO (101)	101 (100)	^(1-106)	Good

Torn/2001/Netherlands	6	63.8 (10.6)	1 (16.7)	LR-GRO (3) / SPVP (3)	3 (50)	NR	*(Unclear risk)
Coul/2000/Netherlands	318	61.9	261 (82)	PRO (188) / PRO 2 (54) / GRO (76)	281 (88.3)	NR	Fair
Leunisse/2000/Netherlands	102	61.5	85 (83.3)	GRO (102)	96 (94.1)	26	Good
Ackerstaff/1999/Netherlands	239	65.3	204 (85.4)	PRO 2 (239)	217 (90.8)	^(1-16)	Good
Eerenstein/1999/Netherlands	183	64.6	24 (77.4)	PRO (173) / Others (10)	NR	40	Fair
Emmanuel/1999/Netherlands	18	NR	NR	GULR with chemisorbed PA (9) / GULR without chemisorbed PA (9)	NR	0.5 & 2	*(Unclear risk)
Ackerstaff/1998/Netherlands	69	62	59 (85.5)	PRO (68)	NR	NR	Fair
Chung/1998/Netherlands	15	59.3 (13)	12 (80)	LR-GRO (8) / PRO (7)	NR	1 & 3	*(Unclear risk)
Hoogen/1998/Netherlands	65	NR	NR	PRO (31) / LR-GRO (21) / NYD (13)	NR	1, 4, 10	*(Unclear risk)
Van As/1998/Netherlands	41	62	41 (100)	PRO (21) / Control (20)	NR	48	Fair
Hilgers/1997/Netherlands	44	65	35 (79.5)	PRO (44)	NR	NR	Poor
Weissenbruch/1997/Netherlands	55	61.5 (24.5)	50 (90.9)	PRO (55)	NR	6	Fair
Hilgers/1996/Netherlands	19	60	13 (68.4)	PRO Stomafilter HME (19)	NR	45.6	Fair
Hoogen/1996/ Netherlands	220	NR	NR	GRO (220) / NYD (220) / PRO (220)	NR	NR	Fair
Hoogen/1996/Netherlands	30	^(40-73)	24 (80)	BS (30) / GRO (14) / PRO (6) / NYD (10)	NR	6	Poor
Everaert /1996/Netherlands	7	NR	NR	GRO (7) / GULR (7)	NR	1	Fair
Hoogen/1996/Netherlands	158	NR	NR	PRO (NR) / LR-GRO (NR) / NYD (NR)	NR	30	*(Unclear risk)
Grolman/1995/Netherlands	18	56.5	NR	BS (18)	NR	NR	Fair
Ackerstaff/1993/Netherlands	61	66 (0.5)	54 (88.5)	PRO HME (37) / Control (24)	NR	0 & 3	*(Unclear risk)
HILGERS/1993/Netherlands	132	2	106 (80.3)	PRO (132)	111 (84)	NR	Fair

Bijl/1992/Netherlands	32	^^64	32 (100)	GRO (32)	NR	NR	*(Low risk)
Lith-Bijl/1992/Netherlands	32	64	32 (100)	LR-GRO (16) / SGB (16)	NR	6	*(Unclear risk)
Hjroosingh/1991/Netherlands	86	60.5	79 (91.8)	GRO (86)	86 (100)	^(6-60)	Fair
Manni/1990/Netherlands	132	61	121 (91.6)	GRO (132)	34 (25.7)	NR	Fair
Mahieu/1986/Netherlands	10	NR	NR	GRO (10)	10 (100)	NR	Poor
Mahieu/1986/Netherlands	10	NR	NR	GRO (10)	10 (100)	NR	Poor
Manni/1985/Netherlands	34	NR	NR	GRO (34)	NR	NR	Fair
Manni/1984/Netherlands	22	61	NR	Customized VPs (22)	NR	NR	Fair
Hall/2009/Norway	40	NR	40 (100)	BS (40)	NR	NR	Poor
Awan/2005/Pakistan	35	35	35 (100)	BS (35)	NR	11 ^ (2-18)	Fair
Nowicka/2012/Poland	42	62.1	36 (85.7)	PRO 2 (42)	NR	30	Fair
Wierzchowska M/2011/Poland	76	56.6	69 (90.7)	PRO 2 (76)	NR	NR	Poor
Bien/2010/Poland	80	62 (7)	68 (85)	PRO HME (40) / PRO without HME (40)	60 (75)	1 & 3	*(Unclear risk)
Okła/2006/Poland	106	60.4	91 (85.8)	PRO 2 (106)	85 (80.1)	20.5	Fair
Vlantis/2003/South Africa	17	62.6	15 (88.2)	PRO 2 (17)	NR	NR	Fair
Mayo-Yáñez/2018/Spain	34	61.18 (8.29)	NR	PRO 2 (34) / PRO Vega (34)	NR	NR	Fair
Herranz/2013/Spain	45	60.2 (9.4)	42 (93.3)	PRO HME (41) / PRO XtraHME (40)	NR	3	*(Unclear risk)
Sarrias/2013/Spain	115	NR	107 (93)	PRO HME (115)	NR	17	Fair
Poggioli/2007/Spain	96	59	89 (92.7)	PRO (81) / BS (7) / Herrmann (7) / GRO (1)	7 (7.2)	NR	Fair
Ramírez /2001/Spain	350	57.5	350 (100)	Herrmann (350)	2 (0.57)	NR	Fair
Sandberg/1992/Sweden	35	NR	NR	BS (13) / PRO (5)	NR	NR	Poor

Hotz/2002/Switzerland	87	62	82 (94.2)	PRO (87) / PRO 2 (87)	66 (75.9)	NR	Fair
Sirin/2015/Turkey	34	58.55	32 (94.1)	PRO (34)	11 (32.3)	NR	Fair
Yenigun/2015/Turkey	27	63 (8.9)	NR	PRO (27)	NR	60.3	Good
Sword/2014/Turkey	210	58 (11.9)	180 (85.7)	PRO 2 (210)	NR	NR	Good
Polat/2014/Turkey	34	59.6 (6.3)	34 (100)	PRO (34)	20 (58.8)	NR	Good
Topalo/2010/Turkey	61	NR	61 (100)	PRO (33) / VoiceMaster (18) / BS (10)	16 (23.8)	NR	Fair
Akbay/2003/Turkey	187	63.7	184 (98.3)	BS (187)	NR	62	Fair
Coffey/2018/UK	41	NR	35 (85.3)	PRO NID (41) / PRO Vega (41) / BS Duckbill (41) / BS Low Pressure (41) / BS Classic Indwelling (41) / BS Advantage (41)	37 (90.2)	NR	Good
KERR/2013/UK	51	64 ^{(38-74)}	44 (86.2)	BS (51)	NR	132	Fair
Kazi/2007/UK	51	65 ^{(40-85)}	37 (72.5)	BS (46) / PRO (5)	44 (86.3)	NR	Fair
Kazi/2007/UK	78	40.9 (13.5)	54 (69.2)	BS (47) / Normal (31)	25 (53.1)	NR	Good
HAMADE /2006/UK	4	^{(27-73)}	4 (100)	PRO Freehands HME (4)	3 (75)	NR	Fair
Rokade/2003/UK	2	72	1 (100)	PRO 2 (2)	1 (50)	11, 8	Good
CARPENTIER/1996/UK	42	58.6	NR	PRO (42)	18 (42)	NR	Fair
CALLANAN/1995/UK	28	63.2 (8.3)	24 (85.7)	PRO (24)	NR	^{(0.16-25.7)}	Fair
Panarese/1994/UK	9	63	5 (55.56)	PRO (9)	6 (66.67)	^{(3-23)}	Good
Prichard/1994/UK	65	61	49 (75)	PRO (9)	61 (93.8)	26.35	Good
Palmer/1993/UK	16	NR	NR	BS (65)	NR	NR	Fair

Parker/1992/UK	22	60	22 (100)	BS (16)	NR	22 ^{(2-41)}	Fair
Perry/1988/UK	166	64	134 (80.7)	GRO (22)	NR	NR	Fair
Brownlee/2018/USA	14	64	10 (71.4)	BS (14)	NR	NR	Good
Starmer/2017/USA	6	65 ^{(56-76)}	NR	TEVPI (6)	NR	NR	Fair
Gavriel D./2016/USA	5	30.2	4 (80)	PRO 2 (3) / BS (2) / PRO Vega (1)	NR	NR	Fair
Thylur/2016/USA	21	64	17 (80.9)	PRO 2 (21) / PRO Vega (21)	17 (80.9)	NR	Good
Damrose/2014/USA	34	65.9	27 (79.4)	BSTPS (34)	29 (85.2)	NR	Fair
Lewin/2014/USA	186	59 ^{(33-86)}	152 (81.7)	HTEPP (34)	162 (87)	72	Good
Lewin/2012/USA	21	60 ^{(51-87)}	18 (85.7)	Customized VP (21)	19 (90.4)	NR	Fair
Graville/2011/USA	11	64.3	10 (90.9)	PRO ActiValve (11)	11 (100)	30.45	Fair
Moreno/2010/USA	21	66 ^{(49-84)}	16 (76.1)	PRO HME (21)	15 (71.4)	^{(10-56)}	Good
Deschler/2009/USA	30	NR	26 (86.6)	BS (30)	29 (96.6)	NR	Good
Gerwin/2005/USA	16	^{58.2}	14 (87.5)	BS (16)	NR	NR	Fair
Leder/2005/USA	42	^{(36.8-86.6)}	29 (69)	BS indwelling (42) / BS Advantage (42)	NR	NR	Fair
Ackerstaff/2003/ USA	64	66	62 (76.5)	BS (42)	63 (98.4)	3.5	Fair
Deschler/1999/USA	11	NR	10 (90.9)	BS (11)	11 (100)	NR	Fair
Graville/1999/USA	30	NR	NR	BS (11)	NR	NR	Fair
Leder/1997/USA	81	^{(44-92)}	65 (80.2)	BS (81)	81 (100)	NR	Fair
Michelle/1997/USA	21	59.5	17 (80.9)	PRO (21)	11 (52.3)	10.8 ^{(2-17)}	Fair
Blom/1995/USA	29	59.9 (11.2)	19 (65.5)	PRO (21)	NR	0.75, 6, 12	*(Unclear risk)

Doherty/1994/USA	11	61.5 ^ (51.5-73)	10 (90.9)	BS after neurectomy + myotomy (10) / BS+ neurectomy (9) / BS+ myotomy (10)	11 (100)	NR	Fair
Trudeau/1991/USA	108	NR	NR	BS	35 (32.4)	NR	Fair
Mickel/1987/USA	104	NR	NR	BS (104)	83 (79.8)	NR	Fair
Pretsfelder/1985/USA	12	^(40-76)	NR	BS (12)	NR	NR	Poor
Wetmore/1985/USA	66	NR	NR	BS (12)	NR	NR	Fair
Stuart/1983/USA	14	NR	NR	BS (66)	NR	NR	*(Unclear risk)
MAVES/1982/USA	11	NR	9 (81.8)	BS (8) Panje (6)	6 (54.5)	NR	Fair
GLUCKMAN/1981/USA	23	^(51-77)	17 (73.9)	Panje (6) BS (4)	11 (50)	NR	Fair
PANJE/1981/USA	24	^(42-67)	21 (87.5)	BS (23)	20 (83.3)	NR	Fair
WETMORE /1981/USA	18	NR	17 (94.4)	BS (18)	12 (66.6)	^(2-11)	Fair
Wetmore/1981/USA	63	NR	NR	BS (63)	NR	^(1-12)	Fair
Rood/1981/USA	30	^(44-77)	19 (63.3)	BS (63)	NR	NR	Fair
Johns/1981/USA	26	NR	NR	BS (30)	NR	NR	Poor

Abbreviations: PRO, Provox; GRO, Groningen; LR-GRO, Groningen low resistance; GULR, Groningen Ultra Low Resistance; NYD, Nijdam; BS, Blom-Singer; VP, voice prostheses; HME, heat moisture exchanger; ENB, external neck brace; SPVP, sound producing voice prosthesis; SGB, standard Groningen Button; TEVPI, Tracheoesophageal voice prosthesis insufflator; PA, perfluoro-alkylsiloxane; BSTPS, Blom-Singer Tracheoesophageal Puncture Set; SD, Standard deviation; NR, Not reported; D, dataset, ^ range, ^^ median; * = randomized controlled trials, its quality assessment by ROB Cochrane tool.