S1: Characteristics of the publications fulfilling the inclusion criteria and analysed in Network meta-analysis (NMA) and/or descriptively

Legend:
*: information obtained from the authors of the publication on request;
not available: parameter not assessed / no further dates of outcome assessment;
n.i.: no information available on request
n.r.: no restriction reported

Ausenda et al., 2019	Not included in NMA
Study design	**Arms**: 2 parallel **Blinding**: Examiners blinded **Standardized instruction of the technique**: n.i. **Calibration of examiners**: yes*
Participants	**Sample size**: N=48 **Gender**: equally distributed (p=.25) **Age**: ≥ 18 years **Educational level**: n.r. **Dental education**: n.r. **General health status**: n.r. **Smoking status**: non-smokers **Dental status and/or periodontal status**: ≥ 20 teeth; cervical bleeding ≥ 20%; healthy cervical periodontal condition (PPD ≤ 3mm)
Interventions (n included/completed)	**Control:** no specific technique (24/24) **Intervention:** Bass technique (24/21) **Professional tooth cleaning:** no **Referral of the instruction to original publication of the technique**: refers to Bass (1954) **Instruction describes the technique applied like the original**: no*
Provided devices	Toothbrush (Oral B Indiator Soft); toothpaste (Crest Pro Health)*
Provided instructions	<u>**All groups:**</u> Brushing twice/day 2 minutes <u>**Intervention group:**</u> Additional instruction with respect to brushing technique **Mode**: written and oral **Frequency**: 3x at baseline (T1); 4 weeks (T2) and 12 weeks (T3) **Provider/qualification**: n.i. **Instruction for application at home**: no
Outcome parameters	**Primary (plaque after toothbrushing):** not available* **Secondary (Gingivitis):** (modified) GI*
Outcome dates	**Primary (last date of outcome assessment):** 12 weeks after intervention (T3) **Secondary (first date of outcome assessment):** not applicable (instruction at each time point) Other:4 weeks after intervention (T2)

Ceyhan et al., 2018	Not included in NMA
Study design	**Arms**: 2 parallel **Blinding**: examiners blinded* **Standardized instruction of the technique**: n.i. **Calibration of examiners**: n.i.
Participants	**Sample size**: N=163 **Gender**: 78 female/ 85 male **Age**: 5-6 years

	Educational level: preschool children **Dental education**: no **General health status**: no systemic disease; no mental or physical disabilities **Smoking status**: not applicable **Dental status and/or periodontal status**: no oral soft tissue pathology
Interventions (n included/completed)	**1st preschool** **Intervention 1**: horizontal scrubbing (17/17) **Intervention 2**: Fones (21/21) **2st preschool** **Intervention 1**: horizontal scrubbing (22/22) **Intervention 2**: Fones (25/25) **3st preschool** **Intervention 1**: horizontal scrubbing (39/39) **Intervention 2**: Fones (39/39) **Professional tooth cleaning:** no **Referral of the instruction to original publication of the technique**: no reference for either technique **Instruction describes the technique applied like the original**: n.i.
Provided devices	Toothbrush and toothpaste appropriate for this age group
Provided instructions	**All groups:** Brushing twice/day **Intervention groups:** Additional instruction with respect to respective brushing technique **Mode**: via hands-on; interactive oral and dental health education session on models accompanied by powerpoint-presentation 1st preschool: Educational toothbrushing card for the children 2st preschool: oral and dental health education lecture for parents 3st preschool: awarding card at subsequent follow up **Frequency**: 1x at baseline (T1) **Provider/qualification**: n.i. **Instruction for application at home**: no
Outcome parameters	**Primary (plaque after toothbrushing):** PI **Secondary (Gingivitis):** not available
Outcome dates:	**Primary (last date of outcome assessment):** not available (n.i. whether plaque was assessed after toothbrushing at T2-T5) **Secondary (first date of outcome assessment):** T1
Deinzer et al. (2016)	Included in NMA
Study design	**Arms**: 3 parallel **Blinding**: examiners blinded, participants blinded to hypotheses **Standardized instruction of the technique**: yes **Calibration of examiners**: yes
Participants	**Sample size**: N=93 (n=92 received allocated intervention) **Gender**: 58 female/ 34 male **Age**: 30-82 years, mean 59.3 **Educational level**: good language knowledge **Dental education**: no **General health status**: no physical, mental disabilities that influence oral hygiene **Smoking status**: n.r. **Dental status and/or periodontal status**: no dental or periodontal treatment needed; ≥ 4 sufficient crowns; ≥ 4 natural teeth
Interventions (n included/completed)	**Control:** no specific technique (30/25) **Intervention 1**: Fones (32/27) **Intervention 2**: modified Bass (31/27)

	Professional tooth cleaning: yes – prior to intervention
	Referral of the instruction to original publication of the technique: Bass: refers to Bass (1954) but is described as in Katz (1972); Fones: refers to Fones (1921)
	Instruction describes the technique applied like the original: Bass: in analogy to Katz (1972); Fones: in analogy to Fones (1921; description differs with respect to inner surfaces)
Provided devices	toothbrush (elmex® interX); toothpaste; floss (elmex®), superfloss (meridol) interdental brushes (elmex®)
Provided instructions	**All groups:** computer-based training in basics of toothbrushing **Intervention groups:** additional slides with instruction with respect to the respective brushing technique **Mode**: computer-based training (powerpoint slides); patients worked through the presentations alone in their own pace **Frequency**: 1x between baseline (T1) and six weeks (T2) **Provider/qualification**: brushing was assessed by a dentist immediately after instruction; reinstructions were given when necessary **Instruction for application at home**: leaflet with the basics of tooth brushing <u>for all groups</u> and respective additional information for intervention groups
Outcome parameters	**Primary (plaque after toothbrushing):** MPI (included in NMA); TQHI **Secondary (Gingivitis):** not available
Outcome dates:	**Primary (last date of outcome assessment):** 12 weeks after intervention (T3) **Secondary (first date of outcome assessment):** 6 weeks after intervention (T2) Other: not available

Dosumu et al., 2019	Not included in NMA
Study design	**Arms**: 2 parallel **Blinding**: examiners blinded **Standardized instruction of the technique**: n.i. **Calibration of examiners**: yes
Participants	**Sample size**: N=50 **Gender:** male:female ratio 2:3 **Age**: mean 23.1 **Educational level**: students (university admission) **Dental education**: (preclinical) dental students **General health status**: n.r. **Smoking status**: n.r. **Dental status and/or periodontal status**: ≥ 6 natural teeth/quadrant, no dentures or other dental prostheses; no teeth crowding teeth in good alignment; no periodontal disease
Interventions (n included/completed)	**Control:** no specific technique (25/25) **Intervention**: modified Bass technique (25/25) **Professional tooth cleaning:** yes – prior intervention **Referral of the instruction to original publication of the technique**: no **Instruction describes the technique applied like the original**: n.i.
Provided devices	toothbrush (medium); fluoridated toothpaste
Provided instructions	**All groups:** Brushing twice/day (before breakfast; after dinner) 5 minutes **Intervention group:** additional instruction with respect to brushing technique **Mode:** video and dental model; hands on **Frequency**: 1x at baseline (T1) **Provider/qualification**: n.i.

	Instruction for application at home: no
Outcome parameters	**Primary (plaque after toothbrushing):** n.i. whether plaque was assessed after toothbrushing **Secondary (Gingivitis):** BOP
Outcome dates	**Primary (last date of outcome assessment):** 28 days (T3) **Secondary (first date of outcome assessment):** 7 days (T2) Other: not available

Harnacke et al. (2012)	Included in NMA
Study design	**Arms**: 3 parallel **Blinding**: examiners blinded, participants blinded to hypotheses **Standardized instruction of the technique**: yes **Calibration of examiners**: yes
Participants	**Sample size**: N=67 (n=64 received allocated intervention) **Gender**: 44 female/ 12 male **Age**: mean 23.2 **Educational level**: students (university admission) **Dental education**: no **General health status**: no physical, mental disabilities that influence oral hygiene; no serious disease* **Smoking status**: non-smokers **Dental status and/or periodontal status**: ≥ 20 natural teeth; ≥ 10 teeth showing plaque or bleeding
Interventions (n included/completed)	**Control:** no specific technique (23/19) **Intervention 1**: Fones (22/19) **Intervention 2**: modified Bass (22/18) **Professional tooth cleaning:** yes – prior to intervention **Referral of the instruction to original publication of the technique**: Bass: refers to Hellwege (2003) and APA; Fones: refers to APA **Instruction describes the technique applied like the original**: Bass: in analogy to Katz (1972); Fones: in analogy to Fones (1921; description differs with respect to inner surfaces)
Provided devices	toothbrush (elmex® interX); toothpaste (elmex®); floss (elmex® waxed and unwaxed)
Provided instructions	<u>**All groups:**</u> computer-based training in basics of toothbrushing; video instruction "how to floss" <u>**Intervention groups:**</u> additional slides with instruction with respect to the respective brushing technique **Mode**: computer-based training (powerpoint slides and video instruction); patients worked through the presentations alone in their own pace **Frequency**: 1x between baseline (T1) and six weeks (T2) **Provider/qualification**: brushing was assessed by a dentist immediately after instruction; reinstructions were given when necessary **Instruction for application at home**: leaflet with the basics of tooth brushing <u>for all groups</u> and respective additional information for intervention groups
Outcome parameters	Primary (Plaque): MPI (included in NMA); TQHI **Secondary (Gingivitis):** PBI
Outcome dates	**Primary (last date of outcome assessment):** 28 weeks after intervention (T4) **Secondary (first date of outcome assessment):** 6 weeks after intervention (T2) Other: 12 weeks after intervention (T3)

Harnacke et al. (2016)	Included in NMA
Study design	**Arms**: 3 parallel **Blinding**: examiners blinded, participants blinded to hypotheses **Standardized instruction of the technique**: yes

	Calibration of examiners: yes
Participants	**Sample size**: N=70 (n=69 received allocated intervention) **Gender**: 45 female/ 25 male **Age**: 18-19 years old **Educational level**: n.r. **Dental education**: no **General health status**: no physical, mental disabilities that influence oral hygiene; no serious disease* **Smoking status**: n.r. **Dental status and/or periodontal status**: n.r.
Interventions (n included/completed)	**Control**: no specific technique (23/23) **Intervention 1**: Fones (23/23) **Intervention 2**: modified Bass (24/23) **Professional tooth cleaning:** yes – prior to intervention **Referral of the instruction to original publication of the technique**: no **Instruction describes the technique applied like the original**: no description but refers to Harnacke et al. (2012)
Provided devices	toothbrush (elmex® interX); toothpaste (elmex®); floss (elmex® waxed and unwaxed)
Provided instructions	**All groups:** computer-based training in basics of toothbrushing **Intervention groups:** additional slides with instruction with respect to the respective brushing technique **Mode**: computer-based training (powerpoint slides); patients worked through the presentations alone in their own pace **Frequency**: 1x between baseline (T1) and six weeks (T2) **Provider/qualification**: brushing was assessed by a dentist immediately after instruction; reinstructions were given when necessary **Instruction for application at home**: leaflet with the basics of tooth brushing for all groups and respective additional information for intervention groups
Outcome parameters	Primary (Plaque): MPI **Secondary (Gingivitis):** BOP
Outcome dates	**Primary (last date of outcome assessment):** 28 weeks after intervention (T4) **Secondary (first date of outcome assessment):** 6 weeks after intervention (T2) Other: 12 weeks after intervention (T3)

Janakiram et al., 2020	Not included in NMA
Study design	**Arms**: 2 parallel **Blinding**: examiners blinded **Standardized instruction of the technique**: n.i. **Calibration of examiners**: yes
Participants	**Sample size**: N=120 **Gender**: 66.6% female **Age**: 18-30 years; mean 22.0 **Educational level**: students (university admission) **Dental education**: dental students **General health status**: n:r. **Smoking status**: non-smokers **Dental status and/or periodontal status**: ≥ 20 teeth; mild to moderate gingivitis; no history of periodontal therapy or disease
Interventions (n included/completed)	**Control:** no specific technique (40/40) **Intervention 1**: Fones (40/40) **Intervention 2**: modified Bass (40/38) **Professional tooth cleaning:** no

	Referral of the instruction to original publication of the technique: no **Instruction describes the technique applied like the original**: modified Bass: in analogy to Katz (1972); Fones: in analogy to Fones (1921) *Note: instruction not described in the paper but in the clinical trials registry form*
Provided devices	toothbrush (standard, soft bristled); toothpaste (Colgate Total® Advanced Health)
Provided instructions	**All groups:** Instruction: brushing twice a day using toothbrush and toothpaste <u>Intervention groups</u> **Mode:** computer-based training (powerpoint slides and videos); demonstration on study models; **Frequency**: 4x at baseline (T1), 24h (T2), one week (T3) and four weeks (T4) **Provider/qualification**: brushing technique was performed in the presence of the trial coordinator during each visit **Instruction for application at home**: leaflet describing respective brushing technique
Outcome parameters	**Primary (plaque after toothbrushing):** n.i. whether plaque was assessed after toothbrushing **Secondary (Gingivitis):** GI
Outcome dates	**Primary (last date of outcome assessment):** not applicable (instruction at each time point) **Secondary (first date of outcome assessment):** 4 weeks after intervention (T4) (additional instructions and assessments 24h and 1 week after intervention)
Kanchanakamol et al., 1993	Not included in NMA
Study design	**Arms**: 4 parallel **Blinding**: n.i. **Standardized instruction of the technique**: n.i. **Calibration of examiners**: yes
Participants	**Sample size**: N=100 (n=92 received allocated intervention) **Gender:** n.i. **Age**: 21-22 years **Educational level**: soldiers of Air Base **Dental education**: no **General health status:** n.r. **Smoking status**: n.r. **Dental status and/or periodontal status**: no dental or mucosal disease; teeth in good alignment
Interventions (n included/completed)	**Intervention 1**: Roll technique (standard toothbrush) (25/23) **Intervention 2**: Bass technique (standard toothbrush) (25/23) **Intervention 3**: Roll technique (Concept 45° toothbrush) (25/23) **Intervention 4:** Bass technique (Concept 45° toothbrush) (25/23) **Professional tooth cleaning:** dental scaling (by dental students) prior intervention **Referral of the instruction to original publication of the technique**: Roll technique: refers to Hansen & Giermo (1971; the cited paper does not describe a roll technique); Bass: refers to Bass (1954) **Instruction describes the technique applied like the original**: Roll: see above; Bass: in analogy to Bass (1954)
Provided devices	Standard toothbrush; Concept 45° toothbrush
Provided instructions	**All groups:** Brushing twice/day 2 minutes **Intervention groups:** Oral hygiene instruction with respect to the respective brushing technique **Mode:** instruction in small groups for 2h **Frequency**: 1x at baseline (T1) **Provider/qualification**: n.i. **Instruction for application at home**: no

Outcome parameters	**Primary (plaque after toothbrushing):** modified Navy Plaque Index **Secondary (Gingivitis):** not available
Outcome dates:	**Primary (last date of outcome assessment):** 2 weeks after intervention (T2) **Secondary (first date of outcome assessment):** not applicable (identical to T2) Other: not available

Sarvia et al., 1989	Not included in NMA
Study design	**Arms**: 4 parallel **Blinding**: n.i. **Standardized instruction of the technique**: n.i. **Calibration of examiners**: n.i.
Participants	**Sample size**: N=64 **Gender:** 36 female/ 28 male **Age**: 4-12 years **Educational level**: (pre)school children **Dental education**: no **General health status:** no mental retardation / no physical condition compromising perceptual or motor functioning S**moking status**: n.r. **Dental status and/or periodontal status**: no caries
Interventions (n included/completed)	**Control 1:** no specific technique (17/17) **Control 2:** no specific technique plus incentive (14/14) **Intervention 1:** horizontal scrubbing (15/15) **Intervention 2:** horizontal scrubbing plus incentive (18/18) **Professional tooth cleaning:** no **Referral of the instruction to original publication of the technique**: no **Instruction describes the technique applied like the original**: not applicable
Provided devices	Toothbrush
Provided instructions	Control groups: no instruction **Intervention groups:** instruction in horizontal scrubbing Mode: Individual instruction **Frequency**: 1x at baseline (T1) **Provider/qualification**: n.i. **Instruction for application at home**: no
Outcome parameters	**Primary (plaque after toothbrushing):** Plaque (n.i. about the index) **Secondary (Gingivitis):** not available
Outcome dates	**Primary (last date of outcome assessment):** 1 week after intervention (T2) **Secondary (first date of outcome assessment):** not applicable (identical to T2) Other: not available

Schlueter et al., 2013	Included in NMA
Study design	**Arms**: 3 parallel **Blinding**: examiner 1 (plaque assessment) not blinded; examiner 2 (video recording) blinded **Standardized instruction of the technique**: yes **Calibration of examiners**: yes
Participants	**Sample size**: N=98 **Gender**: not reported **Age**: mean 26.6 **Educational level**: students (university admission) **Dental education**: no

	General health status: no physical, mental disabilities that influence oral hygiene; no serious disease*
	Smoking status: n.r.
	Dental status and/or periodontal status: ≥ 24 teeth; no serious periodontitis no multiple recessions (1/3 of root lengths)
Interventions (n included/completed)	**Control:** no specific technique (33/27)
	Intervention 1: modified Bass (leaflet) (32/24)
	Intervention 2: modified Bass (demonstration) (33/26)
	Professional tooth cleaning: yes – prior intervention
	Referral of the instruction to original publication of the technique: no
	Instruction describes the technique applied like the original: modified Bass: in analogy to Katz (1972; the authors instructed 3-5 jiggling and wiping cycles per area*)
Provided devices	toothbrush (elmex® interX)
Provided instructions	**Control group:**
	Instruction 4 weeks after last visit: verbal instruction
	Intervention groups:
	Mode:
	Intervention 1: verbal instruction and a leaflet containing major steps the technique and brushing sequence
	Intervention 2: verbal instruction supported by demonstration with a model
	Frequency: 2x at baseline (T1) and 2 weeks (T2)
	Provider/qualification: a dentist trained and reevaluated participants' technique during the study
	Instruction for application at home: no
Outcome parameters	Primary (Plaque): TQHI
	Secondary (Gingivitis): not available
Outcome dates	**Primary (last date of outcome assessment):** 4 weeks after intervention (T3)
	Secondary (first date of outcome assessment): 2 weeks after intervention (T2)
	Other: not available
Schmalz et al., 2018	Included in NMA
Study design	**Arms**: 6 parallel (2 arms relevant for review)
	Blinding: examiner blinded
	Standardized instruction of the technique: n.i.
	Calibration of examiners: yes
Participants	**Sample size**: N=50 (n=48 received allocated intervention)
	Gender: 39 female/ 9 male
	Age: 18-30 years; mean 23.7
	Educational level: students (university admission)
	Dental education: no
	General health status: no physical, mental disabilities that influence oral hygiene; no serious disease
	Smoking status: n.r.
	Dental status and/or periodontal status: ≥ 20 teeth; healthy oral condition (PSI ≤ 2)
Interventions (n included/completed)	**Control:** no specific technique (24/22)
	Intervention: Fones (24/22)
	Professional tooth cleaning: yes – prior intervention
	Referral of the instruction to original publication of the technique: no
	Instruction describes the technique applied like the original: in analogy to Fones (1921; description differs with respect to inner surfaces)
Provided devices	toothbrush (elmex® interX); toothpaste (Sensodyne)
Provided instructions	**All groups:**

	Brushing twice/day 2-3 minutes
	Intervention group:
	additional instruction with respect to brushing technique
	Mode: oral instruction and demonstration on model and hands on*
	Frequency: 1x at baseline (T1)
	Provider/qualification: dentist
	Instruction for application at home: no
Outcome parameters	**Primary (plaque after toothbrushing):** not available
	Secondary (Gingivitis): GI (included in NMA); PBI
Outcome dates	**Primary (last date of outcome assessment):** 12 weeks after intervention (T3)
	Secondary (first date of outcome assessment): 2 weeks after intervention (T1)
	Other: 4 weeks after intervention (T2)

Smutkeeree et al., 2011	Included in NMA
Study design	**Arms**: 2 parallel
	Blinding: n.i.
	Standardized instruction of the technique: n.i.
	Calibration of examiners: n.i.
Participants	**Sample size**: N=60 (n=57 received allocated intervention)
	Gender: 26 female/ 34 male
	Age: 10 – 12 years; mean 11.0
	Educational level: school children
	Dental education: no
	General health status: visually impaired otherwise healthy children
	Smoking status: n.r.
	Dental status and/or periodontal status: ≥ 4 teeth/quadrant; periodontal healthy condition
Interventions (n included/completed)	**Intervention 1**: modified Bass (28/28)
	Intervention 2: horizontal scrubbing (29/29)
	Professional tooth cleaning: no
	Referral of the instruction to original publication of the technique: no
	Instruction describes the technique applied like the original: n.i.
Provided devices	Toothbrush (soft, round-end bristles, straight angled (Berman Plus Child))
Provided instructions	**All groups:**
	Brushing twice/day (morning and before bedtime) 2 minutes
	Intervention groups:
	additional instruction with respect to the respective brushing technique
	Mode: individually verbal and tactile
	Frequency: 1x at baseline (T1)
	Provider/qualification: n.i.
	Instruction for application at home: no
Outcome parameters	**Primary (plaque after toothbrushing):** n.i. whether plaque was assessed after toothbrushing
	Secondary (Gingivitis): GI
Outcome dates	**Primary (last date of outcome assessment):** 6 months after intervention (T3)
	Secondary (first date of outcome assessment): 1 month after intervention (T2)
	Other: not available

Zhang et al., 2005	Not included in NMA
Study design	**Arms**: 2 crossover (each technique in counterbalanced order)
	Blinding: examiner blinded
	Standardized instruction of the technique: n.i.
	Calibration of examiners: n.i.

Participants	**Sample size**: N=40 **Gender:** 27 female/ 13 male **Age**: 18-35 years **Educational level**: students (university admission) **Dental education**: no **General health status:** no systemic diseases **Smoking status**: n.r. **Dental status and/or periodontal status**: ≥ 24 teeth in good alignment; no or only marginal gingivitis and no periodontitis, no denture or cervical fillings
Interventions (n included/completed)	**Intervention 1:** modified Bass (40) **Intervention 2**: vertical brushing (40) **Professional tooth cleaning:** yes – before the instruction of the respective technique (day 0 and day 14) **Referral of the instruction to original publication of the technique**: Bass: refers to Bass (1948); vertical brushing: no **Instruction describes the technique applied like the original**: n.i.
Provided devices	Toothbrush (crest flat head soft bristle); toothpaste (fluoridated)
Provided instructions	**Intervention groups:** Instruction with respect to the respective brushing technique **Mode:** individual instruction on the model and practice with further help **Frequency**: days 1-4: 2x/day instruction and correction of brushing by assistant with 1st technique; days 15-19: 2x/day instruction and correction of brushing by assistant with 2nd technique **Provider/qualification**: study assistant **Instruction for application at home**: no
Outcome parameters	**Primary (plaque after toothbrushing):** Modified Benson Proximal Marginal Index **Secondary (Gingivitis):** not available
Outcome dates	**Primary (last date of outcome assessment):** day 6 (T1) and day 20 (T2) **Secondary (first date of outcome assessment):** not available Other: not available